steel CONSTRUCTION

Volume 37 No. 1 2013

IN THIS ISSUE:

Architecturally exposed steelwork

SOUTHERN AFRICAN INSTITUTE OF STEEL CONSTRUCTION

OFFICIAL JOURNAL OF THE SOUTHERN AFRICAN INSTITUTE OF STEEL CONSTRUCTION

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EDITOR'S NOTE

So the world didn't end after all...

The next apocalypse according to a psychic named Jean Dixon is 2020. But she got it wrong in the past when she predicted the world will end in 1962.

Then again the Institute is also dabbling in the prediction game. One of the objectives of SteelFuture is indeed to 'predict' the future of the steel construction industry. The difference, I suppose, is that we are not gazing into a crystal ball, but trying to identify trends, challenges, opportunities and threats by getting the most knowledgeable people together to talk about what is already there, but not so obvious for the rest of us.

Preparations for the conference are in full swing and the registrations are coming in at a rate that is above our expectations. So, if you still want to book a seat - don't procrastinate!

One of the 'hot trend' topics at the conference will be "The energy efficient house of 2020". In this issue of Steel Construction we look at architecturally exposed steel in existing South African houses. The future trends are already there – steel and glass integrating outside with inside, green technology and light footprints.

In 2012 the SAISC had again the privilege of sponsoring a famous architect to address students and practicing architects. It just so happens that all these famous architects love to use steel in their designs. Read more about the visiting architect Werner Sobek on pages 4 - 7. He is certainly one of those knowledgeable people that is one step ahead in designing houses for the future.

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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).

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Front Cover: Architecturally exposed steelwork: R128 Residential project designed by Werner Sobek

Photographer: Roland Halbe

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)
Chief Executive Officer
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:
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SAISC COMMENT

By Dr Hennie de Clercq,
Chief Executive Officer, SAISC

It is quite ironic that this relic of the time of the smokestack industries has proven to be a very sustainable material that it is ideally suited to the information age where masses of information can be handled easily and quickly, and that it enables an aesthetic that truly speaks to the people and the world of our time.

STEEL – EVER MORE IN DEMAND FOR BUILDINGS OF THE FUTURE

This issue of Steel Construction is dedicated to the use of steel in architecture, or in buildings if you prefer. This should not come as a surprise. The future of steel lies primarily in building.

In South Africa most steelwork has historically found its way into a realm where the architect is seldom involved: industry in the broader sense. The mining, petrochemical, process and manufacturing industries, together with warehouses and ordinary industrial buildings, have always absorbed most of the steelwork, and as a rule the task of the steel was to support or resist loads, not to enclose space, contribute towards a pleasant environment or look attractive. About the importance of these applications for steel there can be no argument; the economic and industrial development of the country required these structures. We sincerely hope that the demand for steel structures in the traditional engineering and industrial applications will grow in future.

But while we are now preparing for the SteelFuture conference, we are constantly thinking about where steelwork will be required in future, and there is every reason to expect that the big demand and opportunity will be for buildings and structures used by people: housing, offices, educational facilities, sport and recreation facilities, public buildings, structures associated with transport, etc. The basic theme is that people worldwide are both increasing in numbers and moving to cities, which means that ever more people will be crammed into huge conurbations where they need to find accommodation and work, mostly in service industries. If the current trends continue, many will be quite well off, and they will need spaces for shopping, relaxing or doing exciting things.

There can be no question about it: there will be a huge demand for buildings, stadiums and other structures for accommodating people in future. But society will also have growing demands for energy, communications, manufacturing, transport, water, food (possibly grown in multi-storey farms in cities) and in coastal cities for defences against rising sea levels and security against other phenomena. So the demand for structures for engineering purposes, as opposed to architectural ones, should also grow.

As will become clear during SteelFuture, structural steel is and will be an excellent material for the new world that's dawning on us. It is quite ironic that this relic of the time of the smokestack industries has proven to be a very sustainable material that it is ideally suited to the information age where masses of information can be handled easily and quickly, and that it enables an aesthetic that truly speaks to the people and the world of our time.

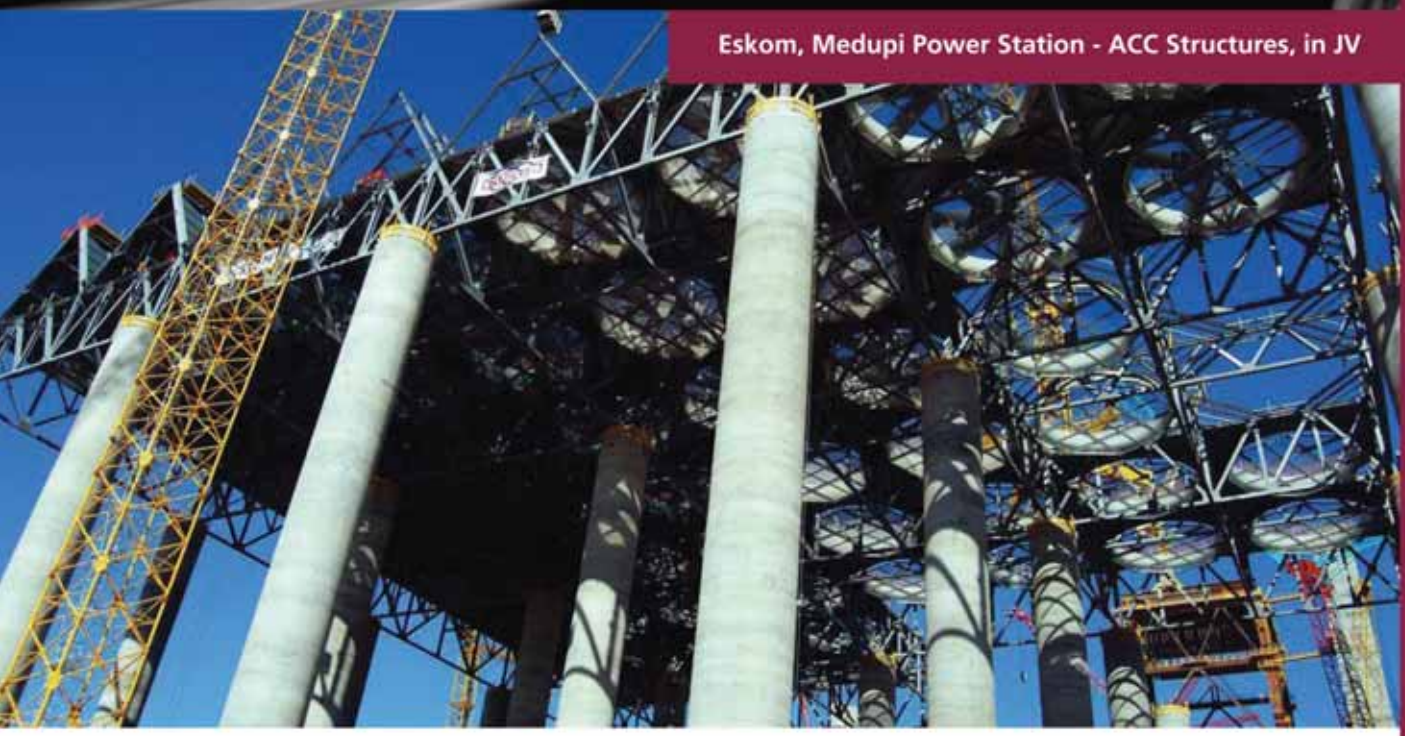
But we in the steel industry should not just accept that steel is a great construction material and leave it at that; we have to keep on developing more and more applications for steel. We tend to be satisfied that steel is a good material for structures, which it is. But more often than not people don't want structures; they want solutions to their problems. Solutions to such problems as housing people, giving them good workplaces, efficient transport systems, etc. Clearly this takes you out of the realm of a thing that can make a good column or beam. People don't need beams and columns, they need houses and stadiums and all the other things I mentioned. And in the congested, fast-moving world of tomorrow with an ever growing emphasis on sustainability, reusability and recyclability these buildings will have to be made and put together to new standards, quite unlike those that have been good enough till now.

The moment you start looking holistically at the design, manufacture and construction of buildings, and especially if you appreciate that we don't just need buildings – we need communities and cities that are functional in every way you can think – the problem grows way beyond steel. Not only does it grow into many disciplines, but also into the use of many materials. But one of those materials, and an important and enabling one at that, will be steel.

If SteelFuture can be the catalyst for getting the steel industry, in collaboration with other industries, to understand the demands and opportunities of the future and to invest in the research to ensure that steel will indeed play an important role in the fabric of our buildings and cities, organising the conference will have been a truly worthwhile endeavour.

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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1027 Ergon Street • Lyttelton • Ext. 6 • 0157 • Box 35042 • Menlo Park • 0102
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VISITING ARCHITECT 2012: WERNER SOBEK

It is true that we use a lot of steel in our projects. There are various reasons for this: On the one hand steel is a material that can easily be recycled. Certainly a lot of energy is needed for the initial production of steel; however, the more often you recycle steel, the better the grey energy quota becomes. On the other hand steel also allows us to create very efficient structures that can be much more lightweight than comparable structures made from other materials (e.g. concrete).

Continuing a tradition of some 14 years, the Institute sponsored the visit of an internationally acclaimed architect to South Africa, in collaboration with the Department of Architecture of the University of the Free State. This year the visitor was Werner Sobek from Stuttgart in Germany. Aside from the meeting in Bloemfontein, he addressed a meeting in Cape Town, reaching some 400 architects and architectural students in the process. Werner Sobek's understanding of steel and his in-depth knowledge of sustainability in the built environment made him an ideal personage for the task.

Our grateful thanks to the material provided by Werner Sobek's office – visit www.wernersobek.com for more information (editor).

BACKGROUND

Architect and structural engineer Werner Sobek is Mies van der Rohe Professor at the Illinois Institute of Technology and head of the famous Institute for Lightweight Structures and Conceptual Design (ILEK) of the University of Stuttgart that specialises in the research of new materials and new concepts for lightweight and adaptive structures. As successor to architect Frei Otto and engineer Joerg Schlaich, Werner Sobek advocates a unique approach of bringing architects and engineers together, both during their training and in their professional activities.

TIMELINE

Werner Sobek was born in 1953 in Aalen, Germany and studied structural engineering and architecture at the University of Stuttgart from 1974 to 1980. He was post-graduate fellow in the research project 'wide-span lightweight structures' at the University of Stuttgart and finished his PhD in 1987 in structural engineering. In 1991, he became professor at the University of Hanover and director of the Institute for Structural Design and Building Methods. In 1992 he founded his own company Werner Sobek. Since 1994, he has been a professor at the University of Stuttgart and director of the Institute for Lightweight Structures and of the Central Laboratory for Structural Engineering. In 2000 he fused the Institute for Lightweight Structures and the Institute for Construction and Design into the Institute for Lightweight Structures and Conceptual Design (ILEK). In 2008 Werner Sobek was appointed Mies van der Rohe Professor at the Illinois Institute of Technology in Chicago. In recognition of his manifold academic achievements, the Technical University of Dresden awarded him an honorary doctorate in 2009.

WERNER SOBEK ON SUSTAINABILITY

By Luciana Tamaki

(Appeared in the Brazilian magazine Téchne in March 2012)

It is a kind of a 'common sense' these days that a building would be called sustainable because of the presence of one or two solar panels in the roof, economic lighting and maybe some rain water collector that, sometimes, is not even profitable. Did the 'sustainable' concept, in construction, become a marketing label?

It is true that some people use terms such as 'green building' and 'sustainability' purely for marketing purposes. This is very sad, but fortunately it's the exception, not the rule. Most people (at least in Germany) have understood that sustainability is much more than the use of a label or the implementation of certain tools deemed useful for our environment. Solar panels or rain water collectors are not in themselves 'green' – it is only when we develop a holistic approach taking into consideration the ecological, the economic and the functional quality of a building that we can talk of true sustainability (by the way, this is also the reason why we say that "sustainability is more than green"). An integral part of our approach is also the consideration of the whole life-cycle of a building, i.e. we do not only ask "How much does it cost to build the house?" We rather take into consideration all the costs (and the environmental impact) involved in designing, building, maintaining and using, refurbishing and – finally – demolishing the whole structure.

Regarding the environmental impact of construction material, if there are two buildings: one has been planned considering the durability of the building; the other building does not last as long as the first one, but it has used material with a lighter environmental impact. Isn't the first one more sustainable than the other?

Sustainability should not be equaled with durability. Even if a certain building lasts two or three times longer than others: sooner or later it will have to be refurbished or be taken down. What really matters in the end is the impact the building makes below the line. Can the materials used for the building be fully recycled? How much grey energy is embodied in the building materials? How many resources (water, energy, money) were used for maintaining and using the building? Once we have answers to these questions we can say which of the two buildings you have mentioned is more sustainable. Looking purely at the length of life is not sufficient.

What criteria should be considered in materials specification in a building, considering sustainability issues?

Materials should be fully recyclable. They should also be non-toxic and use as little natural resources (either for the production or for their disposal/recycling) as possible.

Is recycling the major answer to sustainability issues?

No, recycling is only one part of the puzzle (albeit an important one). As mentioned above, sustainability touches on many issues and is based on a balance of ecological, economic and functional factors.

Steel construction, in theory, seems to be the most sustainable from all kinds: steel is totally recyclable, and (in theory) it could come from reusable material. Does steel construction occupy a more sustainable place than the others, in a scale?

It is true that we use a lot of steel in our projects. There are various reasons for this: On the one hand steel is a material that can easily be recycled. Certainly a lot of energy is needed for the initial production of steel (i.e. it has a high amount of embodied grey energy); however, the more often you recycle steel, the better the grey energy quota becomes. On the other hand steel also allows us to create very efficient structures that can be much more lightweight than comparable structures made from other materials (e.g. concrete). Depending on the specific building task you're confronted with, the local context, the intended use and length of life, etc., steel can be the most sustainable material to use. In other situations, however, timber or concrete may be more appropriate and sustainable. It really depends very much on the specific context you're looking at. Generally speaking we do not consider any specific tool or material in itself as sustainable, but rather pay attention to the overall situation – and then decide what is most appropriate.

AWARDS

The works of Werner Sobek have been awarded numerous awards and distinctions, e. g. the DuPont Benedictus Award, the European Gluelam Award, the Fritz Schumacher Award, the iF Design Award, the SEAOI Structural Engineering Award, AIA awards of the American Institute of Architecture, the Hugo Haering Award, the Fazlur Rahman Khan Medal and the UIA's Auguste Perret Prize.

COMPANY

Werner Sobek stands throughout the world for engineering, design and sustainability. The firm has offices in Stuttgart, Dubai, Frankfurt, Istanbul, London, Moscow, New York and Sao Paulo. The work of Werner Sobek is defined by premium design on the basis of high-class engineering combined with sophisticated green technologies. The studio currently has more than 200 employees. They work on all types of buildings and materials.

PHILOSOPHY

Architecture which claims to formulate an attitude appropriate to our time and the future must be a form of architecture that finds its forms and materials not by reference to traditional forms and materials. We should not ask "how did we use to work and live" but "how shall we work and live in the future". The answer to this question requires an unconditional anticipation of what the future holds in store - a method which occasionally may lead us in the wrong direction but which is the only way in terms of being intellectually justifiable. Or, in the words of Hegel "...that the fear of being wrong constitutes an error in itself".

(Above) R128 – the house is completely recyclable, produces no emissions and is self-sufficient in terms of its heating energy requirement.
Copyright: Photographer Roland Halbe

WERNER SOBEK - RESIDENTIAL PROJECTS

R128, Stuttgart,Germany

This modular designed, four-storey building is completely recyclable, produces no emissions and is self-sufficient in terms of its heating energy requirement. The completely glazed building has high quality triple glazing panels. Because of its assembly by means of mortice-and-tenon joints and bolted connections, it cannot only be assembled and dismantled easily but is also completely recyclable. The electrical energy required for the energy concept and control engineering is produced by solar cells.

(Below) D10: The entire surface of the roof is fitted with a photovoltaic system that generates more power on an annual average than the building consumes.
Copyright: Photographer Zooey Braun

Efficiency House Plus with electromobility, Berlin, Germany

The Institute for Lightweight Structures and Conceptual Design (ILEK) at the University of Stuttgart has won First Prize in the architectural planning competition *Efficiency House Plus with electromobility* issued by the German Federal Ministry of Transport, Building, and Urban Development. The proposed design, developed under the direction of Professor Werner Sobek, demonstrates the potential of actively coupling energy flows between the emerging fleet of electric vehicles and our built environment. This concept is architecturally embodied through a striking glass showcase in which all of the core technical systems are laid out prominently to form a full-scale living display. The project not only illustrates the feasibility of building future single-family homes which generate a significant surplus of energy – enough to power the electric vehicles of their occupants – but also demonstrates how future buildings can be designed and built to allow for complete disassembly and recycling at the end of their life cycle.

(Below) This structure won First Prize in the architectural planning competition *Efficiency House Plus with electromobility.*

D10, Ulm, Germany

Located near Ulm, Germany, D10 is a single-storey one-family home built in an established residential area. Two parallel shear walls are a distinguishing feature of the building. Generously designed glazing serves to provide a spatial enclosure. Protected by an extensively projecting flat roof a generously sized patio encircling the house serves to unite the indoor space with the outdoor space.

The living areas are located on the ground floor, whilst the ancillary rooms are housed in the basement. The building is adjoined on the north side by a double-garage, which can be accessed directly from the basement. A stairway in the living room provides access inside the house.

The energy concept guarantees that all of the energy required to run the building is gained from regenerative sources. A geothermal energy system and a highly-efficient heat pump provide the energy required to produce warm water and meet heating and cooling needs. The entire surface of the roof is fitted with a photovoltaic system that generates more power on an annual average than the building consumes.

