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Volume 36 No. 6 2012

Total process optimization

Bob (35) knows the most efficient way to design, detail, and fabricate a steel structure. His company uses Tekla to automate fabrication and project management through interfacing with MIS systems and CNC machinery. What's more important, sharing the Tekla model allows the project team members to stay in the building information loop real-time.

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EDITOR'S NOTE

The 'Green' Steel Awards has come and gone. It made for an excellent theme for the party, but we hope our message will also have a lasting effect and that the industry will take it to heart and action. Sustainability *(I know, I know, I keep harping on about it)* was the theme for the Olympic party in London this year too and it is clear that saving money in a world hard-hit by a struggling economy went hand in hand with it. I am sure everybody has their own opinion on the structures' design, function etc. but I think the British succeeded in creating an Olympic Games Park that combined iconic structures with the re-use, reduce, recycle philosophy. And as usual steel played a major role in its creation – not only allowing for less material to be used, but also creating a large *(huge)* sculpture that engages its audience. We show you some of the structures in our 'international projects' feature for the last issue of Steel Construction.

The next big thing on the Institute's agenda is the SteelFuture Conference and you will get to know a lot more about it before March 2013. For starters see the article on page 17 and check out the SteelFuture website. By the time this issue hits the streets you will be able to save some money and register as an 'early bird'.

We will be publishing a very special issue of Steel Construction for the conference. The magazine will boast a new lay-out for one and we plan to cover the top issues, speakers and projects that already promise to make this conference a memorable (and useful) experience.

So while you are lying on the beach we will be working to do just that.

Enjoy the beach and see you at SteelFuture!

steel CONSTRUCTION

Volume 36 No. 6 2012

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Join us on and

The Steel Construction journal supports the freedom of media and speech implicitly enshrined in our Constitution (Article 16).

OFFICIAL JOURNAL OF THE SOUTHERN AFRICAN INSTITUTE OF STEEL CONSTRUCTION

Front Cover: Congratulations to all the Steel Awards 2012 winners!
Cover sponsored by Stewarts & Lloyds

PUBLISHED BY
Southern African Institute of Steel Construction
1st Floor, Block C
43 Empire Road, Parktown West
P O Box 291724, Melville 2109
Tel +27 11 726 6111
Fax +27 11 482 9644
E-mail: info@saisc.co.za
Web site: www.saisc.co.za

EDITOR
Reneé Pretorius
...with pepper communications
Tel +27 83 565 7173
E-mail: renee@saisc.co.za

ART DIRECTOR
Sandra Addinall
Tel +27 11 868 3408
Fax +27 11 900 1922
E-mail: cbtdesign@adcot.co.za

REPRO & PRINT
Camera Press
Tel +27 11 334 3815

ADVERTISING
Viv van Zyl
Tel +27 16 349 6839
Cell +27 82 492 8603
Fax +27 86 647 2788
E-mail: viv@lantic.net

SOUTHERN AFRICAN INSTITUTE OF STEEL CONSTRUCTION (SAISC)
Executive Director
Dr Hennie de Clercq, PrEng.
hennie@saisc.co.za

Education Director
Spencer Erling, PrEng.
spencer@saisc.co.za

ISF Director
Neels van Niekerk
neels@isf.co.za

SASFA Director
John Barnard
john.barnard@saol.com

CHANGES TO THE MAILING LIST:
Please notify us of any changes to the mailing list.
info@saisc.co.za

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SAISC COMMENT

By Dr Hennie de Clercq,
Executive Director, SAISC

And as night follows day a time will come when business conditions will be better and the general business environment will be conducive to growth and prosperity again. We [South Africans] should not think of ourselves as victims or as people who are suffering while everybody is experiencing wonderful business conditions.

THIS TOO SHALL PASS

Many people in South Africa are quite concerned about the situation in the country, and indeed there are many things to be concerned about. It is but only necessary to mention the poverty of a large percentage of the populace and the poor quality of the education these same people get to make one wonder whether we can ever dig ourselves out of this hole. In the steel industry the more immediate concerns include the labour environment, the uncertainties around the relationship between business and government which cause companies to rather hoard cash than develop their productive capacity, the lack of progress in the government's capital expenditure programme, and the uncertainties regarding the supply of steel.

It would be easy to add to this list of concerns. Think, for example, about the violence endemic to the country and the constant threat of imports from countries that subsidise their exports to us. However, on occasion one should sit back and take a broader view at where we are. Most of us love South Africa and have invested everything we have, financially and emotionally, in this country. So we desperately want the country to be a place where our children can be happy and safe.

We can make a contribution to this dream. Our country needs a steel construction industry, a healthy one that can help create infrastructure and wealth and provide employment. And as night follows day a time will come when business conditions will be better and the general business environment will be conducive to growth and prosperity again. We should not think of ourselves as victims or as people who are suffering while everybody is experiencing wonderful business conditions. In fact, in most of Europe and Australasia and most of North America people in the steelwork contracting industry would give their hind teeth if business conditions for structural steel were as good as here.

It follows that the right attitude at the moment is to accept that the world is in a long period of very slow growth, that things will improve in the future, and that one has to equip oneself for when things turn for the better again.

To assist our members and others who have in any way an interest in the steel construction industry, including light steel frame building, the Institute is arranging the SteelFuture conference early in March 2013 *(read more on page 17)*. The conference is deliberately positioned to be future-oriented in a positive sort of way. If you are getting yourself ready for attacking the opportunities and the challenges the future may bring you don't want to start out by thinking yourself in a hole of darkness. Yes, you must be realistic, you must identify and evaluate the challenges and threats (and that will happen during SteelFuture), but you must start by planning to win and believing that with a good strategy you can.

The programme for SteelFuture is coming together very nicely. We will have the most exceptional bunch of speakers from many countries together, and they, together with and equally good set of local speakers, will bring the insight and information that will allow us to think on a higher level. I may be expecting too much from this conference, but I sincerely hope that it will open a new door for all of us.

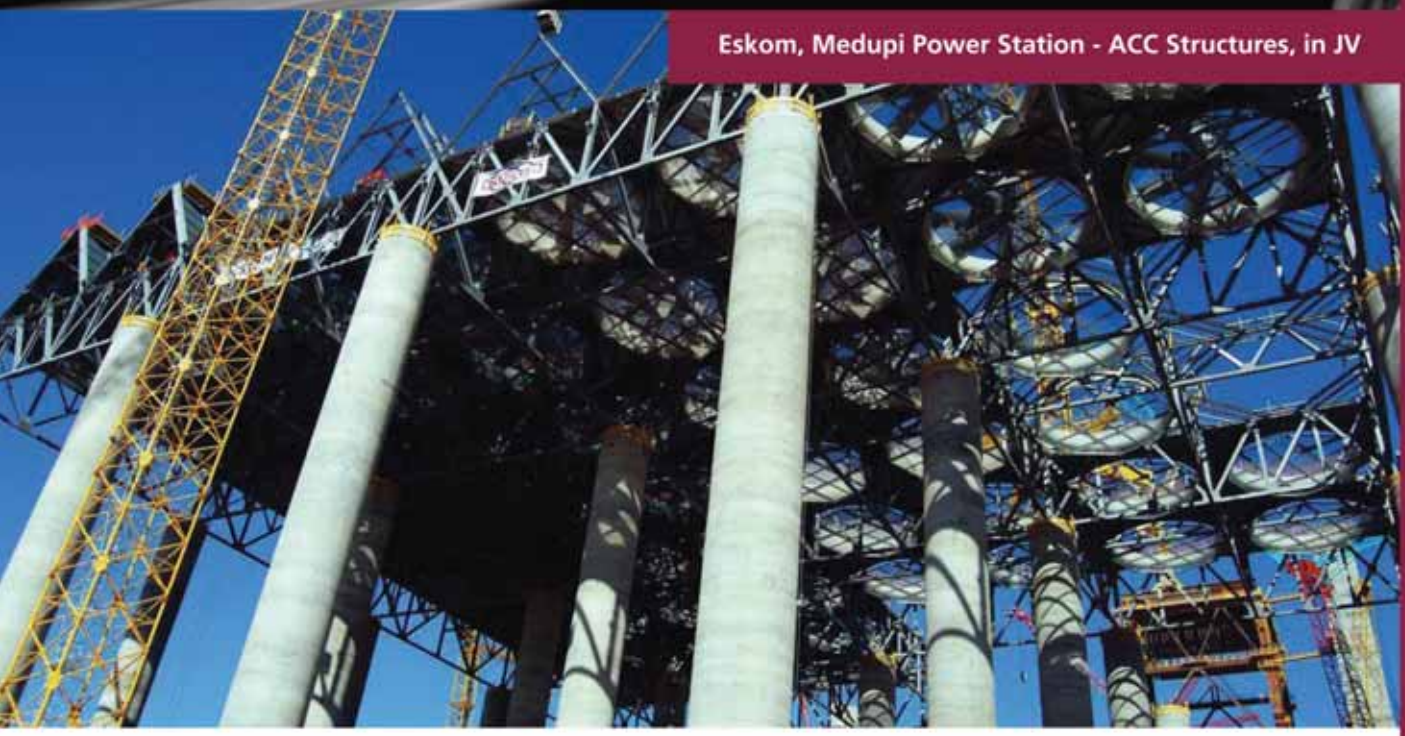
But for now we have come to the end of 2012. The Institute has had a very busy year – if you wonder what we did, do get hold of our annual report. We are planning for the coming year, constantly thinking how we can expend our energies best in the interest of the industry we serve. We wish to thank everybody who worked during 2012 in the service of our industry, or a company in the industry – we can do few things of more value to our country than just to do our job very well.

May Christmas, the festive season and the New Year be a wonderful time of relaxation and replenishment for all our readers.

And remember SteelFuture next year!

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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Mike Engelhardt.

VISITING ENGINEER

PROFESSOR MIKE ENGELHARDT

By Amanuel Grebremeskel, Development Engineer, SAISC

Students and industry participants alike were widely impressed with his knowledge. It was indeed fascinating to see how Mike had continued his track record of versatility and achieved expertise in fire propagation and thermal engineering – both fields that are completely foreign to most structural engineers.

The SAISC goes to great lengths to connect South African students, academics and industry with international lecturers who have excelled in their area of study. 2012 was especially unique because our guest lecturer studies an area of engineering that is almost totally foreign to most engineers; fire design of steel structures.

Professor Mike Engelhardt, the son of German immigrants, was born and raised in Chicago. His first language was in fact German reflecting the linguistic diversity of the city in the 1950s. His father, a baker, inculcated a strong work ethic and drive in Mike from an early age. So much so that Mike ended up attending one of the best Civil Engineering programmes in the US at the University of Illinois at Urbana-Champaign, graduating with bachelors and masters degrees by 1981.

Upon graduating he was married to his wife, Judy, within one week and went to Exxon-Mobile to work as an engineer for the next three years. Having obtained practical experience in the oil industry he joined the University of California at Berkeley as a PhD candidate and studied *the use of steel eccentrically braced frames in seismic applications* until he obtained his degree in 1989. Mike's ability to do well in the oil industry and then switch and also succeed in the complicated world of seismic design was an early signal of his remarkable technical versatility.

He then joined the academic faculty at yet another exceptionally good engineering school at the University of Texas in Austin and continued to work on a variety of research areas revolving around composite structures and seismic design. Over the years Mike's research and knowledge has been the foundation for a large portion of American engineering standards relating to structural steel in both areas. He is particularly involved with the specification committees of the American Institute of Steel Construction (AISC) working on composite steel design standards and the seismic provisions.

On September 11th of 2001 Mike joined the rest of the world and watched in horror as the twin towers of the World Trade Centre in New York collapsed killing thousands in the process. But unlike much of the rest of the world he

Mike with Professor Ben van Rensburg, University of Pretoria.

The collapse of the Twin Towers spurred Mike to find a solution to prevent fire from causing similar collapses.

sat to seriously contemplate how he could use his knowledge to prevent such death and destruction in the future. He finally decided that he would study the effect of fire on buildings and soon came to realise that very little research and standardisation work had been done in that area of engineering. He spent the next decade looking at every facet of fire loading and structural response.

The Steel Institute's decision to invite Mike to South Africa to lecture at the University of Pretoria and the University of Stellenbosch was well worth the effort. He also did short lectures for the industry in Johannesburg and Cape Town. Students and industry participants alike were widely impressed with his knowledge. It was indeed fascinating to see how Mike had continued his track record of versatility and achieved expertise in fire propagation and thermal engineering – both fields that are completely foreign to most structural engineers – in such a short time.

His lectures made it abundantly clear that despite the fact that fire hazards were one of the most severe and probable loadings that buildings see in their lifetimes, little to no engineering attention was being paid to them. This was particularly worrying for high-rise buildings where escape or egress is particularly difficult. And high-rise buildings will only increase in number in the future as high density urbanisation explodes around the world.

To add to the problems relating to fire, modern interior furnishings which are mostly composed of light plastics and fibre composite materials allow for much faster combustion. This results in a much faster rise in temperature during fires, achieving a condition known as flash-over in a fraction of the time that it took a generation ago when heavy wood and non-combustible materials dominated furniture construction. Making sure that the structure remains standing after such temperature increases will therefore require much closer engineering attention in the future.

Mike's lectures convincingly argued that much of the standard methods of fire protection today – assuming that concrete structures are safe from collapse or using prescriptive amounts of fire protection – on steel do not in fact achieve structural integrity and are mostly uneconomical solutions anyway. He proposes simple standardised rational fire engineering methods that result in safer structures for less cost. We expect that the next generation of engineers emerging from Pretoria and Stellenbosch will challenge the South African industry now that they are equipped with the requisite knowledge to tackle the problem of fire engineering.

During his stay in South Africa, we got to know Mike better. Mike believes that research in applicable areas of engineering is critical to promoting innovation-driven development. As South Africa endeavours to produce universities that are producers of applicable and relevant knowledge, Mike's experience and approach to research will surely be of great value to us. We hope that his connection with South African universities will endure.

When he is not thinking about fires and earthquakes Mike spends his time gardening and He is proud of his two sons, now grown up, and expect that they will contribute much to the future.

We at the Institute learnt a great deal from our visiting engineer this year and hope that the same is true for all those who attended Mike's lectures. We are grateful to Mike for all the effort that he put into his lectures and for sharing his knowledge in fire engineering with South Africans. We wish him the best at the University of Texas in Austin and hope to continue on our culture of bringing similarly exciting lecturers in the years ahead.

Mike gave two afternoon lectures to the industry in Cape Town and Johannesburg

INDUSTRY NEWS IN BRIEF

NEW BAND SAW PRESSURE SENSING TECHNOLOGY SteelFuture Sponsor

Peddinghaus has launched Smart Saw Technology to lengthen band saw blade life when processing structural sections.

Equipped with a ball screw feed system, Peddinghaus band saws are able to instantaneously manipulate feed rate as they receive information during the sawing process. A proximity switch is positioned on the ball screw system to detect material density. With this system, feed is automatically increased or decreased depending on section density without operator intervention.

Peddinghaus band saws utilise a high-speed feed rate during the sawing of lower density portions of sections (such as flanges on beams); however when the blade reaches a higher density location (such as the web of a beam), a proximity switch is engaged and the feed rate is decreased.

Peddinghaus' Smart Saw Technology lengthens band saw blade life when processing structural sections.

The immediate reduction of feed rate provides longer blade life. Once the blade passes through the high density portion of the section, the proximity switch is disengaged and the rate of reed increases throughout the remainder of the cut.

By utilising Smart Saw Technology, Peddinghaus' partners experience higher cut quality and lower consumable costs. By cutting blade failures in half, Smart Saw Technology allows fabricators to increase tonnage without sacrificing profitability.

Chad le Clos joined the Macsteel Maestros programme in 2009 and won a gold medal at the London Olympics in 2012.

MACSTEEL MAESTRO(S) CHAD LE CLOS BRINGS HOME GOLD SAISC Member

Chad le Clos joined the Macsteel Maestros programme as a young schoolboy in late 2009. His coach, Graham Hill, recommended him to Macsteel's Durban based Macsteel Maestro mentor, Lee-Roy Newton. In 2010, Chad won gold in every major swimming event he competed in. His performances proved to his peers that he was a true contender for Olympic glory.

