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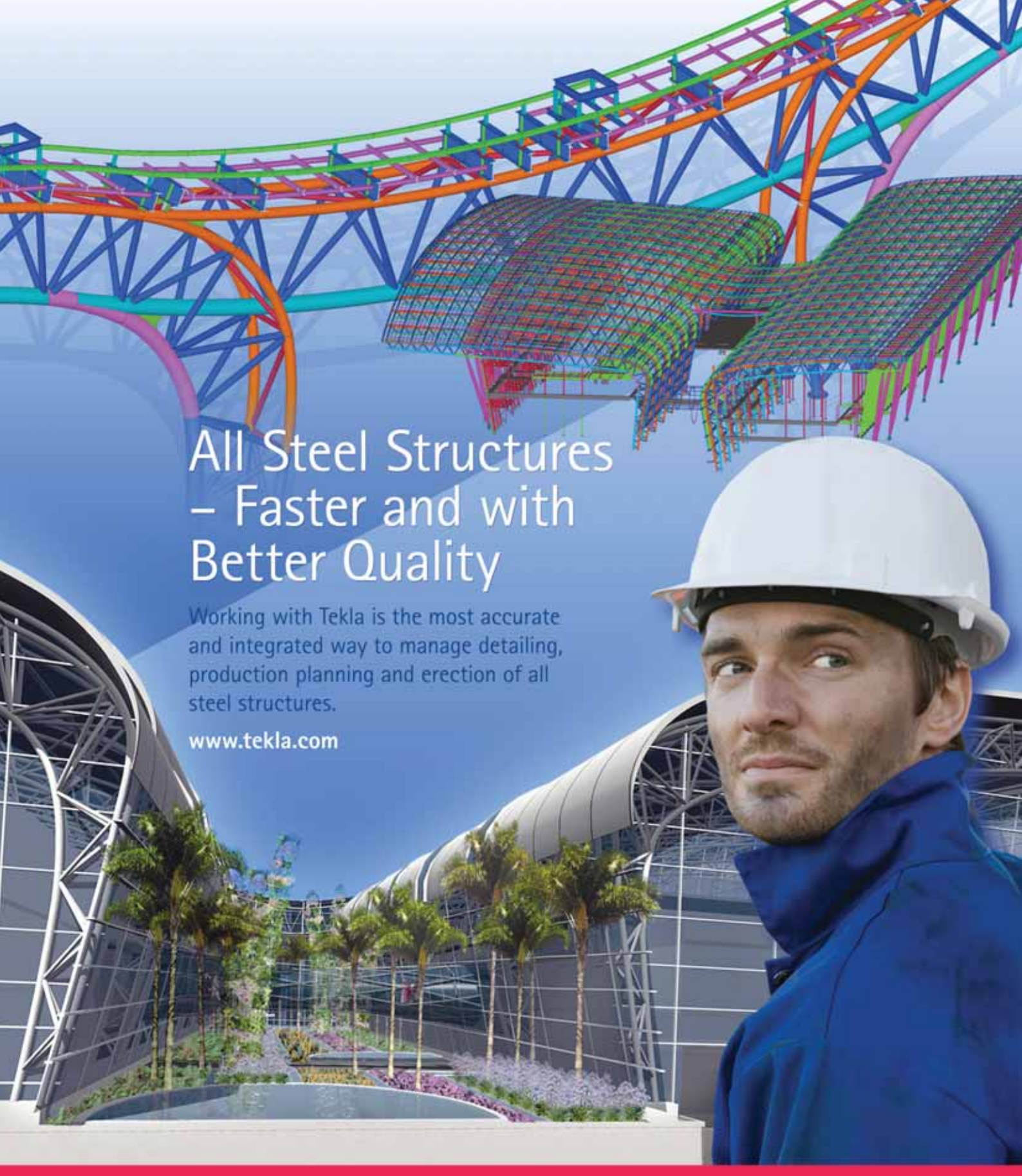
OFFICIAL JOURNAL OF THE SOUTHERN AFRICAN INSTITUTE OF STEEL CONSTRUCTION
Volume 39 No. 6 2015

INTERNATIONAL PROJECTS

THREE MEGA TRENDS IN
Africa's commercial property development

PROJECTS THAT PRESENTED
A CHALLENGE TO ERECT



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Volume 39 No. 6 2015

OFFICIAL JOURNAL OF THE SOUTHERN AFRICAN INSTITUTE OF STEEL CONSTRUCTION

in **this** issue...

Join us on and YouTube

editor's note

Let us declare War.

The world is teetering on a knife's edge. We can only speculate what is really behind all this horror. The human race has survived World War II with unimaginable losses, but also with technological advancements of incredible speed– mostly to bomb the earth into oblivion.

World War II also brought about an alliance stretching over continents and cultures. Not the military kind with all their espionage and shenanigans. But an alliance of ordinary people. Who knows what the loss would have been without this surge of compassion.

Let us declare War on intolerance. Let us create a weapon of Mass Construction to rebuild the link of intrinsic humanness that exists in us all. Yes, I know I sound like a beauty pageant contestant – "All I want is World Peace."

So what does tolerance mean? The ability or willingness to tolerate the existence of opinions or behaviour that one dislikes or disagrees with.

Impossible! Not in this lifetime! What about the beggar at the traffic light *(get a job and leave me alone!)?* The 4x4 driver that wants to obliterate you from the road *(see you at the red light, you &^*%!)?* The list gets longer and much more complicated...

But we can still build that alliance – and it starts with you. Use your skills, wealth of knowledge and passion for steel to construct a beautiful world and not a perpetual war zone.

The SAISC broadens its influence on the STEEL INDUSTRY

By Paolo Trinchero, Chief Executive Officer, SAISC

> "As a group of associations we need to **REINVIGORATE** all that we do and **restructure** an organisation with sub-associations or divisions to **make a real difference** in growing the steel industry in Southern Africa."

The SAISC 'group' now includes 10 associations. I would like to welcome all the associations on board and hope we can work together to grow STEEL in Southern Africa. It is comforting to know that we have a very experienced group of passionate steel people with whom we can face the challenges of today. Watch this space as there may be more exciting things to come.

The associations are:

SAISC	Southern African Institute of Steel Construction
SASFA	Southern African Light Steel Building Association
SAMCRA	Southern African Metal Cladding and Roofing Association
POLASA	Powerline Association of Southern Africa
ASTPM	Association of Steel Tube and Pipe Manufacturers
SWADASA	Steel Window and Door Association of South Africa
SARASA	Southern African Racking and Shelving Association *(currently being set up)*
ISF	S.A. International Steel Fabricators
STEASA	Steel Tube Export Association of South Africa
ASSD	Association of Structural Steel Draughtsman

SAISC School of Draughting

As a group of associations we need to reinvigorate all that we do and restructure an organisation with sub-associations or divisions to make a real difference in growing the steel industry in Southern Africa. I ask for your support and input for us to make a real impact on the needs of the industry.

There have been a number of discussions and articles in the press regarding the industry of late. On all occasions where we have been invited to comment on the state of the industry we have emphasised the importance of releasing projects and creating confidence to encourage investment. As a collective we should all lobby to ensure more projects come on stream.

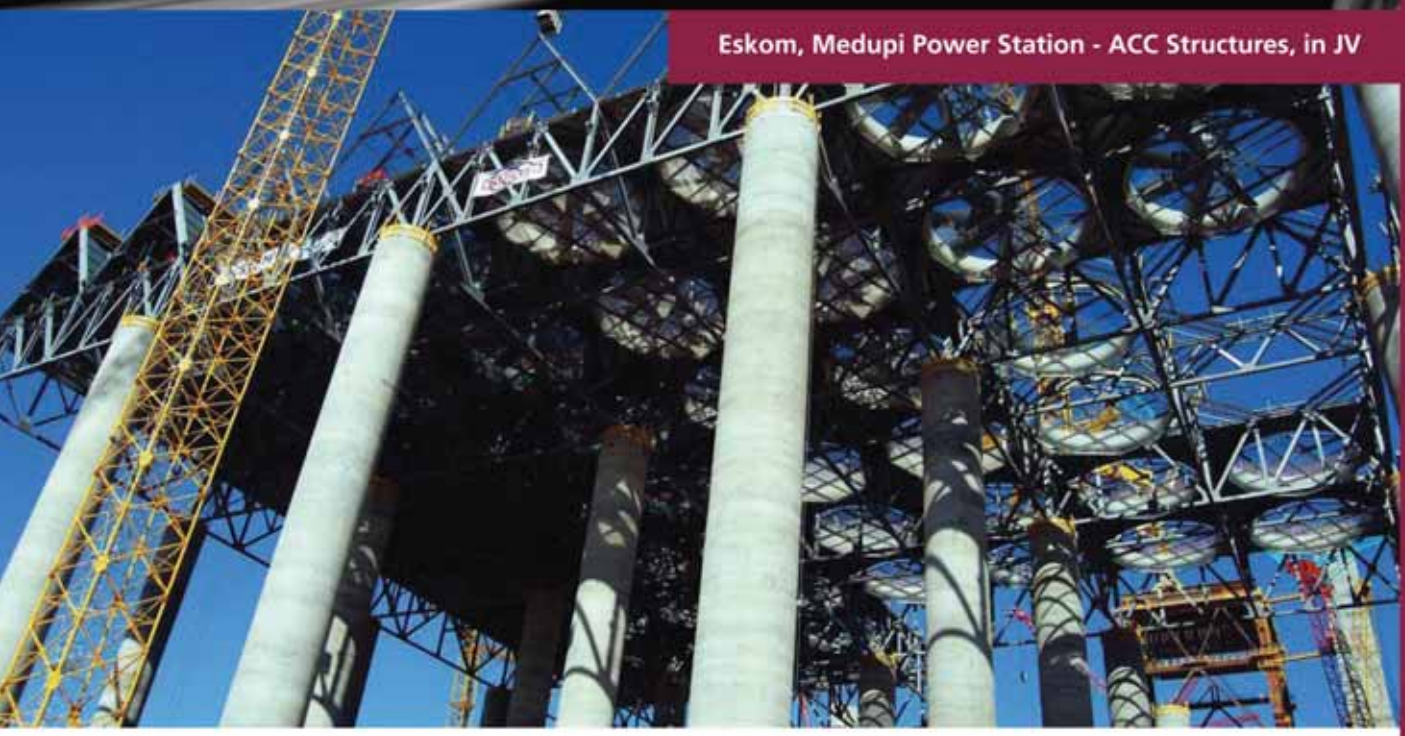
As you are no doubt aware ITAC is currently processing import tariff amendments to various steel products which are aimed at reducing the flood of imports into South Africa and leveling the playing fields to some extent. We are currently embarking on an exercise to provide a full view of our industry to ensure that we achieve some balance with import tariff regulations. For example on Fabricated Structural Steel we may have an import tariff on input material of 10% which is balanced by an import tariff on finished goods of 15%. Your inputs and formal comments on these amendments are very important.

Innovation and competitiveness are key. The world is constantly changing at a rapid pace and we must make sure that we are prepared with an educated and skilled workforce. On the education front we are busy exploring the possibility of offering company specific training to accommodate the needs of some of our members.

On the designation front we would like to congratulate the hard work of POLASA as we now have a much broader range of products designated in the transmission line industry. Fabricated structural steel should now follow closely.

CADCON

STEEL CONSTRUCTION AND ENGINEERING



Eskom, Medupi Power Station - ACC Structures, in JV

Established in 1987, Cadcon, as a vibrant and reputable entity, has grown into a leading steel construction, designing and engineering organization involved in major projects in and around Southern Africa and internationally. Cadcon operates from their 15 400 m² workshop and office facilities in Centurion, Pretoria, housing state of the art machinery and latest technology CNC plate, beam, angle, cutting, drill and saw facilities serviced by 20 overhead cranes. Cadcon has also implemented the FabTrol System providing drawing management, material nesting, purchasing, inventory control, production and CNC management, shipping and more.

