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COST COMPARISON STUDY:
A CASE FOR STEEL

TUBULAR STEEL GETS ITS MOMENT IN THE SUN:
THE TIME SQUARE SUN STAR

THE IMPACT OF MICRO CLIMATES ON CLADDING

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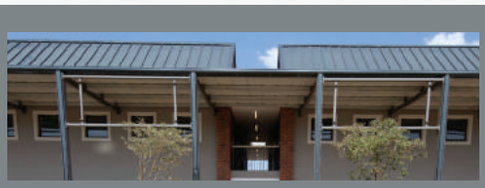
COVER IMAGE: Time Square Sun Star
PHOTO BY: Spiral Engineering



FEATURES

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SAISC COMMENT

PAOLO TRINCHERO
CEO, SAISC

SURVIVAL AND GROWTH:
WE NEED A REALISTIC STRATEGY FOR THE STEEL CONSTRUCTION ECOSYSTEM

"IN MY VIEW IT IS COMPETITIVENESS THAT NEEDS TO FORM PART OF OUR RELENTLESS FOCUS TO REBUILD OUR STEEL INDUSTRY."

When it comes to a good strategy we should be asking ourselves, what is the real problem or challenge the steel industry faces?

From my perspective it is a combination of four things:

1) Our low growth economy (translates into fewer projects, less work, less steel)
2) Our political, legal and policy environment which impacts on the economy
3) Our steel industry eco-system
4) Our competitiveness

I should admit that I started this year far too optimistic. I think the economy and policy environment will take longer to improve but they will. So as the SAISC we can continue to lobby government and large clients to try and improve the playing field for our members, but are we addressing the real problem?

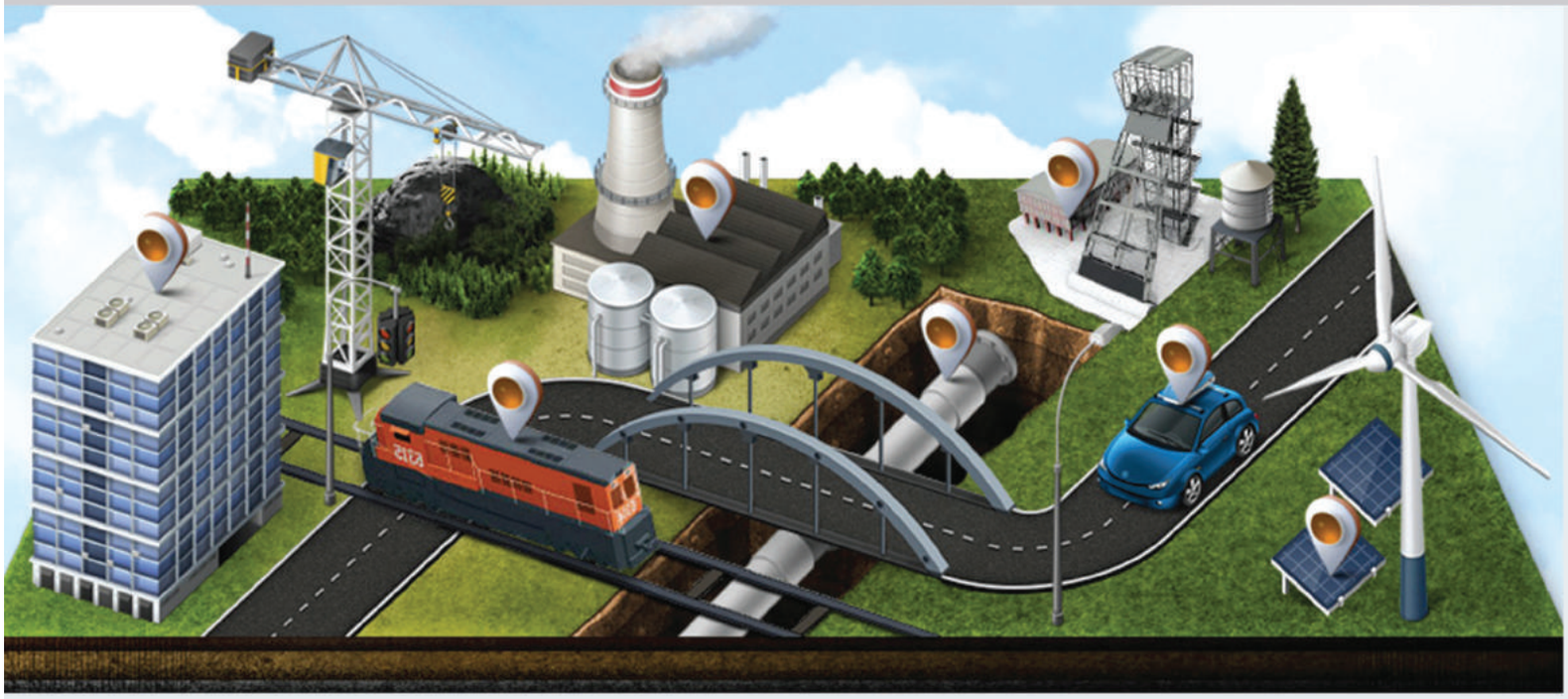
You may be asking why I mention the steel industry eco-system. Perhaps, I should use a more traditional description which would be supply chain. Eco-system is better in my view as it describes the industry relationships as fragile. This is really important as each segment or sector in its fight to survive makes decisions which can negatively affect the system. The SAISC has found itself in a situation where it has to mediate between parties, encourage dialogue and shift thinking. The tariff debate is a case in point. We are not alone though, as one only has to read the debates raging in America and the world on the introduction of blanket tariffs of 25% on steel.

In my view it is competitiveness that needs to form part of our relentless focus to rebuild our steel industry. It is the only certainty we have that countries and companies that invest in innovation, people and skills will survive and grow. Yes, restructuring and cost containment are very important but you can't do it forever and what is the end goal?

With the above in mind what does the SAISC do and what should it do to keep the industry moving in the right direction? Where do you think we should focus?

- Technical expertise and research
- Focused innovation projects
- Skills development and training
- Business development and marketing
- Focusing on member concerns and looking for opportunities
- Drawing from our international partners to ensure we keep up
- Benchmarking

We always appreciate your input so please do not hesitate to send us your comments. If you like, we can publish them and get a conversation going.



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EDITOR'S NOTE

DENISE SHERMAN
MARKETING MANAGER, SAISC

If you've been keeping up to date with our social media posts, you'll know that I've been buried up to my eyeballs in textbooks, reports, case studies, and half of the internet (minus the cat videos and other questionable content). All I can say is – the next time I suggest enrolling for a CIM Strategic Marketing qualification, somebody slap me. With my exam behind me, I now have time to breathe and reflect on the learning that ensued in the preparation process.

I'm a relative newby to the industry (year 3!), and its nuances are not the easiest to grasp. It's a complex environment, faced with some very real challenges. After months of research and long conversations with a wide range of industry stakeholders, I have a whole new appreciation for the complexity of the steel ecosystem, and the intricate balance required to make it work. Do I have all the answers? Certainly not. However, I think part of finding a solution to the challenges our industry is currently facing is to acknowledge that nobody has all the answers. Perhaps we are not even asking the right questions. Do we really appreciate the impact our actions have on other players within the industry and are those actions hurting or helping the ecosystem?

EACH OF US HAS SOMETHING VALUABLE TO CONTRIBUTE TO CREATE A SUSTAINABLE AND THRIVING SOUTHERN AFRICAN STEEL CONSTRUCTION ECOSYSTEM.

Sustainability is the name of the game. Every man (or woman) for himself may seem like a sensible survival strategy – but in the long term it does more harm than good.

We're a delightful blend of different ages, genders and skin tones. We think differently, have different approaches to innovation and different appetites for risk. Part of the direction we are heading in as the marketing and communications team of the SAISC – is to create opportunities for engagement. We have some great new initiatives and are tweaking our existing ones. Give us your suggestions, and support us by attending our events.

Let's continue to engage. Let's learn from each other. Each of us has something valuable to contribute to create a sustainable and thriving Southern African steel construction ecosystem.

SAISC CALENDAR 2018

TECHNICAL TRAINING

17 – 18 July	Structural Inspection and Maintenance Management for Mines and Plants (JHB) R6500 (SAISC Members) R7500 (Non Members) Presented by Geoff Krige (2 CPD Points)

BUSINESS AND SOFT SKILLS TRAINING

(1/2 Day workshops – R 800p/p)

* Tentative Dates – to be confirmed

7 June*	Mobile photography: Tips for taking quality photos onsite
28 June*	Writing for Digital Platforms, Web and Social Media
12 July*	Introduction to Public Relations for the Steel Industry
23 August*	Social Media for the Built Environment

EVENTS

4 May	Industry Breakfast (Woodmead Johannesburg Country Club)
8 May	SAISC Day (Woodmead Johannesburg Country Club)
20 June	#Re_Construction: AR and VR in the Built Environment (Informal networking event – 7 - 9pm)
17 August	Women in Construction – Breakfast (1/2 Day event)
11 October	Steel Awards (JHB / CT / DBN)

PROJECT **PROFILES**

TUBULAR STEEL

ITALTILE MENLYN COFFEE BAR

PROJECT TEAM

Client/Developer – Italtile Limited I **Architect** – WMS Architects I **Structural Engineer** – Civil Concepts
Project Manager – WMS Architects I **Main Contractor** – Extreme B3 Developments
Steelwork Contractor and Structural Steel Detailer – Spiral Engineering I **Steel Erector** – Junior Steelworks
Cladding Manufacturer – The Copper Foundry I **Cladding Supplier** – Metal and Tool Trade
Cladding Contractor – Rohde Roofing I **Corrosion Protection/Paintwork Contractor** – Extreme B3 Developments

About the project

The project entailed creating a Coffee Bar with glass and aluminium shop-fronts enclosed with curved steel tube colonnade supporting a domed roof rotunda. Special consideration was given to the design of this proposed building in the garden. The round gazebo design reflects the feel and language of the existing round showroom. The steel is ideal for the bending of a small radius in the 127mm Ø pipe without distorting the original shape of the pipe. The construction consists of separate steel arches that are assembled on site to form the round structure and held in place with specially manufactured 'clamps'. The smaller elements made it easier to transport and handle on the site.