INDUSTRY NEWS IN BRIEF

ACQUISITION OF COSIRA BY THE FIRST TECH GROUP EXPANDS HOLISTIC INFRASTRUCTURAL OFFERING

SAISC member company

The First Tech Group, a major commercial and infrastructural group of companies, has recently completed the acquisition of Cosira, one of the largest SMPP structural steel fabricators and erectors in Southern Africa. Established 20 years ago, the First Tech Group services a wide variety of infrastructural and commercial sectors including electrical, rail, engineering, mining and construction.

The acquisition of Cosira is in line with the synergistic offerings that the First Tech Group provides to the market through its 18 companies. "By incorporating the services provided by Cosira into our portfolio, we are able to provide our client base with an enhanced, comprehensive basket of services through a common source," says Andy Bertulis, Chief Executive Officer of the First Tech Group.

The acquisition forms part of the First Tech Group's strategy to create greater employment and achieve further growth locally and across Africa. "Cosira has a well-established footprint in Sub-Saharan Africa and the intention going forward is to extend the reach of Cosira and the First Tech Construction division as a whole, through the establishment of offices in Tanzania, Kenya, Ghana and the Democratic Republic of Congo (DRC)," adds Marius Botes Chairman of Cosira and Chief Executive Officer of First Tech Construction.

Andy Bertulis, Chief Executive Officer of the First Tech Group.

The First Tech Construction group of companies includes Energotec (an installer of electrical solutions, primarily within the petrochemical industry); Celik Engineering (supply, fabrication and erection of various industrial piping and fittings, as well as related mechanical works); Flint Construction/Railcon (rail and civil engineering contractor); First Tech Corrosion (painting and sandblasting division) and Cosira. Each company within the division retains its own branded identity to ensure continuity for clients.

"The vision and business ethos shared by the First Tech Group of companies and Cosira was an important factor in our decision to extend our operational base with the acquisition. We are excited by the wealth of opportunities flowing from this acquisition and look forward to leveraging the experience and expertise brought to the table by Cosira, in executing our vision to become the largest infrastructural supplier on the African continent," Bertulis concludes.

EXCELLENT SHOT BLASTING RESULTS AND OPTIMUM THROUGHPUT WITH KALTENBACH SPRINT 1504KC

First Cut – SAISC member company

Speed, efficiency and uncompromising results are the minimum requirements of best practice in shot blasting. Due to the nature of their operation, shot blasting systems need to be built with durability and robustness in mind. The Kaltenbach Sprint 1504KC is designed for extended lifespan and increased return on investment.

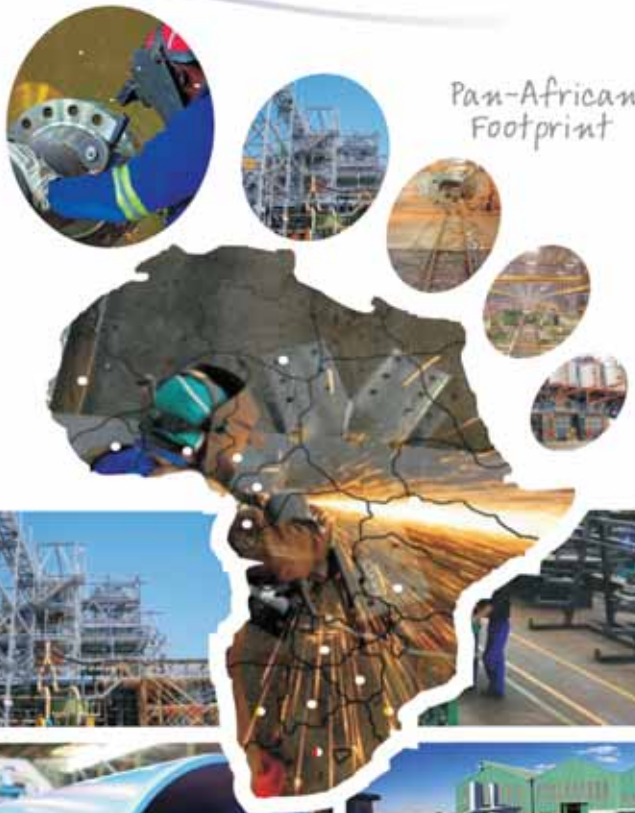
Kaltenbach Sprint 1504KC shot blasting system.

According to Steve Van Wyk, Capital Equipment Director at First Cut, local distributors for Kaltenbach, the Sprint 1504KC reduces running costs and is acknowledged for its environmental friendliness. "By incorporating customised design elements, the Sprint 1504KC deals with its resources in an extremely economical manner. Ongoing testing proves that the blasting abrasive utilised by the machine can be almost completely recovered for repeated use."

The Sprint 1504KC is suited to shot blasting profile beams and sheets quickly and efficiently in a number of applications and situations, including steel traders, steel fabricators, steelworks and shipyards. The double sheave turbine wheels provide optimum shot blasting results, with the highest flow velocities and lowest blasting abrasive usage requirements.

The Sprint 1504KC shot blasting plant has between 4 and 8 turbines, of 11kW each, and a passage range of 3 100 x 650mm, suitable for a throughput of from 10 000 to 20 000 tons per year. The double-disc turbine wheel has eight blades for optimum shot blasting abrasive delivery.

FIRST TECH CONSTRUCTION















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INDUSTRY NEWS

Driven by an electric motor, via a clutch, the turbine is designed for stable and continuous operation.

The 1504KC shot blasting machine has a triple housing, comprising an outer hull of construction steel and inner linings of manganese. The outer hull ensures the high stability of the entire system while the manganese lining provides high resistance to wear and it can be quickly and easily changed when worn.

The multi-level cascaded air cleaning system removes dust and scale from the shot blasting abrasive, to ensure that the shot blasting effectivity of the machine remains consistently high for extended periods.

In addition, 10 curtains in the in-feed and discharge lock chamber ensure that the shot blasting abrasive stays in the machine. A funnel collector, with screw conveyor, transports the shot blasting abrasive back to the bucket conveyor for recirculation of the abrasive.

The Kaltenbach shot blasting system has been designed not only for user friendliness, but also with ease of maintenance as a priority. "While it is acknowledged that machinery should be easy to operate, the effect of excessive time spent on maintenance should not be discounted. The Sprint 1504KC has eight inspection and maintenance points, to provide easy accessibility and rapid changing of the rubber curtains in the in-feed and discharge lock chamber," Van Wyk concludes.

SCAFFOLDING SAFETY

A recent scaffolding accident, which left one person dead and 19 injured after heavy winds overturned the structure, has highlighted the need for strict adherence to standards regarding correct scaffolding design and construction. Deon Bester, Occupational Health and Safety Manager at the Master Builders Association of the Western Cape, shares his expert advice on how to prevent accidents like this from happening in future:

The design and construction of any steel tubular scaffold must comply with the South African National Standards (SANS) Code 10085. This contains requirements for design, maintenance, inspection, safety precautions and usage. To erect scaffolding that conforms to the standards contained within the Code, there are a few fundamental things that need to be taken into consideration. These include the condition of the surface on which the scaffold is to be built, the weather conditions to which it will be exposed, the load that will be imposed upon it and the wind pressure to which it could be subjected.

Scaffolding is divided into four specific categories, based on the weight it is able to bear safely per square metre. The type of scaffolding required must be determined before a design is prepared in order to ensure that it can safely withstand the load it will hold as well as both vertical and horizontal wind pressure.

All materials to be used in the construction of scaffolding must be inspected by a supervisor before use to determine their suitability and ensure that they conform to the required standards. The area on which the structure will be built must also be inspected. Supervisors are appointed by the employer and must possess the necessary qualifications from an accredited training provider and approved by the South African Qualifications Authority (SAQA). He or she must also comply with the legal construction regulations as well as those contained in the SANS Code.

Scaffold structures may only be constructed by trained, competent scaffold erectors under the direction of a supervisor. Once the structure has been built, it must be inspected and declared fit for use. All scaffold erectors must have undergone the requisite 18 months of classroom and practical training.

If the scaffolding is enclosed with sheeting, shade netting or advertising banners, this must be investigated and approved before use since it could affect wind loading. The scaffolding needs to be checked once a week, especially after inclement weather or alterations, with the details of these inspections recorded in a register.

All scaffolding structures must be clearly marked with signage that complies with the requirements of the SANS 1186-1 Code to indicate whether it is safe for use and every employee on a construction site must be trained to recognise and obey these signs.

SOFTLINE VIP'S GREEN NEW HOME

Menlyn Maine is set to be Africa's first green city, designed for better living and a more dynamic, healthy lifestyle. Located in Pretoria's eastern suburbs, Menlyn Maine offers offices, residential, shopping

An artist's impression of the Softline VIP Building.

and entertainment facilities situated in the heart of the new business district. Softline VIP will take up residence in the Sage VIP Building which is situated on Aramist Road, the second building to be developed within the precinct.

"Our new building will be extremely energy efficient and environmentally friendly," says Anton Van Heerden, Managing Director of Softline VIP, part of the Sage Group plc. "The Sage VIP Building was designed to be simplistic in nature and to limit maintenance costs by integrating sustainable design principles into all aspects of the structure. Our building will have a four star rating according to the Green Star SA – Office v1 rating, which recognises the best practice principles that the building project demanded," explains Van Heerden.

The following green principles were incorporated into the design of Softline VIP's new home:

Building material: The steel used in the building are 95% recycled which significantly reduces the impact on the environment. All timber used in the building comes from a certified forest that promotes responsible forest management. The use of any ozone depleting gases have been minimised while the use of PVC has been reduced by 60%.The concrete used inside of Softline VIP's new office is much stronger while using 30% less cement that is combined with fly ash and GGBS (waste products from electricity production and steel furnaces).

Harnessing natural light: Includes using external shading devices in the form of aluminium louvers as well as overshadowing by balconies to shade windows from direct sunlight.

Building Management System: The building will boast a Building Management System (BMS) that monitors the electrical demand, temperature and water usage in all areas of the building. The BMS system also monitors the lifts, fire protection, CO_2 levels in the basement and landscaping systems.

External lights: All lights on the facade will be dimmed to minimise light pollution and will also be positioned to avoid upward light spillage into the night sky.

Vegetable garden on the roof: An operational vegetable garden on the roof will be utilised to stock the Softline VIP canteen and client restaurant.

Occupancy sensors: Motion detection sensors will automatically switch lights on when there is movement. The sensors are also linked to the air conditioning system to avoid unoccupied space cooling. The result is a comfortable and controlled environment that saves on energy consumption.

Recycling: Close to 80% of waste produced in the office is recyclable and recycle bins will be placed in the pause areas and central points to enhance recycling efforts.

Volatile Organic Compounds: All the paint, adhesives, sealants and carpets used in the Sage VIP Building comply with Green Star South Africa's standards.

Water efficiency: Rain water will be captured on the roof and stored in massive 100 000 litre storage tanks in the basement. It will be utilised for general water usage such as flushing toilets and irrigating the gardens and roof garden. Water flow will be established by means of the earth's gravity. Hot water will be heated on the roof by means of insulated tanks in addition to being instantly accessible due to an insulated closed loop circulation system.

THE ANGLEMASTER-HD – ANGLE LINE FROM PEDDINGHAUS SteelFuture Sponsor

Peddinghaus Corporation has introduced the newest member of the Peddinghaus Anglemaster family, the Anglemaster-HD.

The Anglemaster-HD utilises new smart cylinder technology which optimises hydraulic fluid levels for accelerated production. Equipped with two 3-speed

The Anglemaster-HD is equipped with two 3-speed 153 ton punch cylinders with triple tool punches.

153 ton punch cylinders with triple tool punches and one 467 ton 3-speed shear cylinder with single cut tooling, the Anglemaster-HD can process angles up to 200 x 200 x 25mm and flat bar up to 300 x 25mm.

Peddinghaus' roller measurement technology equips the Anglemaster-HD to allow material to be stored outside until production takes place. This proven method of measurement provides benefits such as streamlined handling, and reduced overhead costs.

The Anglemaster-HD also comes standard with an automated material dimensioning system. This allows the Anglemaster-HD to identify the size of a profile and determine the length of punch or shear stroke required for maximum productivity. Utilising this system, the Anglemaster-HD is also capable of verifying section sizes before initialising a program, resulting in a reduction in operator error.

With the development of the Anglemaster-HD, fabricators possess the ability to process detail components 50% faster than previous models, saving fabrication time and increasing throughput. Optionally equipped with part stamping or carbide scribing units, the Anglemaster-HD redefines the industry standard for angle and flat bar production.

STEELFUTURE – SHINING A LIGHT ON THE FUTURE

By Dr Hennie de Clercq,
Chief Executive Officer, SAISC

Of course, we can't know, not even one year in advance, and certainly not during the uncertain times we live in. What we can know is what are the trends and what is happening at the 'cutting edge' where exceptional people use the latest technologies to realise projects so cleverly that we can but all aspire to get to where they are now at some point in the future.

What will the steel construction industry look like in 20 years' time? How will steel structures be designed and how will the steelwork be fabricated and erected? It is clear that the computer will play an ever bigger role, but how? What sort of structures will future generations demand from the industry and what will be the expectations, rules and regulations that will guide how those structures are delivered? Will new steels, new products and sustainability requirements take us to unexpected places? What business models will evolve?

Well, there's no way of knowing, and maybe it's not so important to know; 20 years lie somewhat outside our immediate time horizon; what could you do with that information if you knew, other than impress your friends?

But knowing the answers to these questions five years from now will clearly be valuable. In fact, the logical response to knowing these things for sure would be to jump out of your chair and start planning how to ensure that your business will be equipped with the skills, equipment, software and systems to benefit to the hilt from what comes. Or you may decide to make a career of beach bumming.

Of course, we can't know, not even one year in advance, and certainly not during the uncertain times we live in. What we can know is what are the trends and what is happening at the 'cutting edge' where exceptional people use the latest technologies to realise projects so cleverly that we can but all aspire to get to where they are now at some point in the future.

John Moebes is such an exceptional man. He works for Crate & Barrel, a chain of retailers of housewares and furniture in America, and is involved in the building of new stores. That in itself would not make him an internationally-recognised authority on integrated project management, but he made technology his friend in pursuit of better, more economical buildings, built much faster than would normally be expected, with each making a strong and unique architectural statement.

Moebes talks about BIM (building information modelling), web based project management, performance metrics and workflow standards. He's truly into technology. But maybe one of his phrases, "conference-style review of shop drawings", says more about his approach: it's a mix of technology and how

Vusi Ndala – Managing Director, Mzilakatha Strategic Management Services, South Africa.

John Moebes - Director of Construction, Crate & Barrel, USA.

Ed Whalen - President of the Canadian Institute of Steel Construction, Canada.

STEEL FUTURE

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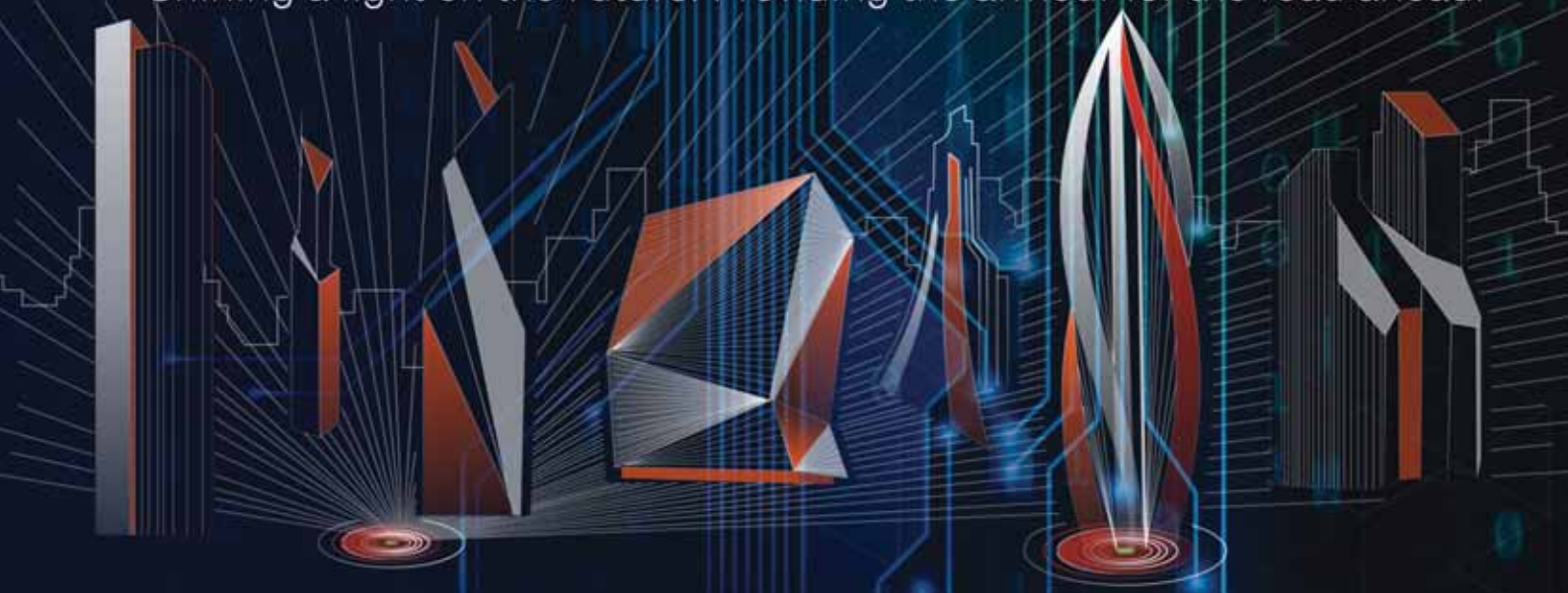

If you have anything to do with the use of steel in construction you cannot afford to miss SteelFuture.