At the Inaugural Youth Olympic Games 2010 in Singapore, Chad set a new Youth Olympic Games record and collected five medals. He then made his first appearance at the Commonwealth Games and won two gold medals, both new games

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INDUSTRY NEWS

records. It was however his performance at the FINA World Swimming Championships in Dubai that he sealed his glorious 2010 season as he was crowned the new world champion.

At the London 2012 Olympic Games he won the coveted gold medal in the 200m butterfly.

Macsteel Maestros offers programmes that increase the capacity of sports stars to be the masters of their future. The programme brings a unique balance to the quest of sporting excellence by equipping each athlete with the skills to be successful in and outside competitions and during and after their sporting careers.

"Our management staff members are utilised as expert consultants both nationally and internationally," says Morné Du Plessis - Macsteel Maestros Management Chairman and CEO of the Sports Science Institute of South Africa

BUILDING A NATION OF EMPOWERED WOMEN

While there has been significant transformation across a number of industries in terms of female employment and empowerment, the construction industry is still largely male-dominated. Rob Johnson, Executive Director of the Master Builders Association of the Western Cape (MBAWC), says, "The construction industry needs to create more opportunities to empower women. Their integration and development needs to become a priority if we are to grow our industry and the country's economy."

Nosipho Roji (a junior quantity surveyor at GVK Siya Zama) says,

Nosipho Roji (a junior quantity surveyor at GVK Siya Zama). The construction industry lags behind in terms of employing and empowering woman.

"Student internships are a great vehicle for females to be integrated into the construction industry." She herself became an employee at the company following her internship.

Clarise van Niekerk (site quantity surveyor at Murray and Roberts) believes that women should be employed based on their ability to add value and not purely on gender or ethnicity and would like to see more women in senior positions across the industry.

ECONOTREAD PROVIDES VITAL SAFETY BENEFITS AND COST-SAVINGS FOR INDUSTRY

SteelFuture Sponsor

The recently released Econotread stair tread from Vital Engineering not only offers a significant reduction in cost and mass of materials used, but results from a recognised testing institution show a 35% improvement in its load ability when compared to traditional branded stair treads.

During extensive pre-launch testing the Econotread® exhibited a 15% saving on costs when manufactured in mild steel and galvanized finishes.

"The Econotread utilises our Vitagrid raised serrated pattern gratings which provides superior non-slip characteristics compared to plain gratings. The combination of Econotread and Vitagrid provides a practical and cost-effective solution for our clients.

"The leading edge and durable bulleted self-cleaning non-slip nosing of the Econotread ensures an excellent grip irrespective of whether one is ascending or descending the staircase," says Dodds Pringle, Managing Director of Vital Engineering. By attaching a bright yellow reflective strip to the leading edge of the tread, visibility and safety are improved in low light or poor conditions.

"The Econotread allows us to offer a product that meets the stringent OHS criteria laid down by our most demanding clients, while at the same time providing them with a product which affords them a better return-on-investment," Pringle concludes.

The Econotread stair tread shows a 35% improvement in its load ability when compared to traditional branded stair treads.

STOCKYARD AND TERRACE CONTRACTS BOTH AWARDED TO THE COSIRA GROUP

Steel Awards 2012 Partner Sponsor

"In a joint venture with Tubular Technical Construction and the WFGD Project in consortium with Alstom, we have now been awarded two new power station related projects. With our combined knowledge and experience regarding the stringent requirements of the power industry in general and Eskom and Kusile Power Station in particular, we were considered to be a very strong contender for the Kusile stockyard and terrace contracts," says John da Silva, Chief Executive Officer for the Cosira Group.

The scope of work on both of the contracts entails the detailing, supply, fabrication, galvanizing, delivery, erection and commissioning of structural and conveyor steelwork. The stockyard contract, with 2 300 tons of steel, commenced in March 2012 and is due for completion in December 2013. The coal and ash handling terrace involves 3 000 tons of steel and has a project timeline of 42 months, with commissioning scheduled for July 2016.

"We will use a combination of our own transportation and additional delivery services sourced from black-owned and black women-owned small medium and micro-enterprises (SMME's) from the communities surrounding the project site. In addition to the fact that we are currently upskilling our own personnel, we are also required to source and train candidates from the local community", says da Silva.

Lebone II College in the Top 10 for the AfriSam-SAIA Award for Sustainable Architecture.

Vele Secondary School was developed with input from the local community.

THREE SOUTH AFRICAN SCHOOLS FEATURE IN TOP GREEN ARCHITECTURAL AWARDS

Three South African schools – two of them in rural areas – have come top of the class when it comes to environmental and green issues.

The biennial AfriSam-SAIA Award for Sustainable Architecture aims at recognising outstanding achievement in sustainable architecture as well as creating public awareness and debate on architectural issues. Remarkably three South African schools were in the Top 10 entries.

The schools are Lebone II College in Phokeng (which received a Steel Awards 2011 commendation in the Architectural category), North West; Vele Secondary School in Limpopo and Elkanah House high school campus outside Cape Town.

Lebone II College was designed by Activate Architects and Afritects. The college was built in a disused sand quarry and rehabilitated a

INDUSTRY NEWS

watercourse to create wetlands hosting indigenous vegetation. Local artists were trained to create detailed mosaic art on the site. Solar geysers, storm water harvesting, a black water treatment plant, waste recycling and a feeding scheme from vegetable gardens are all part of the project.

Vele Secondary School in Limpopo was designed by East Coast Architects. As part of the Creating Schools initiative, the project based its development on the input from the local community. Pupils were given cameras and taught to map the area, including their routes to school. They identified hazards — leopards, baboons and snakes among them — as well as special sites in the landscape. The school invested in a digital weather station to create effective solar design and rainwater harvesting strategies. Energy conservation and water management are important themes both in terms of global resource implications and the reduction of school utility bills. The use of local resources reduces the carbon footprint and invests in local economies.

THE ROAD TO MAINTENANCE SUCCESS MADE EAZI FOR HVC TECHNOLOGIES

Steel Awards 2012 Partner Sponsor

With current improvements to South Africa's national roads and highways, HVC Technologies, invested in two T350 and two T500J trailer-mounted boom lifts from local access platform solutions provider, Eazi Sales & Service. These mobile elevated work platforms (MEWPs) are being used to maintain and install roadside cameras, and erect various message signs across the country's road infrastructure. The machines have a working height of 12.7m, and 17.2m.

"Due to the uneven setting often found on the side of South Africa's main roads, the machines needed to work on uneven ground, and be moved around quickly and effectively for faster turn-around times and increased productivity," explains Larry Smith, Managing Director, Eazi Sales & Service.

The two machines feature automatic self-levelling hydraulic outriggers for faster and easier set-up on site. They are extremely useful for reaching the different sign heights and camera fixation points. Features such as a sky-hook attachment for lifting equipment and a traction drive attachment were incorporated, along with power, air and water hose connection points which come standard on the platform.

The lifts come standard with a tilt alarm and indicator light, all motion alarm, battery condition indicator, parking brake, hour metre and 240V power cable to the platform. Both boom lifts are powered by either batteries - rechargeable through a standard electric outlet – or by a petrol engine.

Eazi Sales & Service's T350 and T500J trailer-mounted boom lifts are being used to maintain and install roadside cameras, and erect message signs across the country's road infrastructure.

CALENDAR OF EVENTS

STEELFUTURE CONFERENCE 2013
5 & 6 March 2013
Sandton Sun
www.steelfutureconference.co.za

SASFA ERECTION AND CLADDING COURSE
18 - 23 February 2013
Centurion

2013 NASCC (NORTH AMERICAN STEEL CONSTRUCTION CONFERENCE)
17 – 19 April 2013
St Louis, Missouri
http://www.aisc.org/content.aspx?id=31134

SAISC GOLF DAY 2013 (JHB)
9 May 2013
Venue to be advised

STEEL AWARDS 2013
Deadline for entries: 30 April 2013
Entry Enquiries: renee@saisc.co.za
Awards dinner: 19 September 2013
Gauteng: Emperors Palace
KZN & CT: Venues to be advised
Dinner enquiries: marle@saisc.co.za

PACIFIC STRUCTURAL STEEL CONFERENCE
8-11 October 2013
Singapore
http://www.pssc2013.org/

FOR MORE INFORMATION ON EVENTS VISIT OUR WEBSITE – www.saisc.co.za

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The Macsteel Maestros and Macsteel Lifeskills programme are managed by the Sports Science Institute of South Africa and run at regional centres in Johannesburg, Pretoria, Cape Town, Durban, Bloemfontein, Potchefstroom, East London and Port Elizabeth. The Macsteel programmes work in close consultation with recognised sports bodies, including: Sport and Recreation South Africa and SA Sports Confederation and Olympic Committee.

SPORTS SCIENCE INSTITUTE OF SOUTH AFRICA

AN INITIATIVE OF THE MACSTEEL GROUP

SOUTH AFRICAN STEEL FABRICATION INDUSTRY BLEEDS AS MAJOR CLIENTS PROCURE ABROAD

By Kobus de Beer, Industry Development Executive, SAISC

It is time for us to appreciate that we cannot afford to lose our industries, especially those that are not high-tech but provide employment for typical South Africans. It is time for us to appreciate that the world is moving in the direction of increased protectionism, as free trade and globalism have not proved to be all they were cracked up to be, especially from the vantage point of the majority of the population.

The large quantities of fabricated structural steel coming into South Africa from China, Saudi Arabia, India, Turkey, Thailand and others continue to have a significant impact on the South African economy.

Many of the major South African client companies have introduced a policy known as 'best country sourcing' which means they buy from the cheapest international supplier which, in many cases, turns out to be China.

These companies say that they simply cannot be competitive with other global players if they do not continue with this practice. Many of them have gone to the extent of setting up purchasing offices in China, and other countries, to take advantage of what they call a 'massive' price advantage.

But this, in my opinion, is a misperception. They haven't made the right comparisons and they certainly haven't taken into account the full hidden, associated costs of the practice. For example, China typically needs full and final drawings to proceed and they tend to not process variations very effectively and, even if the work is done well, the costs end up high. Many buyers also 'forget' the 15% import duty payable on imports of fabricated structural steel on entry into South Africa. A number of instances have been found where importers use fraudulent codes to try to avoid paying these duties.

Also, almost every major company buying from these foreign sources needs a full time resident quality assurance (QA) team on the premises of their suppliers and, often, a second team to fix the poor quality of the work. As technical communications are also a very real problem, major quality and scheduling issues are not uncommon. These issues have made countries like Australia move away from China as a cheap source of supply.

While it is true that delivery times are generally quick from these Eastern countries, delivery from South African fabricators are just as quick particularly when taking into account the six weeks shipping needed to bring foreign supplies. Most buyers also fail to account for the time and effort needed to repair paint and other damage before steel structures can be erected. Our quality and speed of delivery is on a par with anything in the world, and taking into account the extraneous costs when buying from the

East, we are also much closer to being competitive from a price perspective. The weakening rand has made South African prices even more competitive of late.

The fact that South Africans have managed to export 75 000 tons and more of structural steel per year for the past ten years does indicate a reasonable degree of competitiveness in spite of the many domestic constraints such as relatively low volumes and the inability to specialise. To give a perspective on this number: It comprises about 15% of the total South African capacity. A medium sized South African structural steel fabricator will employ some 210 people to produce 500 tons a month or 6 000 tons a year.

It is time the industry took a holistic view and understood that, given South Africa's relative overall competitiveness, buying fabricated steel locally is not only beneficial to them in terms of the overall efficiency of trade, it is also good for the country's economy as a whole.

A lot of Government and private sector effort goes into creating new jobs and incentivising productivity improvements at South African companies. Against this background it is totally counter-productive to allow existing decent jobs of well trained people to be wiped out while big buyers pay lip service to social compacts and local industry developments while continuing to import fabricated steel and other things.

Perhaps the best illustration of how the country is affected by these decisions is to examine the losses on a few current jobs as calculated using the 'multiplier effect', which, in essence was

PROJECT	TONS OF STRUCTURAL STEEL IMPORTED	RSA VALUE LOST (RAND)	ECONOMIC ACTIVITY LOST (RSA RAND)	TAX INCOME LOST (RAND)	DECENT JOBS LOST TO RSA COMPANIES
Power station	32 000 tons (Ex Thailand)	R800m	R1.144bn	R312m	3 265
Power station	12 000 tons (ex Saudi)	R300m	R429m	R117m	1 225
Cement plant	5 000 tons (Ex China)	R125m	R178.75m	R48.75m	510
Klinker plant	1 500 tons (Ex China)	R37.5m	R53.6m	R14.6m	150
Mine workshop	1 500 tons (Ex China)	R37.5m	R53.6m	R14.6m	150
Mine furnace building	6 000 tons (Ex China)	R150m	R214.5m	R58.5m	610
Coal mine	8 000 tons (Ex import)	R200m	R286m	R78m	816
Coal mine	2 700 tons (Ex import)	R67.5m	R96.5m	R26.3m	275
Transmission lines	8 500 tons (2012 only)	R130m	R190m	R51m	520
MANY OTHERS...	Unknown	Unknown	Unknown	Unknown	Unknown
TOTALS: (This table only)	77 200 tons	R1.850bn	R2.70bn	R721m	7 520 REAL PEOPLE

Table 1.

developed by the SAISC to describe the knock-on benefits of fabricating steel for construction locally.

Table 1 using approximate numbers illustrates the position.

Only a cursory glance at this table shows that the perceived advantage to a major client of saving say 15% by importing structural steel pales into insignificance compared to the benefits to South Africa of added economic activity, the double savings to the Receiver and the permanent loss of 7 000 decent South African jobs!

China, India and others realised from the outset that even if it costs them as much as 30% of turnover to protect their own manufacturers the country still gains. So, despite having signed international treaties, they have found clever ways of protecting and assisting their industries.

It is time for us to appreciate that we cannot afford to lose our industries, especially those that are not high-tech but provide employment for typical South Africans. It is time for us to appreciate that the world is moving in the direction of increased protectionism, as free trade and globalism have not proved to be all they were cracked up to be, especially from the vantage point of the majority of the population.