Why steel?

The architect's reason for choosing steel as the main construction material was simple. Steel is extremely versatile, allowing bending of curves with a small radius while still providing the structural strength needed. The steel profile produces a slim and elegant end product that couldn't be obtained with any other material.

Tonnes of steel used: 3.53

Profiles used: 127Ø x 4.5mm circular hollow sections, 50 x 5 flat bars

Cladding: Copper on spruce timber lining

SUN CITY TUBULAR TREE STRUCTURES

PROJECT TEAM

Client/Developer – Sun International | **Architect** – Northpoint Architects
Structural Engineer – WSP Structural Engineers | **Quantity Surveyor** – MLC Quantity Surveyors
Project Manager – Proman Project Managers | **Main Contractor** – ZPC Construction (Pty) Ltd
Steelwork Contractor and Cladding Installer – Spiral Engineering cc | **Cladding Contractor** – Rohde Roofing
Structural Steel Design and Detailer – Consultauri Design (Pty) Ltd | **Steel Erector** – Integrated Site Control
Stainless Steel Webnet – Jakob SA | **Corrosion Protection and Paintwork Contractor** – Tesane Painters

About the project

Spiral Engineering were contracted to carry out the design, supply and installation of 6 feature trees and a central canopy structure positioned at various locations within the central Food Court for the Entertainment Centre revamp. These were to become pivotal features as well as accommodating the greening process within the once dark and dreary casino surroundings.

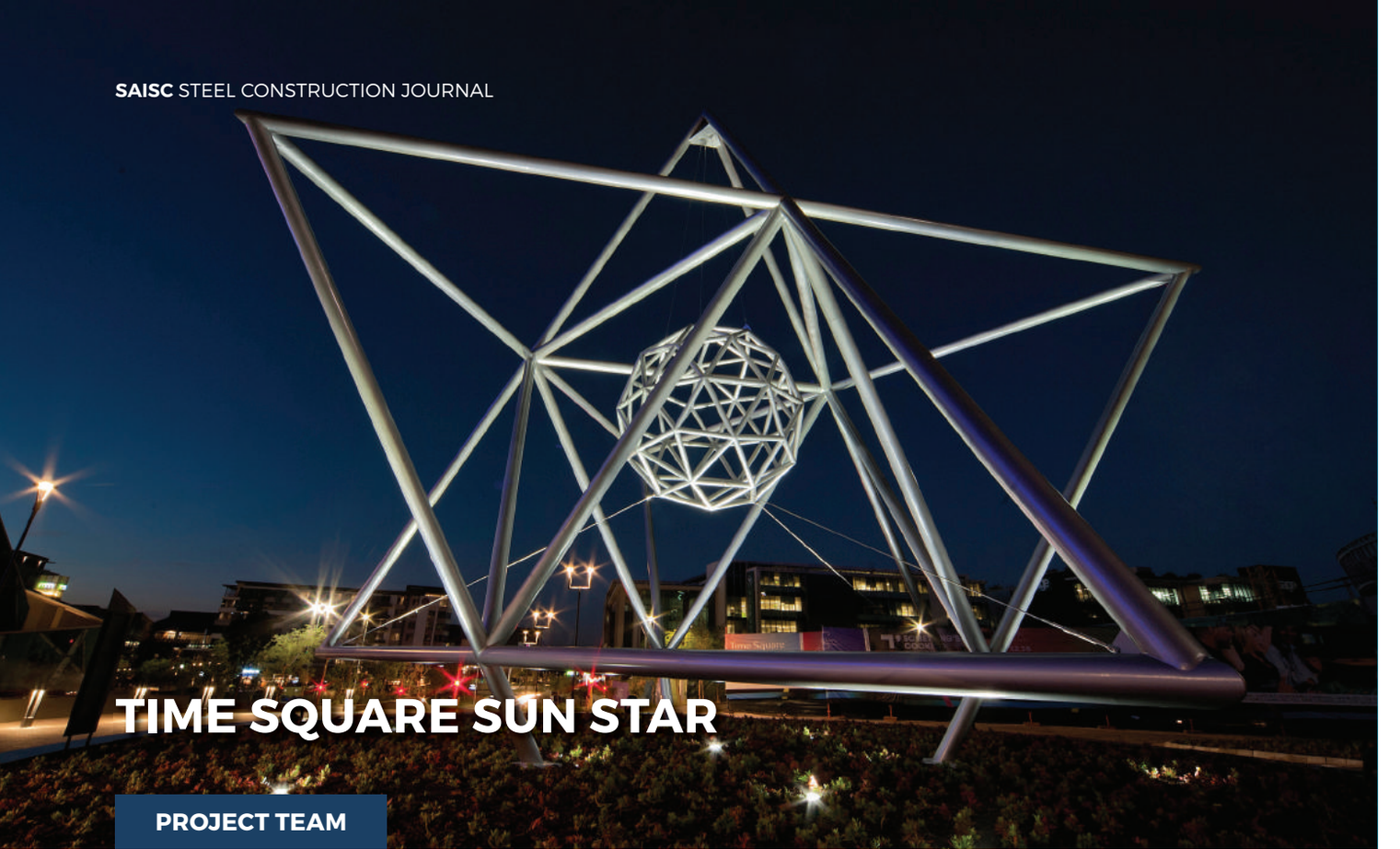
Why steel?

Tubular steel was the only possible solution to achieving the shapes at the same time providing for the skeleton around which the Jakob Webnet could be fitted to. The structures are complete welded structures with no bolted connections, with high quality finishes and attention to detail. The stainless netting provides the perfect support for irrigated greening, in that the net is fabricated using Grade 316 material which will stand the test of time in this moist environment.

Tonnes of steel used: 18

Profiles used: 76 and 63Dia CHS Tubular frameworks

Cladding: Jakob Webnet – Stainless steel grade 316



TIME SQUARE SUN STAR

PROJECT TEAM

Client/Developer – Sun International I **Architect** – LYT Architecture I **Main Contractor** – WBHO
Structural Engineers – WSP Structural Engineers and ConsulTauri Design
Quantity Surveyor – MLC Quantity Surveyors I **Project Manager** – Proman Project Management
Steelwork Contractor, Structural Steel Detailer and Steel Erector – Spiral Engineering cc
Corrosion Protection/Paintwork Contractor – Tesane Painters

About the project

Fabrication

With Sun International as the client, quality was paramount. This had to be considered with the practical issues associated with handling and transport.

During the planning and detailing stages attention was given to efficient use of standard tube lengths, whilst designing components, so as to minimize off-cuts. This resulted in production of standard modules which, in some cases, were reversible to assist with site erection.

Tube ends were laser profiled to enable high quality three and four point intersections, which were fully welded in the shop, and dressed accordingly, leaving relatively simple straight line connections on site. Alignment cleats were fitted during the pre-assembly in the workshop.

The central spherical structure was fabricated as a single component in the workshop. Although faceted, the design required accurately profiled tube ends to create the continuous tubular effect. This proved to be more difficult than anticipated, as the lines are not uniform and there was no fixed reference point to work from.

Erection

The over-all dimensions of the star structure, being supported on three concrete plinths, was the defining factor in determining the erection method. There were a number of connections, which needed to be aligned and securely site welded. It was decided to carry out this phase at ground level rather than at heights.

The upper section of the star was assembled, aligned and welded on trestles, allowing easy access to connections. Once this was complete the entire upper level structure was lifted onto three separate scaffold towers precisely positioned and set at a predetermined height.

The lower section was then assembled on the trestles and the connection tubes, between upper and lower sections, fixed into place. This left the three support columns perfectly positioned on the concrete plinths.

Due to a very restricted completion program welding work was carried out during night shift, with much emphasis on finishing and producing the required quality to receive a high gloss paint. This has been achieved and we were able to present a structure held in high regard.

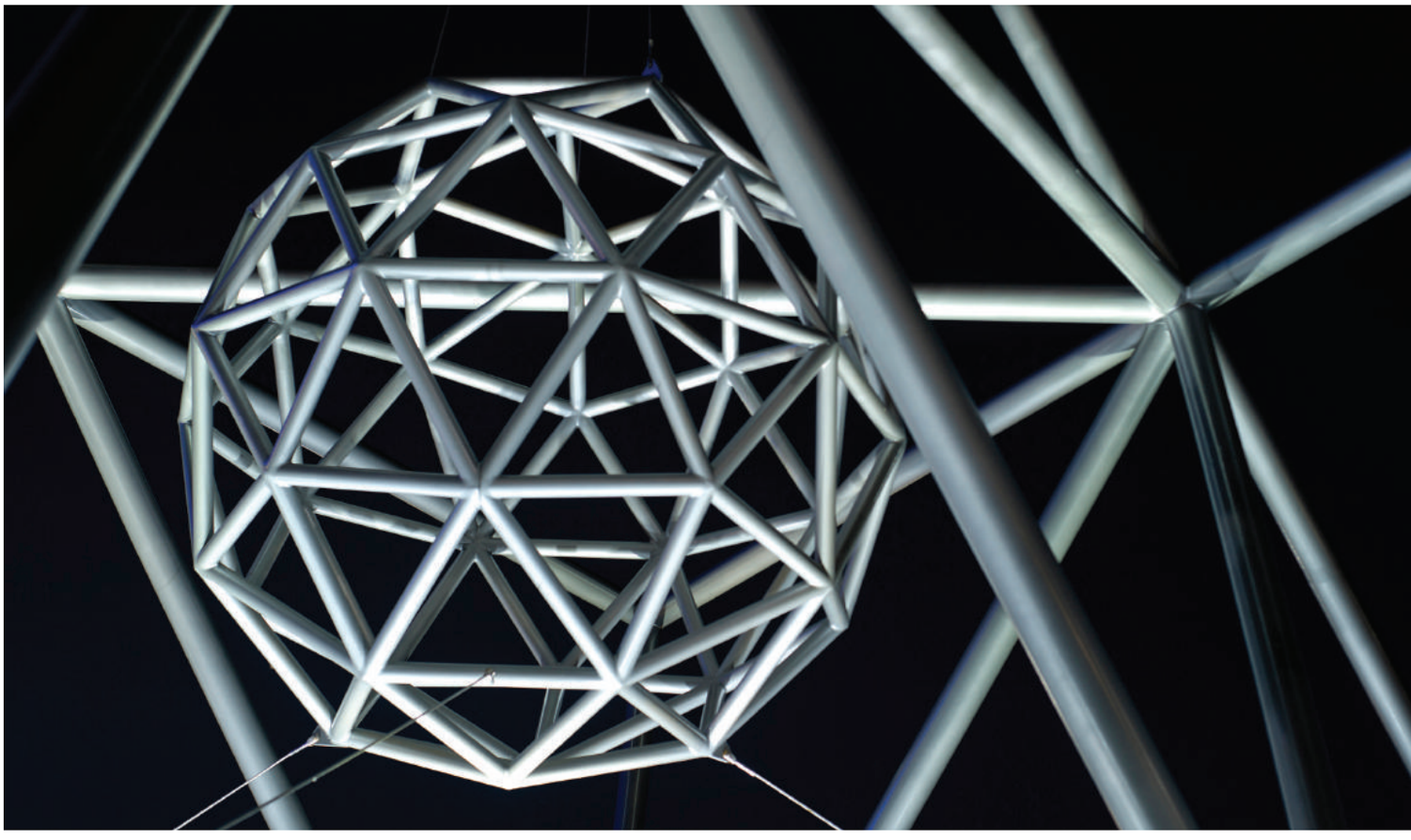
Why steel?