Eskom, Medupi Ducting Supports, Lephalale

Planning and completion of various significant and complex national and international projects on time, for commercial, industrial, mining and plant sectors, serves as testimony putting Cadcon as a leader at the cutting edge, in a rapidly growing and competitive environment. Cadcon has valuable experience in exports of steel products internationally and strong innovative contributions to the whole of Southern Africa.

Overall Winner SAISC Steel Awards 2011
Sandton City - Protea Court Rooflight, in JV

Furthermore, Cadcon's unique packages include the design and supply of buildings through Mictec, Cadcon's in-house engineering design department. Additional services include crane, truck and trailer hire.

Cadcon operates their full production process from the delivery of raw material, fabrication, abrasive blasting, corrosion protection, erection and finishing to the proud delivery of the final product through their team of graduates and dedicated artisans. Cadcon's methodologies and processes results in their ability to provide their clients with turnkey solutions at optimum efficiency; **STRIVING FOR EXCELLENCE AND PEACE OF MIND IN STEEL CONSTRUCTION**, this being the cornerstone of Cadcon's success and competency.

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SAMCRA
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ISF

SASFA
SOUTHERN AFRICAN LIGHT STEEL FRAME BUILDING ASSOCIATION

STEEL ACADEMY

ASTPM

STEASA

ASSD
ASSOCIATION OF STRUCTURAL STEEL DRAUGHTSMEN

SWADASA
Steel Window and Door Association of South Africa

POLASA
POLLWER LINE ASSOCIATION OF SOUTH AFRICA

SAISC SCHOOL OF DRAUGHTING

STEEL LEAVES A LEGACY

M.A.C. Engineering

Supplying top quality workmanship and service

By Viv van Zyl, SAISC Membership Consultant

They have a manufacturing capacity of 300+ tons a month of medium/light hot rolled steel and 400+ tons a month of heavy hot rolled steel, with strict adherence to ISO 9002 requirements.

Contact details:
M.A.C. Engineering cc | Representative: Mino Carniel
Tel: +27 11 814 1834 | Fax: +27 11 814 6620 | mino@maceng.co.za | www.maceng.co.za

PHOTOS: M.A.C. Engineering is highly skilled in the manufacturing of mechanical handling equipment (conveyers, feeders, chutes, hoppers, stackers, reclaimers and all associated equipment).

In 1985 a dad, his two sons and two good friends started a steel fabrication company in Nigel, Gauteng. The father was Cesare Frosali (the C in the newly formed company of M.A.C. Engineering); the M stands for Marchello and the A for Alberto. Apart from the Frosali family there are also two other members involved namely Mino Carniel and Guido Marion. Needless to say they were a very close knit group of Italians and at that stage all stayed in Nigel *(Nigel was known as 'Little Italy' because of the large Italian population that resided there at that time).* Most of the community was working for a large company involved in electric power distribution.

Cesare Frosali saw this unique opportunity and grabbed it with both hands involving his sons and two associates. Now more than 30 years later, M.A.C Engineering is still a force to be reckoned with in the steel industry.

M.A.C. Engineering is registered as a Close Corporation and has been a proud member of SAISC for over 20 years. They are also a Level 8 BEEE Certified Company. Sadly, Cesare passed away and Alberto returned to Italy in 2004. Today they are a team of three members: Marchello (Managing Member and Machine Shop Manager), Mino Carniel (Sales and Product Manager) and Guido Marion (Fabrication Manager).

Marchello and his team dealt mainly with structural steelwork and fabrication projects but as the steel industry changed, they had to adapt to the industry's requirements.

M.A.C. Engineering is still very much involved in the supply, fabrication and erection of customised mechanical handling equipment and machinery to the various industries, ranging from mining to food processing. The company is also able to fabricate various types of buildings and supporting structures and their expertise allows them to manufacture world-class pressure vessels and tanks. They are highly skilled in the manufacturing of mechanical handling equipment (conveyers, feeders, chutes, hoppers, stackers, reclaimers and all associated equipment). Precision machining is also on their list of services offered.

To be able to produce the highest quality and most cost effective products and processes to their clients, M.A.C. Engineering is committed to a quality system in line with ISO 9002-994 Code of Practice for Quality Systems. To ensure compliance with this standard, a quality manager has been appointed and is responsible for the development, implementation, maintenance and review of their quality management system.

M.A.C. Engineering has a factory that covers an area of 5 400 square meters and is fully equipped with all the machinery and equipment to handle any job no matter how big or small. Situated in Vosterskroon Nigel, their premises are easily accessible from the N17 highway via Springs or alternatively via the N3 near Heidelberg.

All their design and detailing are sub-contracted when necessary and under the strict supervision of M.A.C.'s management. The company makes use of Tekla software, as far as possible.

They have a manufacturing capacity of 300+ tons a month of medium/light hot rolled steel and 400+ tons a month of heavy hot rolled steel, with strict adherence to ISO 9002 requirements. To follow these standards they use fully qualified and certified welders, supervised and controlled under strict workshop regulations.

This company boasts an in-house corrosion protection facility which includes shot blasting and painting and is run under close supervision of one of the members of M.A.C. A fully equipped machine shop is also on the premises.

The services offered by this company on the fabrication, structural steel and plate work are:

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- Machining
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- Feeders
- Slipping devices
- Transfer towers
- Hoppers
- Light steelwork
- Medium and heavy steelwork
- Plate work
- Site erection

References of satisfied customers are listed on their website, as well as more information regarding their facilities, corporate references and their long list of successfully completed projects. Visit www.maceng.co.za.

This company and their management are dedicated to supply top quality workmanship and service as well as to be reliable partner to their customers.

MISSION STATEMENT

- **To provide a fully resourced manufacturing facility, which meets the needs and requirements of their customer**
- **To maintain continued investment in up-to-date machining technology**
- **To deliver consistent quality products, efficiently and on time**
- **To maintain a safe working environment**
- **To remain a long-term supplier and partner to our clients**
- **To maintain a competitive pricing policy without compromising the high quality of fabrication**

SAISC Steel Awards 2015

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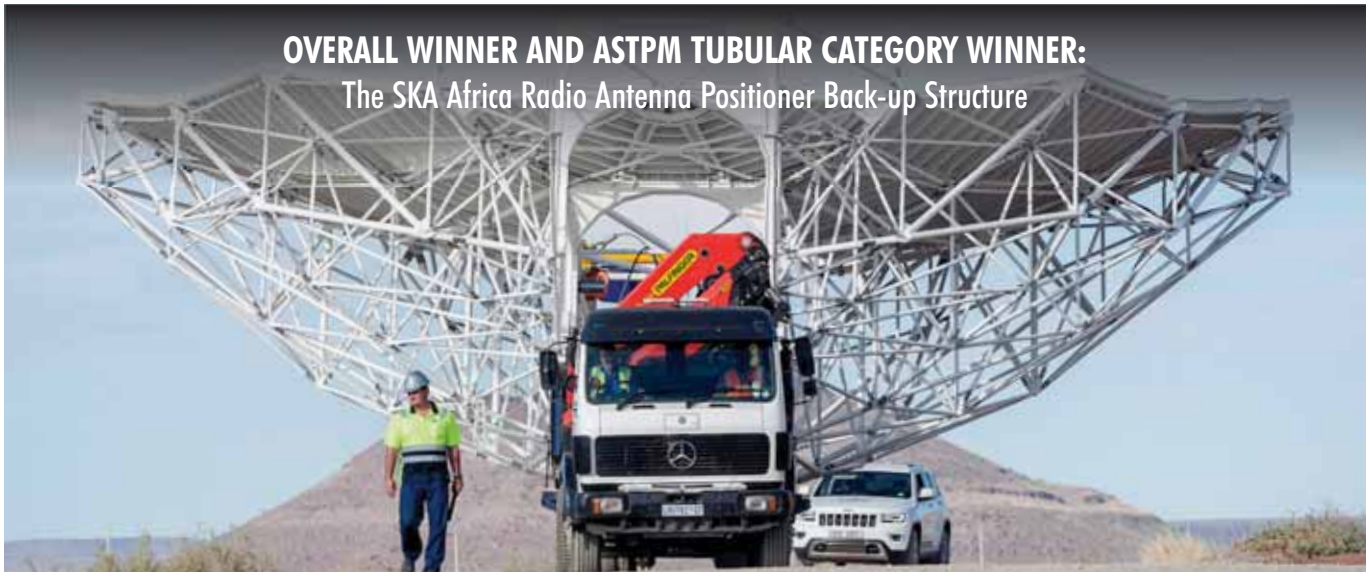

OVERALL WINNER AND ASTPM TUBULAR CATEGORY WINNER:
The SKA Africa Radio Antenna Positioner Back-up Structure

SAINT-GOBAIN LIGHT STEEL FRAME CATEGORY JOINT WINNER:
House De Clercq and Cottage, Mount Verde, KZN

B&T STEEL FACTORY & WAREHOUSE CATEGORY WINNER:
New Distribution Centre for Value Logistics

SAINT-GOBAIN LIGHT STEEL FRAME CATEGORY JOINT WINNER:
Mediclinic Midstream, Centurion

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Spencer apologises to MiTek and their licensed suppliers Hi-Tech Nail Plate and Max-Span Roofing

for his error in describing the project teams for Steel Awards 2015

The design and detailing of Ultra-Span roof truss systems are done using MiTek's software. All the cold formed profiles and connectors are purchased from MiTek Ultra-Span (LGS). The Licensee would then be responsible for assembly of the trusses and erection on site. So the steel fabricator is not MiTek, but the licensee (really the assembler and erector as we interpret it in hot rolled steel terms).

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www.mii.com/southafrica

It has not been too often that I *(says he with much modesty!)* have dropped the ball and got it totally wrong when it comes to the project teams for Steel Awards entries. (Sorry for the pun for those of you who are still smarting at the Springbok's poor performance against Japan and others at the World Cup).

And get it wrong I did when it comes to MiTek's three Ultra-Span roof entries into Steel Awards 2015 and for their joint category award winner, the Mediclinic Midstream Centurion project in the Saint-Gobain Light Steel Framing Category.

For this I humbly apologise for the embarrassment it caused the MiTek team and their clients.

So what did I get wrong and how did it happen?

Perhaps it is easier to answer the second part of the question first. The answer is

ABOVE: MiTek's head office in Midrand.

RIGHT: The MiTek factory team, many of whom have been with MiTek for more than 25 years.

OPPOSITE PAGE CLOCKWISE FROM TOP:

MiTek's factory.

Ultra-Span can be used in buildings from a 2 metre to 45 metre span.

All the cold formed profiles are rolled in the MiTek factory and purchased by the licensees from MiTek Ultra-Span.

simply that I just did not understand the MiTek Ultra-Span business model. If I did not understand the model, then I guess there are lots of you, our readers, who also have an incorrect understanding of how it works. So a large part of this article aims to set the record straight.

So with this misunderstanding the Steel Fabricator was omitted in each of the entries *(The correct data is in the box on page 12)* and in error attributed the steel fabricator to MiTek Ultra-Span.

How does the MiTek model work?

MiTek is surely well known by all of us for their timber truss and (Gang–Nail®) connectors. On their website, they describe themselves as:

"Worldwide, MiTek is the leading provider of software solutions and suppliers of building components.

Our expertise lies in three areas:

- *our integrated software packages,*
- *our fully designed builders products that are manufactured in accordance with Dekra ISO9001:2008 certification specifications*
- *and our people, many of whom have been with MiTek for more than 25 years.*

With a manufacturing facility in Gauteng and Regional offices in Cape Town, Port Elizabeth and Durban, MiTek is best placed to supply the building industry with the widest range of timber connectors for both roof truss manufacturers and hardware stores."

