OFFICIAL JOURNAL OF THE SOUTHERN AFRICAN INSTITUTE OF

steel CONSTRUCTION

VOL. 43 ISSUE 6 – 2019

SAISC YEAR IN REVIEW

STEEL AWARDS 2019 REPORT BACK

INTERNATIONAL PROJECTS IN STEEL

SOUTHERN AFRICAN INSTITUTE OF STEEL CONSTRUCTION

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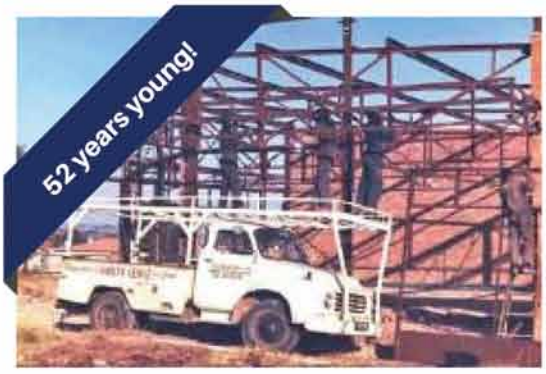
OUR STEEL IS BUILDING THE NATION
OUR QUALITY IS BUILDING OUR REPUTATION



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Tass Engineering has been actively involved in Structural and Architectural Steel Fabrication and Erection for **over 50 years.**

SAIW Southern African Institute of Welding

iiw

SEIFSA Steel and Engineering Industries Federation of Southern Africa

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TEL +27 11 975 0647 FAX +27 11 970 1694 EMAIL TASSENG@MWEB.CO.ZA

WWW.TASSENGINEERING.CO.ZA

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TAKEN AT Cadcon (Pty) Ltd

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THE SOUTHERN AFRICAN INSTITUTE OF STEEL CONSTRUCTION

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REGULARS

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www.saisc.co.za I info@saisc.co.za

EDITOR: Denise Sherman, denise@saisc.co.za **SUB-EDITOR:** Amanuel Gebremeskel, amanuel@saisc.co.za **ADVERTISING:** advertising@saisc.co.za
LAYOUT: Sandra Addinall, +27 (0)11 868 3408 I +27 (0)83 601 7209 **REPRO AND PRINT:** TYPO Colour Printing Specialists cc

SAISC MANAGEMENT TEAM:
CEO: Paolo Trinchero, paolo@saisc.co.za I Technical Director: Amanuel Gebremeskel, amanuel@saisc.co.za
SASFA: John Barnard, john.barnard@saol.com I SAMCRA: Dennis White, dennis@saisc.co.za
STEASA: Keitumetse Moumakoe, keitumetse@steasa.com

SAISC COMMENT

PAOLO TRINCHERO
CEO, SAISC

CEO'S REPORT **2018/2019**

INNOVATION AND ENGINEERING ARE GOING TO BECOME A MAJOR FOCUS IN THE COMING YEARS AS THIS IS THE KEY TO MANY OF THE CHALLENGES WE ARE FACING.

During the past financial year (July 2018 to June 2019) the SAISC has tried to focus on doing everything in its power to assist an industry in distress. As an industry, we've faced uncertainty in the supply chain, reduced volumes, poor market conditions, tariffs, price uncertainty, and increased tender competition to name a few factors. The list is endless and the resources are limited.

There are no easy answers but we have managed to table a number of concerns raised by our downstream members to ensure that decisions are being made mindful of the delicate balance required to ensure a healthy supply chain. This has meant hours of meetings with government departments and special committees. There are many variable factors, so it is difficult to measure the success of these initiatives, but I believe we have a good relationship with these departments and we should see some results over time. (dti, IDC, EDD, ITAC, SARS)

We have not yet seen any benefit from designation and an instruction notice sent by treasury to all state buyers to buy locally fabricated structural steel. It is a significant development that will show real results when the economy and infrastructure projects begin to improve. We encourage you to ensure that all municipal, SOE or government department tenders include the fact that fabricated structural steel is designated. Please inform us if this is not the case and we will take it further.

We have done our best to create a platform where we can work with other associations, government departments and labour to collectively find solutions for the industry. All representatives are making positive contributions to the debate.

Despite SA Iron and Steel Institute PETS funding being withdrawn training remains one of our top priorities. We are currently looking at an online approach as student numbers remain low primarily due to budgets and the limited ability of "students" to leave the workplace for a day or two. One of the best ways of ensuring competitiveness is to have well trained skilled staff.

Innovation and engineering are going to become a major focus in the coming years as this is the key to many of the challenges we are facing. Progress has been made on steel framed buildings and new ways of approaching financing of projects. The SAISC in partnership with the University of Stellenbosch and the dti are currently preparing full scale fire tests of the SAISC modular building system.

All of this would not have been possible without the financial contribution made by the Steel Mills through SAISI, as well as the membership fees from our members.

Please have a look at the SAISC Value Proposition Summary on *page 3* or view a full version of the value proposition summary at *http://bit.ly/SAISCValue* and give us feedback on what you would like to see us doing more of.

We look forward to being of service to you in the coming year.

A SUMMARY OF THE SAISC's **VALUE PROPOSITION**

THE SAISC IS THE **LIVING TECHNICAL MEMORY** AND **IMAGINATION** OF WHAT CAN BE DONE WITH **STRUCTURAL STEEL.**

Steel Construction industry marketing and events

Since inception, a core part of the SAISC's function has been to promote the use of steel in construction. We build community and utilize a range of channels to raise awareness in the built environment on the benefits of steel in construction, and the capability of the industry to produce world class structures.

Business development and lobbying

The SAISC invests great time and effort in engaging all levels of government on behalf of industry to ensure that our members' concerns are escalated and that policymakers are made aware of practical implications. We keep members abreast of developments and identify and engage stakeholders in order to open up business opportunities for the steel construction industry.

Technical, engineering and innovation

With access to experienced and qualified individuals, and over 60 years worth of local Southern African project case studies, the SAISC is well placed to assist with technical queries relating to Steel Construction and Structural Engineering. Assistance with technical queries is a service offered to our professional individual members and company members.

Education and training

With a rich technical history and a collection of resources to match, the SAISC has a wealth of knowledge to share with industry stakeholders. Whether we're equipping new entrants to industry, or assisting established professionals with specialist insight – the SAISC is the living technical memory and imagination of what can be done with structural steel.

MARKETING

DENISE SHERMAN
MARKETING MANAGER, SAISC

MARKETING **YEAR IN REVIEW**

This was a remarkably busy year for the SAISC marketing department. We hit the ground running from day one with great ideas, but more importantly – solid implementation plans.

Membership

In order to streamline our membership enquiry process and respond promptly to requests for information, the SAISC has implemented a marketing automation workflow. Membership enquiries now integrate with our website, as well as our CRM system. This process improvement, combined with our other marketing initiatives has resulted in an increase in membership enquiries, from an average of 24 per annum to 217 per annum. 15% of these enquiries have converted to paid memberships. We will focus on increasing this conversion rate in 2020.

The SAISC website

All social media initiatives and content sharing directed audiences to the SAISC website, resulting in a 20% increase in returning visitors a 22% increase in page views, and a 54% increase in website hits from 4.3 million in 2018 to 6.6 million in 2019. We introduced a discount after login system which means that only registered users (members and students) are able to purchase products at discounted rates. This has enabled us to increase our student member signups, with a view to building relationships with them as they progress through their careers in industry.

The Steel Construction journal

Advertising support for the journal was down by approximately 25% due to the economic pressure many of our regular advertisers are under. However, we are grateful for the financial support of both regular and new advertisers, as well as our editorial contributors who enable us to publish world class content.

In 2019 SAISC implemented an integrated marketing approach, using both traditional and digital platforms. The focus was on promoting a positive, solution focused industry narrative whilst highlighting the benefits of steel as a construction material, as well as the capability of our industry. Information pertaining to industry developments, events, training courses, and member news was communicated across all channels so that stakeholders were kept informed.

Over 900 content pieces, promoting the industry, the SAISC and the use of steel in construction, were created shared via:

Industry print publications

- 35 articles published
- 17 media publications' audiences reached (African Petrochemicals, Engineering News, SA Manufacturing, SA Builder, KZN Industrial Business News, Leading Architecture and Design, My JHB, Construction World, Cape Business News, SA Affordable Housing, Sunday Times, Media Expose, Railways Africa, African Mining Brief, Channel Africa, Crown Publications)

Instagram

- 213 posts
- 661 video views
- Over 8 800 engagements (likes and comments)
- 103% organic growth in followers

YouTube

- 90 videos uploaded
- 5 200 video views
- 1 167 hours of watch time
- 86% increase in subscribers

LinkedIn

- 271 posts
- Over 10.2K impressions.
- Over 1 500 engagements
- 196% organic growth in followers

We are very pleased with the performance and engagement levels on our LinkedIn channel. We will be increasing activity and expanding our presence on this platform more in 2019/2020. Particularly in group creation and sharing of content to become thought leaders within the steel construction industry.

Facebook

- 302 posts
- Over 3 700 engagements (likes, shares and comments)
- 26% organic growth in followers

The SAISC Facebook page is performing very well! Our members and followers have engaged with the content we posted through likes, shares and comments. We encourage our members to continue in this.

EVENTS YEAR IN REVIEW

Throughout 2019 SAISC has hosted numerous events to facilitate networking opportunities and deliver a message that advocates for the steel industry. Our events and training courses for 2019 ensured that SAISC had direct contact sessions with more than 1 485 delegates!

With these events we build lasting relationships, share insights and strengthen the steel community. We aim to increase these sessions in the Western Cape and Kwazulu-Natal areas in 2020.

SAISC hosted Industry Feedback and Networking breakfasts throughout the year at the Woodmead Country club on 22 February, 19 July and on 12 April at Mount Edgecombe Country Club (KZN) respectively. Industry players, CEOs and stakeholders got the opportunity to network and discuss challenges faced within the steel industry and possible solutions as well as heard about industry developments and achievements. The team at the SAISC is committed to playing an active role in rebuilding a sustainable steel construction ecosystem and we were encouraged to see how many people are passionate and committed to the same goal.

On 9 August 2019 the SAISC hosted its second Women in Steel event, at the Woodmead Country Club. "Women in Steel" was initiated by the SAISC as a mechanism for recognising the vital role that women play in the industry. More than 85 women and students from across the industry attended the event making it a resounding success. We thank our event sponsors Stewarts & Lloyds and Pro-Roof for their generous support. We look forward to 2020's event and an even greater level of participation.

The SAISC's Annual Golf Day was hosted at the Randpark Ridge on the 13th of June 2019. This event provides a great networking opportunity and some healthy competition between peers on the golf course. 28 fourball teams consisting of 114 players in total entered this year's event and got to play on the beautiful SA Open course. The day was followed by a prizegiving ceremony attended by over 140 guests, where the team from Tudor Engineering walked away as the winning team for the day. Sponsors included Bekker Steel, BSi Steel, Cadcon, Macsteel, Pro Roof, NJR Steel, Unica Iron and Steel, Robor and Industrial Painting Services

The SAISC hosted the following Technical and Soft-skills Training Courses throughout the year that was well received and attended by local and international delegates:

- Basic Connections and Design Course presented by Roy Mackenzie and Steve Mackie of Mackenzie Mackie & Associates, Consulting Structural Engineers on the 18th and 19th of March 2019.
- Business Development for the Steel Industry presented by Paolo Trinchero, CEO of SAISC on the 20th, 26th and 27th of February 2019.
- Social Media 101 Workshop presented by Jacqui-Mackway Wilson from GoSocialSA on the 15th of March 2019.
- Structural Inspection and Maintenance Management for Mines and Plants presented by Geoff Krige on the 3rd and 4th of July 2019.