The original Sun Star, also within the Sun International Group, representing a beacon of hope is situated on the hilltop behind Sun City, this was done using aluminium latticed trusses. This second Sun Star structure is in the primary thoroughfare of the prestigious Time Square Casino development. It needed to be a clean, slick, quality product without any bolted connections visible at close range.

The tubular structure is a fully welded construction and is supported on three legs bolted to concrete foundations. The structure was too large to be fabricated and transported as a whole. Accurate and high quality fabrication of the node points was essential as on the assembly there would be no time for repair in alignment. The nodes were fabricated with the joint positions being determined by the stock material lengths, keeping offcuts to a minimum. Preparation of the connections for welding and temporary erection cleats needed to be removed and welds cleaned and prepped for the high quality paint finish. The erection sequence needed to be carefully thought out to ensure buildability in a very short installation window just before project completion. The initial duration was reduced from 10 to 5 days and also incorporated a late colour change just before project opening.

Tonnes of steel used: 10

Profiles used: 194 Dia and 89 Dia CHS



COST COMPARISON STUDY: **A CASE FOR STEEL**

BY MICHAEL DRENNAN, DR HENNIE DE CLERCQ

Steel structures can be more cost effective than concrete structures for office buildings in South Africa.

This may be such an unbelievable statement to most people involved in buildings in this country, even people within the steel industry, that it bears repeating, this time more carefully. In a thorough academic study we found that, once all aspects were taken into account, a four-storey office building in South Africa can be built more cost-effectively with a steel structure rather than a concrete structure (The full study can be found on www.sunscholar.co.za and searching the author's names).

The motivation behind this study was because we found it interesting that so few office buildings in South Africa are built using steel structures whereas in other parts of the world, for example the USA and UK, the majority of such buildings are built with steel. Furthermore, if one looks globally, it is striking that in some countries concrete reigns supreme, while in others it's steel. This despite similar economies and availability of materials. One cannot help but wonder: what is behind these customs and preferences?

At issue is whether people make purely rational decisions, based on financial considerations, when deciding which material to use for a project. For many projects in South Africa proper comparisons of alternative options may well have been done, but our efforts to find previous studies comparing steel and concrete structures in this country yielded no results. We therefore decided to look into the question by comparing the costs of a building constructed using various structural alternatives.

As we wanted to do a generic study rather than one for a specific building, the challenge we faced was to find a building representative of an important class of structure. We decided on a low-rise office building of up to four storeys in height, such as one would frequently find in an office park or suburban setting. Since these buildings often have to accommodate parking on the ground floor, they tend to have a fairly typical column layout. The finishes are often neat but not stylish, while air conditioning consists of window units rather than centralised systems. The building configurations were developed through discussions with various professionals in the building industry. The floor layouts and cross sections of the buildings used for the cost comparison are shown in *Figure 1* and *2*, the only difference between the two structures being the presence or absence of internal columns.

Four different structural alternatives were considered for the purposes of the comparison (Note the abbreviated names to be used from here on out):

1. Steel structure with composite concrete floors on metal deck sheeting (Steel metal deck).
2. Steel structure supporting precast hollowcore concrete floors acting compositely with the steel beams (Steel hollowcore).
3. Reinforced concrete flat slab (RC flat slab)
4. Post-tensioned concrete flat slab (PT flat slab)

For the steel structures the option of column-free floors (i.e. 'long span' layout shown in *Figure 2*) were also investigated. The design of each structure represented a careful, professional design such as would generally be considered a sound design, but without any innovative cost saving measures. The steel structures also had to meet the requirements for floor vibrations and fire resistance, which were considered to be met automatically by the concrete structures. All structures were considered to have the same lightweight steel roof.

Outstanding support was obtained from various highly experienced and regarded people within the building industry including a consulting engineer, a quantity surveyor, a building contractor, a project manager, a steelwork contractor and a fireproofing consultant. As the following list will make clear, literally every aspect of each building was considered in the cost comparison: acquisition of the land, local authority and promotion costs, site preparation and earthworks, lead-in times, foundations, structural frames, all non-structural aspects of the building including walls, finishes, HVAC and plumbing, professional fees, a roof, a lift, electrical system, external parking, P&G costs, interest and income.

Detailed construction programmes were compiled, which showed that the steel structures could be completed one month faster than the concrete structures (7 months vs 8 months). The cost implications associated with these differences in construction time were considered when developing the cost comparison.

The important figures obtained during the study are shown in *Table 1*. Comparing the frame cost clearly shows where the perception of steel being expensive comes from: the steel metal deck frame costs, for example, some 44% more than the PT flat slab frame. The steel structures have slightly cheaper foundations because of their lower self-weight. The non-structural components of the building, which constitute the construction cost of the entire building minus the structural frame, foundations and P&G costs, were assumed to be the same for all the options considered.

Following the advice of the quantity surveyor, the P&G costs were taken as 10% of the construction cost for the steel options and 12.5% for concrete options, the difference being attributed to the reduced construction time of the former and a less site intensive construction process. When the land cost and professional fees are added, the concrete options are still attractive, but now the differences are quite small.

It was surprising to learn that there doesn't seem to be a standard method for considering different construction times when comparing the cost of different structures. It was therefore decided to make the completion day of the slowest method (i.e. 8 months after the start date) the point of reference, and to compare the total expenditure for each option at that time. This means that the steel options benefit from one month of rental income, although the interest payable to fund them is higher, because of the earlier expenditure and higher capital cost associated with them.

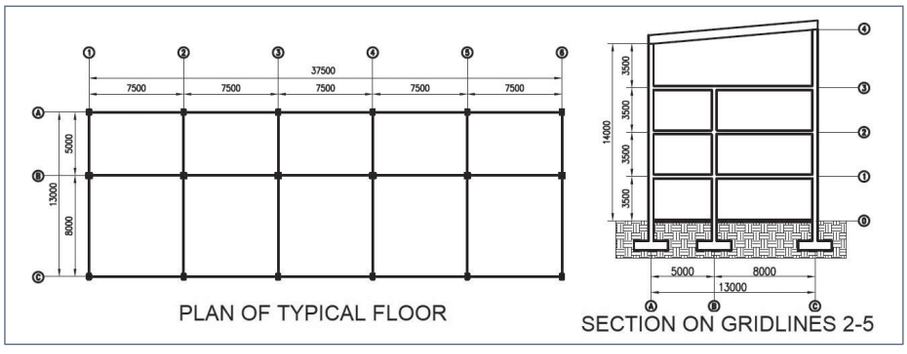


Figure 1: Short span building configuration.

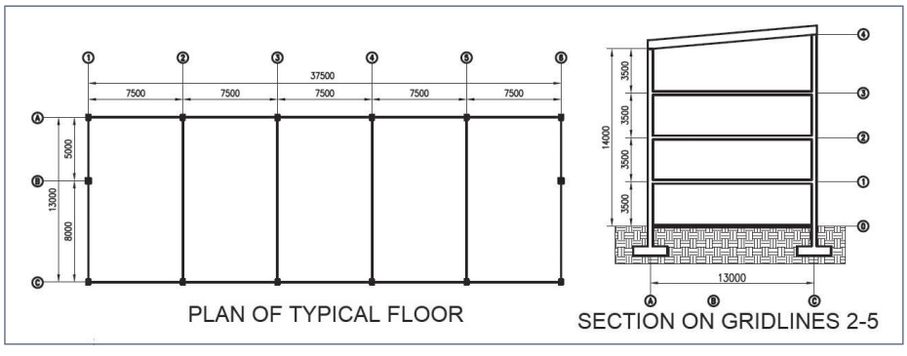


Figure 2: Long span building configuration.