Marketing of Ultra-Span trusses

As with their timber truss and connector range, each and every MiTek licensee can market Ultra-Span roof truss systems. The design and detailing would be done using MiTek's software. All the cold formed profiles and connectors would be purchased from MiTek Ultra-Span (LGS). The Licensee would then be responsible for assembly of the trusses and erection on site.

So the steel fabricator (as described in Steel Awards entry forms) is not MiTek, but the licensee (really the assembler and erector as we interpret it in hot rolled steel terms).

The history of the move into Ultra-Span Light Gauge Steel (LGS) Trusses

In the mid 1990s, following the publishing of the Crickmay report, MiTek South Africa introduced the in-house Ultra-Span® range of products from the USA to try and fill a timber shortage should the findings of the Crickmay *(see http://www.crickmay.co.za/ forestry-sector)* report prove correct.

Ultra-Span is a pre-fabricated or build on-site light gauge steel roof truss system that is both lightweight and compact for economical transportation costs. Assembly of trusses can be completed with only an electric or battery operated screw driver as all truss components are commonly supplied in exact lengths.

Despite initial reservations and a slow start, Ultra-Span has established itself as an alternative to timber and, for larger spans, an alternative to hot rolled steel.

In 2001, MiTek South Africa and its sister companies around the world became part

of the Berkshire Hathaway group of companies. In 2004, following several years of excellent sales into Africa, MiTek South Africa expanded its Ultra-Span offerings for Africa with a Joint Venture Partnership with the SAFAL group of companies in Kenya.

Ultra-Span is backed by a professional engineering and estimating department. Engineered designs are calculated using state-of-the-art, in-house developed software which provides economical roofing solutions. Ultra-Span can be used in buildings from a 2 metre to 45 metre span.

MiTek software solutions

From a technical point of view it is necessary to describe their software in a bit more detail.

MiTek provides their licensed suppliers with various software suites to ensure that all aspects of design, quotes, manufacturing or assembly, as well as project management are catered for.

The following mentioned software suites represent the most commonly utilised:

20/20 Truss design software has long been established as the most widely used trussed rafter design package in the industry, which is also used in the design of Ultra-Span structures. This features automatic roof framing routines as well as powerful editing tools to ensure that all possible requirements can be handled with 3D visualisation for clarity.

CadEngine is an Autodesk based detailing package linked to MiTek's design software that is suitable for both timber and steel framing with full integration from the truss design software for accurate load path placement.

The benefits for the frame designer are numerous. Rapid detailing tools are accompanied with a comprehensive set of editing tools, enabling the timber or steel frame panels to be edited in the plan view, model view or even at manufacturing drawing stage.

As with the truss design software, it features intelligent framing techniques where the software recognises situations where the default junction framing styles will not be appropriate and selects an alternative.

THE CORRECTED PROJECT TEAMS FOR THE THREE PROJECTS ENTERED BY MITEK ARE:

1. Mediclinic Midstream Centurion
(Joint Winner of the Saint-Gobain Light Steel Frame Category)

Client: Mediclinic

Architect: Graceland Architects

Structural Engineer: Cibucon Structural Engineers

Quantity Surveyor and Project Managers: TMS Quantity Surveyors

Main Contractor: Basil Read

LGS Ultra-Span Detailer, Supply of Profiles: Ultra-Span LGS- MiTek Industries South Africa

Steelwork Contractor: Hi-Tech Nail Plate

Cladding Contractor: Rainbow Sheeting

2. Lady Pohamba hospital in Windhoek

Architect: Howard & Chamberlain

Quantity Surveyor: Hendrik Herselman

Project Managers: Hosman-Stephen Baker

Main Contractor: Stefanutti Stocks Construction (Namibia)

LGS Ultra-Span Detailer, Supply of Profiles: Ultra-Span LGS- MiTek Industries South Africa

Steelwork Contractor: Max-Span Roofing

3. Riversands Incubation Hub Diepsloot

Client and Architects: Century Property Developers

Structural Engineer: C-Plan Structural Engineers

Quantity Surveyor and project Managers: Bain & Heyns Surveyors & Project Managers

Main Contractor: GD Irons

LSF Contractor, Detailer, Supply of Profiles: Ultra-Span LGS- MiTek Industries South Africa

Steelwork Contractor: Max-Span Roofing

Cladding Contractor: Roofing Guarantee Company

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LIGHT GAUGE STEEL

The low mass per m2 (between 2-10kg) of this roofing system ensures both savings on the supporting structure as well as on transportation and erection costs whilst also being vermin proof and non-combustible.
Large sections of the roof can simply be pre-assembled on the ground and hoisted into position on the walls – making this one of the most viable systems with a large range of applications up to a clear span of 40m.

Supported through a substantial network of licensed truss suppliers, Ultra-Span is equally ideal for all local and export applications where it can be pre-assembled or site assembled.

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Industry NEWS IN BRIEF

Western Cape construction activity on the up

"2015 has seen the Western Cape construction industry maintaining a reasonably steady flow of work with a further slight improvement on last year," according to Immediate Past President of the Master Builders Association of the Western Cape (MBAWC), Craig Bain. At the recent MBAWC's AGM, Bain elaborated on developments in the province that have helped to sustain the building sector over the past year.

Cape Town has been fortunate that its CBD has not experienced the significant decline witnessed in cities like Johannesburg and Durban and continues to be a destination of choice. This has resulted in the construction of a number of new high-rise office blocks as well as residential accommodation in the city centre.

The extensions to the CTICC will offer a conference facility that will be virtually double its present size. The adjacent V&A Waterfront has continued its development with a number of new hotels, office blocks and a high-rise residential block under construction. The new Zeitz Museum of Contemporary Art Africa (Zeitz MOCAA) is also being constructed within the structure of the old grain silos and at a cost in excess of R500 million. These developments are certainly a vote of confidence in the future of Cape Town. High levels of building activity persist on the Atlantic Seaboard and at Century City where a number of large commercial developments are under construction at the moment.

Bain praised the Western Cape Government and the City of Cape Town for continuing to award a significant number of projects in the health, education and housing spheres to the local construction industry.

Airport Hanger Fire Protection

When the steelwork for the new Hanger 7 at the Vienna Airport in Austria needed protection from fire, the contractor, Haslinger Stahlbau, turned to Hempel for advice. The requirement was for a quick-drying, passive fire-protection coating system, to reduce overall construction time, whilst being capable of offering protection to the building in the case of fire.

The hanger has four main structural steel trusses, with a span of 100 metres, is 6.5 metres high, and has a surface area of 7 000 square metres.

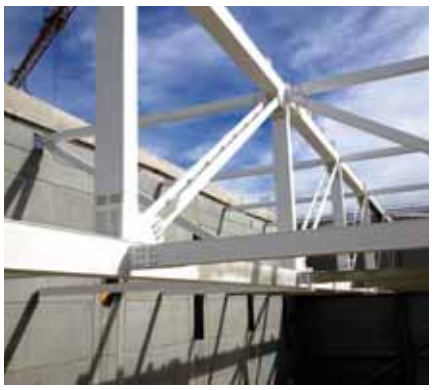
A three coat system was requested by Hempel's customer, SRB Rostschutz GmbH & Co. KG. After the appropriate surface preparation, one coat of HEMPADUR 15570, a 2-component, polyamide-adduct cured epoxy primer,

ERRATA: STEEL AWARDS PROJECT TEAMS

Apart from MiTek's entries, a few errors crept in when publishing the project teams of two entries. The editor and the person responsible for processing the Steel Awards project teams *(Reneé Pretorius and Reneé Pretorius)* apologise for these oversights.

NEW DISTRIBUTION CENTRE, VALUE LOGISTICS
(Winner of the B&T Factory and Warehouse Category)
Client: Lougot Property Investments (Pty) Ltd
Architect: Loudon Perry Anderson Architects
Structural Engineer: Sutherland Structural Engineers
Quantity Surveyor: JMHT Quantity Surveyors
Main Contractor: Group Five Coastal
Steelwork Contractor: Union Structural Engineering Works Pty (Ltd)
Detailing Company: Union Structural Engineering Works (Pty) Ltd
Cladding Supplier: Scheltema Roofing (cladding – **Klip-Lok 700**)
Painting: Nu Nation Protective Coatings cc
Erector: L&A Steel Erectors

NEWTOWN JUNCTION
Client: Atterbury Property Developments (Pty) Ltd
Architect (Heritage): MRA Architects (Pty) Ltd
Architect (Retail): LPA Architects (Pty) Ltd
Architect (Principal): DHK Architects (Pty) Ltd
Structural Engineer: Aurecon South Africa (Pty) Ltd
Quantity Surveyor: Norval Wentzel Steinberg (Pty) Ltd
Project Manager: Metrum Project Management (Pty) Ltd
Main Contractor: WBHO Construction (Pty) Ltd
Steelwork Contractor: Braam Staal
Detailing Company: BSM Baker (Pty) Ltd



ABOVE LEFT: Craig Bain, Immediate Past President of MBAWC.

ABOVE CENTRE: Hempel provided the requirement for a quick-drying, passive fire-protection coating system, to reduce overall construction time, whilst being capable of offering protection to the building in the case of fire.

ABOVE RIGHT: Prof Sundra Rajoo.

with excellent corrosion resistance and low temperature cure characteristics, was applied. This was followed by one coat of HEMPACORE ONE FD 43601 (the fast-drying version – 20 minutes to touch/ 6 hours to handle) of the high-performance intumescent coatings range for passive fire protection of steel structures. The HEMPACORE ONE products are one-component, solvent-borne, acrylic intumescent coatings that provide up to 120 minutes of protection in cellulosic fires and can be used indoors or outside with a suitable topcoat.

In this project, the top coat applied was HEMPATHANE 55210, a two-component, acrylic polyurethane, which has a track record of providing high gloss and strong colour retention over many years of service. The complete coating system complies with Europe's fire-resistance requirements for steel structures.

Skills shortages and access to credit impacting on growth of small and medium contractors

With the downturn in the building and construction industry, more and more contractors are facing difficult business conditions and financial distress. The CIDB is closely monitoring the sustainability of small and medium-sized contractors.

The CIDB SME Business Conditions Survey measured business conditions for contractors registered in CIDB Grades 3 to 8, and was undertaken by the Bureau for Economic Research (BER) for the CIDB.

Business confidence amongst General Building and Civil Engineering classes of works remains low at 50%, representing an industry in distress. However, on a positive note, business confidence in the contracting sector shows a modest but positive increase over the past three years.

Contractors report that access to skilled labour is becoming a significant constraint to business growth. The shortage of skills is also driving up the cost of labour resulting in decreased profit margins for small and medium contractors. A healthy SME sector is crucial to the health of the building and construction industry and to the transformation of the industry. While business conditions are improving slightly, it is a concern that the impact of skills shortages on the sustainability of SMEs is becoming more visible.

While shortage of skilled labour is apparent, there is however, an oversupply of low and semi-skilled workers.

Together with industry stakeholders, the CIDB is looking at ways of increasing skilled labour in the industry. This includes the CIDB Standard for Developing Skills on Construction Works Contracts which was published in 2013 and provides for skills development on construction works contracts. The CIDB aims to regulate the standard on public sector construction works contracts in 2016, but is encouraging clients to incorporate the standard even before it is regulated.

