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Volume 40 No. 6 2016

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Front Cover: Northwest view of The Cubes Plaza, Manhattan (page 18).
Photo by: MdeAS Architects

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in **this** issue...

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editor's note

With the end of 2016 fast approaching many of you may already be in that 'mental wind-down' phase that tends to characterise this time of year. 'Tis the season of AGMs, year-end functions and perhaps, for the astute, a time of reflection and preparation for the year ahead.

Looking back, this year has been a success in terms of increasing the digital presence of Steel Construction, as well as the SAISC and its sub-associations. The increased traffic to the SAMCRA and POLASA websites are a great illustration of how members are engaging with the content we are putting out there. The Steel Construction Journal continues to receive praise for its content as well as support from advertisers who recognise its credibility as an industry publication. We are unfortunately still experiencing some challenges with the post office when it comes to delivery of the print editions, but thankfully the digital distribution channels ensure that members are able to access a copy of the journal.

One of the avenues we'll be exploring in 2017 is a more media rich digital version of the magazine, which will open up a wider range of possibilities for advertisers. We encourage you as members to contribute editorial or images so that we can share the good news of your accomplishments.

Lastly, well done for surviving 2016! I know I feel like giving myself a solid pat on the back. Rest, recharge and get ready to make 2017 a year of progress and achievement.

P.S – For the earlybirds, we've officially opened entries for Steel Awards 2017 (see page 32)! Use the December down time to submit your project entry forms so that you can tick that task off your to-do list!

LOOKING BACK on 2016:

The CEO's Report

By Paolo Trinchero, Chief Executive Officer, SAISC

This was another challenging year. Like our industry we have not been immune to the difficulties our members are facing. The SAISC, I believe, has continued to provide a good service to its members. Unfortunately, the business rescue of one of our larger mills did not succeed and it is now in the process of selling off assets. This has had a significant impact on the funding of the SAISC. The mill's product line is now imported from the four corners of the globe.

Excess capacity in our fabrication firms has continued and may still be with us for some time. It is now more important than ever to ensure our upstream and downstream businesses are doing what needs to be done to survive. The SAISC and its sub-associations will be there to encourage and help wherever possible.

Although a number of courses under the Steel Academy banner were offered we unfortunately did not get the numbers we budgeted for. Education and training remain key objectives of the institute with the results often seen in the future. I would like to thank all those involved in preparing, delivering, and most importantly, attending the courses.

On the lobbying front the SAISC has made considerable progress on ensuring that there is space for downstream manufacturers to apply for tariff protection on finished goods. The localization and designation of Fabricated Structural Steel and many other products manufactured by our sub-associations is still pending. We have assisted many other associations to ensure that the entire industry is working to achieve the same objective. I would like to thank the dti, EDD, Treasury, SARS, IDC and Eskom for their ongoing assistance.

The long awaited construction sector codes have now been published for comment. (23 months of negotiations, a mediation and a further 3 months with the dti)
It is important that the industry provides comment before the 28th of December 2016. Please provide comments in writing for the attention of Mr Jacob Maphutha and Ms Mologadi Leshiba on the following email address: constructionsectorcode@thedti.gov.za

LINKS to the Gazette and Code :
http://www.gov.za/speeches/construction-sector-code-3-nov-2016-0000
http://www.thedti.gov.za/gazzettes/40375.pdf

Survival of the industry is the top priority and number one strategic objective of all our associations.

I would like to thank the SAISC staff and service providers for their support during the year. I am confident that the institute has the skills and resources to keep recreating itself and to respond to the needs of the industry.

"It is now more **IMPORTANT** than ever to **ensure** our upstream and downstream **businesses** are doing what **NEEDS** to be done to **survive**. The **SAISC** and its sub-associations **will** be there to **ENCOURAGE** and **HELP** wherever possible."

THAT FEELING...

...it's Friday, you've worked hours to get the design, drawings & schedules out. There are still late changes to make, rebar clashes are certain, and the project team are meeting the client about more changes. You still need quantities, to model and schedule the rebar. The design team want your model. The contractor needs to plan the project, design & manage formwork, plan the rebar delivery...
The week is finished, you're finished, the work is far from finished. If only you could have solved the problems ahead of time. The guys on site will just have to make it work...

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Steel EXPORT competitiveness

By Donald MacKay, Director, XA International Trade Advisors

With the depreciation of the Rand in the last year, local manufacturers are *(and certainly should)* be looking at export opportunities.

With the depreciation of the Rand in the last year, local manufacturers are (and certainly should) be looking at export opportunities. Please note: When we talk about exports, we are referring to exports outside of South Africa and the BLNS (Botswana, Lesotho, Namibia and Swaziland) countries. Any sales made inside the BLNS countries is still considered to be a domestic sale for Customs purposes. South Africa and the BLNS countries are collectively referred to as the Southern African Customs Union (SACU).

The importance of not exporting duties

Primary steel materials have not attracted any duty for a very long time and so producers of downstream products have never had to contend with this additional cost when competing for work outside of South Africa. Of course, if the steel is purchased from ArcelorMittal or Columbus Stainless steel, those companies may offer commercial rebates to assist manufacturers to become competitive in export markets. If the steel is imported however, then clearly these commercial rebates will not apply. If you use imported raw material in your manufacturing process and these raw materials attract duty, then being able to offset these duties at the time of export is important.

An export rebate store

This is also known as a 470.03 rebate store and allows the suspension of duty on raw materials that are used in the manufacture of something that is exported. As long as the finished product leaves SACU, the duty on the raw material will not be payable. Any finished product sold inside SACU would result in the duty remaining payable.

Whilst it is attractive to never pay the duty over to SARS, a 470.03 rebate store is not always allowed by SARS. Of course each case needs to be assessed on its own merits, but the following are typically reasons why a 470.03 rebate store would be disallowed:

1. The bulk of the finished goods manufactured are sold within SACU.
2. The domestic supplier of the raw material opposes the application because they believe they can make the supply.

In order for a 470.03 rebate to be accessed, the manufacturer needs to first apply to the International Trade Administration Commission (ITAC). ITAC will consider the application and will contact the domestic producer to see if they are able to supply the product. If they can, then ITAC may disallow the rebate. However, ITAC do have the authority to allow the rebate even if the domestic producer opposes the application.

Photo courtesy en.wikipedia.org

If the rebate is refused, drawbacks are still an option.

Once ITAC have approved the rebate, the manufacturer needs to register the rebate store with SARS. Once approved by SARS, a guarantee needs to be provided to SARS to cover the value of the duty contained in the store at any one time. So, if the duty on the goods held in store amounts to an average of, say, R500 000, then the manufacturer would need to provide SARS with either a bank and or insurance guarantee to cover this value.

From this point on, the manufacturer applies to ITAC for permit to allow imports into the rebate store without attracting duty. Such permit will usually cover 6 months of imports. The import is then carried out and the duty suspended by SARS. Once the export has taken place, this suspension is converted into a full rebate and the duty is not payable.

SARS has stringent record keeping requirements around rebate stores, so the administration of the store must be well managed or large penalties will be levied.

Customs drawbacks

Customs drawbacks fulfill a similar function to the 470.03 rebate, but rather than having the duty rebated, with drawbacks, the duty is paid and then claimed back after the export has taken place. Whilst it is obviously not ideal to pay the money over to SARS and then claim it back, drawbacks are actually easier to manage than rebates. No guarantees are required and the money is generally refunded fairly quickly (by SARS standards), if the claim is properly prepared. The first claim is generally quite difficult as everything is checked by SARS, but once the process is set up, it usually smooths out and the refunds speed up.

The challenge with drawbacks is the administration and actual claim process. If the documentation is not in order, SARS will simply not make the refund. There are also critical time frames to be adhered to and again, if these are missed, the refunds will not be made.

The registration for the drawback can be time-consuming and no exports will be considered for refund before the registration has been approved, so it is important to act quickly to avoid leaving money on the table.

Trade agreements

Trade agreements are arrangements between different countries, designed to drive trade between those regions. South Africa is currently signatory to 9 trade agreements of different varieties, some of which offer preferences on steel products.

This means that any duty normally payable for exports from countries not within the trade agreement, will be lowered for trade agreement partners. In this case, we are using the term trade agreement loosely, to cover all forms of preferential trade offered by our trading partners.

As an example, the African Growth and Opportunity Act (AGOA) is American legislation allowing preferential access, on a wide variety of products, to the USA market. It is crucial to understand the map of these agreements to better be able to plan your export strategy. Below is a list of the agreements that currently offer trade preferences to South African exporters. Please visit xa.co.za to find our more information about these agreements.

You will notice that the Indian and Tripartite agreements are still under negotiation. Whilst the Indian agreement has largely stalled for the last few years, the Tripartite agreement is being negotiated right now. If you want to gain preferential access to important African markets such as Kenya and Egypt, then it's important to participate in this negotiation process.

Rules of origin

Because trade agreements are designed to drive trade between different trade blocs, it becomes important that goods benefiting from any given preference actually originate in the country participating in this agreement. By example, if a steel coil is manufactured in China and then simply cut and slit in South Africa and then exported to the EU, this would not confer South African origin on this product. The rules that govern this process are known as the rules of origin and form a pivotal part of actually being able to secure a duty benefit. The rules are not consistent between agreements and in fact, are not even consistent within a single agreement. Different industries will have different requirements for value add in order to qualify for the benefits, so it's important to understand these rules of origin to ensure you will benefit from the lower rates provided in the different agreements.

Export competitiveness is a complex area to cover in a short article. If you require assistance, or wish to know more, please visit xa.co.za.

Contact Details:
Donald MacKay
Director, XA International Trade Advisors
Donald@xa.co.za
082 494 1019

Trade Agreements	Type	Status
Southern African Customs Union (SACU)	Customs Union	In force
Southern African Development Community (SADC) FTA	Free trade agreement	In force
EFTA-SACU Free Trade Agreement (FTA)	Free trade agreement	In force
Economic Partnership Agreement	Free trade agreement	In force
SACU-Southern Common Market (Mercosur) PTA	Preferential trade agreement	In force
Zimbabwe – South Africa Bilateral Trade Agreement	Bilateral agreement	In force
Africa Growth and Opportunity Act (AGOA)	Unilateral non reciprocal USA legislation	In force
Generalised System of Preferences (GSP)	Unilateral non reciprocal tariff preferences offered by various developed countries	In force
SACU-India PTA	Preferential trade agreement	Under negotiation
SADC-EAC-COMESA Tripartite FTA	Free trade agreement	Under negotiation

SEISMIC TIMES

By Amanuel Gebremeskel, Technical Director SAISC

Scientists have warned that central Italy faces a serious risk of suffering further devastating earthquakes soon. On August 24th there was a 6.2-magnitude earthquake near Amatrice that killed more than 250 people. This was followed by a 6.1 earthquake which struck Visso on 26 October. The latest series of quakes have forced over ten thousand people to seek refuge in hotels and shelters, with many more sleeping in tents, cars or campers.

We are lucky in South Africa that we have few natural hazards of such magnitude and frequency. However South African seismologists have identified two types of earthquakes that are likely, primarily in the Western Cape and Gauteng areas. While Cape Town sits on crust that is vulnerable to natural earthquakes of the Italian variety, the area around Johannesburg is vulnerable to earthquakes caused by mining activities.

We are lucky in South Africa that we have few natural hazards of such magnitude and frequency. However South African seismologists have identified two types of earthquakes that are likely primarily in the Western Cape and Gauteng areas.

Cities and other large settlements are most at risk to earthquake damage because of large populations and buildings. The likelihood of death, injury and economic loss is much higher in built-up areas also because of fire risks from damage to electrical and gas lines. For these reasons, the Steel Institute has taken a leadership role in pushing for standards that aim to reduce seismic risks to South Africans.

Basic provisions for the design of buildings and other structures to withstand earthquake loads have been available in the SANS codes since 1989. However, compliance with the requirements has not been vigorously enforced by the authorities and owners over the past two decades. This is largely due to lack of awareness by design engineers and academics. In some cases, it has also been caused by scepticism about the level of seismic risk that exists in South Africa.

A forthcoming revision of SANS 10160-4 – Seismic actions and general requirements for buildings – addresses the omission of structural steel design provisions from the standard, as well as contradictions between SANS 10160 and SANS 10162, the steel design standard. The proposed revision is based on the American Society of Civil Engineers standard. Relevant parts of ASCE 7 have been adapted for the new SANS standard.