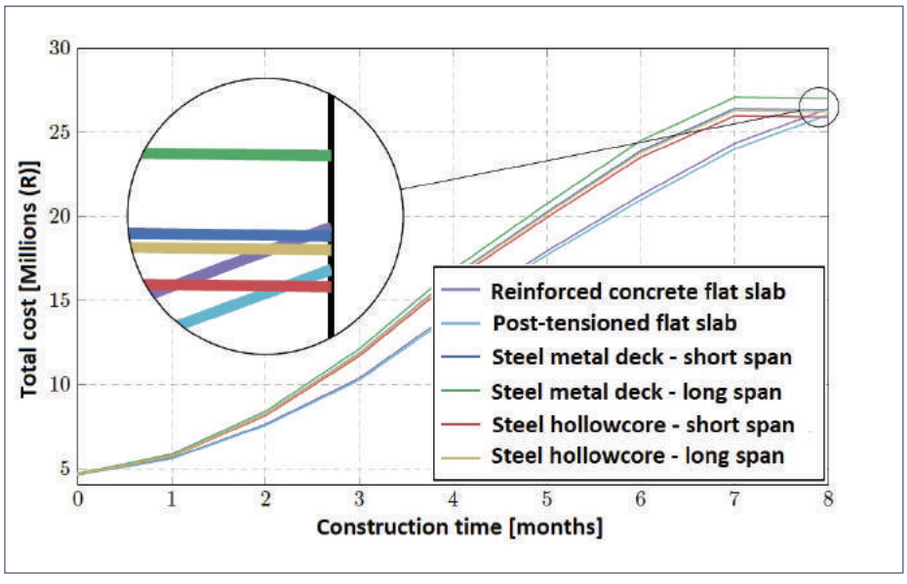


Figure 3: Net expenditure vs time.

Adding everything up yields the total expenditure for each project, and now, somewhat surprisingly, the steel hollowcore structure is the winner.

The net expenditure vs time is graphically illustrated in *Figure 3*.

It should be noted that the costs of the various options are so close to one another that fairly minor changes in the assumptions can upset the comparison, but most probably by small margins. To explore this question a number of sensitivity analyses were done. The first of these showed that the speed of construction has an effect, but somewhat smaller than might be expected: one month's delay causes approximately a 1.5% increase in the bottom line after 8 months, and two months roughly 3%, while faster construction has similar-sized positive impacts. A 10% increase in the cost of the fabricated structural steel had an impact on the bottom line of about 0.7%. Increasing the cost of the non-structural components and building income by 50% caused a bottom line increase of approximately 0.6%.

Up to this point we have not discussed long span steel structures. It is interesting to note that the long span hollow core structure ended up being quite competitive. This bears further investigation, as developers and tenants may well be willing to pay an additional 1,5 % in return for column-free floors. Such spans for this type of building are only feasible with steel structures.

The main lesson to be taken away from this study is the importance of adopting a holistic approach when developing cost comparisons between different structures, particularly ones whose construction times differ. It is important to consider the cost of the building as a whole, because although the structure constitutes only some 11 to 15% of the total cost, it always sits on the critical path and determines how long it will be before an income can be generated from the building.

A particularly exciting aspect from the point of view of anybody with an interest in structural steel is that the results of this study were obtained without any effort to design superior structures or expedite fabrication or erection. They were simply based on what experts in the South African building industry would do and expect if they had to build a building using a specific structural material. That leaves open all the opportunities to serve the market for low-rise office buildings by introducing innovative solutions – something steel structures are eminently suited for. In addition, the buildings investigated were quite small, both in plan and in height. The cost benefits associated with speedy construction can be amplified for larger projects.

We believe that this study certainly reveals the potential for the increased use of structural steel for office buildings in South Africa, while lending itself to further research into many exciting areas for buildings in this category.

COST COMPONENT [R]	RC FLAT SLAB [R]	PT FLAT SLAB SHORT SPAN [R]	STEEL METAL DECK LONG SPAN [R]	STEEL METAL DECK SHORT SPAN [R]	STEEL HOLLOW CORE LONG SPAN [R]	STEEL HOLLOW CORE
Foundations and substructure	424 101	389 511	308 037	317 417	327 049	328 790
Structure frame (incl. fire protection)	2 299 171	2 068 015	2 975 848	3 479 938	2 631 466	2 865 660
Non-structural components	14 350 600	14 350 600	14 350 600	14 350 600	14 350 600	14 350 600
Preliminary and general (P&G)	2 134 234	2 101 016	1 755 260	1 806 607	1 722 723	1 746 317
Total construction cost	**19 208 110**	**18 909 150**	**19 307 870**	**19 872 690**	**18 949 960**	**19 209 490**
Acquisition of land	2 722 600	2 722 600	2 722 600	2 722 600	2 722 600	2 722 600
Professional fees and related costs	3 403 297	3 355 232	3 419 336	3 510 145	3 361 793	3 403 519
Total capital expenditure	**25 334 010**	**24 986 990**	**25 449 810**	**26 105 440**	**25 034 360**	**25 335 610**
Rental income from early occupation	0	0	-284 600	-284 600	-284 600	-284 600
Accumulative interest	1 073 694	1 060 400	1 167 497	1 195 198	1 149 944	1 162 672
Net expenditure at the end of 8 months	**26 407 701**	**26 047 382**	**26 332 703**	**27 016 033**	**25 899 697**	**26 213 681**
Cost/m² gross internal floor area	**13 542**	**13 358**	**13 504**	**13 854**	**13 282**	**13 443**
% more than cheapest option	**1.96%**	**0.57%**	**1.67%**	**4.31%**	**0.00%**	**1.21%**

Table 1: Cost comparison for various structural alternatives.

TECH TRENDS

AMANUEL GEBREMESKEL
TECHNICAL DIRECTOR, SAISC

WATER **FOR THE PEOPLE**

The South African government has just declared a national state of disaster to deal with the country's drought and water crisis. Are we doing our part?

Throughout the 19th century technological innovation was used to generate capital wealth. In the 20th century it was primarily used to win wars. We now live in a new era where technological innovation is measured against its social utility.

Within this paradigm there is little point to innovating in technology unless there is a clear benefit to society. In our era inventing a navigation system that helps a parent to locate a lost child is likely to be more lucrative than inventing one that helps to deliver a warhead.

One key social need is access to clean drinking water. The problem is that this resource is scarce and unfortunately humans have to compete for it with other uses. For instance we still use drinking water to transport our waste, whether the waste originates in our bathrooms or in industrial processes. The scope for innovation to eliminate this competition is huge.

In South Africa only 8% of the land provides a staggering 50% of its surface water. South Africa's mean annual rainfall is only 490mm, around half the global average. Furthermore, high evaporation rates result in less than 9% of the rainfall ending up in its rivers.

South Africa made considerable investments in concrete dams and steel pipe inter-basin transfer schemes throughout the 20th century. This network supplies water to drier parts of the country and urban centres. The current cost to maintain and upgrade this critical infrastructure is estimated at over R60 billion per year and will use much concrete and steel.

Figure 1: Hollowcore plank on steel.

Figure 2: Steel pipes.

Figure 3: Steel plate shear wall.

Figure 4: Steel composite slab.

Moody's Investors Service recently warned that Cape Town alone would need to spend up to R12.7 billion over the next five years on water and sanitation infrastructure to deal with its water crisis.

In fact the wider construction sector accounts for one in every ten Rands spent in South Africa and the industry itself competes with people for scarce clean water. With all the impending infrastructure and housing work the sector is expected to keep expanding for the foreseeable future.

Cement production consumes approximately 317 litres of water per tonne of cement. Aggregates consume around 150 litres/tonne of aggregate. Mixing concrete takes another 100 litres/tonne of concrete. Assuming that cement makes up 15% of the final concrete by weight then it takes a total of 275 litres of water to produce one tonne of concrete.[1] Unfortunately much of this water must be as clean as drinking water.

The average water intake for an integrated steelworks – where steel is produced from virgin raw materials – is 28 600 litres/tonne of produced steel, with an average water discharge of 25 300 litres/tonne of steel. For the electric route – which produces steel by melting scrap in an electric arc furnace – the average intake is 28 100 litres/tonne of steel, with an average discharge of 26 500 litres/tonne of steel.[2]

The good news for steel production is that much of this water is used as coolant and can be drawn directly from the sea. The overall net water loss from steel production varies between 1 600 and 3 300 litres per tonne depending on the method of production – and this is mainly due to evaporation.[2]

In typical reinforced concrete construction, concrete makes up over 95% of the weight while the rest is steel. This means such construction consumes approximately 400 litres of water per tonne of reinforced concrete – 140 litres for steel and 260 for concrete.

Thus, leaving aside water that is used for site cleaning, thankfully as little as 260 litres of fresh water can be used when casting reinforced concrete. However this still means that a regular solid floor slab of 250mm thickness will consume 156 litres of fresh water to construct just one square meter of floor.

A hundred square meters of suspended slab in a new Cape Town house can eat up over 15 000 litres of fresh water. According to city regulations that's over a month of water consumption for a four person household. This should be unacceptable.

This presents an opportunity to innovate so that the volume of fresh water used in construction is minimized or even eliminated. For instance anything that one can do to optimize the weight of steel and concrete used in a project will provide a great service to society. Moreover the less waste that is produced on site the less water that will be required to clean and transport the waste. This speaks to modular construction where much work is done in a factory and only assembly occurs on site.

Innovation in the use of ultra-high strength steel and concrete is one way of reducing water usage by cutting the volume of steel and concrete used in construction. One source of concern when using such high strength materials is to make sure that the lower weight and stiffness does not adversely affect the serviceability or fire resistance of structures.

A related innovation involves the use of hollow precast planks. They are typically made in a factory using ultra-high strength steel tendons and concrete and installed on site using cranes. For comparison a typical 250mm thick floor slab that is constructed using precast planks can weigh as little as half of a solid slab of the same thickness and will thus consume half the water. One disadvantage of this system is that it cannot be transported far from the factory due to the heavy weights involved.

One way to address the issue of weights is to use Light Steel Framing, an innovation which arrived in South Africa a decade ago and makes use of very thin and light steel frames that form the skeleton of buildings and other structures. They are typically dressed in fibre cement and gypsum boards and can be constructed very fast by fabricating the frames and boards in factories and assembling them on site. This method of construction probably results in the lowest usage of water of all other competing methods.

Some South Africans prefer to live and work in heavy buildings that feel like old stone, brick or concrete structures. Composite structures can satisfy such customers without having to waste scarce water resources. Such systems use steel both as formwork and an integral part of the structure. As such one can reduce the volume of concrete used while eliminating waste on site.

A comparable composite floor to the solid and precast planks above can use even less fresh water than the precast planks. The main advantage over precast however is that the steel materials are easy to transport far from the factory and much of the heavy concrete pour occurs on site.