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AISC, (2019). Modern Steel Construction, [online] (May 2019), pp.26-27, 34, 36, 37. Available at: https://www.aisc.org/modernsteel/archives/2019/may-2019/

AMERICAN INSTITUTE OF STEEL CONSTRUCTION
2019 IDEAS² AWARDS

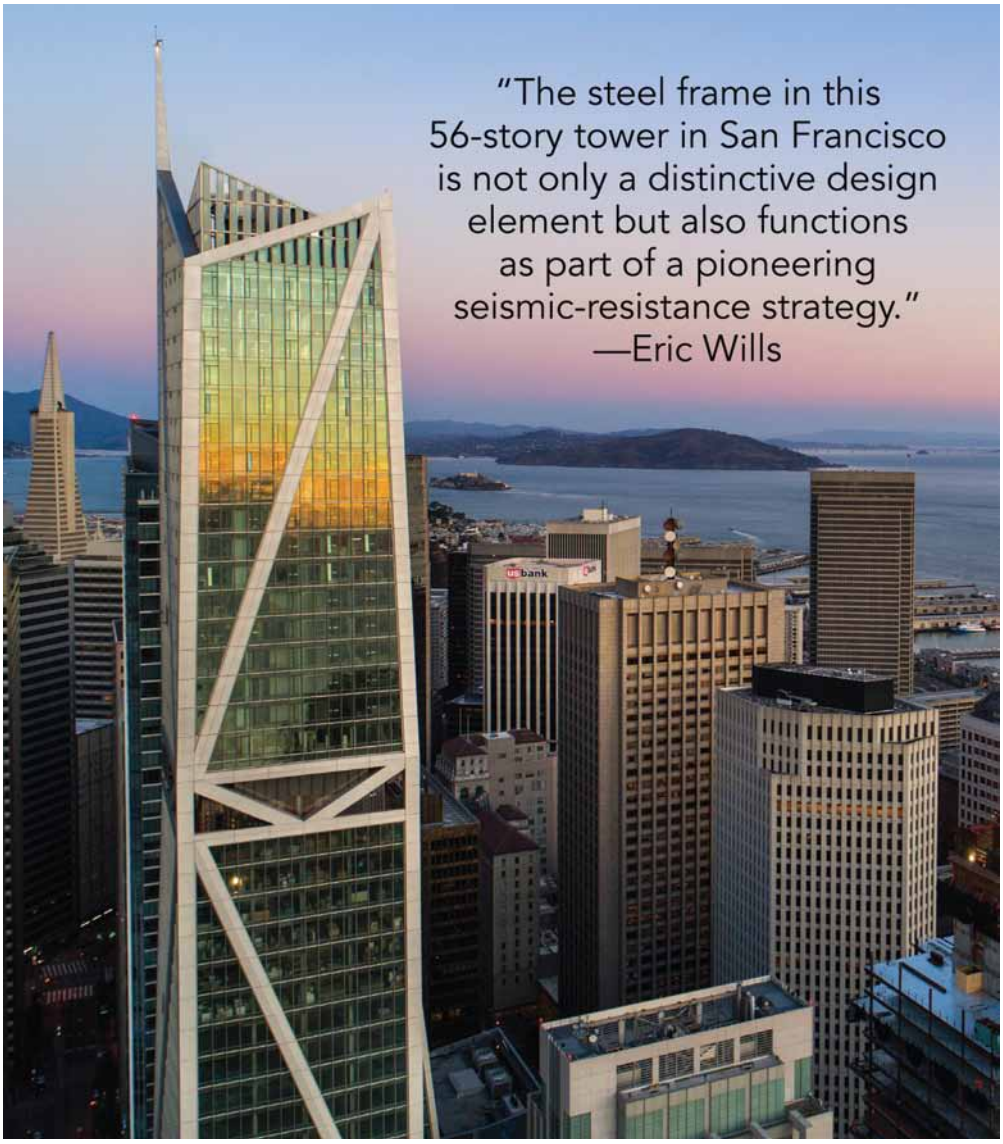
NATIONAL AWARD
GREATER THAN $75 MILLION

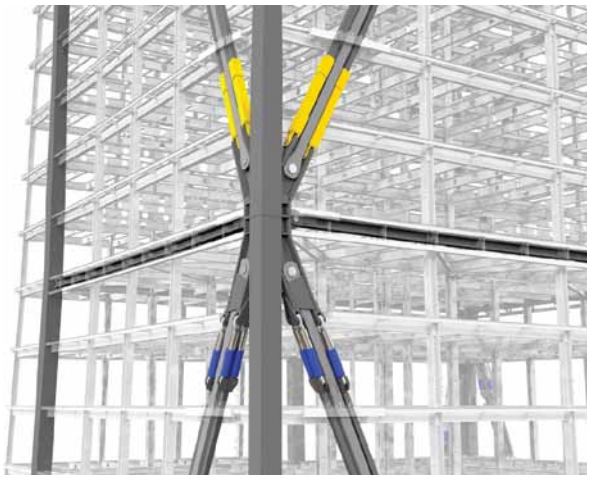
181 FREMONT, SAN FRANCISCO

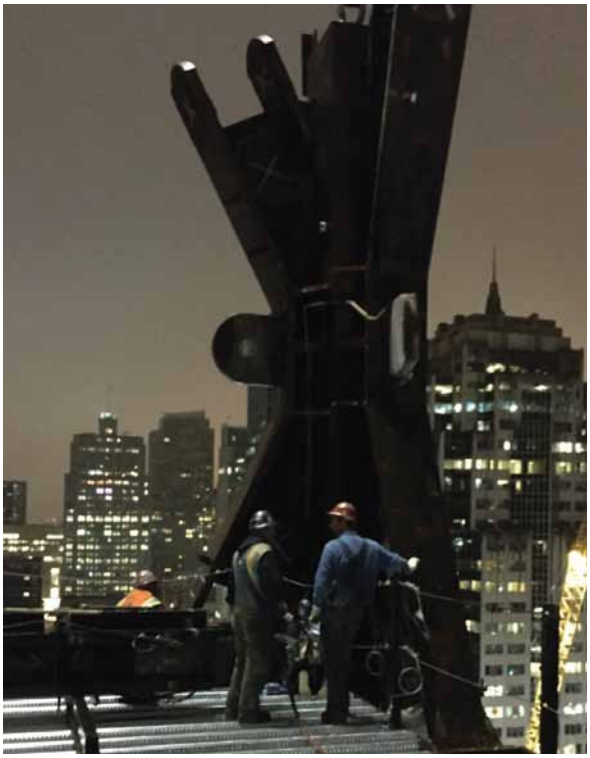
181 Fremont Tower adds a striking new focal point to the San Francisco skyline.

The tallest mixed-use building in the city, the 802-ft-tall tower is also arguably the most resilient tall building on the West Coast and is designed to remain essentially elastic and achieve immediate reoccupancy following a 475-year earthquake. After recognizing that the seismic performance objectives in current building codes did not align with its goals, the building's owner chose to pursue an innovative design to deliver "beyond code" seismic resilience.

The architectural design of the building, which has achieved LEED Platinum, features a faceted, tapering façade that highlights an integrated mega-frame structural system. A visual recess between the commercial and residential levels provides a residential amenity floor with a double-height open terrace made possible by 8-ft-deep perimeter transfer girders. Similarly, transfer trusses between levels 2 and 3 carry load to corner mega-columns to create a column-free ground-floor lobby.







The design team selected a steel-only lateral force-resisting system (LFRS) instead of a more traditional concrete core to preserve floor space inside the slender tower. At the commercial levels, damped mega-braces span 200 ft to 250 ft between mega-nodes, with perimeter moment frames to carry lateral load from each floor up or down to nodal levels. The damped mega-brace design facilitated a reduction in building stiffness to decrease seismic demands while also improving occupant comfort for wind-induced vibration. This eliminated the need for a tuned mass damper at the roof, which freed the penthouse level for a luxury condominium. The design saved approximately 3 000 tons of steel from the framing package, a roughly 25% reduction in weight compared to a more conventional steel system.

The mega-brace design uses an innovative combination of established technologies. Built-up box primary braces connect to mega-nodes at both ends, with parallel secondary braces on opposite sides, and the stiff secondary braces drive deformation into viscous dampers at one end of each secondary brace. The combined system performs like a giant shock absorber to limit building drift and reduce floor accelerations. Buckling-restrained braces (BRBs) in both the primary and secondary brace frames act as fuses in the event of maximum considered earthquake (MCE) shaking, preventing damage to the dampers and mega-columns. The largest of these BRBs is composed of four units with a total 5 000-kip capacity. The mega-braces are restrained laterally at each floor to prevent buckling but slide freely along their length against polytetrafluoroethylene (PTFE) bearing pads attached to a steel mount cast in each floor slab.

Corner mega-columns carry load into the foundation through steel cruciform sections embedded in pilasters within the basement walls. The mega-columns are designed to remain elastic in a MCE, employing built-up box columns as large as 36 in. by 36 in. using 5-in.-thick plate. To limit tension demands in the tower and foundation, the mega-columns are designed to uplift slightly at their base and

are anchored at ground level by 3-in.-diameter 150-ksi pretensioned rods extending to the bottom of the fivestory basement foundation. The anchor force is tuned to prevent uplift in wind or smaller earthquake events but also to allow approximately 1 in. of uplift in a MCE.

For more on this project, see "Braced for the Future" in the April 2016 issue, available at www.modernsteel.com.

Owner

Jay Paul Company, San Francisco

General Contractor

Level 10 Construction, San Francisco

Architect

Heller Manus Architects, San Francisco

Structural Engineer

Arup, San Francisco

Steel Fabricator and Erector

The Herrick Corporation, Stockton, Calif.

NATIONAL AWARD
$15 MILLION TO $75 MILLION

UT AUSTIN ENGINEERING EDUCATION AND RESEARCH BUILDING ATRIUM, AUSTIN, TEXAS

When planning was underway for the University of Texas at Austin's Engineering Education and Research Center (EERC), Deans Greg Fenves and Sharon Wood, both structural engineers, made it clear from the start that engineering ingenuity should be on display throughout the building.

The new facility, part of UT's Cockrell School of Engineering, is comprised of two nine-story towers with research and teaching space, joined by a central atrium. It is in this steel-framed atrium where the most dynamic and exciting structural engineering is displayed. Rather than performing structural feats as follies, the steel features work together as a symphony of exposed structural steel to accomplish four objectives: (1) publicly display the genius of the engineering community at work inside, (2) inspire users and visitors by celebrating the beauty of great engineering, (3) connect people physically and visibly to promote collaboration and interdisciplinary research, and (4) manage daylighting and heat gain.

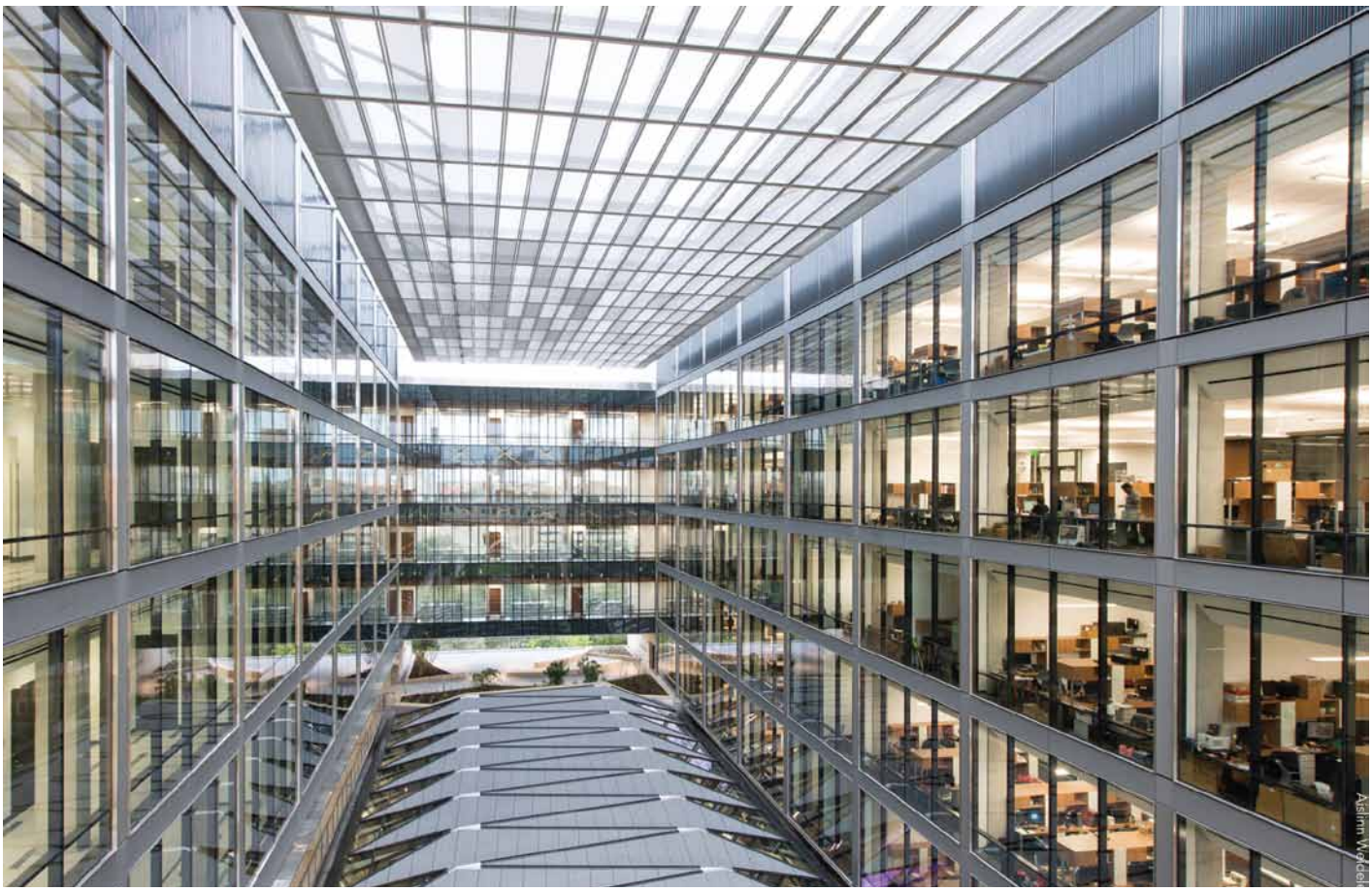
Entering the atrium from the west, on the third floor, visitors are treated to the expanse of the grand foyer

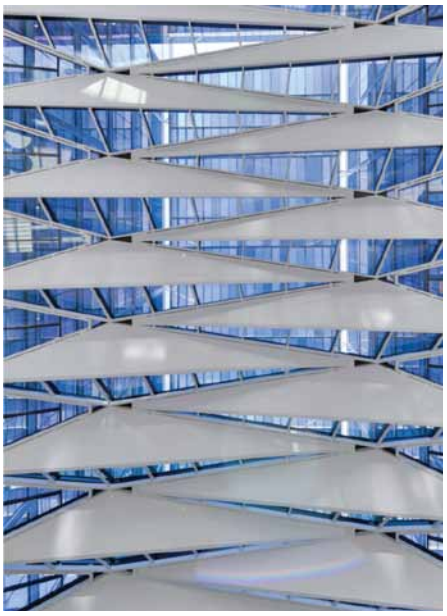
containing the connector bridge, V-column, and three-story spiral stair. The stair's treads cantilever out from a 48-in.-diameter central steel pipe made of ¾-in.-thick plate displaying pattern of diamonds that gradually elongate as they go up the pipe. Above that, the west bridge connects the two research wings at levels 5 through 8, with the upper shade canopy floating atop the space between the wings.