A paper that is authored by Amanuel Gebremeskel of the Steel Institute – chair of the South African Bureau of Standards seismic committee – and Chris Roth of the University of Pretoria, who chairs the overall loading code committee, discusses the background to the proposed provisions. The paper has now been refereed and accepted by the SAICE journal for publication.

We urge our readers to get a hold of it and familiarize themselves with the new standard. It should help to manage risks in these seismic times.

Photo courtesy en.wikipedia.org

RIGHT: On August 24th there was a 6.2-magnitude earthquake near Amatrice, Italy, that killed more than 250 people.

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

Current projects:

- BMW New Facilities Body in White (550t) - BMW SA
- Eastgate Refurbishment (1 600t) - Liberty Properties
- Menlyn Maine Central Square (250t) - Menlyn Maine Investment Holdings
- South African Breweries, Conveyors, Buildings, Stairs - SAB Alrode and SAB Chamdor Brewhouse (350t)
- Gautrain O.R. Tambo Platform Extension (100t) - Gauteng Provincial Government
- Rosebank Towers (130t) - Abland
- Natalspruit Hospital: Bridge and Doctors and Nurses Accommodation (250t) - Department of Infrastructure and Development
- Government Printing Works (300t)
- Discovery Sandton (220t) - Zenprop
- Integrated Rapid Public Transport Network (200t) - Ekurhuleni Metropolitan Council
- Benmore Gardens Shopping Centre Refurbishment (150t)
- Golden Era Can Line Plant (525t) - Golden Era Group
- EPX Warehouse (225t) - EPX
- Northgate PV Support Structure/Car Ports (100t) - Sasol Pension Fund
- Aeroton Roof Jack (3 800m^2) - Capital Property Fund
- Fourways Mall Roof Structure (60t) - Fourways Precinct
- Discovery Corporate Offices Sandton, Skylight Roof (50t) - Growthpoint Properties
- Lusaka Health Centre - Shimizu Corporation
- Fourways Mall Link Bridges, Ramps, Lift Shaft, Infill Slabs and Roof - (250t) Fourways Precinct
- Menlyn Maine Hotel (30t) - Menlyn Maine Hotel Trust

SAIW ISO 3834 Part 3 Certificate No. ZA-014

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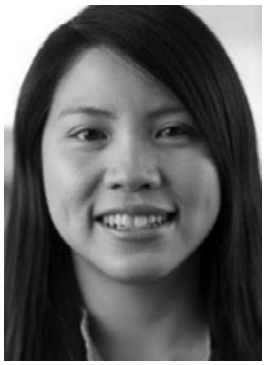
Engineering THE HEART of the City

By Lukki Lam, SE, and Eric Ko, SE

The original article was published in Modern Steel Construction, the official journal of the American Institute of Steel Construction. We thank them for their kind permission to reproduce the article.



PROJECT TEAM

Owner:
San Francisco Department of Public Health

General Contractor:
Webcor Builders, San Francisco

Architect:
Fong and Chan Architects, San Francisco

Structural Engineers:
Arup in collaboration with Bello and Associates Structural Engineers, a Local Business Enterprise participant, San Francisco

Steel Team:

Fabricator and Erector:
The Herrick Corporation, Stockton, Calif.

Detailer:
Candraft Detailing, Inc., New Westminster, B.C., Canada

San Francisco General Hospital came into being not long after the gold rush of 1849. More than a century-and-a-half later and following several expansions, its latest iteration was helped along by and named for a pioneer of a different sort of gold rush – the social media boom – Facebook founder Mark Zuckerberg. Along with wife Priscilla Chan, Zuckerberg provided $75 million in funding for the new facility, the Zuckerberg San Francisco General Hospital and Trauma Center (ZSFGH).

Located at the foot of Potrero Hill in San Francisco's Mission District, the new 284-bed hospital is a 550,000-gross-sq.-ft steelframed, base-isolated building with seven stories above grade and two basement levels. The facility replaces the most recent SFGH, which was built in 1974 and did not comply with the seismic safety requirements

Tim Griffith

San Francisco's new Zuckerberg General Hospital effectively combines state-of-the-art seismic engineering and medical technology with features designed to provide compassionate care for patients.

set out in California Senate Bill 1953 (passed in 1994). The new general acute care facility, which opened this past spring, provides the most up-to-date equipment and technology in full diagnostics and treatment departments, while doubling the capacity of the new emergency department.

Base isolation

ZSFGH is the only Level 1 trauma center in San Francisco County, so its seismic resiliency is paramount. The project team decided early in the design process to integrate base isolation – one of the most advanced earthquake-resistant methods in use today – in the design of the steel-framed building. Steel is an ideal framing material for a base-isolated structure because steelframed floors are relatively lightweight, greatly reducing the demands – especially uplifts – on the base isolators and foundations. The steel superstructure is supported on 115 triple-pendulum bearings (manufactured by Earthquake Protection Systems), a pioneering isolator type that allows the building to slide 30 in. in any direction. Around the perimeter of the building, a 3-ft-wide moat between the top of the mat foundation and the finished grade accommodates movement of the isolated structure. In the event of a major earthquake, the new hospital is designed to remain fully operational and serve as an emergency response center.

This project challenged the common perceptions that base isolated buildings are too expensive or take too long to build, proving that with proper planning and close collaboration among team members, base isolation can be a cost-effective system to integrate into a building without increasing the project schedule. For ZSFGH, the City adopted integrated project delivery (IPD), assembling the design team and general contractor to work collaboratively during design, which helped to compress the project schedule to meet the Senate Bill 1953 deadline.

The IPD method facilitated a number of cost- and time-saving strategies. For example, the design team implemented prototype bearing testing in the early design phase of the project, which was made possible by efficiently identifying the best bearing type

ABOVE: A 35-ft-diameter steel halo sculpture stands at the ground-level entry of the hospital campus.

OPPOSITE PAGE FAR LEFT: Lukki Lam (lukki.lam@arup.com) is a senior structural engineer with Arup and the project engineer for Zuckerberg San Francisco General Hospital and Trauma Center; Eric Ko (eric.ko@arup.com) is a principal with Arup, project director and structural engineer of record.

OPPOSITE PAGE BELOW: The new Zuckerberg San Francisco General Hospital and Trauma Center is a steel-framed, base-isolated seven-story building.

BELOW LEFT: A trussed pedestrian bridge links the new hospital building to the original medical facility.

BELOW RIGHT: Steel canopies at the top of the sunshade fins are visible from the rooftop terrace garden.

Perretti and Park

Webcor Builders


Arup


Webcor Builders


Arup

and isolator sizes for the project. Following the city's successful commissioning of early prototype bearing testing, the team used the prototype testing results to optimize the superstructure design. This strategy led to early procurement of the isolators and an early steel bid package, as well as significant cost and material savings when it came to the structural steel.

It's also important to note the benefits that the project's base-isolated design has over a conventional fixed-base design, including performing much better in a major earthquake, better protecting the building's contents and allowing the superstructure to withstand maximum-considered-earthquake-level earthquakes and remain elastic. In a fixed-base design, the moment frame connections would yield, and replacing them would be difficult and expensive, resulting in significant downtime. In addition, floor accelerations in the base-isolated hospital are significantly reduced, which results in lower demands on the anchorage and bracing for equipment and nonstructural elements.

Compared with a conventional fixed-base design, the baseisolated design also used significantly less steel – as in 3,000 tons (the project used 8,500 tons of steel in all). A fixed-base design would have also required deeper columns and beams, thus limiting the space available for utilities and make coordination more difficult. Base isolation allowed steel intermediate moment frames to be used for the superstructure, and a fixed-base building would have had to meet requirements for steel special moment frames, leading to additional building costs.

ABOVE LEFT: A triple-pendulum bearing was subjected to lateral displacement during the prototype testing.

ABOVE CENTRE: The building is supported on 115 of these bearings, allowing it to slide 30 inches in any direction.

ABOVE RIGHT: Prototype bearing testing early in the design phase.

BELOW LEFT: Overhead medical equipment is supported by a steel modular grid hung from the floor beams above.

BELOW RIGHT: The new base-isolated building on the left serves as a replacement of the original main hospital on the right.

Superstructure

The hospital has two distinct floor plans: a four-story rectangular podium and a five-story bed tower comprising two interlocking circular cylinders bisected by a parallelogram core. The glazed cylindrical tower houses the patient rooms and support spaces, while the brick podium houses the diagnostic and treatment departments. The framing system uses composite flooring supported by steel beams and girders, which in turn are supported on steel wide-flange and built-up cruciform columns. As the building transitions from the rectangular podium to the cylindrical tower, transfer beams of W36 sections are used at levels 2 and 3 to receive the W10 columns supporting the inpatient beds and


Webcor Builders

Perretti and Park

rooftop garden in the cylindrical tower above. To accommodate ZSFGH's ambitious program and the significant amount of overhead utilities typically required in a hospital, steel moment frames were selected in lieu of braced frames or shear walls, as the lateral resistance system to create more space for an efficient health-care floor layout. The moment frame beams are W27 and W36 sections, and the moment frame columns consist of W27 and W36 wide-flange columns and flanged cruciform columns for orthogonal moment frames. High-strength steel plate (65-ksi) is used for built-up wide-flange columns at selected locations for increased capacity.

Constructability was a central focus when designing the steel details of the new hospital, exemplified by the steel column base detail. Cruciform-shaped steel column bases are placed above the isolators to resist the offset between the superstructure and the isolators that occurs when the isolators undergo large displacement. The cruciform column bases are shop-welded and delivered to the site as modular assemblies, which enhanced installation and saved time in the construction schedule. In addition, splices of the beams adjoining to the cruciform assemblies are field-bolted moment connections – not welded – in order to eliminate the self-straining stresses due to weld shrinkage that would impose on the structure.

In the X-ray, radiology, resuscitation and operating rooms – where the overhead ceiling spaces are the busiest – a steel overhead-equipment-support modular grid supports all of the overhead medical equipment such as lights and booms. The modular grid is composed of horizontal HSS4×3 and HSS3×3 sections forming an orthogonal grid, which is hung from the floor beams above through unistrut drops. Unistrut bracing provides lateral stiffness for the support grid, and this modular grid facilitated the coordination and installation of utility runs, ductwork and equipment supports in these vital rooms.

Exposed steel

A number of exposed structural steel components are featured on the hospital campus. A vertical fin sunshade structure, built from HSS8×8 steel sections, was placed on the south- and west-facing facades of the podium structure. The sunshade elements are oriented according to the path of the sun and are painted in bright white. Expressive steel canopies at the top of the curved facade's sunshade fins are also visible from the rooftop terrace garden, which is open to the public.

A steel halo sculpture – a 35-ft-diameter ring cantilevered off of two 16-ft-tall columns – stands prominently at the groundlevel entry of the hospital campus. The halo is built from 14-in.-diameter stainless steel pipe sections, with the ring and elbows fabricated to fit the architect's curved geometry design. On the opposite side of the campus, a trussed pedestrian bridge with exposed HSS6×6 provides the important pathway between the new hospital building and the original medical facility at the second floor.

Heart of gold

The material-saving base isolation system is one of the sustainable design features expected to earn the hospital a LEED Gold certification. Other green features include the use of building materials containing at least 30% recycled content, including steel, ceiling tiles, porcelain tiles, terrazzo flooring and Forest Stewardship Council-certified wood. The hospital also features full-height curtain walls that use low-emissivity glass and insulation to protect against heat gain, as well as window shades and room lighting fixtures that are automatically adjusted based on sunlight levels as detected by photovoltaic sensors.

Financed by an $887.4 million voter approved bond, as well as a record number of significant donations, ZSFGH is a city lifeline that, according to Mayor Ed Lee, "represents San Francisco's values at their best, and demonstrates that our city is a leader in innovation and compassion… for creating a world-class, seismically safe, technologically advanced and sustainably built hospital for all San Franciscans" – truly the beating heart of a vibrant city.

BELOW LEFT: The cruciform-shaped steel column base was shop-welded, while the moment connections to the adjoining beams were field-bolted to eliminate selfstraining stresses due to weld shrinkage.

BELOW RIGHT: The steel-framed superstructure is relatively lightweight and reduces demands on the base isolators and foundations.


Oregon Department of Transportation

New Arch for a New Age

A new steel arch in Portland replaces a prominent crossing of the Willamette

By Ian Cannon, PE, Eric Rau, PE and David Goodyear, SE, PE

ABOVE: The new Sellwood Bridge over the Willamette River near downtown Portland, Ore., replaces a more-than-90-year-old span that had become unusable.