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steel

Prof Charles Clifton – Associate Professor of Civil Engineering, University of Auckland, New Zealand.

Christian Colombo – Vice President, Ficep Spa, Italy.

Ian Walker - Sales manager, Peddinghaus, United Kingdom.

people interact that determines success. We stand to learn a lot from him. They have thought about the whole delivery process, from contractual arrangements to technical specifications and how the various professions and contractors can each make the best contribution. So successful are the software and the whole approach employed during the building of new stores that Crate & Barrel are now also using these to sell merchandise! And it is striking how Moebes sees structural steel as key to their success, and what importance he attaches to the contribution the fabricator can make.

This will not be all that will be said about information technology at SteelFuture, but the broad term 'technology' obviously covers a much wider field of great relevance. Several of the manufacturers of steel fabricating equipment (Peddinghaus and Ficep, among others) will be present to talk about where their technology is taking us. Add to that the robotic welding Ed Whalen of Canada will discuss, as well as all the new technology for design, defining and visualising a structure ('drawing', if you insist), communicating manufacturing information and managing projects (that's where FabTrol will fit in) and it becomes clear that a wave of technology is rolling through the steel construction industry.

All this technology may create a picture of a world where steel construction becomes extremely complex and the machines and software very expensive. This would not be entirely incorrect – the workshop of the future may have more in common with a high-tech factory with people in white coats than with the sooty old smithy's shop it originated from. Ever more of the decisions will be made by people with technical skills sitting in clean offices. But John Cross of the American Institute of Steel Construction argues that steel construction stands to gain from the new environment like no other material. The key lies in the fact that steelwork is inherently prefabricated and accurate, so there's real room for modern manufacturing and information technology to be applied to it. It has also been amply proven that steel construction is, if done well, surprisingly sustainable. Structural steel has been around for a long time, but it remains the construction material of the future.

There are some things about the future that are less uncertain. We have a very good idea, for example, of the number of people of childbearing age there will be in 20 years, because almost all of them already exist. And since people of child bearing age tend to have children, we can be pretty sure there will be a lot of kids. The growing billions of the world will require ever more facilities and goods. Speakers like Llewellyn van Wyk will give the attendees of SteelFuture a good idea of what these facilities are likely to be, and what that means for the building and construction industry. That there will be huge opportunities in the future seems clear.

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 current 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.

SteelFuture will also deal with the newest in the field of research, with codes of practice for design engineers, and of course with exceptional projects from across the world. It will be a place where a huge volume of knowledge will enter the venue in the heads of the speakers so that it can be shared with everybody to create a space of intense knowledge concentration. Being part of that cauldron of knowledge should be an experience that everybody will remember.

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INDUSTRY REPORTS SUSTAINED GROWTH IN LIGHT STEEL FRAME BUILDING

By John Barnard, SASFA director

The total LSF market (local and export, trusses only and complete buildings) is forecast to grow by 20% during 2013, compared with 2012. A number of project enquiries have been received from neighbouring countries, and there are a few large housing developments in the pipeline in South Africa.

SASFA has again carried out its annual survey to quantify the level of light steel frame building (LSFB) activity in the market. As in the past, SASFA approached the South African manufacturers of light steel framing to determine the volume of thin gauge high strength galvanized steel sheet they had processed during the past year, as a measure of the building activity in the industry.

While the actual throughput was 10% lower than the rather optimistic forecast made for 2012 at the beginning of the year, the 23 000 tons of high strength galvanized steel sheet used show a growth of 10% compared with actual production in 2011. Exports, mainly into Sub-Saharan Africa, accounted for some 30% of total demand.

It is also notable that a steadily growing volume of the production is used for complete buildings – including wall panels and roof trusses, as opposed to roof trusses only. This is a clear indication that LSF building is achieving wider acceptance in the market.

During 2012, LSF roof trusses used with masonry or in industrial buildings constituted 70% of total LSF production. Roof structures, covering a total floor area of 1.4 million square metres, were produced, compared with the 1.1 million square metres of the previous year. Based on Stats SA statistics for buildings completed (excluding low cost housing), light steel roof trusses have captured an astounding 20% market share during 2012.

This growth in demand is remarkable, as the official building statistics supplied by Stats SA indicates a growth of only 3% in total floor area of new buildings completed during 2012 (extrapolated from data for the first nine months of the year). The floor area of non-residential (industrial and office) buildings completed increased by 17%, while that of residential buildings declined by 3%.

According to industry feedback, complete buildings (wall panels with roof structures) covering a total area of some 300 000m² were built in LSF in South Africa during 2012, which is expected to grow by 25% to 380 000m² during 2013.

A steadily growing volume of the production of of high strength galvanized steel sheet is used for complete buildings – including wall panels and roof trusses, as opposed to roof trusses only.

SOUTHERN AFRICAN LIGHT STEEL FRAME BUILDING ASSOCIATION

Based on average ratios of walling area:floor area, this will result in a demand for

- 380 000m² of external cladding (typically fibre cement board),
- 1.3 million m² of bulk insulation (typically glasswool bats),
- 1.7 million m² of internal lining or gypsum board, and
- 0.4 million m² of vapour permeable membrane used in external walls.

The total LSF market (local and export, trusses only and complete buildings) is forecast to grow by 20% during 2013, compared with 2012. The SASFA manufacturing members report good demand for middle and upper income housing, schools and classrooms, and roofing structures for low cost housing projects. A number of project enquiries have been received from neighbouring countries, and there are a few large housing developments in the pipeline in South Africa. Local architects are increasingly utilising the advantages of LSF for external walling of office buildings, with spectacular results. Apart from the striking facades achieved, the use of LSF shaves weeks of the building schedules and allows reductions in the capacity of air conditioning equipment through thermal efficiency of the well insulated walls.

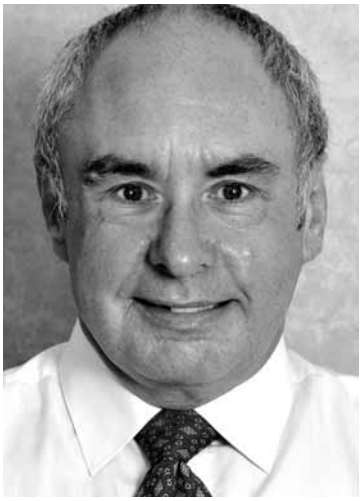
Local architects are increasingly utilising the advantages of LSF for external walling of office buildings, with spectacular results.

LIGHT STEEL FRAME BUILDING AT THE STEELFUTURE CONFERENCE

By John Barnard, SASFA director

Not only will developments in Southern Africa be discussed, but speakers from Australia, New Zealand, Europe and the USA have enrolled to present papers covering the application of LSFB, new developments and growth of LSFB worldwide.

Sterik Gerber – Director, Boogertman + Partners, South Africa: Riverwalk Office Park, and beyond.



Carl Davies - General Manager, NASH, New Zealand: World first for light steel framing earthquake testing.

Due to the high level of interest in light steel frame building, international specialists will present papers on LSFB during parallel sessions at the SteelFuture Conference.

Not only will developments in Southern Africa be discussed, but speakers from Australia, New Zealand, Europe and the USA have enrolled to present papers covering the application of LSFB, new developments and growth of LSFB worldwide. These speakers all represent the light steel framing industry associations of the different countries.

Three different themes will be addressed:

The market situation and opportunities with regard to light steel frame building is distinctly different in the countries represented. The market share of LSFB, and strategies employed to expand the use of this building method will be discussed.

LSFB in multi-storey or non-residential applications: The application of light steel framing is not limited to single or double storey residential buildings. A leading South African architect will present a paper on the benefits of using LSF for the external walls of an award-winning office building. Another paper will explain why LSF is widely used in the USA for the structural framing of mid-rise hotels and apartment buildings.

Research for improved performance of LSFB, and new developments: research projects with a wide range of objectives will be presented, from improving structural aspects of the steel frame, to assessing the thermal efficiency of a well insulated LSF house compared with an identical masonry building. The ability of LSFB to withstand bushfires as well as earthquakes will be illustrated. The Australian industry is working towards standardised design solutions, which will simplify the application and approval of LSFB projects. Finally, a paper on the low energy house of 2020 will illustrate how the home owner will be able to minimise his dependence on the electricity network.

This conference is not only for steel fundi's – if you are involved in any aspect of the LSF industry, you must attend. Visit the SteelFuture website – www.steelfutureconference.co.za for more information.

Maribeth Rizzuto - Director of Education and Sustainable Construction, Steel Framing Alliance and Managing Director, Cold-Formed Steel Engineers Institute, USA: Why cold-formed steel makes sense for mid-rise construction in the United States.

Architecturally exposed steel:
Residential projects

HOUSE BOUWER

Location: Silverton Ridge, Pretoria
Architect: Louis Bouwer, Architect and Town Planner

Lateral Planning Solutions (SA)
+27 (12) 804 3084
+ 27 (0) 82 657 7246
+ 27 (0) 86 550 1471
bouwerarch@absamail.co.za

project team

Client, Architect, Structural Engineer & Main Contractor

Louis Bouwer

Steelwork Contractor

Manufactured Engineering Products (no longer exists)

Steel Construction approached a group of architects and asked them to send us their residential projects that show some steel. Louis Bouwer responded with a very interesting example: his own house that he built in 1972 and it was featured in Steel Construction Vol. 2 No. 1 1972! He says: "A photographer pitched up one day on behalf of the SAISC. I do not recall initiating the article."

What was the trend in 1972 with regards to residential projects? Was steel used much or was your steel house a rare occurrence?

I believe I was the first architect to build a small private home (in Pretoria) where structural steel was used to this extent. I could not find a small contractor to tender within reason on a design of this nature so I had to assemble most of fabricated steel components myself.

What made you decide to use steel in your design?

Steel was more affordable in those days. The site is very steep and solid rock. Steel allowed the erection of two storeys speedily and with a minimal footprint. The design facilitated the erection of the roofing at a very early stage which allowed all trades (including the owner!) to work regardless of weather conditions. Steel suppliers and manufacturers were very accommodating about unusual and sometimes innovative design requirements. Clear detailing and good understanding of the steel products selected resulted in faultless deliveries of orders.

Describe the design of the house

The structure can be described as a simple rectangular grid in tubular steel sections and I-beam girders. Purpose-made, two storey-high steel windows are suspended from the tubular 'wall plate'. A q-deck onto the I-beams with

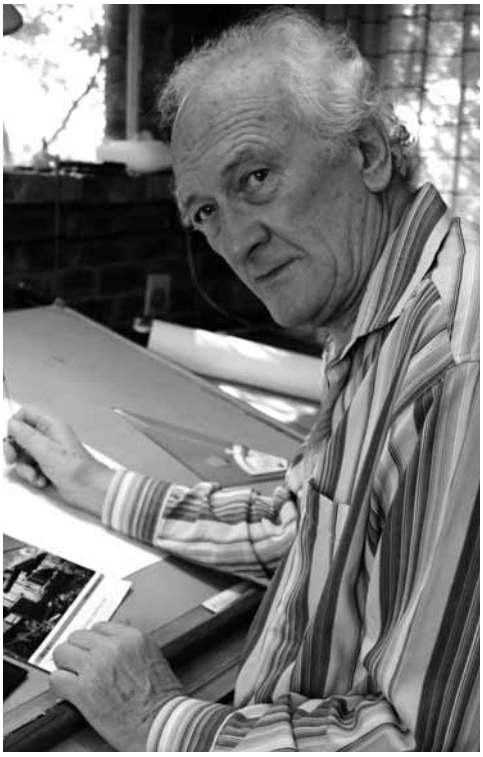
end sheets formed a tray for pumped concrete (another first for a small private home). Clinker bricks were used for the wall cladding.

What has it been like living in your own steel design-and-built house for 40 years?

The external steelwork has been painted three times over the years only because of chalking paint and cracking putty and not because of any corrosion. The Brownbuilt roof sheeting was soiled by industrial pollution but was wire-brushed and painted for the first time a year ago. The choice of Stormline louvers (very fashionable at the time) for window openings was not a good idea. Living in this house has been a pleasure as it was possible to achieve an ideal orientation and thus very efficient climatic performance. The house has been very economical, requiring almost no other maintenance.

ABOUT THE ARCHITECT

Louis Bouwer studied architecture at UCT and town planning at the University of Pretoria. He spent most of his 55 year career in government departments where he was exposed to a very wide field of experience and some serious management responsibilities. He served the architectural profession on various committees for 22 years, culminating in President of the Pretoria Institute for Architecture. His wife Jackie has shared the fun for 49 years!



PHOTOGRAPHER: CARLA DU PREEZ

Louis Bouwer.

PHOTOGRAPHER: DAVID ROSS

HOUSE ROOS

Location: Southdowns Estate, Irene, Centurion
Architect: Mathews and Associates Architects cc

Pieter Mathews.

Anton Smit.

Mathews & Associates Architects cc
www.maaa.co.za
+27 (0) 86 111 6222
admin@maaa.co.za

project team

Owners

Francois & Alta Roos

Architect

Mathews & Associates Architects cc

Main Contractor

Arnokon Projects

Southdowns Estate is located next to the Irene Dairy Farm that dates back to 1895. The estate took its design cue from the original dairy buildings of the farm and the owners are expected to adhere to these guidelines by the home owners association. The typical estate golf course lay-out is here replaced with pastures where the cows graze and is in tune with nature and water conservation.

The owners of House Roos approached Mathews & Associates Architects to design a 'contemporary farm house' much to the delight of the architects. They believe that the agricultural modern idiom is the ideal architectural language as it is honest and rooted in a local tradition, opposed to borrowing an aesthetic language from a foreign source. It is an honest solution to the challenge of finding a local South African aesthetic.

The house is organised around the stoep and swimming pool area on the eastern side. This arrangement allows for views onto the pasture from each room. The kitchen, located on the south eastern corner, serves the stoep and simultaneously opens up directly onto the garden.

The architects, Pieter Mathews and Anton Smit from Mathews and Associates, opted for a floating roof on the eastern side. The floating roof consists of steel trusses with glass gables. Anton says that the steel trusses allow for wider spans resulting in more open space. Instead of using square tubing as trusses, back to back unequal angles were used to make the structure lighter. Another advantage of using steel is that the design appears crisper and refined, lending a modern feel to the traditional farm style.

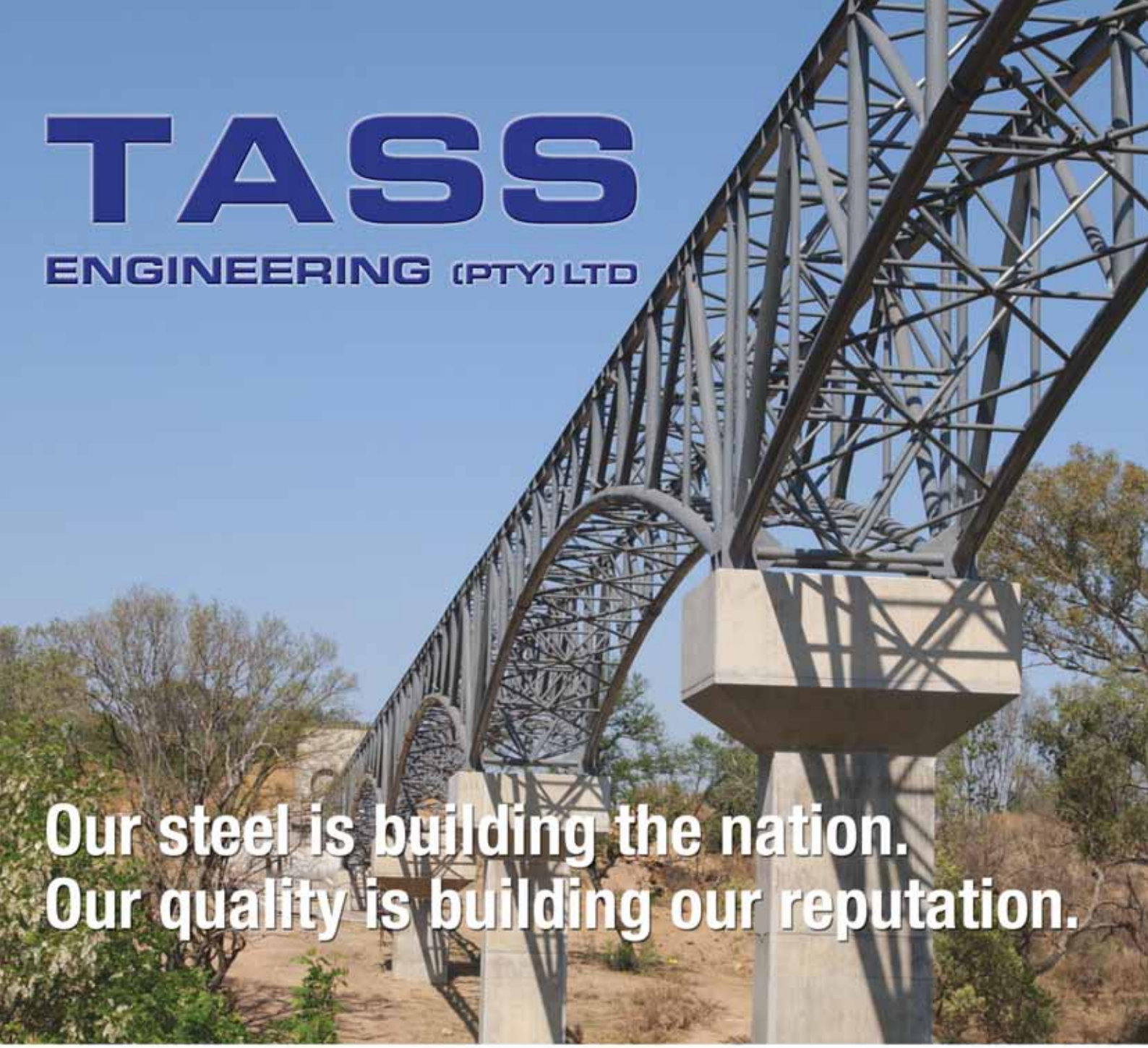
Red was chosen as accent colour on the balustrade wall of the main staircase.