THE MULTIPLIER IN STEEL CONSTRUCTION

BASE INFORMATION

People employed to fabricate 6 000 tons / year: 210 — Value @ R20 000/t = R120m

People employed to erect 6 000 tons /year: 150 — Value @ R10 000/t = R60m

People employed per 6 000 tons of steel construction: 360 — Value = R180m

People employed annually per 1 000 tons produced: 60 — Value per man = R0.5m

LABOUR MULTIPLIER FABRICATION (x 2.90)

Direct: 210 Indirect: 120 Induced: 280 Total: 610

LABOUR MULTIPLIER ERECTION (x 2.15)

Direct: 150 Indirect: 74 Induced: 96 Total: 320

LABOUR MULTIPLIER STEEL CONSTRUCTION (x 2.59)

Direct: 360 Indirect: 192 Induced: 378 Total: 930

In an industry producing 720 000 tons per year this equates to 43 200 direct jobs and a total of 112 320 'decent' jobs per annum

MULTIPLIER IMPACT ON THE SOUTH AFRICAN ECONOMY (x 1.43)

A structural steel project worth R1 billion multiplies to R1.43 billion in the economy as follows:

- R715 million for manufacturing
- R 286 million for financial services
- R143 million for community, personal and social services
- R100 million for wholesale and retail trade
- R60 million for transport and storage
- R126 million for all other sectors
- And as a direct result of all these activities:
  R390 million for the National and local Government in taxes

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STEEL FUTURE

steel leaves a legacy

SAISC CONFERENCE

Sandton, South Africa • 5 & 6 March 2013

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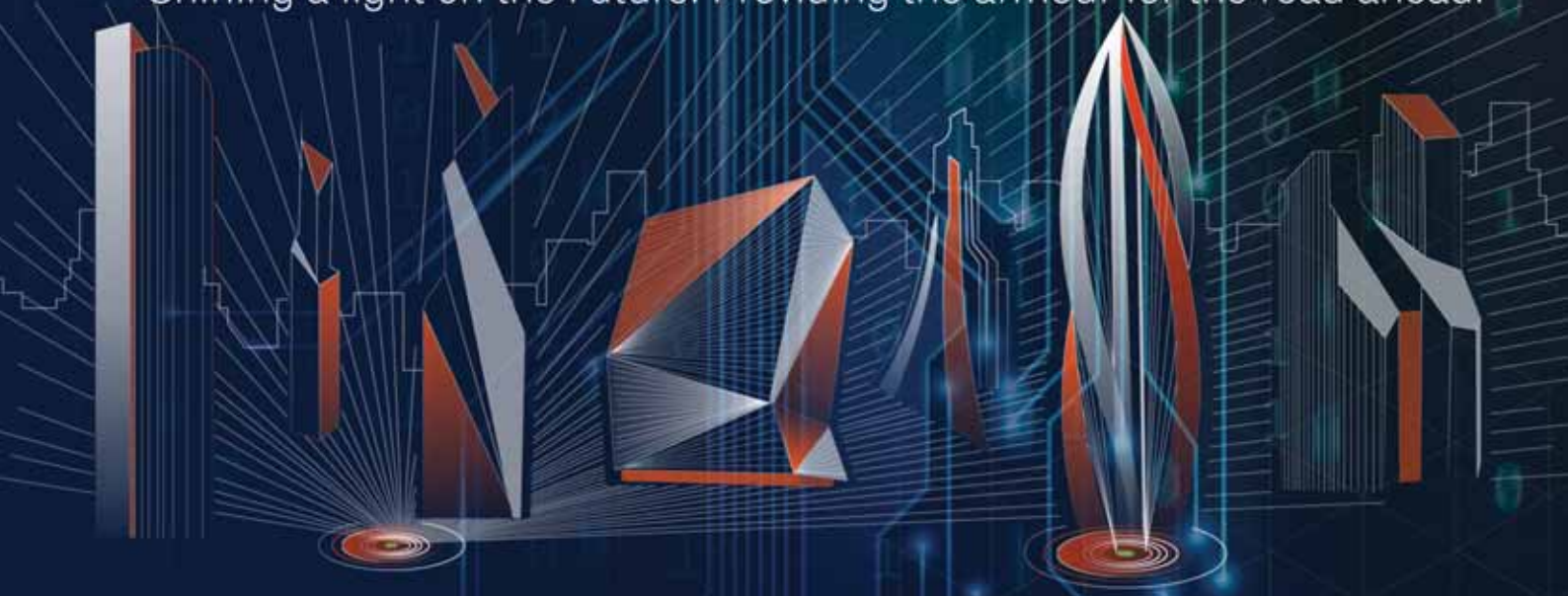
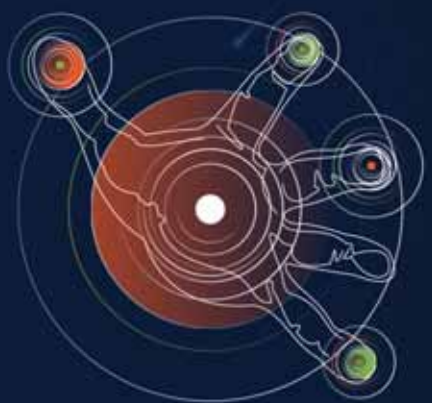


If you have anything to do with the use of steel in construction you cannot afford to miss SteelFuture.



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Hosted by the Southern African Institute of Steel Construction

steel

STEELFUTURE CONFERENCE

By Dr Hennie de Clercq,
Executive Director, SAISC

Arranging a conference centred on the future of steel in construction sounded like a good idea, but the response we got from speakers still surprised us. More than 20 of the leading international authorities on various aspects will feature on the programme, together with top South African speakers. The programme just evolved into a 'can't miss' event, packed with the promise of insight and information that will be of real value to everybody with any interest in the use of steel in construction, from the professions to steelwork contractors to people in every corner of the steel industry. Client bodies, general contractors, people in government, property developers and others all stand to gain.

Steel construction is in the midst of raging change. Some of what's happening in economics, politics and international trade and relations is of concern and sometimes even frightening, but potentially full of promise. On the other hand, developments in the fields of information technology, fabrication technology, new products and new concepts can be highly beneficial to steel, although even some of these come with complexities that we need to manage very carefully. Trends in the areas of safety and quality assurance call for intervention.

Prominent thinkers and leaders will congregate during SteelFuture to help us understand and get to grips with where we are going. Edwin Basson is Director General of Worldsteel, the body representing steelmakers worldwide. Reidar Björhovde is widely acknowledged as a leading authority on structural steel, but also as a person who plays a pivotal role in bringing steel people from many countries together with a common cause. Richard Liew's status in Singapore but also in China and further afield makes him a portal to a body of knowledge which is otherwise largely inaccessible to us. John Cross from America is well known in South Africa as a marketing guru and a man of exceptional insight into a wide range of topics related to steel construction.

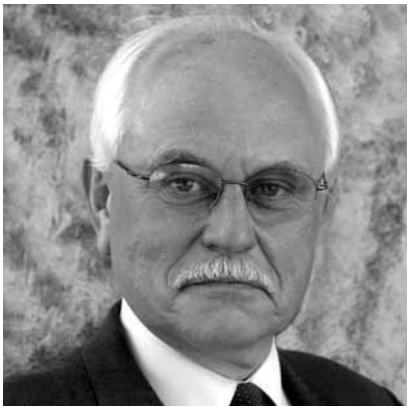
SteelFuture will tend to have a positive and even optimistic vibe, because it will be action-orientated. It won't be an occasion for crying helplessly about the difficulties of life, but a time for planning and equipping ourselves for a dynamic, challenging future. The intent is that on the basis of what happens at SteelFuture companies and the industry will be better equipped to decide on future strategy.

TOPICS AND ISSUES TO BE DISCUSSED

The topics to be addressed during the conference will be in line with this intent, starting with sketching a picture of the likely shape of the world, continent and country we live in and the facilities that will be needed. Having an idea of the thinking and ideas of our speakers, it is safe to say that it will be impossible to go away from the conference without thinking deeply about not only where one's opportunities lie, but how to build to be in line with what future society will require from the building process.

Fortunately, the technology that's new and still emerging really works for steel. The software and hardware that's under development now will make the handling of huge quantities of information easy and enable the professional team, the steelwork contractor and any other contractors on a project to get the maximum from the

Dr Edwin Basson, Director General, Worldsteel, Brussels will open the conference with: The steel industry in the future: obstacles, challenges and opportunities.



Prof Reidar Björhovde, President, Bjorhovde Group, USA: Engineering - research to practice – are we succeeding?

Llewellyn van Wyk, Principal Researcher, Built Environment, CSIR, South Africa: Building for the demands of the society of the future.

John Cross – Vice President, American Institute of Steel Construction, Chicago: Steel Construction's twenty first century advantage.

Don McDonald – Chief Executive, Australian Steel Institute, Sydney: The Australian steel industry campaign for local content in resource projects.

Prof Richard Liew - Department of Civil & Environmental Engineering, National University of Singapore, Singapore: Steel - the preferred choice for spectacular structures.

potential of steel as a sustainable construction material. The steel mills are coming to the party with new steels and new products that are greener, lighter, stronger and more imaginative, again giving steel an advantage when it comes to the demands the future stands to make on us.

To this mix the manufacturers of fabrication and other equipment bring their new products to integrate into the process to enable even faster, more accurate steelwork of consistent quality. The progress being made with integrating robotic welding with CNC equipment will be of particular interest. But a revolution is required on site; the industry needs new approaches to marry the need for faster construction with the demand for ever-increasing safety standards. The latter is sucking any gains in productivity from the process of steelwork erection, and there is a danger of it encouraging alternative forms of construction.

Structural steel research and development is, of course, carrying on unabated all over the world, and SteelFuture will be an excellent opportunity to catch up with new developments, such as the ground-breaking work on fire resistance of buildings done in New Zealand and the new wave of research in the Far East. The best research work that is done often finds its final expression by influencing codes of practice, and the conference is intended to get clarity about the road ahead with respect to codes in South Africa, considering our tradition of basing our code on the Canadian one, the pressure to move to the Eurocode, and what the Australians, North Americans, Chinese and others are doing.

But one cannot just look starry-eyed at the future and marvel at the best and the newest that's available in the world. There are issues and problems and we have to identify them and set ourselves on a course to work out the best future for the industry. This is where the concentration of top minds and influential people from many countries, familiar with what is facing the industry, can have an impact. Many of the issues we face are the same, either across the world or between specific countries; we and the Australians are, for example, highly concerned about the negative impact of global procurement on our industries.

LSFB SESSIONS

The people interested in light steel frame building (LSFB) will spend about half of the conference on their own, talking about issues and developments of interest to them. LSFB can be described as a disruptive technology – it carries the germ of upsetting how buildings are built – and there is much happening in this field, which is still quite new and developing. Speakers who are immersed in the new developments in LSFB in Australasia, North America and Europe will share their knowledge, while South African authors will illuminate research findings that will assist us in claiming that this form of construction is indeed much 'greener' than its competitors. Of particular interest will be how LSFB is now applied to certain types of multi-storey buildings and in non-residential applications.

No conference on structural steel can happen without having a number of mouth-watering projects on the menu, and SteelFuture does not plan to be an exception on this score. Again, having speakers from as far afield as Singapore will make this part of the conference the injector of inspiration that it's meant to be.

So SteelFuture has being planned to be an event that will make a difference to the steel construction industry; its meant to provide our industry and individual companies in it with a new vision. But despite the careful planning and selection of speakers, there is the latent possibility that its main impact will not be what comes across in carefully prepared speeches, but in the interaction between all the people thrown together in a climate of exploration and sharing for two full days.

It is this promise of the unexpected emerging when people of similar interest, including some leading minds, are thrown together that makes SteelFuture the sort of event one should not miss.

For more information on the programme, registration, sponsorship and the exhibition visit the SteelFuture website at www.steelfutureconference.co.za.

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LOOKING BACK ON 2012

By John Barnard, SASFA director

More LSBF is also seen in multi-storey buildings and in the facades of buildings, and there is every reason to expect much more growth in future, especially when the building industry recovers.

SASFA has been successful in pursuit of its mission during the six years of its existence, as testified to by the fact that some 20 000 tons of steel is consumed by light steel frame building (LSFB) per year. It has been amply demonstrated as a viable, economic and exciting form of building and a large number of monuments to it can be seen in South Africa's cities and towns, and even in some remote areas. More LSFB is also seen in multi-storey buildings and in the facades of buildings, and there is every reason to expect much more growth in future, especially when the building industry recovers.

The following is a brief list of SASFA's activities and achievements during the past year.

PUBLICITY

- Some 40 media articles were placed in prominent media to expand awareness of LSFB.
- We received six quality LSF entries for Steel Awards 2012, and the overall LSF winning project – the Deloitte head office building in Pretoria – was also crowned as the winner of the Architectural category.
- SASFA exhibited at the Green Building Conference in Cape Town, as well as Interbuild. It proved to be excellent forums to disseminate information on LSFB.
- Presentations by the American LSFB contractor on the PAG Athletes Village contract in Maputo was arranged at the annual Master Builders' Association Congress in Cape Town, followed by presentations at two breakfast meetings arranged for this purpose.
- An informal newsletter is sent to members to keep all informed about developments in industry.

TRAINING

- The annual lecture to the University of Pretoria's building science students was delivered
- The six-day LSF training course for builders was presented in Cape Town,

The Deloitte head office development in Pretoria was the winner of the combined LSF and Architectural category at Steel Awards 2012.

SOUTHERN AFRICAN
LIGHT STEEL FRAME BUILDING ASSOCIATION

Midrand and Durban, to a total of 45 attendees. This brings the total number of people who successfully completed the course to 120.

- The SANS 517 Code course was presented in the three major centres, as part of a two day training program. SASFA also contracted an American specialist engineer, Don Allen, to present a one-day course on LSF for mid-rise buildings and facades.
- Several lectures on LSFB have been presented to regional groups of representatives from the Department of Human Settlements, in collaboration with the NHBRC.

RESEARCH

SASFA contracted the CSIR to carry out research comparing the energy efficiency of a LSF house with that of a masonry equivalent. Their computer based research proved that LSFB will on average require half of the electrical energy to heat to comfortable temperatures compared with a brick building.

CODES & STANDARDS

- SANS 517 Light steel frame building was updated by the SABS.
- SANS 10162:2 Cold-formed steel design, adopted from the Australian code, was published by the SABS.
- SASFA is represented on the SANS 10400L (Roofs) committee of the SABS, to ensure that LSF is correctly covered in the code revisions.

INDUSTRY MEETINGS

- A well attended industry meeting was held in Durban.
- SASFA's Exco, Technical and Training committees met on a two monthly basis, involving 30 industry specialists from 18 member companies.

QUALITY MONITORING

SASFA was approached by a few clients who were not satisfied with their LSFB projects. The technical aspects of the projects were investigated and remedial measures agreed with the builders. One company's membership was suspended in anticipation of corrective measures.

ST APOLLINARIS HOSPITAL

Early geological surveys of the property identified some obstacles for any future development. With this in mind a light steel frame design was proposed and adopted.

The completed nurses' homes comprise of three 650m² nursing home blocks and a 550m² doctors' apartment cluster also forms part of the complex.

The 155-bed St. Apollinaris District Hospital is located at Centocow (originally a Trappist Missionary) in Creighton, KwaZulu-Natal. This project was part of a multi-year plan prepared for the facility by the KwaZulu-Natal Department of Health in 2003. New nurses' homes and doctors' apartments were considered vital to the future longevity of the hospital.

Early geological surveys of the property identified some obstacles for any future development. With this in mind a light steel frame design was proposed and adopted.

The nurses' homes comprise of three 650m² nursing home blocks and a 550m² doctors' apartment cluster. The design is somewhat conventional, drawing influence from the existing hospital buildings dating back to the early 1900s. The architect's detailing was drawn from as far afield as Florida in the USA, Canada, Australia and New Zealand, and was adapted to comply

project team

Developer/Owner:
KZN Department of Health

Architect:
SMS Designs Architects cc

Structural Engineer:
SSI Engineers and Environmental Consultants (Pty) Ltd,
Light Steel Frame: Martin and Associates (LSFB)

Quantity Surveyor:
Schoombie Hartmann Quantity Surveyors

Main Contractor:
Erbacon (Armstong Construction)/ Shospec JV

Steelwork Contractor/s:
Shospec (Pty) Ltd

The building platform was elevated on piers and the light steel frame was built on top of a precast concrete slab.

with South African conditions, building regulations and environmental considerations.

As with all projects, the success of the project was dependent on the entire team ranging from client, implementation agent, consultants and contractors to local labour. Having been given special provincial permission to fast-track the project, the development bears testimony of what LSFB offers. The project was completed within the prescribed nine month contract period, barring later renovations to the hospital's guardhouse, entrance roadways and landscaping.

Steve Swanepoel, Managing Director of SMS Designs Architects, said: "From its inception, the urgency of the development was paramount to the outcome of the project." Steve is of the opinion that the benefits of LSFB's far outweigh any disadvantages it might have.