BELOW (left to right): Ian Cannon (ian.b.cannon@multco.us) is Multnomah County's transportation director and program manager of the Sellwood Bridge project, Eric Rau (eric.rau@tylin.com) is a bridge engineer with TYLI and David Goodyear (david.goodyear@tylin.com) is TYLI's chief bridge engineer and the lead bridge engineer for the Sellwood Bridge project.

OPPOSITE PAGE: Plan and elevation drawings of the new bridge.

Two out of 100

That was the National Bridge Inventory (NBI) sufficiency rating that the 90-year old Sellwood Bridge received in 2005 after the latest round of engineering studies, emergency repairs and additional load restrictions. Multnomah County, Ore., the owner of the bridge, was keenly aware that shoring up the old bridge was no longer an option.

Constructed in 1925 to replace the Spokane Street Ferry, the Sellwood Bridge spans the Willamette River just south of downtown Portland. It was designed by Gustav Lindenthal, a noted bridge engineer of the time and – along with the nearby Ross Island and Burnside bridges – was built with funds from a $4.5 million local bond measure.

Lindenthal was hired to redesign the Sellwood Bridge as a result of cost overruns on the Burnside Bridge. The result was a unique and efficient four-span continuous steel truss costing a mere $541,000. At 32ft wide, the bridge was extremely narrow: two lanes, no shoulders or median and one 4-ft-wide sidewalk. It was Portland's first "fixed span" bridge across the Willamette and the first to not be designed for streetcars.

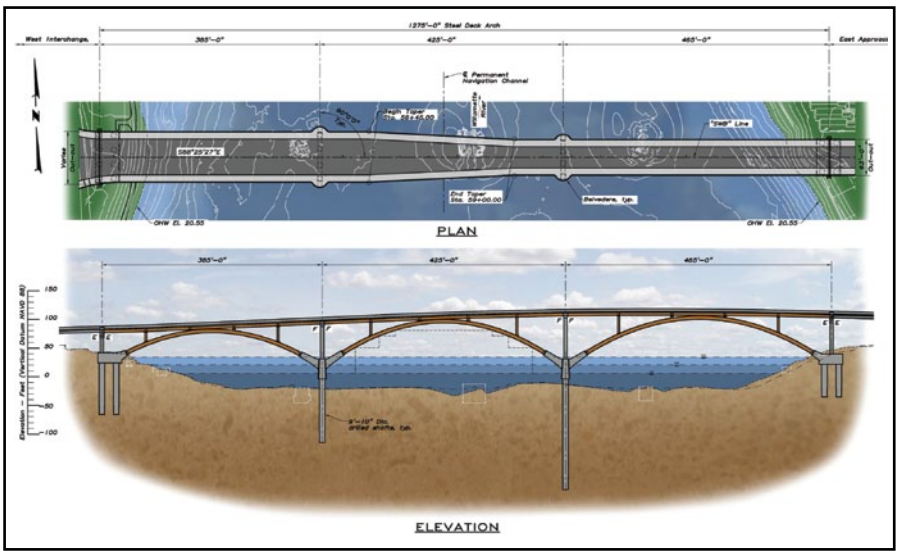
The NBI rating of 2 for the old bridge reflected a number of critical issues ranging from movement of an ancient landslide on the west bank of the Willamette to general deterioration of the 90-year old concrete approach structures.

The County began the NEPA (National Environmental Policy Act) process in 2006, and an engineering team of CH2M and T.Y. Lin International (TYLI) was retained to perform the engineering studies and develop alternatives for a new crossing. The evaluations included rehabilitation and replacement options for the main bridge, a dozen structure types for the main crossing and various alignments and project configurations. The recommendation was replacement on the same alignment, and through an active and meaningful public outreach process, the Community Advisory Committee's (CAC) preferred alternative – a steel deck arch – was approved by the County Board of Commissioners.

Forming a team

Multnomah County elected to use the construction manager/general contractor (CM/GC) method of project delivery. A primary advantage of this method is that the contractor, in the role of construction manager, provides direct input to the owner and design team regarding constructability, pricing, scheduling and phasing of the work throughout the design process. In 2009, Multnomah County selected SSJV, a joint venture between Sundt Construction and Slayden Construction, as the CM/GC for the bridge based on a competitive qualification based proposal. In 2010, TYLI and CH2M were selected to develop the final design. To facilitate the CM/GC process, Multnomah County established a collocated project office with full-time staff from the owner, owner's representative David Evans and Associates, the engineering design team and the CM/GC.

The 1,275-ft main structure over the river is flanked on the east by a five-span concrete approach structure extending 500 ft from the riverbank into the adjacent Sellwood neighborhood. On the west side,



the structure terminates with a significant interchange connection to Oregon Highway 43, which is composed of approximately 3,600 ft of bridge and retaining wall ramp structures.

The west side of the project site is located within an ancient landslide, which had moved about 4 ft since the original bridge opened in 1925. To prevent movement during construction and stop chronic seasonal movements in the long term, an anchored shear pile system that spanned the full 500-ft width of the landslide was employed. Consisting of 40 6-ft-diameter drilled shafts connected by a grade beam


Nick Garibbo/Nick's Photo Design


Nick Garibbo/Nick's Photo Design


Nick Garibbo/Nick's Photo Design

TOP: The shallow nature of the bridge's fixed arches led to increased bending demands.

MIDDLE: There are three segments per rib span, with lengths up to 148 ft.

BOTTOM: The 1,275-ft-long three-span steel deck arch has a span arrangement of 385-ft- 425 ft-465 ft, with two arch ribs per span.

OPPOSITE PAGE: Steel was transported to the site on barges and placed with cranes operating from work bridges and barges.

and 70 ground anchors with loads up to 850 kips per anchor, the system is designed to limit seismic deformation to under 4 in. during a moment magnitude scale (MMS) 9.0 Cascadia Subduction Zone earthquake. The landslide mitigation was bid at a construction cost of $14 million.

Both the original truss bridge and new arch bridge have only two through-traffic lanes. This was the recommended configuration from the environmental impact statement (EIS) stage, driven by the request from the Sellwood neighborhood to restrict traffic to two lanes to match the capacity of Tacoma Street to the east. While the existing bridge had an overall structure width of 32 ft, the new structure provides 6-ft, 6-in. shoulders, designated bike lanes and raised 12-ft sidewalks on each side of the bridge. The result is a pedestrian-friendly structure that has a nominal width of 63 ft. The structure width increases on the western half of the bridge to 90 ft, allowing for additional turn lanes to and from Highway 43. Using 5,000 tons of structural steel, the bridge opened earlier this year.

Steel deck arch structure

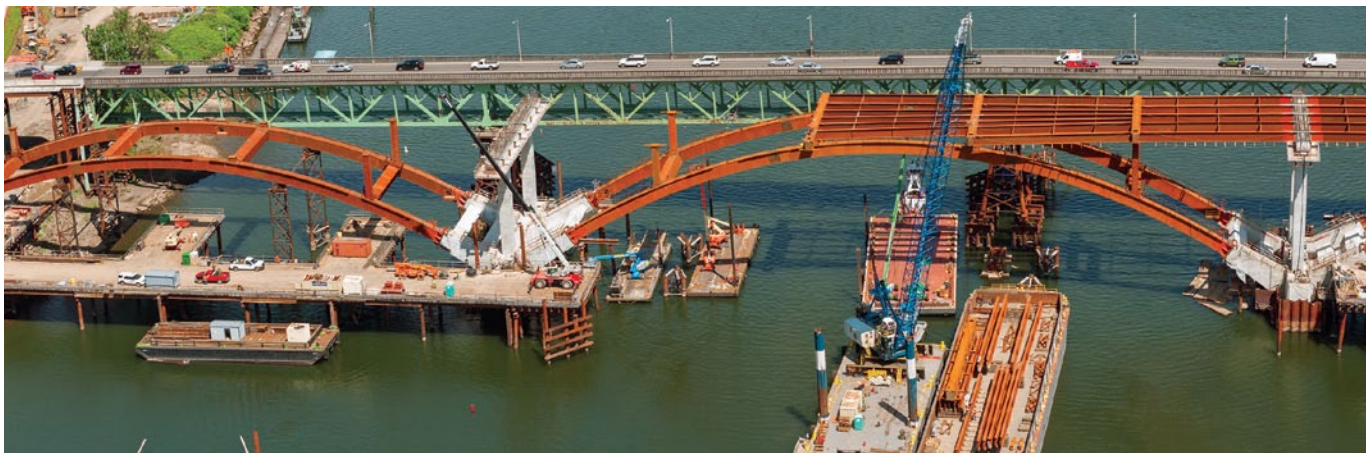
The 1,275-ft-long three-span steel deck arch has a span arrangement of 385 ft-425 ft-465 ft, with two arch ribs per span. The progression of span lengths generally follows the rise of the bridge in grade from west to east.

A reinforced concrete Y-arm extends from the pier and footing substructure to meet the steel arch rib at the springing connection in order to keep the steel ribs above the 100-year flood stage. These extensions are up to 36 ft in length at the river piers and follow the curved geometry of the arch.

The solid-ribbed arches are welded box sections with a constant web depth of 70 in., a flange width of 54 in. and a smooth parabolic curve profile (all steel curving was performed in-house by the project's fabricator, Thompson Metal Fab). Each of the three arch spans has four spandrel columns, which coincide with the location of the portal bracing between the two ribs. Each spandrel column supports a transverse steel cap beam, with longitudinal girders spanning between them.

Both the girders and cap beams have an overall steel depth of 60 in. and are composite with the reinforced concrete deck. The girder system is 15-span continuous over the 1,275-ft arch structure, with five to seven girder lines spaced up to 14 ft, 6 in. Based on pricing feedback from the CM/GC, plate transition splices were eliminated and flange and web plate thickness were held constant for the entire girder system. Flange plate width varied based on structural demand but was held constant within a spandrel span.

Top and bottom girder flanges are connected across the cap beams with a continuity connection plate while the girder web is connected with traditional



clip angles. The cap beam has an internal diaphragm at the girder line, and the entire connection is bolted. The CM/GC requested slotted holes at specific girder locations to increase tolerances for fit-up during erection.

The transverse cap beams are built-up box-shape members composed of two welded I-girders with top and bottom cover plates. The entire assembly is bolted to eliminate the possibility of crack propagation across the entire section and is designed for the loss of either I-shape or cover plate.

The spandrel columns are welded box sections with dimensions of 42 in. × 36 in. and plate thicknesses varying between 1.25 in. and 2 in. The connection of the spandrel columns to the arch rib is a bolted end-plated moment connection.

Establishing the articulation of the spandrel columns was an important aspect of the design. Design iterations evaluated various configurations of "pinned," "fixed," and "free" boundary conditions at the 12 column locations, with the primary challenge being to balance structure stiffness and load path during seismic and thermal response.

The final articulation uses unidirectional bearings at the top of spandrel columns in the flanking spans 3 and 5 and fixed end-plate moment connections for the columns in the center span 4 (the middle arch span). These fixed columns function similarly to a closed arch crown, while the deck structure is free to move at the ends.

Engineering Development

Like many replacement projects, local site conditions and the associated built environment imposed a number of engineering challenges. The structural system of the new Sellwood Bridge had to meet the following constraints:

- Provide a horizontal and vertical navigational opening that meets or exceeds that of the existing bridge
- Provide a span layout that, when combined with the existing bridge, would allow continued navigation throughout construction
- Limit the amount of structure constructed in the waterway to comply with no-net-river-level-rise criteria.
- Provide a similar roadway profile as the existing bridge in order to limit project extents and facilitate construction staging

Meeting the profile grade requirement resulted in limited rise in the west arch. The three arches have a rise-to-span ratio that varies from 1:7.7 (0.13) to 1:6.4 (0.16). The shallow nature of the fixed arches led to increased bending demands compared to the more efficient arching action that could be attained with more ideal geometry.

In order to limit the effects of flexural demands on the size of the arch section, the springing connections were left in a pinned condition during construction from initial rib placement through concrete deck placement. The two-hinged arch freely rotated during construction loading, resulting in "simple span" bending, with zero negative moment at the springing support and increased positive moment at the crown. After deck placement the springing connection was fixed, shifting the flexural response toward "fixed-fixed" beam action for subsequent loading.

The springing connection consists of ten 4-in.-diameter ASTM A354 Gr. BC high-strength steel rods that are embedded up to 15 ft into the concrete substructure. In the temporary hinged condition, the rods are not tightened to the end of the arch ribs. A high-strength (15-ksi) UHMW pin plate was placed at the springing connection to transfer axial thrust while allowing rotation, and was coupled with an external frame support for vertical loads. Upon completion of staged construction, the fixed connection was completed by grouting the pin plate gap and prestressing the anchor rods for service level moments.