The stair is contained in an architectural glass box floating above the ground, as one ascends or descends one is aware of the entire space and surroundings. The red wall becomes the main feature of the western facade. The dark grey floors, throughout the house, unify all the spaces.

ABOUT THE ARCHITECTS

Mathews and Associates Architects cc, the award winning architectural and design practice, was formed in November 2000. Their practice consists of Pieter J Mathews and associates Liam Purnell and Anton Smit, supported by their architectural and technical staff.

Pieter Mathews obtained his B Arch from the University of Pretoria. He is also highly regarded as author, publisher, graphic and interior designer and recently pursued his interest in sculpture.



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

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- Sandton Atrium on 5th Cladding - Liberty Properties
- Kwale Mineral Sands, Kenya: Conveyor and tripper car structures - Base Titanium
- Polyoak Aeropark: New steel roof - Polyoak Properties
- Sedibeng Brewery: Bottling Bay extension - Sedibeng Brewery
- Standard Bank Rosebank - Standard Bank
- Telesure Head Office - Steyn City Properties
- Medupi Coal & Ash Terrace - ELB
- Cradlestone Mall - Sasol Pension Fund
- Sci-Bono Discovery Centre - Gauteng Department of Education
- Gate Houses - Steyn City Properties
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SHISA! GUEST FARM

Location: Tulbagh, Western Cape
Architect: Joe de Villiers Architects

Joe de Villiers Architects
+27 (0) 83 324 4466
joedevilliers@me.com

Joe de Villiers.

project team

Client

Shisayo trading t/a Shisa Guest Farm

Architect, Project Manager, Main Contractor

Joe de Villiers

Structural Engineer

Steelwork contractor's in-house engineer

Steelwork Contractor

Smith Steel (Springs)

Architects often face the 'very limited budget' challenge and it is always interesting to see how they turn this into their advantage. The owner of Shisa! Guest Farm ("Shisa" is a Zulu stem word meaning "hot" and is also a respectful way of referring to the sun) wanted a modern farm-style structure that will be an appropriate interpretation of the local vernacular as well as making maximum use of the stunning views. And with a very limited budget...

The architect opted for an 'off-the-shelf' steel shed slightly modified to accommodate a saw-tooth roof. The use of standard steel window frames made it possible for the roof, structure and windows to be erected within a few days. The brickwork and floors then followed at a more modest pace and with a more hands-on approach. The client wanted to owner-build most of the project with the use of semi-skilled local labour. The architect also lived on the site at times.

The heights of the steel sheds were carefully specified to ensure that the standard steel windows all related to each other and to the brickwork around the building. Standard steel windows were welded into frames to create large doors opening onto the surrounding Renosterbos and indigenous garden.

A north-facing saw-tooth was incorporated into the living area, which lets in a strip of direct sunlight (and valuable heat) in the winter. A south-facing saw-tooth was used in the shed which houses the office and photographer's studio where natural light but not direct sunlight is preferable.

The end result is a building which maximises the views and has a great flow of space inside:out. The building has a character which makes people think that it is an authentic farm building which has been cleverly converted, creating a timeless feel to it. Though the structure is really simple and uses mainly 'standard engineering details', the whole reads as an intricately designed and well-resolved system.

ABOUT THE ARCHITECT

The practice's motto is that every building is unique as it responds to a unique client, climate, context and genius loci. A tectonic approach often characterises their work– i.e. the use of structural elements as visible design elements and the expression of the true qualities inherent in materials. This is complimented by the blurring of the boundary between inside and outside and an emphasis on the creation of buildings with good spatial qualities and sensible passive design principles.

The practice currently has offices in the Cape Town CBD as well as the village of Tulbagh in the Western Cape. The practice undertakes projects throughout Southern Africa.

FOREST EDGE GUEST HOUSE

Location: Clarens, Eastern Free State
Architect: Reinier Brönn Architects & Associates cc

Architect and owner, Reinier Brönn came across this site whilst busy with another project in the vicinity of this unique area.

The plan is inspired by the Herbert Jacobs House of Frank Loyd Wright, 1936, which is an early, yet fine example of Wright's Usonion Projects. The house is positioned on the site to turn its back on the street and predominantly open up to the ever-changing palate of colours of the forest towards the north eastern side. This orientation provides ample shade in summer and during winter allows sunlight to enter from early morning to sunset.

The house is designed in an L-Shape, with the living room, dining room and kitchen accommodated in the one wing and the bedrooms within the other. The one wing rests upon a raft foundation and the other on strip foundations because of different soil conditions. Both wings open up to a communal outside space which becomes an extension of the house.

With the rural setup in mind, a tectonic steel structure provided a less labour intensive method as opposed to the conventional building methods. Being on a tight budget, the work was executed by local, enthusiastic, yet unskilled labourers. The steel structure was erected relatively quickly which allowed the fixing of the roof at an early stage of the project. The infill brickwork and facial glazing then followed independently of the roof construction. Futhermore, the structural steel elements provided wide, open spans for both climatic and visual consideration.

The services, such as the geysers of both the upper and lower bathrooms are clad with curved corrugated iron sheets as to symbolise a water reservoir typically found in the Free State landscape. These organic shapes are enhanced by the strong light quality, a characteristic of this classical landscape.

ABOUT THE ARCHITECT

After my third year of studying architecture at the University of the Free State, I had the opportunity to work on a construction site in the UK for a year which had a very big influence on my career. It made me realise that almost every line we draw has to be built by another human being and that almost anything that we can imagine, can be built. I travelled Europe and the USA, and returned to South Africa to finish my studies in 1993. In 1998 Reinier Brönn Architects and Associates CC was established.

Ever since, it has been a priority of mine to give personal attention to all our clients and the necessary attention to the detail of all our projects. We adhere to the design principles of good architecture, but more importantly, we respect the budgets and needs of our clients.

Reinier Brönn.

Reinier Brönn Architects
& Associates
arc@reinierbronn.co.za
+27 (51) 436 1013
www.reinierbronn.co.za

project team

Client

Reinier & Liesl Brönn

Architect, Project Manager and Main Contractor

Reinier Brönn Architects & Associates cc

Structural Engineer

Eddie Arter, BVI Consulting Engineers

PICASSO CLUSTERS

Location: Houghton, Johannesburg
Architect: Jeremie Malan Architects & Interiors

Jeremie Malan Architects
& Interiors
+27 (0)12 460 5388
malanarc@mweb.co.za
www.malanarchitects.co.za

Jeremie Malan.

project team

Client
Family Retief

Architect
Jeremie Malan Architects

Structural Engineer
WSP Structures Africa

Project Manager
Jeremie Malan Architects

Quantity Surveyor
Taljaard Meyer & Storm

Main Contractor
Michielsen & Hoffman

With ever shrinking living space in urban Johannesburg, architects face the challenge of designing apartments to appear spacious and luxurious, but within the confinement of a smaller stand.

In this instance a large Houghton stand was subdivided into four stands with a central road as access. The existing dysfunctional house and large garden made way for contemporary clusters on smaller properties.

To achieve the concept of spaciousness the architect opted for open plan living areas which flow into the exterior spaces with the bedrooms on the upper floor. The living rooms and bedrooms all face north with a courtyard as the link between the front and rear living areas. A mix of materials was used where steel, glass and aluminium played the major roles to blur the edge between inside and out as well as allow natural light to flow into the interior. Steel and hardwood pergolas provide slatted shading over large balconies to add to the light and modern feel of the design.

The established foliage of the Houghton area gave the modern design a natural backdrop creating a feeling of being in a garden and not in a densely populated city.

ABOUT THE ARCHITECT

Jeremie Malan Architects & Interiors is based in Pretoria and has been practicing architecture since 1994 with considerable success in corporate, public, retail, office, industrial, hotel and residential architecture. Their scope of work includes refurbishments and interior design projects. Skilled pro-active management and creative commercial design has produced large and medium sized buildings on programme and within budget.

Jeremie Malan, the principal partner of the architectural practice, studied at the University of Pretoria and has been practicing for 29 years. Maré Malan, principal partner of the interior design and decorating practice has 18 years of experience in the field.

On South African architecture: *True South African architecture to me is unfortunately non-existent; but regional, historic and ethnic styles exist. These though are far apart not only regarding national symbolism but also in the use of materials and the response to site, topography, climate and the cultural background. I find that this multi faceted background stimulates creative and diverse styles which contribute to a rich visual outcome.* *(Hot Dip Galvanizing Today Volume 5 Issue 4 2008)*

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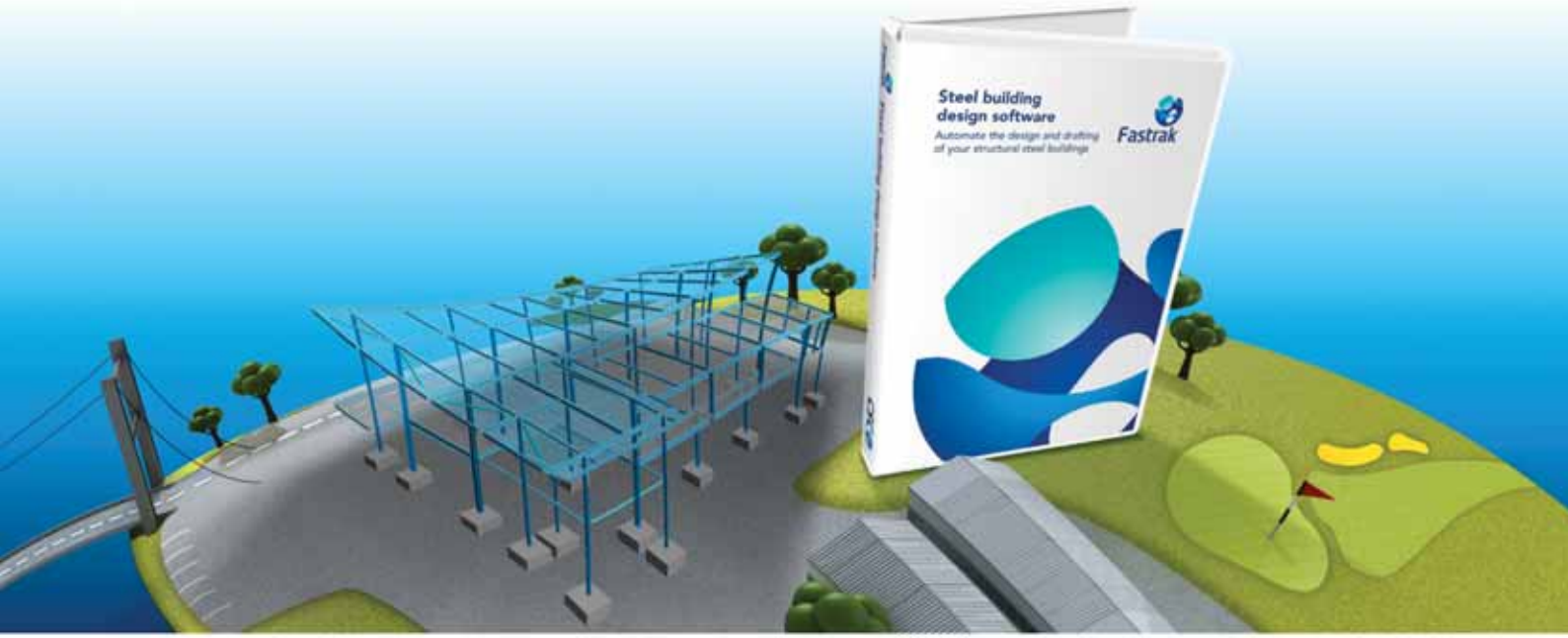

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HOUSE TAYLOR

Location: Ballito, KwaZulu-Natal
Architect: Charles Taylor

House Taylor was a Steel Awards 2012 entry and intrigued the judges when they had the privilege to visit it during the adjudication process.

The extensive use of galvanised steel allows for a modulated frame to take layers of wood, glass and greenery which form the enclosures to create a house that is dramatically different from the norm. The ultra-modern design elements incorporate the latest in green technology.

The site stands majestically on the crest of the highest point in lower Ballito. The building design represents a response to site in terms of views, outdoor spaces, existing tree positions, and wind and sun orientation. The structure has been designed with flexibility and adaptability in mind.

Structural steel is the backbone of the double storey dwelling. An extensive reinforced podium presented a springing point for the steel frame. A concrete sheet retains the bank set into the hill at rear, extends forward as a ground floor supported on RC columns into the basement, and finally folds into a 25m length pool along the front edge.

'Light weight', precast ECHO slab elements were used to create the floor elements, supported on steel beams which wrap upward in cycles of vertical ribs to support external balconies and vertical shading screens. The steelwork frame is horizontally braced by a series of vertical concrete walls and masonry ducts, which are mechanically tied at strategic points both to steel and ECHO floor planes.

The architect was intent on using steel with a hot dipped galvanized finish. The site is positioned in an extremely aggressive corrosive environment, hence the structure needed to be detailed in a manner to obviate site welded joints.

Green: Cool air from a basement is pulled through a buried gabion rock mattress into one low energy fan in the centre of the building which circulates the 'cooled' air throughout the building. The extensive glazing in the house also plays an important role in temperature control. The swimming pool water will be sanitised without the use of chemicals, chlorine or salt so it can be backwashed onto the garden and reticulated through conventional pipes.

A silent vertical turbine wind generator provides 5kw of power on this appropriately windy site. The system will generate enough power to run the entire household including a single phase lift.

The architect on steel: *"Structural steel is a great medium – it is ancient yet modern, recyclable, shimmers in the light, provides an ordered and square structure that can handle long spans, and is very easy to integrate with other materials."*

project team

Developer/Owner
Charles Taylor

Architect
Charles Taylor Architect cc

Structural Engineer
Linda Ness Associates cc

Main Contractor
Mastercraft

Steelwork Contractor/s
Rebcon Engineering (Pty) Ltd

Detailers/ Detailing Company
Rebcon Engineering (Pty) Ltd

Landscaper
Wild Olive Landscaping

Midvaal Structures

BEE Level 5 BWO company





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WESTCLIFF PAVILION

Location: Westcliff, Johannesburg
Architects: GASS Architecture Studios

Clare Eisenstein

Georg van Gass.

GASS Architecture Studios
+27 (0)11 482 2045 /
studio@gass.co.za /
www.gass.co.za

project team

Developer/Owner
Koos Koen

Architect
GASS Architecture Studios - Georg van Gass and Clare Eisenstein

Structural Engineer
Ferdinand van der Kuil

Main Contractor
Vision 5 Projects

Steelwork Contractor/s
Conrad Bezuidenhout

Timber Flooring Contractor
Top Decks

The Westcliff Pavillion received a commendation in the Architectural Category at Steel Awards 2012. Though we have written an article about it we (the editor) felt that it deserves another mention amongst its peers.

This two bedroom dwelling, nestled away in its wooded surroundings, is sited just before the inception of the major sheer face of the Westcliff Ridge. This affords the building a private, tranquil hiding place in the trees juxtaposed with a feeling of floating above the ridge with magnificent views of Johannesburg.

The choice to use steel for this building was threefold. Firstly, part of the brief from the client, and due to the magnificent setting of the cottage was the necessity to use as much glass on the view side of the property as possible. Secondly, from an environmental perspective, the architects wanted to treat the ecosystem of the Westcliff Ridge very lightly, and didn't want the building to impose or radically interfere with its surrounding. By using steel, the only disruption to the ground was for the footings of the main structural steel columns. Thirdly they wanted an elegant, timeless aesthetic that would allow them to use the steel not only as structural elements, but also as the primary architectural motif.

One of the main identifying features of the Pavilion is the floating stone wall. The architects wanted to continue in the tradition of Westcliff architecture of using indigenous stone in their design by including a wall made from stone harvested on the site itself. However, they wanted to give this wall a twist. So they chose to get rid of this concept of sturdiness and solidity that is inherent in the understanding of a wall, and do the exact opposite: create something that does not rely on the ground at all for its founding.

The owner, Koos Koen summarises it well: "Steel enables the structure to cater for the high ceilings and small windows at the top as well as incorporating the large sliding doors creating a distinctive feeling of living in a tree house. It will stand for a 1000 years."

ABOUT THE ARCHITECT

GASS Architecture Studios, located in Johannesburg and Cape Town, was established in 2005 by Georg van Gass (PrArch).

As part of our values, we incorporate sustainable environmental practices into all our designs. It would be ecologically and financially irresponsible not to. We explore every opportunity to practice 'green' design, from the simplest detail to the highest technical application. We work towards realising an aesthetic that is as diverse as our country by using local materials, colour, and texture while still retaining a contemporary expression that augments the way we inhabit the modern world.

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ARCHITECURALLY EXPOSED STRUCTURAL STEELWORK (AESS)

Adapted by Spencer Erling,
Education Director, SAISC

Gifa (Gauteng Institute for Architecture) recently hosted a workshop for architects where the SAISC presented a session on the effective use of steel in buildings. Spencer adapted the talk on architecturally exposed structural steelwork for Steel Construction.

It is not difficult to comprehend why architecturally exposed steelwork can become the subject of hot debate and maybe even harsh words in the contracting environment. If the requirements of the architect are clearly defined then the likelihood of misunderstandings in the contract will almost certainly be largely eliminated.

This article attempts to set some guidelines which will ring-fence the degree of 'spit and polish' required to achieve the desired results.

