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JULY 2015

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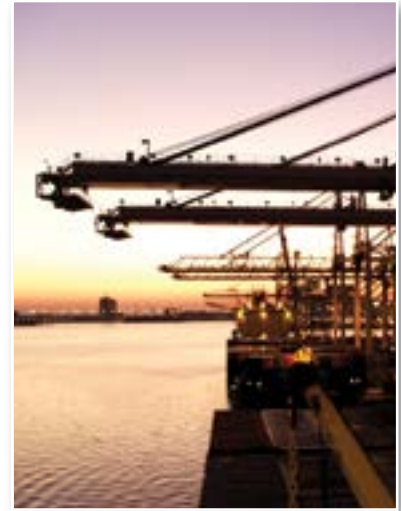
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EDITOR'S COMMENT



> In South Africa, but also elsewhere in the world, the practice where payment for construction projects is withheld from contractors due to employer budget constraints (the pay-when-paid practice); the link to performance; and only upon completion of a project (or even only until after disputes have been resolved) will soon come to an end.

The Construction Industry Development Board's (cidb) *Prompt Payment Regulations and Adjudication Standard* appeared in the Government Gazette on 29 May and is open for discussion for the next 60 days. These regulations will dramatically change the way in which the South African construction industry operates.

The underlying reason for these regulations is to ensure that there is positive cash flow in the industry – this will obviously be beneficial for much needed infrastructure development. Without these regulations, and in the current status quo, contractors often end up financing projects. Or worse still: late payment has caused the demise of many companies – or led to severe financial constraints.

These regulations legislate a standard set of payment provisions and introduce adjudication as a first step of dispute resolution – within 28 days (which may only be extended by 14 days – and only in certain circumstances). These regulations will only be applicable to the public and private sectors: home building contracts (protected by the Housing Consumer Protection Act of 1998) are excluded.

In summary, these regulations seek to: (i) put an end to the 'pay-when-paid' practice, (ii) enforce regular payments within a certain time frame, (iii) allow for the suspension of construction activities if there is payment

default, (iv) stop the practice whereby clients can withhold payments, (v) allow the charging of interest on late payment and (vi) allow a rapid and mandatory form of dispute resolution with a specified timeframe.

Wilhelm du Plessis
Editor
@ConstWorldSA



Sustainable supplement

Construction World will be publishing its first supplement for sustainable construction – *Sustainable Construction World* – in October this year. It will have the same circulation as the main magazine and also the same target audience. This is the ideal opportunity to publicise excellence in sustainability: projects, new products, equipment and techniques. Contact me directly should you wish to discuss editorial contributions.

It is also the ideal vehicle to reach the target audience that will use these very products, services and equipment. For advertising enquiries contact Erna Oosthuizen, our advertising manager, whose contact details are elsewhere on this page.

The deadline for advertising bookings is 31 July 2015.

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ARCHITECTS leave a legacy at awards

University of Johannesburg student, Harold Johnson, is Corobrik's 28th Architectural Student of the Year. Apart from the accolade of being recognised as one of South Africa's best up and coming professionals in his field, Johnson took home a prize of R50 000.



Corobrik managing director Dirk Meyer said that the Corobrik Architectural Student of the Year Award was created to promote

design excellence, to acknowledge and reward talent among graduating architectural students.

Winning thesis

This year's awarding winning thesis was entitled *The 'Dark' City: Critical Interventions in Urban Despair*.

When asked what inspired his thesis, Johnson replied that he was bored with polite, predictable student projects. "I wanted to set my own brief where I could explore the limits of architects' skills and their training. From this, I was driven to challenge the normative student project convention of: 'Problem-then-a-Solution' (the building usually being the solution) and the tendency to design finite, jewel-like end-products. I asked myself: what if a project could potentially have multiple manifestations/outcomes? And presented a detailed process of thinking, making, seeing and inventing that accrues over time?"

He said that he wanted to do a project in the inner-city as typical architectural projects were usually within/on an open or clear site and are therefore safer and less challenging. "I was aware that inner-city development, in Johannesburg, was largely outsourced (by the city) to the private sector – so I wanted to know what happens when the city abandons its buildings and people."

Johnson said he believed that his project demonstrated the ability of architects to re-frame and redefine any scenario/structure/environment.

Professor Lesley Lokko, who supervised Johnson's thesis, said that this project showed a determination to get as far under the skin of any given situation to be able to understand it properly, deeply and without compromise.

"Although his thesis is very firmly rooted in South Africa – and in Johannesburg in particular – his critique can be said to be global. The architectural profession is moving in so many different ways, encompassing so many different fields from engineering to disaster relief, from project management to project co-ordination, from urban to intimate, from socially-responsible

design to high finance and sustainable materials, that it is almost impossible to train an architect to do everything," she added.

Commendation for excellence

A commendation for excellence in architecture was awarded to Walter Raubenheimer from the University of Pretoria for his thesis *Redefining Industry: Architecture as a constructive extraction*.

Commendations for Excellence in Architecture are given for exceptional projects that the juror panel considers able to compete on a world stage. "The juror panel deemed Raubenheimer's thesis project exemplary given the comprehensiveness and completeness of the investigation, as well as the maturity, confidence and skill evident in the architectural resolution of the buildings and the urban design framework for the precinct," said Meyer.

Raubenheimer extended the sustainability of the project making use of waste material on the site for the manufacture of bricks that were incorporated into the architecture. He said that the birth of this dissertation was rooted in a personal fascination with the industrial archetype which has developed over time from crude mechanistic structures into refined, sophisticated edifices of technological and structural ingenuity.

In general

Looking back over the work submitted by all of the finalists, Meyer said that what came through with 'the school of 2014' was the contribution that architecture could make to uplifting marginalised societies, regenerating disused sites, the adaptive reuse or extension of use of the existing to advance the value of the built environment in eco-conscious ways.

He said that through effectively 'recy-

cling' old buildings and disused sites, some of the students were looking at the issue of legacy in a whole new way. He said that this came at a particularly important time when South Africans were questioning the legacy left behind in the form of inner city buildings, historical sites and artefacts.

The various theses reviewed suggested that the legacy embedded in the built environment was not static. Instead, they actively explored the possibility that this could be re-invented or updated in order to not only address mounting social needs and differing world views but also adding a whole new sustainability dynamic. Meyer pointed out that, while it is accepted that architecture is very much about legacy, the students' work was strongly influenced by the sustainability imperative with different amounts of emphasis placed on key social, economic and environmental aspects.

Imaginatively and thoughtfully recreating the existing built environment and dilapidated structures and spaces not only means that precious resources can be conserved but that space constraints within cities that are increasingly under pressure due to relentless urbanisation can be addressed economically without contributing to urban sprawl. Key to creating, leaving and reviving a legacy in the built environment was the use choice and use of different building materials, he said.

He added that, from a specification perspective, it was apparent that students grasped the fundamental value that different materials brought to architecture. He said that the students clearly gave considerable thought to how to use common materials in innovative and modern ways.

"Imaginative intellectual approaches were evident in the architectural resolutions of all the projects. All of the top students from the eight participating universities are clearly on top of their design game's and ready to make a positive contribution to tomorrow's architecture and our built environment," he said.

This year's judges were Karuni Naidoo of CNN Architects in Durban, Chris Wilkinson of Chris Wilkinson Architects in Tshwane and Malcolm Campbell of ACG Architects in Cape Town. <

LEFT: University of Johannesburg student, Harold Johnson, is Corobrik's 28th Architectural Student of the Year. RIGHT: A commendation for excellence in architecture was awarded to Walter Raubenheimer from the University of Pretoria.





Pictured at the 28th Corobrik Architectural Student of the year event: Back row (from left): Dirk Meyer, Corobrik managing director; Graeme Noeth – Tshwane University of Technology; Simon Henstra – University of Cape Town; Walter Raubenheimer – University of Pretoria; the winner Harold Johnson – University of Johannesburg and Musa Shangase – Corobrik commercial director. Front row: Bridget Stevens – University of KwaZulu-Natal; Marius du Plessis – University of the Free State; Alexandra Wilmot Nelson – Mandela Metropolitan University and Sarah de Villiers – University of Witwatersrand.

INSURING AGAINST FAULTY CONCRETE

A specialist indemnity insurance policy has recently been introduced to insure readymix concrete suppliers against claims arising by clients or third parties in the event of concrete failures.

➤ Removing and replacing concrete that has already cured or partially cured, is a risk facing any concrete supplier who through one mistake may lose millions of rands or even their business depending on the size of the pour and resilience of the company.

In a progressive move to protect both the customer and readymix supplier, the Southern Africa Readymix Association (Sarma), has recently worked with insurance role players

to provide specialist indemnity insurance that provides both parties with peace of mind in the event of concrete failure. The policy is only available to Sarma members and is offered by construction insurance specialists, CivilSure.

Unforeseen failures

Although concrete failures can occur as a result of unforeseen circumstances, underwriters of the policy are satisfied that strict quality standards applied to Sarma members which are audited annually, and the generally high standard of Sarma compliance is sufficient reason to provide this type of insurance to Sarma members only.

"If for example a person orders concrete suitable for building a swimming pool, but when it cures is found to be unsuitable, then the insurance will kick in and pay for the repair or removal of the failed concrete and pay for the replacement of a new structure if required. The policy therefore provides recourse for the user, who will have their pool structure repaired or replaced, as well as providing the supplier with a means of guaranteeing their work

"The policy will pay out up to R10-million in the event that the professional member of Sarma undertook their duties in accordance with the prescribed best practices as outlined by Sarma. Claims for injury or damage will also be covered and additional extensions may be made to cover the readymix plant's actual equipment against breakdowns, as well as certain legal defences and consequential loss etc," says CivilSure's Dan Payton.



Dan Payton of CivilSure.

More cover

Additional fleet insurance packages are also being made available to Sarma members. "These are specialised readymix concrete related insurance products that are made possible through the high standards upheld by Sarma members, as well as economies of scale as a result of Sarma's large membership.

"This type of cover has been very difficult to obtain and not affordable, however the insurance company has seen that the codes of conduct of Sarma warrant that this cover can be provided at a reasonable premium due."

Johan van Wyk, general manager of Sarma, concludes the insurance policies should provide suppliers and buyers alike with peace of mind to know that they are covered in the event of something going wrong between the stages of procurement, delivery and curing of the concrete. It is another reason why users should specify concrete only from Sarma accredited members. ■



SHORTAGE OF SKILLS IN PAINT INDUSTRY

Prominent Paints, a fully integrated member of PPG and a leading paint manufacturer in South Africa, is addressing the skills shortage within the local paint industry through its Training Academy. Since its inception almost 35 years ago, the academy has invested in the training of almost 12 000 learners, a number the group is committed to growing.



> A free service – anyone from paint contractors, artisans, and entrepreneurs, to home owners, and DIY enthusiasts – can register for the product knowledge and basic paint technology courses that span a full day. Once learners have completed these introductory courses, they are free to enrol for a more comprehensive online eLearning course. A certificated course – learners only receive their accreditation from Prominent Paints once they have completed and successfully passed the eLearning module.

According to technical services consultant at Prominent Paints, Herman Rabe, the courses are both theoretical and practical and the introductory modules cover everything from

the paint make up, to calculating the Dry Film Thickness (DFT) and the influence the Micro and Macro climates will have on paint when applied. The fundamentals of surface preparation are covered extensively, as is choosing the right paint system for various substrates.

“Our courses run once a month from the Prominent Paints head office in Alberton. Not wanting to limit training to one province, on request, our trainers will travel to any other region or even African country to deliver this sought after service,” says Rabe.

“At Prominent Paints, we feel that DIY should be about more than just paint – it is about responsible and strong leadership, innovative paint solutions, real partnerships and a passion for doing the right thing and our corporate responsibility projects must mirror this,” adds Rabe. “With so much more than just colour to consider when searching for a paint solution, we believe in investing in the artisans and individuals who are going to be choosing and using our products.

“As a manufacturer and marketer of paint products that adhere to international best practices and actively promote the drive towards environmental sustainability, Prominent Paints is a brand with substance and our corporate responsibility projects must mirror this,” concludes Rabe.

Anyone interested in this free service offered by the Prominent Paints Training Academy should contact the customer care department on 0861 77 66 46. Alternatively email: academy@prominentpaints.co.za

Prominent Paints was established in 1981 and celebrated its 30 years of manufacturing in SA in 2011. Prominent Paints is a proud member of the Green Building Council of South Africa (GBCSA) and from an ecological perspective, its paint is lead free, complies to, and even exceeds the standards set by the GBCSA.

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A DECADE IN TANZANIA

UWP Consulting (Tanzania) opened its doors as a partnership between Tanzanian professionals and South African engineering consulting practice UWP Consulting a decade ago.

> The Tanzanian business has successfully completed roads and water projects valued at more than USD10-million, with structures and capacity building assignments further expanding its portfolio in the last few years. UWP Consulting (Tanzania) was registered as a local engineering consulting firm in May 2005, with five local professionals holding 51% of the shares and UWP Holdings 49%.

The company was started after Henry Catma, an engineer based in Dar es Salaam, responded to UWP’s search for an individual or small company to form a joint venture in Tanzania. The timing was particularly good as Catma and four other Tanzanian professionals were in the initial stages of establishing a local company called Tangroup Professionals (TANPROL).

“It was easy to integrate TANPROL with UWP SA to form UWP Consulting (Tanzania) since both were targeting the same markets,” says Catma,

who has served as managing director of the company from its inception.

The other founding shareholders in the company are not involved in the day-to-day operations.

For several months Catma was the only full-time employee in the fledgling Tanzanian business, but the first major breakthrough came in 2006 when three municipal road upgrading projects were awarded in succession and two more engineers joined the firm. Today UWP Consulting (Tanzania) has a staff complement of 20, including six professional engineers, and has successfully completed numerous projects alone and in joint venture with UWP SA.

Notable awards include the design of the 65 km Tanga-Horohoro and 78 km Peramiho-Mbinga roads, and supervision of the high profile Lower Ruvu Water Treatment Plant providing potable water to Dar es Salaam.

The company is looking to increase its client base by exploring opportunities in the private sector, in mining and through joint ventures with other professional firms in airport, railway and harbour projects.

“We are also hoping to implement a strong succession plan by employing young professionals, providing training and giving them the opportunity to acquire shares. This is a continuous process which began in 2014 when our first young professionals acquired a shareholding in UWP Consulting (Tanzania).”

Henry Catma, managing director of UWP Consulting (Tanzania).



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Call for aggregate STANDARDISATION

Aggregate grading specifications are being reviewed by representative bodies in order to move the construction industry in Southern Africa towards tighter specifications that can be uniformly adopted by all sectors.

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> At the helm of the review process is the Aggregate and Sand Producers Association of Southern Africa (Aspasa) which is seeking a common grading system to be used across the board when ordering or specifying aggregates for any purposes. At present buyers can quote either SANS, or the dated TMH or other specifications when ordering materials leading to some confusion among suppliers and users alike.

“We have been approached by the country’s major users of aggregates including roads agencies, metropolitan and smaller municipalities, as well as major consulting engineering firms to move the industry

towards a common standard. Aggregates make up by far the largest component of materials used (by volume) for any standard-type of construction project. It is used to make concrete, build paved roads and to stabilise ground etc.

Widely varying methods

“But different professions have adopted their own standards and this leads to problems wherever projects overlap or where responsibility for projects is shared among companies who use different standards.

In other instances it may disadvantage suppliers who produce products in accord-

ance with opposing standards and have equipment geared to producing aggregate products to these standards. In the past aggregate suppliers have supplied aggregates to a certain specification yet their products have been rejected at great cost and we want to avoid this where possible,” says Nico Pienaar, director of Aspasa.

Speaking at a specially convened workshop of Aspasa, civil engineer Jacques Smith of GoConsult says that formalisation is required and that appropriate tests and training needs to be developed to ensure these can be accepted and implemented across the board.

Consistency is needed

“Sampling methods need to be agreed upon and best practice should dictate that all sampling be done in collaboration between the supplier and parties responsible for specifying the materials. With the right processes and procedures in place it becomes easier to comply with clients requirements and also to keep record of what was supplied.”

Pienaar says laboratories also have a role to play and will need to work according to strict criteria laid out in the specifications to test materials. The adoption of uniform standards is the only surefire way of ensuring consistent quality of materials are produced to meet increasingly stringent requirements for building materials. The association is investigating the use of a neutral professional laboratory that will be used in the event of disputes arising to ensure fairness.

“We therefore urge all professional bodies in all industries including consulting engineers, civil engineering contractors, civil engineers, architects and specifiers to make their voices heard and to support Aspasa in its attempts to bring about constant improvement in the supply of aggregates,” he concludes. <



Nico Pienaar of Aspasa.



Jacques Smith of GoConsult.

SEVENTH PMR AWARD

Ocon Brick were awarded their seventh PMR Gold Arrow Award for superior service within the brick supplier category at a banquet in Johannesburg during April 2015.

> Regional sales manager for Ocon Brick, Mariana Lamont commented: "We at Ocon Brick pride ourselves on 'going the extra mile' to ensure that the requirements of our customers within the construction industry are serviced in the most professional, ethical and reliable manner and that our manufacturing and service delivery operations are competitive and of a superior standard. This is what our reputation has been built upon over the years, and receiving this seventh PMR Award is testament to our efforts – we are exceptionally delighted to receive this recognition from PMR".

Albert Weber, managing director of the Infrastructure Specialists Group (IS Group), Ocon Brick's holding company, said: "One of Ocon Brick's strengths is our high manufacturing capability enabling us to meet our client requirements. We have a great team at Ocon Brick who have put in a great deal of effort and focus in order to achieve this seventh PMR Award. An interesting point is that these PMR Awards are awarded from a national survey, and we have consistently been chosen as supplier of choice even though we are only based in Gauteng. That is quite a coup."

This 2015 PMR Gold Arrow Award is a reflection of Ocon Bricks' excellence in product range and quality, reputation management, pricing, environmentally friendly solutions, sustainable development practices, reliable delivery and customer service.

"Our sales and marketing teams in conjunction with our operational personnel are the real engine-rooms behind this seventh PMR Award. It is their efforts and dedication that has enabled Ocon Brick to continue on its award-winning pathway. This PMR Gold Arrow Award is a tribute to them and their quest for impeccable service delivery," added Lamont.

The annual PMR Awards aim to enhance excellence and set benchmarks in different industries. The awards are a culmination of independent research undertaken via a random sample of industry retailers and construction company representatives into the performance of brick manufacturers and suppliers of formwork and scaffolding. ■

Ocon Brick is one of South Africa's largest clay brick manufacturers, their clay stock bricks are well recognised in the market for consistency in longevity, durability, quality and shape. Ocon Brick have recently been commissioned for projects such as Kusile Power Station; the Standard Bank building in Rosebank; upmarket townhouse and office park developments in Rivonia, north of Johannesburg; Cradlestone Mall, north-west of Johannesburg and student accommodation developments in Doornfontein, central Johannesburg.

Ocon Brick regional sales manager, Mariana Lamont.



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ESCO Corporation, a global leader in mining, oil and gas, construction and industrial equipment, has announced the creation of the ESCO® Empowerment Trust in South Africa. This follows the conclusion of a Broad-Based Black Economic Empowerment (BBBEE) transaction, which resulted in a new equity structure for ESCO's South African business operations.

> "We are committed to servicing our South African customers in the most sustainable way possible and this certification helps us to bridge the socio-economic divide in this important mining region," Philippe Kaskarian, managing director for ESCO Africa, says. "ESCO is encouraging diversity while we partner with other BBBEE-certified companies, create new jobs and train local people in new skills."

The ESCO Empowerment Trust will hold a 25,1% stake in ESCO's South African operating company, which enables ESCO to achieve the requisite level of BBBEE ownership under the South African Mining Charter. ESCO's Level 5 BBBEE status was independently audited by Empowerdex, a leading government-accredited economic empowerment verification agency.

The ESCO Empowerment Trust will participate and engage in meaningful projects in the mining sector that will benefit both its local customer base as well as previously disadvantaged communities.

The trust will furthermore strengthen ESCO's relationships with its customers and suppliers across its mining footprint specifically within

the Kathu, Postmasburg, Middelburg and Moko-pane regions.

"ESCO is committed to South Africa's transformation – an initiative that aligns directly with the company's global efforts toward social, environmental and economic sustainability," Jeff Kershaw, president of ESCO's Mining Division, says. "We are proud of our BBBEE certification, but our work is not done. We continue to look for new ways to contribute to South African transformation. By identifying areas of skills shortages and facilitating the implementation of training programmes that address these needs, we not only benefit the individuals in these communities, but the positive knock-on effect for our customers is improved productivity and uptime."