Thompson Metal Fab proposed piece-by-piece stick erection, with arch ribs placed on shoring towers instead of a float-in system originally considered for arch erection. Each rib span contained two bolted field splices to match the optimum weights chosen by the CM/GC for fabrication and erection, resulting in three segments per span with lengths up to 148 ft and weights up to 146 tons each. Steel was transported to the site on barges and placed with cranes operating from work bridges and barges.

When the bridge opened to traffic, the crossing immediately jumped to a sufficiency rating of 100.

PROJECT TEAM

Owner:
Multnomah County, Ore.

General Contractor:
Slayden/Sundt Joint Venture
Slayden Construction Group, Stayton, Ore.
Sundt Construction, Tempe, Ariz.

Structural Engineer:
T.Y. Lin International, Beaverton, Ore.

Architect:
Safdie Rabines Architects, San Diego

Steel Team:

Fabricator:
Thompson Metal Fab, Vancouver, Wash.

Detailer:
Candraft Detailing, Inc., New Westminster, B.C., Canada

Thinking outside The CUBE

A NEW RETAIL PROJECT NEAR TIMES SQUARE DEMONSTRATES THE HIPNESS OF BEING SQUARE


MdeAS Architects

The original article was published in Modern Steel Construction, the official journal of the American Institute of Steel Construction. We thank them for their kind permission to reproduce the article.

ABOVE: Joe Mugford [top] (joe.mugford@gmsllp.com) is an associate and Philip Murray [below] (philip.murray@gmsllp.com) is a partner, both with Gilsanz Murray Steficek.

A dramatic retail newcomer of cubic proportions has come to Manhattan's 42nd Street commercial corridor.

Known as the Cubes, the project flanks the western edge of a through-block plaza at 120 West 42nd Street between Avenue of the Americas and Broadway. Its design employs several distinct boxes shifted in relation to one another while maintaining the uniformity of its grid, and contrasts with the monolithic character of the adjacent 1095 Avenue of the Americas tower (also known as 3 Bryant Park). Framed with 400 tons of structural steel, the 85-ft-tall structure comprises three occupied floors, as well as a fourth-floor mechanical penthouse, and contains approximately 23,000 sq. ft of above-grade retail space and an additional 55,200 sq. ft below grade in the cellar and sub-cellar. The protruding blocks provide an additional 4,300 sq. ft of accessible rooftop exterior space. The design relocated the main entrance to the 1095 tower from the Avenue to the west side of the building (plaza-side) where a new doubleheight lobby was constructed. Relocating the entrance allowed for additional retail space along the Avenue. The existing subway entrance was repositioned away from the plaza corner to allow prime retail use of that space.

Jewel box

Glass curtain walls, wide interiors spans and lots of right angles make the interior spaces light-filled and engaging. Across the plaza, this approach is mimicked at the interior of the existing 1095 tower. From the street, the structure looks like two separate buildings, but the two sides are actually united underground.

The ground-up development required demolition of a six-story 1940s building. Additionally, part of an existing annex building was demolished to grade, but its substructure was preserved and engaged by the new superstructure. Drawings for the existing building lacked the appropriate level of details and demanded extensive field verification. The 1970s design of the existing annex building, which was partially demolished, assumed subsequent addition of more floors. Thus, the preserved substructure did not require much reinforcement, as columns were already oversized, and reserve capacity was therefore available to support the new design. However, the column grid of the new superstructure does not align with the grid of the substructure, so the design employs W30×173 transfer girders at the plaza level that distribute the load to the foundation. The new foundation system consists of spread footings on 20-ton rock. The challenging excavation and foundation work included digging 32 ft below street level adjacent to the operational 42nd Street MTA subway tunnel, with careful attention to earthwork vibration. The dig took place around existing W14 columns, which had to be temporarily supported with drilled piles.

The open layout of the retail floor plates above grade required a long-span column grid, typically 25 ft by 45 ft. With 20-ft floor-to-floor heights, careful consideration of live loads and vibrations demanded stiffer frames. The entire superstructure is designed using moment frames to maintain

an open layout for future retail flexibility, and floor vibrations for occupant comfort were taken into consideration in the design of the structure. In accordance with AISC Design Guide 11: *Vibrations of Steel-Framed Structural Systems Due to Human Activity*, these vibrations were limited to a maximum of 1.5% gravity acceleration at 2% damping. (You can read more about the new edition of Design Guide 11 in "Living (Comfortably) with Vibration" on page 58.)

The primary W14×193 and W14×283 moment frame columns are set back 14 ft from the east façade, and round 10-in. hollow structural sections (HSS) were used along the east façade to minimize their visual impact. The floor framing consists of typical W18×35 beams spanning to 30-in. and 36-in. girders, and floor slabs are 3.5-in. lightweight concrete on 3-in. metal deck. The structure is designed to support a 60-ft billboard above the roof as well as a full-span LED display anchored to the north façade, a nod to the Times Square lighting requirements.

Planted plaza

Another design challenge was accommodating the change in grade at the perimeter of the site. The elevation of the northern section of the renovated plaza is 3 ft higher than the ground floor elevation of the Cubes. Structural engineer GMS designed a series of "bent" transfer girders to maximize the retail ceiling heights below. The plaza renovation also demanded careful attention to the design and installation of tree pits so as not to encroach on floor-to-ceiling heights below. The bottom of the 9-in. pit slab is flush with the bottom flange of neighboring W36 and supported by L3 angles welded to either side of HSS9×5×½, which spans in between existing W36 beams at 3 ft, 6-in. on center. This provided adequate support for the weight of the soil and trees, which required a design load of 600 psf.

Approximately 30 ft of the southern portion of the prior plaza was demolished and rebuilt at a lower elevation to match the level of the sidewalk at 41st Street. This generated a more inviting space, similar to the pedestrian approach from the north. Planters, stairs and ramps separate the lower southern portions and raised northern portions of the plaza.

Augmented atrium

Across the plaza from the Cubes, the existing 1095 Avenue of the Americas is a 40-story steel-framed office building, constructed in 1972, with four moment frames in the north-south direction. The westernmost frame (plaza-side façade) needed to be modified to accommodate the relocation and vertical enlargement of the building's main lobby into a 33-ft-high, two-story atrium. The second floor slab was removed at four north-south bays (25

BELOW (clockwise):
Westward view of plaza.
Setbacks.
Northwest view of plaza.
The mechanical penthouse.


MdeAS Architects


MdeAS Architects


MdeAS Architects


MdeAS Architects

LEFT: Substructure (left) and superstructure (right).

BELOW: A girder before removal (left) and after removal (right).

ft each) by one east-west bay (18 ft, 6 in.). Creating the storefront at the lobby also required removing two wind girders at the second floor, which represented 20% of the floor stiffness at that level. To compensate, the wind girders overhead and in adjacent bays were reinforced, as were the columns that support them. Girders at the second floor are reinforced with 1.125- in. plates at the top and bottom flanges; the third-floor girders are reinforced with WT7×79.5 at bottom flange. Existing built-up columns consist of W14×426 with 6-in. flange cover plates. These were further stiffened with new 2-in. by 18½- in. fitted reinforcing plates added between the flanges, forming a box and providing stiffness necessary to counteract the increased unbraced length. The two end columns that had supported the removed wind girders also have new 1¼-in. flange plates (over the original plates).

The demolition and installation procedure followed a specific sequence to safeguard the building's ongoing stability during the work: 1. Install column cover plates between the second and third floors 2. Locally remove the slab around the columns and install temporary struts (HSS10) 3. Install a double hanger from temporary struts to the existing east-west beam (W24) 4. Remove a portion of the existing W24 proximate to the western frame 5. Reinforce the perimeter wind girders 6. Complete column reinforcement between first and second floors 7. At the second floor, demolish the remainder of the slab and the W24 beam and temporary strut assemblies

PROJECT TEAM

Developer:
Equity Office, New York

Architect:
MdeAS Architects, New York

Structural Engineer:
Gilsanz Murray Steficek, New York

General Contractors:
Shawmut Design and Construction, New York
Structure Tone (plaza), New York

Steel Fabricators, Erectors and Detailers:
United Structural Works, Congers, N.Y.
Burgess Steel, Englewood, N.J.

Refurbished retail

The final component of the project was the redevelopment of the 1095 tower's frontage along 42nd Street with a new doubleheight retail space at the western corner, which connects the street to the concourse beneath the plaza. To the east of this corner space, new stairs and a glass elevator provide access to the subway station beneath the Avenue. However, a moderate elevation difference between where the stairs and elevator land below grade and the entry to the subway station required a ramp structure, which was obstructed by existing framing at the underground concourse level.

Similar to changing the grade between the Cubes and the plaza, a bent beam was installed to support the ramp from a lower elevation. The tops of the existing beams were coped 4 ft from the foundation wall and new 8-ft lengths of beam were added below, bolted to the existing beams' bottom flanges, with a 4-ft overlap. The lower member sits on a channel seat at the foundation wall.

Dramatic destination

Originally initiated as a plaza restoration, the project was reconceived into a $22 million white box development (the Cubes) and $14 million reconstruction (plaza and 1095 tower). In 2015, the entire property consisting of the Cubes and 1095 Avenue of the Americas tower was sold by Blackstone to Ivanhoe-Callahan Capital joint-venture for $2.2 billion – at that time the largest transaction for a U.S. office building since 2008.

"There is a high demand for new retail space away from the traditional Fifth Avenue shopping district as more brands begin to scout locations lower on Fifth Avenue or closer to Times Square," said William Pisani, vice president of Shawmut Design and Construction. Whole Foods is taking two floors of the 1095 tower at the Avenue and Pandora occupies the plaza-side retail corner.

The glass and steel structure solidifies the plaza's prominence as an active destination by surrounding the plaza above and below grade with retail spaces. One of the Cubes' first retail tenants was an Asics store, which incorporated a 7-ton NYC subway car into its space – a unique retail experience for a unique structure.

The authors would like to thank Petr Vancura for his help in writing this article.

SCAW METALS JOINS THE SAPS IN CHANGING COMMUNITIES FOR THE GOOD

In partnership with the South African Police Service (SAPS), leading steel and steel product manufacturer, Scaw Metals Group destroyed more than 30 tons of illegal firearms at its Union Junction facility in Germiston. Crime prevention is high on the agenda in South Africa and key to the South African Police Service (SAPS) are the efforts to decrease the use of such firearms.

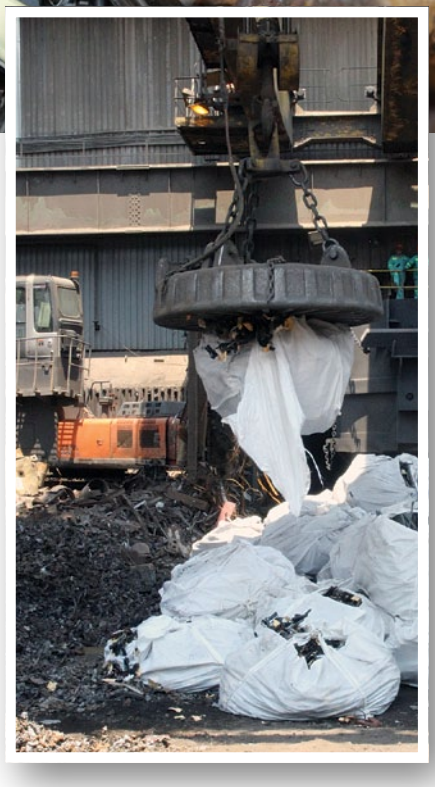
Markus Hannemann, Scaw Metals Group CEO says, "We are honoured to be part of the SAPS's destruction of illegal firearms initiative and we look forward to future collaborations. Together with the SAPS, we have indeed highlighted the importance of what can happen when we work together to improve our society. Scaw Metals will continue leading as an example to the steel industry on how vital it is to working in partnership to achieve positive growth.

The scrap metal from these firearms will be used to produce Rebar products which are used in the construction industry. Scaw Metals Group is committed to sustainable development of its products, and is a green steel accredited manufacturer of Rebar in South Africa.

Partnerships such as these add remarkable value to not only the steel industry but endorse positive social changes and harbour economic growth as well."

The SAPS have an ongoing policy and programme to destroy obsolete and redundant arms as well as illegal or confiscated firearms.

Alternative cost-effective solutions for producing products in the steel sector have become increasingly important as tough economic conditions continue to hike the price of raw materials. Scaw Metals can be seen as catalyst to infrastructure development as the Rebar products are used in the construction industry and further supports Governments rising infrastructure development plans.