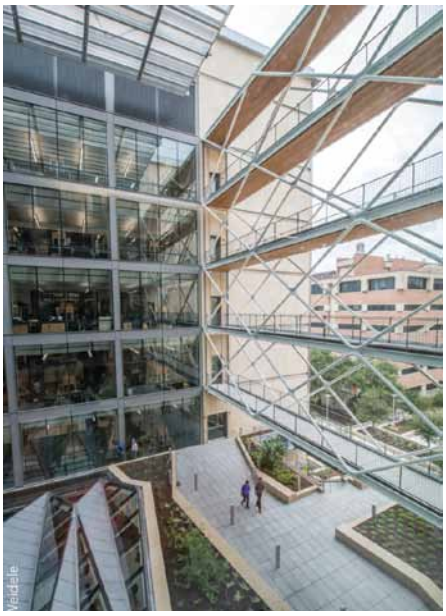
A faceted, pleated skylight roof spans 150 ft by 70 ft and the westward facets are filled with zinc panels to manage light and heat gain. The unique, complex geometry demanded an ingenious engineering approach as the alternating truss frames are interrupted 17 ft short by an opposing truss springing from the other side.

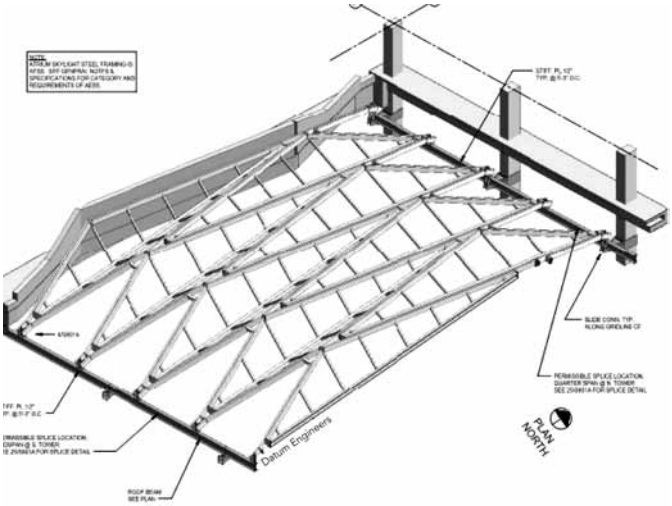
In response, structural engineer Datum devised a unique 3D "raft-truss" solution. Much like a wooden raft is built by lashing logs together, the alternating truss frames of the atrium roof are stitched together side-by-side to help each other finish the span on either end. Datum was also able to delete diagonal web members from the frames, creating a more elegant design. The trusses were detailed so the modular frames could be prefabricated, erected, and infilled with smaller "puzzle pieces," speeding erection and reducing cost. The roof was assembled at fabricator Patriot Erector's shop for practice, then broken down and shipped to the site for assembly.

The bowstring connector bridge was built with a twist – literally. The two bottom chords swoop in toward one another at midspan without touching. The twist is that the









web members from each top chord connect across to the opposite bottom chord, creating a unique woven look. The bridge was detailed and fabricated with clean shop welds and erected in one piece. The built-up steel V-column, which supports a concrete ribbon stair, is comprised of two tapered steel plates, 1 in. by 8 in., joined together by 3-in. spacers, and expressive pin assemblies at the top and bottom.

The four-story west bridge connects the two towers, shades the atrium and is highlighted by an X-truss configuration. Two key details make this striking structural element stand out. First, the use of steel castings at the nodes provided an efficient way to build the trusses to stand out from the chords and the rest of the bridge, emphasizing the truss form. Second, the diagonals are not continu ous between oors. Rather, they swoop in waves halfway above and below each oor, meeting in what appears to be a hinge in the middle. The “hinge,” however, was designed and built (as a casting) to avoid buckling in compression and distribute the loads more evenly.

The upper canopy shades the atrium and towers. An iterative parametric model determined the optimal shading density to balance daylighting with heat gain, allowing the glazing of the towers facing the atrium to be completely transparent—crucial for providing visual connectivity across the atrium. The thin structure seems to float above the space between the towers, thanks to minimal attachments, and was designed to move vertically as the towers move independently.

The EERC has been a huge success in providing a collaborative, cross-disciplinary home for the Cockrell School, created opportunities for interdisciplinary research and been a boon to recruiting. The integration of structural steel elements to inspire, bring people together, and shade the building demonstrates that engineering can be beautiful as well as functional and sustainable.

Owner

University of Texas at Austin Cockrell School of Engineering, Austin, Texas

General Contractor

Hensel Phelps, Austin

Architects

Ennead Architects, New York

Jacobs, Fort Worth, Texas

Structural Engineer

Datum Gojer Engineers, Austin

Steel Team

Fabricator and Erector

Patriot Erectors, Dripping Springs, Texas

Detailer

Tectonix Steel, Mesa, Ariz.

SAISC TECHNICAL

AMANUEL GEBREMESKEL,
TECHNICAL DIRECTOR

TECHNICAL **REPORT 2019**

The Steel Institute typically invests in technical developments without a full picture of where the road will lead. Our research, teaching, publishing and other initiatives are meant to push our academics, students, engineers and industry to try new ways of using steel until a solution for a need emerges. This can at times make it difficult to communicate to our stakeholders why we take on various projects that can initially appear risky. However, it also gives us an opportunity every year to demonstrate the direct benefits – albeit at times unintended – of our efforts.

For instance, the Department of Health in Kwazulu-Natal just inaugurated a new way of building their regional offices. Employing a turnkey project delivery method with a proven quick construction method, such as light steel framing, resulted in the project being completed ahead of schedule – unheard of before this project – and coming in on budget. Notably the project deliverables included interior finishes and even office fixtures.

In another arena progressive architects seem to have recently discovered a novel method of cooling buildings while at the same time adding beauty and creating privacy. Using steel mesh and expanded metal to create screens without obstructing the view of building occupants seems to have taken off this year. Such passive methods of conditioning the interior of buildings saves on energy usage. And now we know that when done right screens can add incredibly to the aesthetic of drab looking buildings as well.

When the Institute spent years promoting the use of light steel framing we couldn't have imagined that a new business model would emerge that satisfies the urgent needs of government. Nor did we foresee the use of steel mesh and expanded metal specifications in our Red Book as potential energy saving and aesthetic assets in the toolbox of architects.

In 2019 we spent millions of Rands and thousands of man-hours on research and development work related to the fire resistance of steel framed flooring systems. That this project has resulted in the training of previously disadvantaged students in advanced thermodynamics, or that the same efforts have resulted in research into fire mitigation and control in shack dwellings was completely unforeseen. We anticipate many more surprises as long as we continue to take risks.

Our research, teaching, publishing and other activities continue unabated despite a difficult funding environment. This year over fifty post graduate students at the Universities of Witwatersrand and Pretoria completed advanced steel design courses as a result of our efforts. Without such investment in engineers who know how to design and help construct power plants, buildings and bridges South Africans will ultimately be relegated to using imported final products.

That we have found creative ways of funding so many technical initiatives this year is testament to our ability to find strategic partners who share our vision. In a year when our industry is in great strain we are running some of our largest projects to date. We do this in order to uncover new and lucrative business avenues for our members. We are literally here to take risks on their behalf, and enjoy and thrive in doing it.

We soldier on with the conviction that unintended rewards only come to those who are on the move.

Department of Health, Townhill Office Park, Kwazulu-Natal.

POLASA NEWS

PAOLO TRINCHERO
CEO, SAISC

POLASA **REPORT 2019**

During the past financial year (July 2018 to June 2019) POLASA has had to deal with an industry in distress. Uncertainty in the powerline construction pipeline, the loss of a major transmission line construction company and difficulties experienced by many companies with respect to local procurement, reduced volumes and poor market conditions have made things very challenging.

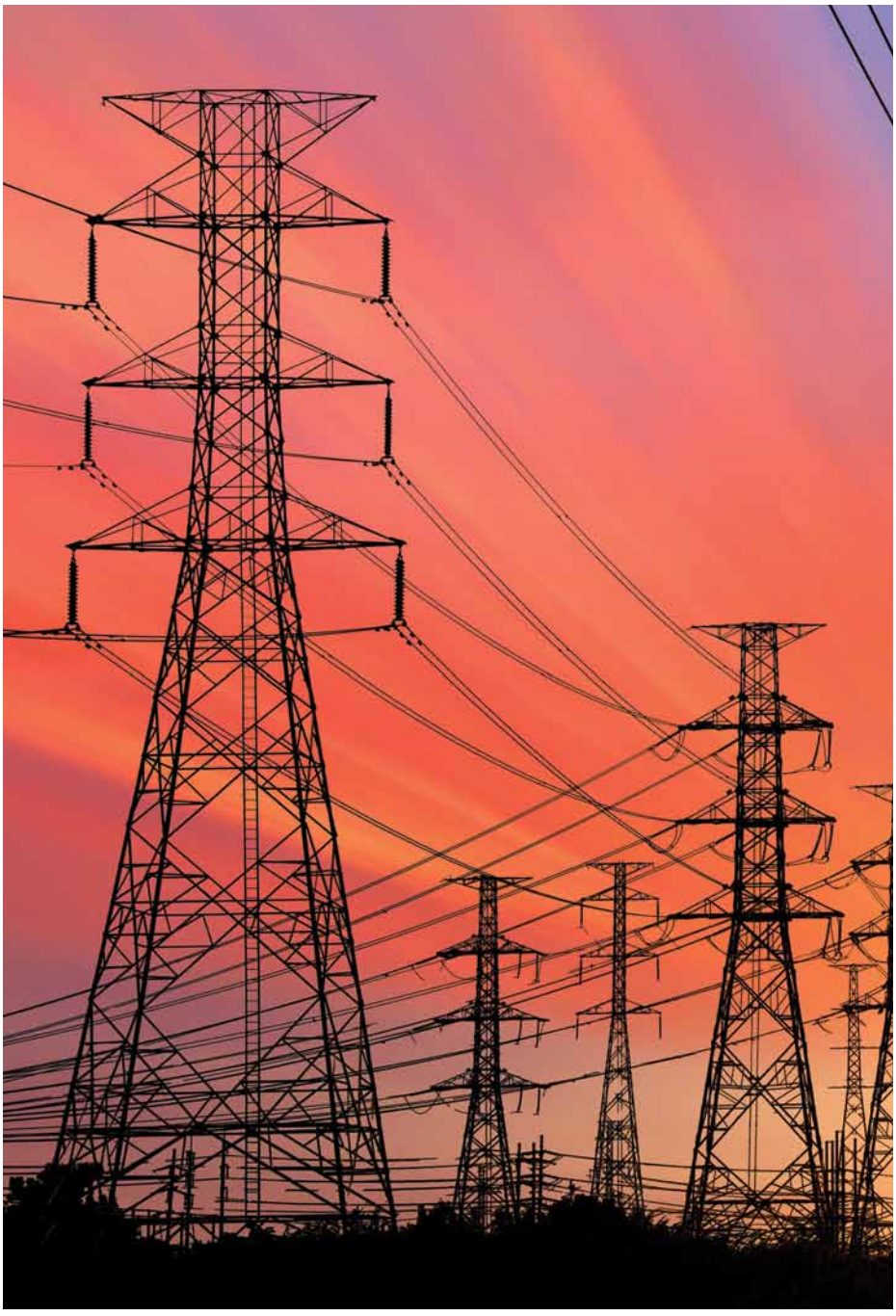
Ongoing discussions with ESKOM and the remaining membership continue and we should see an improvement in the second half of the year (January 2020 – June 2020) with transmission line tenders finally being awarded.

There have been efforts to focus on exports into surrounding countries but competitiveness remains a challenge.

We have spent many hours in meetings with ESKOM in particular. It is difficult to measure the success of these initiatives but I believe we have a very good relationship with ESKOM management and we should see progress and results over time.