Composite walls for instance involve an innovation that is rarely used in South Africa but is being deployed widely to construct power plants in South Korea and the US. A typical wall will have two steel plates that are connected by struts in a factory and concrete is poured between the plates only upon site installation. A related innovation in South Africa makes use of a light steel frame stud walls cladded in expanded metal and then sprayed and filled with light weight concrete on site.

An exciting innovation that will arrive in South Africa soon makes use of composite columns that utilize concrete filled hollow steel tubes. Such columns can allow for huge savings in the use of water by optimizing the weight of steel and concrete used. Moreover as in most composite construction very little waste is produced on site and this should result in the use of less water.

The common thread in all these innovations is the use of high strength alternatives where slightly more steel and less concrete is used. This saves fresh water in three ways. Firstly it reduces the overall weight of structures and there are savings in water usage simply because less material is used. Secondly the use of slightly more steel and less concrete allows for savings because much of the water used in steel production need not be fresh drinking water. Lastly the use of steel both as formwork and permanent structure reduces waste and debris on site and this has serious implications on the use of fresh water for site cleaning and waste removal.

Innovation does not always require the invention of new products. In many cases it involves using existing products in new ways and markets. In this sense the use of high strength concrete and steel, precast concrete, light steel framing, composite floors, walls and columns should all help to reduce the use of fresh water in construction. In order to completely eliminate site waste all of these systems should preferably be fabricated in a factory and assembled on site.

The South African government has just declared a national state of disaster to deal with the country's drought and water crisis. We must keep asking ourselves if we are all doing our part by innovating in our industry to help solve this urgent crisis.

Please let us know what you are doing to help!

1. Lafarge Company
2. World Steel Association

STEASA NEWS

KEITUMETSE MOUMAKOE (K.M)
DIRECTOR, STEASA

STEASA TAKES PART IN THE 22nd ANNUAL **GHANA INTERNATIONAL TRADE FAIR 2018**

The Steel Tube Export Association of South Africa recently took part in the 22nd Annual Ghana International Trade Fair 2018 in the city of Accra from 28th February until 8th March. The Fair show cased products and services in both the formal and informal sectors in the Ghanaian economy complemented by a strong formal South African, Nigerian and Moroccan contingent of exhibitors. STEASA's objectives at the trade were as follows:

- To promote and create awareness of STEASA in domestic Ghanaian Industries (Petrochemical, Oil & Gas, Power Generation, Mining, Water & Sanitation, Construction, furniture and Scaffolding).
- To make meaningful and constructive engagements with local entities that strategically have a footprint in the industries we serve and to promote our members' products and value- added services.
- To establish leads with regards to future projects in the pipeline where our members could partake.

The STEASA pavilion generated quite a lot of traffic on a daily basis from a wide range of patrons and organisations, aspiring manufacturers, current steel intensive fabricators, members of the construction association, a mining entity, representatives from the Association of Ghana Industries, an architect and a petrochemical company to name a few. Manufacturing across various sectors has been prioritised by the current Ghanaian government with the theme ''one district, one factory'' taking centre stage and resonating in most of the conversations I have had with representatives of local businesses.

Association member Honingcraft Moser also took part in the international trade fair, seeing it as an opportune venture in ascertaining, developing and establishing a market for their supply of honed tubing, chrome stock, cast iron wear parts and surface finishing services like chroming, grinding and polishing that extend the life of hydraulic cylinder rods and barrels, rock drills, mono-pump components, automotive press dies, air valves locomotive engine liners and ships engine liners.

All industrial demanded steel tube and pipe products are imported in Ghana as the few local manufacturers cannot produce to the required industrial standard and quality is the one factor that the local industry complains and laments about and certainly a competitive advantage that STEASA was leveraging on throughout the duration of the fair and this was met with renewed optimism because it is becoming ever evident that quality has become the common denominator for industrial applications.

Oil and gas are the buzz words with all budding and current business entities I have interacted with. Since the exploration and discovery of oil and gas reserves in Ghana in 2007 by Kosmos Energy Ghana and Tullow Oil there has been some local beneficiation in local procurement on the projects, but industry feels that more could and should be done for a larger share of local fabrication and content as expressed by Mopo Engineering, a local steel fabrication company with an impressive portfolio of projects completed and others in the pipeline.

The recent agreement between The Ghana National Petroleum Corporation (GNPC) and ExxonMobil for the exploration and production rights for the Deepwater Cape Three Point Project located 92km of the western coast has reserved a 5% ownership right to qualifying local Ghanaian companies, GNPC holding 15% and ExxonMobil the remainder of the 80%. The local procurement threshold has also been increased and local entities such as Seaweld Engineering and Orsam Ghana are delighted as they position themselves to partake in the procurement phase of the project. STEASA will continue to engage with these companies and hopefully be able to assist on their steel tube and pipe needs when that time arrives.

The International Ghana Trade Fair was a success for STEASA, it was informative, produced leads and meaningful relations with the local industry and it is incumbent upon STEASA to maintain these relations and reinforce them while looking for new ones by leveraging on outside selling missions.

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SASFA FEATURE

JOHN BARNARD
DIRECTOR, SASFA

SASFA TRAINING COURSE FOR **BUILDING CONTRACTORS**

SASFA has successfully presented its 6-day training course for light steel frame building contractors – for the 26th time! The course was presented at the training facilities of Marley Building Systems, Roodekop, Germiston during the week 26 Feb to 3 March 2018.

The course is growing in popularity (it was fully subscribed), as an increasing number of building contractors, developers, architects and engineers wish to become more knowledgeable about LSFB, also on a practical level. Successful completion of the course is also a pre-requisite for applying for SASFA Builder Membership.

The course will be presented again in October 2018 in Cape Town.

The course is split into two sections:

Steel frame materials, components, and erection *(4 days)*, covering introduction to light steel frame building (LSFB), the steel making process and properties of coated steel sheet, followed by sections on foundations, manufacturing of light steel frames and trusses, construction tools, wallframe set-out, handling, loads, floor framing, wall framing, roof structures, planning and the installation of services, and

Internal lining, external cladding and insulation *(1½ days)*, covering the properties, manufacturing and benefits of glasswool insulation, acoustics, energy efficiency, environmental issues, storage and handling of glasswool and tools and installation methodology.

This is followed by a section on gypsum plasterboard, covering properties, storage and handling, cutting, tools and application for walls, ceilings and finishing.

Finally fibre cement board for external cladding is addressed, including the installation of the vapour permeable membrane, sizes and availability of fibre cement – boards and planks, fixing accessories, installation guidelines, and door and window frame installation detail is presented.

To ensure that the theoretical concepts are well understood, the course includes a **practical component**, consisting of setting out of wall frames, squaring, levelling, and erection of wall panels, erection of roof trusses, installation of plumbing, external cladding (FC boards, OSB and FC planks), insulation and internal lining (gypsum board), and internal joint finishing.

The students who enrolled for the course came from as far afield as Botswana, the Free State, Western and Southern Cape, KZN and Gauteng . Most had some prior building industry experience. Current roles ranged from owners of their businesses to CEO's, site foremen, QS's, architects and engineers.

After completion, they all rated the course highly, especially mentioning the value of the practical work. As part of the course, the students had to write two tests to assess their understanding of the subject matter. All of the students on this course passed, and received SASFA certificates of successful completion of the course. This brings the total number of students who have successfully completed this course since its inception in 2009, to 412.

The SASFA members who supplied support for the course and made it possible were Marley Building Systems, Saint-Gobain, Marshall Hinds, Kare, Speedfit Africa and Simpson Strong-tie. As part of the practical work, Bosch Power Tools illustrated their wide range of equipment suitable for use in the LSFB industry.

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POLASA NEWS

ZOLA HLATSHWAYO
CHAIRPERSON, POLASA

POLASA
POWER LINE ASSOCIATION OF SOUTH AFRICA

ZERO ACCIDENTS IN TRANSMISSION POWERLINES CONSTRUCTION: **FAMILIAR GOAL, UNFAMILIAR TERRAIN**

Every player in the transmission powerline industry, be it supplier of material, consultancy services, contractors is under immense pressure from various ends; be it stagnation of the local industry, barriers to entry retarding penetration into the rest of Africa, the labour market trends etc.

On the health and safety front the "age-old" Bird Triangle is slowly losing its status as a totem pole as it is not proving useful in predictive analysis of trends in accidents and incidents. The ratios, especially in the construction sector of this industry, are significantly misaligned to what was thought to be the norm.

All players are caught up in playing "catch up" and it does not look like things will stabilise in the near future. The principle of a "burning building" dictates that even though it is important to find out how the fire started and who started it, at that moment it is more critical to put out the fire. However, stakeholders are so caught up in fighting fires and these fires just DO NOT SEEM TO DIE DOWN and allow all parties to investigate how they started so that more sustainable solutions can be developed and implemented.

Fire fighting addresses urgent issues but does not result in better understanding of the problem; it influences localised behaviour it does not lead to an overall positive company culture change; it results in short term improved compliance instead of development and implementation of long term strategies. The overall impact is that there is no sense of ownership of interventions by the main parties that are supposed to ensure positive spin off are realised.

There are various schools of thought as to explain the current industry health and safety predicament. One of them is that there is a high likelihood that strategies being implemented are based on outdated data on health and safety. Generations have evolved, contractual requirements have changed, health and safety requirements have become more detailed, engineering designs have changed to address challenges in this sphere but have all these informed how business is being done?

Supervisory authority: There are various incidents that take place and everyone wonders how the supervisor could have let them happen because they are an outright noncompliance of the most obvious of requirements. The possible explanation could be that the supervisory authority is in jeopardy due to the nature of the employees they are leading in their respective teams. There has been incidents of a supervisor being threatened or beaten up after hours or breaking into their accommodation to steal their property and these were linked to the supervisor disciplining a non-compliant employee. Bad news travel fast and soon the workforce is made up of supervisors that are living in fear for their lives.