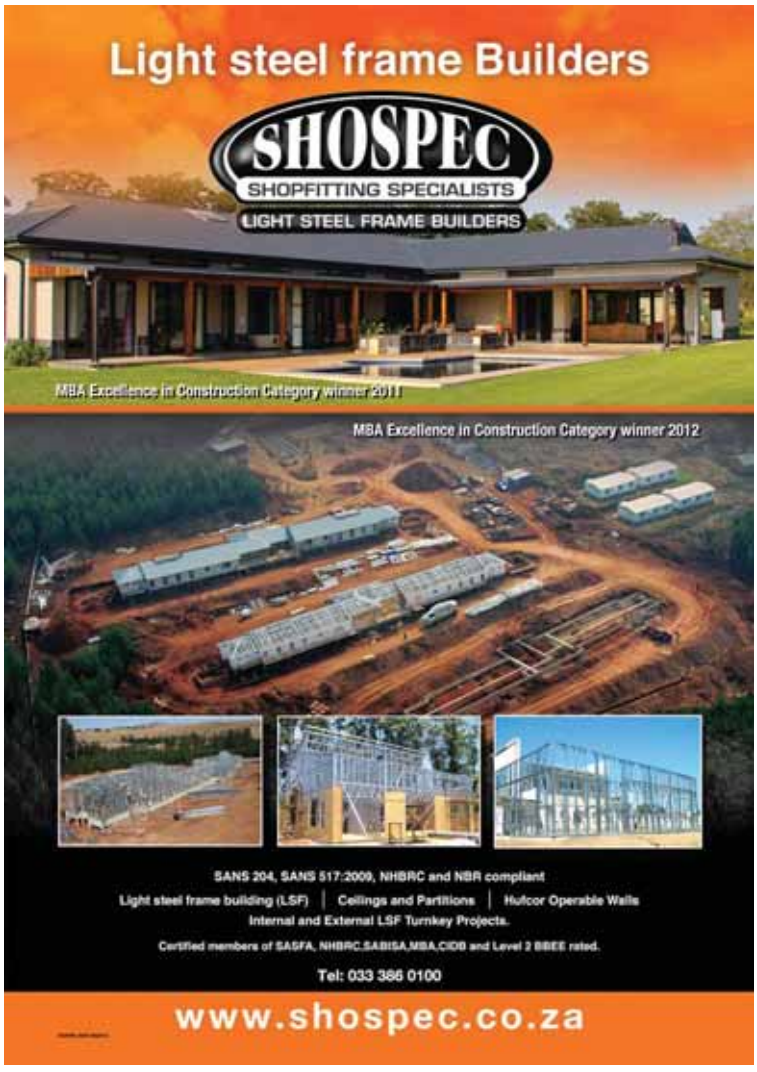
By elevating the building platform on piers and building the light steel frame on top of a precast concrete slab, development could take place unhindered by the underlying founding conditions and at a much faster pace.

The only minor disadvantage to this project was cash flow. If one takes into consideration the somewhat shortened contract period with such a construction method, much larger payments needed to be made over shorter periods. At first this seemed to be a problem, but it was addressed quickly and amicably.

Schospec recently received a MBA Excellence in Construction award for this project.

Special considerations:

- The project is ±250km from Durban and 150km from Pietermaritzburg.
- Situated in rural KZN Midlands with partly dirt road access of ±20km
- Logistics were a lot more challenging than working in urban areas.
- Any supplies or the nearest small town were ±60km away.
- Generators were required for power supply.
- 80% of the labour force was sourced locally with minimal basic skills.
- Great emphasis was placed on training and up-skilling local labour. The last 140m² doctors' unit was erected by a team of local labour, who previously had no experience in LSF building methods.



THE STATISTICS

Scope of work completed by Shospec the LSFB contractor

- Light steel frame top structure from slab – single storey
- Wall cladding: 90% Nutec Vermont exterior and 15mm Gyprox internal lining with 102mm cavity batt
- Doors and windows
- Complete roof structure trusses and roof panels
- Ceilings and cornices

SIZE AND VALUE

- Total contract value - ±R42 000 000.00
- Shospec portion - ±R12 000 000.00
- 3 x Nurses' blocks - 650m² each (48 staff)
- 4 x Doctors' units - 550m² each (10 staff)
- Total area of housing - ±2 500m²
- Shospec time on site - ±6 months

LONDON 2012 OLYMPICS
STEEL LEAVES SUSTAINABLE LEGACIES

The last issue of Steel Construction features international projects. There weren't many (any?) projects that could better the structures built for the London 2012 Summer Olympics as the focus for our feature.

Post Olympic Glow: Comment in New Steel Construction September 2012 Issue by the editor, Nick Barrett

The London 2012 Olympics and Paralympics is vying for the accolade of the best organised and brilliantly delivered Olympic Games ever.

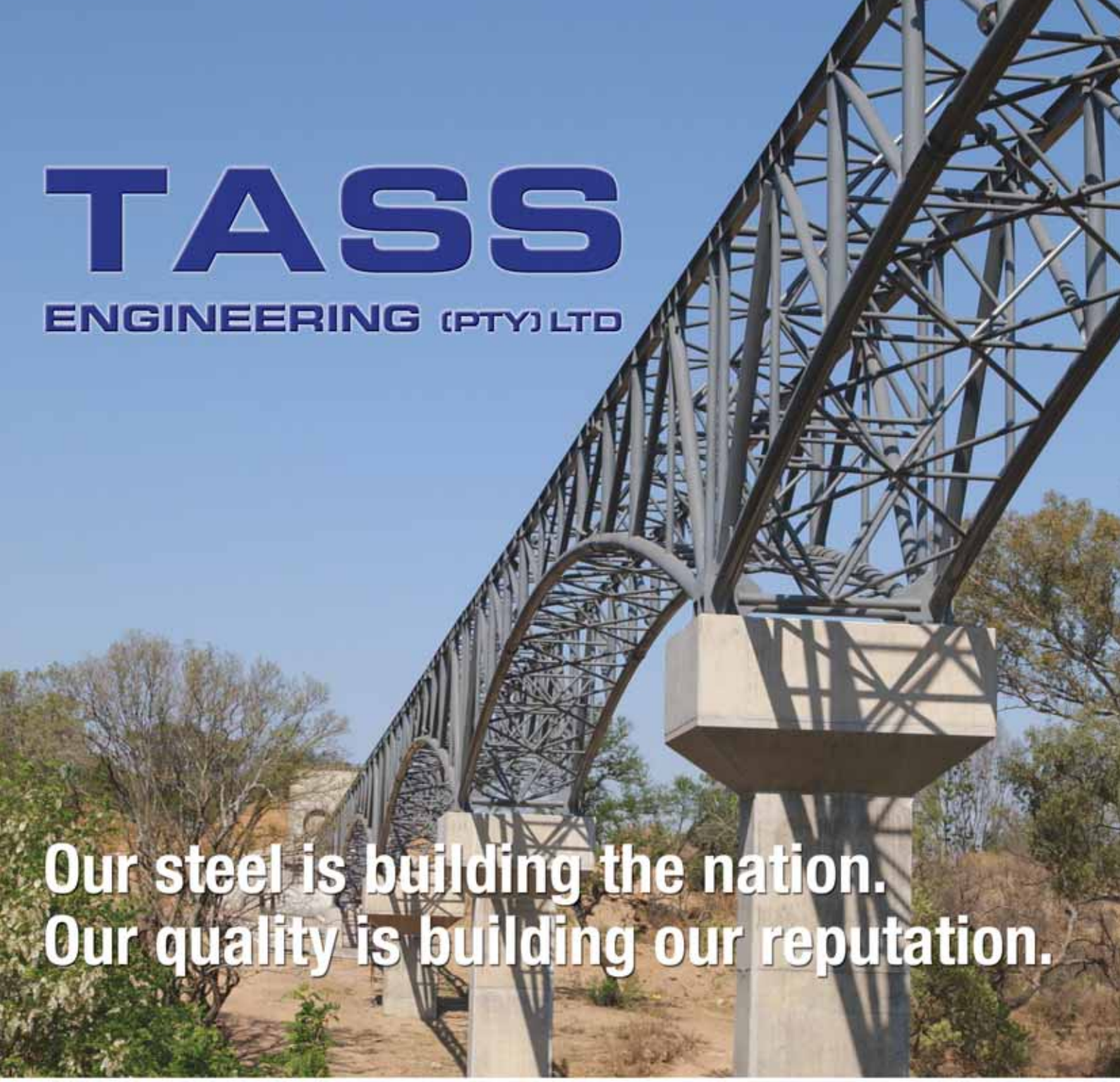
For a few weeks the country, if not the world, was entranced with these games and with how well everything went. Much of it was housed of course in a series of excellent venues specially built without delay or any other mishap to the delight of the client. The whole construction industry, including the steel sector which played a very significant part in the construction of these venues – all steel of course – breathed a collective sigh of relief. Now it can afford to give itself a well deserved pat on the back.

The main stadium itself was an undoubted triumph as a backdrop for the opening and closing ceremonies as well as for the events themselves. It doubled up well as a concert venue, which might give a pointer to its future. It was fitting to see those giant iron rings being raised as a tribute to the UK's industrial heritage in a stadium made possible by modern design and steel construction.

Visitors debate what their favourite venue was, some opting for the grandness of the main stadium itself which seemed designed to amplify the spectators' support for the efforts of the athletes. Others admired the elegant Velodrome, or the striking design of the basketball arena, which is designed to be shifted in its entirety, perhaps to Rio for the next Games. A large number of BCSA Members and Associate Members contributed to the Olympics through the supply of secondary steelwork as well as the supply of materials and components into these structures.

The precise legacy use of some of these structures is still to be finalised, but the possibility of completely removing some and reassembling them elsewhere in whole or in part, and the option of scaling down the main stadium for football use, is only possible because of the designed and built in demountability. That in turn was only possible because of the flexibility of steel.

These were the most sustainable stadiums ever created for an Olympic games which surely suggests the way that subsequent Olympic hosts will construct their stadiums. This demountability will become increasingly important in future, not only for stadiums.



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- Standard Bank Rosebank - Standard Bank
- Telesure Head Office - Steyn City Properties
- Medupi Coal & Ash Terrace - ELB
- Bell Customer Service Centre - Bell
- Cradlestone Mall - Sasol Pension Fund
- Sci-Bono Discovery Centre - Gauteng Department of Education
- Brentwood Shopping Centre - Baladakis
- Gate Houses - Steyn City Properties
- Steyn City Bridges - Metrum
- BRT Tshwane - SANRAL

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LONDON 2012 OLYMPIC STADIUM

The Olympic Stadium can be described as both innovative and flexible and is the most sustainable ever built for an Olympic Games. It has a capacity of 80 000 that can be reduced after the games. The stadium comprises a permanent lower tier with a capacity of 25 000, and a temporary steel and concrete upper tier, which holds a further 55 000 spectators.

The lower tier sits within a bowl in the ground, which minimises the use of construction materials. This bowl was created by excavating 800 000 tons of soil, the majority of which was cleaned and reused elsewhere in the Olympic Park.

Only 10 700 tons of structural steel has been used on the project, making it the lightest Olympic Stadium to date. In stark contrast to the 40 000t needed for Beijing's Birds Nest Stadium, the majority of London's steelwork is demountable and can be reused at a later date. In addition to the minimal use of steel, the stadium also uses high-yield large diameter pipes which were surplus on completion of North Sea Gas pipeline projects. Recycled granite, and many of the building products and materials were transported using trains and barges rather than by lorry.

To allow for fast on-site assembly, compression truss and roof column connections were bolted; this will also enable easy disassembling of the roof structure after the Games.

The initial upper steelwork was erected above the concrete bowl. This consisted of 112 steel rakers, measuring 35m long and weighing 25t each, to support the upper tier terracing. Above this sits the signature roof, which consists of a 13m high lattice compression truss that rings the stadium and is formed by 900mm tubular steelwork. The truss was lifted into place in 28 sections, each 30m in length and weighing 90t. They were individually lifted into place by a 1 350t capacity crawler crane positioned in the middle of the playing area.

The erection of the 14 lighting towers followed and this was another challenging part of the project due to their support being provided by the cable net. The towers were not self-supporting until all 14 had been erected and the final high level circumferential cable had been connected and pre-stressed.

Construction began in May 2008 and was completed in less than three years, with the final piece of turf laid in March 2011.

LINKS:

http://www.london2012.com/venue/olympic-stadium

http://en.wikipedia.org/wiki/Olympic_Stadium_(London)

http://www.youtube.com/watch?v=MSNvcNp1_RE

http://www.newsteelconstruction.com/wp/ssda-award-olympic-stadium-london/

project team

Client:

Olympic Delivery Authority

Architect:

Populous

Structural Engineer:

Buro Happold

Main Contractor:

Sir Robert McAlpine

Steelwork Contractor:

Watson Steel Structures Ltd (Severfield-Rowen Plc)

THE ARCELORMITTAL ORBIT

Boris Johnson, Mayor of London, wanted a structure and artwork to commemorate the London 2012 Olympic and Paralympic Games, and a design competition was launched. During a chance meeting with Lakshmi Mittal, Chairman and CEO of ArcelorMittal, he secured ArcelorMittal's support. ArcelorMittal committed funding of up to £19.6m of the £22.7m project, with £3.1m provided by the London Development Agency.

The design of the ArcelorMittal Orbit was awarded to Anish Kapoor and Cecil Balmond of Arup.

The Orbit is 114.5 metres high and is described as the UK's largest and tallest sculpture. It is sited between the Olympic Stadium and the Aquatics Centre and allows visitors to view the whole Olympic Park from two observation platforms.

Kapoor and Balmond believe that the Orbit represents a radical advance in the architectural field of combining sculpture and structural engineering, and that it combines both stability and instability in a work that visitors can engage with and experience via an incorporated spiral walkway. It has been both praised and criticised for its bold design.

From a structural point of view, the Orbit consists of two parts:

- 'The trunk' - the more-or-less vertical tower which houses the elevators and stairs and supports the observation deck.
- 'The red tube' - an open lattice of red steel hollow sections that surrounds the trunk.

The trunk has a base diameter of 37 metres, narrowing to 5 metres on the way up, then widening again to 9.6 metres, just under the observation deck. The trunk is supported and stabilised by the tube, which gives a structural character of a tripod to the entire construction. Further structural integrity is given to the construction by octagonal steel rings that surround the tube and trunk, spaced at 4 metres and cross-joined pair-wise by sixteen diagonally mounted steel connectors.

Steel was the only material that could give the minimum thickness and maximum strength represented in the coiling structure. It was built from approximately 1 400 tons of steel, produced as much as possible from ArcelorMittal plants. 60% of the steel used for the sculpture was made of recycled steel in the Esch Belval steel plant in Luxembourg.

LINKS:

http://www.arcelormittalorbit.com/about-us

http://en.wikipedia.org/wiki/ArcelorMittal_Orbit

project team

Owner:

Olympic Park Legacy Company

Developer:

ArcelorMittal and London Development Agency

Architect:

Designed by Anish Kapoor with Cecil Balmond of engineering Group Arup, architect Ushida Findlay Architects

Structural Engineer:

Arup

Steelwork Contractor:

Esch Belval

VELODROME

Located in the north of the Olympic Park, the Velodrome is one of the most sustainable and iconic venues of the London 2012 Olympic Games.

Sustainable choices have been made wherever possible; from the sourcing of wood certified by the Forest Stewardship Council used on the track and external cladding, to the installation of a 100% naturally ventilated system that eliminates the need for air conditioning. The structural system is said to be so efficient that the steel cable net roof is approximately 35% lighter than the roof of the next best comparable venue in the world.

The venue's designers worked closely with a design panel, including Olympic gold medal-winning cyclist Sir Chris Hoy, to tailor the track geometry, temperature and environmental conditions with the aim of creating a record-breaking track.

The Velodrome has capacity for 6 000 spectators, with the seating split into two tiers. The upper tier of the Velodrome is formed by 48 inclined steel trusses (varying in size from 2m high to 16m high) connected to concrete piers. The lower parts of the truss form the steel rakers supporting the upper tier's precast terrace units. Because of the shape of the roof structure (described as Pringle shaped), the Velodrome has two upper seating areas positioned on either side of the track and suspended within the two curves of the roof.

A tubular plane truss sits on top of the steel trusses and goes around the entire perimeter of the structure, in a rollercoaster fashion, supporting and helping to form the distinctive double curved roof. The ring beam rises in height by 12m from the shallowest point to the highest part.

Approximately 2 500 sections of steel were installed to complete the steel programme on the Velodrome. Much of the steelwork was pre-assembled into bays. Only the steel bracing needed to be added, after the steel was erected.

