steel CONSTRUCTION
OFFICIAL JOURNAL OF THE SOUTHERN AFRICAN INSTITUTE OF STEEL CONSTRUCTION
Volume 40 No. 2 2016

TUBULAR CONSTRUCTION
Advances in laser and plasma profiling equipment

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Developing quality structural steel detailers

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Front Cover: Kirstenbosch Centenary Tree Canopy Walkway ("Boomslang")
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in **this** issue...

Join us on and YouTube

editor's note

"First impressions tend to last, or at the very least… tend to be difficult to reverse if you mess them up. So it's with sweaty palms that I'm poised to type my first Editor's note for Steel Construction.

Seeking a bit of reassurance, or perhaps because I'm curious by nature, I delved into old issues of the journal to see how best to continue the legacy of excellence established by my predecessor. A fresh faced and smiling Reneé greeted me in the June 2003 edition. With a deep breath, calmed nerves, and a bit of a longwinded introduction out of the way...

I'm finally ready.

Reneé, thank you for being a key role player in building Steel Construction into the formidable publication it is. It's taken a team of contributors, advertisers and suppliers working together under your guidance and leadership. I look forward to continuing what you've established, and expanding the reach and relevance of the journal.

Now for a bit about me… I worked as a Marketing Manager in the training industry before running my own visual productions company, where I worked with Eskom, ArcelorMittal, Nampak, Danone to name a few. I'm a passionate writer, keen photographer and obsessive East African coffee drinker.

Taking over as Editor of Steel Construction, and Marketing Manager of the SAISC has already been such a fulfilling experience. Each and every individual at the Institute has a positive outlook despite the fact that the industry is facing turbulent times. In the limited interaction I've had with our members I've come to realise that this camaraderie, tenacity and strength of character is part of the identity of the steel industry. Yes, times are tough. But when you're "walking through the valley of the shadow of death" you should grab a friend by the hand and "just keep walking". Also… try not to mix Biblical quotes with whiskey marketing taglines. That never ends well.

So here I am. Fresh faced and smiling in the 2nd Steel Construction issue of 2016. I am probably going to make some horrible rookie mistakes. I hope I make a good first impression, and that you will be gracious with me as I walk this road.

Patricia, Rubi, Marle, Debbie, Tiana, Kobus, Amanuel, Neels, John, Dennis, and last but not least, Spencer and Paolo – thank you for making me feel so at home.

Steel truly leaves a legacy!

ENGAGING stakeholders and seeking SOLUTIONS

By Paolo Trinchero, Chief Executive Officer, SAISC

> "We have been **FORTUNATE** to meet with the Minister of Trade and Industry, the Minister of Economic Development and the Minister of Public Works **in different forums.** I must tell you that they are all **PASSIONATE** about helping our industry and **moving South Africa forward.** They are acutely aware of the **PROBLEMS** and that there are no easy solutions."

There are so many things happening out there at the moment. Have we started to turn the corner? I hope so, but am not so sure. We are all very concerned about developments in the political arena not to mention a possible downgrade. Some of our members have already put a potential downgrade on their risk registers. We can only hope this does not happen as we need confidence to get construction going.

As I write this commentary, I just received another notice to creditors on the Evraz-Highveld Business Rescue. The company is moving to a wind-down and disposal of assets. This is really not good news for a proud steel industry. Highveld Steel was a key player in the development of our industry and a key stakeholder in the SAISC. Many of the engineers out there including me owe a debt of gratitude to Highveld Steel for all the bursaries and investment in education and training over the years.

We hope that the company can be reborn in some way in the future. As an industry let us see what we can do to assist people that have been affected.

We now have a situation where 100 percent of our Universal Beams and Columns are imported. Most major merchants have been importing the Highveld range for some time but there are some challenges particularly on some channel sizes. The SAISC and its stakeholders are working on these issues and we should have more information available in the next Steel Construction.

We have been fortunate to meet with the Minister of Trade and Industry, the Minister of Economic Development and the Minister of Public Works in different forums. I must tell you that they are all passionate about helping our industry and moving South Africa forward. They are acutely aware of the problems and that there are no easy solutions.

I would like to congratulate Wim De Klerk the new CEO who will be joining Arcelormittal South Africa later this year. Wim made a very important point in a news article the other day and I quote, "How do we take this industry forward?" Something for all of us to think about.

What can each one of us do to improve our industry and supply chain and ensure that we not only survive but grow? We currently have three major initiatives which are highlighted below:

- Protection of our downstream industry from unfair competition.
- Ensuring that fabricated structural steel is localized through designation
- Ensuring proper codes and standards are in place and enforced

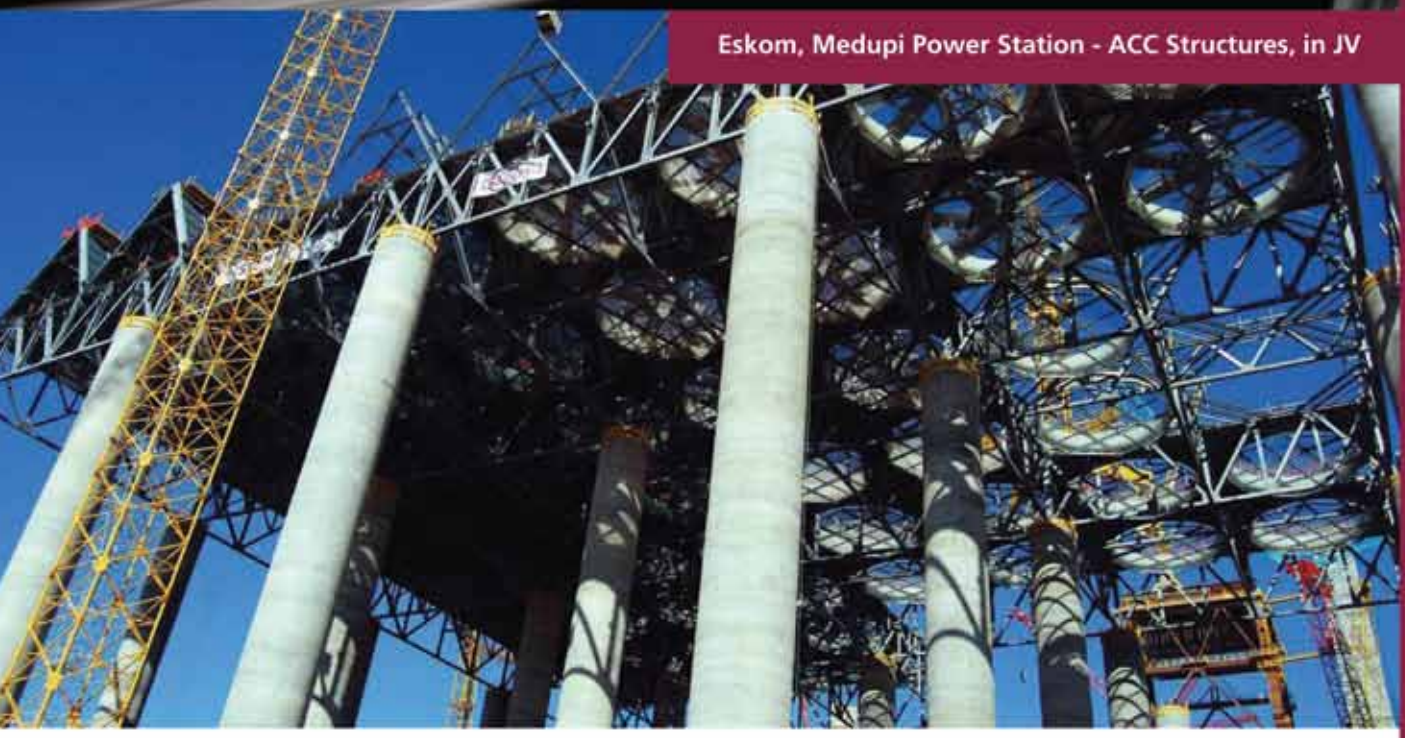
We need to work tirelessly on innovation so that we no longer need protection and our competitiveness gives us a steady stream of work. This is key and recognized by many of the participants around the table.

The SAISC is stepping way out of its comfort zone on many issues from downstream tariffs to the construction sector charter codes and transformation, so we need your input and support.

Steel Construction has a new editor and its very own website: *www.steelconstruction.org.za*. We encourage you to send in your comments so we can continue to drive excellence in everything we do.