Construction industry prompt payment regulations: no exemptions for state-owned companies

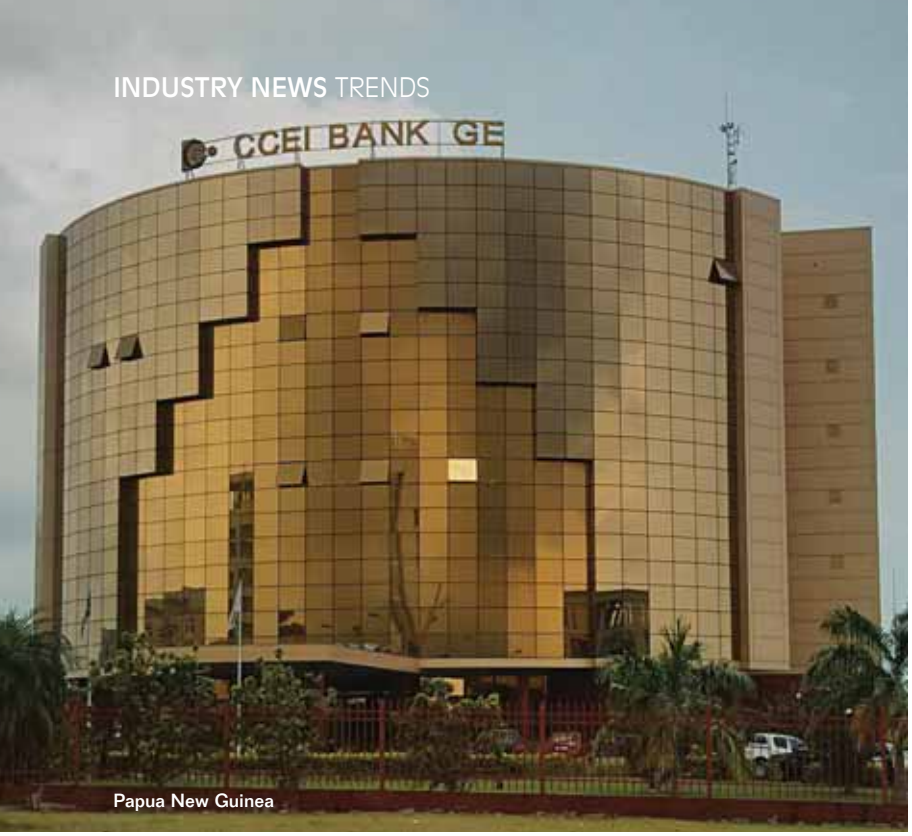
Professor Sundra Rajoo, guest presenter at an MDA Consulting lecture, advised that, "The development of alternative dispute resolution for the construction industry has important potential to help the industry to grow, but the proposed regulations should not allow any exemptions, particularly from state-owned companies." (So-called state owned enterprises or SOEs in SA)

Prof Rajoo is an expert on the Malaysian equivalent of the CIDB Prompt Payment Regulations, the Construction Industry Payment and Adjudication Act (CIPAA) which was adopted in 2012. The proposed guidelines have been under development in South Africa since 2013. They were tabled by the Construction Industry Development Board and released for public comment in May this year. The regulations are likely to be implemented by year end.

"If you have too many exemptions to the regulations, it simply won't work," warned Prof Rajoo. "Malaysia's experience was that the state initially wanted to be exempted from the Act. However, a large percentage of projects in the construction industry are undertaken by state-owned companies (SOCs) and it is an important driver of the economy. Government argued that SOCs are too large to adhere to the principles of the Act, but luckily the counter-argument prevailed: that no entity – SOC or otherwise – should enter into a contract if they can't manage it."

There are many lessons from Malaysia as well as the UK, Singapore and Hong Kong, that can be applied in South Africa. The SA regulations are well crafted and the development of alternative dispute resolution will assist the construction industry to grow by providing binding guiding principles accepted by individuals, corporations and state owned entities.

While Malaysia's experience bodes well for better cash flow, there is still a long road ahead for the South African construction industry.



Papua New Guinea


Abidjan

With the economic growth potential and the socio-economic needs of Africa's rapidly growing population we anticipate that industrialisation, consumerisation and the need to do these sustainably, will become driving forces behind commercial property development across Africa in the foreseeable future.

THREE MEGA TRENDS IN AFRICA'S COMMERCIAL PROPERTY DEVELOPMENT

John Truter, Chief Operating Officer, WSP | Parsons Brinckerhoff, Structures, Africa

With unprecedented interest and investment into Africa there is a significant amount of investment into infrastructure development. Generally the emphasis is placed on major government-led projects that are aimed at offering a service, or increasing access to resources and assisting to open up key markets. The knock-on effect of this ongoing focus on macro-economic development is having a substantial impact on the next layer of infrastructure. From WSP's vast multi-disciplinary experience across the continent, they have identified the following major trends that will influence Africa's commercial property development well into the next decade.

1. Savvy retailers targeting a growing middle class

Africa continues to experience exceptional growth and the number of people who are being lifted out of poverty as a direct result of this are joining Africa's emerging middle class. In fact, according to a report by the World Bank, Africa has the fastest growing middle class in the world.

While there may be ongoing debates on whether the emerging middle class has regular disposable income, and what they may be spending their disposable income on; this hasn't deterred the considerable interest and investment by developers, retailers and brands to establish themselves within key regions or countries in Africa. In fact, research by Broll Property Group indicates that African consumers are demanding better products and services from a greater variety of brands and this, with the growing middle class, has intensified a number of investments into Africa's retail sectors and is driving the rise of 'the shopping mall' on the continent.

We are seeing this trend take effect first hand; with a number of new shopping malls and/or retail commercial parks being developed – particularly within key pockets in the Southern, East and West African regions.

2. Expect a big drive towards 'building green'

While Africa is said to be the world's final frontier for resources, much of Africa is still underdeveloped, remote and has little access

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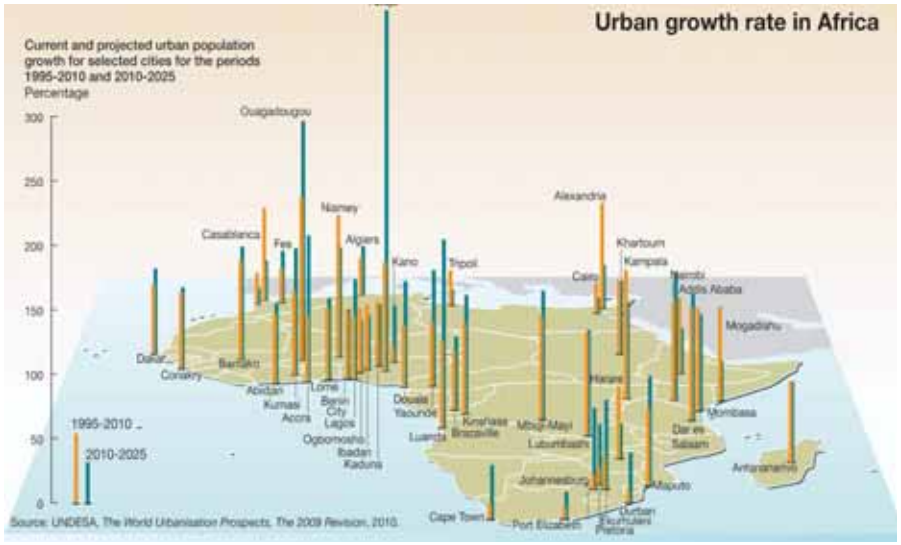
Newtown Junction, winner of best Mixed-use Development, Overall Transformation Award and overall Award, SAPOA 2015



to basic services such as power and water. To bring about change, African governments have begun to realise the potential of renewable energy, with a number of projects in development phase or already operational. On top of this, reserves of fresh water for the world are stressed and while most countries on the continent have not (yet) been declared at risk, the reality is that water is not a renewable resource. In recognition of this a number of African governments have begun to place significant focus on water preserves for future generations, particularly during this phase of ramping up on mass infrastructure development on the continent.

In the commercial property market, smart developers will realise that 'building green' and building for sustainability not only better enable the development to leverage on the power and water resources that are available, but it makes good business sense. Previously it may have been thought costly to make the upfront capital investments to go green, however, volatility in both the cost and availability of power and water is influencing a mind-set change. Consumers are realising the benefits of sustainability by, for example, offsetting as much of their energy consumption as possible.

In the long-term, green buildings not only enable the consumer to reduce their consumption, but also increase the propensity to reduce the carbon emissions emitted by these developments and provide increased resilience to uncertain service delivery. These are significant value-adds to the consumer, and what benefits the consumer also benefits the developer/owner.

3. New urbanism will come to rural Africa

There's no denying that in recent years there has been an incredible migration to African cities and built-up areas as growing populations seek access to jobs and basic services. In fact, the African Development Bank projected that by 2040 50% of Africans will live in urban areas, which means there will be an astronomical growth in the populations of Africa's already densely inhabited major cities.

While this migration and the ongoing rapid urbanisation across key markets in Africa are natural events that follow the macro-economic growth, they do place significant strain on typically old and insufficient infrastructure and resources in-and-around these cities and built-up areas. This, coupled with the fact that several of the industrial drivers behind Africa's macro-economic growth, including mining and agricultural activities in particular, are generally located away from urban areas, will set off a movement towards ruralisation or new urbanism.

New urbanism promotes the restoration of compact, walkable, mixed-use urban developments that bring residential neighbourhoods, retail and commercial parks back together in a healthy city environment. In South Africa – particularly in Gauteng – there are already several successful examples of mixed-use developments. Although these examples do still fall within what would be considered urban or built-up areas, taking a similar approach as new urban mixed-use developments to outlying cities or towns offer vast opportunities to tap into previously excluded property markets across rural Africa.

Economic growth potential and the socio-economic needs and demands of Africa's rapidly growing population will continue to determine major infrastructure projects, where we anticipate that industrialisation, consumerisation and the need to do these sustainably, will become driving forces behind commercial property development across Africa in the foreseeable future.


Urbanisation in Africa


Gaborone

International Steel Construction Awards

The American Institute of Steel Construction's IDEAS²

Our grateful thanks to the AISC and their journal – Modern Steel Construction for allowing us to publish three articles featuring IDEAS² winners and commendations that appeared in their May 2015 edition. I would like to thank Geoff Weisenberger specifically for his extremely prompt and professional assistance. He really went out of his way to supply me with the material and credits for the images.

More about IDEAS²

This programme is designed to recognise all team members responsible for excellence and innovation in a project's use of structural steel.

Awards for each winning project were presented to the project team members involved in the design and construction of the structural framing system, including the architect, structural engineer of record, general contractor, detailer, fabricator erector and owner. New buildings, as well as renovation, retrofit or expansion projects, were eligible. The projects also had to display, at a minimum, the following characteristics:

- A significant portion of the framing system must be wide-flange or hollow structural steel sections.
- Projects must have been completed between January 1, 2012 and December 31, 2014.
- Projects must be located in North America.
- Previous AISC IDEAS² award-winning projects are not eligible.
- The judges considered each project's use of structural steel from both an architectural and structural engineering perspective, with an emphasis on:
  - Creative solutions to the project's program requirements
  - Applications of innovative design approaches in areas such as connections, gravity systems, lateral load resisting systems, fire protection and blast
  - The aesthetic and visual impact of the project, particularly in the coordination of structural steel elements with other materials
  - Innovative uses of architecturally exposed structural steel
  - Advances in the use of structural steel, either technically or in the architectural expression
  - The use of innovative design and construction methods such as 3D building models, interoperability, early integration of steel fabricators, alternative methods of project delivery and sustainability considerations

A panel of design and construction industry professionals judged the entries in three categories, according to their constructed value in U.S. dollars:

Less than $15 million : $15 million to $75 million : Greater than $75 million

Both national and merit honours were awarded in each category. The jury also selected one project for the Presidential Award of Excellence in recognition of distinguished structural engineering.

Photographer and Copyright: Thornton Tomasetti

Anaheim Regional Transportation Intermodal Center, Anaheim, California

GREATER THAN $75 MILLION NATIONAL AWARD

Photographer and Copyright: Thornton Tomasetti

The steel shell is clearly visible through the facade, creating a variety of impressive visual effects, particularly when lit at night. The terminal is clad in translucent "Teflon-like" material known as ethylene tetrafluoroethylene (ETFE), and ARTIC is the largest single installation structure enclosed with ETFE in North America.