In support of ESCO's SEE (Social, Environmental and Economic) initiative, the company is committed to providing positive input into the communities in which its employees work and live. This local initiative mirrors the global strategy to engage in philanthropic programmes to raise funds for localised charities, facilitate employee and family volunteerism and support schools in the communities surrounding its sites. ■

From left: Tim Myers, president of ESCO's Construction & Industrial Division; Miro Potparic, general manager for ESCO supply & service; Sareetha Dookhi, ESCO accountant and a trustee for the ESCO Empowerment Trust; Samkelisiwe Hlope-Shabangu, trustee for the ESCO Empowerment Trust; Mark Cele, HR manager and a trustee for the ESCO Empowerment Trust; Morgan Pillay, ESCO supply chain planner; Jeff Kershaw, president of ESCO's Mining Division; Nehemiah Dumane Sibeko, trustee for the ESCO Empowerment Trust and Philippe Kaskarian, managing director for ESCO Africa, gather to sign trust documents at ESCO Johannesburg.

About ESCO® Corporation

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FORUM LEADER'S OTHER ROLE

Bongani Malaza, the newly elected president of the MBA North Youth Forum, is a man who holds a key position in a totally female-owned family business.

> Malaza, 32, is corporate affairs manager of Ubuhlebethu Business Enterprise, a 100% black female-owned construction company that won the 2012 'Gauteng Province Govan Mbeki Woman Construction Company of the Year' award. A Level 3 BBBEE contributor operating primarily in Gauteng, Free State, Mpumalanga, Limpopo and North West

Province, Ubuhlebethu has grown steadily over the years and has an overall turnover of over R200-million, and is now one of very few 100% black female-owned companies to have gained a high-level Construction Industry Development Board (cidb) grading.

Projects already handled by Ubuhlebethu include the award-winning Kwa Thema 370 low-income housing project, 117 double-storey houses at the Inxiweni Residential Project, Prasa's Kwaggastroom railway station, a community health centre in Tweefontein Mpumalanga, Wilberforce College, a football of

hope centre in Alexandra for FIFA, the renovation of Prasa's Shosholozza Meyl Junction Office, and renovations of the Malapalama combined school and Marelang Primary School. The company is currently launching various property developments in Clayville and Heidelberg.

Ubuhlebethu is a Zulu word meaning 'our beauty'. The company is a member of MBA North. MBA North Youth Forum president, Malaza, joined Ubuhlebethu in 2009. He is a qualified Chartered Secretary and holds a B Com financial accounting degree. Prior to joining his present employer, he was managing member of a construction company, Bokgore Construction, in Mulbarton.

He has served on the SA Forum of Civil Engineering Contractors (SAFCEC) transformation committee, the Construction Industry Development Board (cidb) Gauteng Contractor Development Programme Forum, and the Construction Sector Charter Council's finance sub-committee as a representative for Khuthaza. ■

Dr Deon Landmann MBA North education, training & transformation manager; (left) Bongani Malaza and Lea Smith, immediate past president of MBA North.





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First held in 2002, *Construction World's* Best Projects showcases excellence in the South African building, civil engineering and project management sectors. 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.

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Civil Engineering Contractors

Prerequisites for entries

- Only South African construction and civil projects.
- 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 A1

- Construction innovation technology
- Corporate social investment
- Design innovation
- Environmental impact consideration
- Health and safety
- Quantifiable time, cost and quality
- Risk management



Building Contractors

Prerequisites for entries

- Only South African construction and civil projects.
- 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 A2

- Construction innovation technology
- Corporate social investment
- Design innovation
- Environmental impact consideration
- Health and safety
- Quantifiable time, cost and quality
- Risk management



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.

Criteria for category A3 (As per category A1 and A2)



Specialist Contractors or Suppliers

Prerequisites for entries

- Only South African construction and civil projects.
- 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

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.

Awards evening

The awards evening, in the form of a cocktail function, will be held on **Wednesday, 4 November 2015** at the Royal Johannesburg and Kensington Golf Club, Johannesburg.



Professional Services*

Prerequisites for entries

- Only South African construction and civil projects.
- 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 C

- Construction innovation technology
- Corporate social investment
- Design
- Environmental impact consideration
- Health and safety
- Quantifiable time cost and quality
- Risk management

*An award for both consulting engineering AND architects will be made.



Public Private Partnerships

Prerequisites for entries

- Only South African construction and civil projects
- 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 D

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

Submitting entries

- Each entry must be accompanied by the completed entry form; available on www.constructionworldmagazine.co.za or by requesting it from 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.
- The written submission must be accompanied by up to six high resolution photographs with applicable captions.
- 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.



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
- 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

Criteria for category D

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

Judging

A panel of independent judges from the construction industry has been appointed. They are Trueman Goba, chairman of Hatch Goba; Naude Klopper, former president of Building Industries Federation of SA; and Rob Newberry, managing director of Newberry Development (past president of the Chartered Institute of Building).

Each criterion as set out for the various categories will be scored out of 10. (10 being the highest score and one being the lowest). **It is VERY important that entries address the criteria for the particular category it is entering. Not every criterion may be applicable to the contract and obviously need not be addressed.**

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

Deadlines

Deadline for entries is **Friday, 11 September 2015** at 17:00.

Contact

For further information contact the editor, Wilhelm du Plessis on 011-622-4770 or constr@crowm.co.za

Main sponsor:





First Green Star SA rated OFFICE PRECINCT

Black River Park in Cape Town has become the first office precinct in South Africa to receive Green Building Council of South Africa (GBCSA) certified Green Star SA ratings for all its buildings.

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The eight buildings at Black River Park office precinct in Observatory, offering a combined 75 000 m² of office space, have earned unparalleled green building credentials. Besides being the first full office park to have all buildings Green Star SA rated, it is also home to the first Green Star SA Existing Building Performance (EBP) certified building and the first buildings to receive a 6 Star Green Star SA Existing Building Performance rating.

Brian Wilkinson, CEO of GBCSA, comments: "This is a major achievement, both for Black River Park and for GBCSA. Certifying all eight of Black River Park's existing buildings is quite a feat, especially for a precinct of this size. It is an exciting example of outstanding sustainable innovation, and confirms the vision of its management team and their outstanding commitment to sustainability."

He adds: "We would like to see more business parks following this leading example. All the buildings at Black River Park were certified using the EBP rating tool. The EBP tool means that South Africa's many existing buildings in established office parks can now be retrofitted with green innovations and certified. This has huge potential for positive impacts to our environment, our businesses and our economy." Nedbank Corporate Property Finance sponsored the EBP tool.

Black River Park is home to more than 110 companies, including the GBCSA's head office and South African Property Owners Association's Western Cape offices. It is now owned by JSE-listed Redefine Properties. Redefine acquired the landmark green office

precinct as part of its Leaf Capital deal earlier this year.

Redefine CEO, Andrew Konig, comments: "The Black River Park complex has set itself apart with pioneering green initiatives and sustainable building management. We are exceptionally pleased to acquire this property, which perfectly supports our commitment to sustainability."

The Black River Park buildings received maximum points on all credits targeted in their Green Star SA submissions. Three buildings received a 6-Star Green Star SA rating, three received 5-Star certifications and two earned 4-Star ratings.

Sally Mispion of Mispion Green Building Consulting, the Green Star Accredited Professional and principal participant in the green project team, guided Black River Park right from the very start in its certification project.

Some of the green initiatives undertaken by the office precinct to secure its ratings include:

- The largest roof-mounted photovoltaic system in Southern Africa.
- Feeding electricity back into the grid.
- A high-performance green cleaning programme.
- 68% of the tenants in the office park signed a Green Lease. These leases encourages collaboration and govern the relationship between the building owner and the tenant to manage and operate the building along environmentally sustainable principles, to the benefit of both.
- For comfort and well-being, the building features performance glass and balcony

overhangs, to reduce heat and shield harsh sunlight.

- All lights in common areas were replaced with LEDs, with owners and tenants both benefiting from cost savings achieved as a result. A financing option was also offered to tenants to enable them to retrofit to LED in their own premises.
- Indoor air quality testing and management.
- All 6 Star rated buildings stood out for water and energy performance. They outperformed the Green Star benchmarks and achieved significant improvement on their baselines.
- Sustainable management and operations that optimise the buildings' environmental performance.
- A green travel plan to encourage alternative modes of transport to and from work.
- Sustainable procurement and purchasing practices. For every product or consumable purchased by Black River Park, the most sustainable one is selected.
- All waste at the park is sorted into recyclable and non-recyclable materials. It also correctly disposes of fluorescent tubing, batteries and e-waste. Garden waste is recycled and reused as mulch.
- Ecological gardens, including a vegetable garden and fruit orchard, are maintained with borehole water pumped on site.

Perhaps some of the most exciting green innovations at Black River Park are those involving the park's tenants. These include holding a 'cycle to work' day, a clean-up of the Liesbeeck River that runs past the park and other activations with the precinct's tenant community. Numerous other presentations and showcase tours are held for



parties such as UCT, African Utility Week, Iziko museum and the like.

“It is wonderful to see an office park owner going above and beyond what’s required for certification,” says Wilkinson. “These initiatives encourage people to do more within green spaces and enjoy their many benefits. They bring sustainable environments to life and encourage the wider community to become an active part of the green building movement.”



DOUBLE COUP FOR V&A WATERFRONT

The Green Building Council of South Africa (GBCSA) has awarded both Victoria Wharf and the property’s BP Building 4-star ‘Existing Building’ ratings, reflecting the buildings’ high-level environmentally friendly and sustainable operating efficiency.

Victoria Wharf and the BP Building join the Silo District’s No. 1 Silo, which was awarded South Africa’s first ever 6-star ‘As Built’ rating last year, making the V&A Waterfront possibly the greenest precinct in Cape Town.

“Sustainability is an integral part of operations at the V&A Waterfront, and we are committed to leadership in sustainability practices in both our future and current development plans. We are thrilled with the addition of Victoria Wharf and the BP Building to our green-rated buildings because we believe it shows follow-through on our environmental promises, and our genuine commitment to leaving a sustainable legacy for future generations,” said David Green, CEO of the V&A Waterfront.

The V&A Waterfront’s Victoria Wharf, which houses the bulk of retail trade at the Waterfront in 70 000 m² of floor space, is the first shopping centre in South Africa to be awarded a

4-star green rating. Similarly, the 9 000 m² BP Building was the first commercial-scale office development in Cape Town that consciously encompassed green building principles in its design and construction. Both green-star ratings will be valid for three years before the GBCSA’s assessment must be repeated to ensure the sustainability practices have continued.

The GBCSA’s ratings are determined by a building’s performance in a nine categories: management, indoor environmental quality, energy, transport, water, materials, land use and ecology, emissions, and innovation. Each category is divided into credits, which address the initiatives put in place to improve a building’s environmental performance. Victoria Wharf achieved an outstanding 53 out of 59 potential points, leading to its 4-star rating. Not to be outdone, the BP Building received 45 out of 49 points, which also led to its new 4-star rating.

Green features in the buildings include drip

irrigation, lighting controls, electrical sub-metering, a high-performance chilled water plant, use of natural lighting, and, importantly, the introduction of a Green Lease Tenant Criteria Reference Manual, ensuring that not only are the buildings sustainable, but that their tenants enhance the eco-friendly environment.



NEW DEPUTY chairman for GBCSA

The Green Building Council South Africa (GBCSA) recently announced it has appointed Rudolf Pienaar as its deputy chairman.

Pienaar is a director of Growthpoint Properties, South Africa's largest JSE-listed REIT and a JSE ALSI 40 company, which has property assets valued at nearly R100-billion. Pienaar has been a member of the GBCSA board since 2010, chairs its marketing committee and sits on its exco.

The GBCSA was established in 2007 to promote green building development in the country. It is a member of the World Green Building Council (World GBC). Today, it is one of the most active councils worldwide.

Brian Wilkinson, CEO of the GBCSA, comments: "We'd like to congratulate Rudolf Pienaar on his appointment as the deputy chairman of the GBCSA board. Rudolf Pienaar has been a dedicated and active member of our board and is a committed advocate of green building practices – his appointment is richly deserved."

With 30 years' experience in the property industry, Pienaar has served in senior management positions of five listed property companies. He is a director of Growthpoint, Acucap and the V&A Waterfront. Pienaar also serves on the Advisory Board of the Department of Construction Economics at the University of Pretoria.

Pienaar has been among those at the forefront of South Africa's movement for a sustainable, green building environment since 2008 and is a champion of Growthpoint's green building leadership. Pienaar is director of the Growthpoint Office Division, which includes a significant R32-billion portfolio of offices. Growthpoint is a Platinum Founding Member of the GBCSA, a JSE Socially Responsible Investment (SRI) Index company and a Dow Jones Sustainability

Rudolf Pienaar, the GBCSA's recently appointed deputy chairman.



Index company. It is also a top performer in the CDP Climate Performance Index.

Growthpoint owns or co-owns the largest portfolio of green buildings of any company in South Africa. It co-sponsored the GBCSA's Energy and Water Benchmarking Tool and is taking part in the pilot programmes for the Green Star SA Existing Building Performance Tool and the Socio-Economic Category. It has also partnered with GBCSA for the Greenovate Awards pilot which encourages students of the built environment to find ways to live more sustainably and helps link environmental challenges to innovative thinking.

Commenting on his appointment, Pienaar says he is looking forward to the opportunity to foster a greater understanding of the benefits of green building for both the owners and the occupiers of properties.

"The property sector contributes 40% of emissions world-wide. This puts a huge responsibility on property practitioners to change this – and the time to change is now," says Pienaar. "Building by building we want to transform our properties so the people who use them can reach their maximum potential and businesses can thrive."

Green building is a win-win for building occupiers and owners. Green buildings are also good business. They provide lower total occupancy costs for tenants, are proven to

deliver higher returns for owners and are designed to have positive impacts on their surrounding communities and environment. Green buildings also have significant benefits for employee well-being and productivity.

Pienaar believes collaboration is the key to driving the green building movement forward.

This means building owners and occupiers coming together, buildings interacting positively with their communities, the collective benefits of green building structures and green interiors, and the entire property industry working together for a more sustainable built environment.

"Property is a highly competitive industry. Yet, when it comes to sustainability it is important that we continue to work together as peers in an open and collaborative way," says Pienaar. "This is an approach the GBCSA has nurtured and I would like to see it grow even more."

"We are a dedicated team of industry experts working in collaboration with industry bodies, leaders, government departments and professionals to develop market-based green solutions for the South African property industry. Rudolph is a valuable member of this team and will serve as an asset in his new role and assist us to continue doing what we do," Wilkinson concludes.

Pienaar adds, "By freely sharing information about both our success and failures we can drive green building forward with greater pace and results. Everybody wins." <

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GLOBAL HOLCIM AWARDS WINNERS FOR 2015

The winners of the 4th Global Holcim Awards for Sustainable Construction have been decided – the trophies and USD350 000 prize money go to projects in Colombia, Sri Lanka and the USA.

All three prizes recognise architectural interventions that deliver tangible benefits to local communities: Turning a decommissioned water reservoir into a park in Medellín, rebuilding social fabric through a community library in Ambepussa following Sri Lanka's civil war, and creating public zones and flood-protection for the island of Manhattan.

The USD2-million Holcim Awards is the most significant international competition for sustainable design and takes place every three years. The 4th cycle attracted more than 6 000 entries for projects to be built in 152

countries. A jury of international experts led by Mohsen Mostafavi, Dean of the Graduate School of Design (GSD) at Harvard University, USA selected the winners.

Global Holcim Awards Gold 2015

Articulated Site: Water reservoirs as public park, Medellín, Colombia.

Mario Camargo and Luis Tombé, Colectivo720, together with Juan Calle and Horacio Valencia, EPM Group (Empresas Públicas de Medellín), all from Colombia. <



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MEGA SETTLEMENT

in southern corridor

Vaal River City Development Company recently announced the launch of the Vaal River City Development. This R11-billion mega settlement on the Vaal River is one of five 'corridors' where housing and other economic development will be intensified.

> The Vaal River City Development Company is a special purpose vehicle established in 2008 by a BEE led consortium involved in property development and property holding. Headed up by Reggie Kukama, the company has established significant skills base in the areas of real estate development and investment.

There are five new economic corridors that have been initiated by the Gauteng Provincial Government and the private sector will invest multibillions into these new cities and mega settlements to ensure that these regions receive long overdue economic boost.

The new Vaal River City Development will see the regeneration of a key industrial node in the south of Gauteng which was once a thriving hub of the steel industry and burgeoning towns of Vanderbijlpark and Vereeniging.

The Vaal River City will be a blue print for future cities with visual and economic orientation towards and along both banks of the Vaal River. Offering a six kilometre river front expanse, Reggie Kukama, CEO of the Vaal River City Development Company said, "When we first viewed this unique site, it was our vision to provide a river city complex where the public will have access to magnificent water frontage amenities and enjoy an unparalleled lifestyle."

Ideal position

"Most major cities are on a river and this was a huge opportunity as most other waterways

Giuseppe Plumari (left), CEO of Steyn City Properties and Reggie Kukama, CEO of the Vaal River City Development Company.



in South Africa are privatised but this precinct model meant the general public would have greater accessibility," said Kukama. "Offering cycle tracks, pedestrian pathways, a Metropolitan bus system, civic centre, medical and educational facilities, this development will cater to a variety of individuals and the broader communities."

The BEE consortium bought the land from Steyn City Properties, who saw the potential in Kukama and his partners. Giuseppe Plumari has subsequently retained an interest and is a shareholder in the development company.

"We identified that the unique position of this land central to three urban centres and in the middle of a major route network, with waterfront accessibility is a prime location for development. It was a case of identifying a BEE consortium with the right vision and skills set that could deliver, and Kukama had these credentials.

"The new development company owns the land outright and has the commitment of government to partner with them towards contributing services and infrastructure. This new mega settlement is an excellent opportunity for investors who want to assist government in their development criteria for future generations," said Plumari.

The Vaal River City development company has engaged with government to transform this asset that will create a new economy for the people of Sedibeng. There has been a critical lack of investment in the area so private companies stepped up.

The development

A unique mixed use development, Vaal River City will house 400 000 m² of commercial office space, 60 000 m² retail and leisure component, 20 hectares of park areas including a bird sanctuary and 5000 residential units. The developers will issue notices for the basic services infrastructure which is scheduled to commence within 2015/2016 financial year.

The Vaal River City Development has been split between residential and commercial components. The residential section is envisaged to be about 20% to 25% of the development, while the commercial and retail segment will be 75% to 80% of the overall site.

The development is strategically and centrally located with access to key roads that link up to Sasolburg, Vanderbijlpark,

Vereeniging and other parts of the country. The development concept allows for the opportunity to integrate all these communities' development that caters for everybody including the two universities that are within the area.

The special integration will allow for areas that is very friendly for the population of the Vaal area and will have a Government Precinct that allows for a centralised servicing of the respective areas. The government precinct will have municipal offices, the court of law, government departments and other services to address various housing developments' needs.

A requisite of the southern corridor is that it must be environmentally sustainable and promote the creation of liveable cities.

Sustainability

Vaal River City will have green buildings that are designed and constructed to reduce the overall impact of the built environment on human health and the natural environment. They will be designed to efficiently use energy, water, and other natural resources, protect occupant health, improve employee productivity, and reduce pollution.

The Vaal River City Development company aims to incorporate energy-efficient heating, cooling, lighting, and water systems, including high-performance insulation, windows, doors, and appliances; sustainable construction materials such as those made from recycled and recyclable materials with reduced-emissions; and water-saving site design and landscaping.

This development will capture the historical legacy of South Africa, through cultural themes, historical artwork, cultural sites and architecture that represents this heritage. The unique location will offer a lifestyle experience near the water through bird parks, vast walkways and picnic spots accessible to all. It will bring a distinctive residential and commercial development, with road infrastructure and investment that will capture economic value and stimulate economic activity.

Architecturally speaking

Nishal Mistry, one of the DBM architects working on the project said that, "The architectural intent for the Vaal City Development is to create a thriving Metropolitan Centre with wholesome, safe, family orientated living that is properly integrated into the existing neighbouring communities.