In an effort to focus and prioritise on POLASA member specific concerns we have had a number of strategy meetings. We hold regular meetings with ESKOM PDP and will endeavor to align our strategy with ESKOM work groups going forward to ensure that we make more progress in the new year.

I would like to thank the POLASA membership and ESKOM for their support over the past year.



CONNECT WITH POLASA: Email: paolo@saisc.co.za

SAMCRA NEWS

DENNIS WHITE
DIRECTOR, SAMCRA

SAMCRA **REPORT 2019**

During the past financial year (1 July 2018 to 30 June 2019) SAMCRA continued to actively pursue a number of initiatives aimed at promoting the use of metal cladding throughout the construction industry.

We continued to serve on a number of SABS technical committees and workgroups relating to the National Building Regulations and the SANS 10400 series plus those pertaining to the development and specification of building products. Unfortunately, due to staffing constraints at the SABS final publication of most of the completed drafts for the SANS 10400 series, including 10400-L, have been delayed.

After waiting almost a year, the SABS Standards Approval Committee in February finally granted approval for us to proceed with establishing a workgroup within Technical Committee 81 to prepare a final draft of the roofing code. The workgroup has met twice and we are targeting having the final draft completed during November. Approval to proceed with the review of the fastener code SANS 1273 was received in March and the formation of the workgroup is in progress.

In August 2018 SARS implemented Reference Price Risk Rules on a number of imported commodities including corrugated material. Regrettably to the end of September they have only identified a fraction of the imports we believe they should have identified, At the August meeting we insisted they explain why after a year since they identified a number of consignments for investigation there was no feedback, to which they responded that investigation is a lengthy process. In addition we drew their attention to the fact that their initiative has had no effect and that the volume of imports has increased exponentially. The DTI representatives were equally unimpressed and undertook to raise the matter at a higher level.

We are informed that Minister Patel has decided to appoint SABS technical Committee 60, on which we serve, to review the National Building Regulations ahead of the promulgation of the new National Building Act.

We continue to participate in workshops for specifiers and university students and are planning to present separate workshops for civil engineers, quantity surveyors and contractors during the first quarter of 2020. Traffic to our website continues to increase with an average of 3 400 visits and some 4 000 downloads monthly.The demand for our consulting services continues to increase as parties are becoming aware of SAMCRA from published articles and referrals. The National Regulator for Compulsory Specifications has invited us to present a paper at the National Convention for Building Control Officers (300 delegates) during November.

All of the above is intended to afford long term benefit to our members and would not have been possible without your support and financial contributions. SAMCRA relies on and appreciates your ongoing support.

Although we have increased membership in the allied products and developer categories Heunis Steel terminated their membership as did Double Jack, and Roofline. Monro Roofing is a new contractor member. Until such time as the revised SANS 10400-L and the cladding standard are published there is no compelling incentive for the majority of contactors to apply for membership. Whilst we continue to restrict our expenditure to the bare minimum we are vulnerable to inflation. As a result, we have limited the increase of our fees to 5% for the forthcoming year.

We thank all our members for their continued support and assure you that we will continue campaigning and raising awareness to ensure the good health of the metal cladding and roofing industry.

CONNECT WITH SAMCRA: Contact: Dennis White **Email:** dennis@saisc.co.za **Web:** www.samcra.co.za

SASFA NEWS

JOHN BARNARD
DIRECTOR, SASFA

SASFA **REPORT 2019**

During the past year – July 2018 to June 2019 – SASFA has again actively pursued objectives aimed at the establishment and growth of the light steel frame building industry in Southern Africa, as agreed to and guided by the SASFA Executive Committee.

A steady level of publicity was again maintained through ongoing placement of mainly project related articles in prominent media – an average of three LSF articles were published monthly in a total of 14 different prominent publications.

We received 15 quality entries for the LSF category of Steel Awards 2019, and after due deliberation the judges selected the Protea Glen Secondary School in Soweto as the winner of the LSF category, sponsored by MiTek. LSF resoundingly outperformed other alternative building systems in terms of speed of construction and thermal and acoustic insulation. The new offices for the Department of Health in Pietermaritzburg received a special commendation.

In order to keep members informed about developments, SASFA distributed industry newsletters, and arranged three well attended industry feedback meetings during the past year. Liaison with members is also maintained through the bi-monthly Exco, and Technical Committee meetings.

A lecture on LSFB was presented on request to the Industry Advisory Committee of the NHBRC, as well as on a public forum at Interbuild held in Nasrec.

Training is still a top priority for SASFA. The 5-day training course for building contractors was again successfully presented in Gauteng and Cape Town. A total of 32 people attended the courses, bringing the total number of certificates issued to date to 444.

A number of LSF building projects were visited, as part of SASFA's code compliance monitoring activity, and reports issued.

SASFA served on two SABS code revision committees, to ensure correct coverage of LSFB in SANS 10400.

We carried out the annual industry survey to monitor the LSFB activity. Notwithstanding the dire conditions in the building and construction industries, LSFB has shown a nominal growth in volumes. Once again the major growth was in roof structures.

SASFA accepted 3 new membership applications during the past year. Due to the prevailing unfavourable economic conditions and the resulting cash flow constraints, some members failed to pay their membership fees timeously, and a few of the members had to cancel their membership or were suspended.

All of the above would not have been possible without the financial contribution made by the Major Material Suppliers, as well as the membership fees from all other members, and SASFA relies on your ongoing support. We have increased the annual membership fees for the different category members by a nominal 5% for 2019/20 – while the contributions by the major material suppliers are being negotiated.

We trust that you will agree that you are still getting excellent value for your money! If not, let us know what else we should address.

CONNECT WITH SASFA: **Contact:** John Barnard **Email:** john.barnard@saol.com **Web:** www.sasfa.co.za

STEASA NEWS

KEITUMETSE MOUMAKOE (K.M)
DIRECTOR, STEASA

STEASA **REPORT 2019**

The continued distress that the local economy finds itself in has inevitably led to the major restructure of some of our member companies, casting doubt on their participation in the export realm. Traditionally, efficient exports are a function of a buoyant and stable demand driven local market. It is the view of STEASA that once the government infrastructure programme spend gains traction, policies of designation/localisation will resurrect the domestic industry.

STEASA has over the past year relayed the pertinent constraints that its member companies face to its key government stakeholder the dti, stemming from high costs of domestic hot roll coil, high electricity costs, high port costs, high transportation costs and the termination of export incentives such as COSM. We continually reiterate the need for a country export strategy for our products that would necessitate competitive value offerings at every stage of the export value chain.

The continued trade wars between China and the USA has exacerbated trade protectionism globally as we witnessed the EU enforcing steel tube and pipe quotas and safeguards in their trade bloc. The good news is that South Africa is exempt from any quotas or safeguards due to an Economic Partnership Agreement with the EU and as a former traditional market that we used to export into, STEASA will be focusing efforts to try and re-establish exports. This will be done through detailed secondary and primary data research at its disposal to be used to apply for European steel tube and Pipe Pavilions over the 2019/2020 year via the dti's Individual Exhibition Scheme that is also open to members and to be done collaboratively.

In line with STEASA's close working ties with Trade Invest Africa (TIA), a division of the DTI and also our Africa driven export focus, STEASA and its partners in the Electrotechnical Group of Export Council (ETGEC) have operational oversight over the following outside selling missions for 2019/2020:

- OSM Egypt 02-06 December 2019
- OSM Ghana & Nigeria 10-14 February 2020

On the project side of things, our neighbour Mozambique's LNG projects remain our biggest opportunity and to this end, Trade Invest Africa and its stakeholders have made a decision to have a targeted approach on unearthing and negotiating for SA to play a role in the LNG Projects. TIA is in the process of putting together a project map for these projects that will include a number of key deliverables. The ETGEC is an important stakeholder given the work that the grouping has started in Mozambique and having provided what products are available in SA to be supplied into these projects. After putting a project map together TIA will then have a stakeholder workshop to discuss this and have an implementation strategy.

Reliable import and export data are always key when assessing possible export markets and to this end STEASA has expanded its subscription of trade map, enabling it to identify which companies per country are importing particular products based on HS codes and which countries export into the market of interest. This will enable members to know who they're up against in any market of interest.

On the export training side of things, we have The Global Exporters Passport Programme (GEPP) that is run by the Department of Trade and Industry (the dti) to provide training to small, medium and large enterprises that wish to expand their export opportunities. It is a key component of the National Exporter Development Programme (NEDP), which is a pillar of the Integrated National Export Strategy (INES). The programme aims to prepare companies to be export ready and sustainable in export markets. The GEPP is delivered in partnership with various stakeholders at national, provincial and local levels. STEASA would like to encourage member companies to send their junior managers or staff who have export exposure in their work functions to such seminars when invitations are sent out.

CONNECT WITH STEASA: **Contact:** Keitumetse Moumakoe (K.M) **Email:** keitumetse@steasa.com **Web:** www.steasa.com

TURN-OF-NUT METHOD – IT TURNS OUT THAT THE TURN-OF-NUT METHOD IS SHORT ON TENSION

BY DELPHINE MALUBA-KAPINGA, LABORATORY TECHNICIAN, MASTERS ENGINEERING METALLURGY

Background

Care should be taken when selecting fasteners for structures, such as in bridges, power stations and grand stands; these are structures where the consequences of failure are severe. Fasteners play an important role in the longevity, structural integrity and design of structural steel. Fasteners need to be selected for the correct applications. The fastener assemblies used for such applications are classified as High Strength Fasteners for preloading, under standard EN14399, also known as construction bolts. One of the requirements of construction bolts for preloading is the correct tensioning of the bolts and nut assemblies, particularly when the application is in the slip resistant (friction grip) mode. It should be noted that preloaded construction bolts have a wider across flats dimension because of the greater clamp load that they are tensioned to.

The anomoly

The aim of this paper was to understand as to why a greater turn was needed to tension shorter bolts, a contradiction to what some standards state. Standard SANS 10094 requires 120° turn of the nut for clamp lengths less than 4 times the diameter. CBC Fasteners has found in advising customers that 120° is not adequate and this correlates to what has been mentioned by the Research Council on Structural Connections (RCSC).

According to RCSC, using the turn-of-nut method "short grip bolts may not produce the necessary preload (pretension) and if used in slip resistant (friction grip) joint, then a load indicting device should be used. Furthermore, it has been observed that some problems may arise with the turn-of-nut method, particularly with the hot dip galvanized (HDG) bolts."

Introduction

For the purpose of this research tension-torque testing was conducted on 3 sets of each HDG bolts as well as 3 sets of each on black bolts of varying lengths (M20 x 65mm, M20 x 95mm and M20 x 120mm).

The clamp lengths for testing on each bolts were 41mm, 57mm and 76mm, respectively. The use of clamp length in this research helps to accommodate for the variation in the bolts lengths, which in turn, creates an acceptable amount of thread length needed for the positioning of the nut for testing. This was a simulation of what would be found in the field. The load cell used is designed to numerically demonstrate how much force has been applied to the bolt under tension (preload or snug tight) and the equivalent amount of torque required. The load cell had been recently calibrated and so we were sure of its accuracy.

A torque wrench was initially taken to measure the NM at a preload of 50 KN [Note 1] for snug tight for each bolt clamp length, then further continuing to torque the bolts in tension; measuring the degree of turn at 180 KN force. The 50KN snug preload required a torque of 110 NM

The amount of preload required by SANS 10094 is 178 KN. For the purpose of this study, 180 KN was set as the target. An average of the 3 lengths were taken in order to obtain a sound conclusion, and captured in the table below.

These results are different from that expected from various standards. The shorter bolts (65mm), for both HDG

HOT DIP GALVANIZED (HDG)	BLACK
	
Clamp length = 41mm M20 x 65 mm: 128 NM at 50 KN snug and 36 NM at 265° turn at 180 KN 145° more than 120°	M20 x 65 mm: 158 NM at 50 KN snug and 648 NM at 216° turn at 180 KN 94° more than 120°
Clamp length = 57mm M20 x 95mm: 129 NM at 50 KN snug and 533 NM at 165° turn at 180 KN 45° more than 120°	M20 x 95mm: 161 NM at 50 KN snug and 665 NM at 157O turn at 180 KN 37° more than 120°
Clamp length = 76 mm M20 x 120mm: 123 NM at 50 KN snug and 521 NM at 170° turn at 180 KN 50° more than 120 °	M20 x 120mm: 160 NM at 50 KN snug and 585 NM at 175° turn at 180 KN 55° more than 120°

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and black bolts, required a greater amount of degree of turn; 94° more for black and 145° more for HDG compared to longer lengths. For both types of bolts, the amount of degrees turn decreases with increased length on the 95mm bolt, then increases slightly for the 120mm bolt.

SANS 10094 advises for a M20 Class 10.9 HR bolts, bolts with four (4) times its diameter would have a rotation of 120° and bolts over four times its diameter but not exceeding eight (8) times it diameter would have a rotation of 180° at 180 KN.