Dilution Factor: Some requirements in contracts that may results in both positive and negative consequences. One of these in Transmission Line construction industry is hiring all general workers from the local communities. The advantages are obvious: upliftment of local communities, sustainable employment that spans over contract duration, training of locals on skills set that could render the more marketable. On the downside, if company culture gets diluted by 10 – 20% in every project, soon the initial culture deteriorates to a point where it is non-existent. If company culture initially comprised of respect for authority, high levels of compliance to procedures and requirements, excellent health and safety performance, "big brother" approach in looking out for fellow colleagues and this culture is slowly diluted by people that have never been employed before and therefore have a genuine problem with authority, people that do not understand why health and safety is so important etc. after a few projects leadership of the

company will not be able to recognise their own companies.

Low Life Expectancy: The work force in the construction industry is a reflection of the South African population in terms of general health; riddled with chronic diseases and associated psychological issues that are linked to that. There is no clear understanding of what that psychological change does to an individual's desire to be cautious, do all one can do to live longer etc. The indicators are that the results are all negative and this impacts on the health and safety performance of companies. If there is low discipline and adherence to medical advice how can these employees prioritise "doing the right thing" at work?

Inadequate appreciation of level of danger: A traffic policeman directs traffic frequently and for them this is routine. Whenever I drive during peak hours on a Friday afternoon and see them doing this I think how brave they are. A significant percentage of vehicles on the road are not roadworthy. It is a Friday afternoon. People are tired and reckless, maybe even slightly tipsy. Some are on their phones as they drive. The combination of things that can go wrong is tremendous. That is not how the traffic policeman sees it otherwise he would think twice before directing vehicles towards him with the hope that they will not crush him. My thoughts are coming from an irrelevant perspective. A lot of the interventions meant for the workforce are designed in the office by people that have an irrelevant perspective (as far as how the employee views the task and associated dangers) thus they come across as rudimentary attempts to interfere with activities that "office people" have nothing to do with.

Are these some of the factors that contribute to our interventions being less effective than companies had meant for them to be? These are indications that all parties need to move towards changing the way these interventions are designed and that companies are more agile and dynamic. How that can be achieved in an industry that is characterised by stagnation and negative growth and thus no meaningful incentives to offer compliant employees remains to be seen.

SAMCRA FEATURE

DENNIS WHITE
DIRECTOR, SAMCRA

SAMCRA
SOUTHERN AFRICAN METAL CLADDING AND ROOFING ASSOCIATION

MICRO **CLIMATES**

Painted coatings MAY NOT NECESSARILY provide a lasting barrier particularly where there is a RISK of CONDENSATION or a steamy internal environment.

We recently had a case where a client approached us to explain why the galvanised coating to a section of roof cladding had failed within four years. On visiting the site we discovered the affected portion of roof was adjacent to an external coal fired boiler where the top of the stack was approximately three metres above eaves level. The main fallout from burning coal are nitrogen oxides and sulphur dioxide which when mixed with moisture in the air form corrosive acids.

This incident highlights the need to consider the micro climates, both external and internal when selecting a protective coating for cladding. Whilst some processes and micro environment may be relatively obvious such as covered swimming pools others are not. The fallout from extractor systems from restaurants, bag packing and bag handling plants particularly for highly alkaline materials such as cement, fertilizer or salt can be extremely corrosive. The internal environment in fruit washing plants can also be highly corrosive depending on the agents used and amount of steam. The internal and external environments at wood processing plants can also contain corrosive agents.

Uninsulated cladding over intensive animal farming is vulnerable to attack from sulphur and ammonia compounds.

Painted coatings may not necessarily provide a lasting barrier particularly where there is a risk of condensation or a steamy internal environment. It is not only unwashed areas on the underside of canopies, carports, etc. in marine environments that are vulnerable to premature attack. Inland polluted atmospheres are conducive to the formation of aggressive micro environments.

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THE GOOD NEWS

UPDATES FROM OUR TEAM, OUR MEMBERS AND THE BROADER CONSTRUCTION INDUSTRY

It's that time of year again! So much happens behind the scenes to make every Steel Awards event a rip roaring success! A big thank you to the members who attended our **ANNUAL STEEL AWARDS SPONSOR LUNCH,** held at Pigalle in Bedfordview.

Without your support, (both financial and moral) Steel Awards would not be possible!
(for more on our sponsors see page 23)

OUR FIRST BREAKFAST FOR THE YEAR was hosted at the Woodmead Country Club Johannesburg on 22 February 2018. A big thank you to all who attended and engaged!

22 February marked our first ever **"USING SOCIAL MEDIA IN THE BUILT ENVIRONMENT"** course! We've been watching the social media accounts of members who attended, and we love what we're seeing! Keep up the good work!

Great things never come from comfort zones, so we're shaking things up! **Our first #Re_ Construction** event took place in Maboneng on 21 February 2018. Social Media Guru Jacqui Mackway Wilson shared some great insights on "Using Instagram in the Built Environment".

Follow @SAISC_Steel and @SteelAwards on Instagram to see what we've been up to!

TELL US YOUR GOOD NEWS!

Let us know what you're celebrating as a company, or what you're proud of that we can share with the industry!

email denise@saisc.co.za

ALLIED STEELRODE JOINS THE SAISC

A hearty welcome to new SAISC members, Allied Steelrode! The SAISC team had the privaledge to sit with Arun Chadha and Warne Rippon to chat through what makes Allied Steelrode tick, and why they have decided to join the SAISC.

To see the Allied Steelrode video interview visit http://bit.ly/meetsaiscmembers

How has your business had to adapt as a result of market pressure over the last five years?

Allied Steelrode has adapted to market pressure over the past five years by investing in highly advanced world-leading technology.

With technologies such as our dedicated stretcher leveller, our Adige LT20 and the multi-stage slitting and blanking line currently being built, we believe that Allied Steelrode has positioned itself strategically and correctly for the economic upturn which we anticipate within the next couple of years.

Where would you like to see the company going in the next five years?

With the major investments which we have made in technology, the next five years will be a period of consolidation as we strategically and operationally leverage these technology investments in our production processes – to the ultimate benefit of our valued customers and the industry as a whole. However, we will also continue to scrutinise all possible opportunities for further beneficiating our products and our service excellence to our customers. By doing so, we will not only advance our company, but will open up new avenues of business for our customer base. We will furthermore continue to engage with all players in the steel industry to strive to ensure that South Africa's steel industry is competitive on the global stage.

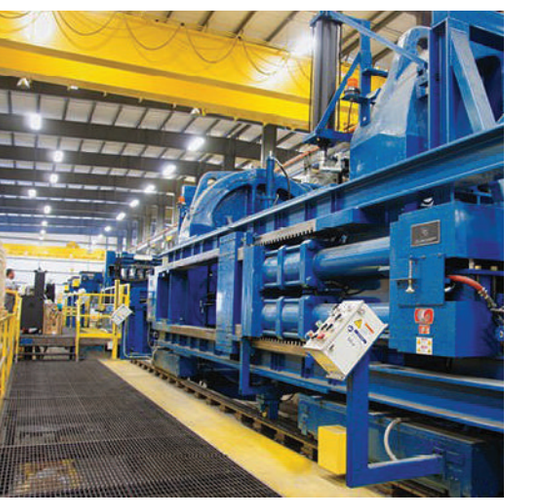
What do you think the biggest opportunity is facing our industry at the moment?

The largest opportunity available to our industry at present is the one offered by advanced, innovative technology – in line with the current trend towards the so-called 'Industry 4.0' and automated, integrated manufacturing.

As such, it takes foresight and courage to make the substantial capital investments required for this type of advancement. However, if the tripartite partnership formed by Allied Steelrode, our valued customers and the South African steel industry is to grow and flourish, this type of longer-term broad vision is required. For this partnership to grow in strength all parties need to be constantly searching and testing innovative methods of manufacturing and beneficiating, and ultimately using our steel.

NB: However, it should be noted that at present, our opportunities are being somewhat stifled as companies in the local steel industry are finding the market very challenging. According to industry sources, much of this can be attributed to the extreme volatility of the primary pricing we receive.

This level of volatility poses an enormous and very urgent challenge to the entire sector, as these price fluctuations result in a knock-on effect which is very hard to contend with. If Allied Steelrode is experiencing challenges as a result of this, then



our downstream customers must be even more adversely affected. For our industry to be sustainable going forward, we need to find a rational solution to this situation.

To place the company firmly on a growth trajectory, Allied Steelrode has absolutely committed itself to the future of the steel industry by making very major investments in advanced technology. This allows us to take raw steel and beneficiate it, which brings greater benefits to downstream steel component manufacturers and South Africa's steel industry as a whole.

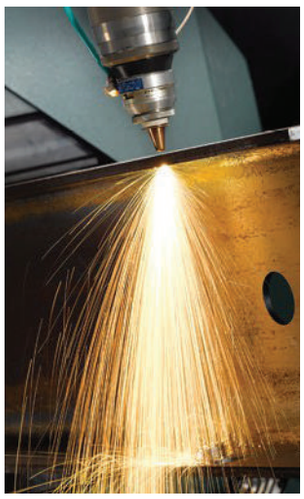
We have furthermore taken cognisance of the demand from the steel market for ever-higher quality products. In response, for example, we were the first to install South Africa's only dedicated stretcher levelling line in a custom-built facility in Midvaal. The demand for Allied Steelrode Stretcher Material (ASSM) has been such that we are now investing in a second more powerful stretcher-levelling facility.

To further expand the quality of our product portfolio, we also invested in an Adige LT20 Jumbo laser tube cutting machine. This will allow our customers to access the vast array of innovative tube processing and design possibilities it provides; as well as the superior quality product that the LT20 is able to produce.

In addition, we are investing in a multi-stage slitting and blanking line, which can carry out slitting at a rate of 150 metres a minute, producing 180 blanks a minute. The line also has a fully automated packaging capability built into it. This will bring new levels of speed to the production of finished steel blanks. It is anticipated that the new line will start operating in late 2019. We have ordered this new custom-built equipment from a US-based coil processing equipment manufacturer. Importantly, this line will also largely reduce the scrap factor. Previously the average scrap rate could be as high as 30%. However, with the new line, the scrap rate will average approximately 5%, which will result in substantial savings.