"Provision has been made in the master planning throughout the commercial, civic, and residential precincts for social, recreational, play and private spaces with a special emphasis having been placed on the need for pedestrian access in connecting these elements – not just to each other, but also to



“This new mega settlement is an excellent opportunity for investors who want to assist government in their development criteria for future generations.”

the neighbouring communities. The architecture is intended to be uncluttered and contemporary with no unnecessary or gratuitous references to any particular regional style. Work precincts must be functional yet not sterile or devoid of social interaction; and equally residential precincts must be wholesome places where families can enjoy rich, colourful and interactive lives with each other.”

Social and economic impact

Premier Makhura stated that, “The provincial government and municipalities must do their part to ensure that the rebirth of Sedibeng into a new economic giant in the south of Gauteng succeeds. The private sector has also done a lot by catalysing this development of the Vaal River City using their own land and own resources. We must crowd in more private and public sector investment leveraging state-owned land – municipal, provincial and national government land.

“The era of random sale of government land must come to an end. We need to use our

own land strategically for industrial development and mega human settlements.”

The southern corridor will encompass the economy of the Sedibeng district and the creation of new industries, new economic nodes and emergent cities. To reignite the economy in southern Gauteng, the ‘Vaal River City Metro’ will capitalise on its potential for water-linked industries and transform itself into a logistics and heritage centre.

Shifting the economy of this corridor away from its overreliance on the steel industry, it will diversify to include entertainment and logistics and anchor itself around river tourism and agro processing.

To revive, modernise and re-industrialise the southern corridor and in order to build a seamlessly integrated, socially cohesive, economically inclusive City Region, the development of the new Vaal River City (hydropolis) aims to unlock the potential of the waterfront developments in the Emfuleni and Midvaal areas.

The establishment of the Greater Vaal

Metropolitan River City will have many benefits, including but not limited to: geographic consolidation of highly urbanised areas of rapid growth and development; large scale residential development projects; and mobility of people, goods and services into and out of the new metro.

Already the private sector is planning to invest more than R4-billion into this development, which will stimulate much needed economic activity in this corridor. The development is estimated to be worth between R7 and R11-billion, and will create up to 7 500 jobs in the construction phase alone.

The development promotes the linking of different main roads, particularly the intersection of the R59 and the R42 and resultantly promotes mixed-use high density development. The interchange at R59 and R42 will have a slipway into the development and promote the promoting high density development along the public road transport link.

Some R500-million is estimated for the bulk infrastructure which includes a new on-and off-ramp linking the R59 from Alberton into Sharpville for commuter ease, roads, water, and sewer pump station. <

MOODY'S UPGRADE

Growthpoint Properties' leading market position, strong balance sheet and its property portfolio's increased resilience and defensive nature have contributed to Moody's Investors Service upgrading Growthpoint Properties global scale issuer and senior unsecured ratings to Baa2/P-2 from Baa3/P-3, and its national scale issuer ratings to A1.za/P-1.za from A2.za/P-2.za.

> Moody's also upgraded Growthpoint's national scale senior unsecured Medium Term Note Programme (MTN) ratings to (P)A1.za/P-1.za from (P)A2.za/P-2.za.

The outlook on all ratings is stable, reflecting Moody's view that despite a weakening economic climate in South Africa, Growthpoint will continue to produce steady revenues and operating profits and will continue to maintain

TIGER BRANDS FOR RANGE INDUSTRIAL PARK

Growthpoint Properties' has concluded a deal with Tiger Brands milling logistics division to take up 4 600 m² of business space on a three-year lease within its new R55-million Range Industrial Park development in Blackheath, Cape Town.



Tiger Brands' new premises comprises a large warehouse, as well as 400 m² of offices, situated at this well located Growthpoint development.

Riaan Munnik, development manager at Growthpoint Properties, comments: "We are delighted to welcome Tiger Brands to its new premises. Its tenancy at Range Industrial Park supports its business operations and confirms Blackheath's status as a top business area."

With this transaction, Range Industrial Park is now 50% let. The remaining half of the development is ready for other leading businesses to occupy.

Engelbert Binedell, divisional director of the Industrial Sector for Growthpoint, believes the Range Industrial Park development correlates perfectly with Growthpoint's opportunistic approach to developments. "Blackheath is a growing node with increasing demand. We have taken a functional asset and bolted on a new development. The completed product has extracted underlying value," he adds.

This is exactly what Growthpoint has achieved by including features such as free-standing stacking height of six metres and a maximum stacking height of eight metres. Each warehouse unit has its own fully finished office component complete with dedicated entrance lobby and staff amenities which include toilets and showers. Range Industrial Park is a secure access-controlled environment.

Growthpoint also ensured the development is flexible and has the ability to customise premises to meet the unique requirements of a business. Munnik says: "As a leading company that strives for best practice, safety is an important issue for Tiger Brands. We have helped it reinforce its commitment to safety with some special features for its premises."

Munnik adds that, besides being a quality modern property that offers very affordable rental with modern office space, a big factor contributing to Range Industrial Park's appeal is its exceptional location.

"Another attractive feature of Range Industrial Park is that it includes opportunities for expansion, making it the ideal platform to support businesses along their growth journey," says Munnik.

Riaan Munnik, Growthpoint development manager, left, with At Sondag, Growthpoint Industrial portfolio manager at its new R55-million Range Industrial Park development in Blackheath, Cape Town.



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conservative credit metrics within its current rating guidance levels.

Gerald Völkel, Growthpoint Properties financial director, comments, "The upgrade of our investment-grade ratings from Moody's shows increased confidence in Growthpoint's core credit quality on a globally comparable basis for REITs and other commercial property firms. We are extremely pleased with our new rating."

Dirkje Bouma, Growthpoint Properties treasurer, adds, "Growthpoint's upgraded rating should favour our ability to raise funding and benefit our funding costs."

Dion Bate, Moody's vice president and senior analyst, explains "The upgrade recognises Growthpoint's sizable property portfolio – around ZAR95-billion post its Acucap acquisition – track record of sound liquidity management and strong financial metrics."

Growthpoint is a JSE ALSI Top 40 Index company. It owns and manages a diversified portfolio of 477 properties in South Africa, 51 properties in Australia through its investment in Growthpoint Properties Australia (GOZ) and a

50% interest in the properties at V&A Waterfront, Cape Town.

Moody's notes Growthpoint's Baa2/A1.za issuer ratings are supported by its strong market position as the largest REIT (Real Estate Investment Trust) company in South Africa. It adds that Growthpoint's recent Acucap acquisition further strengthens its portfolio quality, giving it increased exposure to the relatively resilient and defensive nature of the retail property sector.

Growthpoint's ratings are also based on its property portfolio's size and quality that benefits from an active internal management team and produces solid, recurring rental income. Its rental income is underpinned by medium to long-term leases, contractual annual rent escalation clauses above inflation, low vacancy rates, and diversification.

Völkel remarks, "Growthpoint benefits from significant access to capital from diverse sources, thanks to the strength of our balance sheet, our investment-grade credit rating, quality and diversity of our properties and clients, strong culture of good corporate governance,

respected and experienced management and our good track record of consistently delivering on our promises. We intend to sustain a strong balance sheet through conservative gearing and credit metrics that are well within covenants."

Gerald Völkel, Growthpoint Properties financial director.





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Founded in 1912, Fraser Alexander has grown from humble beginnings to become a key player in the South African mining industry and in selected global locations including sub-Saharan Africa, Australia and South America.

"We run a fleet of approximately 412 pieces of equipment, which includes such things as ADTs, front-end loaders and excavators. The very high exhaust gas temperatures and the long haul, have a harsh effect on the engine. We run Delo® across the board in all the engines," said Theo Wilcox, Technical Manager at Fraser Alexander.

After 21,000+ severe service hours using Delo® XLD Multigrade SAE 10W-40, Caltex and Fraser Alexander personnel agreed to inspect one of their Mercedes-Benz OM 906 LA engines from a Bell 20-ton articulated dump truck (ADT) used in coal hauling operations.



"We see excellent deposit control provided by Caltex Delo® XLD Multigrade SAE 10W-40 - free movement of the rings, for good sealing. Clean underside, for good heat transfer; and the crown land, the second land, and the third land are clean, as are the ring grooves. I've inspected all the contact surfaces of the valve train components, and wear is also well under control," said John Green - Chevron Technical Specialist.

Additionally, the team inspected the major cooling components of the Mercedes-Benz OM 906 LA engine that used Caltex Delo® XLC Coolant. Despite the harsh operating environment and hard water found in the operating area, the water pump impeller and pump housing showed no signs of cavitation or corrosion after 21,000+ hours of operation. The thermostat was clean and free of any visual silicate film or corrosion.



"We haven't found any signs of pitting of cylinder liners or buildup of scale or anything like that on the water pump or any of the other cooling components using the Caltex Extended Life Coolant," stated Wilcox.

"Having inspected the engine parts of the OM 906 LA diesel engine, we are confident to say it's the combination of the engine design and manufacturer, the maintenance practices of Fraser Alexander, and the performance of Delo® XLD Multigrade 10W-40 and Caltex Delo® XLC coolant that have enabled the customer to achieve maximum engine durability," said Green.

"We operate in a developing country with many challenges to the successful operation of a fleet of equipment, and I'm very pleased to say Delo® is not one of the things I have to worry about. I'm confident that Delo® helps our fleet of equipment go further," said Wilcox.

To learn how Delo®'s family of products can help you go further, visit CaltexDelo.com.



Connecting Rod Bearings
Connecting rod bearings exhibit minimal wear and are still usable after 21,000+ hours of operation using Delo® XLD SAE 10W-40.



Water Pump & Thermostats
Water Pump is in very good condition with no visible cavitation or corrosion. Thermostats have no deposit build up or film. Delo® XLC has provided excellent protection.



Top Deck
Very good condition with no visible sludge or deposits. Showcases the excellent soot handling control offered by Delo® XLD SAE 10W-40.



Delo

Let's go further.™





SEYCHELLES RESORT NEARING COMPLETION

Now in the final stages of completion, the luxury Eden Island resort development in Seychelles is an undisputed success which affirms the sustained, global appeal of the ultimate, idyllic tropical island lifestyle – and the uniqueness of this cosmopolitan, luxury playground.

➤ Situated just off the coast of Mahe – connected by bridge, reclamation work on this inspirational, man-made island began back in 2000, with construction of the residential units commencing in 2006 and completion of the first apartment in October 2007.

Says Chris Immelman, MD of Pam Golding Properties International and Projects Division, which began marketing the villas, maisons and apartments on the island at the end of 2006: "Comprising over 56 hectares – including some 16 hectares of private waterways, considering the size and scope of the project the vision of the developer has rapidly become reality, with 423 homes already completed and currently only about 100 homes remaining to be sold and built. To date just over 480 homes have been sold at a total value of USD440-million."

With basins 1, 2, 3 and 4 now being sold out, Pam Golding Properties through its subsidiary Pam Golding Properties Seychelles are now marketing the final two basins 5 and 6.

"In Basin 5, and for the first time on Eden Island, villa owners have moorings directly in front of their homes, with direct access from their garden as opposed to a mooring elsewhere on the island. Another noteworthy feature is that one of the apartment blocks released in basin 6 consists of one bedroom units of a new design which includes a larger floor space, making them ideal as holiday apartments or as an investment with sound rental returns," says Immelman.

With regular flights to and from South Africa

and just an eight minute drive from the airport, Eden Island is one of the few freehold property developments in the Indian Ocean where foreigners can purchase, which also enables them to apply for residency.

"Over the years investment in residential property in Eden Island has proven lucrative, with capital values appreciating significantly. For example a one bedroom which originally sold for USD275 000 in late 2006 would now fetch USD475 000, a two bedroom apartment of USD425 000 now sells for USD675 000, while villas which at the outset were priced from around USD1,8-million are now priced at approximately USD3,5-million. This represents an average 8-10% year on year increase in property values. Over and above this, a rental division provides an option to achieve very good rental yields, with a strong demand among holiday-makers – particularly from France, Germany, Italy and South Africa."

He says trends among buyers reflect a combination of those buying for pure investment and others upgrading to larger homes, plus a further 100-odd property purchases have been second or third or more property acquisitions by the same owner – an endorsement which speaks for itself.

Amenities on the island include the Eden Plaza retail centre with its Spar supermarket, restaurants, boutiques and a casino and the Eden Bleu Hotel and Conference Centre, which opened in October 2014. The Eden Island residential estate has a clubhouse, tennis court, gym, swimming pools and four beaches. ❏

ABOVE: Before (2005) and BELOW: after (2015). Situated just off the coast of Mahe – connected by a bridge, reclamation work on this inspirational, man-made island began back in 2000, with construction of the residential units commencing in 2006.



DISTRIBUTION GROWTH

Redefine Properties recently reported distribution growth of 7,1% to 39 cents per share for the half year to 28 February 2015, delivering on its market guidance.

➤ Andrew Konig, CEO of Redefine comments: "Redefine's solid performance and growth in distributable income for the half year of 31,4% reflects our enhancing acquisitions and successful strategies.

"Our diversified asset base and stated strategies will enable us to achieve our long-term goals. We are confident that we will deliver distribution growth of between 7% and 7,5% for the full 2015 year."

Redefine's strategic growth, geographic diversification, tight asset management, efficient cost control and effective tenant retention strategies all contributed positively to the results despite ongoing challenging property fundamentals, with the operating environments across all property sectors remaining subject to uncertainty around electricity supply and local service delivery.

Konig says Redefine will continue to seek out prospects for its international investment, "although it is difficult to source opportunities given the weight of money chasing property internationally right now." He adds Redefine is also exploring new subsectors to support investor value. This includes de-risked projects in student and possibly residential accommodation, geared to test market demand and strategic suitability. ❏

Andrew Konig, CEO of Redefine.



From planning, architecture and design, to construction management, operations and maintenance, we contribute to every phase of the complete project lifecycle. We do all this through the combined capabilities of our people around the globe as we strive to positively impact lives, transform communities and make the world a better place.



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Economics
Energy
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Oil + Gas
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Transportation
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Water


AECOM – sustainable infrastructure THROUGH INNOVATION



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With a strong presence in Africa for nearly a century, AECOM is committed to improving the continent's built, natural and social environments.

and industrial facilities as well as beautiful and well-served buildings and workspaces, communities and cities.

Across Africa, AECOM is dedicated to helping national governments implement policies that deliver the benefits of economic growth and good governance to local communities and businesses. Over the past two decades, it has supported peace-building efforts in Sudan, Burundi, Uganda and Senegal, and promoted effective economic reform in Ghana and Zambia. 

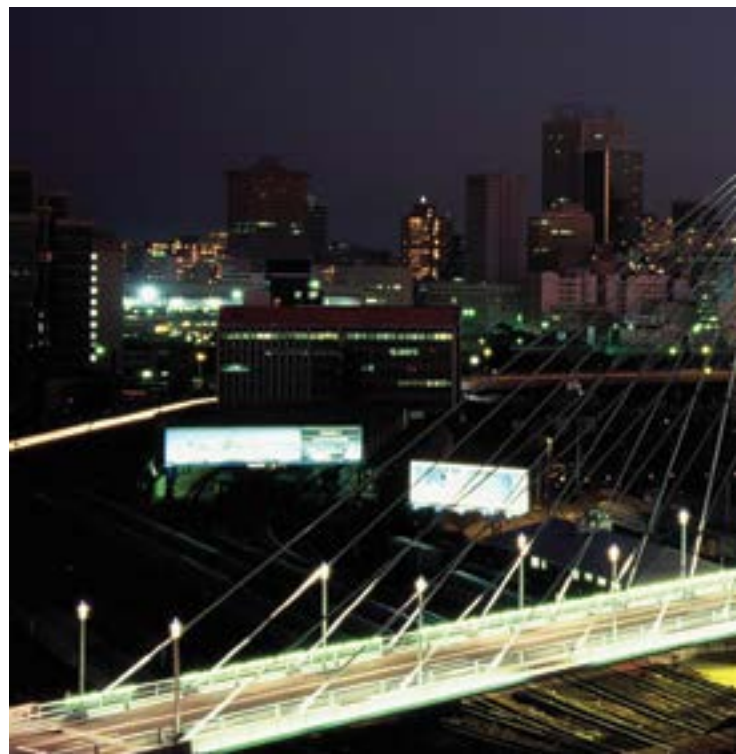
It maintains a project presence in more than 40 African countries including Botswana, Ghana, Kenya, Libya, Mozambique, Nigeria, South Africa and Uganda.

AECOM understands Africa's specific infrastructure needs

AECOM's diverse team of industry leaders in Africa work closely with its global network of professionals to pull together the right capabilities and assets – the best people – to develop infrastructure that responds to and addresses socio-economic matters on the continent. AECOM's teams of engineers, planners, architects, environmental specialists, economists, scientists, consultants, cost managers, project managers and programme managers are committed to delivering projects that improve the quality of life for African communities.

To provide practical solutions for the challenges facing Africa, its 1 200 professionals serve the public and private sector alike. AECOM helps national governments institute policies that benefit good governance and economic growth.

Because the company lives where it works, it understands the importance of developing and supporting infrastructure that provides fresh water, clean and reliable energy, efficient transportation systems





Ranked as the number one engineering design firm by revenue in *Engineering News-Record* magazine's annual industry rankings, AECOM is a premier, fully integrated infrastructure and support services firm, with a broad range of markets, including:

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- Environmental,
- Energy,
- Water and
- Government.

Its core services include:

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- Building engineering,
- Construction services,
- Design and planning,
- Economics,
- Energy,
- Environment,
- Mining,
- Government,
- Oil and Gas,
- Programme, cost, consultancy,
- Programme Management,
- Transportation and
- Water.

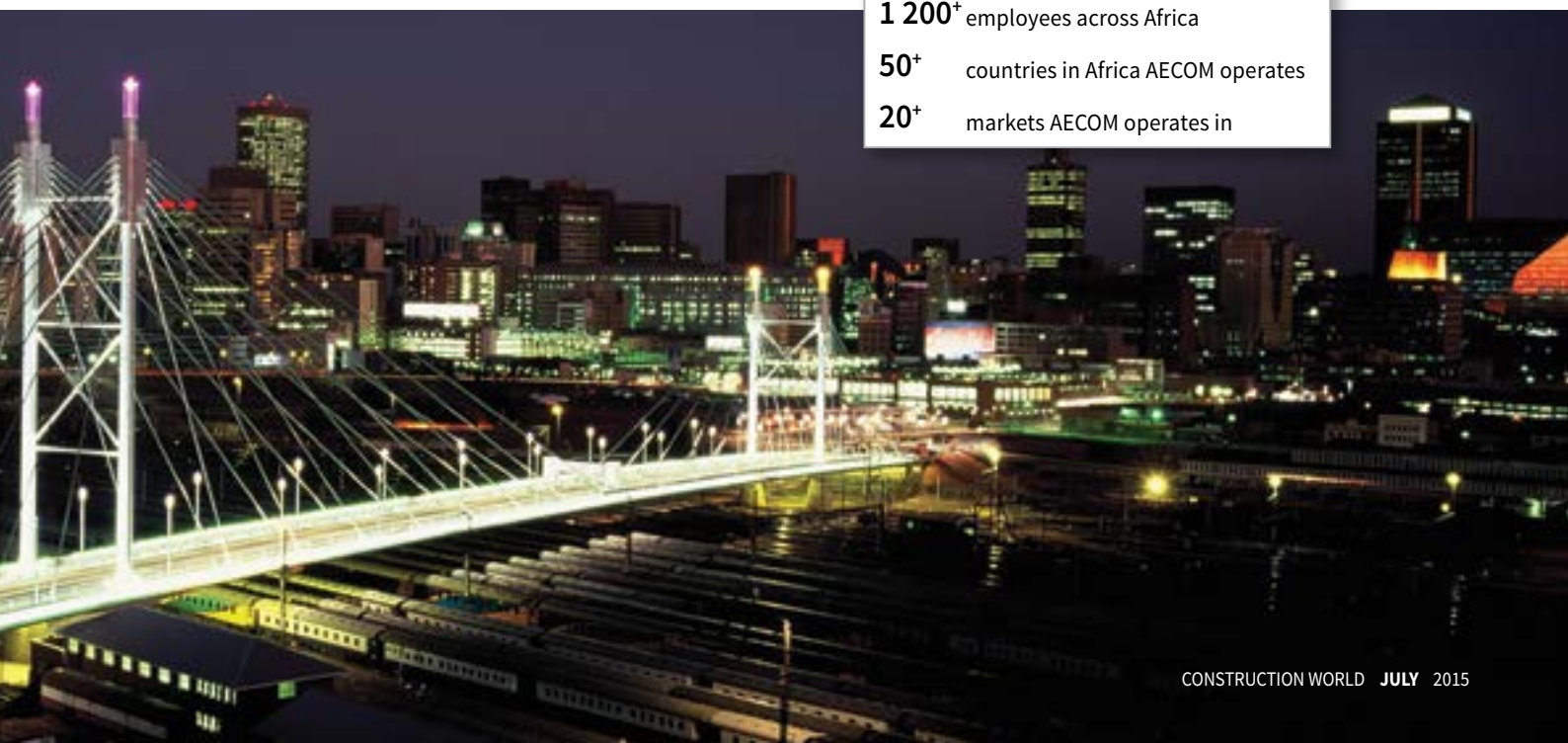


Key facts and figures

1 200⁺ employees across Africa

50⁺ countries in Africa AECOM operates

20⁺ markets AECOM operates in



100 Green Star SA CERTIFICATIONS

Greening in the South African commercial property sector has reached a significant milestone with 100 Green Star SA certifications by the Green Building Council SA.