The Anaheim Regional Transportation Intermodal Center (ARTIC) is the present and future of transportation in Orange County. A hub for rail, bus, auto and bike travel, ARTIC is also ready for high-speed trains and street cars, the region's next-generation transportation systems.

The facility, which opened in December, includes a 6 300 square metre terminal building beneath a soaring exposed steel structure. Rising from a height of approximately 24m at its southern end to 35m at the main entrance and public plaza, the structure is approximately 76m long and 56m wide and also includes a Metrolink/Amtrak concourse pedestrian bridge.

The terminal's tapering vault of crisscrossing parallel arches spans 56m over a three-story interior housing retail, ticketing, offices and other amenities. The special concentrically braced frames of the interior structure provide a stiffened base for the shell arches.

The roof's sculptural form is a high-tech take on the simple lines of old airship hangars and the light-filled grandeur of historic train stations. The thin shell's curved geometry is optimised so that the amount of bending and deflection experienced under non-uniform environmental and seismic loads is minimised. The diagrid shell design has inherent structural redundancy and provides continuous load paths to transfer both gravity loads and lateral loads to the base.

The structural design for the roof employs long pieces of 356mm-diameter curved, interlocking steel pipes that form the complex yet efficient structure's diagrid shell. Due to the inherent reliance of the shell's performance on its form, structural engineer Thornton Tomasetti collaborated closely with architect HOK to define its geometry, and a segment taken from a torus based on a catenary cross-section was selected as the most efficient shape to enclose ARTIC's large interior volume. The team developed the design to define the

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Anaheim Regional Transportation Intermodal Center (continued)

arches as a series of compound curves, which made the steel easier to fabricate.

The steel shell is clearly visible through the facade, creating a variety of impressive visual effects, particularly when lit at night. The terminal is clad in translucent "Teflon-like" material known as ethylene tetrafluoroethylene (ETFE), and ARTIC is the largest single installation structure enclosed with ETFE in North America.

The northern and southern end walls are glass structures that curve outward supported by tapering, built-up box section masts. These elements double as structural members, acting like bicycle-wheel spokes to stiffen the edge of the roof shell, which would otherwise deflect wildly at the significant end-discontinuities. The glazing system is highly transparent and hangs from the roof via steel cables, which are laterally supported by horizontal girts formed from rolled steel elements and steel armatures connected to the masts. The north end-wall masts also support the cantilevering entrance canopy, which in turn acts as a horizontal truss to laterally brace the masts.

ARTIC's unique design required constructability considerations from an early stage of the project, and the team developed a sequencing plan that required temporary shoring only at the first arches installed; the rest of the roof was self-supporting during erection. In addition, an adjustable backing plate was designed for the complete joint penetration (CJP) welds that connect the intersecting steel pipes of the roof shell. The construction sequence made traditional internal ring plates impractical since they would get in the way of infilling arch pieces, so the team designed an internal ring plate that would telescope back into the pipe to allow placement of the infill sections. The design also included a screw and block to allow for the tolerances of the pipe fabrication while maintaining continuous contact between the plate and the interior pipe surface.

The terminal's third level provides access to the new concourse bridge, a 80m long covered pedestrian crossing that spans the existing tracks and provides elevator and stair access to the new rail platforms. The steel-framed bridge is supported by elevator shafts at its southern end and uses buckling restrained braces (BRBs) to resist lateral forces. At the northern end, groups of raking steel pipe columns with nested BRBs provide vertical and lateral support.

Photographer: Liam Frederick

The entire design team relied heavily on integrated building information modeling (BIM) for design exploration, analysis, team communication, documentation and coordination during design and in the field, and the model will be used by the owner for ongoing operations and maintenance. In addition, the facility is expected to achieve LEED Platinum certification.

And through its iconic design, it will transform travel and deliver memorable experiences while providing convenient access to destinations across Southern California.

PROJECT TEAM

Owners:
City of Anaheim Public Works, Anaheim, Calif.
Orange County Transit Authority, Orange County, Calif.

Owner's Representative:
STV, Inc., Los Angeles

Project Manager:
Parsons Brinckerhoff, Orange, Calif.

Architect:
HOK, Culver City, Calif.

Structural Engineer:
Thornton Tomasetti, Los Angeles

General Contractor:
Clark Construction Group, Irvine, Calif.

Steel Team:
Fabricator: Beck Steel, Inc., Lubbock, Texas
Erector: Bragg Crane & Rigging Co., Long Beach, Calif.
Bender/Roller: Whitefab, Inc., Birmingham, Ala.

Central Arizona College, Maricopa Campus, Maricopa, Arizona

$15 MILLION TO $75 MILLION MERIT AWARD

Rustic natural colours and weathering steel allow the buildings to blend with their surroundings, and long cantilevers highlight the steel design, providing both shade and outdoor student gathering spaces.

Central Arizona College isn't just adding a new building but rather an entire new campus.

Master-planned for significant growth in the next 20 years, this new ground-up satellite campus in Maricopa is expected to add over 65 000 square meters of building space on 80 hectares at full build-out. The initial phase consists of three academic buildings and a central plant constructed on 11 hectares.

Totalling over 7 000 square metres, this first phase includes teaching laboratories, classrooms, a café, a bookstore, a library, a learning centre, interactive distance learning classrooms, student services, administration offices and a multipurpose community room. This community room bookends the

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Photographer: Liam Frederick

Central Arizona College, Maricopa Campus (continued)

main entry with the library, acting as a beacon for the greater community and promoting education.

Rustic natural colours and weathering steel allow the buildings to blend with their surroundings, and long cantilevers highlight the steel design, providing both shade and outdoor student gathering spaces. Wide-flange steel shapes are tapered at the ends to provide an elegant and sleek look, and canted walls give the buildings a natural aesthetic while strategically blocking the southern sun exposure. Clerestory windows on the north side of the buildings allow natural light into the interior spaces, as do four large light scoops in the classroom and lab areas.

Steel roof framing was constructed with a layered approach in mind to give the spaces a light and airy feel. HSS were placed on top of sloping wide-flange steel girders to give the effect of the roof deck floating above the main structure, while allowing the metal deck flutes to run parallel to the main structure. This layered approach allowed the use of long continuous members, thereby reducing the number of connections and associated welding.

Connections were carefully designed to accomplish both functional load requirements while providing an appealing aesthetic appearance. Bolted slip critical moment connections were used to connect the sloping roof girders to the canted columns in a clean, aesthetic manner. Steel moment frames are used throughout the structures to resist wind and seismic lateral loads, eliminating the need for shear walls or cross bracing members and enhancing the open inviting feel to the spaces. The main walkway is covered by a 9m cantilevered roof canopy, constructed of sloping wide-flange steel beams supported by canted steel columns, and provides visual continuity between the buildings.

Weathering steel and rammed earth create the primary exterior aesthetic and eliminate the need for long-term maintenance. Unpainted structural steel and galvanized acoustical decking create the main interior volumes. A new campus language is born out of its unique desert context, a model for the campus of the future. Each building strategically turns its back to the harsh desert southern sun, while harvesting northern daylight and creating a continuous shaded arcade on the south that connects the campus' classrooms end to end. Rolling barn doors and minimal wall partitions organise interior volumes that are planned to be modular and easily removable when expansion and renovation occur in the future.

PROJECT TEAM

Owner:
Central Arizona College, Coolidge, Ariz.

General Contractor:
CORE Construction, Phoenix

Architect:
SmithGroupJJR, Phoenix

Structural Engineer:
PK Associates, LLC, Consulting Structural Engineers, Scottsdale, Ariz.

Steel Fabricator and Erector:
S & H Steel Co., Gilbert, Ariz.

Hilton Columbus Downtown High Street Bridge, Columbus, Ohio

LESS THAN $15 MILLION MERIT AWARD

Closing of the roadway was not an option. The bridge was pre-assembled, pre-painted and pre-glazed at an adjacent site prior to hoisting. The hoisting operations took place over one weekend and the shutdown of the roadway was limited to two days, greatly minimising the impact to city traffic flow.

The Hilton Columbus Downtown High Street Bridge makes the walk from the city's new Hilton Columbus Downtown hotel to the adjacent Greater Columbus Convention Center a lot more scenic.

The 32m long enclosed glass walkway is entirely supported by a single overhead steel tube and suspended ribs, and the all-glass design emphasizes physical and

Photographer and Copyright: Tom Rossiter Photography

material lightness and visual transparency, intentionally avoiding the external, heavy-truss pedestrian bridge aesthetic found throughout the city. In fact, glass is employed as the primary material for the floors, walls and entire enclosure of the bridge. The unitised module of the $4 500 000 bridge was fabricated and shipped as small components that were then assembled and glazed on site prior to lifting the entire structure into place. All building services, including air, water and lighting, are delivered through the overhead 1 220 steel tube or discreetly within the glass walkway, which maximised the height of the interior space.

The design team studied several options for the bridge before developing an efficient form that the team, client and city of Columbus would agree upon. A series of bent 'fin' frames hang down from a central pipe spine atop the walkway to support a glass floor with light steel framing; this central pipe spans from a haunch on the new hotel to an inverted A-frame added to the existing convention center, on a new caisson.

The team carefully analysed local stresses at the fin-to-pipe connections and detailing pipe-end connections for large forces and required movements. In fact, the bridge design was controlled by limiting movement and deflections. The 1 220-diameter pipe resisted vertical loads and worked together with diagonal cable bracing in the glass floor plane to resist lateral and incidental torsion.

The 125-ton bridge spans 32m across High Street, the main thoroughfare through downtown Columbus, so an extended closing of the roadway was not an option. The design and construction team came together to develop an alternative method of construction, which involved the bridge being pre-assembled, pre-painted and pre-glazed at an adjacent site prior to hoisting. The hoisting operations took place over one weekend and the shutdown of the roadway was limited to two days, greatly minimising the impact to city traffic flow.

PROJECT TEAM

Owner:
Franklin County Convention Facilities Authority, Columbus, Ohio

Owner's Representative:
Strategic Advisory Group, Duluth, Ga.

General Contractor:
Turner/Smoot joint venture, Columbus

Architect:
HOK, Chicago

Structural Engineer:
Halvorson and Partners, Chicago

Copyright: HOK Chicago

Projects that presented a challenge to erect

Selected from Steel Awards 2014 and 2015

By Spencer Erling, Education Director, SAISC

We take it for granted that Steel Awards entries just happen. It is only when the judges drill down into the entry forms that they realise that maybe, just maybe this was not the easiest of projects to put up. Alternatively during the site visits, someone from the project team draws the judges' attention to the fact that this was no "simple put a crane on site and throw it up" type project.

What follows is a selection taken from project entries over the last two years that turned out to be a challenge of note. What is interesting is that in most of the solutions found, the structural designer, in some cases the architect and the steelwork contractor worked very closely to produce a viable solution, both to assist the erector and to suit the client's needs.

Parade Infill Deck Cape Town Station

The project comprises of a composite steel floor beam structure plus Bondek permanent shuttered concrete slab floor over the existing station platforms.

What complicates the erection was that the 12-metre span floor structure is above live train tracks and electrical systems which had to remain operational during peak hours. Closing of platforms had to be kept to an absolute minimum in order to maintain the flow of train movement in and out of the station.

The main support beams (UB533X210X101) were erected onto the existing platform canopies fixed to stub columns which were chemically anchored onto the canopy slab. The existing concrete structures could not support large mobile cranes and crane access was greatly restricted due to taxi movement around the site. But, Union Structural came up with a great plan!

An 8-ton crane was used to erect the structure. A special temporary 300 x 100 channel rail system was erected onto the main beams which proved to be strong enough for the crane to ride on.

The crane could erect the first few main beams from the road as well as the first set of crane support rails. Once erected the crane drove onto the structure, erecting the next set of main beams and rails. Connected to the back of the crane was a purpose designed trolley onto which beams could be loaded.

The process was repeated until all main and secondary beams on each canopy were erected before moving to the next area. In all eight canopies were erected using this method. And just to add a further challenge, work could only take place when the overhead power lines below the floor were switched off in off-peak hours from 10pm till 3am.