BACKGROUND AND UNDERSTANDING THE BASIC CHARACTERISTICS OF STEEL STRUCTURES

Some of the characteristics of steel:

- Very strong in tension and can be strong in compression if supported in the transverse direction to limit buckling lengths.
- It has great strength to mass ratio.
- Steel can be manufactured very accurately,
- and be designed and built to look very slender or thin.
- It can be machined, bent, curved and formed into interesting shapes.

Steel is typically joined in two ways:

Welding (typically done in the workshop) and bolting (used to be riveting in the 'good old days') which is typically done on site. The advent of computerised detailing packages and NC equipment in the workshops has promoted this form of bolting construction.

Cost considerations

- The more complicated the structure, the greater will be the labour input, increasing the rate per ton for the steelwork. For example just the process of curving steel can add 20% to the price of those elements.
- NC cutting equipment (plasma and/or laser) whilst quite expensive as a process has opened up the scope for being able to build complicated structures and connections with a minimum amount of fuss leading at least one engineer to philosophise; "just because we can build very complicated non-repetitive wavy structures is this justification to get so complicated?"

Consider the constructability issues of your design.

- A ‘spit and polished’ finish costs megabucks so understanding just what is visible and will be noticed by the general public requiring this finish will help keep costs under control.
- Repetition and standardisation can help reduce costs.
- The labour cost of steel construction is in the connections. So keeping connections simple will generally keep labour costs down.
- The use of samples and mock-ups help set the standards that are required.

Constructability

- Transport size limitations can and will affect the design and fabrication of various elements.
- The structure must be buildable, preferably without too much temporary supporting and guying.
- The mass of individual components or assemblies will control the size of the erection cranes required for the job.
- Access for sensibly sized (i.e. not too big) cranes and equipment must be good.
- High quality finishes often depend upon good fettling (grinding). Whilst apparently quite easy to do, grinding needs the practice of an expert artisan to make the finished object appear better looking after grinding than it was before grinding. It is easy for the non-practised expert to do more local damage than good! Ouch!

Steel can be machined, bent, curved and formed into interesting shapes.

- Even the most basic of structures for non-architectural finish use will require some grinding.

Why do we grind steelwork at all? There are three basic reasons:

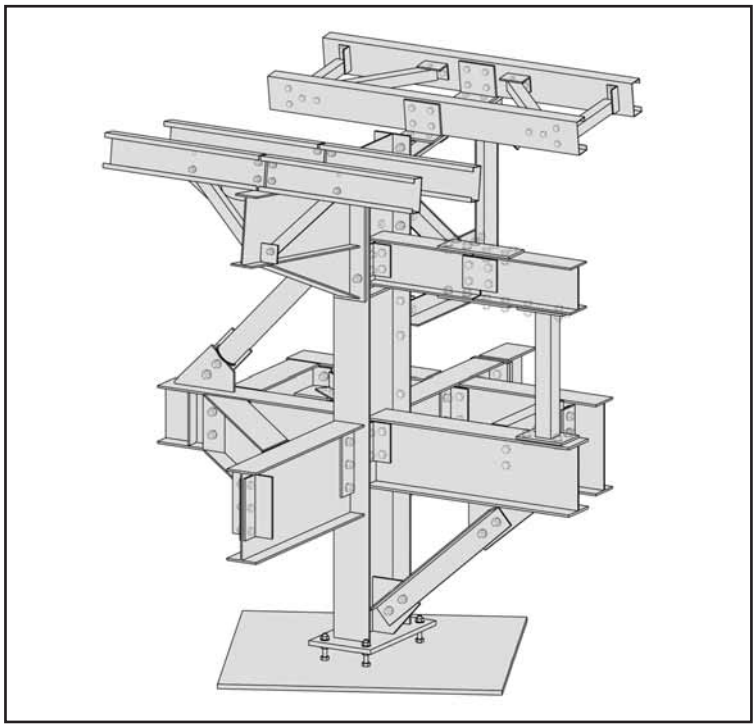
1. *From a safety-of-the-worker point of view: sharp edges need to be removed to avoid cuts and the like. Only a basically trained operator is required for this process.*
2. *From a corrosion-protection point of view: sharp corners need to be rounded to ensure paint or galvanizing will stick to the element. A reasonably skilled operator is required for this operation.*
3. *From a 'spit-and-polish-finish' point of view: a highly skilled artisan is needed to execute this category of grinding successfully.*

THE CANADIAN APPROACH TO AESS

In order to get some consistency into how to describe architectural finishes, the Canadians have come out with a six category description which brings a level of 'order' into their descriptions to close the gap in understanding requirements by contractors.

The basic premise is that if the structural form (design concept) is good, the lasting impression the viewer will be left with, will depend upon the connections (fit) and surface finishes.

NC cutting equipment has opened up the scope for being able to build complicated structures and connections.



Use standard connections to keep costs down.

The six categories are dependent upon:

- The type and function of a building
- Viewing distance (typically less than or more than 6 metres)
- What you are willing to spend to achieve high quality finishes

1. SSS- Standard structural steel

Typically factory buildings, roof structures and the like, not necessarily for architectural finish, apply.

- Steelwork often hidden by ceilings and the like
- Aesthetics are not important.
- Engineers define the specifications.
- For non-corrosive environments, space welds are acceptable. Weld splatter does not have to be removed.
- A good design is important.

To achieve an acceptable finish:

- Usually type 1 grinding required and if corrosion is an issue, type 2 will apply.
- Bolts will all be of the same length, facing the same direction. Longer projections through the nut are acceptable.

2. AESS1 – Basic elements

Roofs for shopping centres, sports halls, stadiums and the like apply along with the following:

A viewing distance of more than 6 metres; the steelwork is often congested with services; and is usually not well illuminated.

To achieve an acceptable finish, as above for SSS plus:

- Edges to be ground smooth

- Welds should be continuous (or made appear to be using body filler)
- No open holes
- Bolts sticking out could be limited (if required)
- Weld splatter to be removed

3. AESS2 - Feature elements

Airports, atriums, exhibition halls, community centres apply. Although the viewing distance is still more than 6 metres the elements of steelwork are regarded as visually important.

To achieve an acceptable finish, as above for AESS1 plus:

- Optional use of visual samples, mock-ups assist to set the standards
- A closer tolerance of fit up can be specified (at a cost) of about 50% of the normal tolerances.
- All fabrication marks to be hidden
- Neat continuous welds are basic to this form of construction (taking into account that continuous welds can lead to distortion of the steel!).

3. AESS3 - Feature elements

Lower elements to airports, lobbies, shopping centres and atriums apply. The viewing distance is less than 6 metres and the surfaces are close enough to be touched.

Talk to an expert if your galvanized finish is critical to your final look.

To achieve an acceptable finish, as above for AESS2 plus:

- Special attention should be paid to make details/ connections more elegant.
- Welded connections can be more preferable.

- The use of castings for connections and/or stainless steel is often considered.
- Mill marks to be removed.
- Butt (Complete Joint Groove) welds should be ground smooth and filled if required.
- Hollow section joints should appear to be seamlessly welded.
- Gaps are not permitted, close tolerance fit is essential.

4. AESS4 - Showcase elements

The end product just does not even look like steel!

To achieve an acceptable finish, as above for AESS3 plus:

- Hollow section connection and weld seams ground smooth and/or filled
- Other welds to be contoured and blended
- Surface indentations to be filled and sanded smooth
- After painting, weld 'show-through' is to be minimised

5. AESSC - Custom elements - 'Whatever you want'

You need to clearly define and specify your requirements. There is no doubt that samples and mock-ups will be an essential part of the process.

Some ideas as to what could fall into this category would be:

- A finish smoother than a brand new Ferrari
- A very rustic or rusted finish
- Steelwork interfaced with high quality wood finishes etc.

THE INFLUENCE OF COATINGS AND FINISHES

It is impossible to cover all the issues under this topic but a few pointers are:

- Thin glossy coats accentuate imperfections.
- Thicker, matte and/or mottled coats tend to conceal imperfections.
- Regular cleaning of the structure, removal of dust, keeping pigeons away is important to retain that special look.

Weathering steel (Corten) is very effective in some corrosive (or non-corrosive) environments.

- Good surface preparation and shot blasting before coating helps prolong the good looking life of the steelwork.
- When specifying intumescent paints for passive fire protection and for achieving a 'good architectural' finish, remember these coats can be between 1 mm and 4 mm thick. Achieving a 'spit and polish' look is nigh well impossible.
- Thick coatings usually damage easily and are very difficult to match during coating repairs.
- Metallic coatings are great for corrosion resistance in the right corrosive environment. The most common is hot dip galvanizing. It is very cost effective, but it is very difficult to achieve a consistent shiny and/or spangled look because the chemical content of the steel affects the zinc coating thickness and finish. Talk to an expert if your galvanized finish is critical to your final look.
- Hot metal spray coatings are good alternatives to hot dip galvanizing for corrosion resistance but are very rough or porous in appearance. The process is relatively slow and expensive.
- Weathering steel (Corten) is very effective in some corrosive (or non-corrosive) environments. The steel allows surface rusting to happen, but the rusting does not progress further. The rusted appearance has great appeal to some architects. The material is unpredictable as to how the end product will look and how consistent the rusted appearance will be. It is vital to keep run-off water from rusted surfaces away from concrete, the rust leaves a tell tale trail on the concrete.

CONCLUSIONS

Understanding your finish category and describing it clearly to the contractor will go a long way to achieving the desired result. Choose a contractor with a good track record in achieving the standard of finish you want.

Remember that old adage about paying peanuts gets you monkeys; pay the right price for the standard you want.

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THE GREEN BOOK IS OUT!

By Dr Hennie de Clercq,
Chief Executive Officer, SAISC

The quest for dealing with every conceivable problem encountered in connection design also confronted us with some problems that we could not find solutions to in the literature. For example, we had to devise a totally new approach for determining the resistance of a base plate under biaxial bending and vertical load

All the ingredients necessary for a world class handbook – one Hennie de Clercq and a metre high mountain of revisions (the paper was recycled afterwards if you were wondering).

It's been a long gestation, but the newest SAISC publication – Structural Steel Connections, or 'The Green Book' – is now available.

What started out as a quick review and update of the Institute's old Green Book developed into a total rewrite and an effort to say 'the last word' (well, that was some time ago) on steelwork connections. Let anybody who even thinks of doing something similar note: a huge amount of information exists worldwide on connections for steelwork and selecting from that what would be valuable to engineers is a monumental task.

After collecting and distilling the information the next big item was to find innovative ways for presenting design information to engineers, typically in tabular form. What helped a lot in this exercise was to give some thought to the range of parameters that are actually encountered in normal structures. Formulae and rules tend to cover almost every eventuality and combination of dimensions, but in practical structures such variation seldom occurs. By sticking to the limits of what is commonly encountered it was often possible to make things a lot simpler.

The quest for dealing with every conceivable problem encountered in connection design also confronted us with some problems that we could not find solutions to in the literature. For example, we had to devise a totally new approach for determining the resistance of a base plate under biaxial bending and vertical load.

No wonder that it took a whole year to write the book. But what we did not appreciate was how long it would take to do the typesetting. The Green Book is stuffed with mathematical equations, sketches and tables, and all of these make typesetting difficult; especially the equations. Proofreading was a nightmare too. So another year went into the typesetting, whereas we promised that the book would be available in April, then in May and then ...

Actually, it is not correct to say that the book deals with all types of connections. In fact, there are whole categories that are excluded. You would, for example, not find anything on connections involving cold-formed sections, hollow sections or cables. Connections that are peculiar to a specific type of structure are not covered, such as those for bridges, silos, chimneys, platework, crane-supporting structures or space frames. The argument behind leaving these connections out was that in each case the connection design is an integral part of the design philosophy required for this particular type of structure.

The SAISC hopes that the Green Book will make the work of the structural steelwork designer easier and more interesting, and that it will in this way serve to promote the use of steel in construction.

Price (incl VAT):

Non-member R650.00

Member R525.00

Student R220.00

To buy the book go to www.saisc.co.za – Publications – Bookshop or contact Debbie Allcock at the SAISC offices on +27 (0)11 726 6111 or debbie @saisc.co.za

AND THE 3RD STEEL AWARDS PHOTO COMPETITION

THE STEEL CONSTRUCTION AWARD FOR EXCELLENCE IN THE USE OF STRUCTURAL STEEL

SAISC Steel Awards dinner in Gauteng, KZN & the Western Cape: 19 September 2013

ENTRY DEADLINE - 30 APRIL 2013

CATEGORIES

- No fixed categories – except the Tubular and Light Steel Frame Categories.
- Judges decide on the categories and winners based on the actual entries received.
- However in the light of our theme, special attention will be given to export projects on the African continent.

In 2012 the following categories were covered:

- Overall Winner
- Tubular Structures
- Mining and Industrial
- Architectural (Combined with Light Steel Frame Building)
- Bridge
- Sustainable Development

We do our best to give A**LL** projects entered some publicity – so please enter the projects you are most proud of.

CRITERIA

Does the project illustrate what can be achieved with steel?

Other factors to be considered:

- The importance of steel as a structural component of the project
- Benefits achieved by using steel construction
- Aesthetic appeal
- Environmental/ sustainability consideration
- Innovation in design, fabrication or construction
- Technical prowess required for realising the project
- Engineering expertise
- Exceptional quality of workmanship

MORE CRITERIA

- Tubular content
- Export project with special focus on Africa
- Satisfaction of client's brief, particularly cost and/or time efficiency (speed of construction)
- Special details: cladding, bolted or welded connections, or the like
- Value to society/ community development
- Any other unique features

CONDITIONS OF ENTRY

Go to www.saisc.co.za/steel_awards_2013 to see if your project qualifies or send an email to Reneé Pretorius at renee@saisc.co.za

ENTRY FEES

1. Projects with a mass of less than 10 tons a fixed rate of R750.00 (incl. VAT) will be charged.
2. For larger projects a fee of R3000 (incl. VAT) will be charged which will entitle the nominator company to one complimentary seat at the Steel Awards dinner at the venue of their choice - Johannesburg, Cape Town or Durban on the condition of booking more than one seat.

MATERIAL TO BE SUBMITTED BY 30 APRIL 2013

1. The fully completed entry form
2. Pictures of the project (one will be considered for the Photo Competition)
3. A description of the project and a motivation for entering the project

For the details and to submit your entry - go to: www.saisc.co.za/steel_awards_2013

SOCIAL SNIPPETS

By Marlé Lötter, Events Manager, SAISC

QUESTIONS FROM THE FLOOR...

RIGHT: James Price, Lonmin (South Africa).

SOME OF THE ANSWERS...

ABOVE: Brian O'Connor of Anglo American (South Africa) sharing his perspective during the panel discussion at the conclusion of SMMH2012 presentation.

ABOVE RIGHT: Dr Geoff Krige of WAH Consulting Engineers was the Chairman of the SMMH2012 conference.

BELOW RIGHT: Kurt Waelbers, Anglo American (South Africa) – Co-presenter of the Structural Inspection and Maintenance Management (SIMM) Course.

EXHIBITORS...

RIGHT: Mike Chalmers (Mondo Cane) and John Duncan (Cadex SA) at the Cadex SA stand.

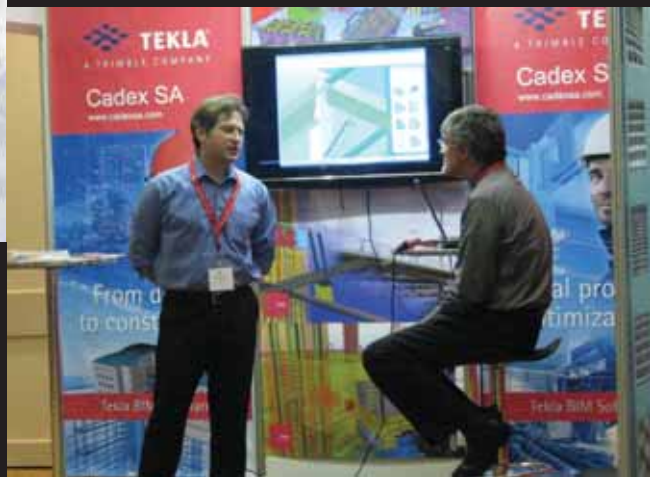
Seen at SMMH 2012...

RIGHT: Jan Kotzé delivered the opening address at the conference cocktails session sponsored by ArcelorMittal SA.

BELOW: Peter Petereit and Kurt Tischler of Siemens (Germany), enjoying some South African wine.

SMMH 2012

The 2nd International Conference on Structures for Mining and related Materials Handling was hosted by the SAISC in Vanderbijlpark at the Riverside Lifestyle Resort, 15 - 18 October 2012. The event attracted local and international presenters, attendants and exhibitors, who all share specialist interest in this focus area. Post event feedback indicates that the content covered across the four days was meaningful, offering special insights into diverse aspects and the opportunity for questions and some in-depth discussion of relevant issues. If you are interested in copies of papers, presentations or more of the event pictures, please contact Marlé Lötter at marle@saisc.co.za.



SAISC AGM

The SAISC Council and Board for 2013 as elected at the SAISC AGM of 15 November 2013 at the Country Club Johannesburg.

SAISC COUNCIL 2013

LEFT: Front (L to R) Paolo Trinchero, Mike Lomas, Dr Hennie de Clercq, Kobus de Beer, Spencer Erling, Neels van Niekerk.

Back: Neil Penson, Jim Guild, Sunil Kumar, John Swallow, Eileen Pretorius, Marius Botes, Sunthosh Balchund, Johnny Venter, Hannes Basson.

Council members not in the picture: Mike Borello, Dodds Pringle, Michael Papanicolau.

SAISC BOARD 2013

RIGHT: Front (L to R) Johnny Venter, Mike Lomas, Dr Hennie de Clercq, Paolo Trinchero.

Back: (L to R)Tim Tasioulas, John Swallow, Spencer Erling, Marius Botes, Kobus de Beer.