Once the steelwork was completed, work was then able to begin on installing the venue's roof. In what was one of the largest cable net roof lifts in the UK, more than 16km of cable was used. The cable net is connected to the ring beam at 3.6m centres and the steel ring beam acts as a circular compression member.

LINKS:

http://www.newsteelconstruction.com/wp/ssda-award-london-2012-velodrome-olympic-park-london/

http://www.london2012.com/venue/velodrome/#

project team

Client:

Olympic Delivery Authority

Architect:

Hopkins Architects

Structural Engineer:

Expedition Engineering

Main Contractor:

ISG Construction

Steelwork Contractor:

Watson Steel Structures Ltd (Severfield-Rowen Plc)

Midvaal Structures

BEE Level 5 BWO company





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- Mainly serves the commercial and industrial markets, with smaller contracts in the domestic market.
- Exports its solutions to various African countries – including Angola, Mozambique, Malawi, the Democratic Republic of Congo, and Swaziland.

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Fax: +27 16 365 5951
www.steelstructures.co.za
Email: rina@steelstructures.co.za

LONDON AQUATICS CENTRE

LINKS:

http://www.london2012.com/venue/aquatics-centre/#

http://en.wikipedia.org/wiki/London_Aquatics_Centre

http://www.supersport.com/olympics/venues/olympic-venues-aquatic-centre/content

http://www.newsteelconstruction.com/wp/iconic-roof-dives-into-action/

project team

Main Client:

Olympic Delivery Authority

Architect:

Zaha Hadid Architects

Structural Engineer:

Ove Arup & Partners

Main Contractor:

Balfour Beatty Construction

Steelwork Contractor (Permanent roof structure):

Rowecord Engineering

Steelwork Contractor (Temporary structures):

Watson Steel Structures

The London Aquatics Centre is an indoor facility with two 50-metre swimming pools and a 25-metre diving pool. Designed by internationally acclaimed architect Zaha Hadid, the Aquatics Centre is one of the permanent venues specially constructed for London 2012. The centre was built alongside the Water Polo Arena, and opposite the Olympic Stadium on the opposite bank of the Waterworks River.

Construction on the venue began in July 2008 and was completed in July 2011. After significant modification the centre is due to open to the public in 2014.

With a capacity of 17 500, the Aquatics Centre's spectacular wave-like roof is 160m long and up to 80m wide – giving it a longer single span than Heathrow Terminal 5.

The venue's roof proved to be one of the most complex engineering challenges of the Olympic Park's big structures. The large steel roof structure is only supported at three points and spans the column-free space for the venues' two swimming pools with their moveable floors and separator booms, and the adjacent diving pool. This steel framework was initially constructed on temporary supports, before the entire 3 000-ton structure was lifted up in a single movement and successfully placed back down on to its permanent concrete supports. Work began on the inside of the venue once the roof was in position.

A series of long span trusses forms the roof. They were erected in a fan arrangement to create the plan geometry of the structure. The middle truss has a span of approximately 120m to a primary truss, which in turn spans 54m in a transverse direction between two concrete cores. These centre fan trusses cantilever beyond the primary truss to form a 30m overhanging canopy at the northern end.

Four skeletons were removed from a prehistoric settlement discovered on the site of the Aquatics Center. *(for those interested in archeology or anthropology)*

The exterior was constructed with precast modular blocks of concrete, which not only reduced the amount of emissions required to build the facility, but also eliminated the need for painting.

The interior stands are made from steel and phthalate-free PVC wrap that will be recycled after the games.

THE COPPER BOX (HANDBALL ARENA)

The iconic Copper Box, previously known as the Handball Arena, is extremely flexible, with retractable seating that can change the floor size within the venue, facilitating different activities both during and after the Games.

The Copper Box has 7 000 seats and it hosted the handball preliminaries and modern pentathlon fencing during the Olympic Games, and the goalball during the Paralympic Games.

It is one of the Olympic Park's greenest initiatives. The venue was designed and built with sustainability as a priority. Among its many innovative features, the roof of the Copper Box is fitted with 88 light pipes that allow natural light into the venue, reducing the demand for electric lights. This will achieve annual energy savings of up to 40%. Rainwater collected from the venue's roof will be used to flush toilets and reduce water use at the venue by up to 40%.

The glazed concourse level that encircles the building will allow visitors to see the sporting events taking place inside and illuminating the venue when lit at night.

The Copper box contains a 1 000-ton steel frame atop 300 tons of concrete slab. The top half of the venue is clad in 3 000m^2 of external copper cladding of which most of it is recycled. The copper cladding gives a unique appearance that will develop a rich natural colour and enhance the structure as it ages. Copper cladding is very durable and lightweight compared to other materials and techniques, and at the end of the building's life it is also 100% recyclable like steel.

Construction began in July 2009 and it was the third competition venue on the Olympic Park to be completed in May 2011.

Its flexible design and retractable seating mean it will be suitable for activities ranging from international competition to community sports, and for a wide range of indoor sports, including basketball, handball, badminton, boxing, martial arts, netball, table tennis, wheelchair rugby and volleyball.

LINKS:

http://construction.about.com/od/Existing-Projects/a/London-2012-Copper-Box-Olympic-Games-Stadiums.htm

http://en.wikipedia.org/wiki/Copper_Box

http://www.london2012.com/venue/copper-box/

project team

Client:

Olympic Delivery Authority

Architect:

MAKE architects, Populous, PTW Architects, Arup

Structural Engineer:

Arup

Main Contractor:

Buckingham Group

Detailed Design:

Populous

BASKETBALL ARENA

LINKS:

http://en.wikipedia.org/wiki/Basketball_Arena_(London)

http://www.newsteelconstruction.com/wp/london-2012-handball-arena-taking-shape/

project team

Main client:

Olympic Delivery Authority

Architect:

Wilkinson Eyre Architects & KSS Design Group

Structural Engineer:

Sinclair Knight Merz

Services Engineer:

Sinclair Knight Merz

Project Manager:

Sinclair Knight Merz

Main Contractors:

Barr Construction

The Basketball Arena has 12 000 seats for Olympic basketball and the Olympic handball semi-finals and finals, and 10 000 for Paralympic wheelchair basketball and wheelchair rugby. It is a temporary venue, and the largest built for any Games. The possibility of subsequently deconstructing the arena and transporting it to Rio de Janeiro for the 2016 Summer Olympics was discussed, though the plan has been shelved due to doubts from some Brazilian officials about its feasibility.

It is a simple-to-erect structure, but also a world-class sporting venue. Sustainability was another important concern. The arena was made out of sturdy individual components that could be easily dismantled and sub-divided for re-use elsewhere, with over two thirds of the materials and components recyclable.

Instead of using a concrete sub-structure, a lightweight steel frame was used, with cladding. This meant the building (frame and cladding) was constructed in six weeks. The 30m-high rectangular volume (the equivalent of a seven storey building) venue, was made out of a steel portal frame and wrapped in 20 000m^2 of lightweight phthalate free and recyclable PVC plastic. This translucent bespoke cladding was then stretched across the steel framing modules that pushed the fabric out and created the three dimensional undulating pattern along the sides. An interwoven blackout layer was used in the roof fabric. This reduced most of the daylight during game sessions and maintained the fully controllable artificial lighting for use by the media and game spectators. The external fabric walls were translucent, allowing daylight to pass through during the day and artificial lighting to be visible during the evening.

The venue is just as visually impressive from the inside, with its black and orange seats representing the colours of a basketball.

Initial works started on the Basketball Arena in October 2009, and construction was completed on time and within budget in June 2011 – making it one of the quickest Olympic Park venues to be constructed. The arena's giant frame was set up in less than three months during spring 2010.

The arena shared some facilities with the Velodrome and BMX Track to make the most efficient use of space and resources. This includes two courts in temporary accommodation and areas for catering, security, waste management and the media.

OLYMPIC WATER POLO ARENA

The Water Polo Arena is a temporary structure and was built in just 13 months. Firms from across the UK constructed the venue, with the steel frame being fabricated, supplied and erected by Caunton Engineering. It is the first dedicated Water Polo venue to be built for an Olympic Games.

The wedge shaped structure is covered by a silver-coloured wrap and an inflatable roof, made from recyclable plastic. The venue has a 37m competition pool plus a smaller training pool, and capacity for 5 000 spectators. Within its interior, it holds almost three million litres of water in the warm up and competition pools.

It is located adjacent to the Aquatics Centre and is one of the first venues seen by spectators as they enter the Park. To give visitors a clear view, the architects proposed a unique sloping design, which slopes upwards from 6m to 25m. It also means the referee's raised table used in water polo does not obscure the view of spectators, who sit on the opposite side of the pool.

The Water Polo Arena is a very sustainable venue. The building has been designed to use components from the temporary construction industry wherever possible, so that when the building is disassembled after the Games most of the components will be fed straight back into the supply chain. This design philosophy extends from the seats and air handling units through to the primary structural trusses. Even the two swimming pools will be disassembled for re-use later.

Those elements that cannot be directly re-used have been designed to be recycled. Examples include the removable steel screw anchor piles and the buildings phthalate-free PVC cladding.

The Aquatics Centre and Water Polo Arena are in one of the most compact areas of the park. To make the best use of the space available, some back-of-house facilities, such as space for broadcasters, catering and security were shared between the two venues.

Construction started in spring 2011 and was completed in May 2012 in time for test events before the Games.

LINKS:

http://www.newsteelconstruction.com/wp/olympic-water-polo-venue-completed/

http://www.london2012.com/venue/water-polo-arena/

http://en.wikipedia.org/wiki/Water_Polo_Arena

project team

Main Client:

Olympic Delivery Authority

Architect:

David Morley

Structural Engineer:

Buro Happold

Environmental Engineer:

Max Fordham

Main Contractors:

ES Group, Jackson Civil Engineering Group Ltd, Alto Seating Systems Ltd, A&T/Barr & Wray, Byrne Group plc, Balfour Beatty

Steelwork Contractor:

Caunton Engineering

SIMM

STRUCTURAL INSPECTION AND MAINTENANCE MANAGEMENT OF MINING STRUCTURES

By Spencer Erling,
Education Director, SAISC

SMMH 2012 has come and gone. It was a tremendous success when measured in terms of a sharing of technical information between like minded engineers and a wonderful networking opportunity. Sadly not enough of our readers were present so this article will share some of the concepts covered on the 4th day in the "course on SIMM (Structural Inspection and Maintenance Management of mining structures). Our grateful thanks to Anglo American- Anglo Technical Division, who kindly allowed the speakers to base the course on their AA Best Practise Guideline AA BPG S003 "Simm Guideline for Plant Structures".

BACKGROUND AND LEGAL REQUIREMENTS

Engineers should be aware of the legal requirement contained in the Occupational Health and Safety Act 1993 and subsequent amendment GNR.1010 of 18 July 2003: Construction Regulations, 2003 which states in Chapter 9's subclauses:

"(4) Any owner of a structure shall ensure that inspections of that structure upon completion are carried out periodically by competent persons in order to render the structure safe for continued use: Provided that the inspections are carried out at least once every six months for the first two years and thereafter yearly and records of such inspections are kept and made available to an inspector upon request.

(5) Any owner of a structure shall ensure that the structure upon completion is maintained in such a manner that the structure remains safe for continued use and such maintenance records shall be kept and made available to an inspector upon request."

The Mine Health and Safety Act and Regulations (Act 29/1996) covers regulations regarding appointment of managers to inspect mining structures.

At the first SMMH Conference in 2009 Peter Gage presented a paper on a spreadsheet based methodology for doing such inspections.

THE SIMM METHOD

The SIMM method takes these concepts a lot further and categorises various degrees of deterioration and their 'structural' importance. In Anglo American's and other Mining companies' who have adopted this technology, reporting methods and methods to ensure safety critical items are attended to are also covered.

This article will concentrate on the inspection and risk assesment as to the degree of degradation and its implication for structural safety (as envisaged by construction regulations).

WHAT ARE THE FUNCTIONAL REQUIREMENTS?

Functional requirements are split into six main groupings:

1. Safety
   a. Any collapse has potential for serious injury or death
   b. Hand railing and flooring prevent falls
   c. Barriers to keep people away from vehicles

Any collapse has potential for serious injury or death.

River crossings.

How not to maintain a structure.

2. Strength
   a. To prevent collapse
3. Stiffness
   a. To limit deflections
   b. To provide confidence (i.e. eliminate perceptions of whippy structures that might otherwise be strong enough for its purpose)
   c. Enable equipment functionality
4. Vibration
   a. To prevent vibration related injury
   b. To prevent fatigue damage and failure
   c. To enable equipment to function properly
5. Liquid retention and containing materials
   a. Primary requirements for tanks
   b. Bunds to contain spills
   c. Storage, separation and movement of minerals
6. Other
   a. Fire barriers
   b. River crossings
   c. Storm water culverts

PREPARING FOR A SIMM INSPECTION

Section 5 of SIMM goes into the preparation that may be necessary to enable the inspector to properly and safely carry out his duties and covers aspects such as:

1. Risk assessment to cover
   a. The tasks
   b. Access (safe working at heights or in confined spaces)
   c. Tools
2. Safety induction and training of inspection personnel
3. Time and personnel allocations for
   a. Shut down requirements
   b. Knowledgable personnel to accompany the structural engineer who may be a visitor
   c. Effect of any NDT inspection that may be required
4. Access, lighting and visibility
   a. What cannot be seen cannot be inspected
   b. Clear up the site/structure of dirt and spillage
   c. Is inspection of bins and silos required from the inside and outside and how can this be achieved without emptying the whole system?

CHAPTER 6 OF SIMM PROVES TO BE THE NUB OF THE ISSUE - CONDITION CATEGORY REQUIREMENTS

a. Quantify deterioration adequately and avoid vague descriptions
b. Give consistency in reporting for accurate communication
c. Definitive descriptions should be simple to remember and to use
   i. Too few categories leads to loss of defintion.
   ii. Too many categories are difficult to remember and create complexity in the 'what to do decisions'.

SIMM can identify, prioritise and communicate maintenance requirements.

Category	Condition	Strength
0	Excellent	OK
1	Slight deterioration	No significan reduction
2	Some deterioration	Little reduction
3	Deterioration evident	Some reduction
4	Severe deterioration	Major reduction
5	Severe deterioration	No residual strength

Table 1: Condition categories.

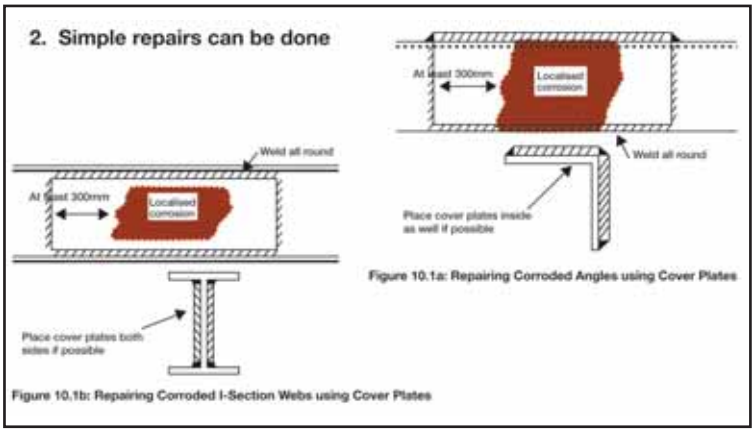


Figure 1: Procedures for assessing modifications.

SIMM uses the following guidelines as shown in *Table 1*:

The interpretation of the numbering system is easy:

1 & 2 means everything is still good and everyone is happy
3 & 4 means it is time to plan, budget and to do something
5 & 6 means we are out of time, find the money, do it now!

HOW TO REPAIR IT?

First prize would be a repair and weld procedure etc. drawn up by a qualified person. But only too often the urgency of the repair just does not provide for such niceties.

SIMM gives a few very basic repair guidelines that almost any trained boilermaker can safely carry out *(see figure 1)*.

You will notice that no attempt is made to cut out the deteriaration, which could of course lead to collapse but rather to 'strengthen from outside' to unsafe areas.

Patches welded on from the outside being the order of the day.

SIMM CHAPTER 9 - WHAT KIND OF CONDITIONS CAN LEAD TO DETERIORATION?