One can observe that for the HDG bolts, the shortest bolt (65mm) had the highest degree of turn; having a clamp length of 41mm; almost twice the size of the diameter. The M20 x 65mm bolt had more than double the standard amount of degree of turn (120°) reaching 265°. With a similar trend to the shortest bolt, the 95mm bolts had a clamp length of 57mm; almost over three (3) times its diameter; however it reduced from 265° to 165°; reducing by 100°; nonetheless still more than the 120° benchmark. One may also see that the M20 x 120mm bolt increased by 5° from 165° to 170°, above the 120°. These findings support RCSC assertion that problems may arise with turn-of-nut on shorter bolt and with HDG bolts.

With the black assemblies, a similar trend to the HDG bolts was seen; M20 x 65mm had the highest amount of degree of turn compared to its counterparts of 216°, above the 180° standard, however reduced tremendously by 85° degrees from 265°. The M20 x 95mm bolts decreased by 8 degrees; from 165° to 157; above the 120°. The longest bolt M20 x 120mm had an increase in the degree of turn by 5° degrees, from 170° to 175°. Notably the amount of turn of nut was less than with HDG.

Drawing a conclusion from these results, one can state that shorter bolts have a greater degree of turn and the HDG coating has an influence particularly on shorter lengths. This

consequence might be due to the fact that the tension which had occurred during torqueing must have been absorbed by the soft material of the HDG coating; as seen in the image below. The left shorter bolt have more scoring.

The scoring or surface discontinuities of the HDG coating are seen below may be due to the absorption of the tension on torqueing which develops as a greater degree of turn. The contrary can be said about the black bolts.

Co-efficient of friction

To further clear all possible anomalies that could have affected the results, the co-efficient of friction was conducted in order to establish a link between any external factors that might have an influence on the results obtained. The co-efficient of friction for HDG pre-lubricated nuts were found to be 0.13k and for the black were found to be 0.13k, which indicates that the co-efficient did not play or have any material influence in the testing.

The co-efficient of friction is documented to have a huge influence on the torque but not on the turn-of-nut method; this is because the turn-of-nut determines the amount of the bolt stretch. The co-efficient of friction influences the amount of torque required to ultimately get to the force in the bolts nut assemblies, indicating why the turn-of-nut method is not an ideal method of tensioning shorter length bolts.

How to explain the anomoly

A reason that a greater turn is required for shorter bolts could not be readily found in our research. Our own conclusion is that, in shorter lengths, there is a reduced amount of length of the shank to absorb torsional strain, whilst in longer lengths, the torsional strain is absorbed through the greater shank length of the bolt.

Conclusion

Based on the results obtained a sound conclusion of the turn-of-nut method can be made. It was seen that for short bolts and HDG assemblies the method is not reliable. The clamping was found to be almost twice the size of the diameter and a 120° turn is simply not enough, where a turn of 260° for HDG and 216° for black bolts is needed.

Fabricators need to obtain guidance from the supplier of bolt and nut assemblies as to what is the recommended torque for an appropriate turn of nut rotation. CBC Fasteners has a well-equipped team to advise on this. (Contact 011 767 0000 Rocky, Ajith or Rob)

Note 1: It is acknowledged that snug is a subjective measure. We undertook simulations to determine if clamp length had any influence on snug and our findings were that it did not. A stronger assembler attained snug tight around 80KN for the average of the three clamp lengths. The explanation why clamp length does not materially affect snug is because 90% of the friction in torquing is in the threads and between the nut and washer.

Prepared By: Delphine Mulaba-Kapinga
Qualification: Baccalaureus Technologaie in Engineering Metallurgy.

MOVING TOWARD **FOSSIL-FREE STEEL**

Global steel company SSAB plans to be the first company in the world to get fossil-free steel onto the market. The plan for transitioning to iron-ore based fossil-free steel production was presented to more than 400 customers and key players in the industry, in conjunction with SSAB's Swedish Steel Prize seminars in Stockholm.

"SSAB will offer the first fossil-free steel products on the market already in 2026. We seek to initiate partnerships with our customers around common goals so that they can be the first in the world to include fossil-free steel in their own products," says Martin Lindqvist, SSAB's President and CEO.

Recently it was announced that the HYBRIT initiative, where SSAB is one of the owners, will step up work and that SSAB will be able to deliver fossil-free steel to the market already in 2026.

In line with SSAB's global ambitions, the company anticipates that its US operations, which utilize scrap-based electric arc furnace (EAF) technology, will be powered completely by renewable energy by 2022 in its Iowa operations. It will also be able to offer fossil-free steel products starting in 2026, utilizing sponge iron developed through the HYBRIT initiative in Sweden.

That SSAB already at this stage seeks to engage customers in its plans to switch over to a completely new steelmaking technology is a natural step in the company's ambition to step up the pace in transitioning to being fossil free.

"It will take time for a completely new market for fossil-free products to emerge and so we need to start now. Together with our customers, we will work to find successful business models to launch fossil-free products on the market already in 2026," said Martin Lindqvist.

"Fossil-free steel will also help other sectors such as automotive, heavy transport and construction to become fossil free. Together, we will be able to offer end-users a completely fossil free value chain, from the mine to the end product."

In 2016, SSAB, together with LKAB and Vattenfall, launched the HYBRIT initiative with the goal to replace coal and coke, which are used as reduction agents in the steelmaking process, with fossil-free hydrogen gas. Interest in fossil-free steel has since grown rapidly.

In September, Martin Lindqvist, representing the only steel company at the summit, was invited to the UN Climate Action Summit in New York, to talk about something which has hitherto been considered impossible, the potential for net-zero emissions in the steel industry.

"We want to show that transition in the steel industry is not only possible, but truly necessary. When we show the way, I think others will follow," said Martin Lindqvist.

The steel industry accounts for around 7% of global carbon dioxide emissions. In Sweden steelmaking accounts for 10% and in Finland for 7%. The technology to use hydrogen gas instead of coking coal to reduce iron ore is known, but has never been successfully tested on an industrial scale. HYBRIT is now building a pilot plant for sponge iron (DRI) at SSAB's site in Luleå. The plant will be up and running summer 2020.

"Technological development is already in full swing. By challenging technology that has remained essentially unchanged for almost a thousand years, we will in principle eliminate all fossil carbon dioxide emissions. To date, CO_2 has been an unavoidable by-product in making steel from iron ore. With HYBRIT technology, the only emission will be water," says Martin Pei, CTO at SSAB and chairman of the Board at HYBRIT Development.

SSAB, LKAB and Vattenfall, the owners behind the HYBRIT initiative, have decided on investments totalling around SEK 1.7 billion and the Swedish Energy Agency has granted government support totalling SEK 599 million.

Further, SSAB has decided to replace the two blast furnaces in Oxelösund with an electric arc furnace already in 2025. This will eliminate most of the carbon dioxide emissions at SSAB Oxelösund. The switch to an electric arc furnace is a necessary step in order to be able to utilize the sponge iron from the HYBRIT demonstration plant, which will start operating at the same time.

"We intend to gradually convert the entire production chain right up to finished steel across SSAB's production system in Sweden, Finland and the US. The goal is for the entire company to be fossil-free by 2045 at the latest," said Martin Pei.

IN-DEPTH MATERIAL KNOWLEDGE – A 'VITAL' SERVICE TO THE PETROCHEMICAL SECTOR

The South African petrochemical industry plays a significant role in the local economic growth so desperately required in South Africa currently. The sector is under pressure from many reasons including the trend towards the reduction of operational carbon footprint, there is also a proliferation of new technological developments.

These represent new and dynamic opportunities for the industry to exploit, if it can evolve apace with industry developments.

This is an exciting and concerning time according to Glen Pringle, Director of Vital Engineering.

"Looking at this exciting industry further afield, there is a myriad of positive developments throughout the rest of Africa," Pringle observes.

"Increased oil and gas exploration, potential new refineries and extensions to existing refineries are planned along the East and West African coasts. This is a clear indication that the greater petrochemical sector is definitely not stagnant," he adds.

Having been a key supplier of a wide range of products including gratings, stair treads, pressed pattern floors and safety handrails to the petrochemical, mining and other industries for the past 80 years, Vital Engineering is very well acquainted with the needs of the industry – and with developments in materials technology. This has placed the company in the privileged position of being able to continually meet the needs of their petrochemical clients by adapting and expanding their product ranges in line with international industry requirements and trends.

"We are pleased to have a secure base of repeat business within the petrochemical sector – and a growing base of referred clients – Vital Engineering enjoys a reputation for supplying uncompromising quality products which are reliably produced on-time, on-specification and within budget," he says.

The petrochemical industry furthermore has very specific requirements of the construction materials used, depending on the particular context or application.

Vital's glass-fibre reinforced resin (GRP) or aluminium gratings are suitable for non-spark environments" Pringle points out.

Petrochemical plants also produce certain products that could be either mechanically or chemically aggressive and corrosive, acidic or alkaline in nature – representing yet another set of limitations and specific requirements regarding the construction materials of choice.

"As we thoroughly understand the properties of our products, which are influenced by factors such as manufacturing method, structural configuration and chemical additives, we can lend valuable support to our clients, so that the correct products are specified, leading to enhanced plant lifetime and performance – and, most importantly, reduced safety risks," he adds.

Vital Engineering's products which are particularly popular in the petrochemical industry typically include its mini-mesh or solid top GRP products, aluminium or stainless-steel patterned plate products, and expanded metal products for applications such as safety guards, lock-out areas, and secure areas on petrochemical plants.

"Our clients value the fact that our entire range of products - which includes mild steel, GRP, aluminium, ferritic and non-ferritic stainless steel – is manufactured according to the most stringent international standards, including ISO 9000 /15. Meaning they can rely on Vital Engineering to supply them with an exceptional quality product," he continues.

It is therefore no wonder that a growing number of clients have been specifying Vital Engineering's product ranges in their designs.

"Vital Engineering are extremely proud to be the supplier of choice to these consulting engineers and clients, and we truly go the extra mile to keep it that way. Vital engineering offer our clients many configurations with tailored products to meet their specific industry requirements as far as possible.

We also do our best to provide them with valuable guidance and advice based on our deep-seated manufacturing knowledge of each product, and its suitability and application. We therefore invite clients to include us at the initial project design stage. Sometimes new product variations or material additives may have become available, which could make their design more optimal," he remarks.

"Our success is dependent upon that of our clients, and we are determined to continue providing this 'vital' service to the petrochemical sector," concludes Pringle.

THE SAISC GROUP

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STEEL TUBE AND PIPE

ASTPM

SAISC STEEL AWARDS 2019
SHOWCASES LOCAL STEEL CONSTRUCTION INNOVATION METTLE

Adversity often brings opportunities with it. South Africa's steel industry has been going through a period of severe challenges, affecting the entire supply chain and seeing the most serious contraction for many years in the sector.

Despite the prevailing 'doom and gloom', however, the South African Institute of Steel Construction (SAISC) has remained true to its role of industry champion during this challenging time, focusing on innovation, positivity and creativity – particularly with regards to this year's Steel Awards.

This approach has borne fruit, with the SAISC 2019 Steel Awards achieving record entries and sponsorship – as well as growing the diversity of the entries received.

This year the SAISC received a record-breaking number of 94 entries for the awards as opposed to 70 in 2018 and 59 in 2017. In addition, sponsorship of the Steel Awards has grown by remarkable 40% from 10 sponsors in 2018 to 14 this year.

This is according to Paolo Trinchero, CEO of the SAISC, who explains that the marked increase in sponsorship was largely due to a restructuring of the Awards sponsorship options, which made these more affordable and accessible to potential sponsors.

"Another important factor which definitely contributed to the increased entries and sponsorships in 2019, is the very intensive and dynamic communications campaigns undertaken to market the Awards – across all platforms from social media to online, print and broadcast media – which also significantly increased the overall visibility and traction of the Awards throughout industry," Trinchero adds.

"This year, we can really say that a wide range of stakeholders in the greater built environment – from architects and engineers to riggers, welders and even university students – actively participated in Steel Awards and have started to recognise the pivotal importance of steel. We are particularly pleased with the greater

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KWAZULU-NATAL, MOUNT EDGECOMBE

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1. Durban Top Young Achievers.
2. Overall Steel Awards 2019 Winner – Durban Christian Centre.
3. Safal Innovation Category Winner – Durban Christian Centre.
4. Macsteel Peoples Choice WInner – Durban Christian Centre.
5. MiTek LSF Category Commendation – Department of Health, Townhill Office Park.

diversity of entries received this year," he remarks.

The aim of the Awards is to highlight the use of steel in the built environment. "The annual Steel Awards are intended to create a sense of inclusivity and community and to resonate with a wider audience including a wider representation of gender, generational and ethnic groups," explains SAISC Chairperson Nicolette Skjoldhammer.

This aim was brilliantly realised by the entry of the overall Steel Awards 2019 winner and winner of the SAFAL Steel Innovation category, the Durban Christian Centre. This building was commissioned to replace an earlier church which had burnt down, and is in the shape of a large dome. Here, the innovation lay in the geometry of the large roof arches, inclined in different planes which provide support for the roof; as well as the very tight site access.