The pace of green building certifications has been rising rapidly in South Africa. In 2009 the country's first green certification was awarded by the GBCSA. In April 2014 the country celebrated 50 Green Star SA ratings and, only a year later, this had doubled to one hundred, with 25 certifications awarded in the first quarter of 2015 alone.

Established in 2007, the Green Building Council of South Africa (GBCSA) has pioneered transformation of the South African property sector by promoting and facilitating environmentally sustainable building practises, from the design phase to construction and operation. Brian Wilkinson, CEO of the GBCSA, comments: "Achieving 100 certifications indicates the commercial property sector's commitment to sustainability and resource efficiency in response to growing cities and related challenges to energy infrastructure."

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Why green?

This clear signal of the move towards green building is particularly significant as buildings are responsible for around 40% of the world's end-use energy consumption through their on-going operation, buildings are amongst the main contributors to climate change.

"There are multiple incentives involved in green building initiatives", says Wilkinson, "Ultimately the upward trend in the number of buildings being certified and those applying for certification illustrates that awareness and perceptions around environmental issues have changed and evolved. Energy efficiency and the financial rewards notwithstanding, green building is the right thing to do."

There are over 1,8 million square metres of green certified space covered by the 100 Green Star SA certification – or the equivalent of 263 rugby fields.

Given the sustainable, green implementations in these building projects, their positive impacts are far reaching. The 100 Green Star certified projects achieve the combined annual savings of 131 million kilowatt hours of electricity - the equivalent of powering 9 130 households for a year. This takes massive pressure off South Africa's struggling power grid.

The 100 certifications also save a total of 176 million kilogrammes of carbon emissions – the same as taking 44 096 cars off the roads, or 5 000 full Boeing 747 flights travelling from Johannesburg to Cape Town. Plus, they save 171 million litres of drinking water, which equates to the daily water requirements for nearly 86-million people for one day. All these savings also have a meaningful impact to the bottom lines of the businesses that own and occupy these green buildings. In addition to creating more sustainable and productive environments, the financial incentives of operating green buildings are also being realised, particularly in the face of South Africa's water scarcity and increasing energy costs.

Benefits

Wilkinson stresses: "Green Star certification allows for the recognition and reward of environmental leadership and the GBCSA could not have reached 100 certifications without support and innovation from across the industry."

Wilkinson explains that with green building accelerating in South Africa, as its extensive benefits are being increasingly recognised, it has become essential for a rigorous, standardised system that rates just how green projects are with tangible results to back up these claims. This is what the GBCSA's Green Star SA rating tools do. GBCSA developed the Green Star SA rating system and is the official certification body for green building projects.

A Green Star SA rating guarantees that businesses live up to their green building claims. Independent assessors are employed to evaluate submissions and allocate points based on the green measures that have been implemented. Certification is awarded for 4-Star, 5-Star or 6-Star Green Star SA ratings. Of the first 100 Green Star SA certifications in South Africa, nine were awarded 6 stars which represents world leadership in green building.

Kirstenhof Office Park

The 100th building certification by GBCSA with a 5-Star Green Star SA Existing Building rating was officially awarded to Kirstenhof Office Park in Paulshof, Sandton. It is owned by Growthpoint Properties, South Africa's largest JSE-listed Real Estate Investment Trust (REIT), a GBCSA Platinum Founding Member and the owner of the biggest portfolio of green buildings in the country.

Its elegant Cape Dutch design buildings are located on Witkoppen Road at the Rivonia N1 off-ramp. Kirstenhof Office Park's long list of green features include energy efficient lighting including fluorescents fitted with high frequency ballasts; flow restrictors on all taps; an operation waste and materials management plan and a stormwater management plan to limit disruption of natural hydrology, minimise pollution and site deterioration.

Norbert Sasse, CEO of Growthpoint Properties, comments, "It is an honour to receive the 100th Green Star SA rating from the GBCSA. Growthpoint is committed to the sustainability of the environment

Brian Wilkinson, GBCSA, right, with Werner van Antwerpen, who heads up Growthpoint Properties' specialised sustainability division, at the Kirstenhof Office Park in Johannesburg, which has become the 100th building to achieve a Green Star SA certification from the GBCSA. Kirstenhof, owned by Growthpoint, secured a 5-Star Green Star SA: Existing Building Performance Pilot (EBP) rating.





An architect's impression of the interior refurbishment of The Workshop.

NEW BUILDING CONTRACTS

➤ Reflecting its growing experience and expertise in diverse sectors ranging from medical to retail, multi-disciplinary construction group Liviero has secured new building contracts at Natalspruit Hospital and at iconic Durban shopping centre The Workshop.

Liviero has been awarded a R232-million contract for the construction of new doctors and nurses' accommodation, a new training centre and crèche at the new Natalspruit Hospital in Vosloorus, Gauteng. This contract, which is being undertaken for the Department of Infrastructure and Development, is due for completion in August 2016.

The firm's R39-million contract at The Workshop is for an upgrade of this iconic landmark for client Vukile Property Fund Limited. This historic building was constructed in 1860 as the original railway workshop for the Durban Station. In 1986, the building was refurbished and transformed into The Workshop Shopping Centre, one of the country's first themed shopping centres. ◀

and the communities in which we are invested through our properties. We want our buildings to be places where business in South Africa can thrive, with quality, healthy, productive working environments that also offer savings on utilities consumption and costs. The GBCSA Green Star SA tools are important enablers in our green building journey. Kirstenhof Office Park is an excellent example of our approach that prioritises green building and property operations, for both our new developments and existing buildings."

Gauteng leads South Africa with the largest number of certified Green Star SA projects – an impressive 55. It is followed by the Western Cape with 29, KwaZulu-Natal with 11, the Eastern Cape with two and Limpopo with one. GBCSA has also certified two international ratings.

"Congratulations to the GBCSA and the industry as a whole on this achievement," says Robin Lockhart-Ross, managing executive of Nedbank Property Finance. "As a bank whose reputation is built on its commitment to the environment and sustainability, we are proud of our own achievements in championing the cause of green buildings not only by financing and occupying these, but also through our sponsorship of the Existing Building Performance Rating Tool and the GBCSA annual convention, a platform that is aimed at ensuring that the 'green' agenda is maintained."

Wilkinson says: "The increase in pace in green building in South Africa has been phenomenal. From a single Green Star SA certification only five years ago, to 50 certifications last year, and 100 certifications now, the green building movement in South Africa is certainly gaining momentum.

"The positive impacts these buildings are having on our environment is meaningful, and becomes more significant with each green building certified. We would like to congratulate South Africa's commercial property sector on this landmark achievement, and encourage them to continue to create sustainable, green buildings." ◀

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One of SA's most ADVANCED MALLS

Not only will the Eastern Cape's newest and largest ever entertainment and retail centre span the size of 22 rugby fields, but architects have made sure that Baywest Mall (which opened on 21 May) is one of the country's most enjoyable and futuristic shopping centres.



Derick Henstra, chairman of the firm that designed the mall, dhk architects.

> Quick access crisscross corridors linking shoppers to both sides of the oval-shaped mall, one of the country's largest screens in the food court at 24 m², and restaurants with table heights to accommodate shoppers in wheelchairs are all part and parcel of what architects say will be a shopping experience redefined. An abundance of natural light and ground-breaking green building techniques are also part and parcel of the centre's impressive features.

Chairman of the firm which designed the mall, dhk architects' Derick Henstra, explained the psychology behind building a mall which would excite and entertain, rather than confuse and disorientate. The firm's associate director Joe Struwig was lead design architect on the Baywest Mall project.

"We have a fresher, newer approach to retail, and Baywest Mall is one of those exercises," said Henstra. "It's a futuristic mall. We wanted it to be a timeless piece of architecture. "We had to make Baywest visually appealing. For malls around the world, one of the most important aspects is the element of flow. They are often not very legible or user-friendly, so we wanted to create a mall which was an absolute pleasure to navigate," said Henstra.

The uncomplicated design of the mall, said Henstra, achieves two objectives: it ensures the mall detracts from its natural surrounds as little as possible, and keeps

shoppers' attention on the reason they are there in the first place – the stores.

"The mall has a soft curve, so you can virtually see around the corner. It is also a tight race track, so it doesn't feel like you are walking for kilometres and kilometres. There is also a crisscross, so you can cross over from the one side of the mall to the other very easily."

Green building principles were also engaged wherever possible in the design, he said. Something relatively new to large malls in SA is prismatic diffusers – small openings in the roof which transmit large amounts of natural light into the centre without transferring the heat gain, meaning the air conditioning system is not strained.

Another energy-saving technology, LED lighting, is also used throughout the mall.

"This is all paired with an incredibly intelligent air conditioning system which focuses on keeping the shops cool, with the spill-over cool air used to cool and ventilate the mall," said Henstra. "It's a clever way of being energy efficient."

Being aware of shoppers with special needs was also an important part of the design brief, and for this reason Baywest Mall is designed with wheelchair access in mind.

"There are lots of easy ramps for wheelchairs, and the heights of tables in restaurants and the food court are designed to accommodate shoppers in wheelchairs. It's part of making the mall friendly and easy

for everyone to access," said Henstra.

Speaking of the mall's inclusion of a Fun Factory entertainment zone, Henstra said: "We're bringing back the enjoyment of retail. Shopping is not just shopping – there is an element of entertainment. That's what Baywest brings together."

About Baywest Mall

- The mall size, 90 000 m², is the gross leasable area and excludes the parking area for about 3 200 vehicles.
- The mall will feature a number of firsts for the region, including a Ster-Kinekor IMAX and Cine Prestige, fashion brands Dune, La Senza and River Island, will new eateries such as Cinnabon will excite the taste buds.
- The development of the mall is a joint venture between Abacus Asset Management and Billion Group.
- The construction value of the mall is approximately R1,7-billion, with a further R300-million being spent on developing the road network in the area. The road network includes an interchange onto/off the N2 freeway, as well as the Redhouse-Chelsea arterial road, linking the suburbs of Sherwood and Rowallan Park/ Bridgemeade via a road over the N2.
- The mall is central to the development of the greater Baywest City project, which will be similar in concept to Cape Town's Century City development.
- About 25% of the 320 ha Baywest City site has been allocated for environmental preservation and will not be developed at all.

About the developers

The Baywest development is a joint venture between two major South African developers, Abacus Asset Management and Billion Group. Between them, the developers have over 25 years of experience specialising in retail, commercial and mixed-use developments located in major South African cities. With super-regional shopping centres, landmark office towers and golf course developments, the developers have successfully completed malls such as Hemingways in East London, Eikestad Mall in Stellenbosch, Cape Gate in the Western Cape and Mooi Rivier Mall in Potchefstroom. <





Energy harvesting **INNOVATION**

An R8-million roof-mounted solar photovoltaic (PV) energy harvesting system is to supply clean energy and reduce the South African wool and mohair industry’s carbon footprint and is the initiative of BKB in Nelson Mandela Bay.

> Diversified South African agribusiness BKB made the announcement recently, giving details of what is set to be one of the biggest solar power installation projects in South Africa.

BKB, which processes and exports two thirds of the South African wool clip and more than 35% of the country’s mohair clip, said the installation will harvest and then introduce solar energy into its handling and shipping facility in Port Elizabeth.

The solar PV system, which covers a total surface area of 3 400 m², is located on the roofs of BKB warehouse buildings which house classing, handling and pressing facilities.

The pitched roof sections of these buildings were being retrofitted with approximately 4 680 solar panels, each with an output of 100 Watt. The solar array, which is expected to go online next week will generate 40% of the facility’s electricity needs.

“It is the largest grid-tied solar PV system in the Eastern Cape and among the top 10 largest in the country,” according to Rhino Energy director Craig Brehany.

BKB plans to recoup the project’s investment costs over a 10 year period through energy savings of approximately R850 000 per year.

The solar PV system is significant for the country’s wool and mohair industries, and for approximately 28 000 emerging and commercial wool and mohair producers which BKB serves.

“The clean energy supply chain management innovations through our solar PV system will offset the carbon footprint of wool and mohair processed and exported from our facilities. This will enhance the eco credentials of South African wool and mohair handled, pressed and shipped by BKB,” said Jacobus le Roux, BKB head of corporate marketing and public relations.

The initiative forms part of the company’s sustainability strategy and its fifth organisational value which promotes accountability and constant innovation for environmentally friendly sustainable growth.

He said that the rooftop solar PV installation system is another stage of a four phase clean energy strategy with “real benefits and tangible outcomes” at BKB’s facilities in Port Elizabeth. Earlier this

year, the company installed energy efficient lights and sensors in the 95 000 m² property.

“We are deeply committed to becoming the country’s leading low-carbon agribusiness. BKB will systematically introduce other initiatives to introduce cleaner energy over the next fifteen years.”

Le Roux said BKB wants to set the pace and direction for the development of renewable energy alternatives within the South Africa agricultural economy. “Our clean energy programme is one of several ongoing projects delivering real and meaningful transformation across commercial, social and environmental aspects of the industry and our business,” he said.

Last year, BKB unveiled a public-private partnership initiative of R11 million (USD917 461) with the Coega Development Corporation to address unemployment, critical skills shortages in agriculture, and support the transformation of emerging farmers into commercial producers. **◀**

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- The project has been rolled out by energy solutions company **Rhino Energy**, which is among the top three solar PV installation companies in SA
- The project is the largest grid-tied solar PV system in the Eastern Cape, and among the top 10 largest in SA. The projected generation capacity of the project is 750 000 kWh per year – enough to continuously power 200 average-sized households.



ROCKY CHALLENGE AT GARSFONTEIN SITE

Gauteng Piling recently successfully coped with exceptionally rocky strata to complete the piling foundations for a new 15-storey office block in Pretoria.

Kobus Geyer, contract manager for Gauteng Piling, says 145 piles were provided by the company for Summit Place, Phase II: Building E, being constructed by GD Irons Construction, for Neo Trend Property Developers. The new Summit Place building will, on completion be an A+ Grade office park with about 9 000 m² of office space, highly visible just off the N1 highway on Garsfontein Road, opposite Menlyn Shopping Centre.

The auger cast in-situ piles provided by Master Builders Association North member, Gauteng Piling, were formed by drilling holes of various sizes and depths into the ground,

placing steel reinforcement into the holes, and then filling the holes with concrete.

Says Kobus Geyer: "The major piling challenge for this project was the exceptionally rocky site. The many large underground builders struck during the drilling operations took quite a heavy toll on our rigs and a high level of maintenance had to be kept up throughout the piling operations," Geyer stated. "Gauteng Piling was prepared for boulders as we had, a few years, handled the piling for the Hotel Fire & Ice, which was built in late 2013 on ground adjacent to the site where the new office development is now taking place. But the severity of the boulders and



A photograph showing a typical underground boulder that made the foundation excavations a formidable task.

rocky terrain we encountered this time posed even greater challenges than two years ago."

The 145 piles provided over an area of about 3 600 m² for The Summit were all 11 metres deep to cope with the rocky strata, and varied in diameter from 600 mm to 1 650 mm.

The pile bearing capacity ranged from 1 000 kN per m² for the smallest diameter pile, to 13 500 kN per m² for the biggest. Bearing capacity determines the maximum load the soil can safely carry during piling operations.

Steel reinforcement cages inserted into the piles ranged from 450 mm to 1,5 m in diameter.

Gauteng Piling – which employed a Williams LDHH digger and a SoilMec hydraulic drilling rig for the piling foundations – subsequently was awarded a contract for another 34 piles on the western side of the Summit Place site.

The company has in the past 18 years completed over 1 500 projects to become one of the major players in the piling industry in Gauteng. The company – which provided the piling foundations for the massive Mall of Africa last year - has a fleet of 20 auger drilling machines, two cranes, two bore rigs, four Grundfos hammers, and two lateral support machines. ■

An overall view of the start of the Gauteng Piling operations at Summit Place with concrete being poured into one of the piling holes.



CONTRIBUTING TO NAMIBIA'S DEVELOPMENT

South African company, Kwikspace Modular Buildings (Kwikspace), recently broke new ground in the rentals market in Namibia when it delivered its first ever rental units in the country for use as accommodation by the construction team involved with the development of the Neckartal Dam.

Shortly after this project was initiated, Kwikspace was contracted to construct two offices at the Neckartal Dam Project site for Salini Namibia the construction and engineering and company responsible for the construction of the dam.

Measuring 1 206 m² in total, the two offices were set up as site-erected buildings, which

allowed for easy transport of the building materials and on-site completion according to the clients' specifications. In this instance, the Salini office measures 758 m² and the engineer's office 448 m². On completion of these buildings towards the end of last year, over 60 employees were provided with office space.

Never afraid of a challenge, Kwikspace

completed the construction of these two buildings at the top of a plateau, with a valley reaching 120 metres below, where winds can reach up to 120 km per hour.

The construction of the Neckartal Dam is of great significance to the country as it will create a reservoir capable of holding 857 million cubic metres of water, based on figures by Salini. When completed, the dam will bring about economic growth and prosperity in the country as it will be used for power production, irrigation and agricultural development. In addition, the development thereof has created a number of job opportunities.

To ensure the smooth running of the development process, the speedy completion of infrastructure such as this office space for the client and main contractor is an essential factor. For this reason, Kwikspace's prefabricated buildings are highly suitable to the project requirements.

Comments Nick Alexander, director of business development for Kwikspace Modular Buildings in Africa: "Our involvement at the Neckartal Dam was a great success. As a company, we are always pleased to contribute to projects that facilitate positive developments in a country." ■



CENTURY CITY'S NEW DAY HOSPITAL

A new multi-disciplinary medical facility including a day surgery hospital and primary care centre is set to open at Century City in July adding to the wide bouquet of amenities now available in this burgeoning city within a city.

➤ The R70-million medical facility is a joint venture between Corevest, Blue Dot Health, Century Surgeons Trust and Intercare, the latter of which will manage the centre.

One of the founding members and spokesman for the consortium, Dr Nick Kairinos, said the facility would be focused on specialist day surgery and primary care (GP) medicine providing 24 day beds, three fully equipped day theatres, one procedure suite as well as radiology, pathology and pharmacy facilities and a teaching centre.

"The facility is founded on the principles of providing doctors and staff with the most pleasant working environment and patients with the most enjoyable medical experience possible.

"The group has not only attracted popular local GP's but has also recruited a large component of Cape Town's most prominent surgeons from different specialties," says Dr Kairinos.

Chris Blackshaw, CEO of the Century City Property Owners' Association, the non-profit company responsible for the day to day running of the 250ha precinct, says the medical centre ticked one of the last remaining boxes for Century City.

"An estimated 55 000 now live and work within Century City which is home to around 550 businesses and 10 000 residents and still growing strongly.



Dr Nick Kairinos (left) and Chris Blackshaw, CEO of the Century City Property Owners' Association, outside the new Century City Intercare day surgery hospital and primary care centre opening in Century City in July.

"As our City has grown so too have its amenities which currently include four schools, creches, over 600 hotel rooms in soon to be six hotels, five conference venues including a new 900 seat Conference Centre, Canal Walk Shopping Centre, Ratanga Junction, a Virgin Active Gym, four churches, neighbourhood restaurants and award-winning beauty and wellness spas.

"And that is not where it ends. Over and above the built facilities, the Century City lifestyle is enhanced by numerous sports clubs and leagues, cycle and running tracks, 6,5 km of navigable canals for canoeing and stand up paddling as well as a full calendar of social as well as networking events throughout the year." ■



ROAD CONSTRUCTION EQUIPMENT

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KYALAMI Race Track's OVERHAUL

LSM Distributors has contracted WSP | Parsons Brinckerhoff Africa, one of the largest engineering consultancies on the continent, to undertake R100-million restoration of Kyalami Race Track that will assist in re-establishing it as a premier venue for the hosting of international motor sporting events.