CADCON

STEEL CONSTRUCTION AND ENGINEERING



Eskom, Medupi Power Station - ACC Structures, in JV

Established in 1987, Cadcon, as a vibrant and reputable entity, has grown into a leading steel construction, designing and engineering organization involved in major projects in and around Southern Africa and internationally. Cadcon operates from their 15 400 m² workshop and office facilities in Centurion, Pretoria, housing state of the art machinery and latest technology CNC plate, beam, angle, cutting, drill and saw facilities serviced by 20 overhead cranes. Cadcon has also implemented the FabTrol System providing drawing management, material nesting, purchasing, inventory control, production and CNC management, shipping and more.

Eskom, Medupi Ducting Supports, Lephalale

Planning and completion of various significant and complex national and international projects on time, for commercial, industrial, mining and plant sectors, serves as testimony putting Cadcon as a leader at the cutting edge, in a rapidly growing and competitive environment. Cadcon has valuable experience in exports of steel products internationally and strong innovative contributions to the whole of Southern Africa.

Overall Winner SAISC Steel Awards 2011
Sandton City - Protea Court Rooflight, in JV

Furthermore, Cadcon's unique packages include the design and supply of buildings through Mictec, Cadcon's in-house engineering design department. Additional services include crane, truck and trailer hire.

Cadcon operates their full production process from the delivery of raw material, fabrication, abrasive blasting, corrosion protection, erection and finishing to the proud delivery of the final product through their team of graduates and dedicated artisans. Cadcon's methodologies and processes results in their ability to provide their clients with turnkey solutions at optimum efficiency; **STRIVING FOR EXCELLENCE AND PEACE OF MIND IN STEEL CONSTRUCTION**, this being the cornerstone of Cadcon's success and competency.

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SPENCER VISITS NEW SAISC MEMBER TW TUBE and LASER PROCESSING

By Spencer Erling, Education Director, SAISC

The company's origin lies in TW Profiling Services who have been in the business of laser and profile cutting, plasma and guillotine and rolling and bending since 1994. The shareholders, Tharin Stuart, Joost Smuts and Robbie Carelse (who oversees production) recognized a need for profiling open hot rolled and closed profiles and decided to set up a new operation to service this need. They all have steel related backgrounds.

Contact details:

TWTLP: Tharin 083 325 3590 / 087 985 0643

First Cut (Pty) Ltd (SA agents for the machines):
Steve van Wyk 082 456 3759 / 011 614 1112

RIGHT: Complicated layouts and jigs.

BOTTOM LEFT: Tube and other sections that have been processed on the 6 axis BLM LT 14 tube laser.

BOTTOM RIGHT: The BLM LT 14 system. First cut says that the LT 14 is the first of its size and capability to be installed in South Africa.

OPPOSITE PAGE TOP: An example of section cut on the BLM LT 14 system.

Images source: Metalworking News, v14.6 Jan 2016

It is a great feeling to be able to visit one of our newest fabricator members who started up in business in December 2014 (with first product being supplied in August 2015) and have found a lovely niche market for themselves. I am referring to TW Tube Laser and Processing.

The company's origin lies in TW Profiling Services who have been in the business of laser and profile cutting, plasma and guillotine and rolling and bending since 1994. The shareholders, Tharin Stuart, Joost Smuts and Robbie Carelse (who oversees production) recognized a need for profiling open hot rolled and closed profiles and decided to set up a new operation to service this need. They all have steel related backgrounds.

In terms of machines the back bone of the company's machines are 2 laser profilers, capacity and details of which are described below. These are supported by a band saw and a host of hand held grinders, 5 ton capacity EOT cranes and forklifts.

When I first heard about TWTLP as they like to call themselves, I wondered what sort of market they would compete in and what it was that would make purchasers move away from standard cut and drill lines and notching machines towards these one stop laser machines?

For those of you who have read my previous articles over the years about state of the art equipment for steel fabricators will surely remember my emphasis on eliminating handling.

Previous articles placed great emphasis on mechanical handling between the processes controlled by software and point of action videos, often with either two or three machines controlled by just one person, which eliminated handling the steel by hand. Of course this would require a substantial investment in handling conveyors and cross transfers and the like. And yes a set-up with 3 stations and handling equipment are extremely productive in the right environment with sufficient space in the workshops. All of which require a substantial investment in infrastructure and equipment.

So how does a tube laser compete with such a set up as just described? Simply put, the 6 axis head is a one stop cutting, shaping and drilling machine. No, it is not as fast as the above described set up, but it is a 1 station machine. If you take the elimination of handling time, the need for buffer stocks

before each process and the great quality cuts and holes that the machine produces, the end result is a very cost effective combination 1 station machine that saves on space, stock holding and storage, EOT cranes and the like.

So is it the answer to every fabricators needs? The answer is a simple no. It's throughput per day would be substantially less than a 3 station combination mentioned above.

Is it flexible in the types of profiles that can be cut? You bet! Any profile that fits into a 355 circle, whether hot rolled beams and columns, channels, flat bars, angles and hollow profiles that have steel thicknesses of less than 20mm.

After careful market research into what their future customer's needs could be and to what equipment was available in the market place, the TWTLP team chose a BLM LT 14 tube laser, which comes from Italy.

Being an ex-Alfa Romeo (Alfetta GTV to be precise) driver, the author could not help but ask, was this state of the art Italian designed machine going to behave like an Alfa? (For those of you who have not driven an Alfa, if you are a perfectionist don't ever try one. They are great concepts, they have magnificent mechanicals (whilst running), handling and braking, which is great as long as you don't mind window winders falling off, the sun roof leaking, the boot latch not holding, rust, rust and more rust). The answer was a resounding no, "we have Italian design and structure but German brains" – all the controls are Siemens equipment with their reputation for reliability and precision.

From a programming point of view, it's ease of communication with 3D detailing packages including Tekla make the programming straight forward and not needing further draughtsman input. It has mind boggling accuracy and precision assisted by independent probes that take into account out of straightness and the like of input material. An absolute win-win for the right applications, and yes gents there are plenty applications out there.

What are the draw backs I hear you ask, perhaps the slowish set-up time is the only one I could detect.

The second machine is a BLM LT Fiber tube laser. This machine can handle profiles that will fit into a 140mm diameter circle.

It is a state of the art staggeringly fast 2 axis machine that by clever detailing and programming does away with the need for complicated layouts or jigs to assist in assembling complicated jobs by means of tabs that fit into slots in exactly the right place. Another win-win for the downstream fabricator.

What a great afternoon visit I had to TWTLP, leaving me once again rueing my age that made me miss out on these great modern advances in steel fabrication.

For more details of the machines capabilities *Metalworking News, January 2016* has an in depth article on the machines.

THE SAISC SCHOOL OF DRAUGHTING:

Developing quality structural steel detailers

By Denise Sherman, Marketing Manager, SAISC

"Getting students to choose a career path in Steel Detailing is a challenge at the moment, because of the negative perception of job prospects in tough times. We need to get the message out that there are still big projects and opportunities in and for South Africa" says Jaco Pretorius, Facilitator.

The School of Draughting, a division of the Southern African Institute of Steel Construction, was established in 2007 to address the need for well trained and skilled structural steel detailers. Currently based at Genrec Engineering in Wadeville Germiston, the school offers a National Diploma in Structural Steelwork Detailing through different pathways including Learnerships, Skills Programmes, Full Time and Part Time Training.

Aligning the needs of industry with the output of the school remains a key priority. "Our goal is to exit good quality students who can add value to industry" says Roelf Lizemore, Head of the SAISC School of Draughting. "We'd like to develop a closer relationship with Industry to ensure that we train to their expectations."

Although structural steel detailing is an established and viable career option, communicating this to prospective students in a turbulent economy is proving difficult. "Getting students to choose a career path in Steel Detailing is a challenge at the moment, because of the negative perception of job prospects in tough times. We need to get the message out that there are still big projects and opportunities in and for South Africa" says Jaco Pretorius, Facilitator.

The school has an intensive multi province marketing drive that takes place from July to October, where they engage school students. "We cover quite a broad area, and went as far as Mpumalanga to promote the school. There is a lot of interest generated in those visits" says Jenny Claasens, Marketing Coordinator.

"A big success factor is that our students do get placed in Industry. Of the 14 Students that graduated in 2015 only 4 are still looking for placements. What I enjoy most is seeing how people develop over their time here. They arrive knowing very little and leave able to contribute to industry in a meaningful way."

Because there are a number of students with aptitude and interest, who cannot afford tuition, the School of Draughting has put an appeal out to industry. "We need industry to support by providing funding whether through Learnerships or Scholarships" says Roelf.