SASFA YEAR END LUNCH

SASFA Director John Barnard (4th from left) at La Campagnola in Bryanston on 6 December 2012 to celebration the year's LSFB successes.

MEMBERS OF THE NEWLY ELECTED EXCO FOR SASFA FOR 2013

ABOVE: Back (L to R) Harold Rugara (Circle Capital Developments), Chris Smith (Razorbill), Mulder Kruger (Trumod), Reitze Hylkema (Kare).

Front (L to R) Mike Bywater (Global Innovative Building Systems), John Barnard (SASFA), Hannes Basson (ArcelorMittal SA) – SASFA Chairman for 2013, Brent Harris (Vela SBS) immediate past Chairman, Edwin Mashigo (Monl Frames).

Not in the picture: Dr H de Clercq (SAISC), Stewart Murray (MiTek), Jurgen Stragier (Everite), Garry Powell (Saint-Gobain), Christo Newman (Lafarge Gypsum).

SEEDS OF AFRICA

PLANTING THE SEEDS OF ENTREPRENEURIAL GROWTH AND JOB CREATION

In 2012 the Institute chose Seeds of Africa as their community upliftment project to receive the funds donated at the Gauteng Steel Awards event. It made sense in so many ways: Seeds of Africa fitted in well with our 'green theme'; one of our partner sponsors, NJR Steel, has been the main donor for the initiative for many years and Seeds of Africa is all about empowering people through skills development.

Seeds of Africa runs regular training workshops for the business members under their umbrella.

"The proper aim of giving is to put the recipients in a state where they no longer need our gifts." — C.S. Lewis

The SAISC introduced a new element to the Steel Awards evening for the first time in 2010 when it started a lucky draw to give away the centre pieces of the tables and combined it with a voluntary donation activity for the guests. It was an astounding success and brought the message home that community upliftment benefits all involved in the long run - those who give and those who receive.

To choose the appropriate community project each year is not easy because there are so many worthwhile causes to support – so where do you start? Luckily there has always been a person or member company who brought our attention to the most fitting cause for the occasion. In 2012 the Institute chose Seeds of Africa as their community upliftment project to receive the funds donated at the Gauteng event. It made sense in so many ways: Seeds of Africa fitted in well with our 'green theme'; one of our partner sponsors, NJR Steel, has been the main donor for the initiative for many years and Seeds of Africa is all about

Seeds of Africa planting the trees donated by SAISC in local community. The trees were planted at the Thabo Mbeki Village, Drummond Community and Mzala Community

Jane Chapman (Founding Member) of Seeds of Africa and Milton Mzobe (Skills Centre Manager) outside the skill centre.

empowering people through skills development. They are also in the process of initiating a welding training facility in the near future.

Seeds of Africa is an enterprise and skills development initiative based at the Ngwenya Glass Village in Muldersdrift, North of Johannesburg. This non-profit organisation provides skills training for local artisans in previously disadvantaged communities and mentors them in the process of setting up their own businesses, thereby creating sustainable employment and helping to alleviate the extreme poverty endured by so many in the informal sector.

They currently have 20 businesses operating under its banner each creating unique products in the areas of beading, sewing, embroidery, wirework, making handmade boxes and cards, ceramics, piñatas, welding, carpentry, making and bottling a delicious range of condiments including peppers, olives and jalapeno chilies and growing organic herbs, vegetables and indigenous plants.

According to founder Jane Chapman the key feature which differentiates Seeds of Africa is its comprehensive offering.

“In addition to start-up funding we provide support and training at every level. It is essential to empower the people who produce these

products so that they can create successful income-generating businesses for the future.

"The businesses are run according to the African Co-operative Action Trust (ACAT) model which focuses on long-term growth by teaching modules in business skills, basic life-skills, HIV Aids and health awareness. Over and above this we provide digital literacy programmes, guidance on product development, quality control as well as marketing, distribution and sales support."

After training the participants form business groups of up to five people called 'G5s' where they discuss, negotiate and eventually write their own constitution, business plan and open a bank account. Each G5 has a mentor with whom they meet weekly to monitor their progress and their financial records. Mentors are committed to the group for three years with their involvement decreasing over time.

Through producing their own products and having the opportunity to run their own businesses, the dignity of the artisans is re-enforced. Helplessness diminishes and is replaced with confidence and renewed pride. Another spill-over is the preservation of heritage and culture. The embroidery, ceramics and beading which are produced are rich in colour and texture and tell the story of our unique nation, drawing on designs that date back centuries.

Seeds of Africa has its roots in the Refilwe Skills Project which was founded by Jane in 2002. When her daughter was in Grade 8 at St. Stithians Girls' College, she and a group from the school visited Refilwe to do community service. Jane saw the poverty and sense of hopelessness and despair and was determined to make a difference. She managed to secure a small donation for tools and materials and started to train 20 people in beading, sewing, baking, wirework and welding all working from their shacks.

In November 2010 the project was moved into an eight-roomed house at the Ngwenya Glass Village. The move has meant an improvement in business systems and also in the design and production of the products. The project had also outgrown the ambit of the Refilwe project and a separate Section 21 company, Seeds of Africa, was formed.

The Seeds of Africa skills centre now comprises a showroom and retail outlet for the enterprises as well as a training centre and computer facility. A number of the businesses work from the centre together with an administrative staff which offers support to all the businesses.

"We are now seeing the results. Clement Mkhize of Ceramic Art, one of the businesses under our umbrella has formed a partnership with Heidi Snaith of Décor Gift Boutique and their products are being exported overseas. Our other success stories include a new crockery range being sold in the Moyo Restaurant Gift Stores and the opportunity to work with the Design Team making quilts, tablecloths, napkins, placemats, aprons and goodie bags which are being produced by a team of 19 skilled seamstresses. We have also teamed up with Africology and are producing magnificent fabric gift boxes containing their products," says Jane.

CALENDAR OF EVENTS

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

STEEL INNOVATIONS 2013 CONFERENCE
21 - 22 February 2013
Christchurch, New Zealand
http://www.scnz.org/magazine/scnzconference_steelinnovation2013/

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 (GAUTENG)
8 May 2013
Houghton Golf Club

LSFB ERECTION COURSES (6 DAYS)
29 July -3 August, Durban
28 October – 2 November, Cape Town
Dates are provisional.
Visit www.sasfa.co.za for more info

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/

SAISC, ISF AND SASFA AGM 2013
7 November 2013
Country Club Johannesburg, Auckland Park

SAISC COURSES
Please note all the dates have not been finalised. Please contact Tiana Ferreira for more information: tiana@saisc.co.za

Course	JHB	DBN	Cape Town
Estimating course	13 x Tuesday mornings from 12 March		
Connections course	8, 9 April	11, 12 April	15, 16 April
Loading code course	29, 30 April	24, 25 April	22, 23 April
Knowledge of steel course	14, 15 May		
Design of light industrial buildings course		11, 12 June	
Composite construction course	1 July	26 June	24 June

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

WELDING TRAINING CENTRE – AN OPPORTUNITY FOR THE STEEL CONSTRUCTION INDUSTRY

Jane has a new project in the pipeline and that is to start a welding training centre that would train potential welders to either start their own welding operations or give them sufficient skills to be eligible for employment in steelwork contractor companies. But welding equipment and training materials are sophisticated and expensive. At the moment Seeds of Africa does not have sufficient funding to get the project off the ground. Here is an opportunity for the steel construction industry to assist with a project that is close to home. So Steel Construction is appealing to SAISC members and others to contact Jane and enquire about how they can assist in making this project a reality.

Seeds of Africa meets the requirements of both the Departments of Enterprise Development and Socio-Economic Development. Any investment in Seeds of Africa through Corporate Social Investment (CSI) budgets is recognised on the Black Economic Empowerment (BEE) scorecard and is tax deductable.

Sewing Ladies at work (Jabula and Zamula Mama's Co-operatives).

For more information contact Sally Viljoen at sally@seedsofafrica.co.za or visit www.seedsofafrica.co.za

Skills Centre

Tel: +27 11 796 3005 / +27 73 268 1944
Fax: +27 86 696 2999

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STEEL FUTURE Conference –
5 & 6 March 2013

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SAISC Members Contacts Database

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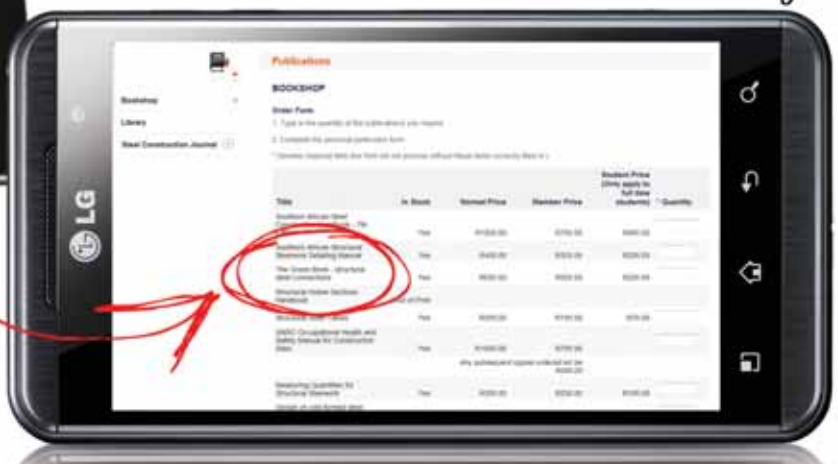

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SAISC MEMBERSHIP

STEEL PRODUCERS

ArcelorMittal South Africa
Representative: Hannes Basson
Tel: +27 16 889 3189
Fax: +27 16 889 2022
hannes.basson@arcelormittal.com
www.arcelormittal.com

Davsteel (Pty) Ltd
Representative: Martin Friedman
Tel: +27 16 980 2121
friedmnm@capegate.co.za
www.capegate.co.za

EVRAZ Highveld Steel & Vanadium
Representative: Jerry Reed
Tel: +27 11 663 0280
Fax: +27 11 454 0576
jerryr@evrazhighveld.co.za
www.evrazhighveld.co.za

Scaw Metals Group
Representative: Chris Booysen
Tel: +27 11 842 9364
Fax: +27 11 842 9705
millsales@scaw.co.za
www.scaw.co.za

STEELWORK CONTRACTORS

Eastern Cape

Uitenhage Super Steel cc
Representative: Ginkel Venter
Tel: +27 41 922 8060
Fax: +27 41 992 5923
ginkel@uss.co.za

Gauteng

A Leita Steel Construction (Pty) Ltd*
Representative: Claudio J Leita
Tel: +27 12 803 7520
Fax: +27 12 803 4360
claudio@aleita.co.za
www.aleita.co.za

Aveng Steel Fabrication*
Representative: Mike Dos Santos
Tel: +27 41 871 4111
Fax: +27 41 871 4141
mdossantos@grinaker-lta.co.za
www.avenggrinaker-lta.co.za

Bankos Distributors cc
Representative: Greg McCree
Tel: +27 11 026 8359
gregm.bmg@vodamail.co.za
www.bmgprojects.co.za

Bessemer (Pty) Ltd
Representative: Fritz Hoogendyk
Tel: +27 11 762 5341
Fax: +27 11 762 5345
bessemer@iafrica.com

Betterect (Pty) Ltd
Representative: Thomas Siebert
Tel: +27 11 762 5203
Fax: +27 11 762 5286
thomas@betterect.co.za
www.betterect.com

Boksan Projects cc
Representative: L Boksan
Tel: +27 11 316 2172
Fax: +27 11 316 1645
laszlo@boksan.co.za

Branch Engineering (Pty) Ltd*
Representative: Shannon Van Den Heuwel
Tel: +27 11 493 1197
Fax: +27 11 493 7884
shannon@branchengineering.co.za

Cadcon (Pty) Ltd
Representative: Richard Butler
Tel: +27 12 664 6140
Fax: +27 12 664 6166
richbutler@cadcon.co.za
www.cadcon.co.za

Carbon Steel Fabricators
Representative: Duncan Viljoen
Tel: +27 16 986 9200
Fax: +27 16 986 0700
duncan.viljoen@vbvholdings.com
www.vbvholdings.com

Central Welding Works
Representative: Stephen Horwitz
Tel: +27 12 327 1718
Fax: +27 12 327 1727
stephen@cwwpta.co.za

CIS Engineering (Pty) Ltd
Representative: Christo Marais
Tel: +27 16 422 0082
Fax: +27 16 422 0975
christo@cisengineering.co.za
www.cisengineering.co.za

Concor Engineering (a Division of Concor Holdings (Pty) Ltd)*
Representative: Mile Sofijanic
Tel: +27 11 249 7800
Fax: +27 11 249 7984
mile.sofijanic@murrob.com
www.engineering.concor.co.za

Cosira South Africa (Pty) Ltd*
Representative: John da Silva
Tel: +27 86 126 7472
Fax: +27 11 626 2917
john.dasilva@cosira.com
www.cosira.com

Fabricated Piping Systems SA (Pty) Ltd
Representative: Craig Fyall
Tel: +27 11 828 4388
Fax: +27 11 828 2147
craig@fabpipe.co.za

Ferro Eleganza (Pty) Ltd
Representative: Chris Narbonese
Tel: +27 12 803 8035
Fax: +27 12 803 5645
chris@ferroe.co.za
www.ferroe.co.za

Genrec Engineering (Pty) Ltd*
Representative: Mike Borello
Tel: +27 11 876 2308
Fax: +27 86 765 0363
mike.borello@murrob.com
www.genreceng.co.za

IVMA Engineering cc
Representative: Mauro Munaretto
Tel: +27 11 814 3124
Fax: +27 11 814 1505
ivma@ivma.co.za
www.ivma.co.za

Khombanani Steel (Pty) Ltd
Representative: Tim Tasioulas
Tel: +27 11 975 0647
Fax: +27 11 970 1694
accounts@khombanani.co.za

Linrose Engineering Gauteng (Pty) Ltd*
Representative: Jorge Pereira
Tel: +27 11 827 0314
Fax: +27 11 827 0878
linrose@icon.co.za
www.linrose.co.za

Louwill Engineering (Pty) Ltd
Representative: Deon Kotzé
Tel: +27 11 818 5186
Fax: +27 11 818 5185
deon@louwill.co.za
www.louwill.co.za

MAC Engineering cc
Representative: Mino Carniel
Tel: +27 11 814 1834
Fax: +27 11 814 6620
mino@maceng.co.za
www.maceng.co.za

Magnet Engineering (Pty) Ltd
Representative: Paul G Catalo
Tel: +27 11 908 3500
Fax: +27 11 908 2723
paulocatalo@snet.co.ao
www.magnetengineering.co.za

Malitech Engineering
Representative: Sipho Malinga
Tel: +27 16 931 2069/ 2072
Fax: +27 16 931-2255
smalinga@malitech.co.za
www.malitech.co.za

Midvaal Structures (Pty) Ltd
Representative: Christo Van Dyk
Tel: +27 16 365 5961
Fax: +27 16 365 5951
christo@steelstructures.co.za
www.steelstructures.co.za

MM & G Mining & Engineering Services (Pty) Ltd
Representative: Dawie Vos
Tel: +27 11 914 4740
Fax: +27 11 914 4673
dvos@mmg.co.za
www.mmandg.co.za

MPW Steel Construction (Pty) Ltd
Representative: Paolo Visentin
Tel: +27 11 887 8430
Fax: +27 866 856 543
paolo@sgiuricich.co.za

Okirand Construction
Representative: Rowan Forte
Tel: +27 11 465 8599
Fax: +27 86 577 9890
rowan@okirand.co.za
www.okirand.co.za

OmniStruct Nkosi (Pty) Ltd
Representative: Dave van Asche
Tel: +27 11 474 9140
Fax: +27 11 474 7487
dave@osn.co.za
www.omnistruct.co.za

PH Projects
Representative: Andries Du Plessis
Tel: +27 11 828 0427
Fax: +27 11 828 0442
engela@phgroup.co.za
www.phgroup.co.za

Prospan Structures cc
Representative: David Paola
Tel: +27 11 440 2116
Fax: +27 11 440 2135
david@prospan.co.za
www.prospan.co.za

QM Steel cc
Representative: Quintin Venter
Tel: +27 11 864 7885
Fax: +27 86 594 2008
info@qmsteel.co.za
www.qmsteel.co.za

SASSI Metal Innovations cc
Representative: Ignazio Plumari
Tel: +27 11 795 4049
Fax: +27 11 794 4684
info@sassi-biab.com

SE Steel Fabrication (Pty) Ltd
Representative: David J Essey
Tel: +27 11 953 4584
Fax: +27 11 660 5855
sesteel@icon.co.za

Sectional Poles (Pty) Ltd*
Representative: Phil M Koen
Tel: +27 12 348 8660
Fax: +27 12 348 9195
pkoen@sectionalpoles.co.za
www.sectionalpoles.co.za

SMEI Projects (Pty) Ltd
Representative: Sandy Pratt
Tel: +27 11 914 4101
Fax: +27 11 914 4108
afpratt@smei.co.za
www.smei.co.za

Spiral Engineering cc
Representative: Colin Kirkland
Tel: +27 11 474 9119
Fax: +27 11 474 6528
colin@spiralengineering.co.za
www.spiralengineering.co.za

Steel Band Construction cc
Representative: Steven Smit
Tel: +27 44 874 6554
Fax: +27 44 884 1422
steelband@icon.co.za

Structa Technology (Pty) Ltd
Representative: Hercules Rossouw
Tel: +27 16 362 9100
Fax: +27 16 362 3608
hercules@structa.co.za
www.structa.co.za

Tass Engineering (Pty) Ltd
Representative: Tim Tasioulas
Tel: +27 11 975 0647
Fax: +27 11 970 1694
tim@tasseng.co.za
www.tass.co.za