ABOVE: Scaw Metals Group destroyed more than 30 tons of illegal firearms at its Union Junction facility in Germiston.

BELOW: Members of the SAPS as well as team members from SCAW (including Markus Hannemann, left)

By Kendal Hunt

FIRST CUT:

A cut above the rest for 60 years

and a **LASER-SHARP VISION** for the future

"We will not sell a machine unless we have the factory-trained technicians to support the customer after the sale."

Contact details:
Steve van Wyk
+27 11 614 1112
stevev@firstcut.co.za

60 seconds make up a minute and 60 minutes an hour. One might ask what 60 years would comprise. To First Cut, a leading South African manufacturer and distributor of capital equipment, cutting consumables and precision measuring tools to a broad range of industry sectors – from metal and fabrication to meat and maritime – 60 years represents far more than merely existing or the elapse of time.

Rather, 60 years represents a dynamic journey of courage and endeavour, openness and transparency, innovation and unmatched service. It is these qualities which have seen the company grow successfully from a small blade-sharpening business for the timber industry in Cape Town, to a market leader providing total cutting solutions to an enviable portfolio of customers, with a nationwide footprint and staff of 240 people.

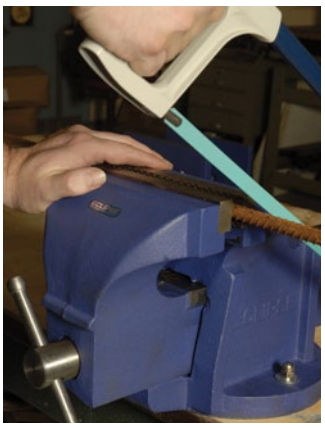
ABOVE LEFT: CEO Ian McCrystal (right) and Managing Director Andrew Poole (left).

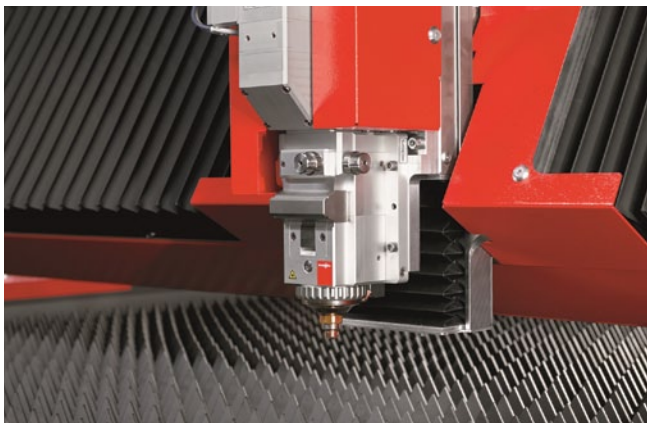
BELOW LEFT: First Cut service department technicians, Burckhard Neumann and Donald Cawood with a Bystronic 'Plug and Play' Xpert 40 bending machine.

Today, the company is led by the Managing Director Andrew Poole and CEO Ian McCrystal. Asked about the success of First Cut, McCrystal explains that the company's remarkable growth is largely due to bold strategic decisions made at certain milestones and inflection points in First Cut's history.

"In 1998, one of these key strategic decisions was the vertical integration of an import operation with a local manufacturing company. In 2002, these two companies merged to form First Cut. Central to this deal was the negotiation of an agreement with Neill Tools UK, to manufacture their products under licence in South Africa. This involved getting two competing suppliers to collaborate in the South African market – a bold move which required vision and open-mindedness from all concerned. This paid off and today, through First Cut, each of these companies has grown its respective local market share exponentially; and First Cut has customers in a broad range of vertical industries," he explains.

Since then, the consumables division has pioneered innovation in the business, and provided the foundation for First Cut's ensuing diversification and continued success.





ABOVE LEFT: First Cut's MD Andrew Poole at the recent 60th anniversary event in Johannesburg, showing members of the media First Cut's bandsaw blades welded and ready for packing.

ABOVE CENTRE: Eclipse mechanics vice and hacksaw frame with blade cutting rebar.

ABOVE RIGHT: Bystronic's new 10KW ByStar Fibre Laser Machine.

BELOW LEFT: First Cut Johannesburg staff.

The company then saw that, for customers to get the best out of their blades, they also required top-quality cutting machines. This was one of the factors that saw First Cut diversifying into capital equipment in 2002, with the milestone acquisition of Bandsawing Services. This facilitated First Cut's entry into the capital equipment market. The subsequent conclusion of a deal with the Everising Machine Company provided a sound base from which to begin selling capital equipment to the structural steel, sheet metal, tube and pipe industries.

Poole explains that the capital equipment division, although at just 14 years old the 'youngest' segment of the business, has grown, and continues to grow, vigorously.

He adds:"Our company has a 'triangular' business model, the points of the triangle being made up of consumable sales, capital equipment sales, and, very importantly, the provision of service and spares," says Poole.

Emphasising the equal importance of the three sides of the triangle, Poole asserts: "We will not sell a machine unless we have the factory-trained technicians to support the customer after the sale."Through its technicians and sales people, First Cut strives to get closer to the customer in order to assist in growing their businesses through the appropriate provision of cutting consumables and capital equipment accordingly.

A further contributing factor to the company's consistent performance is its dedication to quality, testimony to this being their stringent adherence to high standards and ISO 9001 (2008) certification. In addition, First Cut has gone out of its way to foster excellent long-term relationships with its overseas principals and customers. "Again, the strength of these relationships lies in honesty, integrity and openness, qualities we work on developing every day," continues McCrystal.

The strength of the relationships that First Cut has with its many consumables and capital equipment suppliers allows the company to offer South African industry the most advanced technology the world has to offer. An example of this is tube and fibre laser cutting, a technology that is up to twice as fast – and are far more energy-efficient – than conventional cutting.

"For example, apart from speed and efficiency, fibre laser offers the customer greatly increased versatility and all these features ensure excellent return-on-investment," asserts Poole.

These advanced cutting technologies are ably supported by the company's expert team – people who have also provided the experience and knowledge to enable continued growth. The majority of First Cut's employees have many years and – in certain cases – decades of service with the company. To ensure that staff members remain at the cutting edge of expertise, First Cut invests substantially in training and currently has six apprentices in its employment.

"We are working towards our next milestone in 40 years' time," explains Poole. "As articulated by our internal tagline and campaign to be 'one step better', we have sound plans for further innovation and diversification. These plans include expanding our engineering offering into the fields of welding and grinding. Our vast industry experience, superb supplier and customer relationships and ethical approach to doing business, we are very confident that we will see our successors toasting First Cut's centenary and looking to the future beyond," he concludes.

2016 SASSDA COLUMBUS STAINLESS STEEL AWARDS' WORLD-CLASS WINNERS ANNOUNCED

The 2016 Sassda Columbus Stainless Steel Awards, held bi-annually, are a clear indication that the local stainless steel sector is home to a wealth of world-class products and skill. This year's awards, held on 24 October at the Indaba hotel, announced a record 39 world-class winners *(see full list of winners below)* – up from the 14 awards presented in 2014.

These winners were drawn from a broader spectrum of sectors due to an expansion in the number of categories. This stems from a desire to broaden the scope of categories to ensure they are fully representative of the depth and diversity of the industry. In addition, not only were the awards over-subscribed in terms of sponsors, but they also exceeded all expectations in terms of the number of entries which increased from 43 in 2014 to 144 in 2016.

This year's Business Excellence Award, as well as the Overall Winner Award, went to Port-Elizabeth based tank container manufacturer Welfit Oddy. As the only manufacturer of tank containers in South Africa and the second largest tank container manufacturer globally the company exports 95% of its local production.

Other significant winners were the Lifetime Achievement Award that was given to John Cluett for his contribution to the local brewing industry in and the development and use of stainless steel in various applications within the food & beverage industry. Another lifetime achievement award went to Diego Sella for his outstanding contribution to Sassda and the stainless steel industry.

Looking at the enhanced stature of this year's awards Sassda Executive Director John Tarboton says; "After the huge increase in the number of entries and winners as well as the number of categories, we truly feel that the aim of the awards has been realised; namely to boost the growth and development of the local stainless steel sector. The hype created around the awards also means they've been invaluable in terms of raising awareness of stainless steel and its myriad of uses and applications within the local and global economy."

In tandem with the increased number of entries and winners the awards' judging panel was doubled in size to 12 industry experts from the fabrication, architectural, environmental, catering and welding sectors to name but a few.

Based on the standard of the entries received, creative expert Luke Hartdegen from Mettle Advertising commented; "The quality of the projects submitted, reflected a vast improvement compared to previous award submissions. For example, in engineering, the complexity of work submitted was far superior this year, and reflected an enormous overall improvement. We also saw more willingness from companies to use stainless steel as opposed to the usage of alternative metals in far more complex ways."

National Stainless Steel Centre Customer Relations Manager Tholwana Mogowane, who was also a judge, noted that the award entries revealed that people are no longer sticking to traditional plate or coil stainless steel formats as there's obviously increasing awareness of the fact that stainless steel can be used in a variety of formats.

Overall, Tarboton comments; "Our aim was to boost the aspirational value of the awards by ensuring that participants saw the clear return on investment that their participation and winning provides. We've also embraced a more modern approach to championing stainless steel across the continent and the awards are the perfect embodiment of this," concludes Tarboton.

BELOW: Sassda Chairperson Charles Cammell delivers the opening address at the 2016 Sassda Columbus Stainless Steel Awards.

BOTTOM LEFT: John Cluett celebrates winning the 2016 Sassda Columbus Stainless Steel Lifetime Achivement Award flanked by Sassda Chairperson Charles Cammell and Executive Director John Tarboton.

BOTTOM RIGHT: Overall Winner at this year's Sassda Columbus Stainless Steel Awards, Frank van der Burg from Welfit Oddy.

NEW MELROSE ARCH PENTHOUSE OFFICE SUITES

Joburg's premier business address, Melrose Arch, has crowned the iconic buildings around the iconic Piazza with exclusive new rooftop office space.

Taking workspace to new heights, Amdec has extended five office buildings by adding a new top floor to each one and, in doing so, redefined boutique corporate space. The 4 800sqm of new office space is designed in stylish steel and glass, providing a chic executive aesthetic with great views of the precinct and its surrounding vistas.

All five rooftop office suites will be complete before the end of the year, offering flexible space from 100sqm to 1 500sqm with lots of adaptability.

Renee Feeney, head of leasing at Melrose Arch explains that developing the exclusive new rooftop office spaces was undertaken in response to demand.

"The demand for offices at Melrose Arch continues to be strong. Its corporate appeal is enhanced by the many facilities it houses for businesses and employees. With internationally renowned hotels, conference and event venues, a host of quality restaurants and ideal everyday amenities, Melrose Arch is particularly popular with multinational businesses," reports Feeney.

In addition, Feeney points out that the new Melrose Arch rooftop offices add to the variety of workspaces available at the leading live-work-play-stay precinct. Melrose Arch includes a selection of tailor-made large branded corporate headquarters as well as vibrant multi-tenant office environments.
There is a big representation of blue-chip companies that call Melrose Arch home, including engineering giant Worley Parsons.

Feeney confirms the new rooftop suites are the final phase of the prominent Melrose Arch Piazza.

INSET: Renee Feenay, Head of Leasing, Melrose Arch.

ABOVE AND BELOW: The new rooftop offices at Melrose Arch.

ALL FIVE ROOFTOP OFFICE SUITES WILL BE COMPLETE BEFORE THE END OF THE YEAR, OFFERING FLEXIBLE SPACE FROM 100sqm TO 1 500sqm WITH LOTS OF ADAPTABILITY.

SAIW FOUNDATION LEARNER SECURES AN INTERNSHIP

ABOVE (from left to right): In2Structures' director Linda Wijnberger, Angel Mthebula and SAIW's Michelle Warmback on the premises of In2Structures.

> "There are so many people who could benefit from the wonderful career opportunities that welding offers but who simply cannot afford it..."

The SAIW Foundation was started by the Southern African Institute of Welding (SAIW) as a public benefit organisation to provide training to disadvantaged individuals. Training areas include welding and inspection, the training of trainers for welding, related technologies and more.

"There are so many people who could benefit from the wonderful career opportunities that welding offers but who simply cannot afford it. The SAIW Foundation will provide as many of these people as possible this opportunity," says SAIW executive director Sean Blake.

He says the initial seed funding for the SAIW Foundation has come from the Institute but the idea is for the industry at large to participate. "We want the SAIW Foundation to become a conduit for the welding industry's charitable efforts so that, through economies of scale, we can give as many youngsters as possible a chance in life, while at the same time doing as much as we can to alleviate the skills shortage in our industry."