"The Durban Christian Centre is a very bold project. For the engineer to realise the form the architect envisioned must have been very complex," Skjoldhammer continues. The nominator and structural engineer was NJV Consulting, the architect, Elphick Proome Architects and the main contractor Stefanutti Stocks Building KZN.

"The members of the Durban Christian Centre project team epitomise all the aspects of diversity which the SAISC is striving for within the steel industry, all working in harmony to achieve an amazingly creative and innovative outcome," she adds.

Other category winners are as follows:

- In the Mitek Industries South Africa Light Steel Framed Building category, the winner was the Protea Glen Secondary School, constructed for the Gauteng Department of Education. This was one of nine schools commissioned by the Department, the aim being to adjudicate various building systems and their advantages – and how these could create structures conducive to learning. The project capitalised on the key features of light steel frame building, namely: speed, thermal efficiency, acoustics and flexibility of design. The architect on this project was Local Studio, the structural engineer, the Structural Workshop, the engineer Luleka Consulting Engineers and the main contractor Abacus Space Solutions.

- In the ArcelorMittal South Africa Architectural category, the winning entry was the Peech Hotel located in Melrose, Johannesburg. The architect on this project, Meshworks and structural engineers EVH Consulting, were charged with extending the existing hotel onto a newly acquired adjacent property. Steel was used throughout the project to express a layered architecture of lightness, and as a tool in the integration of built form with landscape.
- In the Industrial category, the winner's trophy went to the Omnia Nitro Phosphate Plant constructed for the diversified chemicals group Omnia. The nominator, steelwork contractor and steel erector was SE Steel Fabrication Pty Ltd. With tight project deadlines and multiple challenges including working at a height of up to 46 metres, this complex plant construction was achieved safely and on time.
- Winner in the Global Roofing Solutions Metal Cladding Category was a building named the 1054, designed and nominated by architects DMV Architecture, with the main contracting carried out by Jeremy Delport Construction. The contrast of the building's solid exterior with a light and airy interior succeeds in creating a welcoming and connecting space.
- In the SAISC Steel Awards Commercial Category, the building constructed for KTM Raceworx made innovative use of a steel frame system with cellular beams to support the floors and accommodate HVAC and other services. The nominator in this instance was Macsteel while the structural engineer and main contractors were JandC Structural and Civil Design.
- The Association of Steel Tube and Pipe Manufacturers of South

GAUTENG, BLUE WING CONFERENCE CENTRE


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1. MiTek LSF Category Winner – Protea Glen Secondary School.
2. Commercial Category Winner – KTM Raceworx.
3. AMSA Architectural Category Winner – The Peech Hotel.
4. ASTPM Tubular Category Winner – Fourways Mall
5. ASTPM Tubular Category Commendation – Christian Revival Church.
6. Safintra Factory Warehouse Winner – Chilleweni Cold Storage.
7. Industrial Category Commendation – Gamsberg Zinc Project.
8. CADEX Photo Competition Winner.
9. Industrial Category Winner – Omnia Nitro Phosphate Plant.
10. ASTPM Tubular Category Commendation – Camp Jao.
11. Bridge Category Commendation – IRPTN Pedestrian Bridges.
12. Johannesburg Young Achievers.

Africa's (ASTPM's) Tubular Category was won by the structure Fourways Mall Promotions Court. As part of the upgrade of the Fourways Mall, the new roof is essentially a tubular structure, which is lightweight and aesthetically very pleasing. The nominator and steelwork contractor was CADCON Pty Ltd, and the architects were Boogertman & Partners.

- In the Safintra South Africa Factory and Warehouse category, top honours went to Chilleweni Cold Storage Solutions. Constructed in Gosforth Park Germiston, the building's fresh design approach has given rise to a visually appealing industrial, fit-for-purpose industrial building. The nominator was Global Roofing Solutions, the structural engineers were DG Consulting Engineers and the architect was Empowered Spaces Architects.
- The SAISC Steel Awards Bridges Category went to the CTICC Skybridge, which connects the Cape Town International Convention Centre with the CTICC East Expansion. This bridge allows the two buildings to function effectively as an integrated unit and epitomises the CTICC's main purpose of connecting people. The nominator was Anchor Steel Projects, while the architects of this graceful structure were Convention Architects while the steelwork contractor and steel erector was Anchor Steel Projects.

The SAISC is profoundly grateful to its two major sponsors Aveng Trident Steel, which sponsored the Durban and Cape Town events and was the national entertainment sponsor; and BSI Steel, which sponsored the Johannesburg event. In addition, the SAISC would like to thank Cadex Systems SA for sponsoring the photo competition and Macsteel for the Digital Trailblazer sponsorship responsible for the Steel Awards App. "We are also indebted to NJR Steel, Stewarts and Lloyds, Pro Roof Steel and Tube for the sponsorship support of the Steel Awards," Trinchero continues.

"Aveng Trident Steel is proud to be associated with the SAISC annual Steel Awards. We are very pleased at the quality and innovation of the entries, and trust that this is the forerunner of an improved South African steel industry and overall economy," says Hercu Aucamp, Aveng Trident Steel CEO.

Commenting on behalf of BSI Steel, Sales Executive Peter Smith says: "We are proud to be sponsoring this event, and would like to thank the SAISC and all the role players involved for the hard work and time that they have invested – not only into the Steel Awards, but into the growth and development of the steel construction sector too."

"In the light of the current economic pressures which we face in South Africa, we are hugely encouraged by industry's response to, and involvement in, this year's Steel Awards – the sponsorship, the number of awards and the diversity of every aspect from the entries to the judging panel and sponsors," says Paolo Trinchero.

"South Africa needs a healthy and vibrant steel construction industry, and this year's highly successful Steel Awards event will do much to showcase not only the capabilities of steel as a material of construction – but those of all the amazing people who work throughout the entire sector to promote the future sustainability of our industry," he concludes.

CAPE TOWN, VENUE D'ARIA

1. AMSA Architectural Category Commendation – The Viper.
2. Cladding Category Winner – The 1054.
3. Cape Town Top Young Achievers.
4. Bridge Category Winner – CTICC Skybridge.

STEEL AWARDS 2019

SAISC's national Steel Awards 2019 annual awards ceremony took place on 10 October 2019 at Blue Wing Conference Centre (JHB), Mount Edgecombe (KZN) and Venue D'Aria (CPT). A combined total of over 910 guests attended this prestigious event where they were reminded about the great work our industry produces. Despite the enormous difficulties out there our industry continues to produce outstanding work, demonstrating its capability and expertise.

This year we had over 90 entries reflecting steel as the material of choice and a signal that we have an industry to be proud of. Our photo competition engaged new markets via Instagram and appeared on more than 1 700 feeds, we included a #SaiscSteel19 on our Facebook and LinkedIn social platforms as well as an updated Steel Awards Event App for the second year in a row.

A big thank you to our sponsors:

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SAISC MEMBERS

STEEL PRODUCERS

ArcelorMittal South Africa
Representative: Gaurav Nagpal
Tel +27 16 889 9111
Gaurav.Nagpal@arcelormittal.com
www.arcelormittal.com

Cape Gate
Representative: Martin Friedman / Sidney Farrel
Tel: +27 16 980 2121/ 2219
friedmnm@capegate.co.za
davsales@capegate.co.za
www.capegate.co.za

Columbus Stainless (Pty) Ltd
Representative: Lucien Matthews / Bertus Griesel
Tel: +27 13 247 2805/ 2020
matthews.lucien@columbus.co.za
commercial-enquiries@columbus.co.za
www.columbus.co.za

Scaw South Africa (Pty) Ltd
Representative: Morgan Pillay
Tel: +27 11 620 0241
mpillay@scaw.co.za
www.scaw.co.za

UNICA Iron & Steel (Pty) Ltd
Representative: Ravin Singh
Tel: +27 12 719 9736
ravin@unica.co.za
www.unica.co.za

STEELWORK CONTRACTORS

Eastern Cape

Industrial Services Group
Representative: Errol Thomson
Tel:+27 43 707 2700
ethomson@isgeng.co.za
www.isgeng.co.za

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

Gauteng

African Steel & Associated Projects
Representative: Colin Wilson
Tel: + 263 4 621584
ops@thesteelbuildingco.co.zw
colincampbellwilson@gmail.com
www.agristructures.co.zw

Betterect (Pty) Ltd
Representative: Nicolette Skjoldhammer
Tel: +27 11 762 5203
nicolette@betterect.co.za
www.betterect.co.za

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

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

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

Genrec Engineering
Representative: Mark Prince
Tel: +27 11 876 2300
mark.prince@genrec.co.za
www.genreceng.co.za

Khombanani Steel (Pty) Ltd
Representative: Marten Spencer
Tel: +27 11 975 0647
marten@tasseng.co.za

Louwill Engineering (Pty) Ltd
Representative: Juan Sliep
Tel: +27 11 818 5186
juan@louwill.co.za
www.louwill.co.za

Magnet Engineering (Pty) Ltd
Representative: Diniz Belo
Tel: +27 11 908 3500
magnetgr@global.co.za
www.magnetengineering.co.za

MPW Steel Construction (Pty) Ltd
Representative: Nic Tallarico
Tel: +27 11 450 3380
nic@mpwtalmac.co.za
www.mpwtalmac.co.za

NJW Engineering Services cc
Representative: Nick Van Deventer
Tel: +27 12 541 3931
nick@njw.co.za

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

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

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

Steel Band Construction cc
Representative: Steven Smit
Tel: +27 11 425 4569
steelband@icon.co.za
www.steelbandconstruction.co.za

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

TMW Fabrication (Pty) Ltd
Representative: Nick Lyons
Tel: +27 82 680 4126
nick@metalworker.co.za
www.tmwfabrication.com

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

Tudor Engineering & Draughting cc
Representative: Braam Beukes
Tel: +27 11 914 5163
tudora@mweb.co.za

Viva Engineering (Pty) Ltd
Representative: Collen Gibbs
Tel: +27 11 392 3926
colleng@vivaeng.co.za
www.vivaeng.co.za

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

KwaZulu-Natal

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

Churchyard & Umpleby
Representative: Keith Ball
Tel: +27 31 701 0587
keith@candu.co.za
www.candu.co.za

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

DAVGO cc
Representative: Bryce Goss
Tel: +27 31 765 2994
bryce@davgo.co.za
www.davgo.co.za

Ogilvie Engineering (Pty) Ltd
Representative: Allan Olive
Tel: +27 31 736 1643
allan@ogilvieengineering.co.za

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

SpanAfrica Steel Structures (Pty) Ltd
Representative: Max Heinzelmann
Tel: 087 500 7500
max@spanafrica.co.za
www.spanafrica.co.za

Steelkon Projects
Representative: Konrad Karcz
Tel: +27 82 971 5916
konrad@steelkon.co.za
www.steelkon.co.za

Mpumalanga

B & T Steel
Representative: Bryan Wilken
Tel: +27 13 665 1914
marketing@btsteel.co.za
www.btsteel.co.za

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

Tubular Holdings (Pty) Ltd
Representative: Tony Trindade
Tel: +27 11 553 2012
tony.t@tubular.co.za
www.tubular.co.za

Steel Services and Allied Industries
Representative: Lawrence Bartlett
Tel: +27 18 788 6652/3
lawrenceb@steelservices.co.za
www.steelservices.co.za

North West

Almec Manufacturing (Pty) Ltd
Representative: Joan Basson
Tel: +27 18 469 3202
joan@almecmanufacturing.co.za
www.almecmanufacturing.co.za

Tetra Con (Pty) Ltd
Representative: Kappie Kleinsmit
Tel: +27 14 538 0050
kappie@tetracon.co.za

Northern Cape

Rufco Construction (Pty) Ltd
Representative: Lorry Ruffini
Tel: +27 53 313 1651
lorry@rufco.co.za
www.rufco.co.za

Western Cape

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

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

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

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

STEEL MERCHANTS & SERVICE CENTRES

Gauteng

Allied Steelrode (Pty) Ltd
Representative: Justin Dax Cloete
Tel: +27 10 216 0189
justinc@alliedsteelrode.co.za
www.alliedsteelrode.com

Aveng Trident Steel
A division of Aveng Africa (Pty) Ltd
Representative: Eileen Pretorius
Tel: +27 11 861 7102
eileen.pretorius@trident.co.za
www.avengtridentsteel.co.za

BSi Steel (Pty) Ltd
Representative: Keith Whiting
Tel: +27 11 861 7603
keith.whiting@bsisteel.com
www.bsisteel.com

Macsteel Service Centres SA (Pty) Ltd
Representative: Granville Rolfe
Tel: +27 11 871 4677
granville.rolfe@mactrading.co.za
www.macsteel.co.za

Macsteel VRN
Representative: Jimmy Muir
Tel: +27 11 861 5200
jimmy.muir@vrn.co.za
www.vrnsteel.co.za

NJR Steel Services (Pty) Ltd
Representative: Greg Mollett
Tel: +27 11 477 5515
gmollett@njrsteel.co.za
www.njrsteel.co.za

Stewarts & Lloyds Holdings (Pty) Ltd
Representative: Mandy de Oliviera
Tel: +27 11 553 8500
mandyd@sltrading.co.za
www.stewartsandlloyds.co.za