Tegmul Engineering (Pty) Ltd
Representative: Toby Esterhuizen
Tel: +27 16 362 2007
Fax: +27 16 362 1188
tobie@tegmul.co.za

Trentbridge Engineering cc
Representative: David Hunter
Tel: +27 16 365 5327
Fax: +27 16 365 5320
trentfab@intekom.co.za

Tudor Engineering & Draughting cc
Representative: Braam Beukes
Tel: +27 11 914 5163
Fax: +27 11 914 5165
hotah@nettron.co.za

Van Driel's Steel Construction
Representative: Robby van Driel
Tel: +27 16 341 6102/5
Fax: +27 16 341 6685
vdriel@mweb.co.za

Viva Steelfab Engineering (Pty) Ltd
Representative: Collen Gibbs
Tel: +27 11 454 3405
Fax: +27 11 454 5694
colleng@vivaeng.co.za

WBHO Services North
Representative: Andrew Breckenridge
Tel: +27 11 265 4000
Fax: +27 11 310 3578
andrewb@wbho.co.za
www.wbho.co.za

KwaZulu-Natal

Avellini Bros (Pty) Ltd
Representative: Pietro Avellini
Tel: +27 31 464 0421
Fax: +27 31 464 0966
ravellini@iafrica.com

BNC Projects (Pty) Ltd
Representative: Sunthosh Balchund
Tel: +27 31 902 3777
Fax: +27 31 902 6798
balchunds@bncprojects.co.za
www.bncprojects.co.za

Churchyard & Umpleby*
Representative: Keith Ball
Tel: +27 31 705 4008
Fax: +27 31 705 5815
keith@candu.co.za
www.candu.co.za

Cousins Steel International (Pty) Ltd
Representative: Adam Oldfield
Tel: +27 31 312 0992
Fax: +27 31 303 5299
adam@cousinssteel.co.za
www.cousinssteel.co.za

Impact Engineering*
Representative: Douglas Nidd
Tel: +27 32 947 1054
Fax: +27 32 947 2017
impact@saol.com
www.impacteng.co.za

Ogilvie Engineering
Representative: Allan Olive
Tel: +27 31 700 6489
Fax: +27 31 700 6488
ogilvadmin@lantic.net

PJ Projects
Representative: Russell Welsh
Tel: +27 35 751 1006
Fax +27 35 751 1016
russell@pjprojectsrb.co.za
www.pjprojectsrb.co.za

Rebcon Engineering (Pty) Ltd
Representative: Warren Butler
Tel: +27 31 705 5851
Fax: +27 31 705 5855
warren@rebcon.co.za
www.rebcon.co.za

Robsteel Structures cc
Representative: Rob Drysdale
Tel: +27 32 946 1922
Fax: +27 32 946 2138
rob@robsteel.co.za

Redfab Engineering (Pty) Ltd
Representative: Jay Reddy
Tel: +27 31 463 1673
Fax: +27 31 463 1659
jay@redfab.co.za

SHM Engineering cc
Representative: Ahmed Kadodia
Tel: +27 31 465 5463
Fax: +27 31 465 4680
shmadmin@isweb.co.za
www.shmeng.co.za

SpanAfrica Steel Structures (Pty) Ltd*
Representative: James Pinnell
Tel: +27 33 346 2555
Fax: +27 33 346 1242
pinnell@sai.co.za

Mpumalanga

B & T Steel*
Representative: Trevor van Vuuren
Tel: +27 13 665 1914
Fax: +27 13 665 1881
marketing@btsteel.co.za
www.btsteel.co.za

Da Costa Construction Welding cc
Representative: Tobie Oosthuizen
Tel: +27 17 647 1130
Fax: +27 17 647 6091
tobie@dcconstruction.co.za

Quality Steel
Representative: Andre D Potgieter
Tel: +27 13 752 2723/4
Fax: +27 13 752 2407
andre@qualitysteel.co.za
www.qualitysteel.co.za

Steval Engineering (Pty) Ltd
Representative: Thys van Emmenis
Tel: +27 83 650 3484
Fax: +27 13 758 1050
thys@steval.co.za
www.steval.co.za

Tubular Technical Construct (Pty) Ltd
Representative: Tony Trindade
Tel: +27 13 690 2335
Fax: +27 13 656 2408
tony.t@tubular.co.za
www.tubular.co.za

North West

Motheo Steel Engineering
Representative: Lesedi Molate
Tel: +27 14 565 3482
Fax: +27 14 565 3480
reception@motheosteel.co.za

Rutherfords
Representative: Cecil Rutherford
Tel: +27 18 293 3632
Fax: +27 18 293 3634
cecilr@rutherfords.co.za
www.rutherfords.co.za

Steel Services and Allied Industries
Representative: Kevin Harris
Tel: +27 18 788 6652/3
Fax: +27 86 575 1790
kevinh@steelservices.co.za
www.steelservices.co.za

Western Cape

Inenzo Water (Pty) Ltd
Representative: Jan Cloete
Tel: +27 21 948 6208
Fax: +27 21 948 6210
jcloete@inenzo.com
www.inenzo.com

Mazor Steel cc
Representative: Shlomo Mazor
Tel: +27 21 556 1555
Fax: +27 21 556 1575
judy@mazor.co.za
www.mazor.co.za

Prokon Services (Pty) Ltd
Representative: Martin Lotz
Tel: +27 21 905 4448
Fax: +27 21 905 4449
martin@prokonservices.co.za
www.prokonservices.co.za

Scott Steel Projects
Representative: Dave N Scott
Tel: +27 21 671 3176
Fax: +27 21 671 8736
dave@scottsteel.co.za
www.scottsteel.co.za

Union Structural Engineering Works
Representative: Mike N Papanicolaou
Tel: +27 21 534 2251
Fax: +27 21 534 6084
michael@unionsteel.co.za
www.unionsteel.co.za

DEVELOPING/EMERGING CONTRACTORS

Elkan Engineering (Pty) Ltd
Representative: Tjaart De Bruyn
Tel: +27 13 230 9674
Fax: +27 13 230 9674
tdebruyn@elkaneng.co.za

Four Tops Engineering Services cc
Representative: Essau Motloung
Tel: +27 72 229 9128
Fax: +27 866 911 619
fourtopseng@vodamail.co.za

Maree Structural
Representative: Johan Maree
Tel: +27 82 458 5365
Fax: +27 86 678 5876
johan@maree.co.za
www.maree.co.za

Sach-Warr Construction cc
Representative: Kesavan Moonsamy
Tel: +27 83 283 6636
Fax: +27 11 760 2595
isaac@sachwarreng.co.za

Zamani Engineering Services cc
Representative: David Nkosi
Tel: +27 13 656 1978
Fax: +27 13 656 1979
admin@zamaniengineering.co.za

STEEL MERCHANTS & SERVICE CENTRES

Gauteng

Aveng Trident Steel (Pty) Ltd*
Representative: Alan van Rooyen
Tel: +27 11 861 7111
Fax: +27 11 865 2042
Tel: +27 11 908 4686
Fax: +27 11 864 7629
alan.vanrooyen@trident.co.za
www.trident.co.za

Clotan Steel
Representative: Danie Joubert
Tel: +27 16 986 8000
Fax: +27 16 986 8050
daniej@clotansteel.co.za
www.clotansteel.co.za

Genesis Steel (Pty) Ltd
Representative: Eric MacDdonald
Tel: +27 11 817 4008
Fax: +27 865 304 152
eric@genesissteel.co.za
www.genesissteel.co.za

Macsteel Service Centres SA (Pty) Ltd*
Representative: Dave Dawkshas
Tel: +27 11 871 0000
Fax: +27 11 824 4994
dave.dawkshas@macsteel.co.za
www.macsteel.co.za

Macsteel Trading Germiston South
Representative: Granville Rolfe
Tel: +27 11 871 4677
Fax: +27 11 871 4667
granville.rolfe@mactrading.co.za

Macsteel V R N
Representative: Mike Hall
Tel: +27 11 861 5200
Fax: +27 11 861 5203
main@vrn.co.za
www.vrnsteel.co.za

NJR Steel Holdings (Pty) Ltd
Representative: Colin Chapman
Tel: +27 11 477 5515
Fax: +27 11 477 5550
cchapman@njrsteel.co.za
www.njrsteel.co.za

Stewarts & Lloyds Holdings (Pty) Ltd
Representative: Hermien De La Marie
Tel: +27 11 553 8500
Fax: +27 11 553 8510
hermien@sltrading.co.za
www.stewartsandlloyds.co.za

KwaZulu-Natal

Macsteel Trading Durban
Representative: Paul Simpson
Tel: +27 31 913 2600
Fax: +27 31 902 2345
paul.simpson@mactrading.co.za

Western Cape

Macsteel Trading Cape Town
Representative: Maria Francis
Tel: +27 21 950 5506
Fax: +27 21 950 5600
maria.francis@mactrading.co.za

Transcape Steels (Pty) Ltd
Representative: Carl van Rooyen
Tel: +27 21 534 3211
Fax: +27 21 534 5890
carlvr@transcape.co.za
www.transcapesteels.co.za

STEEL PRODUCT MANUFACTURERS

Gauteng

Augusta Steel (Pty) Ltd
Representative: Nico Erasmus
Tel: +27 11 914 4628
Fax: +27 11 914 4748
nico@augustasteel.co.za
www.augustasteel.co.za

Bolt & Engineering Distributors
Representative: Mike Giltrow
Tel: +27 11 824 7500
Fax: +27 11 824 0890
mike@bolteng.co.za
www.bolteng.co.za

Cavotec Gantrex (Pty) Ltd Group
Representative: Johann M Jankowitz
Tel: +27 11 963 0015
Fax: +27 11 963 0064
gantrex@netactive.co.za
www.cavotec.com

CBC Fasteners (Pty) Ltd
Representative: Rob J. Pietersma
Tel: +27 11 767 0000
Fax: +27 11 767 0150
rob@cbc.co.za
www.cbc.co.za

First Cut (Pty) Ltd
Representative: Steve Van Wyk
Tel: +27 11 614 1112
Fax: +27 11 614 1121
stevev@firstcut.co.za
www.firstcut.co.za

George Stott & Co (Pty) Ltd
Representative: Johan Venter
Tel: +27 11 474 9150
Fax: +27 11 474 8267
johanv@geostott.co.za
www.geostott.co.za

Global Roofing Solutions (Pty) Ltd
Representative: Johan van der Westhuizen
Tel: +27 11 898 2902
Fax: +27 11 892 1455
johan@globalroofs.co.za
www.global-roofing-solutions.co.za

Grating World (Pty) Ltd
Representative: George Whittle
Tel: +27 11 452 1150/1/3
Fax: +27 11 452 2536
george@gratingworld.co.za
www.gratingworld.co.za

Horne Hydraulics cc
Representative: Deon Sharp
Tel: +27 11 974 1004
Fax: +27 11 392 5650
deons@horne-group.com
www.horne.co.za

Le Blanc Communications SA
Representative: William Brough
Tel: +27 11 814 1404
Fax: +27 11 814 1444
rosstan@worldonline.co.za
www.lightingstructures.co.za

Macsteel Roofing
Representative: Dennis White
Tel: +27 11 878 7500
Fax: +27 11 827 1890
dennis.white@macroofing.co.za

Macsteel Tube and Pipe
Representative: Peter Curr
Tel: +27 11 897 2100
Fax: +27 11 826 6333
peter.curr@mactube.co.za

Mentis Sales
Representative: Chris Green
Tel: +27 11 255 3200
Fax: +27 11 828 1463
cjgreen@mentis.co.za
www.mentis.co.za

MiTek Industries SA (Pty) Ltd
Representative: Stewart Murray
Tel: +27 11 237 8700
Fax: +27 86 644 4359
smurray@mitek.co.za
www.mitek.co.za

Project Materials Southern Africa (Pty) Ltd
Representative: Neil Myburgh
Tel: +27 11 465 4247 or +27 79 898 2086
Fax: +27 86 624 7970
neil.myburgh@pmpiping.com

Robor (Pty) Ltd
Representative: David van Staaden
Tel: +27 11 977 2029
davidvs@robor.co.za
www.robor.co.za

Robertson Ventilation International (RVI)
Representative: Eric Whelan
Tel: +27 11 608 4640/1
Fax: +27 11 608 6443
ericw@robventind.co.za
www.robventind.co.za

Safintra Roofing & Steel (Pty) Ltd
Representative: Sally Stromnes
Tel: +27 11 944 6800 / 0861 723 542
Fax: +27 11 783 1128
sallys@safintra.co.za
www.safintra.co.za

Vital Engineering & Angus Mcleod (Pty) Ltd*
Representative: Dodds B Pringle
Tel: +27 11 898 8500
Fax: +27 11 918 3000
dodds@gratings.co.za
www.gratings.co.za

KwaZulu-Natal

Safal Steel (Pty) Ltd
Representative: Tammy Grove
Tel: +27 31 782 5500
Fax: +27 31 782 1400
marketing@safalsteel.co.za
www.safalsteel.co.za

Northern Cape

Rufco Engineering cc
Representative: Gandeloro Ruffini
Tel: +27 53 313 1651
Fax: +27 53 313 2081
info@rufco.co.za
www.rufco.co.za

Vonmeg Staalwerke
Representative: Niel Dippenaar
Tel: +27 27 712 2606 or
+27 82 808 4650
Fax: +27 86 5809166
niel@vonmeg.co.za

North West

Almec Manufacturing cc
Representative: Joan Basson
Tel: +27 18 469 3202
Fax: +27 18 469 3200
joanalmec@gds.co.za
www.almecmanufacturing.co.za

PEL Construction
Representative: Ben Delport
Tel: +27 18 469 3894
Fax: +27 18 469 2783
ben@pel.co.za

WJ Engineering (Pty) Ltd
Representative: Bert J Werkman
Tel: +27 18 294 3395
Fax: +27 18 294 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: +27 11 392-9860
Fax: +27 86 525-1397
manape@duvhaliswa.co.za
www.duvhaliswa.co.za

TRANSMISSION LINE MANUFACTURERS

Babcock Ntuthuko Powerlines
Representative: Damiano Pavan
Tel: +27 11 739 8200
Fax: +27 11 739 8201
Damiano.Pavan@Babcock.co.za
www.babcock.co.za

Megatron Federal a division of Ellies
Representative: Sava Savov
Tel: +27 10 001 0202
sava@megatronfederal.com
www.megatronfederal.com

TLE (Pty) Ltd
Representative: Cesare Di Giacomo
Tel: +27 11 242 6611
Fax: +27 11 242 6644
adele@tle.za.net
www.tle.za.net

Tricom Structures cc
Representative: Udo Topka
Tel: +27 12 803 0041
Fax: +27 12 803 6040
udo@tricom1.co.za
www.tricom1.co.za

CORROSION & FIRE PROTECTION TO STEEL

Gauteng

Armco Galvanisers (Pty) Ltd
Representative: Dave Fensham
Tel: +27 11 974 8511
Fax: +27 11 974 8510
mail@armco.co.za
www.armco.co.za

Bulldog Projects (Pty) Ltd
Representative: Mike Book
Tel: +27 11 825 1070
Fax: +27 11 825 7832
mike@bulldogprojects.co.za
www.bulldogprojects.co.za

Hot Dip Galvanizers Association of SA
Representative: Terry Smith
Tel: +27 21 797 4735
terry@hdgasa.org.za
www.hdgasa.org.za

Pyro-Cote cc
Representative: Trevor Miller
Tel: +27 11 864 5205
Fax: +27 11 908 6636
pyrocotejhb@pyrocote.co.za
www.pyrocote.co.za

CRANES

Gauteng

RGM Cranes
Representative: John Ford
Tel: +27 83 607 5303
john@rgm.co.za

CONSULTING ENGINEERS, CIVIL ENGR CONTRACTORS & PROJECT MANAGERS

Gauteng

Acecad Software Ltd
Representative: Paul Marais
Tel: +27 87 150 5556
Fax: +27 86 552 5129
p.marais@acecad.co.za
www.acecadsoftware.com

AECOM SA (Pty) Ltd*
Representative: Siyanda Ngebulana
Tel: +27 12 421 3824
Fax: +27 86 299 2137
siyandan@bks.co.za
www.aecom.co.za

Aurecon South Africa (Pty) Ltd*
Representative: Tomme Katranas
Tel: +27 12 427 2470
Fax: +27 86 607 7838
Tomme.Katranas@af.aurecongroup.com
www.aurecongroup.com

Arup (Pty) Ltd
Representative: Ric Snowden
Tel: +27 11 218 7600
Fax: +27 11 218 7876
ric.snowden@arup.com
www.arup.com

Basil Read (Pty) Ltd*
Representative: Glenn Chamberlain
Tel: +27 11 418 6300
gchamberlain@basilread.co.za
www.basilread.co.za

Bateman Projects Limited
Representative: Kurt Waelbers
Tel: +27 11 899 9111
Fax: +27 11 899 2660
kurt.waelbers@bateman.com
www.batemanengineering.com

Bigen Africa Services (Pty) Ltd
Representative: Johann Human
Tel: +27 12 842 8840
Fax: +27 12 843 9000
johann.human@bigenafrica.com
www.bigenafrica.com

Clearspan Structures (Pty) Ltd
Representative: Jeff Montjoie
Tel: +27 11 823 2402
Fax: +27 11 823 2582
jmo@clearspan.co.za
www.clearspan.co.za

DRA Mineral Projects
Representative: Leon Uys
Tel: +27 11 202 8600
Fax: +27 11 202 8807
luys@drasa.co.za
www.drasa.co.za

Fluor SA (Pty) Ltd
Representative: Carlo Zambon
Tel: +27 11 233 3400
Fax: +27 11 233 3522
carlo.zambon@fluor.com
www.fluor.com

FLSmidth Roymec (Pty) Ltd
Representative: Malcolm Royal
Tel: +27 10 210 4000
Fax: +27 10 210 4050
malcolm.royal@flsmidth.com
www.roymec.co.za