Furthermore, the new slitting and blanking line will produce steel of Improved Surface Finish or ISF quality. This has major and very positive implications for the South African automotive sector, as Allied Steelrode will be able to supply the industry with steel which is suitable for use on the outer skins of vehicles. Today's motor-vehicle purchasers demand a higher standard of outer body finish than was the case a decade or two ago, and hence the automotive OEMs' requirement for extremely high-quality steel.

"...we believe that ALLIED STEELRODE has POSITIONED ITSELF strategically and correctly for the economic UPTURN which we ANTICIPATE within the next couple of years."



SOUTH AFRICA'S SMART CITIES **ARE DRIVING SUSTAINABILITY**

BY NICOLE CHAMBERLAIN, NEWSROOM DIRECTOR, IRVINE PARTNERS PUBLIC RELATIONS

Property development and nature might not automatically go hand in hand, but more and more developers are moving towards incorporating nature into building design.

Green spaces prove popular, even in major city centres where they are seemingly rare. Rooftop gardens are springing up in central business districts in the likes of Hong Kong, Tokyo, Rotterdam and New York. Likewise, urban farming initiatives to boost food resources are fast becoming a global trend.

In South Africa, Johannesburg has long been considered the world's largest man-made urban forest – boasting over 10 million trees. And Cape Town's CBD is set to change with the arrival of its first environmentally-friendly mixed-use development: Harbour Arch. Perhaps surprisingly, one of the most eye-catching features of this 5.8-hectare mixed-use precinct will be the complex's leafy rooftop towering over the city's harbour.

With the rise of "smart cities" – mixed-use precincts – developers are driven to find ways to create green spaces innovatively in a bid to bring nature to the concrete jungle.

Nicholas Stopforth, Managing Director of Amdec Property Developments – the group behind South Africa's award-winning Melrose Arch and the new Harbour Arch, says green spaces are essential for people to feel safe and secure in an environment.

Nature has long been lauded for its positive impact on the human psyche. There are countless studies and reports on the benefits of green spaces for our mental health.

New-urbanist precincts such as Melrose Arch and Harbour Arch revolve around the principle of being close to everything you need in daily life, with all your requirements accessible by foot. But it's the outdoor spaces – the piazza-style squares and courtyards for dog walking or people watching – that give these inner-city developments a sense of community.

Nicholas Stopforth – Managing Director, AMDEC Property Development.

With the rise of "SMART CITIES" – mixed-use precincts – developers are DRIVEN to find ways to CREATE green spaces INNOVATIVELY in a bid to BRING nature to the concrete jungle.

But just what makes a smart city? Combining the perks of modern technology with the feel of old-time village living – with walkable, pedestrianised streets and green spaces.

But "green", by definition, can mean many things.

It's the colour you allegedly turn when you're sick, envious or inexperienced. You are encouraged to "eat your greens" to stay in good health. You can green an urban area by planting trees or your home to make a positive impact on the environment.

The world over developers are under pressure to drastically minimise water usage and incorporate eco-friendly technologies that will benefit the planet in the long-term.

"Modern trends in development and construction are predominantly focused on issues relating to sustainability," shares Stopforth. "Residents and investors want to know what is being done to reduce impact on the environment."

"Everything about development today is about sustainability and about energy-wise innovation, water saving technology, heat-reducing aspects, and the like. And when you use sustainable technology, you also reduce the cost of occupation long-term and obtain a competitive edge."

With water scarcity being the new normal for South Africa, developers must be implementing water-wise strategies from the ground up. Harbour Arch, for example, has been designed to harvest rain water to reduce the load on municipal supply.

"There's huge benefit in executing water-saving measures at the construction stage, rather than retro-fitting. Not only is it better to have systems in place at the start, but it saves money in the long run," Stopforth explains.

Recycled water – either rain harvested or grey water – will be used for flushing, gardening and landscaping.

"Ultimately, we need to reduce our impact. It's better for business, and it's better for the planet," concludes Stopforth.

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TECH IN CONSTRUCTION:
A NECESSITY TO ENSURE A CLEAN LINE OF SIGHT INTO PROJECTS AND FINANCIAL DATA

BY MATTHEW KIBBY, VP ENTERPRISE, AFRICA AND MIDDLE EAST AT SAGE

South Africa's construction industry takes mobile technology for granted, with contractors and project managers in the field using smartphones to take pictures, text message, and send and receive emails.

However, construction companies are not taking advantage of the full potential of mobile technology for two reasons:

- Many mobile tools don't integrate with the back-office systems contractors use to run their businesses.
- The industry takes a conservative view on the adoption of new technologies.

But with mobile solutions becoming easier to integrate and use, the first concern is starting to fall away. On the second point, the construction industry is under pressure to improve productivity of people and assets in the face of rising costs. It also needs to optimise business processes following a seven-year growth slump and the fall-out of an investigation by the Competition Commission into industry collusion.

Connecting the field and the office

Today, most mobile applications for the construction industry are point solutions.

They do a good job of solving a particular problem but don't connect their data to anything else in the organisation. That means opportunities are missed to streamline processes by reducing the need for redundant data capture, and to use data to gain better visibility into the business.

Project managers or superintendents on the job site may use a mobile app to handle things like ordering materials, yet this data might not be fed through automatically to the billing and finance systems. Someone in the office will often need to recapture this data, duplicating effort as well as allowing human error to creep in. Thus, the next step for construction companies is to link apps used on the job site with their business management systems.

When this type of integration occurs, executives have a much more holistic picture of what is happening with each project. This, in turn, means everyone in the field and the office can make better decisions. They also have a reliable audit trail of what happened on the project and C-suite executives can get a holistic view of performance across multiple projects.

Right-sizing the mobile solution

Increasing back-office integration to mobile solutions also gives contractors more options to choose from to best fit a project's needs.

Many jobs need only light mobility to more easily view drawing changes, handle RFIs, and submit daily field reports. Other projects are more complex and require more robust collaboration systems to make sure all the players – owner, architect, engineer, and sub-contractors – stay in sync. With back-office integration available for either of these scenarios, contractors can tier their projects in terms of which will require a heavy collaboration system and which will need only a light mobility tool.

Mobile solutions also offer the possibility for human resources departments to gather data to be used to optimise workforce productivity and performance. Though labour costs in South Africa and the rest of Africa are relatively low compared to the rest of the world, many construction groups are starting to see high productivity as an important lever for financial performance.

With an integrated business management solution and human capital management (HCM) platform with strong mobile functionality, construction firms can gather and analyse richer data about the workforce – from working hours and location. They can even use Internet of Things sensors to monitor carbon dioxide levels to which workers are exposed.

Wearables will bring a new level of sophistication that will have a profound impact on businesses in this space. Smart vests with embedded GPS sensors and smart eyewear could, in future, be used to track workers' biometrics, heart rates, location and more. This information could help shape a safer workforce as well as to speed up decision-making and improve collaboration.

From explaining the past to predicting the future

Advances such as these are allowing construction businesses today to track and measure their workforce to a degree not previously possible. Using HCM systems, managers can measure, funnel and interpret data collected in near real-time and provide feedback to executive decision makers and people on the ground.

Organisations are starting to move away from historical reporting towards having more predictive capabilities – they can start to predict how the workforce will perform in the future rather than simply explaining why productivity slumped in the last quarter or why there were more workplace accidents than usual.

9 WAYS TO WIN AGAINST **NEGATIVITY ON YOUR SOCIAL NETWORKS**

BY JACQUI MACKWAY WILSON, GOSOCIAL SA

When it comes to dealing with negativity on your social networks, it can be tempting to retaliate and attempt to protect the interests of your business at all costs. When frustration levels mount and you feel like you might pop a vein, it's best to step away from the laptop or smartphone for long enough to compose yourself (and your response). While the steel construction industry in South Africa begins to dip its toes so to speak into the often murky waters of social media marketing, negative comments, reviews and reactions are bound to occur from time to time – it is after all, no different to any other industry in this regard. The key to handling these situations like a pro comes down to what you say or do, when you say or do it and how you say or do it. We hope to offer some tips to keep your social media marketing efforts in top form and to help you turn every situation round to show its steel lining.

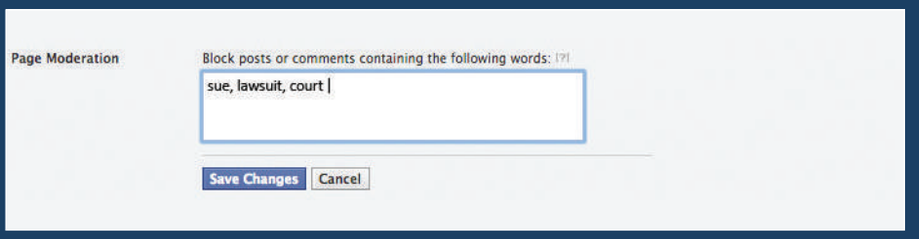
1. Don't fight fire with fire

When someone takes to your Facebook page with a derogatory comment, you may feel your blood pressure rise. Don't blow a smelter. Cool down to a simmer and then do one of the following:

- Politely acknowledge the comment – use a generic response such as: "We have received your comment and have taken note of your concerns. We will be in touch shortly to address the issue." – try to respond as promptly as possible.
- Hide the comment – a particularly handy tool to use if the comment is not particularly offensive but if the intention behind it is unclear or otherwise inappropriate. Also, hiding the comment is usually a suitable action to take if the person in question is a first-time offender. Hiding it will make the comment visible only to the person in question and his/her friends but not to other visitors to your Page.
- Delete the comment – a good idea if it's a comment from someone who is not a first-time offender and especially if it is defamatory, contains hate speech or profanity (check your profanity filter settings on your Page).
- Ban the user from the page – this is not a first course of action but rather a last-resort and one you can take if you have a Social Media Policy in place to govern terms of use, that is published on your T's and C's page on your website and/or on the Notes section of your Facebook page. Protocol would usually call for a polite response to an offender warning them that their language use or behaviour transgresses your business's social media policy and that should they persist with such behaviour, that you will remove them from the page. If they do persist, by all means, remove them. (Bear in mind though that they may then continue to bad-mouth your business or brand elsewhere online – you may wish to have alerts set up using Google Alerts or other social listening software in place to keep an ear to the online ground for mentions of your brand and to gauge the sentiments around the mentions)

2. Take it offline

When you respond to negativity, keep in mind that additional comments will increase the visibility of both your interaction with the offending person as well as the post that they're commenting on. Best practise would call for you to take the conversation offline – respond politely and ask the commenter to inbox you their contact details so that you can follow up or investigate further for them. This would then be done over the telephone or via email correspondence to reduce the risk of a social media storm.