1. Corrosion of steel and reinforcing
   a. Various examples of steel corrosion were shown from a good condition (0) to appaling condition (5) in steelwork
   b. The phenomenon of rusting reinforcing steel inside concrete that upon expansion and exfoliation causes spalling of concrete. Once again photos supported the descriptions.


Various examples of steel corrosion were shown from a good condition (0) to appaling condition (5) in steelwork


Fatigue (cyclical loading) cracking.

2. Cracking examples (once again extensive photos of examples were shown to illustrate the six conditions)
    a. Fatigue (cyclical loaing) cracking
    b. Shrinkage of concrete during curing (this also applies to timber drying out)
    c. Bursting as described under 1b above
    d. Impact damage
3. Structural damage caused by
    a. Falling objetcs
    b. Vehicle impact
    c. Pressure from groud or foundation movements
4. Wear of steel or concrete
    a. From flow of materials
    b. In chutes and hoppers
    c. Around feed and discharge points of silos and bins
    d. Elbows in pipes
5. Connections in steel and timber
    a. Loosening of bolts due to
        i. Vibration
        ii. Poor original installation and/or tightening

6. Rotting and biological attack of timber
   a. Drying out
   b. Termites
   c. Other boring insects
   d. Burrowing animals
7. Chemical attack in concrete
   a. Chlorides and salts attacking the mortar bonding
   b. Exposes the aggregate causing loosening
   c. Penetration of oxygen and other gasses follow
   d. Corrosion of the reinforcing results
8. Last but definitely not least - Modifications and cut-outs

Inappropriate modifications, cut-outs for

...pipe access or other purpose

...has a great potential to reduce the strength of structures

...often found in steel structures.

Change is easy... Management of change is not. This is critical to the life of our structures.

Loosening of bolts.

IN CONCLUSION

Just the extent of inspection required in deteriorating structures can be large. This makes the process difficult and often quite tedious and laborious.

The SIMM method has created a systematic approach by the the standardisation of degrees of deterioration associated with the different causes of deterioration. The result is that items requiring urgent attention can and are identified so remedial steps can be put into place quickly.

This does not reduce the effort that is required to do this important job properly. It certainly does take the 'hit and miss' out of the process, eliminates broad sweeping statements that have lead to drama in the past.

SCENE IN GREEN

STEEL AWARDS 2012

By Marlé Lötter, Events Manager, SAISC

Michael Lasch (left), Chairman of Seeds of Africa, beneficiary for Gauteng, makes the lucky draw with assistance from Gary Jones of the AVENG Group.

What a field day we had with the 'green' theme, 'Steel leaves a legacy'!

In Gauteng the guests were welcomed into the main room with a forest floor of leaves, a green jungle of real yellowwood trees on stage and programmes printed on recycled paper. Main sponsor AVENG set up inspired displays of leaves outside and of 'rehabilitated' mine water inside - they even trained a team of four cyclists to power up the start of the event on stage. In the menu selection we insisted on greenlisted salmon and served organic wines sourced especially from the estate of Stellar Organics. Paul Simpson of the Durban team commissioned a truly unique dessert that looked like a potplant! We even appointed Simon (the Weatherman) Gear as MC at Emperors Palace in Gauteng AND had him eating leaves of the indigenous and water-wise Spekboom (that served as centre pieces) on stage.

Across all three venues we were pleasantly surprised with the response to our special request to 'wear something green', seeing several guests with green dresses, hats, ties, boas, finger nails... oh, and shirts like the fluorescent beauty sported by SAISC Honorary Member 2012 Spencer Erling!

Four cyclists of the AVENG Group gave some dynamo power to start the dinner in Gauteng.

Across all three venues we were pleasantly surprised with the response to our special request to 'wear something green', seeing several guests with green dresses, hats, ties, boas, finger nails... oh, and shirts like the fluorescent beauty sported by SAISC Honorary Member 2012 Spencer Erling!

The dinners in Cape Town and Durban were hosted in the Kirstenbosch and Durban Botanical Gardens respectively to contribute to the all-around greenness. In Cape Town this worked well as it meant more space than what we had in previous years. Here around 110 guests were entertained by MC Justin Cohen and a high energy performance by the all female instrumental group, Sterling EQ. The Durban venue was made to work by a very committed team even in the inclement weather on the day. Neville Pillay lead the programme as MC. Signed entertainers Cristina Rodrigues and Cathy del Mei averted a near disaster when their flight was cancelled due to storms by miraculously finding able saxophonist, Martin Sigamoney of Manna Music & Events as substitute entertainment for the 180 guests in Durban. (As this venue offers limited capacity, it is likely that another venue will be selected for 2013.) In Gauteng entertainment was provided by Follow Spot Productions, comprising three sassy female vocalists and also a beautiful dance duo. One of the yellowwood trees on stage was presented to Gary Jones of AVENG DSE Fabrication for supporting the Institute with 'info and effort' over many, many years.

SPONSORS AND OTHER SUPPORT GROUPS

The SAISC proudly recognises the loyal support of our sponsors for Steel Awards 2012 through financial contribution, time and creative effort:

Main Sponsor: The AVENG Group

Table Décor Sponsor: Macsteel

Photo Competition Sponsor: CadexSA

Light Steel Frame Award Sponsor: Stewarts & Lloyds

In Durban MC Neville Pillay (right) awards one of the guests for his green attire with Simon Gear's book 'Going Green'.

Tubular Award Sponsor: Association of Steel Tube and Pipe Manufacturers of South Africa

Partner sponsors:

B&T Steel

Cosira Group

Eazi Sales & Service

EVRAZ Highveld Steel and Vanadium

Genrec

NJR Steel

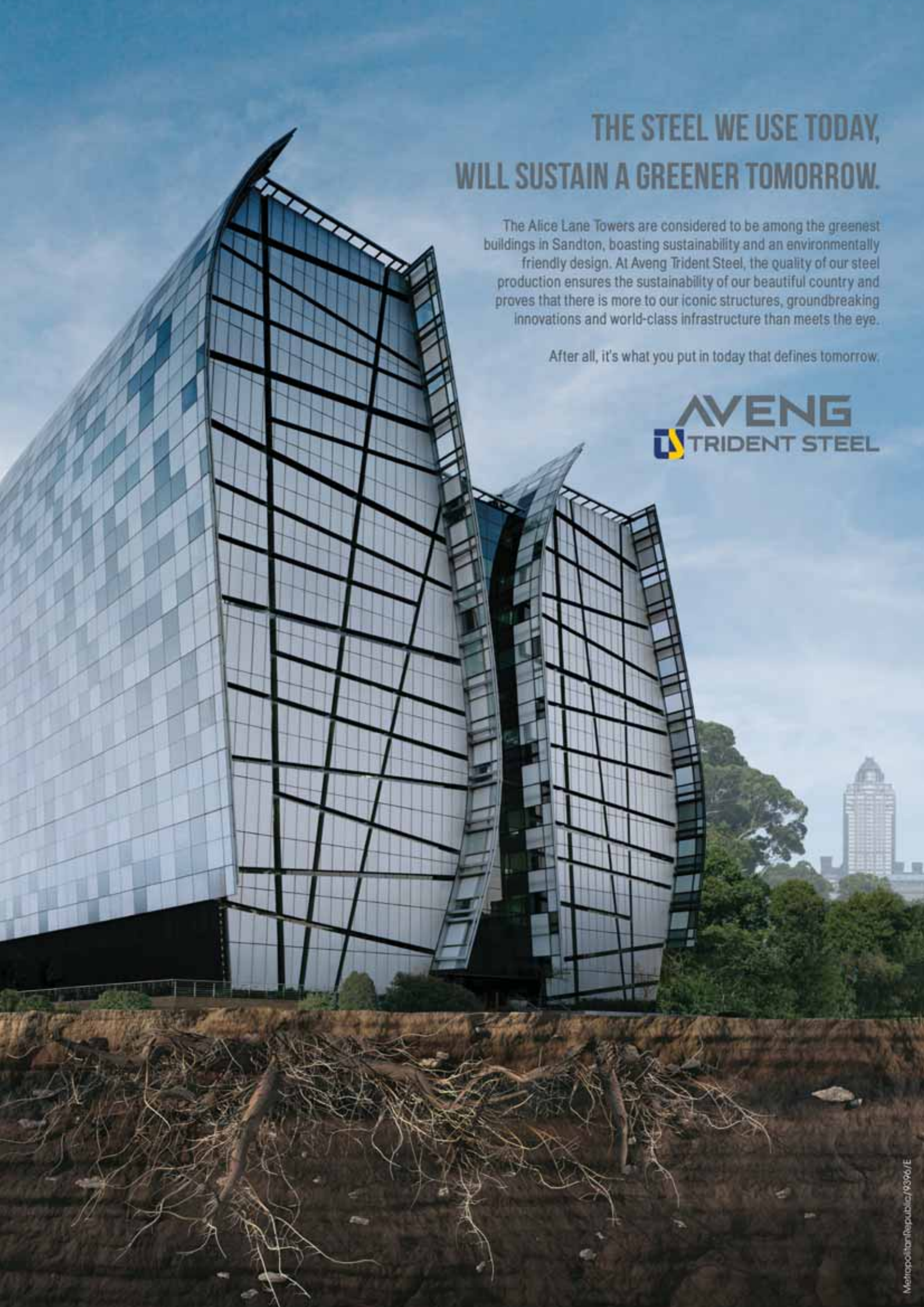
Tubular Holdings

We also sincerely appreciate the support of the following companies specifically in respect of the New Generation Programme for 2012:

Comair – For access to the structure and a memorable experience inside the flight simulator for all our full day participants

Hitachi – For accommodating and guiding a visit to the extensive facilities at the Kusile Power Station

'Wearing something green...'


THE STEEL WE USE TODAY,
WILL SUSTAIN A GREENER TOMORROW.
The Alice Lane Towers are considered to be among the greenest buildings in Sandton, boasting sustainability and an environmentally friendly design. At Aveng Trident Steel, the quality of our steel production ensures the sustainability of our beautiful country and proves that there is more to our iconic structures, groundbreaking innovations and world-class infrastructure than meets the eye.
After all, it's what you put in today that defines tomorrow.
AVENG
TRIDENT STEEL
Metropolitan Republic/9396/E

It is not a plant, it is a Chocolate Mousse Pot prepared by GiZel Caterers for the Durban event.

Tass Engineering – For providing a base, guiding two workshop tours and especially for exhibiting such enthusiasm for the structural engineering industry

(More details about the New Generation Programme of Steel Awards 2012 will follow in the next issue.)

We thank Macsteel for (once again) assisting with transportation logistics of table décor between locations.

A special word of thanks to the persons who provided key event management support at each venue:

In Durban – Don Mclean and Paul Simpson along with other KZN Committee members;

In Cape Town – Alfreda Coetzee of Attitude Events

In Gauteng (and in general) - Nadine Piek of Ping Pong Communications

Terry Smith of the HDGASA getting the special Moyo's treatment in Cape Town.

THE GREATER GOOD

As in previous years the Steel Awards 2012 dinner was also used to raise money for good causes in the respective regions in return for a chance to win the centre piece on each table. In Cape Town the amount of R11 950 was raised for Project Zoe, an initiative focusing on the broad challenge of teen and unwanted pregnancies, giving meaningful support to young mothers of all races and their babies. Following the dinner in Durban R8 150 was paid over to the Action4 Blind and Disabled. The contributions received in Gauteng amounted to R32 160 and went towards Seeds of Africa, aimed at driving skills and enterprise development for entrepreneurial businesses in previously disadvantaged communities. Thirteen yellowwood trees that served as stage décor were also donated to Seeds of Africa to plant in the communities where they are active. *(An article about Seeds of Africa will appear in the next issue of Steel Construction)*

More information about the beneficiaries:

Project Zoe – Norah Papanicolaou, norah@xsinet.co.za;

Action4 Blind and Disabled – Ian Bottomley, lauren@action4.org.za;

Seeds of Africa – Sally Viljoen, sally@seedsofafrica.co.za, www.seedsofafrica.co.za

Thank you to every guest who contributed to the total collection amount of R52 260 – you have confirmed that even while our own industry suffered under economical restraints, we are able reach out to those less fortunate.

What a way to 'leave a legacy'!

The following suppliers and service providers to Steel Awards 2012 are gladly recommended:

Gauteng:

Event management support: Nadine Piek, PingPong Communications, nadine@ping-pongevents.co.za

MC: Simon Gear, www.kijanigreen.co.za

Entertainment: Follow Spot Productions, www.followspotproductions.co.za

Visual production and event production management: Sian Clark Communications, sianclark@vodamail.co.za

Technical support and staging (also in Cape Town): Multimedia Events

KZN:

MC: Neville Pillay, www.topdan.co.za

Entertainment: Martin Sigamoney (Saxophonist), Manna Music & Events CC, mannamusic@telkomsa.net; THE GIRLS: Cristina Rodrigues and Cathy del Mei, www.cristinarodrigues.com

Catering: GiZel Caterers, www.gizelcatering.co.za

Western Cape:

Event management support: Alfreda Coetzee, Attitude Events

MC: Justin Cohen, www.justinpresents.com

Entertainment: Sterling EQ, www.sterlingeq.co.za

The table décor items, sponsored, designed and fabricated by Macsteel, were very popular and will be seen in many homes and offices after Steel Awards 2012.

Graphic design elements for Steel Awards 2012: Reneé Pretorius, ...with pepper communications., renee@withpepper.co.za

Event pictures

If you are interested in event pictures please contact Pamella Mnyanda, pamella@saisc.co.za or Marlé Lötter, marle@saisc.co.za.

APOLOGY

The table décor sponsor for Steel Awards 2013 was Macsteel, who really rose to the occasion with the design and fabrication of the very creative centre piece containers and the nifty little holders for the miniature gift succulents. Both items were very popular with guests across all three venues. The table programme was designed by Reneé Pretorius with very intricate cut-out work and with full recognition to all our sponsors. Unfortunately (and ironically!) the Macsteel logo was missing in the final print due to a rather mystical gremlin at the printers, which resulted in the omission of some blue and yellow design elements in the printed format. This affected the Macsteel logo and part of the logos of EVRAZ Highveld Steel and Vanadium and Eazi Sales and Service. The SAISC values the support of all our sponsors and sincerely apologises for these truly unintentional errors. We trust that several other means of recognition on the night (also pre and post event) have affirmed the key participation of these sponsors in the event and to our industry.