“To help us get the best accuracy possible with our designs, we commissioned a complete laser scanning. This included using mobile, terrestrial, and aerial scans of the site resulting in the development of a comprehensive model of Kyalami. The scans and colour photographs were then loaded into a survey processor to filter and render the virtual 3D model needed to get client approval and commence the project,” he says.

Once the project is completed, the Kyalami Race Track will once again become a premier venue for international motorsport in South Africa. <

> “The restorations will be focused on enhancing the attractiveness of the track, as well as improving both the driver and spectator value with a key focus on safety. We will be providing a complete engineering offering as required by OT Venture Investments,” says Francois van Rensburg, divisional director of WSP for development, transportation and infrastructure in Africa.

The scope of the project includes the refurbishment of the existing race track, which encompasses realignment for three corners of the track – improving track safety; access to the venue and helping to develop engineering solutions for a friendlier track-day experience.

“These track realignments – where for example we are also improving the 1,1 km straight on the track – will not only make racing more exciting for the drivers, but will also comply with world-class standards,” adds Van Rensburg.

As part of the project, WSP needs to ensure that track safety around the run-off areas and the implementation of debris fencing for improved spectator safety receive approval by the governing body for international motorsport – the FIA – who have also shared recommendations for further improvements highlighting key aspects around safety.

Additionally, to further enhance the racing day experience for both drivers and spectators, WSP | Parsons Brinckerhoff Africa will increase the spacing of the bleachers and change the pit lane exit for drivers to leave the area at faster speeds – while still incorporating safety features at the highest standards.

“We used the latest in 3D design virtualisation technology to develop a game based on the scope of the refurbishments. This gave the client a unique opportunity to test drive the new track on a simulator before construction started,” adds Van Rensburg.

As a leader in race track design in the region, WSP was involved in developing the original track at Kyalami and since has also been involved in developing the race track at Zwartkops.

“We have employed a range of our expertise on this project, including in the niche pavement and asphalt finishing, which is essential for a project of this nature. The race track finishing is significantly different from public roads to make it safer for drivers at high speeds,” says Van Rensburg.

Given the fact that Kyalami needs to remain closed during construction, to reduce the impact of possible loss of earnings, the consultancy also needs to ensure that the project is completed as quickly as is feasible.

“We used the latest in 3D design virtualisation technology to develop a game based on the scope of the refurbishments. This gave the client a unique opportunity to test drive the new track on a simulator before construction started.”

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GOLD REEF CASINO AND HOTEL UPGRADE

In April 2013 Tsogo Sun announced refurbishment plans for their Gold Reef City Casino and Hotel, located in the south of Johannesburg.



Ocon Brick, South Africa's leading clay stock brick manufacturer, was contracted to supply clay stock bricks for the revamping of the casino, as well as the upgrades to the entertainment and restaurant facilities and have to date supplied 1,4 million clay stock bricks.

Shaun Hugo, quantity surveyor at WBHO Building North commented: "The refurbishment and upgrading process for Gold Reef City is quite extensive, with the project running from March 2014 through to November 2015.

Obviously, renovations on a project of this size had to take into account the impact upon the resort's patrons who would still be visiting the resort throughout. It is crucial that interruptions to the casino and hotel's normal activities should be kept to a minimum, therefore our choice of suppliers had to be reliable.

"Ocon Brick was chosen because of their reputation for a reliable service

and performance. Their stock supply, technical support and delivery scheduling has been extremely satisfactory and true to their reputation within the building industry, they supply the quantities, and quality, of bricks that we require on time," said Hugo.

Mariana Lamont, regional sales manager for Ocon Brick said: "We are pleased to have established this professional reputation, especially concerning our reliability. This element of service is all important to our customers and we are aware of the need to ensure that our customers receive their stock as agreed, that is why we keep our manufacturing plant fully operational at all times – we never run out of stock as a result".

Ocon Brick clay stock bricks offer average brick strengths of 21 MPa, with 11% water absorption and an average mass of 2,6 kg. They have been utilised on golf estates, private and commercial estates as well as for interior purposes.

They can be plastered or used in an unplastered finish. Complementing the clay face brick, is the Ocon Brick clay semi-face brick range which is hard wearing and a cost effective paving solution choice with a brick strength of 30 MPa with similar water absorption and mass as for the clay stocks. ■

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GOVERNMENT HOUSE

A collaboration of passion and expertise resulted in the successful R20-million restoration of the 167-year-old Government House in Pietermaritzburg.

> After acquiring Government House in 2010 to house their regional campus, UNISA contracted a team of experts to restore and renovate this beautiful national monument which had fallen into a state of disrepair.

Leading heritage and conservation architect Robert J W Brusse was appointed to the project in 2004 to oversee the restoration of the building and there then followed eight years of planning, investigation, research and detailing work discussions. Only once all the groundwork and preparation had been done did Brusse, in 2012, approach Corobrik to assist in the replacement of 1 775 bricks which had to be especially manufactured for the project.

Government House after restoration.



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History

The historic building, which began its life in 1848 as a five-roomed thatched cottage owned by William Stanger, the first surveyor general in the Colony of Natal, was bought by Sir Benjamin Pine on behalf of the colonial government. All subsequent governors lived there till the formation of the Union of South Africa. During this period, the building was regularly extended and altered, so that it came to reflect a sequence of architectural styles and building technologies.

In 1900 a new brick wing was added to accommodate the Duke and Duchess of York who came out for a Royal Visit. In 1911 several more wings were constructed in Maritzburg salmon pink brick to accommodate a Teacher's Training College.

"As with so many other restorations of heritage buildings, there was a need to replace weathered brickwork," says Brusse. "While standard bricks were replaced with bricks salvaged from parts of the buildings that had to be demolished, there were a number of decorative, special bricks which could not be sourced from the demolitions or from Amafa's warehouse."

Custom-made bricks

Faced with these challenges, Brusse approached Corobrik as the principal manufacturer of clay bricks in the province to help find a solution.

Managing director, Dirk Meyer embraced the project enthusiastically and a team was put together to oversee the job with the responsibility of liaising with all parties, including the Corobrik factories, the architect and the site management falling to Corobrik manager, Pat Moon. "This was an incredibly complex job," he says, "and we were pleased to come up with an authentic manufacturing solution."

A large number of handmade salmon pink bricks typical of the 1900 period had been used in the original historical buildings. Working with a set of detailed drawings of the required bricks, supplied by Brusse, clay from the Corobrik Avoca factory in Durban, which would provide the best colour match, was road freighted to the Midrand Factory where the bricks were formed by hand. Once manufactured, they were before brought back to the Avoca Factory kilns to be fired at a particular temperature to achieve a specific vitrification and colour.

Many of the 29 special shapes that were produced for the restora-



Pat Moon inspects the various types of specials and holding the concave/convex stretcher and corner brick.





The arched wall surrounding the veranda along the side of the building, showing the detail of the special shaped bricks. Bricks made at Corobrik's Midrand factory were used where individual bricks had to be replaced in order to preserve the original look of the brick work.



Photograph of windows which are arched, and framed by special shaped bricks, also showing the detail of special shapes used on horizontal courses in the style of the period.

tion project had not been previously made at a Corobrik facility and special-shaped dies were manufactured to help ensure the correct fired sizes to match the existing brick work. "Numerous specials were hand-shaped and tempered by a special product team," explains Moon.

This was a really interesting project to be a part of with product handling and logistics playing important roles and it was rewarding for the production teams from the two factories involved to be able to meet the challenge.

Commenting on the project, Brusse says: "Government House was entrusted to us at the start of the project and we tried to respect the integrity of this historic National Monument by repairing and restoring the buildings in the spirit in which the original structures were built."

Drawing on their 112 years of brickmaking experience and expertise, Corobrik rose to the challenge of finding acceptable solutions for the restoration of Government House and has gone on to play an important role in the restoration of other historically significant South African buildings including the manufacture of clay bricks for the Kimberley Magistrate's Court extension and renovations of the Magistrate's Court in Port Elizabeth. <

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Major MALL for Springs

Construction is now underway on the R950-million Springs Mall at Blue Crane Eco Park development, with the 52 000 m² regional shopping centre scheduled to open before easter in 2017.



> The landmark mall, being developed in Springs in the Ekurhuleni Metro in the east of Gauteng, is a joint venture between Blue Crane Eco Mall, Flanagan & Gerard Property Development and Investment, and Murinda Investments, which is part of the Giuricich Brothers Group.

“We are delighted that construction on Springs Mall at Blue Crane Eco Park is finally underway now that all outstanding town planning hurdles have been overcome,” says Patrick Flanagan, executive director of Flanagan & Gerard Property Development and Investment.

“At just shy of a billion rand, this exciting regional shopping centre development is a major investment in Springs. It is great that the local council has given all the relevant approvals,” he adds.

The mall project is the brainchild of the Springs based D’Arrigo family. For three generations the D’Arrigo family has lived in Springs and is passionately invested in its future.

The development also benefits from the leading know-how of a respected and experienced team of business and retail property developers and investors at Flanagan & Gerard and the Giuricich Brothers construction company. Noted as one of South Africa’s leading private construction companies, Giuricich Brothers is family controlled and has been in existence for 75 years.

Flanagan & Gerard is one of South Africa’s leading shopping centre developers with an excellent track record in dominant regional shopping centres, including Vaal Mall, Highveld Mall, Mall of the North and Middelburg Mall, as well as the new Ballito Junction regional mall which is under construction, amongst others.

“With our different expertise, as joint developers and owners of Springs Mall at Blue Crane Eco Park, we plan to build a regional shopping centre that the Springs’ community can be proud of,” says Franco D’Arrigo.

An asset

“The mall is set to become a landmark retail asset that serves the region’s consumers with a top quality shopping experience. Besides providing an exceptional shopping destination, Springs Mall will also introduce many economic benefits such as local jobs during construction and permanent positions once the mall is completed. It will also keep valuable retail spend within Springs,” he adds.

Says Gerard Giuricich of Murinda Investments: “It’s great to be part of this exciting development; not only as investors and joint owners, but our construction company, Giuricich Bros Construction is playing a key role as the main contractors on Springs Mall. Earthworks contractors are on site with the main construction set to start soon.”

Destined to become a dominant mall in the region, the new Springs Mall will benefit from an excellent location in the suburb of Casseldale. It is easily accessible at the intersection of the N17 highway and R51/Wit Road and also has excellent accessibility off the N17 and Wit and Jan Smuts Roads.

Giuricich comments: “As part of the earthworks contract, there will be a realignment of Jan Smuts Road (along the Northern side of the site). When Springs Mall opens in March 2017, it will have eye-catching frontage on the N17 highway. Its striking visibility means people travelling on the N17 highway will be able to see the two-level mall from some distance away. The mall will also act as an interceptor on the N17 for people travelling to Mpumalanga and Swaziland.

Meanwhile, to help mitigate the impact of load shedding and as part of several green features of the mall, the joint venture developers are investigating the installation of solar generated power, with the intention of using this, if viable, as a supplement to the municipal electricity supply.

“We are trying to employ as many environmentally sustainable measures as possible in the mall’s development. The use of natural light is a key part of the mall’s design, as are other green building interventions,” explains Patrick Flanagan.

Springs Mall is also part of the broader Blue Crane Eco Park development. It will form the anchor of the development, which will see further commercial development on 10 hectares of land surrounding the mall.

Leasing process

The leasing progress on Springs Mall has been excellent, reports Flanagan. “We have already attracted several of South Africa’s leading retailers and brands. In fact, the mall is already 80% let almost two years before it opens. Now we are selecting the balance to offer a great tenant mix and shopping offering of around 120 stores and outlets.”

Anchor tenants signed up include Pick n Pay, Checkers, Woolworths and Edgars. Other major national retailers that are also set to be part of the tenant mix at the new Springs Mall include the Foschini Group, Truworths, Mr Price, HiFi Corporation, Clicks, Dis-Chem and Incredible Connection and more. The mall will also boast family entertainment and restaurants.

Leasing is progressing apace with a wide variety of restaurants, electronics, gifting, décor, banking, services, health and beauty and fashion retailers set to be part of the mall’s top-notch tenant mix.

Springs Mall will also offer the convenience of free open-air parking on both its shopping levels with easy shopper access from both parking areas, through four entrances.

The mall will act as a stimulus for the economy of Springs, see local retail rands being spent in Springs and provide an icon for the town. The inhabitants of Springs will further benefit by being able to patronise a number of stores and brands that are currently not trading in the town.

“Clearly much needed permanent jobs will be created once the centre opens for trade – sales assistants, merchandisers, packers, and cleaning and security personnel will largely be drawn from the local communities. Members of the local community should also note that during the construction phase, limited job opportunities of a non-permanent nature will be available,” says Flanagan. <



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INCREASED CAPACITY

AfriSam, a supplier of concrete solutions, has increased its readymix supply capacity to cater for an increased customer demand for concrete in the burgeoning Sandton/Midrand/Centurion corridor.

> Following a major investment in AfriSam's readymix capacity across its plants in this geographic region, it now boasts a combined capacity of approximately 300 m³ per hour thereby ensuring that customers' concrete needs are met with continuity of supply.

Growth across this geographic area can be attributed to various factors including the decision by a significant number of large corporate organisations to either upgrade existing buildings in the Sandton CBD or construct new modern facilities. The general upgrade of the Sandton inner city area will not only dovetail with a number of high profile new-build projects such as the

Discovery Head Office, Alice Lane Phase III, Mall of Africa and the new PwC headquarters in Waterfall Estate, but will also see transformation of the transportation systems within the area.

Some other notable projects are the Waterfall Estate project and the development of the vacant land in the immediate vicinity of AfriSam's Jukskei Construction Materials operation, as well as ongoing office building and mixed-use developments in Centurion. In addition to being able to provide readymix concrete solutions, AfriSam's strategic footprint of its aggregate operations is also well positioned in this corridor.

is that the larger projects demand reputable suppliers for their needs as they require assurances with respect to both the quality of the concrete mix as well as the continuity of supply," says Amit Dawneerangen, national sales manager of AfriSam.

AfriSam has a very interactive relationship with both its customers and the industry in general. This level of involvement and in-depth understanding of the challenges faced by contractors and developers, allows the organisation to proactively and strategically implement plans that cater for increased demand.

AfriSam, with its proven track record for innovation, supplies specialised concrete solutions to meet project specific design requirements using elements such as fibres, waterproofing admixtures and superplasticisers. Its technical teams are cognisant that product needs to be delivered on schedule to ensure both concrete strength and workability.

Quality and speed

An important advantage for all AfriSam customers in these growth nodes is that all its plants are equipped with generators. This will ensure that should there be power outages the supply of readymix will not be interrupted.

Many of the recent and current projects are characterised by their fast track nature, so in order to meet production schedules, the delivery of readymix concrete needs to be perfectly timed. "A reality in the current market climate is that customer service and the ability to supply are equally as important as the quality of the readymix concrete being delivered. Another reality

Jukskei operation

As a long-standing supplier of concrete solutions in Africa and South Africa, it is significant that AfriSam's Jukskei operation is one of its older operations. Established as a quarry in 1956, the facility now offers the full concrete supply spectrum.

As AfriSam expanded its market offering, it constructed readymix plants across all major locations and the readymix plant at Jukskei went into operation in 1992. This plant has serviced customers across a broad range of project applications with some of the more noteworthy including the Gautrain Rapid Rail Project.

While the Jukskei operation is most ideally positioned in the centre of this growth node, AfriSam has a number of other readymix plants that ensure continuity of supply to customers. There are two readymix plants at its Wynberg, Sandton facility and AfriSam operates another strategically situated new readymix plant in Laezonia, just off William Nicol Road and the N14. This is a good location from which to service customers whose contract sites are north of Sandton and offers AfriSam the option of additional future capacity expansion.

AfriSam emphasises that while the individual plant operations are different, the batching interface is identical across all its plants. Use of the same interface ensures consistent batching, minimises errors and provides the ability to deliver supply backup from various locations. In this way customers have the absolute assurance that any potential disruption to an individual operation will be minimised.

In a major capital investment AfriSam recently commissioned what is deemed to be their single largest stationary readymix plant in operation in South Africa at its Jukskei operation.





AfriSam has increased its readymix supply capacity to cater for an increased customer demand for concrete in the burgeoning Sandton/Midrand/Centurion corridor.

In a major capital investment AfriSam recently commissioned what is deemed to be their single largest stationary readymix plant in operation in South Africa, at beginning of April, at its Jukskei operation. This is also considered to be one of the largest plants supplied by Liebherr SA into southern Africa, with a rated capacity of between 120 m³ and 130 m³ per hour.

Selection of a wet batch plant for this operation has offered a number of advantages to AfriSam and its customers, including greater control of the consistency of the concrete due to improved slump control. Furthermore, the design and configuration of this plant allows concrete to be delivered at a high output, without compromising on the quality of the mix.

Apart from this ability to consistently produce high quality concrete to a selected mix formula, from an environmental perspective the selection of a wet batch plant is a desirable option and falls in line with

AfriSam's responsible stance on environmental stewardship. Designed and manufactured in Europe, the fully automated state-of-the-art readymix plant is fully supported by Liebherr in South Africa, ensuring consistent reliability in terms of its operation.

Exceptional customer service remains a primary focus for AfriSam and the company constantly reviews current demand for the resourcing of its truck fleets. In another example of customer-centricity, apart from standard concrete, the company caters to the specific requirements of individual contract compliance specifications, leveraging its project technical capability and plant efficiencies for their design and supply. <

AfriSam has a very interactive relationship with both its customers and the industry in general.

Exceptional customer service remains a primary focus for AfriSam and the company constantly reviews current demand for the resourcing of its truck fleets.



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TALL BUILDINGS

– past and present trends

The motivation to build tall has changed over time, as has the definition of ‘tall’, the materials we use and the designs that are possible. The passion, obsession and necessity of building supertall and mega tall structures continues to challenge engineers and architects to reach new heights and ‘go where no man has gone before’.

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P Professor Kourosh Kayvani, Aurecon's global building design leader and one of Australasia's leading structural engineers, discusses the key historic developments, technological advances, current trends and engineering considerations of high-rise buildings.

Where the tall building phenomena started

Vertical habitation isn't a new trend. It's one that has been driven by urbanisation and bustling, overpopulated cities for centuries. While the high-rise buildings that we know today became possible with the inventions of elevators, newer building materials and structural engineering systems, multi-storey construction dates back to the Roman Empire and vertical cities have been around for centuries.

An example of a location that has a large number of super skinny tall buildings is New York City, where each apartment is a penthouse that occupies an entire floor of the building.

A living example is the 16th century Yemeni city of Shibam with mud brick tower houses of five to eight stories high built to protect the occupants from Bedouin attacks.

Social, economic and technological developments in the latter parts of the 19th century created the environment for modern high-rise buildings to emerge in the North American cities of New York and Chicago.

Daring engineering feats of the 1800s

In 1852, Elisha Graves Otis built the first ‘fall safe’ hoisting system (the elevator) allowing vertical transportation of people and goods in multi-storey buildings. This invention made the construction of skyscrapers possible and as a result greatly altering the way modern cities were planned and constructed.

In 1885, the Home Insurance Building in Chicago (originally 10 stories and 42 m high) demonstrated the use of the first steel framed gravity system. It was the first tall building to be supported both internally and externally by a fireproof metal frame, which allowed for large windows at the ground level of high-rise buildings.

This set the trend for use of steel frame gravity systems in tall buildings as the loadbearing masonry system used to that date was very inefficient economically beyond 15 stories. This limitation is evidently demonstrated by Monadnock Building (1893) in Chicago which, at 17 stories high, was the tallest in the world at the time and was the first in use of a portal system for wind bracing. However, owing to its load-bearing masonry system, it had walls up to 1.8 m thick at the ground level that made the ratio of its ‘net-lettable-area’ to its total built area simply too low to be economical.

In 1889, the Eiffel Tower doubled the height of the previously tallest Washington Monument, rising above 300 m with the use of pre-assembled iron components to create what has since become the iconic landmark of Paris. This new architectural concept at the time provided a great boost in general confidence in viability of tall metal structures.

The Ingalls Building (now called the Transit Building) built in 1903 in Cincinnati in the United States of America is considered to be the first reinforced concrete skyscraper. This 16-storey building was built by monolithically casting the columns, floors and walls in concrete of relatively low strength by modern standards.

Cincinnati architectural firm Elzner & Anderson designed what was considered a daring engineering feat at the time (people feared the building would collapse under wind loads or its own weight), but the success of the building led to the team creating the tallest reinforced concrete structure.