Nonhlanhla Angel Mthebula's internship with leading dome structure manufacturer In2Structures in Wynberg, Johannesburg is an excellent example of this. Angel was part of the first ever group of trainees that was brought to the SAIW for training through funding by the SAIW Foundation. Her internship materialised after In2Structures made a donation to the SAIW Foundation for Angel's training on the SAIW's IIW International Welder training programme. As a result of this donation, Angel's training is being extended to include GMAW welder training and welding aluminium. Part of the agreement was that she would do the internship at In2Structures.

Angel says she is delighted with her internship with In2Structures. "I have been working hard at the SAIW to progress in my International Welder course and I will now have the chance to implement what I have learnt in the real world," she says.

Blake says that this agreement between In2Structures' and the SAIW represents an excellent win-win situation. "As In2Structures' core business is welding, they wanted to give something back to the welding community. They also wanted to improve their BBBEE score on skills development through investing in the training of a black female welder. At the same time, the SAIW Foundation requires funds to train more previously disadvantaged people. This was such an easy way for both parties to meet their individual objectives .We hope that other companies follow In2Structures example," Blake says.

Robor *assists* RHINO RELOCATIONS

Robor recently donated 12 tons of steel and assisted in the re-drawing of steel boma designs to support the valiant efforts of the "Rhinos Without Borders" team. The project coordinators so far have facilitated in the relocation of 31 Rhinos, with plans to move a total of 100 rhinos.

Robor's donation of steel will be used for the construction of mobile steel section bomas that can be moved across reserves, from one release site to another. This greatly reduces the conflict associated with releasing many Rhino from the same boma and therefore significantly improves the success of the project.

The Robor engineering works are hoping to complete the full 51 steel sections by the end of November 2016, for an official handover of the "Robor Rhino Bomas" to the Bostwana Wildlife Department. Robor is truly honoured to have been able to assist in this very worthy project and we sincerely hope that our role will go a long way toward the preservation of the Rhino species.

www.robor.co.za

Imagine a world without steel. *We Can't...*

Established in 1922, Robor is a world-class South African manufacturer and supplier of welded steel tube and pipe. Robor also supplies and adds value to carbon steel coil, plate, sheet and structural profiles. Robor is active in most industries, including Mining, Transport - rail and road, Construction, Engineering, Agriculture, Energy, Water and Automotive through the supply of steel, cold formed steel profiles and associated value added products including galvanizing.

SAPVIA South African Photovoltaic Industry Association

steel Southern African Institute of Steel Construction

ISF

CIDECT

NAACAM

Executives' Global Network South Africa

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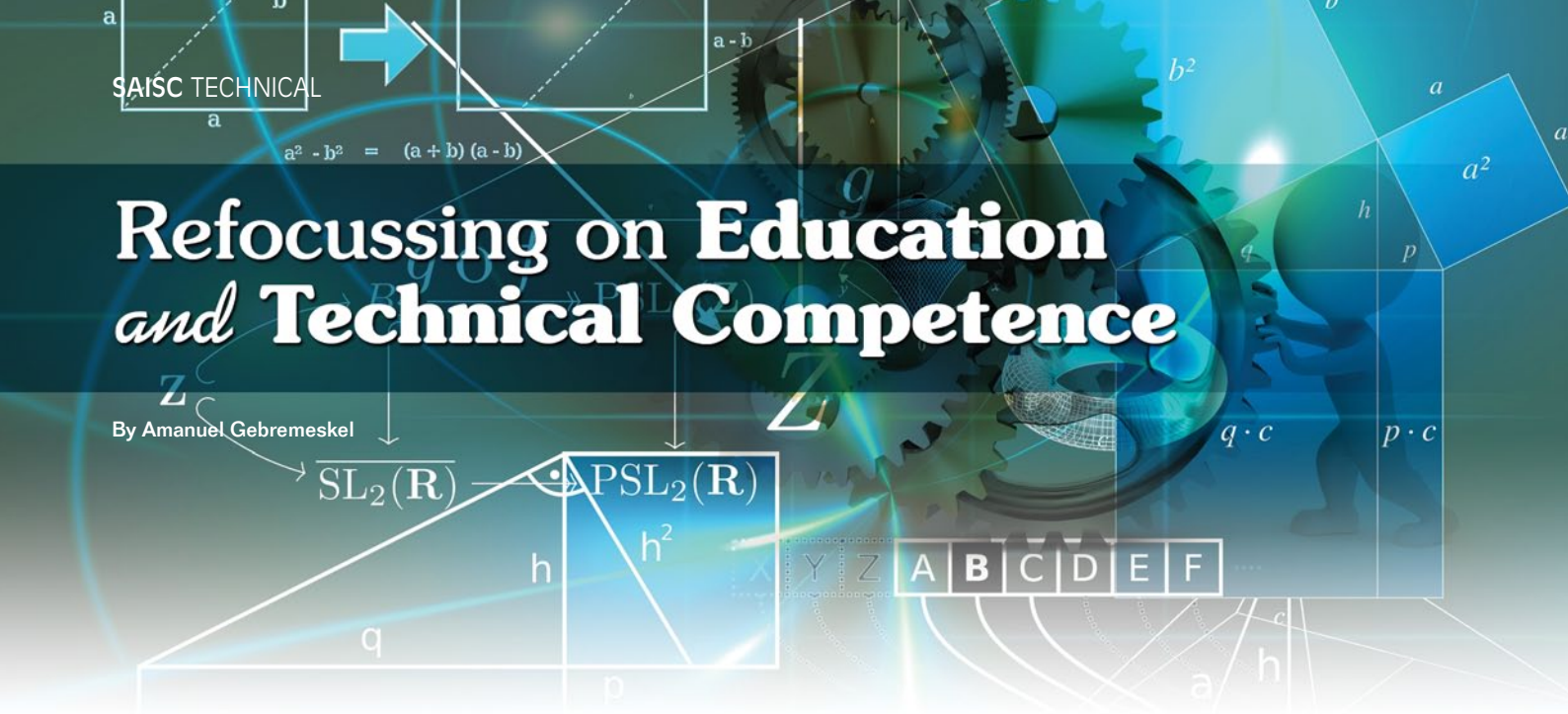
For more information:

Tel: +27 (0)11 971 1600 E-mail: info@robor.co.za www.robor.co.za

Refocussing on Education and Technical Competence

By Amanuel Gebremeskel



An interesting paper was published by the Global Cities Institute in 2014. It projects that by the time children born today get old the ten largest cities in the world will consist of six in sub-Saharan Africa and four in and around India. These cities will have populations ranging from 50 to 75 million each. The largest Western city, New York, will be ranked 25th with a population of a mere 27 million.

Cities remain the anchors of our civilization. They are the engines of cultural, economic and political development. From our vantage point today it is hard to imagine how sub-Saharan Africa and South Asia are ready for the leadership role in defining future cities.

We frequently review highly advanced nuclear power plant design papers from South Korea. It is easy to forget how only a few decades ago the most insightful academics relegated South Koreans to a future of agrarian life on rice paddies. Going back a few more decades the same can be said of projections about Germans, Russians and even the Japanese.

The one common attribute between these different people is not their culture nor their looks. Their governing political and economic systems were also highly varied. It is that they were focused on developing their technical competence for a few decades before jumping to a higher level of economic and political organization. It is clear that investment in technical competence is simply irreplaceable.

A year like 2016 can easily distract from such focus. South Africa lost a major steel mill and the remaining ones have been struggling to cope with low commodity prices and cheap imports from aggressive Asian producers. One of South Africa's largest trading partners, the EU, appears to be on the brink of disintegration after Brexit. To top it off there is a drought, the Rand has remained low and politicians are acting up.

Therefore, it is hard to blame the Steel Institute for focusing on helping the industry by lobbying government and supporting efforts to place protections in place for local mills, merchants and fabricators.

But we must refocus on technical competence.

Amanuel gave the post graduate steel design course at the University of Witwatersrand and later witnessed first-hand riots and temporary University closure. The Institute offices have been used to help the 4th year graduating class to complete their projects while the campus was closed. In these difficult times the Institute requires direct support from the industry, universities and relevant state organs to continue these efforts.

In 2016 the Institute also published a second printing of the 8th Edition of the Steel Construction Handbook after much work on updating tables for HSS columns and light gauge purlins. Those students who are at university need these Red Books. We cannot afford a year without engineering graduates, even less, engineers who do not know how to design steel structures.

For a second year in a row UNISA students were supported by setting steel projects for them and providing the 2016 release of the SAISC eToolkit for the design of their connections. The same is planned for the University of Johannesburg next year. The number of high profile problems arising from deficient connection designs implies that we need to continue pushing standardization and training. Top engineering firms need to make the link between avoiding these problems and the need for technical training.

2016 saw the Institute supporting new market development projects from building frames to novel transportation systems that make use of composite members. The year also saw work start on the fire investigation of our own modular office building system.

Irrespective of the temporary distractions, we cannot stop technical work in all these areas. We have yet to build the largest cities in human history.

Irrespective of the temporary distractions, we cannot stop technical work in all these areas. We have yet to build the largest cities in human history.

SOCIAL SNIPPETS:

By Marlé Lötter, Events Manager, SAISC

Designations Industry Meeting

Macsteel Head Office Auditorium, Thursday 6 October 2016

LEFT AND ABOVE: Donald MacKay from XA International Trade Advisors addressed a full house to discuss the technicalities and potential impact of downstream tariffs.

SAISC AGM

Country Club Johannesburg - Auckland Park, 3 November 2016

THE SAISC'S COUNCIL MEMBERS FOR 2017 FROM LEFT TO RIGHT:

Kobus de Beer (POLASA), Granville Rolfe (Macsteel) Vincent Kanyongolo (Dyambwini Construction), Paolo Trinchero (SAISC), Bryan Wilken (B&T Steel), John Swallow (CADEX Systems SA), Neels van Niekerk, Director (ISF), John Barnard (SASFA), Eileen Pretorius (AVENG), Johan van der Westhuizen (GRS), Dennis White (SAMCRA).

SASFA AGM

Country Club Johannesburg - Auckland Park, 3 November 2016

SASFA EXCO FROM LEFT TO RIGHT:

S Tlhotlhalemajoe (Framecad), R Hylkema (Kare); T Nyepela (Saint-Gobain); D van Zyl (Kwikspace) – new Chairman; C Smith (Razorbill); A Robertson (Marley Building Systems); J Barnard (SASFA); T Bywater (standing in for M Bywater, Global Innovative Building Systems); M Kruger (Trumod) – past Chairman; M Hickers (ArcelorMittal); C Katchipande (Gifa); U Schluter (standing in for S Murray, MiTek).

Apologies: A de Klerk (Everite); P Trinchero (SAISC).

POLASA AGM and Industry Meeting

Country Club Johannesburg - Auckland Park, 7 November 2016

STEEL AWARDS 2016

GAUTENG, EMPEROR'S PALACE

ABOVE: Craig Parry of BSi Steel (left) and Paolo Trinchero (right) with the overall winning project team from the Eastgate Phase 2 Refurbishment.

LEFT: Tim Tasioulas is named SAISC Honorary Member 2016.

RIGHT: Paolo Trinchero, John Swallow, Michael Tree (overall Winner of the Cadex SA Photo Competition) and Andrew Spottiswood.

ABOVE LEFT: A representative from Olhorst accepting the joint winner award for the Saint-Gobain Light Steel Frame category on behalf of the Mall of Africa Facade and Parapet Walls team.

ABOVE CENTRE: Rob Mylroie, accepting the Commercial Architectural Category award on behalf of the Eastgate Phase 2 Refurbishment project team.

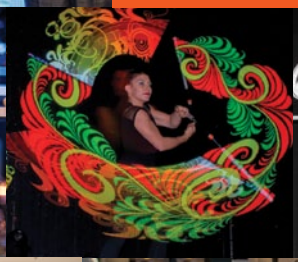
ABOVE RIGHT: Chris Smith, accepting the joint winner award for the Saint-Gobain Light Steel Frame category on behalf of the OPD Unit Mbabane Hospital project team.

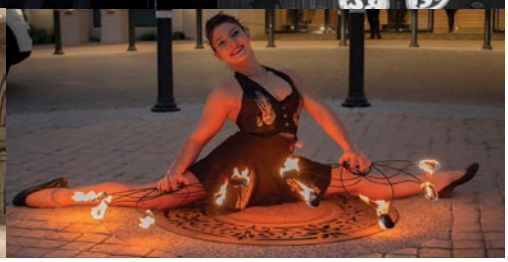
RIGHT: Richard Butler, accepting the GRS Metal Cladding Category award on behalf of the STATS SA project team.