SAISC MEMBERSHIP

STEEL PRODUCERS

ArcelorMittal South Africa
Representative: Hannes Basson
Tel: (016) 889 3189
Fax: (016) 889 2022
hannes.basson@arcelormittal.com
www.arcelormittal.com

Davsteel (Pty) Ltd
Representative: Martin Friedman
Tel: (016) 980 2121
friedmnm@capegate.co.za
www.capegate.co.za

EVRAZ Highveld Steel & Vanadium
Representative: Eileen Pretorius
Tel: (011) 663-0280
Fax: (011) 454-0576
eileenp@evrazhighveld.co.za
www.evrazhighveld.co.za

Scaw Metals Group
Representative: Chris Booysen
Tel: (011) 842 9364
Fax: (011) 842 9705
millsales@scaw.co.za
www.scaw.co.za

STEELWORK CONTRACTORS

Eastern Cape

Uitenhage Super Steel cc
Representative: Ginkel Venter
Tel: (041) 922 8060
Fax: (041) 992 5923
ginkel@uss.co.za

Gauteng

A Leita Steel Construction (Pty) Ltd*
Representative: Claudio J Leita
Tel: (012) 803 7520
Fax: (012) 803 4360
claudio@aleita.co.za
www.aleita.co.za

Aveng Steel Fabrication*
Representative: Mike Dos Santos
Tel: (011) 871 4111
Fax: (011) 871 4141
mdossantos@grinaker-lta.co.za
www.avenggrinaker-lta.co.za

Bessemer (Pty) Ltd
Representative: Fritz Hoogendyk
Tel: (011) 762 5341
Fax: (011) 762 5345
bessemer@iafrica.com

Betterect (Pty) Ltd
Representative: Thomas Siebert
Tel: (011) 762 5203
Fax: (011) 762 5286
thomas@betterect.co.za
www.betterect.com

Boksan Projects cc
Representative: L Boksan
Tel: (011) 316 2172
Fax: (011) 316 1645
laszlo@boksan.co.za

Branch Engineering (Pty) Ltd*
Representative: Shannon Van Den Heuwel
Tel: (011) 493 1197
Fax: (011) 493 7884
shannon@branchengineering.co.za

Cadcon (Pty) Ltd
Representative: Richard Butler
Tel: (012) 664 6140
Fax: (012) 664 6166
richbutler@cadcon.co.za
www.cadcon.co.za

Carbon Steel Fabricators
Representative: Duncan Viljoen
Tel: (016) 986 9200
Fax: (016) 986 0700
duncan.viljoen@vbvholdings.com
www.vbvholdings.com

Central Welding Works
Representative: Stephen Horwitz
Tel: (012) 327 1718
Fax: (012) 327 1727
stephen@cwwpta.co.za

CIS Engineering (Pty) Ltd
Representative: Christo Marais
Tel: (016) 422 0082
Fax: (016) 422 0975
christo@cisengineering.co.za
www.cisengineering.co.za

Concor Engineering (a Division of Concor Holdings (Pty) Ltd)*
Representative: Mile Sofijanic
Tel: (011) 249 7800
Fax: (011) 249 7984
mile.sofijanic@murrob.com
www.engineering.concor.co.za

Cosira South Africa (Pty) Ltd*
Representative: John da Silva
Tel: (011) 817 6600
Fax: (011) 626 2917
john.dasilva@silvagroupholdings.com
www.silvagroupholdings.com

Fabricated Piping Systems SA (Pty) Ltd
Representative: Craig Fyall
Tel: (011) 828 4388
Fax: (011) 828 2147
craig@fabpipe.co.za

Ferro Eleganza (Pty) Ltd
Representative: Chris Narbonese
Tel: (012) 803 8035
Fax: (012) 803 5645
chris@ferroe.co.za
www.ferroe.co.za

Genrec Engineering (Pty) Ltd*
Tel: (011) 876 2310
Fax: 086 765 0363
monya.dekok@murrob.com
www.genreceng.co.za

IVMA Engineering cc
Representative: Mauro Munaretto
Tel: (011) 814 3124
Fax: (011) 814 1505
ivma@ivma.co.za
www.ivma.co.za

Khombanani Steel (Pty) Ltd
Representative: Tim Tasioulas
Tel: (011) 975 0647
Fax: (011) 970 1694
accounts@khombanani.co.za

Linrose Engineering Gauteng (Pty) Ltd*
Representative: Jorge Pereira
Tel: (011) 827 0314
Fax: (011) 827 0878
linrose@icon.co.za
www.linrose.co.za

Louwill Engineering (Pty) Ltd
Representative: Deon Kotzé
Tel: (011) 818 5186
Fax: (011) 818 5185
deon@louwill.co.za
www.louwill.co.za

MAC Engineering cc
Representative: Mino Carniel
Tel: (011) 814 1834
Fax: (011) 814 6620
mino@maceng.co.za
www.maceng.co.za

Magnet Engineering (Pty) Ltd
Representative: Paul G Catalo
Tel: (011) 908 3500
Fax: (011) 908 2723
paulocatalo@snet.co.ao
www.magnetengineering.co.za

Malitech Engineering
Representative: Sipho Malinga
Tel: (016) 931 2069/ 2072
Fax: (016) 931-2255
smalinga@malitech.co.za
www.malitech.co.za

Midvaal Structures (Pty) Ltd
Representative: Christo Van Dyk
Tel: (016) 365 5961
Fax: (016) 365 5951
christo@steelstructures.co.za
www.steelstructures.co.za

MM & G Mining & Engineering Services (Pty) Ltd
Representative: Dawie Vos
Tel: (011) 914 4740
Fax: (011) 914 4673
dvos@mmg.co.za
www.mmandg.co.za

MPW Steel Construction (Pty) Ltd
Representative: Paolo Visentin
Tel: (011) 887 8430
Fax: 0866 856 543
paolo@sgiuricich.co.za

Okirand Construction
Representative: Rowan Forte
Tel: (011) 465 8599
Fax: 086 577 9890
rowan@okirand.co.za
www.okirand.co.za

OmniStruct Nkosi (Pty) Ltd
Representative: Dave van Asche
Tel: (011) 474 9140
Fax: (011) 474 7487
dave@osn.co.za
www.omnistruct.co.za

PH Projects
Representative: Andries Du Plessis
Tel: (011) 828 0427
Fax: (011) 828 0442
engela@phgroup.co.za
www.phgroup.co.za

Prospan Structures cc
Representative: David Paola
Tel: (011) 440 2116
Fax: (011) 440 2135
david@prospan.co.za
www.prospan.co.za

QM Steel cc
Representative: Quintin Venter
Tel: 011 864 7885
Fax: 086 594 2008
info@qmsteel.co.za
www.qmsteel.co.za

SASSI Metal Innovations cc
Representative: Ignazio Plumari
Tel: (011) 795 4049
Fax: (011) 794 4684
info@sassi-biab.com

SE Steel Fabrication (Pty) Ltd
Representative: David J Essey
Tel: (011) 953 4584
Fax: (011) 660 5855
sesteel@icon.co.za

Sectional Poles (Pty) Ltd*
Representative: Phil M Koen
Tel: (012) 348 8660
Fax: (012) 348 9195
pkoen@sectionalpoles.co.za
www.sectionalpoles.co.za

SMEI Projects (Pty) Ltd
Representative: Sandy Pratt
Tel: (011) 914 4101
Fax: (011) 914 4108
afpratt@smei.co.za
www.smei.co.za

Spiral Engineering cc
Representative: Colin Kirkland
Tel: (011) 474 9119
Fax: (011) 474 6528
colin@spiralengineering.co.za
www.spiralengineering.co.za

Steel Band Construction cc
Representative: Steven Smit
Tel: 044 874 6554
Fax: 044 884 1422
steelband@icon.co.za

Structa Technology (Pty) Ltd
Representative: Hercules Rossouw
Tel: (016) 362 9100
Fax: (016) 362 3608
hercules@structa.co.za
www.structa.co.za

Tass Engineering (Pty) Ltd
Representative: Tim Tasioulas
Tel: (011) 975 0647
Fax: (011) 970 1694
tim@tasseng.co.za
www.tass.co.za

Tegmul Engineering (Pty) Ltd
Representative: Toby Esterhuizen
Tel: (016) 362 2007
Fax: (016) 362 1188
tobie@tegmul.co.za

Trentbridge Engineering cc
Representative: David Hunter
Tel: (016) 365 5327
Fax: (016) 365 5320
trentfab@intekom.co.za

Tudor Engineering & Draughting cc
Representative: Braam Beukes
Tel: (011) 914 5163
Fax: (011) 914 5165
hotah@nettron.co.za

Van Driel's Steel Construction
Representative: Robby van Driel
Tel: (016) 341 6102/5
Fax: (016) 341 6685
vdriel@mweb.co.za

Viva Steelfab Engineering (Pty) Ltd
Representative: Collen Gibbs
Tel: (011) 454 3405
Fax: (011) 454 5694
colleng@vivaeng.co.za

WBHO Services North
Representative: Andrew Breckenridge
Tel: (011) 265 4000
Fax: (011) 310 3578
andrewb@wbho.co.za
www.wbho.co.za

KwaZulu-Natal

Avellini Bros (Pty) Ltd
Representative: Pietro Avellini
Tel: (031) 464 0421
Fax: (031) 464 0966
ravellini@iafrica.com

BNC Projects (Pty) Ltd
Representative: Sunthosh Balchund
Tel: (031) 902 3777
Fax: (031) 902 6798
balchunds@bncprojects.co.za
www.bncprojects.co.za

Churchyard & Umpleby*
Representative: Keith Ball
Tel: (031) 705 4008
Fax: (031) 705 5815
keith@candu.co.za
www.candu.co.za

Cousins Steel International (Pty) Ltd
Representative: Adam Oldfield
Tel: (031) 312 0992
Fax: (031) 303 5299
adam@cousinssteel.co.za
www.cousinssteel.co.za

Impact Engineering*
Representative: Douglas Nidd
Tel: (032) 947 1054
Fax: (032) 947 2017
impact@saol.com
www.impacteng.co.za

Ogilvie Engineering
Representative: Allan Olive
Tel: (031) 700 6489
Fax: (031) 700 6488
ogilvadmin@lantic.net

PJ Projects
Representative: Russell Welsh
Tel: (035) 751 1006
Fax (035) 751 1016
russell@pjprojectsrb.co.za
www.pjprojectsrb.co.za

Pro-Spec Steel Structures
Representative: Tony Jugmohan
Tel: (033) 330 2295
Fax (033) 330 2295
tonyj@telkomsa.net

Rebcon Engineering (Pty) Ltd
Representative: Warren Butler
Tel: (031) 705 5851
Fax: (031) 705 5855
warren@rebcon.co.za
www.rebcon.co.za

Robsteel Structures cc
Representative: Rob Drysdale
Tel: (032) 946 1922
Fax: (032) 946 2138
rob@robsteel.co.za

Redfab Engineering (Pty) Ltd
Representative: Jay Reddy
Tel: (031) 463 1673
Fax: (031) 463 1659
jay@redfab.co.za

SHM Engineering cc
Representative: Ahmed Kadodia
Tel: (031) 465 5463
Fax: (031) 465 4680
shmadmin@isweb.co.za
www.shmeng.co.za

SpanAfrica Steel Structures (Pty) Ltd*
Representative: James Pinnell
Tel: (033) 346 2555
Fax: (033) 346 1242
pinnell@sai.co.za

Mpumalanga

B & T Steel*
Representative: Trevor van Vuuren
Tel: (013) 665 1914
Fax: (013) 665 1881
marketing@btsteel.co.za
www.btsteel.co.za

Da Costa Construction Welding cc
Representative: Tobie Oosthuizen
Tel: (017) 647 1130
Fax: (017) 647 6091
tobie@dcconstruction.co.za

Quality Steel
Representative: Andre D Potgieter
Tel: (013) 752 2723/4
Fax: (013) 752 2407
andre@qualitysteel.co.za
www.qualitysteel.co.za

Steval Engineering (Pty) Ltd
Representative: Thys van Emmenis
Tel: 083 650 3484
Fax: 013 758 1050
thys@steval.co.za
www.steval.co.za

Tubular Technical Construct (Pty) Ltd
Representative: Tony Trindade
Tel: (013) 690 2335
Fax: (013) 656 2408
tony.t@tubular.co.za
www.tubular.co.za

North West

Rutherfords
Representative: Cecil Rutherford
Tel: (018) 293 3632
Fax: (018) 293 3634
cecilr@rutherfords.co.za
www.rutherfords.co.za

Steel Services and Allied Industries
Representative: Kevin Harris
Tel: (018) 788 6652/3
Fax: 086 575 1790
kevinh@steelservices.co.za
www.steelservices.co.za

Western Cape

Inenzo Water (Pty) Ltd
Representative: Jan Cloete
Tel: (021) 948 6208
Fax: (021) 948 6210
jcloete@inenzo.com
www.inenzo.com

Mazor Steel cc
Representative: Shlomo Mazor
Tel: (021) 556 1555
Fax: (021) 556 1575
judy@mazor.co.za
www.mazor.co.za

Prokon Services (Pty) Ltd
Representative: Martin Lotz
Tel: (021) 905 4448
Fax: (021) 905 4449
martin@prokonservices.co.za
www.prokonservices.co.za

Scott Steel Projects
Representative: Dave N Scott
Tel: (021) 671 3176
Fax: (021) 671 8736
dave@scottsteel.co.za
www.scottsteel.co.za

Union Structural Engineering Works
Representative: Mike N Papanicolaou
Tel: (021) 534 2251
Fax: (021) 534 6084
michael@unionsteel.co.za
www.unionsteel.co.za

DEVELOPING/EMERGING CONTRACTORS

Four Tops Engineering Services cc
Representative: Essau Motloung
Tel: 072 229 9128
Fax: 0866 911 619
fourtopseng@vodamail.co.za

Maree Structural
Representative: Johan Maree
Tel: 082 458 5365
Fax: 086 678 5876
johan@maree.co.za
www.maree.co.za

Sach-Warr Construction cc
Representative: Kesavan Moonsamy
Tel: 083 283 6636
Fax: (011) 760 2595
isaac@sachwarreng.co.za

Zamani Engineering Services cc
Representative: David Nkosi
Tel: (013) 656 1978
Fax: (013) 656 1979
admin@zamaniengineering.co.za

STEEL MERCHANTS & SERVICE CENTRES

Gauteng

Aveng Trident Steel (Pty) Ltd*
Representative: Alan van Rooyen
Tel: (011) 861 7111
Fax: (011) 865 2042
Tel: (011) 908 4686
Fax: (011) 864 7629
alan.vanrooyen@trident.co.za
www.trident.co.za

Bankos Distributors cc
Representative: Greg McCree
Tel: (011) 026 8359
gregm.bmg@vodamail.co.za
www.bmgprojects.co.za

Clotan Steel
Representative: Danie Joubert
Tel: (016) 986 8000
Fax: (016) 986 8050
daniej@clotansteel.co.za
www.clotansteel.co.za

Genesis Steel (Pty) Ltd
Representative: Eric MacDdonald
Tel: (011) 817 4008
Fax: 0865 304 152
eric@genesissteel.co.za
www.genesissteel.co.za

Macsteel Service Centres SA (Pty) Ltd*
Representative: Dave Dawkshas
Tel: (011) 871 0000
Fax: (011) 824 4994
dave.dawkshas@macsteel.co.za
www.macsteel.co.za

Macsteel Trading Germiston South
Representative: Granville Rolfe
Tel: (011) 871 4677
Fax: (011) 871 4667
granville.rolfe@mactrading.co.za

Macsteel V R N
Representative: Mike Hall
Tel: (011) 861 5200
Fax: (011) 861 5203
main@vrn.co.za
www.vrnsteel.co.za

NJR Steel Holdings (Pty) Ltd
Representative: Colin Chapman
Tel: (011) 477 5515
Fax: (011) 477 5550
cchapman@njrsteel.co.za
www.njrsteel.co.za

Stewarts & Lloyds Holdings (Pty) Ltd
Representative: Hermien De La Marie
Tel: (011) 553 8500
Fax: (011) 553 8510
hermien@sltrading.co.za
www.stewartsandlloyds.co.za

KwaZulu-Natal

Macsteel Trading Durban
Representative: Paul Simpson
Tel: (031) 913 2600
Fax: (031) 902 2345
paul.simpson@mactrading.co.za

Western Cape

Macsteel Trading Cape Town
Representative: Maria Francis
Tel: (021) 950 5506
Fax: (021) 950 5600
maria.francis@mactrading.co.za

Transcape Steels (Pty) Ltd
Representative: Carl van Rooyen
Tel: (021) 534 3211
Fax: (021) 534 5890
carlvr@transcape.co.za
www.transcapesteels.co.za

STEEL PRODUCT MANUFACTURERS

Gauteng

Augusta Steel (Pty) Ltd
Representative: Nico Erasmus
Tel: (011) 914 4628
Fax: (011) 914 4748
nico@augustasteel.co.za
www.augustasteel.co.za

Bolt & Engineering Distributors
Representative: Mike Giltrow
Tel: (011) 824 7500
Fax: (011) 824 0890
mike@bolteng.co.za
www.bolteng.co.za

Cavotec Gantrex (Pty) Ltd Group
Representative: Johann M Jankowitz
Tel: (011) 963 0015
Fax: (011) 963 0064
gantrex@netactive.co.za
www.cavotec.com

CBC Fasteners (Pty) Ltd
Representative: Rob J. Pietersma
Tel: (011) 767 0000
Fax: (011) 767 0150
rob@cbc.co.za
www.cbc.co.za