PROJECT TEAM:

Client: Prasa, Western Cape ● **Structural Engineer:** Manong & Associates ● **Quantity Surveyor:** LDM Quantity Surveyors
Project Manager: Target Projects ● **Main Contractor:** Boshard Construction (Pty) Ltd
Steelwork Contractors: Union Structural Engineering Works (Pty) Ltd, Anchor Steel Projects
Detailing Company: Union Structural Engineering Works (Pty) Ltd ● **Painting:** Nu Nation Protective Coatings cc

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Plasma Table

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Python X

Medupi Power Station

- Offers an in-house detailing and architectural studio to assist customers from the early design stages right up to the final construction of their steel construction project.
- Works with a variety of roofing solutions, from small portal frame-type structures, through to 60-metre-span lattice girder designs.
- Mainly serves the commercial and industrial markets, with smaller contracts in the domestic market.
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University of Pretoria New Amphi Tensile Roof

It seems like the big erection challenges come from brownfields sites. In this case the University of Pretoria wanted to cover what was previously an open area between the concrete roofed Amphi and the concrete roofed Musaion.

The design had to be carefully conceived such that loads would be small enough to be supported by 1950's model concrete roofs. Apart from an erection timetable locked into the university calendar at the end of the year, this was made more difficult to achieve as it was fabricated during those difficult months of the steel industry strikes in 2014. The fabricator did his work at night and weekends so that intimidation of his workers was minimised.

The rolling of the curved girder chords could not be done due to a combination of strike action and availability of suitable rolls for the big diameter. The steelwork contractor was forced into "'n staalwerker maak 'n plan". The curves were achieved by faceted construction for the biggest diameters and a combination of heat; chain blocks and the pulling power of a forklift to radius the smaller diameters.

Access to the position of erection was limited to a distance of 80m to the nearest concrete surface strong enough to carry the large crane necessary to lift the longer units into position. The solution was to fabricate smaller sections and then use a spider crane on rubber tracks to get right up to the building to lift up the sections to the existing concrete roof, some 11 metres above the ground. Thereafter the assemblies were then manually placed into position and bolted together to form the final curve.

The floor area between the Amphi and the Musaion is heritage sensitive brick paving and therefore large spreader planks were used to protect the paving to build a double tower after which the pipe rafters were hoisted into position with a chain block to the 14m above NGL. This process was repeated four times to achieve the total installation.

PROJECT TEAM

Client: University of Pretoria ● **Architect:** ARC Architectural Consultants (Pretoria) (Pty) Ltd
Structural Engineer: WSP Group Africa (Pty) Ltd ● **Quantity Surveyor:** Bham Tayob Khan Pretoria Inc.
Project Manager: ARC Architectural Consultants (Pretoria) (Pty) Ltd ● **Steelwork Contractor:** CICon PM
Serge Ferrari Tensile Membrane and Stainless Steel Cables and Fittings: Texwise Architectural Structures (Pty) Ltd
Consulting Engineers: TPS Consulting Engineers

Slow Lounge Extension at Cape Town International Airport

For many of us who travel extensively for business purposes find that this activity is really no fun. We are continuously chasing time tables, booking in before the check-in counters close and and and... So those of us who have access to the Comair/British Airways/Slow lounge facilities at the various airports in South Africa recognise just what wonderful oases they are in the desert of business travel. It therefor came as no surprise that due to its popularity, the Slow Lounge in Cape Town was too small to accommodate all the passengers and needed to be extended.

The only direction in which the Slow Lounge facility could be expanded was southwards, into a space which housed mechanical plant. The footprint of the expansion was extended to the southern and eastern limits of the existing structure below, overlooking the domestic departure terminal and the airside road (some 30m below).

This prohibited the use of traditional scaffolding from ground level for the installation of the facade, external underslung sheeting and the bullnose cladding which extended about 1.5m over the building's edge.

Being a fully operational airport, access was limited. All materials were lifted over the domestic departures building by a small self-erecting crane. The crane could only reach the roof of the lift shaft on the western portion of the roof slab. This required that all materials be moved to the final position and erected by hand.

To facilitate this, a vastrap covered walkway between the offloading area and the construction site was built which would later become the new fire escape.

Erection of the steelwork was achieved by using isolated scaffold towers with block and tackle to rig the main columns and steel beams. Steel details, sizes and lengths were discussed and planned in detail with the steel contractor LJ Le Roux in order to assist in the erection.

Unlike the rest of the terminal, the cleaning rail system for the new facade was omitted in favour of a complete wrap around Mentis grid walk way. The walkway was designed and detailed to be constructed with the steel columns. This allowed for a cantilever element to support the temporary erection scaffolding where it projected past the building face to install the underslung sheeting, facade and bullnose overhanging the domestic departures building and airside road below.

This is a great example of how the professional team and the contractor worked together to come up with solutions to erection problems that turned out to be useful permanent additions to the structure.

PROJECT TEAM

Client: Comair Limited ● **Owner:** Airports Company of South Africa ● **Architect:** Blueprint Architects (Pty) Ltd
Structural Engineer: KFD Wilkinson (Pty) Ltd ● **Quantity Surveyor:** Multi QS ● **Project Manager:** Target Projects
Main Contractor: Stefanutti Stocks ● **Steelwork Contractor:** LJ Le Roux Industries ● **Cladding Erector:** Scheltema
Cladding (Bullnose): Alania ● **Facade (Glass and Cladding) Installation:** World of Windows

Tugela Footbridge

This bridge was one of the 2014 projects that really blew the proverbial socks off the judges, purely because they realised what an achievement it was, to put up such a bridge without the use of cranes. Apart from the fact that design is fresh and pleasing to the eye, it will be simple to maintain as the steel is all hot dipped galvanized. The real purpose for its existence is to get people across the Tugela in all weather conditions.

The design introduces a concept in the form of a minimalist Y frame, 134m long span suspension bridge to cross the Tugela River. The structure was constructed using labour sourced from the local community who will ultimately benefit from the new bridge. Every effort was made to keep the material content of the structure as low as possible whilst providing sufficient strength and stability to meet the client requirements for a safe pedestrian river crossing.

The design employs four cables supporting steel Y frames which in turn support a 1.2m wide steel deck across 2 x 60m free spans. The two lower cables which curve downwards below deck level support the entire weight of the structure and two upper cables which curve outwards and upwards to a high point above deck level generating additional downward forces to prevent bouncing of the structure under dynamic loads and to stabilise the inherently unstable Y shaped structure.

The centre lines of the cables form equilateral triangles about a common centroid with all cable profiles set out in the shape of parabolic curves. The two upper cables in three dimensions (xyz) and the two lower cables in two dimensions (xy). The structure was designed to carry imposed loading specified in the South African standard TMH 7 highway loading code. The lowest point on the structure was located above the 1:100 year flood level.

So how then does one build a 134 metre span bridge across a flowing river? A rock shelf in the river channel allowed construction of a central pier on a base dowelled to bed rock with the two main spans limited to 60m.The exposed rocks allowed the pier to be constructed above water level. Exposed rock on each river bank allowed construction of grouted rock anchors at each end of the structures. The two 10m high reinforced concrete piers, rock anchors and abutments were constructed first.

All other components were designed for modular off-site fabrication and sufficiently lightweight to be erected by hand or hand-operated equipment without the need for heavy lifting equipment at this remote site.

Once the cables were strung across the river, the Y frames were attached and slid out to position to suit the standard module walkway panels. Easy once all the issues were planes and solved correctly on paper and using a model.

PROJECT TEAM

Developer/Owner: KZN Department of Transport ● **Structural Engineer:** GDB Engineers cc ● **Project Manager:** Nankhoo Engineers
Main Contractor: TBA Construction cc ● **Steelwork Contractor:** Steelcon ● **Rigging:** Fergus Upfold

DSTV Roof Jack

Modifications such as raising a roof of a steel structure usually require a complete overhaul of existing steel to ensure structural stability. The aim of the structural engineers, Pure Consulting was to achieve structural stability whilst utilising the least amount of additional steel and reworking to the existing structural elements.

To achieve such goals Pure Consulting in conjunction with Tass Engineering conceived a scheme that combined simultaneous jacking and permanent column fixing. The process made use of steel channel sections, clamping the webs of the existing eaves (universal beam) columns; boxing around the existing SHS apex columns (which together, would form the new lengthened columns); with vertically collinear pre-drilled holes (to guide the jacking process and maintain structural stability of the roof). A handful of M20 bolts were used temporally whilst jacking was underway, and permanent fixity of the elements was achieved by site welding of the 'guiding' channel sections after jacking to the required height was completed. The scheme proved to be both economically and socially feasible as the jacking and installation process was completed in just a couple of days, minimising risk and client expense.

But in case the jacking was not enough of a challenge. The client had of necessity to maintain an operational facility throughout the jacking process since the Data Centre transmits all of DSTV's programming within Southern Africa.

If you thought the above sounds easy, drill down into the detail of the required preparation before jacking could commence:

- Isolating the existing steel structure from the built-in brick and drywall perimeter and partition walling systems
- Providing protection to the ceilings of the existing sub-station, battery rooms and electrical equipment rooms to enable the walls of the rooms to be freed from the existing roof structure
- Installing the guide channels which were to become part of the permanent roof structure after jacking
- Installing the scaffold towers, temporary jacking beams and chain blocks that were to be used to raise the roof structure (the existing column shafts had to be cut during this installation to free them from the steel structure below.)
- Extending all electrical cabling going into the existing roof structure which was to remain 'live' during the jacking operation
- Re-supporting the main electrical supply to the facility which consisted of an electrical 'Buzz Bar' that ran through the existing roof trusses and could not be disturbed. In order to achieve this the bottom chords of the existing roof trusses had to be strengthened by installing additional members over the buzz bar before cutting of the chords below to allow the roof trusses to lift passed the buzz bar which was then raised back up within the truss space after jacking was complete.
- Isolating all mechanical and plumbing lines from the existing roof structure for later re-connection
- Installing temporary 'curtains' around the outside of the facility's walls which were connected to the lowest side girts on the roof structure so that they would move up with the rising roof structure, thus maintaining a waterproof facade in the gap that opened up with the jacking operation.

Once all the preparations were completed and the isolation of all the previously connected elements had been double checked the lifting operation could take place.

The actual jacking operation took place over a period of two days and involved a large crew of manpower with two personnel manning each jacking point at each of the columns and a number of supervisors to control the rate of lift on the roof. The control of this was achieved by marking suitable increments up the sides of the columns at each jacking point and holding the lifting operation at each of these incremental marks as the lift proceeded.

Following the successful jacking operation completion activities included welding the guide channels into the permanent column extension, installing new side girts to enable new side cladding to be installed on the building and re-installing the bottom chords of the roof trusses after the buzz bar had been raised.

The entire operation was carried out without any unforeseen hitches which bares testimony to the necessity for careful and rigorous planning between contractor and engineer when one is undertaking a project such as this.

PROJECT TEAM

Developer/Owner: Multichoice ● **Architect:** GLH Architects ● **Structural Engineer:** Pure Consulting (Pty) Ltd
Quantity Surveyor: BTK Pretoria Inc. ● **Project Manager:** GLH Architects ● **Main Contractor:** Walras Real Estate & Infrastructure Solutions
Steelwork Contractor: Tass Engineering (Pty) Ltd ● **Detailing Company:** Tass Engineering (Pty) Ltd
Cladding: Cladco Projects cc ● **Sub Contract Erector:** Onpar Steel

TASS Engineering has been actively involved in structural and architectural steel fabrication and erection for more than four decades.