South Africa has infrastructure challenges that the students were enthusiastic about being a part of solving. First year student at the School of Draughting, Odette Mahabeer, says "To be a part of that is something special because you're not just designing a building, you're developing a country.

To view the video profile and find out more about the School of Draughting through students and facilitators visit http://bit.ly/1qv6ubW

ABOVE LEFT: Roelf Lizemore, Head of SAISC School of Draughting.

ABOVE RIGHT: 2nd year students collaborating on a task.

MAIN PICTURE: School of Draughting students and staff on site at the school at Genrec, Wadeville.

TOP AND CENTRE LEFT: Students are trained in both traditional and application based draughting methods.

BOTTOM LEFT: Jenny Claasens (Office Manager) and Howard Fox (Former Head of School).

RIGHT: 1st year students Cuan Baronet, Odette Mahabeer and Morne Delport.

Q & A

WITH **JOHN SWALLOW** OF CADEX SA

We have some
GREAT PEOPLE
that are dedicated
to keeping this industry
going and growing it.

Q: What was your dream job when you were a kid?

A: *I would say that my dream job was probably to be an aeroplane pilot. I also had a passion for wanting to sail, so I decided that I wanted to be some guy sailing around the world.*

Q: What are your hobbies? What do you enjoy doing most in your spare time?

A: *I don't really have any hobbies as such. I'm relatively busy. I have two kids and a wife that take up the time that I have, besides all the extra work time that I do. I do a bit of jogging. I'm sure that somewhere along the way I'll eventually get to do some woodworking.*

Q: Who has been the biggest role model in your life? Why?

A: *To decide who has been the biggest role model in my life is quite a difficult one. I've had many role models at different stages along the way. At an early age, my dad was my role model. He was a self-employed management consultant, a very bright guy, who famously did work for people like Steve Jobs here from South Africa. He got this idea that you could exists and earn a living without being part of the corporate world, so that was instilled in me at an early age.*

Immediately after university, my role model was Don Walker, the first person that I worked for. He was a consulting engineer who really

BELOW: 2015 SAISC Council.

provided me with a great start. Don persuaded me to study further, which is where I met other role models – Professor Alan Kemp at WITS, and Hennie de Clerq (former CEO of the SAISC). Alan was an exceptionally bright and capable engineer who had the ability to explain complex concepts in easily accessible way. As I got more involved in the practical side of things, Hennie de Clerq, who presented some of the courses alongside Alan, was a big influence.

Q: Best advice you've ever received?

A: *Probably the best piece of advice I've ever received is to go and study an MBA at UCT, which I did with a friend of mine, Rob Ballentine. We were both studying the GDE together at WITS, the post-graduate engineering course, when we sat down one night over a beer and Rob said "Look, we're getting technically advanced in what we're able to do, and we've got a relatively good grasp of this engineering thing, but we need to balance ourselves out to some extent." So the two of us decided to go and do an MBA at UCT.*

Q: How do you think your best friend would describe you?

A: *My best friend, I think would describe me as somebody that works too hard, too long hours and takes life too seriously. I don't necessarily agree with that. I've been fortunate in having very loyal friends in my life, and I think that they would also describe me as a loyal friend.*

Q: What do you think the biggest challenge is facing our industry at the moment?

A: *I think the challenges facing the steel industry, the construction industry and definitely the consulting engineering industry is the world economy not performing well. People are under pressure. We've got a downturn, great expectations for people in all sectors of the economy, and then we've got really very little work. That's a great challenge. I think it's something that will make us tougher over time. I think many of the people that are in the industry might not be here in 5 or 10 years' time. Those that do survive will be a lot tougher for it. There are many challenges ahead.*

I was chairman of the Institute of Steel Construction many years ago and it was the greatest time to be a part of the steel industry because it was the busiest time. People had work all over the place, everybody was in a happy space. It's changed. People now are in a different space. That's one of the challenges; keeping good people motivated, to survive, and to have something that performs better down the line.

Q: If you could go back 30 years, what advice would you give your younger self?

A: *If I could turn the clock back or go back 30 years in some sort of time machine, I think the most valuable advice I could give myself is to cut out the weekend work and the work done in the evenings.*

The work that you do, hoping to get paid, on some sort of speculative nature generally doesn't pay off. It's a bad negotiating tactic, and I think you get nowhere doing that sort of work. You really waste a solid portion of your life doing work that you are hoping to get paid for. I think you've got to be a lot more practical and decide when you are going to cut things that you are doing. I think you have to be a lot more aggressive and say "Look, this is going nowhere. I'm going to stop doing it. And even if somebody else does it… that's fine." As a young person, I think you kiss a lot of frogs, hoping that these things will work out well.

The other thing is learn to negotiate relatively early on. Negotiation skills are something that you're going to find you need all of your life. Go and get some top advice, and some practical skills at negotiating.

Q: Favourite book of all time?

A: *Born to Run by Christopher Mc Dougall. It really gives you an insight into human spirit, and the amount that people can do with having a lot of fun with really minimalistic input and no resources whatsoever. It's about the Tarahumara Indians in the Copper Canyons in Mexico, and their ability to run, and undertake these amazing endurance events. Christopher Mc Dougall builds in things about what humans are capable of biologically, what's happened in South Africa and how people used to hunt here in the early days and run down animals. It's a great insight into people… and it's about running, which I'm relatively interested in.*

Q: What makes a great leader?

A: *Different things under different circumstances. One of the things that makes a great leader is the ability to analyse a situation, look at the bigger picture and understand what's important. Often people bog down on unimportant trivia. I think it's good to be able to take a broader look at the whole thing. As a leader you have to have a level of service to others in what you're doing. I don't think a dictatorial type of approach works very well. Giving service to others generally puts you in a better position, but I think it's a complex question. I'm not really sure what makes a good leader! I've seen great leaders with very different skills, and I think some of them very sadly lack in some areas and are very good in other areas. I think they achieve amazing things. A lot of it is to do with timing.*

Q: What do you think has made CADEX SA so successful?

A: *I think we're successful for a number of reasons. We've got good people here. We've got a great product, that advances year in and year out. It's well liked by the industry, and has a good fit with the industry. That makes it easier. One of the reasons I think is also consistency. We have an incredibly consistent approach from Tekla, now called Trimble solutions, in Finland. That gives you the space to grow and the certainty that things change and get better all the time. We've worked with other products, bought from other software companies where that hasn't been the case. So this real, long term commitment and a great product has made us what we are.*

Q: Where would you like to see CADEX SA going in the next 5 years?

A: *CADEX SA will change dramatically in the next 5 years. In the software industry a 5 year horizon is a tremendous horizon. I think artificial intelligence and things like that is going to get into the products that we use dramatically. I think it's going to get to the shop floor and into the design phase dramatically as well. Things are going to change*

quite rapidly from the point of view of the software side. I think we'll be bigger than we are at the moment. We'll have a different emphasis on the service we provide. We'll be doing more customising and providing tools to make people more productive for the particular industries that they are in. At the moment people rely on Tekla Structures and any customising or application development they do themselves, and they're running out of development space and skills. We will provide those skills. People will get a lot more benefit using the software, and we'll provide that benefit by tailoring the software and providing additional applications. We'll also have a bigger geographical footprint.

Q: What professional accomplishment are you most proud of?

A: *Along the way, there are different things I'm proud of. At an early stage I wrote some software called XYZ Calc Plus, which at the time was the first 2 and 3 dimensional skeletal analysis program available on PC. I didn't know that. I thought this technology would be available everywhere. So that was a very proud accomplishment while I was doing my MBA at UCT.*

Some of buildings I've designed and the project teams I've worked with have been really great. They're not iconic structures, but the way the teams came together and the way the guys worked together, under difficult circumstances, and put up some very good structures in a short space of time… I always got a kick out of that.

Q: What do you value most about the SAISC?