From the 1950s through to the 1970s, great technological advancements took place that allowed architects and engineers to aspire to greater heights. Some of these advancements included high-strength bolts replacing hot-driven rivets, the emergence of glass-metal curtain wall façades, the use of electric arc welding in shop fabrication and the compressive strength of concrete catapulting from 40 MPa in the 1960s to 65 MPa in the 1970s (and eventually 100 MPa+ in the 1990s).

These technological advances, combined with a deeper understanding of structural behaviour and analysis under environmental loads (particularly wind loads), led to the emergence of supertall buildings being built in Chicago during the 1960s and 1970s. These supertall buildings were conceived by structural engineers as tubular schemes where the entire structure was designed as a cantilevered tube) or a bundle of tubes resisting wind loads.





By Professor Kourosh Kayvani.

From 'tall' to 'supertall' and 'mega tall'

The increasing rate of urbanisation in recent decades has seen an accelerated trend in the construction of high-rise and tall buildings worldwide, particularly in the emerging economies of the world.

A fundamental economic driver for the growth of tall (particularly residential) buildings is the scarcity of land in the densely urbanised parts of the world. The competition for constructing the tallest building in a city, country, region or the world has acted as another driver for the growth of tall buildings worldwide. In the past two decades or so, the race for constructing the tallest has been extended to include the contest for constructing the most iconic and spectacular high-rise buildings often characterised by complex geometries and leaning/twisting forms.

Over the years, the Council of Tall Buildings and Urban Habitat (CTBUH) has been recording data of tall building structures, showcasing how they continue to rise in height. According to the CTBUH's annual review of tall buildings, 97 buildings taller than 200 m were completed in 2014, which is the most ever in a year, with 60% of completions being in China. Eleven supertall buildings (more than 300 m high) were reached in 2010, 2011 and 2012. South America completed its first supertall building, the 300 m-tall Torre Costanera, and the tallest building completed in 2014 was the One World Trade Centre in New York at 541 m.

The definition of 'tall', however, has changed over time. According to the definition given by CTBUH, a 200 m+ building is 'tall', 300 m+ is 'supertall' and 600 m+ is 'mega tall'.

However, architectural and structural factors such as the context of the building, location, and the slenderness of the building (i.e., its height-over-base ratio) would demand more flexible definitions. Skinny skyscrapers, for instance, aren't possible everywhere and this has more to do with the target market and location than engineering and design capabilities. An example of this is the super skinny tall buildings in New York City, where each apartment is a penthouse that occupies an entire floor of the building. Engineers consider tall buildings with a height-to-base ratio in excess of 1:10 or 1:12 to be slender or skinny.

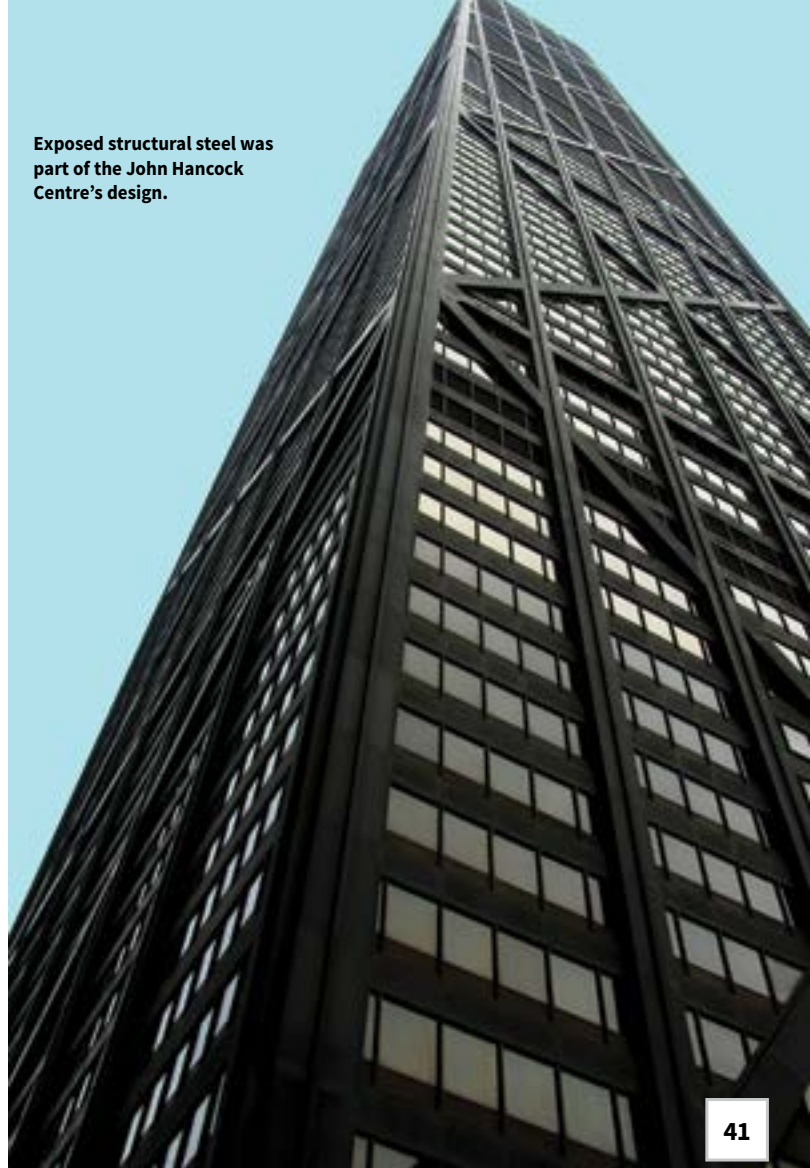
While tall, skinny buildings present a number of design challenges, the developers of the property need to be able to fill it with tenants who are willing to pay for the special views that a penthouse-style, super tall and skinny building offers. Location and environmental factors also influence how slender the building can go. Wind engineering is, for example, a fundamental aspect in creating tall, skinny buildings.

The evolution of the form of tall buildings

The design and form of original supertall buildings used to be structurally-driven, such as the John Hancock Centre of 1969 that had exposed structural steel as part of the design.

As design philosophy evolved, architects started to use the structure to inspire the forms of the buildings they designed. Examples of this include Bank of China Tower in Hong Kong (which at the time of its construction set the record of the tallest building outside North America) and Gherkin in London, where architects and engineers took adaptable approaches to the diagonalised grid structures on the building façade to create structures of efficiency and elegance.

Today, architects and designers have more form freedom than ever before. Advancement in design and construction techniques allows engineers to assist their architect colleagues to create buildings that would have been unimaginable a few decades ago.



Exposed structural steel was part of the John Hancock Centre's design.

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While complex forms would often result in an increase in construction cost, a careful and sophisticated engineering approach is required to achieve the architectural vision without unnecessary cost overruns. Whether it is in the choice of the lateral load-resisting structure and/or floor systems, or in the approach for integrating the structure in the overall geometry and architecture of the building, the decisions made by the structural engineer have a profound impact on the cost, amenity, constructability, and sustainability of tall buildings.

Changes in locations, functions and materials of tall buildings

The locations of the tallest buildings in the world, as well as the function of the buildings and the materials used to construct these buildings, is rapidly changing. Only 20 years ago, 75% of the 100 tallest buildings in the world were located in North America and as of 2014, this figure is less than 25%, with the shift occurring predominantly to Asia and the Middle East.

The function of tall buildings has also changed in a significant way over the past five years. In the past, the function of the 100 tallest buildings in the world moved away from the predominantly office buildings that have dominated the tallest lists for many decades to more residential and mixed-use functions. Growing populations and rapid urbanisation in developing countries explain why so many tall buildings are being developed for residential and mixed-use purposes instead of for commercial office use.

Determining the right structural materials and driving economic design

The structural materials used in high-rise buildings are typically one or a combination of (reinforced or pre-stressed) concrete, structural steel and composite systems.



☛ Structural material systems for high-rise buildings should be chosen by carefully considering architectural, economical and site factors.

Preferences and the economic viability of the different structural materials that are used in tall buildings' construction are also changing. In 1970, 90% of the 100 world tallest buildings were all-steel buildings. Today, all-steel buildings account for less than 15% in favour of concrete or composite structures.

Driving economic design in the construction of high-rise buildings isn't the same all over the world. What is cost-effective in one country won't necessarily be cost-effective half way around the world. Materials, labour cost, the value of time and the value of space all need to be carefully weighed in order to drive economic design.

'Tall behaviour'

From a structural engineering point of view, as high-rise buildings get taller and more slender, their design becomes increasingly (and fundamentally) influenced by specific behavioural factors that are much less significant for shorter buildings.

These factors include the dynamic response of tall buildings to wind loads both in the ultimate and serviceability limit states, and the differential axial shortenings of the vertical elements of tall buildings under gravity load effects. As far as these factors are concerned, the absolute height of the building is not necessarily the best measure for 'tall behaviour'. In particular, the magnitude of the dynamic wind response is more significantly influenced by the overall slenderness of the building and the natural frequencies of its fundamental modes than its absolute height.

The overall slenderness of a tall building is usually defined by its

'height-to-base ratio', being the height of the building divided by its narrowest plan dimension. Essentially, higher height-to-base ratios and lower natural frequencies increase the dynamic component of the response to wind.

Wind engineering of high rise buildings

Wind loads affecting the design and construction of high-rise buildings are intrinsically dynamic and random in nature (in both time and space). Wind speed can be described as a mean value upon which random fluctuations or gusts are superimposed. The wind loads arising from the mean and gust wind speeds are called Mean and Background components, respectively.

For slender tall buildings, there is a third component of wind load namely the resonant component that dominates the structural behaviour. The resonant wind load is the result of the fluctuating frequency of wind effects matching the natural frequency of the building structure.

When designing a building, the mean, background, and resonant wind loads need to be considered:

- *Mean wind load:* Steady drag and lift forces due to dynamic pressures arising from the mean wind speed.
- *Background wind load:* Non-steady drag/lift forces to due additional dynamic pressures arising from gust wind speed.
- *Resonant wind load:* Transient inertial forces generated by the dynamic responses of the structure to wind (both direct and interference effects), which is negligible for low-rise buildings but dominant in tall buildings.

Wind has always been an important consideration when erecting tall buildings and it becomes more important and complex as the height increases.

Seismic engineering of high rise buildings

The prime objective of seismic design is clearly to provide life safety. The common practice to achieve economic and safe design is to dissipate seismic energy in the structure during an earthquake by forming controlled and stable 'damages' in the structure (in the so called 'plastic hinges').

To ensure that damage is distributed rather uniformly among floors and that the gravity load path is not compromised, engineers often use what is called a 'strong column/weak beam' design philosophy, which stipulates that the columns of a joint needs to be at least 20% stronger than the beams framing the same joint. While this philosophy provides life safety, the implication of widespread plastic hinges is extensive damage throughout the structure to the extent that the building might be damaged beyond repair due to an earthquake.

Christchurch's central business district saw the devastating impact that an earthquake can have on a city after the 6.3 magnitude earthquake of 22 February 2011 led to the death of 183 people in New Zealand's second-largest city.

The heavy financial cost of the Christchurch earthquake demonstrated the value that a 'low-damage' design philosophy could have offered. As Aurecon, we are a world leader in low damage design solutions for buildings, aimed at reducing primary structural damage in bracing systems.

By concentrating and dissipating seismic energy in predefined parts of the building, a low damage design philosophy creates a more resilient system that increases post event operability for owners and



tenants. The additional capital cost of this investment can range from negligible to approximately 4% with a base isolation system. Downstream advantages include secure tenants, lower insurance premiums and fundamentally a safer built environment.

While base-isolation systems, such as friction pendulum bearings, have been in use for some time, we have developed innovative 'rocking' and 'sliding' frame systems in collaboration with major universities in New Zealand.

Material, technology and sustainability

The global impact of buildings means that engineers and designers need to start creating more sustainable high-rise buildings. Currently, buildings account for 40% of global energy use, 15% of water use and 30% of the waste that is generated.

Although the drive to deliver good, functional and economical designs for high-rise buildings is not changing fundamentally, the focus on produce energy efficient and sustainable designs is expected to increase at an accelerating pace. Tall buildings are proportionally more material and energy-hungry than lower rise buildings. In high-rise buildings the structure is a large portion of the overall cost and embodied energy, and hence, the structural engineer can significantly influence the overall sustainable design outcome.

Sustainable structural design goals can be achieved by addressing the following three objectives: reduce, reuse and recycle. Advanced analysis and design methodologies allow us to design increasingly more efficient structures (with just the required amount of material and no more). Also, new material technology is opening the way for the reduction of the embodied energy per unit of material (in terms of transport energy, sustainable supplies, and the like). The use of industrial by-products such as fly-ash, slag and silica fume as a cement substitute can drastically reduce the embodied energy of concrete.

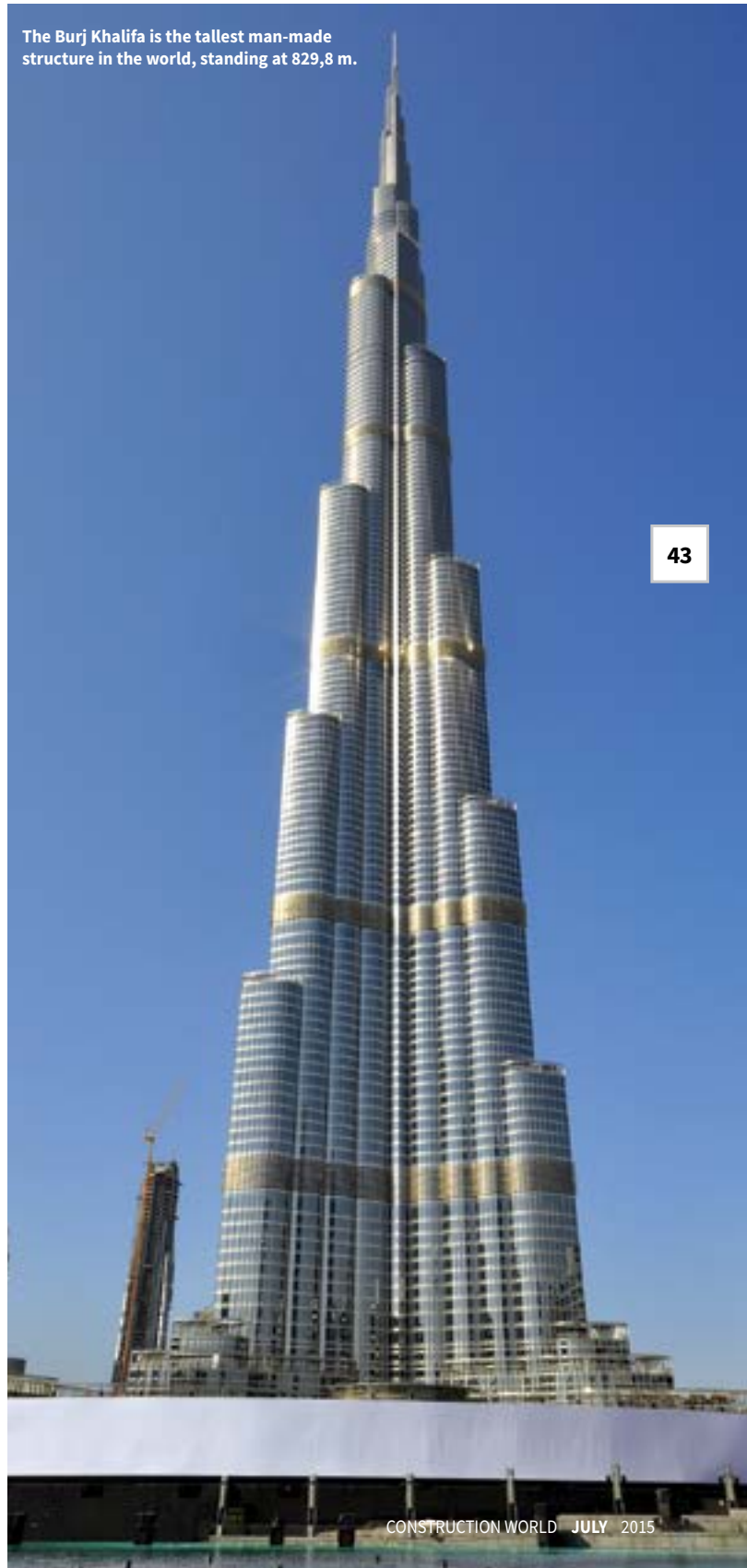
'Re-use' is about adapting the use of a high-rise building while keeping the original structure. There are growing examples of adaptive reuse of high rise buildings globally. To achieve future reusability of high-rise buildings, an important design consideration is the provision of 'planning flexibility'. This can be achieved in the design phase by a generous choice of structural grid, live load allowances and the like (i.e. use longer spans and larger live loads that are more adaptable to future reuse).

The emergence of building information modelling (BIM) as a repository of information for asset management (as-built drawings, mill certificates and the like) is also expected to facilitate future reuse opportunities. Future high-rise buildings are likely to be designed with more consideration given to the recyclability of structural components.

While the trend in the development of higher strength steel and concrete is not stopping, use of new material with superior performance and/or superior sustainability is gaining significant momentum. While timber buildings of taller than ten stories have already been achieved, there are significant research and development projects underway globally aiming to construct buildings as tall as 40 stories in steel-reinforced timber.

The other growing trend is in offsite fabrication of high-rise buildings. As labour costs escalate relative to material costs and as the construction safety and quality gain increasing attention, solutions involving prefabricated or manufactured structural components and building modules are gaining popularity. There is a growing trend in construction of high-rise buildings from fully modular systems.

The Burj Khalifa is the tallest man-made structure in the world, standing at 829,8 m.





Bay of Plenty **PIER**

After a lengthy delay due to an appeal against the award, Franki Africa (KZN) was appointed by eThekweni Municipality in October 2013 to carry out the reconstruction of the Durban Bay of Plenty Pier and commenced work in March 2014.



Franki engineer Paul Pearce says the existing pier is a reinforced concrete deck supported on precast concrete piles which retain a rock groyne beneath the pier. "Due to scour and failure of the precast piles, approximately 75 m of the seaward end of the pier has failed and is to be demolished and reconstructed," Pearce says.

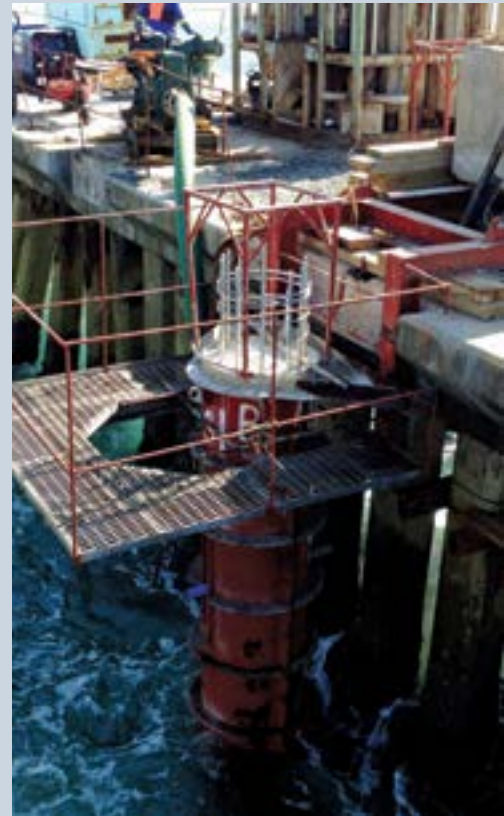
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The main scope of works includes the demolition of 75 m of the existing piling and deck; installation of 22 no. 750 mm diameter x 24 m permanently cased piles; construction of 75 m x 10 m wide new deck and the installation of 500 no. 4-ton geotextile scour protection bags within and around the seaward end of the pier. "The existing pier has continued to move due to the failed piles and in order to safely demolish the old pier and construct the new one, we have constructed a 110 m temporary jetty adjacent to the existing structure as a working platform," Pearce says.

The temporary jetty was completed in June 2014. Obstructions, including large boulders and concrete, below the sea bed have caused difficulties in installing piles and these had to be broken through using chisels and grabs resulting in lengthy delays. Where the existing failed piles obstructed the proposed new pile positions, the jetty has had to be redesigned to accommodate new pile positions. All piles have now been installed to depth, with one pile having to be installed at a rake.

Ongoing settlement of the rock within the groyne and in the sea bed around the pier are causing the engineers some concern and additional scour protection measures are being taken to stabilise the situation and ensure the groyne serves its intended function of beach sediment control – and producing a decent, but safe, wave for the surfers.