Goba (Pty) Ltd
Representative: John Cowden
Tel: +27 11 236 3300
Fax: +27 11 807 8535
johnc@goba.co.za
www.goba.co.za

Group Five Projects (Pty) Ltd
Representative: Caroline Combrink
Tel: +27 11 899 4697
Fax: +27 11 918 2902
ccombrink@groupfive.co.za
www.groupfive.co.za

Hatch Africa (Pty) Ltd
Representative: Francois du Toit
Tel: +27 11 239 5300
Fax: +27 11 239 5790
fdutoit@hatch.co.za
www.hatch.co.za

Holley and Associates cc
Representative: David Haines
Tel: +27 11 803 1159
Fax: +27 11 803 0970
david@holleyassociates.com
www.holleyassociates.com

Malani Padayachee and Associates (Pty) Ltd (shortened version MPA (Pty) Ltd)
Representative: Malani Padayachee-Saman
Tel: +27 11 781 9710
Fax: +27 11 781 9711
admin@mpaconsulting.co.za
www.mpaconsulting.co.za

Marais Incorporated•
Representative: Kobus Marais
Tel: +27 82 904 4657
maraisincorporated@gmail.com

MDS NDT Consultants (Pty) Ltd
Representative: Shaun Green
Tel: +27 11 615 7240
Fax: +27 11 615 8913
info@mds-skills.co.za
www.mds-skills.co.za

Pollock Williams James & Partners cc
Representative: Tim James
Tel: +27 11 679 2282
Fax: +27 11 679 384
pwp@iafrica.com

SH Services
Representative: Simon Du Toit
Tel: +27 11 918 1991
Fax: +27 11 918 1994
shsccs@global.co.za

TWP Projects (Pty) Ltd
Representative: Mushir Khan
Tel: 086 TWP TWP (897 897)
Fax: +27 11 218 3000
mkhan@twp.co.za
www.twp.co.za

WAH Engineering Consultants cc
Representative: Graham Cross
Tel: +27 11 888 2150
Fax: +27 11 888 2296
grahamc@waheng.co.za

WSP Group Africa (Pty) Ltd
Representative: John Truter
Tel: +27 11 300 6000
Fax: +27 11 300 6001
john.truter@wspgroup.co.za
www.wspgroup.co.za

KwaZulu-Natal

Gavin R Brown & Associates
Representative: Gavin R Brown
Tel: +27 31 202 5703
Fax: +27 31 202 5708
gavbrown@global.co.za
www.gavbrown.co.za

Young & Satharia Structural & Civil Engineering
Representative: Rob Young
Tel: +27 31 207 7252
Fax: +27 31 207 7259
rob@yands.co.za
www.yands.co.za

Mpumalanga

Hlakani Engineering Services (Pty) Ltd
Representative: Vivian Swart
Tel: +27 13 246 1824
Fax: +27 13 246 1835
vivian.swart@hlakani.co.za
www.hlakani.co.za

Ijubane Projects (Pty) Ltd
Representative: Kobus Badenhorst
Tel: +27 13 243 4390
Fax: +27 13 243 5005
kobus@glps.co.za
www.glps.co.za

Lategan Bouwer Civil & Structural Engineers
Representative: Anton Van Dyk
Tel: +27 17 634 4150
Fax: +27 17 634 4188
avandyk@latbou.co.za
www.latbou.co.za

Western Cape

By Design Consulting Engineers
Representative: Barend Oosthuizen
Tel: +27 83 287 1995
Fax: +27 86 547 1607
barend@bydesign.org.za
www.bydesign.org.za

Bergstan South Africa
Representative: Alan Davies
Tel: +27 21 487 4900
Fax: +27 21 424 7657
alan@bergstan.co.za
www.engineer.co.za

Kantey & Templer (Pty) Ltd
Representative: Chris Von Geusau
Tel: +27 21 405-9600
Fax: +27 21 419-6774
chrisvg@ct.kanteys.co.za
www.kanteys.co.za

Mondo Cane cc
Representative: Rob Chalmers
Tel: +27 21 852 2447
Fax: +27 21 852 2447
rob@mondocane.co.za
www.mondocane.co.za

Vela VKE Consulting Engineers (Pty) Ltd
Representative: John Anderson
Tel: +27 21 417 2900
Fax: +27 21 417 2999
andersonj@velavke.co.za
www.velavke.co.za

Worley Parsons RSA (Pty) Ltd
Incorporating KV3 Engineers
Representative: Pravesh Naidoo
Tel: +27 21 912 3000
Fax: +27 21 913 3222
pravesh.naidoo@worleyparsons.com
www.worleyparsons.com

MINING HOUSES

Anglo Operations Ltd
Representative:
Tel: +27 11 638 2061
Fax: +27 11 638 4636

SUPPLIERS OF GOODS AND SERVICES TO THE INDUSTRY

Austrian Welding Academy
Bohler Uddeholm Africa (Pty) Ltd
Representative: Tom Rice
Tel: +27 11 571 2390
Fax: +27 866 233 632
tom.r@bohler.co.za
www.bohler.co.za

Kaltenbach GmbH & Co
Representative: Joerg Tetling
Tel: 0049 7621 175400
Fax: 0049 7621 175900
j.tetling@kaltenbach.de
www.kaltenbach.de

Peddinghaus Corporation of South Africa
Respresentative: Sandro Pereira
Tel: +27 82 821 6974
Fax: +27 86 524 0581
patrick-pereira@peddinghaus.com
www.peddinghaus.com

Retecon (Pty) Ltd
Representative: Malcolm Moriarty
Tel: +27 11 976 8600
Fax: +27 11 394 2471
malcolmm@retecon.co.za
www.retecon.co.za

Voortman
Supplier of CNC controlled machinery for the steel processing industry
Tel: +31 548 53 63 73
Fax: +31 548 53 63 74
marketing@voortman.net
www.voortman.net

SASFA MEMBERSHIP LIST

MAJOR MATERIAL SUPPLIERS

ArcelorMittal South Africa
Producer of steel
Hannes Basson
Tel: +27 16 889 3189
hannes.basson@arcelormittal.com
www.arcelormittal.com

Everite Building Products (Pty) Ltd
Producer of fibre cement board
Andrew de Klerk
Tel: +27 11 439 4400
Fax: +27 11 439 4933
adeklerk@groupfive.co.za
www.everite.co.za

Lafarge Gypsum (Pty) Ltd
Producer of gypsum board
Christo Newman
Tel: +27 11 389 4500
christo.newman@gypsum-za.lafarge.com

Saint-Gobain Gyproc SA (Pty) Ltd
Producer of gypsum board
Garry Powell
Tel: +27 11 345 5300
Garry.powell@saint-gobain.com

Saint-Gobain Isover
Producer of insulation products
Tel: +27 11 360 8200
www.owenscorning.co.za

OTHER MATERIAL AND COMPONENT SUPPLIERS

Avlock International
Fastener and equipment supplier
Mohamed Khan
Tel: +27 11 917 2110
mohamed@avlock.co.za
www.avlock.co.za

Kare Industrial Suppliers
Distributor of fasteners
Reitze Hylkema
Tel: +27 11 941 3170
reitze@kare.co.za
www.kare.co.za

Marshall Hinds
Distributor of Tyvek Building Wrap
Denise Paul-Montanari
+27 21 706 3496
denisem@marshallhinds.co.za
www.marshallhinds.co.za

Speedfit Africa
Distributer of John Guest Plumbing and associated technology solutions
Gavin van Heusden
Tel: +27 31 569 3073
Fax: +27 31 569-3074
info@speedfitafrica.co.za
www.speedfitafrica.co.za

United Fibre Cement Company
Distributer of fibre cement products
Leon Bekker
Tel: +27 21 933 0052
leon@ufcc.co.za
www.ufcc.co.za

LSFB MANUFACTURERS

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Planning, design, development & manufacture of modular building solutions
Gonaseelan Govender
Tel: +27 31 309 5561
intercom@iafrica.com
www.containerhouses.com

Circle Capital Developments
Profiler and assembler
Clive Rugara
Tel: +27 11 463 5795
ckr@cicapglobal.com
www.cicapglobal.co.za

Dezzo Roofing
Profiler and assembler
Brandon Harding
Tel: +27 31 713 6571
brandon@dezzo.co.za
www.dezzoroofing.co.za

Hazycrest Lightweight Steel Structures (Pty) Ltd
Large manufacturer
Patrick Swanepoel
Tel +27 31 705 3640
Fax +27 31 705 2656
patrick@hazycrest.co.za

Innosteel (Pty) Ltd
Profiler and assembler
Len Lategan
Tel: +27 11 794 5436
Fax: +27 11 794 2775
info@innosteel.co.za

Kusasa Commodities 148 (Pty) Ltd
Manufacture lightweight steel frame roof trusses and panels
Hannes Venter
Tel: +27 11 908 5255 or
+27 81 313 7161
hannes@kusasa-com.co.za
www.kusasa-com.co.za

Kwikspace Modular Buildings Ltd
Profiler and assembler
Craig Harrison
Tel: +27 11 617 8000
craig@kwikspace.co.za
www.kwikspace.co.za

MiTek Industries South Africa (Pty) Ltd
LSF roof trusses, floors and panels
Uwe Schluter
Tel: +27 11 237 8700
marketing@mitek.co.za
www.mii.com/southafrica

Mohl Frames (Pty) Ltd
LSFB systems & trusses
Tshepo Mashigo
Tel: +27 16 455 3344
Fax: +27 16 455 3655
tshepom@mohlframes.co.za
www.mohlframes.co.za

SA Steelframe Systems
Profiler and assembler of LSF & trusses
Johan Marais
Tel: +27 82 450 0086
johan@steelframe.co.za
www.steelframe.co.za

Siteform Framing
Profiler and assembler
Hendrik Fourie
Tel: +27 51 446 0218
info@siteform.co.za

Steel Frame Developments
Roll-forming and steel frame kits supplied
Ryan Minietti
Tel: +27 83 296 3078
ryan@steelfd.co.za
www.steelfd.co.za

Tahzade Disaster Management
Manufacturer
Rajan Harinarain
Tel: +27 74 848 8881 or
+27 83 492 3851
tahzade@yahoo.com

Trumod (Pty) Ltd
Manufacturer of light steel frames and trusses
Mulder Kruger
Tel: +27 11 363 1960
mulder@trumod.co.za
www.trumod.co.za

Vela Steel Building Systems (Pty) Ltd
Profiler and assembler
Brent Harris
Tel: +27 11 397 8742
Fax: +27 11 397-8879
info@velasbs.co.za
www.velasbs.co.za

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Tel: +27 11 268 2561/+27 83 413-5798
Thierry.poitel@arcelormittal.com
www.arval-construction.com

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Wayne Miller
Tel: +27 21 442 5420
Fax: +27 21 448-9132
Wayne.miller@bluescopesteel.com
www.bluescopesteel.co.za

Clotan
Steel service centre
Danie Joubert
Tel: +27 16 986 8000
daniej@clotansteel.co.za
www.clotansteel.co.za

Global Innovative Building Systems
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Tel: +27 11 903 7080
tammy@gissa.co.za
www.gissa.co.za

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Carole Tomkinson
Tel: +27 31 468 1234
carole@globaldbn.co.za
www.globalsystems.co.za

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Vernon VD Westhuizen
Tel: +27 16 423 1749/50
vernon@razorb.co.za
www.razorb.co.za

Scottsdale
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Steve Cullender
Tel: +27 11 486 4195
steve.cullender@scottsdalesteelframes.com
www.scottsdalesteelframes.com

DESIGN CONSULTANTS

AMS Civil & Structural Consultants
Structural design engineer
Anna-Marie Sassenberg
Tel: +27 51 451 2510
ams@ams-sa.co.za

By Design Consulting Engineers
Structural engineer
Barend Oosthuizen
Tel: +27 21 883 3280
barend@bydesign.org.za

C-Plan Structural Engineers (Pty) Ltd
Structural engineer
Cassie Grobler
Tel: +27 11 472 4476
cassie@cplan.co.za

Entity Engineering
Structural engineer
Andrew Bull
Tel: +27 11 462 8564
entity1@mweb.co.za

Hage Projects
Structural engineer
Gert Visser
Tel: +27 16 933 0195
gert@hage.co.za

Hull Consulting Engineers cc
Structural engineer
Mike Hull
Tel: +27 11 468 3447
Fax: +27 86 6129671
hull@iafrica.com

Martin & Associates
Structural design engineer
Ian Upton
Tel: +27 31 266 0755
ibu@martinjw.co.za

ASSOCIATE MEMBERS

AAAMSA Group
Promotion of fenestration, insulation and ceiling systems
Hans Schefferlie
Tel: +27 11 805 5002
aaamsa@iafrica.com

CSIR (Built Environment)
National building research institute
Llewellyn Van Wyk
Tel: +27 12 841 2677
lvwyk@csir.co.za
www.csir.co.za

European Light Steel Construction Association (LSK)
www.easysteel.info

HDGASA
Promotion of hot dip galvanized steel sheet
Terry Smith
Tel: +27 11 456 7960
terry@hdgasa.org.za
www.hdgasa.org.za

IZASA
Promotion of the use of zinc
Rob White
Tel: +27 83 456 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: +27 12 341 3204
admin.pia@saia.org.za
www.saia.org.za

Standard Bank
Provider of home loans
Johann Strydom
Tel: +27 11 631 5977
Johanjj.strydom@standardbank.co.za

University of Cape Town
Dept of Civil Engineering
Educational
Sebastian Skatulla
Tel: +27 21 650 2595
sebastian.skatulla@uct.ac.za

University of the Witwatersrand
School of Mechanical Engineering
Educational
Kamil Midor
Tel: +27 11 717 7358
Kamil.midor@wits.ac.za

BUILDING INDUSTRY

Abafana Construction
Building of schools, clinics, housing
Daniel Snyman
Tel: +27 82 857 8643/
+27 31 467 2141
annette.snyman@live.com

AC Group Holdings (Pty) Ltd
LSFB construction, ceilings & partitions
Johan Stoltz
Tel: +27 82 411 0247
0825683011@vodamail.co.za

Brainwave Projects 126 cc
Builder of LSFB
Thami Khanyile
Tel: +27 31 267 2468
thami@stedonehazycrest.co.za

Bruün Agencies t/a Eticon Construction
Builder of LSFB and renovations
Wayne Bruün
Tel: +27 82 561 0097
lsfb@eticon.co.za
www.eticon.co.za

Chad Construction
Builder of LSFB
Abdullah Ebrahim
Tel: +27 11 672 1105
abdul@chadcon.co.za
www.chadcon.co.za

Delca Project Management cc
Construction & Civils
Nelisiwe Dladla
Tel: +27 33 347 0031
lwazi@absamail.co.za

Ekhaya Jabulani Housing Projects
Builder of light steel frame buildings
Nicolas Venter
Tel: +27 16 366 1722
ekhaya.projects@gmail.com

Gecko Development Services
Developer and builder
Ryan Hesketh
Tel: +27 11 516 0117
geckodevelopment@telkomsa.net

Group Five Housing (Pty) Ltd
Developer and builder
Paul Thiel
Tel: +27 11 253 8833
pthiel@groupfive.co.za

Hazycrest Construction
Erector and builder
Patrick Swanepoel
Tel: +27 31 705 2710
Fax: +27 31 705 2656
patrick@hazycrest.co.za

Lakeshore Trading 102 cc
Construction and training
Linky Delisile
Tel: +27 31 706 3695
deli@lakeshore.co.za

Legna Creative Enterprises cc
Erector and builder
Angel Mazubane
Tel: +27 31 563 1371
angel@legnacreative.co.za
www.legnacreative.co.za

Masiqhame Trading 379 cc
Building and Construction
Bongani Zulu
Tel: +27 31 702 4619
bongani.zulu@yahoo.com

Thuthuka t/a New Age Construction
Frame erector
Rob Neil
Tel +27 72 544 9941
rbn@mweb.co.za
www.newageconstruction.co.za

RH Construction (Pty) Ltd
Building and Construction
Rajan Harinarain
Tel: +27 74 184 8881
tahzade@yahoo.com

Shospec (Pty) Ltd
LSFB builder, ceilings, partitions, turn-key projects
Bjorn Kahler
Tel: +27 33 386 0100
bjorn@shospec.co.za
www.shospec.co.za

Sidepoint Trading 97 cc
Construction & alternative building
Thamsanqa Sibisi
Tel: +27 73 897 1881
percysibisi@vodamail.co.za

Silverline Group
Developer and builder of LSFB
Charl van Zyl
Tel: +27 21 933 0052
charl@silverlinegroup.co.za

Sixbar Trading 819 cc
Construction
Wayne Barr
Tel: +27 31 768 1183
wayne@sixbarconstruction.co.za

Stedone Civils (Pty) Ltd
Brian Bell
Tel: +27 31 713 0737
stedone@iafrica.com

Steel Frame Projects
Builder of steel frame homes and trusses
Johan Venter
Tel: +27 74 128 1840
johan@steelframeprojects.co.za
www.steelframeprojects.co.za

Zeranza 155
General building
Nellie Ndlela
Tel: +27 33 347 0031
Zeranza155pty@yahoo.com

* ALSO A MEMBER OF ISF

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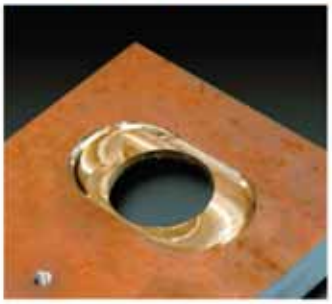
FICEP S.p.A.
STEEL THINKING

The modular design enables execution of cutting, drilling, milling, marking and thermal cutting including bevel to finish the piece in a single set-up, using the most suitable and up-to-date technologies.



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