A: *I was fortunate enough to attend Hennie de Clerq, Alan Kemp, Rob Young and Spencer Erling's courses at an early age. I learnt the practical ways of doing things that I'd learnt at university, and I was able to implement that, which was really great. I think the very valuable thing about the SAISC, is that it's done an amazing job of helping people to do the things they do in the best way possible because of the practical knowledge they gain through the SAISC. It's an amazing organisation because it's a collection of professional people who work for the institute as well as professionals and others who are brought in from outside. They provide an interesting mix of courses, meetings, input and it really just makes it work. This business that we're in, CADEX SA, started from a chance visit. The SAISC brought a chap out, Fikri Garres from the UK. Fikri had been building a standard so that organisations could exchange information in the UK called the CIS2 Standard. After the talk I had a chat to Fikri, and he put me on to a couple of guys around the world, including eventually Andre Cronje from France. Andre told me what they did and what software they could provide, got us trained and eventually came to us and said get out there and sell this stuff to other guys, the country needs it! And that's how CADEX SA got started. It started from an initiative of the Institute of Steel Construction. I don't think they thought about that. They just had this interesting speaker that they brought out, but for us – it opened up a whole industry, the steel detailing industry. That is the power that the Institute of Steel Construction has.*

TOP: 2015 Steel Awards Photo Competition, Sponsored by CADEX SA.

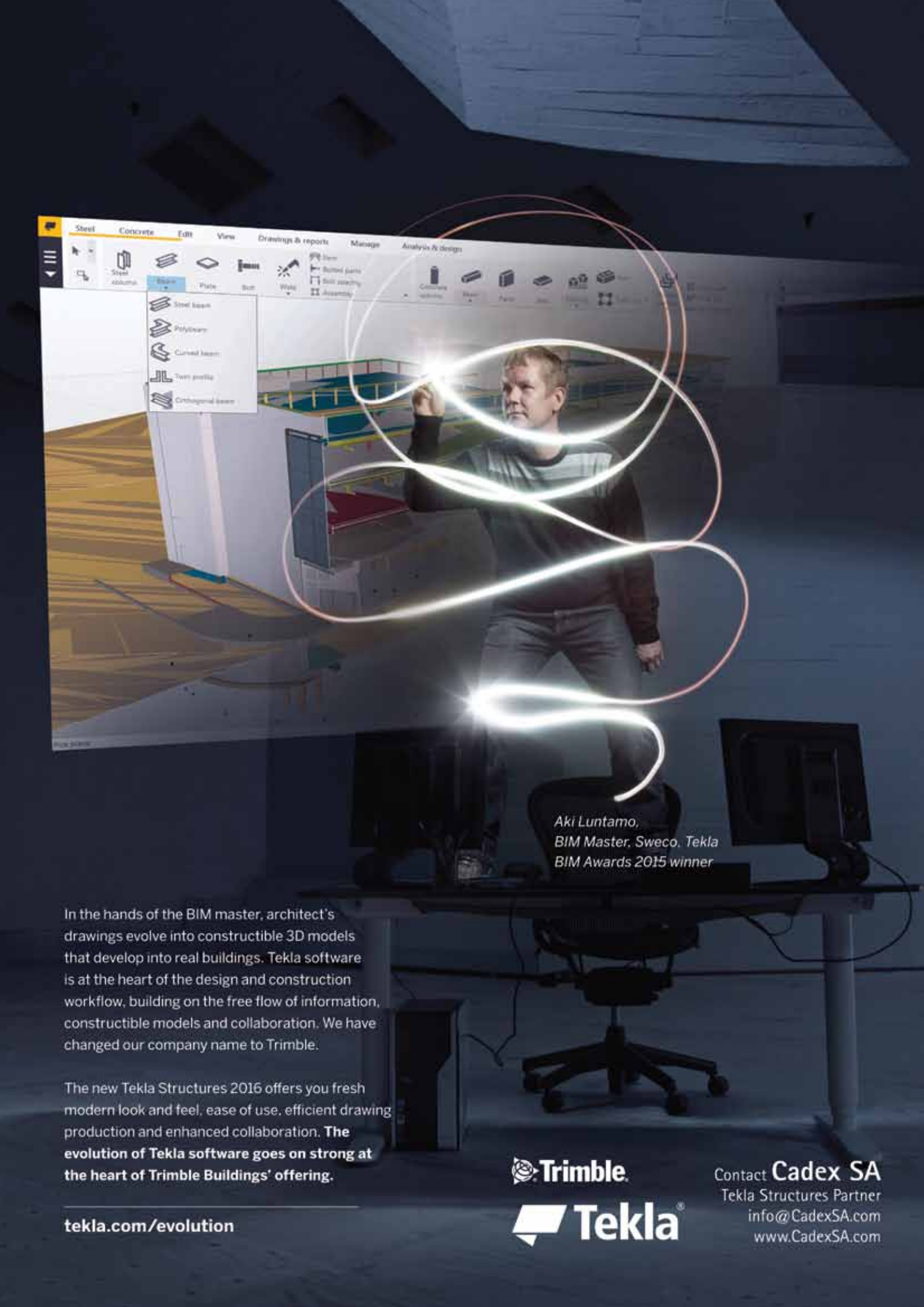
ABOVE: Launch of the Association of Structural Detailers (ASSD).

Q: What do you value most about the Steel Awards?

A: *The thing I value most about the Steel Awards is that it gives people the ability to showcase what they've done. Its extraordinary what you find at the Steel Awards. You often expect that the really big jobs will be done by the really big guys and that's not the case. You sometimes expect that certain guys do certain types of work and suddenly you find they do other types of work that you didn't even know about. You get companies that you believe may be mediocre, you have this perception of them, and suddenly they pop up with this amazing structure they're involved with, with a fantastic record of how it was developed and built. I think it lifts everybody's skills as well. It makes people realise that they've got to market the projects and structures that they do, and I think because it's a competitive environment – people do better. I think the industry is in a better space because of the steel awards than they would be without it.*

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

A: *We have talented people in the industry of all ages. I think we're well positioned from that point of view. There's an under-utilisation of technology, and I think that will change – which is an opportunity for the industry. The work will come back. The challenge is getting into Africa and being broader than we are at the moment… also a big opportunity. There some bright young people and some very dedicated people at the universities and training colleges. Some great people that are dedicated to keeping this industry going and growing it, which I think is very encouraging. We didn't have that 10 or 15 years ago. We had a lack of young people in the industry. Now that we have them, the challenge is getting the older guys to share their knowledge with them and to position them much better for the future. We will do well. I've no doubt about that.*



Aki Luntamo,
BIM Master, Sweco, Tekla
BIM Awards 2015 winner

In the hands of the BIM master, architect's drawings evolve into constructible 3D models that develop into real buildings. Tekla software is at the heart of the design and construction workflow, building on the free flow of information, constructible models and collaboration. We have changed our company name to Trimble.

The new Tekla Structures 2016 offers you fresh modern look and feel, ease of use, efficient drawing production and enhanced collaboration. **The evolution of Tekla software goes on strong at the heart of Trimble Buildings' offering.**

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Industry NEWS IN BRIEF

Scaw Metals achieves remarkable B-BBEE certificate on the amended codes

The Scaw Metals Group, a leading steel and steel product manufacturer remain firm on retaining its Level 2 Broad-Based Black Economic Empowerment (B-BBEE) rating with also maintaining previous statuses on the old codes.

Under a cloud of change, Scaw Metals sustained its positioning in the steel industry by continuing to commit to strengthening the sector amidst unstable local and global economic landscape.

Striving to support economic and social development initiatives, the Scaw Metals B-BBEE committee set itself high targets to preserve Scaw Metals position. Actively improving the B-BBEE score elements through identifying areas of development – equity ownership, management control, skills development, enterprise and supplier development, and socioeconomic development.

This year's State of the Nation address highlighted that economic transformation and black empowerment continue to be a vital part of all the economic programmes of the country. The steel sector plays a major role in its support of many industries, Scaw Metals is committed to mirroring government's ongoing agenda.

The B-BBEE codes have been a catalyst for achieving notable contributions, not only for the industry, but communities in which Scaw Metals has been actively involved in corporate social investment (CSI) initiatives.

In reflecting on the organisation's achievement, Scaw Metals Group CEO, Markus Hannemann says, "The B-BBEE scorecard has encouraged our business to reach new levels of opportunity."

Accidents in the construction industry

According to the Federated Employer's Mutual Assurance Company (FEM), which provides cover to employers in the construction industry, 7 721 injuries occurred nationally amongst policy holders during 2015. This resulted in 61 fatalities, 603 permanently disabled persons and 34 385 lost man days.

Deon Bester, Occupational Health and Safety Manager at the Master Builders Association of the Western Cape (MBAWC), says, "The rate of accidents in the construction industry still remain unacceptably high."

In the Western Cape alone, the number of accidents that have taken place over the past five years has risen by an average of 12.00% year on year. Between 2011 and 2015 there were 18 deaths and 202 permanent disabilities resulting from accidents. Furthermore, 29 671 man hours were lost and the average cost per accident stood at R17 532,20.