First Cut (Pty) Ltd
Representative: Steve Van Wyk
Tel: (011) 614 1112
Fax: (011) 614 1121
stevev@firstcut.co.za
www.firstcut.co.za

George Stott & Co (Pty) Ltd
Representative: Johan Venter
Tel: (011) 474 9150
Fax: (011) 474 8267
johanv@geostott.co.za
www.geostott.co.za

Global Roofing Solutions (Pty) Ltd
Representative: Johan van der Westhuizen
Tel: (011) 898 2902
Fax: (011) 892 1455
johan@globalroofs.co.za
www.global-roofing-solutions.co.za

Grating World (Pty) Ltd
Representative: George Whittle
Tel: (011) 452 1150/1/3
Fax: (011) 452 2536
george@gratingworld.co.za
www.gratingworld.co.za

Horne Hydraulics cc
Representative: Deon Sharp
Tel: (011) 974 1004
Fax: (011) 392 5650
deons@horne-group.com
www.horne.co.za

Le Blanc Communications SA
Representative: William Brough
Tel: (011) 814 1404
Fax: (011) 814 1444
rosstan@worldonline.co.za
www.lightingstructures.co.za

Macsteel Roofing
Representative: Dennis White
Tel: (011) 878 7500
Fax: (011) 827 1890
dennis.white@macroofing.co.za

Macsteel Tube and Pipe
Representative: Peter Curr
Tel: (011) 897 2100
Fax: (011) 826 6333
peter.curr@mactube.co.za

Mentis Sales
Representative: Chris Green
Tel: (011) 255 3200
Fax: (011) 828 1463
cjgreen@mentis.co.za
www.mentis.co.za

MiTek Industries SA (Pty) Ltd
Representative: Stewart Murray
Tel: (011) 237 8700
Fax: 086 644 4359
smurray@mitek.co.za
www.mitek.co.za

Project Materials Southern Africa (Pty) Ltd
Representative: Neil Myburgh
Tel: 011 465 4247 or 079 898 2086
Fax: 086 624 7970
neil.myburgh@pmpiping.com

Robor (Pty) Ltd
Representative: David van Staaden
Tel: (011) 977 2029
davidvs@robor.co.za
www.robor.co.za

Robertson Ventilation International (RVI)
Representative: Eric Whelan
Tel: (011) 608 4640/1
Fax: (011) 608 6443
ericw@robventind.co.za
www.robventind.co.za

Safintra Roofing & Steel (Pty) Ltd
Representative: Sally Stromnes
Tel: (011) 944 6800 / 0861 723 542
Fax: (011) 783 1128
sallys@safintra.co.za
www.safintra.co.za

Vital Engineering & Angus Mcleod (Pty) Ltd*
Representative: Dodds B Pringle
Tel: (011) 898 8500
Fax: (011) 918 3000
dodds@gratings.co.za
www.gratings.co.za

KwaZulu-Natal

Safal Steel (Pty) Ltd
Representative: Tammy Grove
Tel: (031) 782 5500
Fax: (031) 782 1400
marketing@safalsteel.co.za
www.safalsteel.co.za

Northern Cape

Rufco Engineering cc
Representative: Gandeloro Ruffini
Tel: (053) 313 1651
Fax: (053) 313 2081
info@rufco.co.za
www.rufco.co.za

Vonmeg Staalwerke
Representative: Niel Dippenaar
Tel: (027) 712 2606 or 082 808 4650
Fax: 086 5809166
niel@vonmeg.co.za

North West

Almec Manufacturing cc
Representative: Joan Basson
Tel: (018) 469 3202
Fax: (018) 469 3200
joanalmec@gds.co.za
www.almecmanufacturing.co.za

PEL Construction
Representative: Ben Delport
Tel: (018) 469 3894
Fax: (018) 469 2783
ben@pel.co.za

WJ Engineering (Pty) Ltd
Representative: Bert J Werkman
Tel: (018) 294 3395
Fax: (018) 294 5472
bwerkman@wjengineering.co.za
www.wjengineering.co.za

International

Ficep SpA
Representative: Saku Järvinen
+39 0332 876 111
ficep@ficep.it
www.ficepgroup.com

DEVELOPING/EMERGING STEEL MERCHANTS

Duvha Liswa (Pty) Ltd
Representative: Manape Malebana
Tel: (011) 392-9860
Fax: (086) 525-1397
manape@duvhaliswa.co.za
www.duvhaliswa.co.za

TRANSMISSION LINE MANUFACTURERS

Babcock Ntuthuko Powerlines
Representative: Damiano Pavan
Tel: (011) 739 8200
Fax: (011) 739 8201
Damiano.Pavan@Babcock.co.za
www.babcock.co.za

Megatron Federal a division of Ellies
Representative: Sava Savov
Tel: 010 001 0202
sava@megatronfederal.com
www.megatronfederal.com

TLE (Pty) Ltd
Representative: Cesare Di Giacomo
Tel: (011) 242 6611
Fax: (011) 242 6644
adele@tle.za.net
www.tle.za.net

Tricom Structures cc
Representative: Udo Topka
Tel: (012) 803 0041
Fax: (012) 803 6040
udo@tricom1.co.za
www.tricom1.co.za

CORROSION & FIRE PROTECTION TO STEEL

Gauteng

Armco Galvanisers (Pty) Ltd
Representative: Dave Fensham
Tel: (011) 974 8511
Fax: (011) 974 8510
mail@armco.co.za
www.armco.co.za

Bulldog Projects (Pty) Ltd
Representative: Mike Book
Tel: (011) 825 1070
Fax: (011) 825 7832
mike@bulldogprojects.co.za
www.bulldogprojects.co.za

Hot Dip Galvanizers Association of SA
Representative: Terry Smith
Tel: (021) 797 4735
terry@hdgasa.org.za
www.hdgasa.org.za

Pyro-Cote cc
Representative: Trevor Miller
Tel: (011) 864 5205
Fax: (011) 908 6636
pyrocotejhb@pyrocote.co.za
www.pyrocote.co.za

CRANES

Gauteng

RGM Cranes
Representative: John Ford
Tel: 083 607 5303
john@rgm.co.za

CONSULTING ENGINEERS, CIVIL ENGR CONTRACTORS & PROJECT MANAGERS

Gauteng

Acecad Software Ltd
Representative: Paul Marais
Tel: 087 150 5556
Fax: 086 552 5129
p.marais@acecad.co.za
www.acecadsoftware.com

Aurecon South Africa (Pty) Ltd*
Representative: Tomme Katranas
Tel: (012) 427 2470
Fax: 086 607 7838
Tomme.Katranas@af.aurecongroup.com
www.aurecongroup.com

Arup (Pty) Ltd
Representative: Ric Snowden
Tel: (011) 218 7600
Fax: (011) 218 7876
ric.snowden@arup.com
www.arup.com

Basil Read (Pty) Ltd
Representative: Glenn Chamberlain
Tel: 011 418 6300
gchamberlain@basilread.co.za
www.basilread.co.za

Bateman Projects Limited
Representative: Kurt Waelbers
Tel: (011) 899 9111
Fax: (011) 899 2660
kurt.waelbers@bateman.com
www.batemanengineering.com

Bigen Africa Services (Pty) Ltd
Representative: Johann Human
Tel: 012 842 8840
Fax: (012) 843 9000
johann.human@bigenafrica.com
www.bigenafrica.com

BKS (Pty) Ltd*
Representative: Siyanda Ngebulana
Tel: (012) 421 3824
Fax: 086 299 2137
siyandan@bks.co.za
www.bks.co.za

Clearspan Structures (Pty) Ltd
Representative: Jeff Montjoie
Tel: (011) 823 2402
Fax: (011) 823 2582
jmo@clearspan.co.za
www.clearspan.co.za

DRA Mineral Projects
Representative: Leon Uys
Tel: (011) 202 8600
Fax: (011) 202 8807
luys@drasa.co.za
www.drasa.co.za

Fluor SA (Pty) Ltd
Representative: Carlo Zambon
Tel: (011) 233 3400
Fax: (011) 233 3522
carlo.zambon@fluor.com
www.fluor.com

FLSmidth Roymec (Pty) Ltd
Representative: Malcolm Royal
Tel: (010) 210 4000
Fax: (010) 210 4050
malcolm.royal@flsmidth.com
www.roymec.co.za

Goba (Pty) Ltd
Representative: John Cowden
Tel: (011) 236 3300
Fax: (011) 807 8535
johnc@goba.co.za
www.goba.co.za

Group Five Projects (Pty) Ltd
Representative: Caroline Combrink
Tel: (011) 899 4697
Fax: (011) 918 2902
ccombrink@groupfive.co.za
www.groupfive.co.za

Hatch Africa (Pty) Ltd
Representative: Francois du Toit
Tel: (011) 239 5300
Fax: (011) 239 5790
fdutoit@hatch.co.za
www.hatch.co.za

Holley and Associates cc
Representative: David Haines
Tel: (011) 803 1159
Fax: (011) 803 0970
david@holleyassociates.com
www.holleyassociates.com

Malani Padayachee and Associates (Pty) Ltd (shortened version MPA (Pty) Ltd)
Representative: Malani Padayachee-Saman
Tel: (011) 781 9710
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admin@mpaconsulting.co.za
www.mpaconsulting.co.za

MDS NDT Consultants (Pty) Ltd
Representative: Shaun Green
Tel: (011) 615 7240
Fax: (011) 615 8913
info@mds-skills.co.za
www.mds-skills.co.za

Pollock Williams James & Partners cc
Representative: Tim James
Tel: (011) 679 2282
Fax: (011) 679 384
pwp@iafrica.com

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Representative: Simon Du Toit
Tel: (011) 918 1991
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shsccs@global.co.za

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Representative: Mushir Khan
Tel: 0861 TWP TWP (897 897)
Fax: (011) 218 3000
mkhan@twp.co.za
www.twp.co.za

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Representative: Graham Cross
Tel: (011) 888 2150
Fax: (011) 888 2296
grahamc@waheng.co.za

WSP Group Africa (Pty) Ltd
Representative: John Truter
Tel: (011) 300 6000
Fax: 011 300 6001
john.truter@wspgroup.co.za
www.wspgroup.co.za

KwaZulu-Natal

Gavin R Brown & Associates
Representative: Gavin R Brown
Tel: (031) 202 5703
Fax: (031) 202 5708
gavbrown@global.co.za
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Representative: Rob Young
Tel: (031) 207 7252
Fax: (031) 207 7259
rob@yands.co.za
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Representative: Kobus Badenhorst
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Fax: (013) 243 5005
kobus@glps.co.za
www.glps.co.za

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Representative: Anton Van Dyk
Tel: (017) 634 4150
Fax: (017) 634 4188
avandyk@latbou.co.za
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Western Cape

By Design Consulting Engineers
Representative: Barend Oosthuizen
Tel: 083 287 1995
Fax: 086 547 1607
barend@bydesign.org.za
www.bydesign.org.za

Bergstan South Africa
Representative: Alan Davies
Tel: (021) 487 4900
Fax: (021) 424 7657
alan@bergstan.co.za
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chrisvg@ct.kanteys.co.za
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Fax: (021) 852 2447
rob@mondocane.co.za
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Structural design engineer
Anna-Marie Sassenberg
Tel: (051) 451 2510
ams@ams-sa.co.za

By Design Consulting Engineers
Structural engineer
Barend Oosthuizen
Tel: (021) 883 3280
barend@bydesign.org.za

C-Plan Structural Engineers (Pty) Ltd
Structural engineer
Cassie Grobler
Tel: (011) 472 4476
cassie@cplan.co.za

Entity Engineering
Structural engineer
Andrew Bull
Tel: (011) 462 8564
entity1@mweb.co.za

Hage Projects
Structural engineer
Gert Visser
Tel: (016) 933 0195
gert@hage.co.za

Hull Consulting Engineers cc
Structural engineer
Mike Hull
Tel: 011 468 3447
Fax: (086) 6129671
hull@iafrica.com

Martin & Associates
Structural design engineer
Ian Upton
Tel: (031) 266 0755
ibu@martinjw.co.za

ASSOCIATE MEMBERS

AAAMSA Group
Promotion of fenestration, insulation and ceiling systems
Hans Schefferlie
Tel: (011) 805 5002
aaamsa@iafrica.com

CSIR (Built Environment)
National building research institute
Llewellyn Van Wyk
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www.csir.co.za

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www.easysteel.info

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Terry Smith
Tel: (011) 456 7960
terry@hdgasa.org.za
www.hdgasa.org.za

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Rob White
Tel: 083 456 4989
robwhite@icon.co.za
www.izasa.org

National Association of Steel-Framed Housing Inc (NASH)
Carl Davies
gm@nashnz.org.nz
www.nashnz.org.nz

National Association for Steel framed housing Australia
Ken Watson
kwatson@nash.asn.au
www.nash.asn.au

Pretoria Institute for Architecture
Institute for architects
Maureen Van Wyk
Tel: (012) 341 3204
admin.pia@saia.org.za
www.saia.org.za

Standard Bank
Provider of home loans
Johann Strydom
Tel: (011) 631 5977
Johanjj.strydom@standardbank.co.za

University of Cape Town Dept of Civil Engineering
Educational
Sebastian Skatulla
Tel: (021) 650 2595
sebastian.skatulla@uct.ac.za

University of the Witwatersrand School of Mechanical Engineering
Educational
Kamil Midor
Tel: (011) 717 7358
Kamil.midor@wits.ac.za

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Daniel Snyman
Tel: 082 857 8643/
(031) 467 2141
annette.snyman@live.com

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Johan Stoltz
Tel: 082 411 0247
0825683011@vodamail.co.za

Brainwave Projects 126 cc
Builder of LSFB
Thami Khanyile
Tel: (031) 267 2468
thami@stedonehazycrest.co.za

Bruün Agencies t/a Eticon Construction
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Wayne Bruün
Tel: 082 561 0097
lsfb@eticon.co.za
www.eticon.co.za

Chad Construction
Builder of LSFB
Adriaan Jonck
Tel: 082 553 6248
Anton@chadcon.co.za
adrian@chadcon.co.za
www.chadcon.co.za

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Nelisiwe Dladla
Tel: (033) 347 0031
lwazi@absamail.co.za

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Developer, Realtor & Builder
Donald Hickman
Tel: 082 570 3909
hicki@mweb.co.za
www.earthriseproperties.co.za

Ekhaya Jabulani Housing Projects
Builder of light steel frame buildings
Nicolas Venter
Tel: 016 366 1722
ekhaya.projects@gmail.com

Gecko Development Services
Developer and builder
Ryan Hesketh
Tel: (011) 516 0117
geckodevelopment@telkomsa.net

Group Five Housing (Pty) Ltd
Developer and builder
Paul Thiel
Tel: (011) 253 8833
pthiel@groupfive.co.za

Hazycrest Construction
Erector and builder
Patrick Swanepoel
Tel 031 705 2710 Fax 031 705 2656
patrick@hazycrest.co.za

Lakeshore Trading 102 cc
Construction and training
Linky Delisile
Tel: (031) 706 3695
deli@lakeshore.co.za

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Tel: (031) 563 1371
angel@legnacreative.co.za
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Bongani Zulu
Tel: (031) 702 4619
bongani.zulu@yahoo.com

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Rob Neil
Tel 072 5449941
rbn@mweb.co.za
www.newageconstruction.co.za

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Building and Construction
Rajan Harinarain
Tel: 074 184 8881
tahzade@yahoo.com

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Tel: (033) 386 0100
bjorn@shospec.co.za
www.shospec.co.za

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Thamsanqa Sibisi
Tel: 073 897 1881
percysibisi@vodamail.co.za

Silverline Group
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Charl van Zyl
Tel: 021 933 0052
charl@silverlinegroup.co.za

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Construction
Wayne Barr
Tel: (031) 768 1183
wayne@sixbarconstruction.co.za

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Brian Bell
Tel: (031) 713 0737
stedone@iafrica.com

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Tel: 084 782 7487
info@steelwave.co.za
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Johan Venter
Tel: 074 128 1840
johan@steelframeprojects.co.za
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