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- Menlyn Maine Central Square (250t) - Menlyn Maine Investment Holdings
- Nelson Mandela Square refurbishment - Liberty Properties
- Mall of Africa Central Skylight, Bifurcated Columns (250t) - Novum Holdings
- South African Breweries, Conveyors, Buildings, Stairs - SAB Alrode and SAB Chamdor Brewhouse (350t)
- Gautrain O.R. Tambo Platform Extension (100t) - Gauteng Provincial Government
- Rosebank Towers (130t) - Abland
- Cresta Gardens Shopping Centre (85t) - Cresta Gardens
- Waterfall Park Bridges (55t) - Atterbury Projects
- Natalspruit Hospital: Bridge and Doctors & Nurses Accommodation (250t) - Department of Infrastructure and Development
- Nelson Mandela Children's Hospital (35t) - Nelson Mandela Children's Hospital
- Government Printing Works (300t)
- Discovery Sandton (220t) - Zenprop
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SASFA'S LSF INDUSTRY FEEDBACK MEETING

CAPE TOWN

By John Barnard, SASFA Director

SASFA held its 22nd Industry feedback meeting in Cape Town at The Building Centre, North Gate Business Park, aptly in the Eco Exhibit section. The meeting was well attended, with people from as far afield as Windhoek, George and Gauteng, representing 30 different companies.

SASFA arranges these industry meetings in the major centres to provide feedback on the growth and development of the light steel frame building industry, and to create opportunities for networking.

The SASFA Chairman, Mulder Kruger from Trumod, provided some background to SASFA, after which John Barnard, presented the current status of the LSFB industry as well as SASFA's development plans:

- SASFA has been showing a steady growth in membership to the current 81 company members, with growth particularly noticeable in the category for smaller builders. Another interesting development is the growth in membership in neighbouring countries – SASFA now has members in Namibia, Kenya, Zambia, and Zimbabwe, with interest shown from Tanzania and Mozambique.
- Ongoing focus on publicity is resulting in media articles in most of the prominent building industry publications. Between three and four media articles on LSFB are published monthly.
- Steel Awards delivered a record number of LSF project entries – 36 projects in total!
- Training features high on the list of SASFA priorities.
  - The six-day course for LSF Building Contractors has now been completed by 315 students since 2007.
  - SASFA is working with the University of Stellenbosch to develop a LSF training course for design engineers.
  - The SANS 517 course for designers will be presented as soon as the current revision of SANS 517 has been completed.
  - SASFA also presents a LSFB introduction lecture to building science students at universities.
  - SASFA is involved with the revision of several building codes and standards, by being represented on the relevant SABS Committees.
  - SASFA carries out code compliance investigations on request. Furthermore, the certification process will soon be rolled out to builders.

SASFA aims to maintain contact with industry and the professions by e.g. workshops with architects, being involved in building industry exhibitions and presentation of lectures at conferences, by serving on the Industry Advisory Committee of the NHBRC, SASFA's Technical and Training Committees, and the Industry Feedback meetings.

Industry surveys are carried out annually to obtain input for the strategic focus of SASFA's activities, and to determine the level of LSFB activity during the past year. The area of LSFB declined marginally during 2014, in line with the reduced area of buildings completed according to StatsSA. There is a growing trend to use LSF for schools, hospitals and clinics, and student accommodation because of the PICC decision that new buildings should increasingly be built using Innovative Building Technologies, of which LSFB is a prime example.

A few SASFA members were invited to present an overview of some of their recent LSFB projects. Clayton Gouws of MiTek presented the award winning roof structures of the Mediclinic Midstream, where Ultraspan was used to provide the trusses for 9 100 square metres of roofing, at an incredibly low mass of 7.5kg/sq m. Leon Bekker of UFCC discussed the use of the Agrément certified UCO SolidWall building system, for schools, residential and commercial projects. Finally, Marcus Lowe presented a few of Silverline's projects, focusing on building outlets for the fast food chains – McDonalds, KFC and Burger King.

SASFA used the opportunity to hand over Andre Schlunz of Pholaco's membership certificate, who recently joined SASFA as a Large Manufacturer Member, based in the Western Cape.

SOUTHERN AFRICAN LIGHT STEEL FRAME BUILDING ASSOCIATION
www.sasfa.co.za

BELOW: SASFA used the opportunity to hand over Andre Schlunz of Pholaco's membership certificate.

There is a growing trend to use LSF for schools, hospitals and clinics, and student accommodation because the PICC decision that new buildings should be built using Innovative Building Technologies, of which LSFB is a prime example.

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Building materials *and* compliance with mandatory regulations *and* SANS standards

By Dennis White, Director SAMCRA

Whilst the requirements of the National Building Regulations are adhered to by professionals and reputable builders they are flagrantly ignored by most emerging contractors and home builders. Builders' merchants are equally culpable by focussing solely on price and ignoring suitably for purpose and thereby public safety.

With the flood of imported materials currently being offered to the construction industry one needs to ask the question as to whether these materials comply with the requirements of the National Building Regulations; Compulsory Specifications; SABS standards; client's requirements and in the case of residential buildings, the National Home Builders Registration Council (NHBRC) regulations. Compliance with the National Building Regulations; Compulsory Specifications and NHBRC regulations are mandatory. SABS standards are voluntary unless referenced (in part or entirety) within a building regulation, compulsory specification or form part of contractual documentation.

Traditionally building products were manufactured from locally produced materials which complied with either SABS standards or recognised international standards which lead to a certain complacency where it was taken for granted that products and materials complied with the relevant standards. With the advent of imports a large percentage of the imported material used for the production of cladding and other products does not comply with the relevant SABS standards or recognised international standards. This is compounded by the lack of compulsory specifications for building materials. Only cement, safety glazing, electrical, sanitary fixtures, the preservative treatment of timber, solar water heating systems and hot water storage tanks are covered.

Whilst the requirements of the National Building Regulations are adhered to by professionals and reputable builders they are flagrantly ignored by most emerging contractors and home builders. Builders' merchants are equally culpable by focussing solely on price and ignoring suitably for purpose and thereby public safety.

It is therefore of paramount importance that professionals, specifiers, building control officers and inspectors revert to insisting products and materials comply with the relevant SABS standards if we are to stem the tide of construction accidents currently plaguing the construction industry.

SAMCRA
SOUTHERN AFRICAN METAL CLADDING AND ROOFING ASSOCIATION
www.samcra.co.za

CALENDAR OF *Events*

NOVEMBER

26 – 27 Basic connections course, SAISC Offices

DECEMBER

2 Staff function, SkyBar & Indaba
3 SASFA Committees luncheon, Sunnyside Park
7 POLASA Board, SAISC Offices

2016

JANUARY

21 SAISC School of Draughting Open Day, Genrec Premises
28 Breakfast Talk, Guest Speaker TBC, Country Club Johannesburg
28 Council Meeting, Country Club Johannesburg
TBC SAMCRA workshop for SAFAL, Nairobi, Kenya

APRIL

20 SAISC Golf Day – Gauteng, Bryanston Country Club

SEPTEMBER

15 Steel Awards

NOVEMBER

3 SAISC AGM, Country Club Johannesburg
7 POLASA AGM, Country Club Johannesburg

OTHER EVENTS/COURSES PLANNED FOR 2016:

International Speaker – TBC

Steel Academy Courses for young engineers

ENQUIRIES:

EVENTS: marle@saisc.co.za COURSES: tiana@saisc.co.za
SASFA: john.barnard@saol.com POLASA: kobus@saisc.co.za
SAMCRA: dennis@saisc.co.za

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BREAKTHROUGH FOR POLASA WITH LOCAL CONTENT DESIGNATION

By Kobus de Beer, POLASA Secretariat and Industry Development Executive, SAISC

In an environment where localisation has become such a critical issue in the steel industry in South Africa, it represented a major breakthrough for POLASA, when on 29 September 2015, the National Treasury of South Africa issued an instruction to accounting officers of all national departments, municipal entities, public entities and Provinces designating the following: steel power pylons, monopole pylons, steel substation structures, powerline hardware, street lighting steel poles and steel lattice towers and masts.

This is a major breakthrough for our industry and clearly indicates commitment from Government to protect the jobs and capabilities in the industry. It is also an important development that the instruction note includes a range of similarly manufactured products as well as the associated components, some made of aluminium and even ceramics.

> There is no doubt that the steel industry now has an opportunity to benefit from designation. The challenge lies in all the relevant parties working together to achieve sensible compliance and, crucially, at the same time, for suppliers and contractors, to take all possible action to become, and remain, internationally competitive.

POLASA
POWER LINE ASSOCIATION OF SOUTH AFRICA
www.polasa.co.za


Inaccurate coding distorts structural steelwork imports


Institute engages DTI to increase local content requirements


BID TO AVERT
power line industry crisis

This instruction is issued in terms of Regulation 9(1) of the Preferential Procurement Regulations, 2011 in terms of which the DTI may designate sectors in line with national development and industrial policies for local production.

When originally announced in April 2015, the Minister of Trade and Industry, Rob Davies, placed considerable emphasis on compliance issues, which has been a problem in South Africa since the introduction of the designation concept. Sometimes for good reason, buyers at government institutions do not seem particularly eager to comply with these prescriptions, but it has to be understood that to preserve current jobs in the South African economy, designation and compliance with the processes to ensure its successful implementation are critical. Some of these products, such as steel power pylons, already carry a 15% import duty payable by the importer. In practice, however, this was not found to be a deterrent as import prices were often

below South African production costs. In the event of World Bank funded projects for Eskom this requirement was not taken into account during the adjudication processes, even though the import duties had to be paid. The designation of steel power pylons in July 2012 also did not protect the industry effectively as the use of World Bank funding precluded their clients from specifying local content. This is a problem that needs to be addressed to facilitate future compliance.

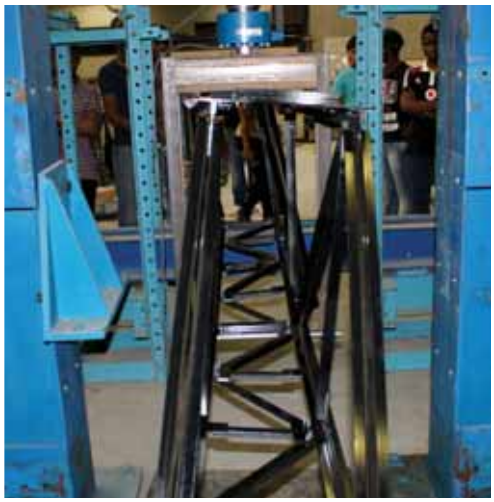
It is clear then that it is certainly not a simple matter to implement designation! To further confuse the issue excluded from the designation are mainly primary steel products (i.e. hot rolled profiles and channels, ex mill, aluminium billets and zinc ingots used for fabrication). The official reason is that "*...this is to encourage local fabricators to seek the best global competitive prices for primary materials... hence the competitive imported primary steel used in the manufacture of the above designated products will be deemed to have been sourced locally for the purposes of calculating local content.*"

This is a serious matter and is contributing to the crisis in the South African steel industry and the resulting retrenchments and loss of jobs. The time has surely come for a 'South Africa First' approach, applied to the entire value chain.

There is no doubt that the steel industry now has an opportunity to benefit from designation. The challenge lies in all the relevant parties working together to achieve sensible compliance and, crucially, at the same time, for suppliers and contractors, to take all possible action to become, and remain, internationally competitive. In this regard it should be noted that considerable success has been achieved in securing exports of fabricated structural steel products into Africa and elsewhere (almost 200 000 tons in 2014) and this needs to be extended to the maximum for each of the designated products.

Eskom had for some years made its own progress to promote local manufacturers through their List of Approved Products (LAP) but suppliers have complained that consistent use of these approved suppliers did not happen in all of the seven geographical areas. The designation instruction now opens the door to engage on this and assist in achieving 100% compliance. The fundamental assumption is that local producers will remain competitive in quality, availability and price.

So we have good news complicated by a number of challenges. This process that we have all gone through together in getting these products designated represents an area where South Africa can help itself significantly in the current dire economic situation. Every effort must be made to succeed.