He continues, "The Western Cape remains one of the provinces with the highest accident frequency rate. At a current rate of 3.7%, versus the national average of 2.67%, we are 28% worse than the average. In other words, we have 28% more accidents per 100 people employed in the construction industry. Whilst this is a very high variation, figures would indicate that we have less severe accidents based on the average cost of an accident. The current national average is R27 244 per accident whilst we are at R15 813 per accident – 42% less."

"In 2015, the Western Cape only had one fatality in 2015 compared with 12 in Kwa-Zulu Natal, 29 in the Gauteng region, 11 in the Free State, 3 in the Eastern Cape and 5 in the Northern Boland. Undoubtedly, one fatality is one too many and we should be striving for zero fatalities and zero harm – a target we believe is achievable," states the Occupational Health and Safety Manager.

To achieve this target, he suggests improving the skills of employees in the industry, providing proper training for employees and arranging adequate supervision. He also advises using the correct, quality tools for the job and utilising proper fall prevention equipment. In addition, Bester recommends regular drug screening and alcohol testing. "These are just a few of the basic interventions required," shares Bester.

"The construction industry, from large corporates to small sub-contractors, needs to take ownership of health and safety. Good health and safety practices

ABOVE: Deon Bester, Occupational Health and Safety Manager at the Master Builders Association of the Western Cape.

in the workplace must be as important as ensuring turnover and providing a quality product and service on time to the end user. Only once health and safety carries the same weight as cost, quality and time will we see a reduction in accidents in the industry," concludes Bester.

Update on tariff protection measures from the Department of Trade and Industry

By Sidwell Medupe, Departmental Spokesperson, The Department of Trade and Industry

Government is working closely with all the stakeholders in the steel sector to secure agreement on a comprehensive package of measures to support South Africa's primary steel production capabilities.

The steel crisis results from the fact that there is a global glut of steel arising from the effects of the global recession and excess installed capacity and supply. Following due process involving the International Trade Administration Council, (ITAC) the Minister of Trade and Industry, Dr Rob Davies, has assented to tariff increases for three steel products. Investigations into another eight product lines have been finalised and await government approval. A wide range of OECD and developed countries have already implemented similar tariff protection measures.

It is of course extremely important that tariff protection measures for primary steel

TOP AND ABOVE LEFT: Growthpoint's 48,000sqm industrial property in Isando, which is the new home of Consolidated Steel Industries (CSI). Growthpoint has invested R40 million in refurbishing the facility to CSI's specifications, which included the construction of a new office block.

producers do not result in higher steel prices being 'passed on' to downstream, steel intensive manufacturing sectors. These sectors are labour intensive and any measures, which might erode the competitiveness of secondary steel intensive manufacturers, must be avoided. It is for this reason that government is very carefully weighing up the basket of measures under consideration and is consulting widely with all stakeholders, the downstream users included.

The Ministers of Trade and Industry, Dr Rob Davies and of Economic Development, Mr Ebrahim Patel and senior officials of both departments, have held extensive talks both with executives of ArcelorMittal South Africa (AMSA) as well as with senior executives of the company at the recent World Economic Forum in Davos.

In addition to a meeting held in October 2015 with all primary steel producers, downstream manufacturers, industry associations and labour, a further meeting will be convened by government in the near future to finalise the package of measures proposed by government. These measures are designed to secure the primary steel producers, safeguard downstream users and protect employment across the entire steel value chain.

Government is confident that agreement will be reached in this regard. Once final agreement is reached an announcement setting out the package of measures to be adopted, in addition to those already implemented, will be made.

Consolidated Steel Industries improves efficiencies in customised new Isando facility, in Growthpoint's largest industrial leasing transaction yet

Growthpoint Properties and Consolidated Steel Industries (CSI) have concluded a landmark multifaceted transaction that will bring several of CSI's Gauteng's operations together under one roof in Isando.

In Growthpoint's largest manufacturing sector transaction, both by deal value and square metres, CSI now occupies its new Isando facility on a ten-year triple-net lease basis. Located on the corner of Quality and Barlow Roads, the premises will be used for manufacturing, storing and distributing its range of aluminium, stainless steel and roofing products. It covers a whopping 48,000sqm, made up of 44,500sqm factory and warehouse space and 3,500sqm of offices.

CSI, a subsidiary of Tiso Blackstar, has recently merged its two principal operating divisions, Global Roofing Solutions and Stalcor. Stalcor is a stockist and distributor of a wide range stainless steel and aluminium products. Global Roofing Solutions consists of leading South African roofing brands under the Brownbuilt and HH Robertson banner, making it one of the largest metal roofing and roofing accessory manufacturers in South Africa. It also includes subsidiaries Helm Engineering and Stampede Compaction and holds the brands Zip-Tek, Klip-Tite, Klip-Lok, Nu-Rib, Bond-Dek, Bond-Lok, Arma-Tile, Uni-Tile and QC Flooring, among other well-known trade names.

Chris Ransome, Executive Chairman of CSI, states: "This is a landmark development for our newly merged Stalcor and Global Roofing Solutions businesses which have a history spanning over 60 years. The Growthpoint team have delivered an exceptional, cost effective and all-encompassing solution to our bespoke property requirements in both Gauteng and the Western Cape."

As a highlight of the facility, the newly developed 2,500m² office block, is constructed incorporating the use of CSI's own steel roofing products into the new, modern design – creating a functional showcase of its own products and capabilities. CSI began operating from its new premises in January.

Aveng Grinaker-LTA addresses critical skills shortage at its Welding School

The limited number of specialised and high quality welding training programmes in South Africa is a critical challenge facing the welding industry at present. As a result, industry cannot meet the demand for skilled welders who are needed to deliver on major projects across the country.

Since 2013, Aveng Grinaker-LTA, in partnership with Sasol, has invested approximately R9 million in the Aveng Grinaker-LTA Welding School in order to

ABOVE LEFT: Aveng Grinaker – LTA Welding School.

ABOVE RIGHT: Arial view of Springs Mall.

address the critical skills shortage in the welding discipline.

The main objectives of the Welding School, which is located at the Aveng Grinaker-LTA Steel Fabrication facility in Vanderbijlpark, is to train welding apprentices, up-skill semi-skilled workers and provide unemployed youth from the local community with portable skills. The Welding School is accredited by the Manufacturing Engineering and Related Services SETA (MERSETA) and qualifying learners are awarded with a National Certificate comprising of NQF level 2, 3 and 4 in Welding Application and Practice. During the programme learners undergo 18 – 24 weeks of intensive theoretical and practical and on-the-job experience through apprenticeships.

"To date, 81 ASGI-SA apprentices and 40 Sasol apprentices were trained through the programme and in December 2015 the welding school awarded a Double Coded Welders qualification to 10 learners who are now qualified welders," explains Henning Venter, Aveng Grinaker-LTA's Mechanical & Electrical Fabrication Executive.

He further adds: "Skills development is a key focus area for the company and every year 50 learners across the Vaal triangle are accepted into the Welding School's training programme. Encouragingly, around 60% of these are woman, which demonstrates the growing number of females who are now entering into a previously male dominated profession."

The training initiatives at the Welding School are a key component of Aveng's transformation programme. A total of 1,972 employees were trained in various technical skills in the Aveng Grinaker-LTA Civil Engineering Training Centre over the last three years.

Furthermore, there are currently 34 engineering graduates enrolled with the company for formal mentorship towards professional registration with the Engineering Council of South Africa (ECSA). The company also sponsors 45 students at tertiary institutions across South Africa through its bursary programmes.

A solid foundation for Springs Mall with Giuricich Bros

Construction on the R950 million Springs Mall at Blue Crane Eco Park development is well underway, according to main contractors Giuricich Bros, with the 46,000m² regional shopping centre right on schedule to open before Easter 2017. The landmark mall located in Springs, east of Gauteng, is a joint-venture between the Giuricich Bros Group; Blue Crane Eco Mall (Pty) Ltd; Flanagan & Gerard Property Development & Investment; and Vukile Property Fund, a leading JSE-listed retail focused SA REIT (real estate investment trust). Springs Mall is already 85% let, with anchor tenants signed up including Pick n Pay, Checkers, Woolworths and Edgars, and other major national retailers including the Foschini Group, Truworths, Mr Price, Hi-Fi Corporation, Clicks, Dis-Chem and Incredible Connection set to join the mix.

"As a retail development of almost R1 billion, with over 150 stores, the mall is a major investment in Springs. Once completed, Springs Mall is going to be a world-class regional shopping destination in the area, opening up many new opportunities for the surrounding community," says Gerard Giuricich, a Director at Giuricich Bros Construction.