FAR LEFT: The SAISC School of Draughting top students, with Fergus Derwin of Genrec (left) and Roelf Lizemore, head of the school (right).

LEFT: Francois vd Merwe, accepting the ASTPM Tubular Category award on behalf of the Siesa Ramabodu Stadium project team.

BELOW: Sponsorship recognition and a first at steel awards, fire dancers and an innovative LED show.





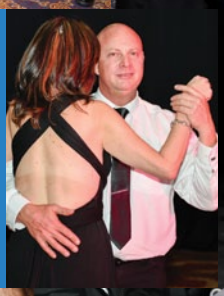
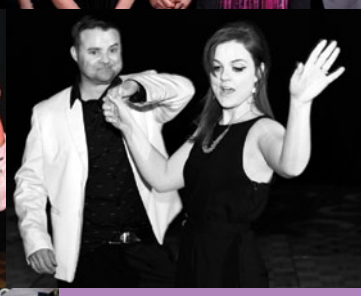


TOP LEFT: Tim Tasioulas and his father, celebrating the legacy of their company Tass Engineering.

LEFT: A key motif in the visual production, the Morris Minor.

TOP CENTRE: The Gauteng New Generation Students.

TOP RIGHT: Guests had great fun at the greenscreen photobooth.

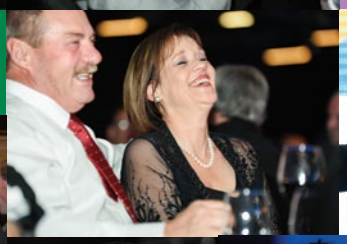



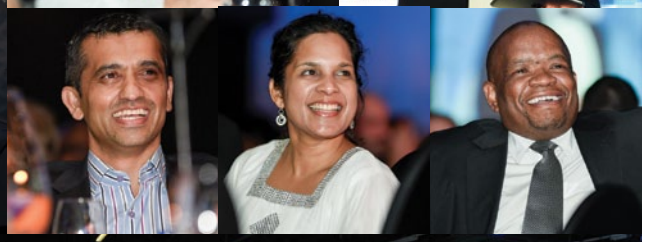

ABOVE: Some guests were brave enough to venture to the dancefloor!

LEFT: Guests paging through the Steel Awards edition of the Steel Construction Journal.

BELOW: MC and comedian Al Prodgers had the audience in stitches.

THE EVENT IS ALWAYS A GREAT OPPORTUNITY FOR NETWORKING AND A BIT OF FUN!








CAPE TOWN, TABLE BAY HOTEL

ABOVE: Kobus de Beer, SAISC (left) and Michael Papanicolaou SAISC Western Cape Chairman with the regional Top Students.

TOP LEFT: A representative from the Saldahna LPG Bullets project accepting the award on behalf of Lindsay Apollis, Winner of the CADEX Systems SA regional photography competition.

TOP CENTRE: Michael Papanicolaou accepting the Mining and Industrial Category award on behalf of the project team for the Husab Uranium Stockpile.

FAR LEFT: The Constantia Tree House project team, winners of the Residential Architectural category for Steel Awards 2016.

LEFT: Nik Rabinowitz, MC for the evening at the Cape Town Steel Awards.

GUESTS EMBRACED THE 60s THEME, WHICH WAS ECHOED BOTH IN THEIR OUTFITS AND THE VENUE DECOR

DURBAN, MOUNT EDGECOMBE COUNTRY CLUB

ABOVE: Best Dressed spot prize winner at the KZN Steel Awards.

BELOW: Richard Stretton of Koop Design, receiving a framed copy of the winning photograph of House Blue Crane.

ABOVE LEFT AND RIGHT: The project team from the Mr Price Warehouse Project, winners of the Safintra Factory and Warehouse category.

ABOVE LEFT: Regional top students get ready to take the stage.

ABOVE RIGHT: Greg Parrott (left) and Neels van Niekerk (right) with KZN regional top students.

LEFT: Roger Jardine, winner of the Cadex SA regional photo competition.

RIGHT: Spot prize winner at the KZN Steel Awards.

RIGHT: The Team from Midax House, Zinkwazi Beach, receiving a special commendation for the Residential Architectural category.

FAR RIGHT: The Team from Dabmar Manufacturing, receiving a special commendation for the Safintra Factory and Warehouse Category.

LEFT: Always a pleasure to see a fresh, crisp Steel Awards edition of the Journal.

RIGHT: MC Aaron McIlroy infused the evening with a sense of mischief and great fun.

THE DURBAN STEEL AWARDS GUESTS WERE DRESSED TO THE NINES!

ABOVE: The 60s were certainly a time of elaborate dishes.

BELOW: Sponsorship recognition.

STEEL AWARDS 2017 ARE OFFICIALLY OPEN FOR PROJECT NOMINATIONS!

The annual Steel Awards are by far the highlight of the structural steel industry, providing a platform to showcase excellence in the use of structural steel while connecting with peers, clients and other industry stakeholders.

STEEL AWARDS 2017 WILL BE TAKING PLACE ON 13 SEPTEMBER 2017

AND FOR THE FIRST TIME EVER, WE WILL BE OPENING PROJECT NOMINATIONS EARLY, IN NOVEMBER 2016

Who can nominate a project?

Clients/Developers, Architects, Main Contractors, Project Managers, Structural Engineers, Quantity Surveyors, Fabricators, Merchants, Steelwork Contractors, Steel Detailers, Cladding Suppliers, Cladding Contractors… or any other project team members.

What criteria do the judges consider?

Only structures in which Southern African steelwork contractors played a significant role will be considered. The primary question our Steel Awards judges ask when reviewing project entries is "Does this project illustrate what can be achieved with steel?"

Other factors considered include:

- The importance of steel as a structural component in the project
- Benefits achieved by using steel construction
- Aesthetic appeal
- Environmental sustainability
- Innovation in design, fabrication or construction
- Technical prowess required for realising the project
- Engineering expertise
- Exceptional quality of workmanship
- Satisfaction of client's brief (cost/time efficiency)
- Special details, connections or unique features
- Value to society/community development

How to nominate a project:

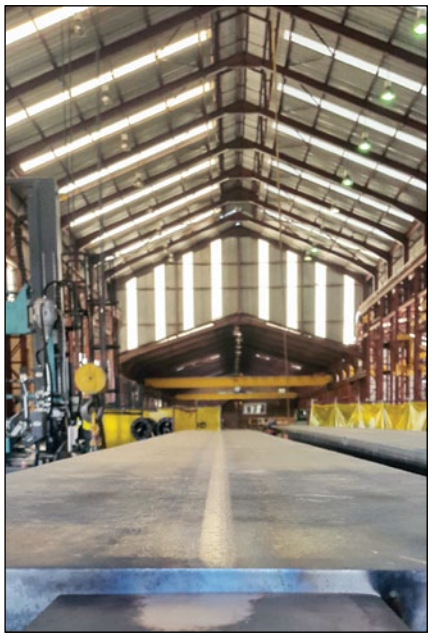
For a detailed guide on the project nomination process and fee, visit www.saisc.co.za or for more information contact Denise Sherman, denise@saisc.co.za / (011) 726 6111

IMPORTANT DATES/ DEADLINES THAT PROJECT NOMINATORS NEED TO BE AWARE OF:

Earlybird discount deadline – 31 January 2017 • Project Nomination Deadline – 31 March 2017

Steel Services Instagram

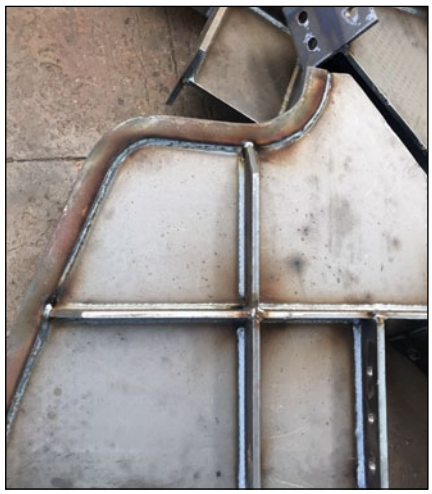
By Kevin Harris, Director – Steel Services (Images taken by Kevin Harris)



Structures that are designed for the mining sector are usually one hundred percent functional. Its not often that the aesthetic characteristics of a structure are given any attention by the designers. This however doesn't mean that there is an absence of an artistic edge to the structures that we build. If one looks a little deeper, or from a different angle, one begins to see that these structures have a softer side. Through the Steel Services Instagram account, I try to capture the beauty hidden behind the harsh lines or find an angle that introduces a fresh perspective on a shape that, superficially, has no special interest. The technology employed in our factory also provides some great photographic opportunities to showcase colour and scale. Beyond all of that, there is also a human element. It is only through human intervention that these amazing designs see the light of day. Steel is a magnificent and versatile material and I invite you to join me on this journey to document the beauty of this often underappreciated aspect of our industry.

Follow @steel.services on Instagram

*"Through the **Steel Services Instagram account**, I try to capture the beauty hidden behind the harsh lines or find an angle that introduces a fresh perspective."*



ISF 2016

by Neels van Niekerk, Director ISF

The global fabricated structural steel market is still at its lowest level of this century. New projects in our prime target market, large new mining projects in Africa, remain scarce and well competed for. The market is not expected to show any noticeable recovery for the next few years. As long as commodity prices remain suppressed, only the top new mining prospects will succeed in attracting the required funding for implementation. A number of graphite mining projects in Southern Africa are progressing well.

The promising Mozambique coal market has also not yet bounced back since the Tete coal projects. The only major projects in neighbouring states are in the LNG industry of Mozambique and Tanzania. The offshore floating plant of ENI will first be constructed with onshore plants to follow. We continue to witness the increased activity of foreign structural steel contractors in Africa. This is expected to continue until the structural steel markets in Western Europe and the Americas recover.

Members that shifted their focus to smaller brownfield mining extensions, warehousing, storage projects, etc. as well as following modern shifts in these markets, still maintain their export levels. The majority of exports were destined for countries within the Southern and Eastern parts of Africa. We expect total structural steel exports, excluding products not produced by our members, to only drop 10% from the 2015 level.

IN 2016 the ISF continued to promote a change in the strategic focus of its members. The most important shift is the continued increase in the African marketplace to receive solutions rather than product. The demand for ex-works or FOB fabricated structures is decreasing. The market for un-erected structures for large projects is fiercely competed for by Chinese and other Eastern fabricators and on an increasing basis, also from the Middle East and Europe. Our competitors tend to become part of bidding consortiums and do not wait for the award to main contractors to commence their marketing efforts.

The swing of mining clients away from the budget and procurement EPCM model continues. EPC lump sum turn-key and various other forms of contracting are becoming more in use. Owner project management continues to be on the increase.

Metal Building Systems (pre-engineered) manufacturing is slowly gaining ground with small but growing exports from South Africa. The ISF will work closely with SAISC in the coming year to further establish girder and section manufacture, which also forms the basis of MBS. Concepts such as single sided non-continuous welding and tapered sections need to be well defined within the South African industry.

ISF highlights for the past year include:

- The new additional oil and gas focus of the ISF and members resulted in exhibiting at the OTC Houston event, engaging with Houston, Paris and London based EPCMs and visiting the LNG project sites in Mozambique. The ISF was successful in introducing a number of new suppliers to the EPCMs.
- The ISF and members visited a large number of EPCMs and mining houses in Perth and Brisbane.
- The ISF continued to interact with the Government on various subjects including the national export strategy, implementation of the NDP, as well as the steel industry in general. The ISF CEO was also appointed to the Governmental Steel Committee on steel tariffs, etc.
- A major disappointment was the cancelling by the dti of four out of five of our scheduled missions and National Pavilions to date. The destiny of the sixth event i.e. PDAC Canada is still uncertain.

www.isf.co.za

BELOW: Visitors to the exhibition at the Offshore Technology Conference (OTC) in Houston, Texas.