TW Profile Services (Pty) Ltd
Representative: Leon Coetzee
Tel: +27 894 3031
leonc@twprofile.co.za
www.twprofile.co.za

KwaZulu-Natal

Macsteel Trading Durban
Representative: Marcus Nel
Tel: +27 31 913 2600
marcus.nel@mactrading.co.za

Western Cape

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

STEEL PRODUCT MANUFACTURERS

ACROW Ltd
Representative: Enrico Moya
Tel: +27 11 824 1527
enrico@acrow.co.za
www.acrow.co.za

Amanzi Storage Solutions (Pty) Ltd
Representative: Duane Ramos
Tel: +27 11 493 1197
duane@amanziss.co.za

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

COLVIC Marketing & Engineering (Pty) Ltd
Representative: Vic Hall
Tel: +27 11 457 8500
vich@colvic.co.za
www.colvic.co.za

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

Mentis Sales
Representative: Dean Weil
Tel +27 11 255 3200
deanw@mentis.co.za
www.mentis.co.za

Robor (Pty) Ltd
Representative: Ann Julle
Tel: +27 11 971 2102
annj@robor.co.za
www.robor.co.za

SBS Corporate Services (Pty) Ltd
Representative: Hlengiwe Matiwane
Tel: +27 31 716 1820
hlengiwe@sbstanks.co.za
www.sbstanks.co.za

Swasap (Pty) Ltd
Representative: Derek Anderson
Tel: +27 11 873 6666
derek@swasap.com
www.swasap.co.za

Urethane Moulded Products (Pty) Ltd
Representative: Trevor Carolin
Tel: +27 11 452 1000
trevor@ump.co.za
www.ump.co.za

Vital Engineering & Angus Mcleod (Pty) Ltd
Representative: Glen Pringle
Tel: +27 11 898 8500
glen@gratings.co.za
www.gratings.co.za

Voidcon Pro Manufacturing (Pty) Ltd
Representative: Kennedy Jimba
Tel: 0861 106 275
kennedy@voidcon.co.za
www.voidcon.co.za

CONSULTING ENGINEERS, DETAILERS & PROJECT MANAGERS

Gauteng

AECOM SA (Pty) Ltd
Representative: Lara Lombard
Tel: +27 12 421 3832
Lara.Lombard@aecom.com
www.aecom.co.za

Anglo Operations (Pty) Ltd
Representative: Kurt Waelbers
Tel: +27 11 638 9111
kurt.waelbers@angloamerican.com
www.angloamerican.com

Aurecon South Africa (Pty) Ltd
Representative: OJ Ajayi
Tel: +27 11 214 4500
OJ.Ajayi@aurecongroup.com
www.aurecongroup.com

Arup (Pty) Ltd
Representative: Kimon Comninos
Tel: +27 11 218 7739
kimon.comninos@arup.com
www.arup.com

Bigen Africa Services (Pty) Ltd
Representative: Daneel Strydom
Tel: +27 12 842 8840
daneel.strydom@bigenafrica.com
www.bigenafrica.com

CND Structural Services (Pty) Ltd
Representative: Claudio Correia
Tel: +27 82 353 3818
claudio@cnd-ss.com
www.cnd-ss.com

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

Consultaurie Design (Pty) Ltd
Representative: Mark Phillips
Tel: +27 11 234 6787
mark@ctauri.com

DRA Projects (Pty) Ltd
Representative: Ryan Males
Tel: +27 11 086-2325
ryan.males@draglobal.com
www.draglobal.com

EDS Engineering Design Services (Pty) Ltd
Representative: Hergen Fekken
Tel: +27 12 991 1205
hergen@edseng.co.za
www.edseng.co.za

Fluor South Africa (Pty) Ltd
Representative: Colin Morris
Tel: +27 11 519 6000
colin.morris@fluor.com
www.fluor.com

Hatch Africa (Pty) Ltd
Representative: Morne Fourie
Tel: +27 11 239 5422
morne.fourie@hatch.com
www.hatch.com

Imbabala Logistics Management
Representative: Michael Mamotte
Tel: +27 11 902 2952
mikem@imbacontra.co.za
www.imbacontra.co.za

International Drafting Services (Pty) Ltd
Representative: Frans Vivier
Tel: +27 11 954 0471
frans@idrafting.co.za

KRU Detailing CC
Representative: Johann Strauss
Tel: +27 11 462 8296
johann@kru.co.za
www.steeldetailing.co.za

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

NAKO LBE
Representative: Nolan Pillay
Tel: +27 12 665 3102
nolan.pillay@nakogroup.com
www.nakogroup.com

Roytec Global (Pty) Ltd
Representative: Roald Sogno
Tel: +27 11 608 0000
Roald.Sogno@roytec.co.za
www.roytec.co.za

Tenova TAKRAF Africa
Representative: Bhavesh Bhaga
Tel: +27 11 201 2377
bhavesh.bhaga@tenova.com
www.takraf.com

VLE Draughting (Pty) Ltd
Representative: Benandi Page
Tel: +27 65 876 8840
benandi@vledraughting.co.za
www.vledraughting.co.za

WorleyParsons RSA
Representative: Ian Robinson
Tel: +27 11 218 3000
ian.robinson@worleyparsons.com
www.worleyparsons.com

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

KwaZulu-Natal

DMV Richards Bay (Pty) Ltd
Representative: Le Roux Fourie
Tel: +27 35 789 1828
admin@dmvrb.co.za

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

Inqubeko Consulting Engineers
Representative: Freek Pretorius
Tel: +27 35 772 1592
freek@inqubeko.co.za
www.inqubeko.co.za

SDN Drawing Services cc
Representative: Sagren Govender
Tel: +27 31 464 8186
sdndrawings@gmail.com

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

Mpumalanga

Bulkcon cc
Representative: Desmond Enslin
Tel: +27 17 811 7520
desmond@bulkcon.co.za
www.bulkcon.co.za

Ijubane Projects (Pty) Ltd
Representative: Willie Greyling
Tel: +27 13 243 4390
willie@glps.co.za
www.glps.co.za

J.A.M.S. Geological Services cc
Representative: Pieter Vermeulen
Tel: +27 17 632 2990
pieter.vermeulen130969@gmail.com

Strydom & Malan Incorporated
Representative: Pieter Strydom
Tel: +27 13 653 6340
pstry@mweb.co.za

North West

Greyhorn Engineering (Pty) Ltd
Representative: Justin Kahari
Tel: +27 18 462 0346
justin@greyhorneng.co.za
www.greyhorneng.co.za

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

KLS Structural (Pty) Ltd
Representative: Gerrit Steyn
Tel: +27 21 948 0900
gerrit@kls.co.za
www.kls.co.za

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

SMEC South Africa (Pty) Ltd
Representative: John Anderson
Tel: +27 21 417 2900
john.anderson@smec.com
www.smec.com

International

Walsh Draughting Services
Representative: Donal Walsh
Tel: 00 353 57 8624913
walshds@eircom.net
www.walshds.ie

CIVIL ENGR CONTRACTORS

Maccaferri SA (Pty) Ltd
Representative: Adriano Gilli
Tel: 087 742 2710
Adriano.gilli@maccaferri.co.za
www.maccaferri.co.za

MACHINE MANUFACTURERS

FICEP SPA
Representative: Nick Blackwell
Tel: +39 033 287 6111
marketing@ficep.it
www.ficepgroup.com

Lindapter International
Representative: Louise Foster
Tel: +44 (0) 1274 521444
lfoster@lindapter.com
www.lindapter.com

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ARMCO Superlite (Pty) Ltd
Representative: Anthonie de Wit
Tel: +27 11 974 8511
dewit.anthonie@armco.co.za
www.armco.co.za

BSE Distributors CC
Representative: Elliot Marcinko
Tel: +27 11 609 4987
elliot@bsedistributors.co.za

C. Steinweg Bridge
Representative: Willem Fourie
Tel: +27 11 625 3000
Willem.Fourie@za.steinweg.com

Cadex Systems SA (Pty) Ltd
Representative: John Swallow
Tel: +27 11 463 1857
johnswallow@cadexsa.com
www.cadexsa.com

Dram Industrial Painting Contractors
Representative: Martin Gossayn
Tel: +27 11 660 7594
admin@dram.co.za
www.dram.co.za

Industrial Painting Services (Pty) Ltd
Representative: Sean Bemelman
Tel: +27 11 421 0314
onsitepainting@worldonline.co.za
www.onsitepainting.co.za

Retecon (Pty) Ltd
Representative: Hans-Peter Neth
Tel: +27 11 976 8600
neth@retecon.co.za
www.retecon.co.za

RGM Cranes
Representative: Ian O'Hara
Tel: +27 11 422 3690
ian@rgm.co.za
www.rgmcranes.com

SGS Metlab (Pty) Ltd
Representative: Jacoline Botha
Tel: +27 11 917 5173
jacoline.botha@sgs.com
www.metlab.co.za

Southey Holdings (Pty) Ltd
Representative: Viloshini Pillay
Tel: +27 11 579 4600
vpillay@southey.co.za
www.southeycontracting.co.za

Timrite (Pty) Ltd
Representative: Deon Kruger
Tel: +27 11 475 1600
d.kruger@timrite.co.za
www.timrite.co.za

EMERGING / DEVELOPING

Four Tops Engineering Service cc
Representative: Essau Motloung
Tel: +27 14 558 2031
essau@fourtops.co.za

ISILO Steel
Representative: Michael Perimal
Tel: +27 11 861 7612
michael.perimal@isilosteel.co.za
www.isilosteel.co.za

WEP Engineering (Pty) Ltd
Representative: Alisha Wepener
Tel: +27 11 967 1574
alisha.wep@gmail.com
www.steelstructureswep.co.za

Zamani Engineering Services CC
Representative: David Nkosi
Tel: + 27 13 690 1978
david@zamaniengineering.co.za

ASSOCIATION

Corrosion Institute of Southern Africa
Representative: Donovan Slade
Tel: +27 10 224 0761
president@corrisa.org.za
www.corrisa.org.za

Hot Dip Galvanizers Association of SA
Representative: Bob Wilmot
Tel: +27 11 456 7960
hdgasa@icon.co.za
www.hdgasa.org.za

SASFA MEMBERS

MAJOR MATERIAL SUPPLIERS

ArcelorMittal South Africa
Representative: Melvin Hickers
Tel: +27 16 889 4046
Melvin.hickers@arcelormittal.com
www.arcelormittal.com

Marley Building Systems
Representative: Garry Powell
Tel: +27 11 389 4500
garry.powell@etexgroup.com
www.etexgroup.com/en/what-we-do/brands-and-products/South-Africa

OTHER MATERIAL AND COMPONENT SUPPLIERS

Harvey Roofing Products
Representative: Albie Jordaan
Tel: +27 11 741 5600
albie.jordaan@macroofing.co.za
www.harveyroofingproducts.co.za

Steel Cliscoes, Doorframes and Roofing
Representative: Jerred Micholson
Tel: +27 31 705 2411
jerred-izinga@avaxwd.co.za
https://izinga-sa.wixsite.com/izinga-sa

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

LSFB MANUFACTURERS

AV Light Steel
Representative: Lebogang Zulu
Tel: +27 79 954 1374
Lebo@avlightsteel.co.za
www.avlightsteel.co.za

Dezzo Roofing (Pty) Ltd
Representative: Brandon Harding
Tel: 087 057 8550
brandon@dezzoroofing.co.za
www.dezzoroofing.co.za

FASBO (Pty) Ltd
Representative: Faraad Suffla
Tel: +27 83 400 1337
faraad@fasbuild.co.za
www.fasbuild.co.za

Impoqo Trading cc
Representative: Mpumelelo Nhlapo
Tel: +27 11 868 1132
mpumi@impoqo.co.za

MiTek Industries South Africa (Pty) Ltd
Representative: Uwe Schluter
Tel: +27 11 237 8700
marketing@mitek.co.za
www.mii.com/southafrica

Rajan Harinarain Construction (Pty) Ltd
Representative: Rajan Harinarain
Tel: +27 74 184 8881
rhconstruction1@gmail.com
www.rhconstruction1.co.za

Razorbill Properties 127 (Pty) Ltd
Representative: Vernon van der Westhuizen
Tel: +27 16 423 1749/50
vernon@razorb.co.za
www.razorb.co.za

6 Bar Construction
Representative: Gary Vandayar
Tel: +27 83 267 1888
garyvandayar@vodamail.co.za
www.6barconstruction.co.za

Siteform Roofing and Framing
Representative: Johan Fourie
Tel: +27 51 451 2166
info@siteform.co.za
www.siteform.co.za

Trumod (Pty) Ltd
Representative: Peter Thompson
Tel: +27 11 363 1960
peter@trumod.co.za
www.trumod.co.za

Zambezi Roofing & Steel
Representative: David Gale
Tel: +260 211 287684 /
+27 76 301 5096
david.gale@zambezi-roofing.com
www.zambezi-roofing.com

SERVICE CENTRES AND DISTRIBUTORS

Framecad
Representative: Sello Tlhotlhalemajoe
Tel: +27 11 064 5759
SelloT@framecad.com
www.framecad.com