3. Use a soft touch: acknowledge and don't be afraid to apologise

When it comes to managing valid complaints, the best is to reply kindly and generously within full public view in order to promote the public perception of your business as authentic, caring and proactive. It's a case of 'losing a small battle to win the overall war' and this could turn a negative into a brand win. Apologise if you were in the wrong.

4. Ban specific keywords from your page

Consider banning certain keywords from your page using the Page Moderation setting to select certain words that you want blocked from the page. This feature could be handy in the case of a company facing an embarrassing legal battle for example. To minimize posts to their page regarding the debacle, this filter could be turned on *(see above)*.

5. Moderate visitor posts on your page

Under settings, Page administrators also have the option to review posts by other people before they're published to the Page *(see below)*. If you're having ongoing issues with negative commentary, this may be a feature you'd like to make use of.

6. Only allow tagging from Page Administrators

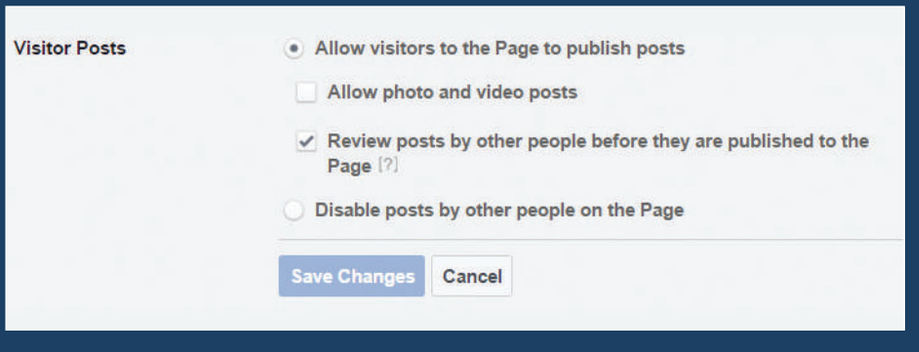
If you find your Page is being tagged inappropriately, revoke public tagging rights and restrict them to Page admins only.

7. Report haters to Facebook

In extreme cases where hiding/deleting comments and even banning offenders from your Page does not avert their negative behaviour, you can report them to Facebook and you may be able to get their account entirely suspended or deleted – particularly if they have crossed the line and become abusive or bullying. Visit Facebook's *Safety Tools & Resources* to take this course of action.

8. Dealing with negative reviews

If you've had negative reviews on your Page that have nothing to do with your product or business, these can be reported too. Visit *Facebook's Community Standards* to see if their review adheres to Facebook's Community Standards. If not, click on 'Report Post' and follow the instructions. Unfortunately if you've been given a 1-star review, you can't report that (only written reviews at this time) but you can encourage customers and loyal supporters of your brand and business to leave positive reviews which will help outshine any negative ones. You may sometimes need to deal with a negative but constructive review. If this is the case, acknowledge the customer's point of view and try to find a reasonable compromise in order to win their loyalty and support. Deleting these kind of reviews would not do your business any good – rather respond politely and professionally – which is always a good rule to follow if you want to show customers that you care; it cultivates transparency and authenticity on social media and this will win you more fans in the long term. Disabling reviews on your page immediately raises suspicion around your service – don't.



9. Temporarily unpublish your page or temporarily disable comments

These are what we'd term nuclear options to be reserved for dire circumstance. Woolworths SA went to the extreme of disabling comments due to racial tension that followed relating to one of their recruitment campaigns in 2012. While they had the policy in place, comments became too vitriolic and there was a barrage of hateful discourse that saw them make the announcement to disable comments on their wall for a few days:

"Woolies fans,

Disabling our wall was not a decision we took lightly and not one we're particularly happy about. But when your page becomes little more than a platform for a well-orchestrated campaign of hate speech, we owe it to our customers not to subject them to such vitriol in our own house.

We have, in a variety of channels, repeatedly refuted the claims being made against us. We have also allowed thousands of comments on our Facebook page, debating the pro's and con's of Employment Equity as a national debate… deleting only overt hate speech and comments inciting violence.

However we've always put our customers first… and many, many customers have asked us to stop hosting this vitriol. We will re-open our page as soon as we think we can resume reasonable discussion".

This is again, an extreme example but one worth noting should you ever face extreme circumstances. Managing negativity with sensitivity and common sense on a daily basis though, should prevent your brand from falling afoul of the general public so visibly.

While there will never be a guaranteed means to protect your Page from negative fans, these 9 tips will help you cope with each situation that may arise. There are many pros to social media marketing – but the online space is a dynamic place to be and you can't pick up one end of the social media marketing stick without taking the other with it.

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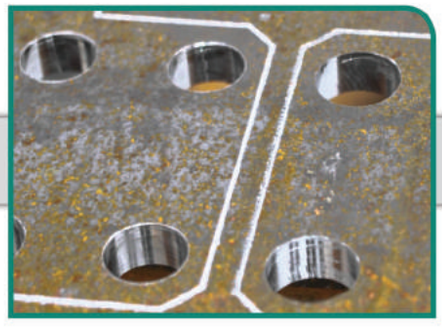

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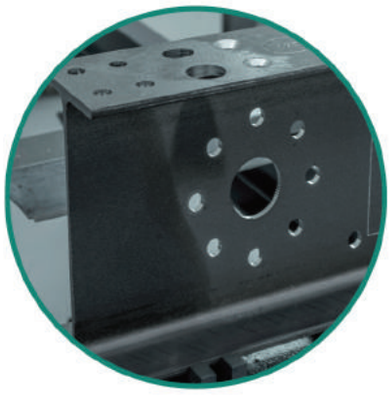

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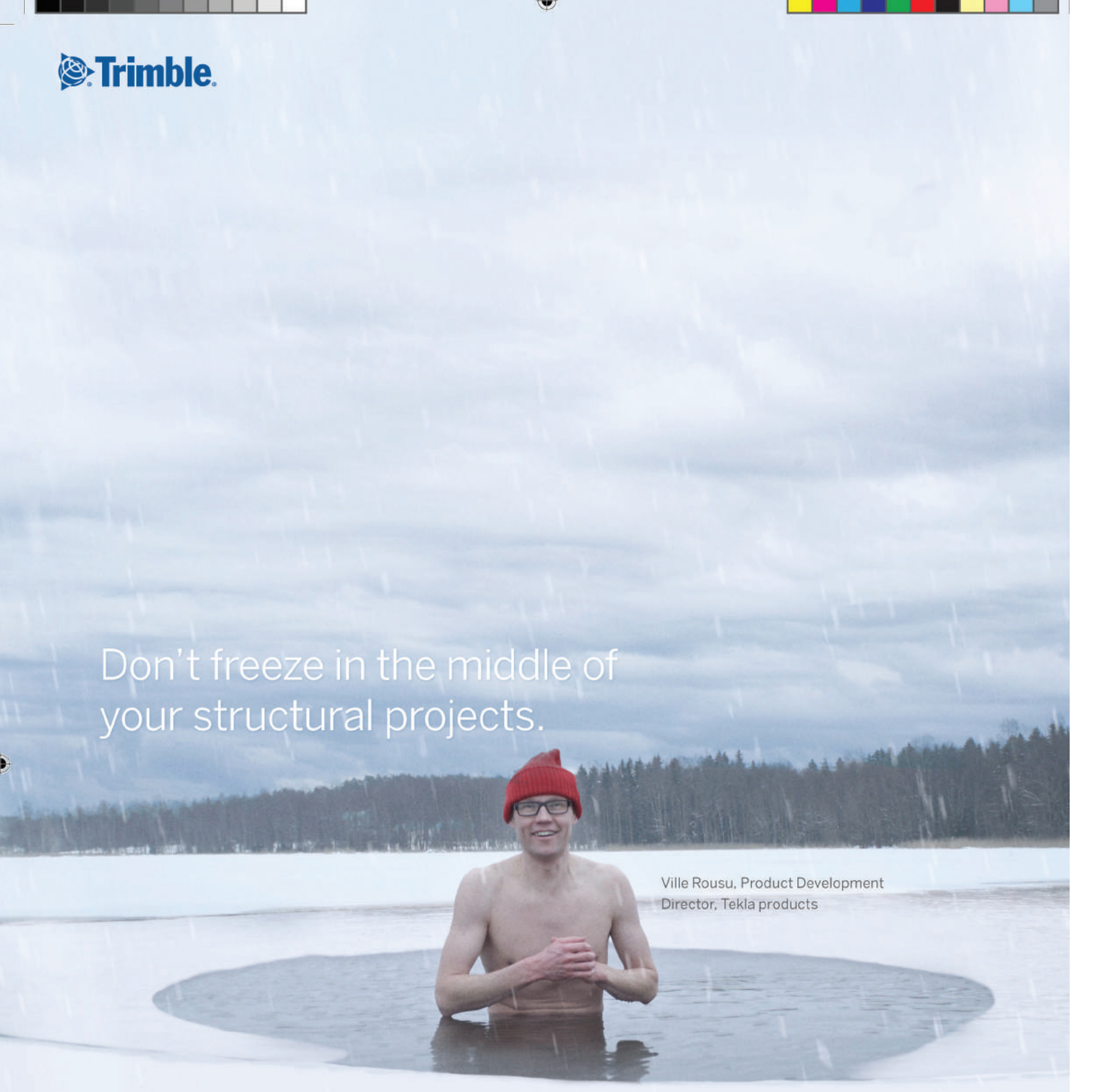

Ville Rousu, Product Development Director, Tekla products

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