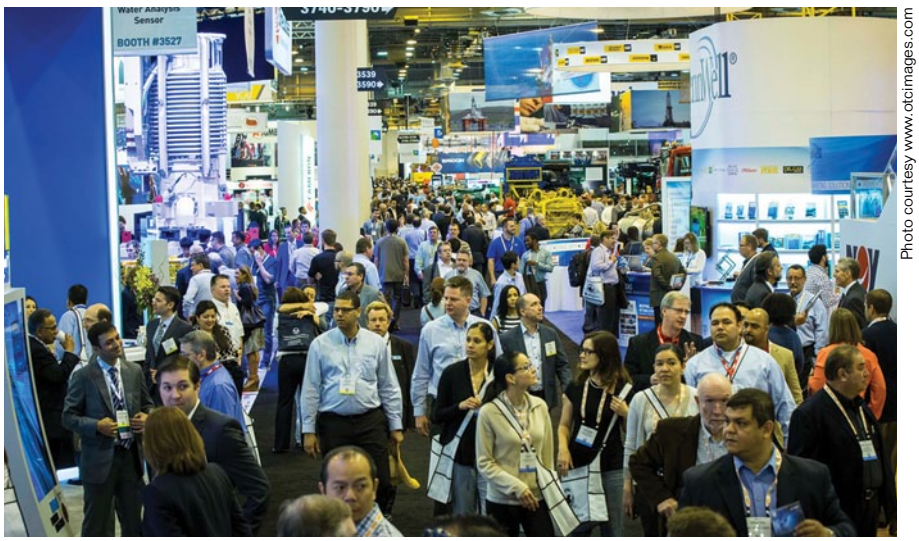


Photo courtesy www.otcimages.com

SAMCRA 2016

A positive year *despite* the gloom

By Dennis White, Director SAMCRA

Even though the past year has proved to be more challenging than the previous one for our members and the construction industry as a whole, it has been a successful one for SAMCRA with increased membership and a number of goals achieved.

In September 2015 we presented a workshop to the final year architectural students at Tshwane University. The workshops presented in Kenya during April 2016 were successful and we have been invited to present similar workshops in Tanzania and Uganda. In July we participated in a presentation on the installation of PV cells on metal roofs to the engineer responsible for sustainability and utilities at Growthpoint Properties and have subsequently been invited to present a workshop on metal cladding to their projects department. Our proposals to the Department of Public Works for a series of workshops for their architects, quantity surveyors and engineers, as well as building inspectors have been accepted. We plan to present our first workshop for architects in January/February and are currently preparing a workshop for design engineers and will participate in the SAISC workshop for quantity surveyors.

Whilst we have not been able to persuade insurance underwriters and developers to become members of SAMCRA we continue to act as paid technical consultants to various parties.

During the year we published a number of articles on a variety of subjects pertaining to metal cladding which have been well received. Our website is proving popular (average 139 hits/mth in 1st half of the financial year and 377/mth in 2nd half) and has resulted in numerous requests for assistance, information and enquiries about workshops.

In the last year, we gained three new members, but regrettably lost one. There are five applications pending.

SAMCRA participated in the dti industry workgroup for the amendments to the National Building Regulations and Building Standards Act. Whilst the draft for the amendments to the Act has been completed, work has yet to begin on the amendments to the National Building Regulations.

SAMCRA has continued to participate on a number of SABS Technical Committees which are relevant to the cladding industry, including TC-60 which is responsible for the SANS 10400 series. Although the final draft for the revisions to SANS 10400 Part-L 'Roofs' was issued to the members of TC-60 for acceptance in August, it failed to receive sufficient votes for acceptance due to the inertia of some members to cast their ballot. An extension to the end of September suffered a similar fate. The SABS secretariat has been instructed to issue a notice of cancellation of membership to the recalcitrant members, should they not have voted by October 31. The sub-committee responsible for the revision to SANS 10400 Part-XA has failed to complete its work and has been given a deadline of 30 November to comply. The final draft of SANS 10237 'The design, testing and installation of self-supporting metal cladding' has also stalled. Following meetings with the National Regulator for Compulsory Specifications we are being encouraged to apply to have SANS 10237 made a compulsory specification, however, this will be a lengthy process.

We have had encouraging discussions with members of the academic staff at North-West University regarding the establishment of a testing facility for metal cladding on the campus and await their formal written proposal.

New work items are the establishment of a training programme for installers of cladding and the drafting of a cladding handbook/s.

We have had encouraging discussions with members of the academic staff at North-West University regarding the establishment of a testing facility for metal cladding on the campus

SAMCRA
SOUTHERN AFRICAN METAL CLADDING AND ROOFING ASSOCIATION

www.samcra.co.za

SASFA 2016: YEAR IN REVIEW

THE MISSION OF THE SOUTHERN AFRICAN LIGHT STEEL FRAME ASSOCIATION (SASFA) IS TO DEVELOP AND GROW THE SOUTHERN AFRICAN AND EXPORT MARKETS FOR LIGHT STEEL FRAME BUILDING (LSFB)

By John Barnard, Director SASFA

SOUTHERN AFRICAN LIGHT STEEL FRAME BUILDING ASSOCIATION

www.sasfa.co.za

LSFB has developed into a viable alternative building method for a range of low to medium rise buildings during the past ten years. The steel consumption of this industry has grown to some 20 000 to 25 000t/yr of high strength galvanized steel sheet, as well as significant volumes of cladding and lining materials, fasteners and insulation. LSFB is increasingly being used in multi-storey office and commercial buildings, where it is replacing heavy masonry curtain walls.

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

Publicity

- Growing the awareness of light steel frame building as an environmentally friendly and sustainable building method is one of SASFA's primary objectives. The target audiences range from the professions – engineers, architects and QS's – to builders, the building material supply chain, building authorities and financial institutions right down to prospective clients. The major promotional activities were:
  - *Media articles:* some 30 media articles were placed in 13 prominent publications to expand awareness of LSFB.
  - *Steel Awards:* 15 LSFB entries were received – almost a third of the total number of Award entries! Two projects were selected as joint winners of the Saint-Gobain sponsored light steel frame building category by the judges – Façade Walls Mall of Africa and the Clinic, Mbabane Hospital, Swaziland.
- A quarterly informal newsletter is sent to members to keep all informed about developments in industry.
- SASFA website: continues to draw more than 1000 visitors per month, and serves as an important source of information for all.
- Liaison with professional groups: a presentation on LSFB was made to a NHBRC seminar in Nelspruit, and to several architect practices.
- Industry feedback meetings (3) were held in the major centres. It serves as an excellent forum for networking.
- Presentation on LSFB was made on request to Smartbuild, an international conference on innovative building technologies.

Training

As part of the strategy to protect and enhance the quality of LSF buildings, SASFA offers a number of training courses,

focusing on the designers, building contractors and building inspectors.

- The 6-day LSF training course for building contractors was presented in Alberton and Cape Town, to a total of 27 attendees. This brings the total number of people who successfully completed the course to 342.

We also had students from Swaziland, Namibia and Zimbabwe attending, illustrating the growing interest in LSFB in Sub-Saharan Africa.

- The SANS 517 Code course aimed at architects, QS's and Engineers, Property Developers etc, and

The Cold-formed Steel Design course for Engineers were presented in Johannesburg, Durban and Cape Town (127 attendees).

- Annual lecture to University of Pretoria final year building science students was delivered to a group of 60 students.

Technical

- SASFA again assisted final year Engineering students to do research into various aspects of LSFB.
- A consultant was appointed to carry out research into the energy efficiency of an ETICS clad office building, compared with a masonry building.

Codes and standards

- Work on a comprehensive revision of SANS codes and standards has largely been completed:
- SASFA is represented on the SANS 10400L (Roofs) committee of the SABS, to ensure that LSF is correctly covered in the code revisions.
- SASFA is represented on the SABS committee SC98C, which is responsible for all standards dealing with steel or aluminium in building and construction.
- Thorough revision of SANS 517 is under way, and should be completed by year end.

Accreditation

Preparations have been made to start the competency assessment of LSF builders.

Committees

SASFA's Exco, Technical and Training committees met on a bi-monthly basis, involving 24 industry specialists from 18 member companies.

Quality monitoring

SASFA was approached by a few clients who were not satisfied with their LSF building projects. Technical aspects of the projects were investigated and remedial measures discussed with the builders.

Industry statistics

SASFA undertook its annual industry survey to quantify LSFB activity in Southern Africa. Demand for LSF showed an increase of 10% in 2015 compared with the previous year, with the growth being in roof structures, rather than in complete building systems. This is an excellent achievement, in view of the 8% decline in building activity reported by STATS SA.

Membership and finances

New membership applications by 6 companies were received and accepted, while 8 members were suspended due to unpaid membership fees – an indication of the dire conditions prevalent in the building industry. A project was launched to analyse SASFA's value proposition to its members.

SASFA's actual income was 2% below budget, more than offset by a 13% reduction in expenditures.

OPPOSITE PAGE BELOW LEFT: Johannesburg audience attending the Cold-formed steel design course to SANS 10162:2, presented by SASFA in collaboration with University of Stellenbosch.

OPPOSITE PAGE BELOW RIGHT: Training course for LSF building contractors, presented in Cape Town. The students erect the structure as part of the 6-day course.

ABOVE LEFT: Joint winner of the LSF category at the 2016 Annual Steel Awards function: Mbabane Hospital Clinic, built using LSF.

LEFT: Joint winner of the LSF category at the 2016 Annual Steel Awards function. The external walls of the Mall of Africa was supplied using LSF end Etics external cladding.

POLASA 2016 IN REVIEW

By by Kobus De Beer, Director, Polasa

The Association was formed as an independent sub-association of the SAISC (Southern African Institute of Steel Construction) some years ago to focus on the needs of the South African power line producers and constructors in view of work lost to importers and a number of companies shutting down.

The Association was formed as an independent sub-association of the SAISC (Southern African Institute of Steel Construction) some years ago to focus on the needs of the South African power line producers and constructors in view of work lost to importers and a number of companies shutting down. POLASA has gone from strength to strength over this difficult period.

Four years ago the "burning platform" was the lack of work and the lack of continuity of work placed with industry. ESKOM also had serious problems to provide unrestricted access to line construction sites due to delays in right-of-way approvals, water licenses and the many requirements to accommodate local communities.

Today the industry has more than 2 000km of new lines on order of which some 1 600km still has to be built in the current and next financial years – the new "burning platform" is to find resources and balance the work flow between the number of competing companies, also from Europe and Asia.

The terms of reference and purposes of the Association

- Membership of POLASA is open to all contractors for ESKOM's transmission and distribution line requirements.
- POLASA is managed by an elected Board of Directors from the industry, each focusing on specific areas of relevance.
- There are no barriers to participation by foreign companies pre-qualified and approved to manufacture and build lines in South Africa for ESKOM.
- The purpose of the Association is to actively promote the development, growth and flexibility of its members in South Africa and to facilitate participation in training and education as well as the development of export markets in collaboration with the SAISC activities.
- POLASA actively seeks to add value to ESKOM's actions and requirements by creating platforms to facilitate high level bilateral discussions between ESKOM and industry.
- Currently regular meetings with ESKOM executives take place in areas of common interest such as Safety, Design, Engineering, Quality, Contracting and Execution, etc.
- The Association fully supports healthy competition between entities but endeavours to resolve issues that restrict the industry from performing at optimum levels of productivity, quality and safety. Strict compliance with anti-competitive legislation is maintained.
- POLASA was instrumental in providing supporting evidence for the Department of Trade and Industry (DTI) to recommend that the following products be formally "designated" ie that these products must be fully locally made in South Africa, including the supply of all steel required:
  - Poweline hardware – 100%
  - Steel power pylons – 100%
  - Monopole pylons – 100%
  - Steel substation structures – 100%
  - Street lighting steel poles – 100%
  - Steel lattice towers and masts – 100%
- POLASA has actively supported ESKOM in implementing the above, particularly regarding buying practises in the various districts and remote locations. All POLASA members are being encouraged to use the opportunity to develop more productive and cost effective facilities and to actively pursue export markets.
- The SAISC publish various design and engineering handbooks, conducts education and training courses, organise seminars, talks and conferences, publishes quarterly journals and maintain international contacts in the fields of structural design, fabrication and construction. This is extended to include transmission line requirements where appropriate.

Membership applications can be made at kobus@saisc.co.za or by contacting Kobus de Beer (011) 726-6111.

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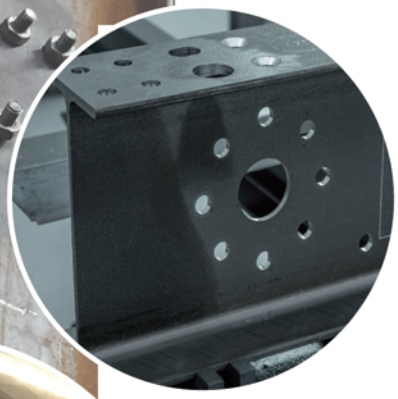

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