Fellow Director Nicky Giuricich believes the company's involvement as the main contractor in construction of Springs Mall puts it in good stead for the future, by increasing its expertise in larger scale retail developments. "As an independent, family-owned construction company, we are committed to investing in and enriching our country, as well as the lives of its people."

The SAISC's Steel Academy will be offering a range of insightful short courses from April 2016 onward, including:

- **Basics of Steel** (1 Day)
  10 May JHB, 12 May DBN, 19 May CT
- **Moment Connection Design Course** (2 Days) 21– 22 April JHB
- **Typical Portal Frame Design Course to SANS 10162** (2 Days)
  5 – 6 May JHB
- **Industrial Building Layouts, Basic Loading, Load Paths and Joint Configurations** (2 Days)
  26 – 27 May JHB
- **Basic Connection Design** (2 Days)
  2 – 3 June

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For more information or to register for any of the above course please contact Marlé Lötter on (011) 726 6111 or email marle@saisc.co.za

Promoting SA steel industry to ETHIOPIA'S ARCHITECTS

By Amanuel Gebremeskel, The 'roving engineer'

Ever since I started working at the Southern African Institute of Steel Construction (SAISC) I have wanted to share the wealth of knowledge found within our industry with the rest of the continent. So I was ecstatic when I received an invitation from the Architecture Association of Ethiopia (AEA) to travel to Addis Ababa and give a talk on the state of the South African steel industry.

The goal of the talk was to promote the industry and its Institute (SAISC) directly to the professionals who are in charge of designing Ethiopia.

The flight from Johannesburg to Addis was smooth. To add to the continental flavor we were carried there aboard Ethiopian Airlines – the largest and most profitable airline in Africa. Not far from me sat a more notable South African contribution to the continent; Nkosazana Dlamini Zuma and her entourage were travelling back to continue leading the African Union.

Addis Ababa is a city that is under construction. This makes travel in the city difficult with most roads and paths blocked by sand and gravel ready to be mixed with cement. Concrete buildings are popping up in every corner to house people, stores, and increasingly offices. I often sat in heavy traffic thinking what it would mean for citizens of the city if this messy boom could be replaced by cleaner and faster steel construction technology.

My talk was held in a conference hall at Addis Ababa University's Architecture

School – the largest and oldest University in Ethiopia. The campus sits adjacent a brand-new public light rail system that runs on Ethiopia's cheap electricity. Much Chinese steel has gone into that project but a lack of sufficient pedestrian crossings screams opportunity for African designers and contractors.

The reception at the talk was warm, and the participants who were mostly consulting architects and students appreciated the level of advancement of the South African industry. They were mostly surprised, but also inspired, to learn that it was the only such industry in the continent.

However it was clear that steel framed buildings are the furthest items from the minds of busy Architects in Addis.

I discussed three areas of construction that are relevant to that market. Mid-rise steel framed composite buildings, residential light steel framed buildings and light and heavy industrial buildings.

There was a great deal of interest in industrial buildings because Ethiopia is constructing large industrial parks in order to plug its large – relatively well trained and low wage – population into the global textile and basic industries supply chain.

There was also much interest in light steel framed buildings, and a few architects have already committed to train their employees in that construction method by sending them to SASFA courses in South Africa.

A common question revolved around what the South African steel industry could offer to the booming economic environment in Ethiopia. From the discussions it was clear that steel mills and fabricators on their own will not be able to participate in that dynamic environment using the typical fractured business model where design, fabrication and contracting are delivered separately.

Yet despite this general feeling large cement producers, like Nigeria's Dangote, are doing spectacularly well by producing cement locally for the exploding concrete market.

It doesn't appear like Ethiopian architects are looking for steel merchants, erectors or other specialized material and service providers. With the exception of cladding and roofing sheet suppliers that economy is not yet established enough to absorb the provisions of such specialized firms.

Ethiopian architects, like many of their contemporaries around the continent, are looking for models of affordable housing solutions. They are looking for turnkey solutions to high-rise, industrial building and high-end steel framed cladding systems.

This will require that companies in our industry make strategic partnerships with firms from inside and outside our industry to pitch comprehensive solutions. For instance this will probably require partnerships between South African fabricators and consulting architects and engineers.

A good model for how such solutions can be configured is found in the light steel frame industry under the guidance of SASFA. There the steel industry continuously partners with a diverse set of industries and firms to deliver a solution. We have to strive to repeat that experience with the rest of our heavier industry on a continental scale.

By the end of the talk the AEA was satisfied enough with the event to want to organize a larger event in the future where they will also invite key clients. I was only too happy to oblige.

Amongst other urgent matters Ms Zuma at the African Union may very well attend to co-ordination of investments that are funded and run by governments. However it is well known that the greatest drivers of growth and employment will remain medium sized private firms and the projects that they work on.

Therefore we must continue to link our medium size firms with the designers and industries of our African neighbors going forward. The returns on such investment are too high to ignore.

OPPOSITE PAGE: Addis Ababa University
Image source: http://mapio.net/s/69022384/

ABOVE LEFT: Addis Ababa got its first light-rail network in 2015 to improve public transport in the city.
Image source:: http://www.theguardian.com/cities/2015/dec/08/best-city-improvements-2015-share-stories-good-news

ABOVE RIGHT: The streets of Addis Ababa.
Image source:: https://www.flickr.com/photos/helenap/14429923903/

TUBULAR CONSTRUCTION

takes a giant leap forward with the advent of laser and plasma profiling equipment

By Spencer Erling, Education Director, SAISC

Do you remember the days when tube to tube connections were a nightmare?

For those of you from younger generations you may be wondering... "Now what is Spencer on about?".

Let me explain the process of old. I will try to keep it short and to the point.

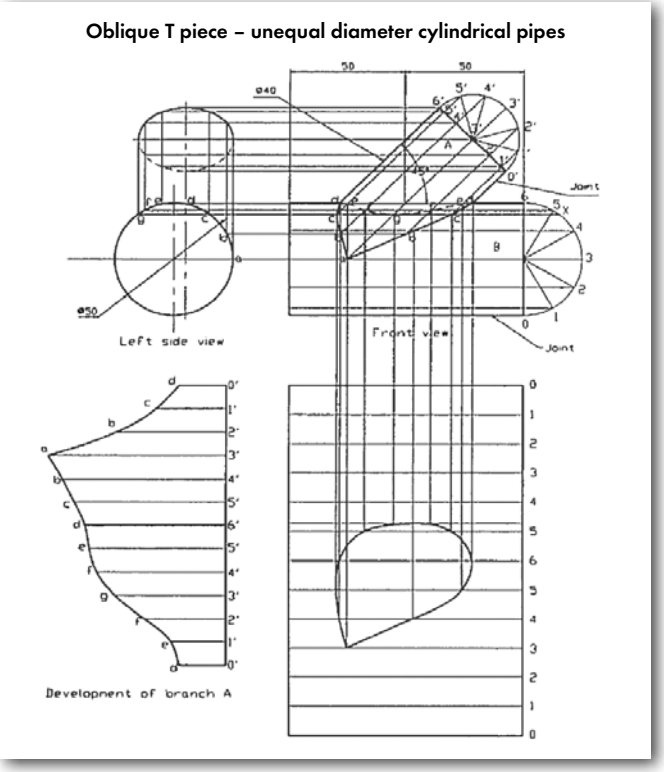
In the good old days before we had 3 D packages like Tekla that could develop the end intersections of a tube to tube connection, on a good old (dinosaurs) drawing board, a slide rule and maybe a calculator in later days, a draughtsman or a well-trained boilermaker would set about with pencil on (tracing) paper to develop such a connection.

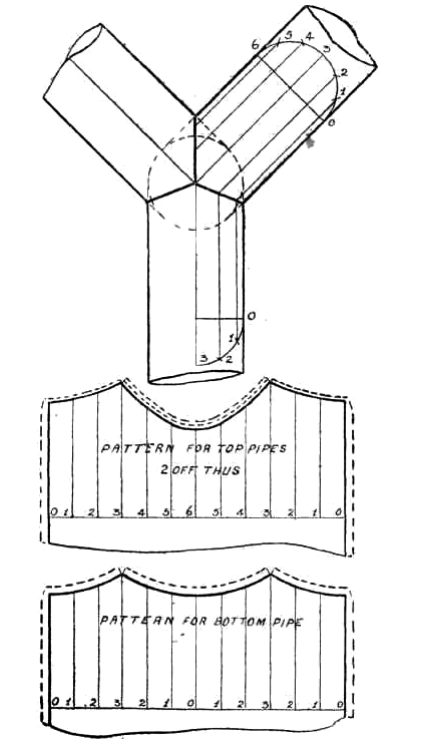
In my first year of studies in civil engineering at Wits circa 1963 we were required (punished? Inflicted?) to do Mechanical Engineering Drawing 1, where such monstrosities were the subject matter of the day. For those who know me you will surely recall the appallingly untidy drawings I produced and with experience never really improved, you will realise this was not my best subject *(see figures 1 and 2 below)*.