Reconstruction of the deck has started at the seaward end of the pier with the existing structure being cut into manageable pieces and removed to dump. The existing precast piles are being braced and incorporated into a new capping beam below the new structure.



The new deck, which will be approximately 4 m wider than the existing deck, will be constructed in 11 sections. Custom shuttering supported on the new and the existing piles is being used. The deck design and the formwork have had to be modified to accommodate the revised pile positions and the raked pile.

As with all marine works, the risks associated with rough sea conditions are ever-present making the fixing and maintaining of the deck shuttering challenging. One of the measures taken to speed up preparation works to avoid the exposure time is the use of glass fibre coated polystyrene blocks for soffits and void filling.

Currently Franki's Siva Govindasamy, a veteran Durban pier builder having worked on Dairy Beach Pier, uShaka Pier, Umhlanga Pier and the more recent Argyle Stormwater outlet, and James van Wyk are supervising the works.

Due to the unforeseen ground conditions and associated delays, the works are currently behind schedule with contract completion scheduled for December 2015. <





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Park Station SEWER UPGRADE

Consulting engineer SMEC South Africa, in partnership with contractor Trenchless Technologies cc, has completed a major project to rehabilitate sewer and stormwater reticulation systems at Park Station in Johannesburg on behalf of client PRASA Corporate Real Estate Solutions (PRASA CRES).

The project was an important showcase of SMEC South Africa's total solutions package, from initial investigation to preliminary design report, construction drawings and overseeing the entire construction process.

"We opted for Horizontal Directional Drilling (HDD) for the refurbishment of the Park Station sewer network. This is a steerable trenchless method of installing underground pipes whenever trenching or excavating is not practical," explains Meghan Brinkley, professional engineer, asset management and advisory services, SMEC South Africa.

"Conventional trenching techniques were not an option as the line that had to be replaced ran underneath the railway lines at Park Station. HDD has a minimal impact on the surrounding area, making it ideal for a range of applications and soil conditions," notes Brinkley.

The HDD process involves three main stages: drilling a pilot hole, enlarging (pre-reaming) the pilot hole and finally the pull-back installation of the carrier pipe. Uncontrolled or unguided drilling can result in damage or unforeseen complications, meaning it is vital to track the drilling

head when drilling the pilot hole on the designed path.

"Another important consideration is to maintain the designed slopes along the drilled path. The contractor utilised the iTrack system from Radiodetection to locate the bore head and keep it on track, providing the operator with accurate data on tilt angle, roll position, depth, remote left/right steering and alarm conditions," elaborates Brinkley. The borehole is supported by a bentonite drilling fluid that prevents it from collapsing.

Soil conditions are critical, as voids or incomplete rock layers can render HDD impractical. It also affects the type of heads used in the pilot-hole process. "During the geotechnical investigation, GPR (Ground Penetrating Radar) revealed no anomalies along the designed path," confirms Brinkley.

HDD was used to drill a new 160 mm diameter HDPE pipeline diagonally underneath the train tracks at Park Station in order to connect existing manholes with the new main-line manhole constructed on PF11 (Platform) and PF12. A new 250 mm diameter HDPE line was also drilled from the new manhole on PF11 to PF12 to the municipal connection manhole under Harrison Avenue Bridge.

In order to prioritise effective maintenance, the new reticulation network was structured for easy accessibility. SMEC South Africa's investigation called for repairs on existing sewer pipes inside sewer ducts. In addition, inspection eyes had to be installed and joints adequately sealed.

All sewerage flowing from the aboveground shopping outlets and toilets between PF1 to PF10 is now collected by four 110 mm diameter uPVC pipelines, supported by a service tray for easy access and visible inspection.

"It is important that these pipelines run parallel to the train tracks and do not cross the train power lines at any point," stresses Brinkley. Four 110 mm diameter uPVC pipelines drop vertically and offload sewerage into platform manholes, as well as a new manhole constructed on PF9 to PF10. "Going forward, continued maintenance will ensure effective operation of the sewer network for years to come," concludes Brinkley.



Construction of a new sewer manhole in-between the railway tracks at Park Station in the Johannesburg CBD.



Pulling the new HDPE pipe (for the HDD line perpendicular to the tracks) into the drilled hole.

An overview of the railway platforms where the HDD process was carried out perpendicular to the tracks. The excavation on the upper left is the location of the connecting manhole.

Manhole construction on the Park Station train platforms. A major constraint was that the railway lines had to remain operational at all times.



COST EFFECTIVE DEWATERING EFFICIENCY

Quick and easy dewatering on construction sites, in the built environment and in general industrial applications, is now possible with the Grindex Primo range of submersible dewatering and drainage pumps available from Integrated Pump Technology, the sole importer and principal distributor of Grindex pumps.

➤ These small and handy electrically driven, single phase submersible pumps are proving popular due to their high quality, robust construction and affordable pricing. The Grindex Primo pumps are ideal for nuisance dewatering applications and find ready use in dewatering or drainage of spillage, leakage, small sumps, underground car parks and basements. The pumps range from a 16 metre shut off head to a flow rate of 7 litres per second.

Ease of use is a major benefit of the Grindex Primo range. Essentially a plug and play operation, once the power has been connected to the pump and the pump discharge hose is in place, the unit is simply placed in the area to be dewatered. Where there is no electricity available, these pumps can be coupled up to a small generator on site, making them ideal for dewatering in remote areas where infrastructure development is taking place.

The Grindex Primo S range, which is equipped with a vortex impeller, is perfect for dewatering applications where silt is present in the water. Due to the design of the pump, sediment does not come into contact with the

impeller, thus ensuring minimum wear to the pump and increased longevity. The Grindex Primo D range is used for clean water drainage applications such as basement dewatering.

The Grindex Primo range ticks all the boxes for dewatering applications. Manufactured in an

ISO accredited facility, quality and durability are guaranteed. The pump's top and stator housing are aluminium while the motor shaft is made from stainless steel. The construction of the pumps provides an ingress protection of IP 68, with operation in liquids with temperatures up to 35°C and a maximum submersion depth of 15 metres possible.

Integrated Pump Technology has a network of 16 strategically located, specialised pump distributors supported by dedicated account managers to ensure effective service and customer support for the Grindex Primo range. ☒



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ROBUST series launched

CSE Equipment – the Capital Equipment Group (CEG) of Invicta Holdings Limited – has extended its range of Case backhoe loaders, with the launch locally of the robust 570T series.

“Case Construction Equipment continuously upgrades and improves the design of its extensive range of earthmoving equipment to meet changing market demands,” says Brenton Kemp, managing director of CSE Equipment. “What’s notable about Case machines is their suitability for efficient use in diverse applications, including harsh operating conditions in construction, on the mines and in agriculture, as well as on urban job sites.

“These entry level 570T backhoe loaders have been designed for improved productivity, reduced noise levels, enhanced on-site safety and low maintenance requirements. Key features of this series include the excellent performance and high torque delivered by the fuel-efficient engine, the robust S-styled boom for improved digging and lifting and the heavy-duty front axle, which is also available in a 4WD option. These machines, with a large cab for improved operator comfort, have also been designed for effortless serviceability.”

The turbocharged, four-cylinder FPT Industrial S8000 engine delivers up to 86 hp and ensures reduced fuel consumption. The power shuttle transmission provides four speeds forwards and reverse, delivering up to 402 Nm of torque at 1 300 rpm.

Hydraulically shifted clutches and control valves ensure smooth direction and travel speed shifts. The 4WD option of this series and the 100% locking differential fitted to the rear axle improves mobility and loaded performance, where job site conditions are muddy and where extra traction is essential.

The Case 570T has a maximum ground

level reach of 5 583 mm with the Extendhoe dipper version.

The lifting hook, which is welded to the bucket linkage, enables the rear arm to safely lift and handle suspended objects. The straight loader arm ensures loading capacity up to 3 700 kg, with a maximum tipping height of 3,48 m. The shape of the backhoe loader enhances the loading ability of the machine and its capacity to overcome obstacles, while ensuring a high breakout force.

This design improves visibility to the bucket and the self-levelling mechanism during the lifting phase enables precise control, enhancing productivity. Large box section structures with thick, multi-plate fabrications, casting and forgings are used in high stress areas. For example, the boom nose, foot cylinder and stick foots, to improve durability. The robotically welded two-piece structural frame design provides a robust foundation for the machine that ensures stability, enhanced performance and serviceability.

The front axle is designed to handle heavy-duty applications, even in extreme conditions. The steering cylinder is a double effect type and is mounted above the centre pivot in a well-protected area behind the beam. The tight steering angle, with oscillation of approximately 11°, ensures stability on the roughest terrains, improving bucket retention and maintaining productivity.

The multi-purpose 4-in-1 bucket copes efficiently with different working conditions of digging, loading and unloading, flattening and levelling applications. The optional extendable dipper and auxiliary hydraulics have a digging reach of 5,6 m and can fit a hammer for demolition applications.

Wide door openings, which are equipped with door retainers, allow easy entrance for the operator and also improve air ventilation.

The spacious cab is ergonomically designed with all controls conveniently placed for easy reach and faster operation.

The ROPS/FOPS design offers maximum safety and protection against roll over and falling objects. Large-sized glass windows and a one-piece rear glass, with no pillars, provide excellent all-round visibility.

This series has been designed for minimal downtime and reduced maintenance requirements. A single piece tilting engine canopy enables top and side access, from ground level. The braking system uses the machine’s main hydraulic oil reservoir, which means there is no requirement for a separate filler.

For enhanced security on site, the T series has new features. These include a secure oil cap breather on the hydraulic tank to prevent contamination, the engine canopy lock is situated in the cab to avoid vandalism and a lockable battery box inhibits theft from site.

Hydraulic and steering pressure control points are conveniently located between the cab and fuel tank for effortless checking. Large capacity fuel tanks ensure longer working hours between refills – this increases operational hours on site. The Case electronic service tool enables rapid rail engine diagnostics, which reduces downtime.

For easy maintenance, greasing points are protected from dust and damage, hydraulic connections are well guarded, flexible and easy to use. The dozing blade on the 4-in-1 bucket can be easily replaced when worn.

CSE supports its range of Case equipment – which includes loaders, backhoe loaders, excavators, telehandlers and skid steers – with a technical advisory and maintenance service throughout the country. Operator and mechanic training is also provided. <





GOING FROM STRENGTH TO STRENGTH

Since the inception of MB Plant SA in 2012, the company has gone from strength to strength.

> Rebuilding the New Holland brand has by no means been an easy task. The company is at a point where customer sentiment is positive towards MBPSA SA and these are reflected in the improved sales volumes in a challenging market.

By creating awareness, establishing a solid foundation together with a viable business strategy, clients are afforded the opportunity of a good product, personalised service thus building solid relationships.

A client of MB Plant SA stated in a recent publication that it is important for them to have a single point of contact and MB Plant SA has demonstrated that it is not just about the sale, but about finding creative ways to assist customers.

Alongside the construction division of MB Plant SA, the company is successfully expanding their footprint and network across Southern Africa. With this in mind MB Plant SA has successfully lobbied to become the official distributor of Astra Trucks in South Africa.

MB Plant SA have implemented a role out plan which will cover key areas to ensure customer support from inception.

MB Plant SA's CEO, Danie Gerber has a simple vision: "To have a great product, backed by good people and to provide our clients with exceptional service." ■



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THE NEXT BENCHMARK IN THE 41 TONNE CLASS

The new flagship in Caterpillar's articulated truck range, the Cat 745C comes to market with an all new power train, more power on demand, improved fuel efficiency, plus greater payload capacity.



Rolling out to the Southern African market from May 2015, the latest generation Cat 745C is a major advance on the previous world leading Cat 740B model launched locally in 2011, and features a host of new performance features designed to lower owning and operating costs in mining, construction and allied industrial segments.

"Tonnes moved per hour and per litre of fuel burned are key drivers to business success in today's contracting market, and Caterpillar has made this a key focus during the research and development, and pilot testing phases of the Cat 745C," explains Barloworld Equipment group product and application manager, Johann Venter, adding that this includes comprehensive in-field trials in South Africa.

Along with more power and improved operational efficiencies, the rated payload on the Cat 745C has increased to 41 tonnes, compared to the Cat 740B's 39,5 tonne capacity. The Cat 745C has a newly designed dump body with a capacity (heaped SAE 2:1) of 25 m³.

Manufactured in Peterlee, England, the Cat 745C will be available alongside the current 725C, 730C and 730C EJ (Ejector) models launched in Southern Africa during 2015. Production of the first Cat 745C units at Peterlee commenced from March 2015.

Powering the Cat 745C is a Tier II Cat C18 engine delivering a gross power of 381 kW (SAE J1995) compared to the 365 kW Cat C15 power plant installed on the Cat 740B.

Driving the Cat 745C is a new CX38 High Density Power Shift (HDPS) transmission with Advanced Productivity Electronic Control Strategy (APECS) and nine forward / two reverse gears, combined with Electronic Clutch Pressure Control (ECPC), Shift Torque Management (STM) with improved Shift Control Logic (SCL), and Part Throttle Shifting (PTS).

The Cat 745C features permanent six-wheel drive, with four open differentials for optimum traction in undulating ground conditions and during steering manoeuvres.

"Together, these advanced features allow smoother shifting and greater acceleration on grades as torque is maintained through the shift changes," explains Venter.

SCL provides automatic shift selection that is more specific to the desired machine operation, and downshifts when needed for maximum acceleration when increased throttle is applied. PTS allows shifting at lower speeds during part throttle operation. This results in improved part throttle fuel economy, quieter machine operation, and better manoeuvring in reduced speed operating conditions.

Updated ATC system

Standard fitment on the Cat 745C is an updated Automatic Traction Control (ATC) system, which leads the market in terms of technology. ATC significantly improves ease of operation by removing all manual traction control decisions from the operator. The system automatically changes the level of inter-axle and cross-axle differential lock engagement on the go. This aids in maintaining traction at all times, contributing towards improved cycle times and productivity.

The ATC system is also fully proportional, constantly modifying and applying the exact amount of torque to each wheel to match changing ground conditions. Furthermore, the proportional ATC system works in harmony with the hydraulic steering system, without compromise in tight turning manoeuvres.

Automatic Retarder Control (ARC) has been introduced to further improve ease of operation. Working in forward and reverse gears, this feature can now be set to fully automatic in addition to manual control. In automatic mode, the machine manages retarding through a combination of engine brake, gear selection and supplemental application of the service brakes. Two position manual retarding is also retained for more experienced operators. Both ATC and ARC are unique Caterpillar proprietary systems. "ATC was first introduced on the Cat 735B, 740B and 740B EJ in 2011 and



has received excellent market feedback from customers," points out Venter.

Additional ease of operation features help towards maximising machine efficiency and include Hill Assist (for easy stop/start on grades) and Waiting Brake (which temporarily applies the service brakes during typical loading/dumping/waiting applications).

VISIONLINK™

The machine is fitted as standard with the Product Link™ transmitting hardware, enabling connection via either GSM cellular or satellite to Caterpillar's online internet portal, VisionLink™ and the Cat Connect telematic suite. Cat Connect technologies offer improvements in three key areas, namely equipment management, productivity, and safety.

Via VisionLink, machine owners can track location, hours, fuel usage, productivity, idle time, and diagnostic codes, and make timely, fact-based decisions to maximise efficiency, improve productivity and lower costs.

Cat Connect payload technologies like the Cat Production Measurement payload monitoring system will be an option on the Cat 745C, as well as other C-Series models. With Cat Production Measurement, operators can view real-time load weights on an in-cab integrated display and know precisely when target has been achieved. Cab mounted external payload lights signal the loader operator when to stop loading. Payload data can in

(CLOCKWISE) Focusing on high productivity, the Cat 745C is equipped with a range of updated and improved features, including an all new power train and Automatic Retarder Control, which enhances ease of operation.

With the Cat Production Measurement payload monitoring system installed, cab mounted external payload lights signal when to stop loading.

Service points are mounted on the left side of the engine under the electrically raised hood.



turn be viewed remotely via VisionLink for key information such as loads and cycle counts, and daily totals.

"These and other design features all translate into increased profit potential for machine owners," Venter concludes, "positioning the Cat 745C as the new class leader when it comes to all-terrain trucking." ■

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MEDIUM TRUCK range

FAW Vehicle Manufacturers SA has launched a new FAW medium-weight truck range specifically engineered for the local market and built on South African soil for the Southern and Central African markets.

A new player in the medium-weight market

FAW Vehicle Manufacturers SA took a strategic decision to redesign and re-engineer the China-version of the truck to be perfectly suited to local medium truck demands. The FAW team paid special attention to cost efficiency combined with the best possible payload and the best turnaround time, without forgetting FAW's quality build standards for durability and reliability.

"The new FAW 8.140 FL carries all the hallmarks that FAW trucks are renowned for, namely strength, reliability, easy operation, and most importantly, delivering on the promise of a 'truck built for Africa, in Africa!'"

Strength from top to bottom

Imported from parent plants as SKD kits, the cab, chassis, axles and other sub-assembly components, together with the imported Cummins ISF engine and the ZF transmission, are all neatly assembled in the brand new Coega-based plant.

Since its opening, this plant has employed over 100 new employees, all of whom have been freshly trained and up-skilled for the new medium truck production. The total capacity of the plant is 5 000 units per annum.

As demand for the new range and the existing heavy and extra-heavy FAW trucks increases, new job opportunities will be created.

The FAW 8.140 FL will be available from FAW dealers in a number of body derivatives – a drop-side, a taut-liner option, a van body,

➤ Yusheng Zhang, CEO of FAW Vehicle Manufacturers SA, explains the rationale behind the introduction of a new, precision-designed, medium-sized truck range.

"Our decision to introduce a medium weight truck range was based on customer demand and market opportunity. Our market analysis confirmed the need for a vehicle as durable and rugged as our heavy and extra-heavy trucks, but with smaller dimensions to handle a different working environment.

"We've had a presence in South Africa since 1994 – so this year marks our 'rite of passage'. Throughout this period, we have demonstrated our commitment to this country and our loyal customers.

"This latest investment we have made in acquiring special tooling for this new medium-sized truck range and the specialised training, which is still ongoing, combined with that of the last four years totals in excess of ZAR800-million to date. This includes our truck body-building facility which opened in January this year and our manufacturing plant commissioned in July last year – both based at Coega, just outside Port Elizabeth."



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Volvo Construction Equipment



“The new FAW 8.140 FL carries all the hallmarks that FAW trucks are renowned for, namely strength, reliability, easy operation, and most importantly, delivering on the promise of a ‘truck built for Africa, in Africa.’”

➔ a tipper and a rollback and a dry-freight insulated body. Customers may choose to buy the chassis cab and fit their own truck bodies to suit many other applications, up to a GCM of 14 ton.

Strong chassis and well-appointed cab

The parallel chassis frame and smooth top flange chassis construction has a distinct low-weight advantage, especially when mounting a steel sub-frame cargo body. The locally built chassis passes through a special paint station to enhance the chassis' dust and dirt endurance and longevity – a unique South African addition.

The suspension is of the straight ladder-type with semi-elliptical leaf springs, together with front double acting shock absorbers and rear auxiliary springs.

The axles, graded for a permissible 3 ton in front and 6 ton at the back, provide ample carrying capacity.

The new FAW cab is a forward 45° tilt, cab-over-engine design. It is based on ergo-

nomie principles and provides easy servicing access. The digital instrumentation panel and all controls are placed well within reach of the average-sized South African driver. Materials used are durable and smooth, yet comfortable and sturdy. The 2-metre wide cab allows for a three-person-seat, with a foldable middle section. Radio and USB connection are standard fitments.

The FAW 8.140 FL is fitted with power steering for comfort and driveability.

A drivetrain to match load and speed

In a business environment where total cost of ownership is always top of mind, it has become imperative that the most cost-effective combination drivetrain be engineered to deliver the best levels of efficiency and durability.

Adding to its international pedigree the FAW 8.140 FL is fitted with the Euro 3 Cummins ISF 3.8-litre engine. This high-pressure, common rail 4-cylinder in-line engine is one of the latest from Cummins' reputable

engine range and is ideally suited to the medium-weight truck category. This engine, fitted with a turbocharger, is water-cooled and intercooled. Benefits of this particular powerplant include exceptional performance, low operating costs, low weight, low noise and low emissions capabilities.

Advanced thermal engineering has made the ISF engine capable of running at higher operating temperatures, reducing the size and cost of the vehicle's cooling package. The modular architecture of the engine allows for easy access and single side servicing, reducing operating costs.