SAISC School of Draughting participates in UJ's bridge building competition

By Jenny Claassens, SAISC School of Draughting Administrator

It is with great pride and joy that we can announce that all three of the (draughting school students') bridges managed to withstand the design load of 10kN with the best of the three bridges resisting 17kN before failure.

The University of Johannesburg's Department of Civil Engineering Technology was kind enough to invite the SAISC School of Draughting students to participate in their annual bridge building project. Groups of students were required to build a bridge of 3 metres long to support a minimum load of 10kn (about 1 ton). The available materials allowed for use in the design were 25 x 25 x 3mm angles, connection plates of 100 x 100 x 3mm, and 4mm diameter bolts and nuts.

Although our students have no access to workshops, as would University students which all have well equipped laboratories, they were quite eager to make a plan! *(What else would you expect from our enthusiastic students?)* The draughting school students were divided into three groups.

By using the knowledge they have gained during the draughting course relating to structural design, failure modes, bearing resistances, load paths and the like in structures, the students made designs for the 3 000mm long x 750mm high and 350mm wide bridge to withstand the force that was to be applied during testing.

After the design planning was done, detailed drawings were produced. Home workshops were created and then the real fun and games began.

The students really tackled the challenge with hard work right from the design and calculation stage and of course had fun building the bridges.

The school was invited to the testing on 2 October 2015 where the bridges were loaded until failure, comparing the design and failure loads.

It is with great pride and joy that we can announce that all three of the bridges managed to withstand the design load of 10kN with the best of the three bridges resisting 17kN before failure.

Our grateful thanks to UJ staff members Cronje Bruwer (Module Lecturer) and Chris Schoeman (former SAISC student) that went out of their way not only to make this day a day to remember, but for the great learning experience our students had.

More news on SAISC School of Draughting's Top Students

Once again the power of the SAISC Steel Awards brand has clearly shown just what it can do, even as a job creator. Kevin Harris and Kayl Grasser the two top students of the SAISC School of Draughting received exposure at the Johannesburg 2015 Steel Awards function when they received awards from Genrec.

Subsequently companies asked both students to submit CVs. One of the students has already been interviewed and offered a job!

There are still places available for the 2016 intake – please contact jenny@saisc.co.za for more information.

ABOVE LEFT: Complete Bridge ready for the destructive testing at UJ.

ABOVE CENTRE: The SAISC School of Draughting students testing the load "and no he does not weigh 10Kn".

ABOVE RIGHT: Bridge deflecting before failure.

SAISC SCHOOL OF DRAUGHTING

SOCIAL SNIPPETS: STEEL AWARDS 2015

By Marlé Lötter, Events Manager, SAISC

WINNERS: AWARDED AT EMPERORS PALACE, GAUTENG

RIGHT AND BELOW: **Overall Winner 2015 and ASTPM Tubular Category Winner:** SKA Africa Radio Antenna Positioner Back-up Structure – Well done to the duly elated project team!

RIGHT: **Saint-Gobain Light Steel Frame Category Joint Winner: Mediclinic Midstream, Centurion**: From left: Johnny Venter (SAISC Chairman), Dave Anderson (Hi-Tech Nail Plate), John Barnard (SASFA Director), Uwe Schluter (MiTek Industries), Sibusiso Mthembu (Sponsor, Saint-Gobain), Spencer Erling (SAISC Director).

BELOW: **Global Roofing Solutions Metal Cladding Category:** Multichoice City – From left: Dennis White (SAMCRA Director), Lyle Jeffrey (GRS) for the project team, Johan van der Westhuizen Category Sponsor), Johnny Venter and Spencer Erling.

RIGHT: **Mining & Industrial Category:** Medupi Power Station Air Cooled Condenser – Received by Johan Greyling of A Leita Construction on behalf of the team.

LEFT: **Architectural Category:** Multichoice City – Received by Craig Thompson of Pure Consulting on behalf of the project team.

RIGHT: **CadexSA Photo Competition 2015:** Regional winning picture Gauteng: Daventry Road Bridge – photographer Chris Narbonese of Ferro Eleganza (middle) with John Swallow of CadexSA (left) and Johnny Venter.

WINNERS: AWARDED IN CAPE TOWN

LEFT: **Double-deal: Bridge Category Winner and 2015 Photo Competition Winning Picture:** Kirstenbosch Centenary Tree Canopy Walkway ("Boomslang") – From left: Michael Papinicolaou (SAISC WCape Chairman), Kobus de Beer (representing SAISC HO), Henry Fagan (Henry Fagan & Partners) on behalf of the project team, Adam Harrower of SANBI (representing the client and was also the winning photographer) and John Duncan (sponsor, CadexSA). Adam received R12 000 prize money from 'the bank of CadexSA'.

BELOW: **B&T Steel Factory & Warehouse Category:** New Distribution Centre for Value Logistics – presented to proud members of the project team.

ABOVE: **Residential Category Commendation:** House de Clercq, Cape Town – Received by former SAISC CEO and home owner, Dr Hennie de Clercq (middle).

RIGHT: **Retail Project Category:** The Watershed, V&A Waterfront – Received by Tom Linder of LH Consulting on behalf of the team.

LEFT: **SAISC Honorary Life Membership** was awarded to Jim Guild (far left) at the Steel Awards 2015 dinner in Cape Town – Here with Michael Papanicolaou and Dr Hennie de Clercq.

WINNERS: AWARDED IN DURBAN

LEFT: **Durban Double-deal: Residential Category and Regional Photo Competition Winner, KZN:** House Zinkwazi – received by photographer Kierran Allen (far left) and Rob Young of Young & Satharia (2nd left) and members of the project team.

RIGHT: **Saint-Gobain Light Steel Frame Category Joint Winner:** House de Clercq, Mount Verde KZN – received by Bjorn Kahler of Shospec (2nd left) and other members of the project team.

STEEL AWARDS 2015 AND 'THE GREATER GOOD'

The SAISC is very grateful and proud that our guests of Steel Awards 2015 helped us to raise a collective amount of **R65 565** for three great causes at the dinners hosted on 3 September 2015:

Gauteng – R38 127 was donated to the **Baby Moses Child Sanctuary** to help sustain their comprehensive care to the ever increasing number of abused and abandoned children in their care. (www.babymoses.co.za)

Durban – R5 970 was donated to the **Quad Para Association of KZN** to support the funding of specialised equipment for the Victor Daitz Capacity Building and Care Centre, which will help people in wheel chairs to enhance their independence. (www.qak.org.za)

Cape Town – R21 468 was paid to the **Bumble Bee Fund** towards buying a special wheel chair for Ortile Masilo, who has very impaired mobility due to Congenital Myopathy. Any remaining balance would be used to help another child with similar challenges. (www.bumblebeefund.co.za)

Thank you once again to every guest and especially those who even made extra donations on the night. Thank you also to Peddinghaus, Table Decor Sponsor of Steel Awards 2015, for providing beautiful centrepieces crafted from recycled glass by Ngwenya in Swaziland to raffle for this fundraising attempt.

Steel Awards 2015 New Generation Programme: FEEDBACK FROM THE PARTICIPANTS

Unedited post event feedback received from a participating top student

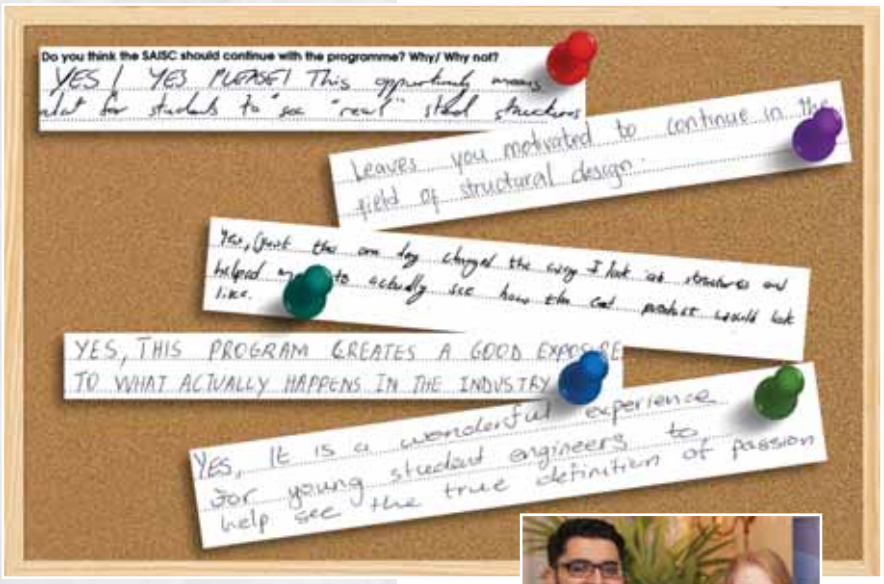
The New Gen Program 2015 took us, the students (and a few mentors), on a well-rounded journey of the steel construction profession. We found ourselves in a steel fabrication plant, a construction site and later wined and dined with the top steel construction professionals in the country. We had conversations with fellow students and, also with industry players, needless to say an opportunity we do not get as much as we need in our daily lives at our different institutions.

In that space of time, we got to see the process steel goes through in the plant from when it comes from the mill to when it leaves for site. On the softer side, we got to learn and discuss the pressing issues the industry gets to face, the most significant among these being the effect that the current economy is having on the local industry. The gravity of the laments we heard from industry players forced us to realise the importance of having exceptional individuals who exercise their profession in a competitive and exceptional manner, with integrity, for the sake of the wellbeing of this field of profession.

The insistence of New Generation program to take place, even in the light of the current economy goes a long way in getting the students to realise the importance of the roles they are going to be playing in the near future. The program infused in us the need to take extra initiative in getting ourselves the preparation we need in order to add value to the field once we are professionals. The value of the program and those similar to it cannot be emphasised enough. And we as the students pray those who can help students get the timely exposure to continue doing so.

Much Thanks
Maemo MACHABA (University of Witwatersrand)

SAISC sincerely thanks Tim Tasioulas and his team at Tass Engineering for their part (once again!) in generating such a meaningful experience for the participants. In addition to sites mentioned above the group also visited the Play at Height steel bungee tower in Fourways (and 14 of the 20 actually had the guts to take a leap!). Viv van Zyl and Amanuel Gebremeskel accompanied the group on behalf of SAISC. To extend the benefit as far as possible SAISC invited an additional 14 top students and mentors as complimentary guests to the nearest Steel Awards dinner.



RIGHT: Table Bay Hotel, Cape Town – UCT top students, Zain Rehman and Tracey Hill

BELOW LEFT: Mount Edgecombe CC, Durban (from left): DUT – Greg Parrott (mentor), Vernon Nagan, UKZN – Christina McLeod (mentor), Menzi Ngomane, Roxanne Mans.

BELOW RIGHT: Emperors Palace, Gauteng – New Generation Programme participants for 2015.

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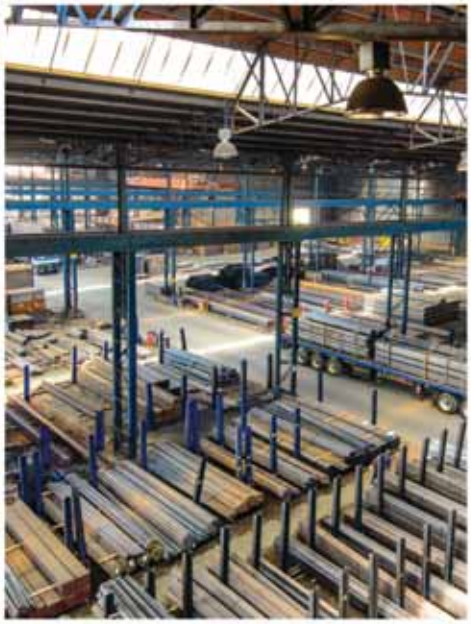

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