Just to make sure new students really battled the question would involve something nasty like the below oblique unequal diameter angled intersection.

I guess only one person hated this process more than us students did, and that was our poor demonstrator (no, not the Toyi-Toying type!) including none other than the well-known Selwyn Tucker of Process Pipe Company (clearly he learnt quite a lot about pipes in his mechanical engineering studies!).

The objective of such exercises was the development template of "branch A" drawn





to full size to suit the outside diameter of pipe A. This "wrap around" template would then be used to mark the pipe so that it could be cut such that if the development was correct (and many of them weren't) and centred correctly relative to the centreline of the pipe (taking into account perhaps a different development for the other end) when the pipe was cut using hand held oxy fuel cutting torches it would fit neatly to the bigger pipe(s).

After which if all went well the cut would be ground and if necessary prepared for full penetration welds if required. Clearly this really required a skilled artisan to do well, which even in those far gone days there were not many around.

And so with such a laborious and expensive process are you surprised then that "tubular construction" was not popular.

But engineers and fabricators are resourceful fellows. They quickly realised that by flattening the end of the pipe you could actually eliminate the need for developing the ends and just cut the flattened ends with a saw. This technique was comprehensively written up in the "Black Book" (The SA Structural Hollow sections handbook) in chapter 7.4. The end result was relatively easier to fabricate but when badly done surely did not look great in architectural applications, one of the reasons why architects chose tubular construction because it looked so elegant!

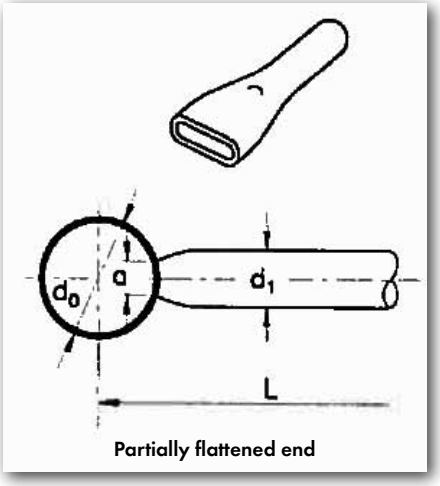
And then came a great advance when Tekla was able to draw to full size scale the wrap around templates to suit the tube to tube connections. What a pleasure, no more hand drawn developments or specialist companies who offered the service to produce wrap around templates. But even then this was not without its difficulties, especially when it came to centre lining the wrap arounds correctly at each end of the members, and just how to deal with full penetration welds and differing wall thickness of pipes.

But Tekla operators are also resourceful characters. By creating an outer wraparound and an inner wrap (into) around, and if they could be set up correctly on the correct centre lines, then it was just about possible to cut the development and the weld preparations correctly. So this became a double exercise requiring an extraordinarily capable artisan to do well.

But I am pleased to say that this is now all history.

What with the advent of 6 axis tube laser cutting machines, which communicate directly with Tekla and other computer packages in one station it is now possible to cut the development and weld preparation in that station. In addition, with clever detailing and understanding of the process slots can be cut into the primary pipe in exactly the right position for a tab cut on the end of the secondary pipe that needs to join the primary pipe resulting in a perfect fit without having to do a layout in the assembly bay.

Once again Spencer bemoans his age and not being able to directly experience the wonders of modern technology.



Partially flattened end

OPPOSITE PAGE BELOW: Figures 1 and 2.
Source: www.thedraughtingacademy.co.za

TOP LEFT AND RIGHT: Examples of developed pipe to pipe connections.
Source: http://www.tboake.com/steel/waiward.html

CENTRE AND BELOW RIGHT: Figures 3 and 4 – Jig pressed ends for geodesic roof look just great if done properly.
Source: http://45.79.160.8/dome-basics/geodesic-dome-hub-connectors/

OUT OF THE BOX AND INTO THE FIRE:

Student innovations doomed to failure

By Spencer Erling, Education Director, SAISC

This is the third and last of a series of articles based on the wacky answers some of the lesser informed students have given to the exam that Spencer sets for his enlightenment students at WITS and UKZN over the last 14 and a half years.

Universities are regarded as centres of learning and free thinking leading to innovation.

Innovation is clearly one of the ways SA can lift itself out of the current low levels of investment in manufacturing and production.

Whilst exams should not be the place for innovative ideas, one would hope that the answers given would be based on the tried and trusted methods of the past that the SAISC steel enlightenment courses aim to impart to youngsters. Nevertheless some of the answers given are truly innovative, all be it doomed to failure from the start. Some of the "side effects" of their theories could be disastrous for the life span of steel structures.

The author makes no apologies that the main article pokes fun at the expense of some of the students, who were mainly from amongst the 40% who failed the course. In general the course does have some very positive results.

Every student is required to submit a report on the 3 field visits they attended as part of the course. Many of the students took the trouble to express how much they benefitted from the course. They also thanked the SAISC and Spencer for giving of Spencer's time at no cost to the Universities, for arranging and giving the course.

But perhaps the most pleasing aspect of the field visits relates to the fact that for many of the students this was their first real exposure to structural engineering (or for that matter any engineering!). The visits opened the eyes of the students to career opportunities in structures and in particular steel structures ensuring some future Human Capital for the industry. Some of the students bemoaned the fact that some of the visits of necessity were quite short.

The extracts from Nandipha Patience Mangisana's report says it all...

"I learnt a vast of insanely interesting things ranging from the smallest concepts like 'concrete requires moist to mature' to... The galvanising plant I saw at Robor gave me a clear understanding of the content we had covered in class... Tass's equipment was far more exciting especially the humongous drilling machine... My greatest fascination came with the site visit in Sandton (Discovery new building site).No better word than 'Awesome' can describe the excitement, joy and interest that trip triggered within me. The manner in which the 7 cranes were adjusted at different levels to avoid their collisions, and how the tower crane could be pumped at the bottom to move it up and put another base beneath to increase the height was amazingly smart and astonishing to me. The steel use was massive as I was informed that about 100 tons of steel are being used per day in the Discovery project. It was lovely seeing a building protruding upwards without having to wait for its base to dry, thus wasting time. The 3 trips managed to make me fall in love with structural engineering and make me realise that steel is the future domination. I am thankful for all efforts put into making these trips possible."

RIGHT: Nandipha was the photographer of some of the happy students at the Discovery site.

In this article, as we share with you some of their ideas, our grateful thanks go out to the 200 or so students who attended my course in the last year either at the University of KZN or University of Witwatersrand who produced these *out of the box (into the fire)* suggestions.

Welding related issues

The course devotes at least two hours to welding issues. It covers subjects like the main welding processes used in structural steel fabrication (SMAW, GMAW, FCAW and SAW – and if you do not know what these acronyms stand for we suggest you read up some background information on welding which is summarised in the Red Book, Chapter 7), weld positions, defects NDT and the like.

One of my quite often used questions is to name 3 of the 4 welding processes and allow them to use the recognized acronyms. Maybe if we used the SABS welding process to weld some mouths shut we may be able to improve the financial position of this SOE. Other unacceptable answers offered include SABS and believe it or not, even SAISC.

Just to confuse them more during their first field visit they go to tube makers to see how they go about their business. Our grateful thanks go out to Mactubing and Robor who for many tears now have been good enough to allow us to bring 50 invading students to get to grips with their processes. During this visit they see induction welding methods used to join the 2 open ends of the newly shaped circular profile (which literally melts the 2 surfaces and squashes the molten edges together).