The addition of ABS and an air-cut parking brake on a medium-sized truck is invaluable to the safety of driver, truck and payload.

Aftermarket service and warranty

The new range will enjoy a two-year/unlimited kilometre warranty and the full extent of sales and/or service from 36 local representative outlets across South Africa, Namibia, and Botswana. Other countries are also drawing on FAW in South Africa, some taking advantage of the better proximity presented through the SADC region and AU affiliation, such as Angola, Zimbabwe, Kenya, Tanzania, Zambia and Uganda.

The Spartan-based facility is a dedicated national parts distribution centre, supported by the branches in Durban and Cape Town, which act as hubs to support all FAW representatives and self-service operators.

An impressive pedigree

The FAW 8.140 FL is a 'true-blood South African', built locally and uniquely engineered for the African environment.

At an introductory price of R239 000 (excluding VAT) FAW's new FAW 8.140 FL chassis cab, FAW provides the lowest cost per ton on the market today. "With the launch of this new medium truck range FAW has set the bar higher yet again. "Following a growing number of 'firsts' FAW has literally 'thrown down the gauntlet', as we continue on our Africa journey to create a proud legacy for FAW Vehicle Manufacturers SA," concludes Zhang. <

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ADVERTISING QUERIES

EDITORIAL QUERIES

MODULAR wall system a winner

YFEL, an innovative modular precast concrete wall unit developed by retaining blocks producer ReMaCon Products and launched into the market 18 months ago, has won acceptance by a variety of industries requiring easy-to-assemble and moveable walls for containing and separating different types of products.



The YFEL wall units are transported on site and put in place using a forklift truck or crane.

> YFEL – so called because of its inverted Y shape and its resemblance to the Eiffel tower in Paris – was devised by ReMaCon because of its flexibility of application in numerous different industries that are not the obvious target for precast concrete products.

“Our first three sales already confirm this diverse demand,” commented Silvio Ferraris, the company’s managing member.

“One is for shipping company Grindrod Intermodal, which purchased mainly 4 m high YFELs – the largest in our range – to contain and separate a variety of locally mined high-value minerals such as chrome and ferro-manganese in granular and powder form it holds in storage at its Bluff Road, Durban, and Denver, Johannesburg, premises prior to export.”

Another is for Remade Recycling, a Germiston-based company that recycles various waste materials, mainly paper.

The order from Grindrod Intermodal was placed in September last year for a total of 367 YFEL’s, comprising 164 x 4 m units for Bluff Road and 179 x 4 m units and 24 x 3 m units for the Denver facility. The 4 m units supplied to both storage sites include special corner units that are designed to intersect a YFEL wall at right angles to provide for establishment of a series of separate adjoining enclosures.

Grindrod Intermodal is using 4 m high YFEL wall units to separate high-value minerals stored at its Durban and Johannesburg depots prior to export.



ReMaCon completed delivery of the Bluff Road units in February and of the units for Denver in March this year. Purchasers of the units are provided with instructions for installing the walling, for which either forklift trucks or a crane is used to lift and place them. The YFEL’s are designed to hold support pins used for this purpose.

Remade Recycling ordered over 60 x 1,8 m high units that have been shared among its Kya-Sands, Pretoria and Kempton Park sites. In all but one instance they have been installed in external areas to optimise the use of space for storage of waste paper, plastic and other recyclable materials.

The single different application is at the Kya-Sands facility west of Johannesburg where some of the YFEL’s have been installed in place of the bottom sections of the sheet metal-clad sides of a waste paper storage shed as protection from forklift trucks, which

previously damaged the walls while operating inside the shed.

The third purchaser of YFEL wall units is a chemical company in North West Province. ReMaCon supplied over 100 x 4 m YFEL’s along with a number of corner units for establishment of a series of separate enclosures for storage of various materials involved in the company’s production processes.

The YFEL is particularly well-suited for storage of dry bulk materials.

“Its great advantage over conventional storage methods, which invariably comprise fixed built-in structures, is that it can be easily and quickly installed and reshaped in accordance with changing requirements for dividing and storing products of many different kinds,” Ferraris explained.

The units are manufactured in heights ranging from 1,2 m to 4 m. <

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SITE TO GET STUCK ON

Adhesives for furniture and building components are a multi-layered field with several influencing factors such as application methods, materials and bonding technologies. Henkel has now launched a global web platform bundling all relevant information on adhesives for furniture and building components.

> The new website www.henkel-adhesives.com/furniture-building-components comprises of in-depth application know-how, Henkel’s technology portfolio for woodworking operations, training and technical services as well as the ‘Henkel House’, an interactive feature showing typical applications and technologies in a house.

Fully responsive website

Besides its service character and user-friendliness, the brand-new website is also meeting current technology standards: this is demonstrated by a responsive web design, which has been fully optimised for tablets, smartphones and PCs. <

Henkel operates worldwide with leading brands and technologies in three business areas: Laundry & home care, beauty care and adhesive technologies. Founded in 1876, Henkel holds globally leading market positions both in the consumer and industrial businesses with well-known brands such as Persil, Schwarzkopf and Loctite. Henkel employs almost 50 000 people and reported sales of €16,4-billion and adjusted operating profit of €2,6-billion in fiscal 2014.



SOUTHERN AFRICAN DISTRIBUTORS

Magnet has been appointed distributors throughout Southern Africa for Dromex personal protection equipment (PPE).

➤ "We have recognised an urgent need in industry for increased safety for workers and made a strategic decision to further extend Magnet's product offering. This protection equipment complements Magnet's portfolio of electrical equipment, industrial instrumentation and automation systems, to ensure optimum protection for workers in all fields," says Brian Howarth, managing director, Magnet.

"The extensive range of Dromex safety gear is designed to protect employees from harmful hazards and dangerous conditions in the workplace."

The Dromex range, now available from Magnet, encompasses respiratory masks and cartridges, eye protection spectacles and goggles, ear plugs and ear muffs, gloves for hand protection and shoes or boots in the footwear range. Also available are lightweight flame retardant and acid resistant body protection garments.

Key products for Magnet include DW-NOMEX® flame retardant suits and SABS D59 flame and acid suits, which are resistant to abrasion, tear and chemicals. This durable work wear, consisting of jackets, pants and overalls,

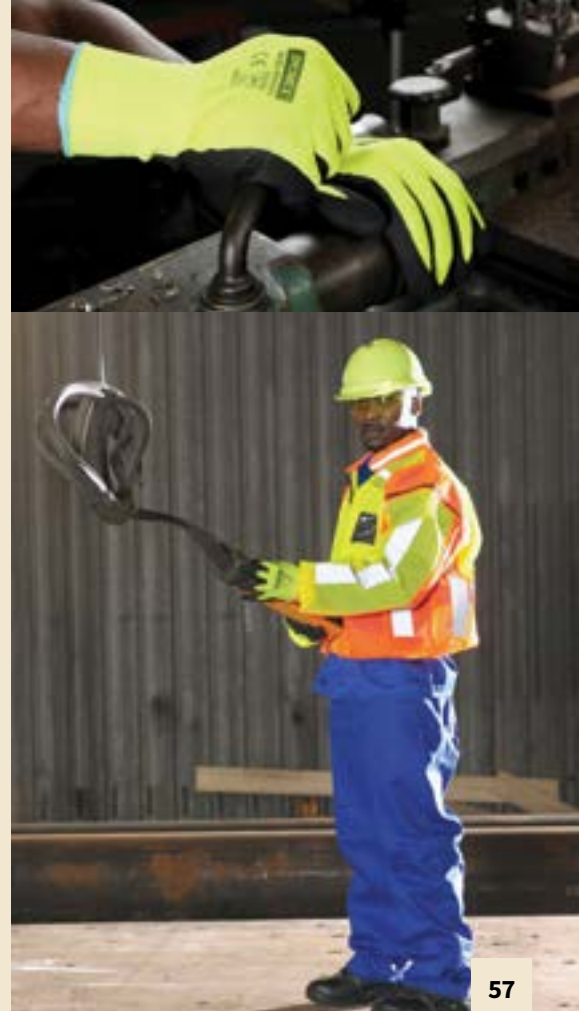
meets stringent local and international safety specifications, including the SANS 434 standard for mark bearing work suits.

Dromex footwear is certified to ISO 20345:2011 standards for safety footwear. An easy to follow selection chart contains relevant information on classifications, categories and performance requirements, to ensure selection of the correct shoe or boot for the intended operation and potential hazards.

DroVision goggles have a clear polycarbonate mono, scratch resistant lens and an elasticated and adjustable headband for optimum protection and maximum comfort. These goggles, which offer 120° lateral vision, are compatible with other respiratory equipment.

Magnet's PPE offers workers protection in diverse sectors, including mining and quarrying, construction and civil engineering, chemical plants, electrical installations, fire defence and shipping. ■

Dromex personal protection equipment (PPE), now available from Magnet.



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MANAGING FUEL

on construction sites



Managing fuel on a construction site can be a challenge. Ensuring that the correct amount of product has been received and that the tanks are adequately stocked are of prime importance. Added to this, one has to ensure that the product is being dispensed correctly and that that no stock is stolen.

> A manual system using dipsticks and manual records is open to abuse and inaccurate information. Any normal dipstick can only give

an indication as to how much product is in the tank. It is well known that different people will take different readings on the same amount of product in the tank. This can lead to abuse. The risk exposure on this amount can be anything between 3% and 7%. Risk exposure means the potential loss of product that can go undetected as a result of operating a purely manual system.

Other challenges are that short deliveries can occur, tanks can leak and unauthorised dispensing from the tank or tanks can take place.

Liquid Automation Systems – one of South Africa's leading fuel management companies has recently introduced a new entry level fuel management system designed specifically with the construction and agricultural markets in mind.

This fuel management system provides onsite peace of mind as to where the fuel is being used.

The complete systems is able to manage:

- The receiving of fuel on the site, in conjunction with our tank gauging equipment
- Instant and automatic tank dipping or gauging, with the tank gauging equipment
- Guarantee that only authorised dispensing of fuel from the tank takes place.
- Date and time stamp of each transaction.
- Quantities of fuel dispensed
- And into which vehicle the fuel is dispensed.

The Trimlite Controller has already proved itself in the harsh South African mining environment.

The Trimlite is the centre of the total fuel management system comprising of an assortment of meters, probes for the tanks and sensors on all the vehicles all product arriving on the site can be accounted for.

The newly adapted Trimlite system for the construction Industry is also able to determine when unauthorised transactions take place.

The Trimlite Controller contains a list of vehicle identification numbers which are authorised to receive fuel from the controller. The vehicle is identified with a tag which has a unique ID code. This tag is fitted in the close proximity to the fuel tank opening. A reader is fitted on the nozzle that will read the tag and transmit the vehicle identification to the controller instantly, once the nozzle is placed in the vehicles' fuel tank.

The attendant refuelling the vehicle is required to identify himself to the TRIMLITE controller. This is done either via a tag or the controller can be interfaced with a biometric system.

The attendant can enter the kilometre or hour reading of the vehicle manually or there is an option to fit an AVR (Automatic Vehicle Recognition System) to the vehicle which transfers the odometer reading to the controller automatically. The benefit of this system is that it removes the possibility of inaccurate or wrong information.

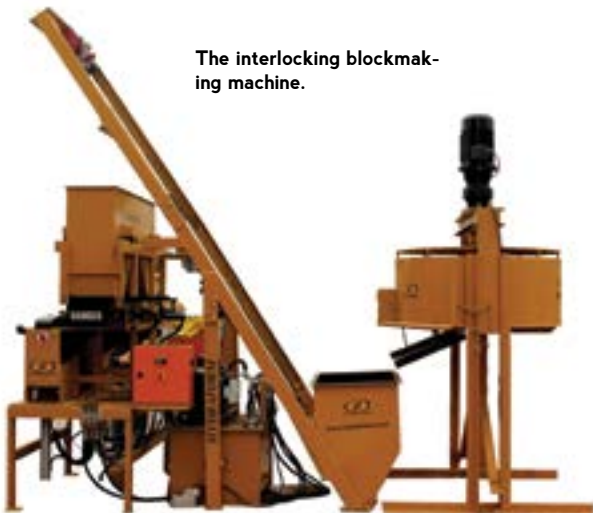
The above sequence of events will switch the pump on. At the completion of the transaction the attendant removes the nozzle from the vehicles fuel tank and in doing so, ends the transaction with the pump being switched off.

In conjunction with our Trimlite Controller the Opti-MIM Software is able to produce a variety of reports enabling a more streamlined and economically run site.

Savings

- Reducing product shrinkage from tanks and vehicles.
- Limiting fraudulent activities.
- Highlights vehicle consumption issues.
- Accurate and on time data that can be integrated into accountancy software.
- Manages stock to prevent out of stock situations.

PROUDLY SOUTH AFRICAN BLOCKMAKING MACHINES



The interlocking blockmaking machine.

Hydraform – a leading South African manufacturer of brick and block-making machines – have launched two new products to the South African building and construction market.

> The products have been in the research and development phase for the last 15 months, and will add significant value to Hydraform's existing product portfolio.

The new machines will be fully automated – making them safer to operate, and reducing labour requirements for production.

The machines have been designed, developed and manufactured on local turf. All Hydraform's equipment is produced at

its world-class facilities in Durban by a group of highly trained engineers, technicians and artisans.

The new M7A2 chute and automated block-making machine produces building material such as standard dry-stacked, interlocking blocks, suitable for load bearing construction, boundary walling and other building purposes.

The machine comprises a hydraulically operated hopper loading system, three-phase electrical operation, a loading platform and 300 litre pan mixer.

"The M7A2 interlocking block-making



TOP QUALITY UPGRADE

Sika's concrete repair and protection system, which extends the service and maintenance life cycles of concrete by up to 15 years, was chosen recently for a mammoth upgrade project at Phalaborwa's Foskor Mine in Limpopo. The largest open cast mine in the area, Foskor Phalaborwa mines millions of tons of phosphate rock per annum.

> At the company's Acid Division in Richards Bay, the phosphate rock is subsequently converted into phosphoric acid and phosphate-based granular fertilisers.

Awarded the contract to upgrade the mine, consultants from MDM Engineering discovered that certain sections of the mine structure displayed insufficient concrete cover. To solve the problem, two top quality Sika products were specified; internationally approved Sika FerroGard-903+ and SikaTop Seal-107 ZA.

Based on organic compounds, Sika FerroGard-903+ is a surface-applied mixed corrosion inhibitor specifically designed for use as an impregnation of steel-reinforced concrete. Having penetrated the concrete, it forms a protective monomolecular layer on the surface of the reinforcing steel. Sika FerroGard-903+ is supplied ready for use and its penetration depth into the concrete can be tested on-site using Sika's Qualitative Analysis Test. This product does not alter the water vapour diffusion properties of concrete and it protects both the cathodic and anodic zones of the reinforcing steel. It can be applied where other repair or prevention options are not viable.

SikaTop Seal-107 ZA is a two-part, polymer-modified cementitious water-proofing mortar slurry that is suitable for interior and exterior surfaces. It is particularly suitable for protection of concrete against ingress and moisture



control. Easy to mix, with no water required, SikaTop Seal-107 ZA provides excellent adhesion and is non-corrosive to steel or iron. The application of this product at the Foskor mine completed Sika's world-renowned Concrete Repair and Protection System.

Working to a constrictive time schedule, contractor, Stefanutti Stocks applied vast quantities of the specified products to the mine infrastructure, which included numerous concrete columns. Although hampered by extremely hot temperatures, the ease of application of these economical, high quality Sika products allowed the contractor to complete the project within four months. Foskor's Phalaborwa Mine has undoubtedly received the most durable and effective upgrade on the market. ❏

machine requires a workforce of only six to eight people to operate, and produces a staggering 6 000 blocks per day," says Nazlie Dickson, sales and marketing director for Hydraform. "It is a two chamber system, operated individually by two separate teams".

Hydraform's second product – the conventional V4 hydraulic paving and block-making machine will only require two operators, which is significantly lower than Hydraform's previous machines (excluding mixers and block carriers).

A fully functional block yard can produce up to 9 600 blocks per day, depending on the type of block produced.

The machine produces 120 drops per hour, and comprises a double vibration motor for high compaction and increased quality, a three-phase electric system fitted on a static frame and an integrated 300 litre pan mixer and skip chute mounted on a platform.

Fitted with interchangeable moulds, the

machine is ideal for medium to large block yards.

"We realised our machines could be improved to push block production for new markets and current clients," says Dickson. "Both these machines have reduced labour requirements that ultimately result in a more cost-effective block being produced".

"The biggest challenge was to develop an automated machine that had the ability to work and be fixed in diverse locations – from major cities to rural areas," says Dixon. "By roping in the experts on the automation and programming stages, we have managed to overcome this challenge and we now produce a simple, versatile block-making solution that – despite the use of automated technology – is easy to fix, even in remote locations," Dixon continues.

"In our markets, construction is a key compo-

The hydraulic paving and blockmaking machine.

nent to developing and improving the lives of people, communities and businesses. We are confident that our new products will enable this objective and make it easier for clients to deliver building solutions, wherever there is a need," Dixon concludes. ❏



PRE-BAUMA OPTIMISM

Last year North America and Europe were the most dynamic construction machinery markets in the world. And according to market experts, this trend could continue in 2015.

> This is one of the reasons why the market in construction machinery and building materials machinery is in an upbeat mood in this 'pre-bauma year', despite all the political uncertainties. The next edition of bauma takes place from 11 to 17 April 2016 at the Messe München exhibition center.

The industry associations are seeing good prospects for the construction machinery and building machinery market in the current global market. Things are going well for the customers, the building industry is growing, and demand is there – not only in Europe, but above all worldwide.

The market in Europe is also picking up again, and the European construction industry is no longer hitting the headlines for the wrong reasons. According to market researchers at Euroconstruct, all the segments in the building industry in Europe will recover in 2015.

According to the industry associations, China – the world's biggest market for construction machinery – will stabilise in the current year, although initially at a low level. fleets, but some recovery is predicted. The statistics company Statista is forecasting the market for construction machinery in China will reach a value of almost USD44-billion in 2015.

Also picking up, alongside the traditional markets, are the markets of the Near and Middle East. The building sector in Saudi Arabia, for example, is currently one of the fastest growing sectors of the country's economy, according to Germany Trade and Invest (GTAI). In the medium term, too, this high level of state investment in expanding the transport infrastructure will ensure above-average growth for the sector.

The market in India, too, according to sector insiders, should also move forward again. The consultants at off-highway research are expecting sales of construction machinery by latest 2016, in this, the seventh-largest country on earth, to regain the highest level reached so far, in 2011. ❏



The students of the 2014/15 MBA North Small Builders Development Course, pictured after 'graduation' with MBA staff and course sponsors also in attendance.

PASSION TO GROW

Master Builders Association North recently completed its fourth Small Builders Development Course with 23 students 'graduating' after six months' attendance of the fortnightly, after-hours course at the MBA North premises in Midrand.

> Chris Jennings, MD of MBA North member, Eight J Construction, who has been the lecturer at the courses since inception, says it is always gratifying to see the enthusiasm, commitment and interaction between the students from diverse backgrounds and companies, at the lectures.

"We try to teach them all they need to run a successful small building operation: from preparing to visit their bank manager, how to equip and run an office, how to do pricing and tenders, and how to administer a contract," Jennings stated.

"It is wonderful that the drop-out rate at the courses is always relatively small which must mean that the students are finding the tuition worthwhile."

He added that the constant challenge many of the small builders have to overcome is a lack of

accounting, even plain arithmetic, skills. "This is probably a legacy from the education they received in the past. But their passion for growing their business more than makes up for that," Jennings felt.

Five of the students who completed the course travelled all the way from Mbombela (Nelspruit) every second Saturday to attend the classes.

The primary sponsors for the 2014/15 course were Federated Employers' Mutual (FEM) Assurance, Bosch, the Construction Industry Development Board (CIDB), as well as MBA North members Archstone Construction, Giuricich Construction, Robenco Construction, Fintrex and lecturer, Chris Jennings' company, Eight J Construction.

For further information about future courses, contact Sarah Mnyandu on tel 011 315 0300 or email sarah@mbanorth.co.za ❏

APPOINTMENTS



IS Group

Guinevere Thomas, group marketing and communications manager.



Freedom Property Fund

Dr Nakedi Mathews Phosa, independent non-executive director.



SMEC

Gerrit Lok, general manager resources – Africa.



Johnson Tiles

Warrick Taag, architectural specifier.



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