Global Specialised Systems KZN (Pty) Ltd
Representative: Thys Visagie
Tel: +27 31 468 1234
gmkzn@globaldbn.co.za
www.globalsystems.co.za

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

DESIGN CONSULTANTS

Bapedi Civil and Structural Consultants
Representative: Tumi Kunutu
Tel: +27 11 326 3227
tumi@bapediconsult.co.za
www.bapediconsult.co.za

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

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

Hage Projects (Pty) Ltd
Representative: Gert Visser
Tel: +27 16 933 0195
gert@hage.co.za

Hull Consulting Engineers cc
Representative: Mike Hull
Tel: +27 11 468 3447
hull@iafrica.com

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

ASSOCIATE MEMBERS

AAAMSA Group
Representative: Johan Heyneke
Tel: +27 11 805 5002
aaamsa@iafrica.com

ABSA Bank
Representative: Deon Brits
Tel: +27 11 350 3287
deonbr@absa.co.za

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

HDGASA
Representative: Robin Clarke
Tel: +27 11 456 7960
robin@hdgasa.org.za
www.hdgasa.org.za

IZASA
Representative: Hazvinei Munjoma
Tel: +27 83 456 4989
hmunjoma@zinc.org
www.izasa.org

NASH New Zealand
Representative: Gordon Barratt
www.nashnz.org.nz

NASH Australia
Representative: Ken Watson
www.nash.asn.au

Pretoria Institute for Architecture
Representative: Mauneen Van Wyk
Tel: +27 12 341 3204
admin.pia@saia.org.za
www.saia.org.za

Standard Bank
Representative: Johann Strydom
Tel: +27 11 631 5977
Johanjj.strydom@standardbank.co.za

Steel Framing Alliance (USA)
Representative: Mark Nowak
www.steelframingalliance.com

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

University of Pretoria Faculty of Engineering
Representative: Riaan Jansen
Tel: +27 12 420 4111
riaan.jansen@up.ac.za

University of the Witwatersrand School of Mechanical Engineering
Representative: Terrance Frangakis
Tel: +27 11 717 7333
terrance.frangakis@wits.ac.za

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Ambient Contracting Services (Pty) Ltd
Representative: Carlos Ferreira
Tel: +27 11 663 9100
acstenders@ambient.co.za
www.abecontracting.co.za

Bakhusele Business Solutions
Representative: Edwin Mkhabela
Tel: +27 13 755-4480
edwin@bakhusele.co.za
www.bakhusele.co.za

Container Consumables & Industrial Supplies
Representative: Leslie Sivasunker
Tel: +27 32 533 2266
lez@containerconsumables.co.za

Delca Systems (Pty) Ltd
Representative: Dr Mercy Mafara
Tel: +27 31 266 5900
info@delca.co.za
www.delca.co.za

Futurecon
Representative: Gerrit Burger
Tel: +27 82 826 0948
gerrit@futurecon.co.za

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

Ohlhorst Africa LBS (Pty) Ltd
Representative: Sergio Ferreira
Tel: +27 12 327 2411
info@ohlhorst.co.za
www.ohlhorst.co.za

Rancor
Representative: Charl van Zyl
Tel: +27 82 881 6879
charl@rancor.co.za
www.rancor.co.za

Shospec (Pty) Ltd
Representative: Bjorn Kahler
Tel: +27 33 386 0100
bjorn@shospec.co.za
www.shospec.co.za

SMC Africa
Representative: Andrew Dewar
Tel: +27 82 491 2717
andrew@smcafrica.com
www.smcafrica.com

Stag Homes cc
Representative: John Schooling
Tel: +27 21 794 0904
lindsayb@stagafrican.com
www.stagprop.com

Zamadunga Business Enterprise
Representative: Thandi Ngcobo
Tel: +27 31 701 5431
info@zamadunga.co.za

Zookie Construction and Projects
Representative: Reshoketswe Nakene
Tel: +27 12 767 8820
zookiecp@gmail.com

SAMCRA MEMBERS

ALLIED PRODUCTS

Ash & Lacy South Africa (Pty) Ltd
Representative: Dion Marsh
Tel: +27 11 792 9283
dion.marsh@ashandlacy.com

Kare Industrial Suppliers (Pty) Ltd
Representative: Reitze Hylkema
Tel: +27 11 334 0922
reitze@kare.co.za
www.kare.co.za

Rigifoam
Representative: Lyle Jeffery
011 421 0313
lyle@rigifoam.com
www.rigifoam.com

Saint Gobain Construction Products South Africa (Pty) Ltd
Representative: Pravashan Naidoo
Tel: +27 12 657 2800
Pravashan.Naidoo@saint-gobain.com
www.isover.co.za

CONTRACTOR

Chartwell Roofing (Pty) Ltd
Representative: Mike Read
Tel: +27 83 625 1557
mike@chartwellroofing.co.za
www.chartwellroofing.co.za

Monro Roof Sheeting
Representative: David Monro
Tel: +27 84 606 2110
dave@monrosheeting.co.za
www.monrosheeting.co.za

Tate & Nicholson A division of Southey Holdings (Pty) Ltd
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Tel: +27 11 464 0910
mbakker@tn.co.za
www.southey.co.za

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Representative: Jan Kotze
Tel +27 16 889 9111
jan.kotze@arcelormittal.com
www.arcelormittal.com

SAFAL Steel (Pty) Ltd
Representative: Sally Stromnes/ Willem van Heerden
Tel: +27 11 944 6800/ 31 782 5500
sally.stromnes@safalgroup.com/ willem.vanheerden@safalgroup.com
www.safalgroup.com

PROFILER / MANUFACTURER

Global Roofing Solutions a Division of Consolidated Steel Industries (Pty) Ltd
Representative: Johan van der Westhuizen
Tel: +27 11 898 2902
johan@globalroofs.co.za
www.global-roofing-solutions.co.za

Macsteel Roofing
Representative: Lance Comber
Tel: +27 11 878 7500
Lance.Comber@macroofing.co.za

Safintra South Africa (Pty) Ltd
Representative: Rainer Straussner
Tel: 0861 723 542
rainer.straussner@safalgroup.com
www.safintra.co.za

REPAIR AND MAINTENANCE

GCF Projects
Representative: Dale McLeod
Tel: +27 11 855 1243
info@gcfprojects.co.za
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NAMRU 89 CC
Representative: David Sauermann
Tel: +27 11 868 4105
dsauermann@albertsdal4.co.za
www.namru89.co.za

POLASA MEMBERS

ASSOCIATION

SCAW South Africa (Pty) Ltd
Representative: Morgan Pillay
Tel: +27 11 620 0241
mpillay@scaw.co.za

The Aluminium Federation of SA
Representative: Muzi Manzi
Tel: +27 11 455 5553
muzi.manzi@afsa.org.za
www.afsa.org.za

CONSULTING ENGINEERS, DETAILERS & PROJECT MANAGERS

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Representative: Gordon Sneddon
Tel: +27 11 372 8585
gordon.sneddon@murrob.com
www.murrob.com

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Representative: Tommy Holmes
Tel: +27 11 748 7000
tommy@avlock.co.za
www.avlock.co.za

Bolt Corporation
Representative: Paul O'Rourke
Tel: +27 11 955 4480
paul@boltcorp.co.za
www.boltcorp.co.za

Carbo Ferrum (Pty) Ltd
Representative: Wayne Nash
Tel: +27 43 555 0435
wayne@carboferrum.co.za
www.carboferrum.co.za

Cullin Africa
Representative: Krish Chetty
Tel: +27 11 848 1400
krish@cullin.co.za
www.cullin.co.za

McWade Productions
Representative: Marc Hindle
Tel: +27 11 316 2262
march@mcwade.co.za
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Metpress
Representative: Sagren Moodley
Tel: +27 11 825 5334
sagren@metpress.co.za
www.metpress.co.za

Pfisterer
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Tel: +27 33 397 5409
geoff.myburgh@pfisterer.co.za
www.pfisterer.co.za

Preformed Line Products
Representative: John Buyers
Tel: +27 33 397 5800
johnb@preformedsa.co.za
www.preformedsa.co.za

Tel-Screw Products
Representative: Ronald Teleng
Tel: +27 11 917 9710
info@telscrew.co.za
ronnieteleng@me.com
www.telscrew.co.za

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Ablon Construction cc
Representative: Mel Steyn
Tel: +27 57 352 1081
mel@ablon.co.za
www.ablon.co.za

BASH Electrical Contractors cc
Representative: Shane Bennett
Tel: +27 11 494 5480
shane@bashelec.co.za
www.bashelec.co.za

CIS Engineering
Representative: Christo Marais
Tel: +27 16 422 0082
christo@cisengineering.co.za
www.cisengineering.co.za

Consolidated Power Projects
Representative: David van Zyl
Tel: +27 11 729 1249
David.vanZyl@concogrp.com
www.conco.co.za

DLC 56 Projects cc
Representative: Calvin Mutize
Tel: +27 84 993 5599
dlc56projects@gmail.com
www.dlcgroup.co.za

Jyoti Structures Africa
Representative: Bruno DalBianco
Tel: +27 11 586 0100
bdalbianco@jyotiafrica.com
www.jsl.co.in

KEC International Limited
Representative: Sherwin Chetty
Tel: +27 11 018 4000
chettysb@kecrpg.com
www.kecrpg.com

Larsen & Toubro Limited
Representative: Nick van der Mescht
Tel: +27 11 317 9218
nickv@lntecc.com
www.lntecc.com

Mkhulu Electro Distribution Projects
Representative: Zola Hlatshwayo
Tel: +27 11 814 4169
systems@mkhulu-edp.co.za

Structa Technology
Representative: Hercules Rossouw
Tel: +27 16 362 9100
hercules@structa.co.za
www.structa.co.za

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roger@ebm.co.za
www.ebm.co.za

Jewll Industries (Pty) Ltd
Representative: Wilhelm van der Lingen
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wim@jewll.co.za
www.jewll-flameproof.com

TESMEC SA
Representative: Sibusiso Ngobeni
Tel: +27 11 397 2386
sibusiso.ngobeni@tesmec.com
www.tesmecsa.co.za

TRM Piling (Pty) Ltd
Representative: Robert Marsden
Tel: +27 74 310 1111
rob@trmpiling.com
www.trm.at

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MEDIUM TUBE & PIPE MANUFACTURER

Barnes Tubing Industries (Pty) Ltd
Representative: Andy Smith
Tel: +27 11 923 7340
andy@barnestubing.co.za
www.barnestubing.co.za

Hall Longmore (Pty) Ltd
Representative: Kenny Van Rooyen
Tel: +27 11 874 7300
kenny.vanrooyen@hall-longmore.co.za
www.hall-longmore.co.za

Pro Roof Steel Merchants (Pty) Ltd
Representative: Peter Potgieter
Tel: +27 16 450 5800
peter@proroof.co.za
www.proroof.co.za

SMALL TUBE & PIPE MANUFACTURER

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

LB Pipes (Pty) Ltd
Representative: Gerald Blackburn
Tel: +27 21 386 1923
gblackburn@groupfivepipe.co.za
www.g5p.co.za

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Honingcraft (Pty) Ltd
Representative: Gerhard Hauptfleisch
Tel: +27 11 824 5320
gerhard@honingcraft.co.za
www.honingcraft.co.za

New Concept Mining
Representative: Charles Hart
Tel: +27 11 494 6000
charlesh@ncm.co.za
www.ncm.co.za

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LARGE MERCHANT/ SERVICE CENTRES

Garsin Engineering
Representative: Walter Novelli
Tel: +27 11 828 9732
walter@garsin.co.za
www.garsin.co.za

MEDIUM TUBE & PIPE MANUFACTURER

Barnes Tubing Industries (Pty) Ltd
Representative: Andy Smith
Tel: +27 11 923 7340
andy@barnestubing.co.za
www.barnestubing.co.za

Hall Longmore (Pty) Ltd
Representative: Kenny Van Rooyen
Tel: +27 11 874 7300
kenny.vanrooyen@hall-longmore.co.za
www.hall-longmore.co.za

Pro Roof Steel Merchants (Pty) Ltd
Representative: Peter Potgieter
Tel: +27 16 450 5800
peter@proroof.co.za
www.proroof.co.za

SMALL TUBE & PIPE MANUFACTURER

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

LB Pipes (Pty) Ltd
Representative: Gerald Blackburn
Tel: +27 21 386 1923
gblackburn@groupfivepipe.co.za
www.g5p.co.za

AVMY Steel Science SA (Pty) Ltd
Representative: Shriraj Deshpande
Tel: +27 10 006 0235
shriraj.deshpande@kltgroup.net

VALUE ADDED MANUFACTURER

Connect-It
Representative: Leon Malan
Tel: +2712 004 0774
leon@connect-it.cc
www.connect-it.cc

Honingcraft (Pty) Ltd
Representative: Gerhard Hauptfleisch
Tel: +27 11 824 5320
gerhard@honingcraft.co.za
www.honingcraft.co.za

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Representative: Charles Hart
Tel: +27 11 494 6000
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