To see if the students even notice that this is not one of the methods discussed in the lecture theatre, I ask them to comment on the difference between the tube welding process and the other 4 normal structural welding processes. I expect answers to include the words "induction welding without the addition of additional welding rod material". Clearly one of the tube makers has an edge on the others because he has a source of tiny welders so that they can ***"…send the man on the inside of the tube to do a smooth weld".***

I guess additional confusion is caused by the process of scarfing (a chisel like removal of the welds externally and for liquid carrying pipes internally)

When asked to name some of the defects that can occur in welding (e.g. cracks, porosity, overlap, undercut, poor shape etc.) how on earth can we overcome this one ***"…when iron is strong it eats up metal itself" ?***

I guess our scientists will just have to find a way of putting a stop to this cannibalistic behaviour. Or what about this one: ***"A non-zero relative speed between welder and item being welded"***

Wow maybe he has discovered a magic increase in productivity of welder's technique?

Lastly on welding, the latest method of protecting the weld pool (I am expecting *[maybe I expect too much, perhaps that word should be hoping for!]* something like a gas shield as in GMAW or flux and a chemical reaction to create a gas shield around the molten weld pool as in SMAW). ***"Continuously run water over the welding section during weld".***

That is after I explain how moisture (water) is H_20 and in a chemical reaction like we get at the welding arc, hydrogen will be released – which is bad news because steel and hydrogen are mortal enemies. By the way we do not cover underwater welding at all.

This next explanation takes the prize for the most entertaining comment (probably ever) to the otherwise very boring job of exam marker:

"MIG/MAG welding protects the molten pool by running a gas excretion before the weld – something akin to stomach problems"

…I guess that's what he thought about the course.

(Passive) fire protection issues

A complete lecture is spent on the reasons we passively fire protect some steel structures, which types of structures are exempt, how long the steel must be protected and what the common methods of passive protection are. Ultimately I explain carefully that if steel reaches a temperature of 600°C it loses 70% of its strength.

So no prizes for guessing what one of my favourite questions is? I expect the answers to include the words "600°C" and "loses 70% of its strength".

Some of the gems we received this year are:

- "450°C – The steel expands which can cause it to crack and buckle".
- "450°C – It is not easy to melt steel". (I guess all those steel mills going out of business in the current poor demand situation would have saved $ Billions if they could get this one right!)
- "600°C – Steel can cause things around it to catch alight if it becomes too hot". (And there I was thinking that it was the "things around it" burning that caused the steel to get hot!)
- "30°C – The reason is that steel contains chemical elements that will cause explosions at this temperature". (Move over Mr Alfred Nobel, what was all the fuss about making unstable dynamite, you should have done more research into hot steel!)

And then let's use the atom bomb to swot the proverbial fly…"3000°C – It is suitable for any failure during the fire". That for sure is right, it will nuke anyone or anything near or in that fire!

S355JR the name of our commonly available and used steel for structures

Some of the student groups are just starting their second years, others are halfway through their second years. For any student to understand what the 355 means in the name of S355JR it is necessary to explain a stress strain curve and how the stress in the steel at the yield point defines the name of the steel.

Since this knowledge is basic to understanding steel design concepts it is a natural for exam purposes. I ask them to name the steel (S355JR) and then ask them what is the guaranteed minimum yield strength of the steel.

For some reason not clear to the writer lots of the students were confused by this part of the work, see some of the answers that follow

- Name: Aluminium
  Yield: 3618 MPa. (Come on guys let's get that right, our future aircraft and space ships could halve in mass!)
- Name: Stainless steel
  Yield: 12 MPa (what a waste of good money to buy such a weak material…)
- Name: Stainless steel
  Yield: 200 MPa (slowly getting there!)

The effect of carbon content on the steel

If you increase the carbon content you can increase the strength (both yield and tensile) dramatically but at the expense of getting brittle.

This was a new question that I dreamt up… so did you know that increasing the percentage of carbon alloy in steel:

- Cracks concrete (The opposition better watch out! We could end up putting mud and wire out of business this way.)
- It is going to be sharp (As in clever/ bright or as in a knife edge?)
- Makes stainless steel (That would surely bring the price down!)
- Less crystals in the steel (So metallurgists, why did we have to deal with those centre line laminations caused by sulphide and chloride crystals???)

Composite construction issues

The question reads explain briefly why a composite concrete slab and steel beam is stronger than just the slab or the I-beam alone. The answers should make mention that concrete is in the compression zone and steel is in the tension zone which brings out the best attributes of both materials.

I quote verbatim from 2 of the answers

"The slab is not stronger than the concrete slab since well there is concrete in the concrete slab, then the I-beam is not stronger than the one for steel beam because steel has alloys it is galvanized."

"Concrete when in tension is stronger because it is bulky and steel when in tension is weak, which will make them to withstand gravity and not fall."

Boy do I hope they were amongst the handful who slept through most of the course, otherwise have I done a really lousy job!

Bolt issues especially those troublesome HSFG bolts

Anyone involved the major power station or heavy steel projects will know there have been tremendous problems associated with the quality of grade 10.9 bolts, site abuse and tightening methods. As I recently commented if I had just 1% of the money spent and/or wasted on the bolt issues, replacement of bolts and the like I would retire a very wealthy man.

For this reason we teach the students about non-slip connections and the turn of the nut method of tightening pre-loaded and HSFG bolts.

In summary the three steps are

- Snug tighten
- Make a mark on the nut and the bolt opposite each other
- Do the extra part turn depending upon the length of the bolt

The prize winning non-slip part 3 answer was:

"…weld out to prevent slip".

Hot dip galvanizing issues

Because it is an effective corrosion protection method in the right applications we cover the process. What always delights the students is the way in which I describe the dangers of galvanising a closed box or tube assembly. I emphasize the increase in temperature can lead to an explosion with showers of molten zinc raining on the workers with the possibility of death….!!!!!

So imagine my surprise upon asking this as an exam question when the answer came back ***"it may burn up some of the steel"*** and there I was thinking galvanizing was good for corrosion protection.

Oh and by the way did you know that in the galvanizing process we dip steel into Iron!

Some other did you knows…

Apparently we do not put vertical bracings in the middle of the length of a shortish building to allow for expansion and contraction, but rather because ***"as long as correct PPE is worn it is not too dangerous".*** He obviously did not think of the danger that faces him in the case of a building that may just fall over without vertical bracings.

One of our students has developed a new steel cutting process, pity he has not patented it, ***"Cut with ultraviolet machine".*** Now we do know that UV can cause burning of skin, I guess by extension we will just have to wait a long time to see if it will ever burn steel. Maybe he knows about a new effect of the destruction of the ozone layer!

In order to create adjustment for holding down bolts that may be cast in the wrong place, we do not need oversize holes, grout or pockets in the concrete, when all we need to do is ***"HSFG bolts must be screwed in through the plate to minimize shear force"*** – problemo solved!

steel ACADEMY

save the date

BASICS OF STEEL COURSE

10 May - JHB | 12 May - DBN | 19 May - CT

SAISC Members: R 2280 incl VAT Non Members: R 2850 incl VAT

The SAISC is planning to run the popular full day "Basics of Steel" course during May 2016. The course is aimed at anyone who needs a basic introduction to how steel is manufactured, how we make steel products useful for so many applications, and the availability and details of the basic range of hot formed products.

steel
SOUTHERN AFRICAN INSTITUTE OF STEEL CONSTRUCTION

Some of the key topics covered include:

> Defects found in steel and allowable tolerances on theoretical dimensions
> Cold rolling of steel into thin sheet and the range of products that can be formed using sheet metal
> The impact of cold working
> Quality control issues
> Correct ordering of steel
> What can go wrong in steel structures designed by unqualified persons

This course is aimed at:

Engineers, Technicians, Draughtsmen, Technologists, Sales and Marketing personnel, as well as any other staff who need a basic introduction to how steel is manufactured.

If you would like more information on **sponsorship opportunities** contact:

Denise Sherman on
(011) 726 6111 or
denise@saisc.co.za

For **more information,** or to **book for this course** contact:

Marlé Lötter on
(011) 726 6111 or
marle@saisc.co.za

STRUCTURAL HOLLOW SECTIONS:

FOR EFFICIENT TUBULAR STRUCTURE AVOID CLASS 4 TUBES

By Franco Mordini, Chairman of Technical Committee, ASTPM

Structural Hollow Sections remains very popular from highly Architectural application to Industrial applications. Regardless of the applications the major benefits for Structural Hollow Sections are the efficiency for resisting compression loads such as bracing elements, torsional strength, its high strength-to mass ratio and its ability to be fabricated and erected in long sections. Benefits like great aesthetically and reduced painting areas are secondary.

In steel design one of the most important advantages is to use the high strength of steel effectively. In too many cases Engineers still specify class 4 members that are both difficult to design, difficult to make but most importantly do not leverage the high strength of steel. Simply Class 4 members do not reach the yield strength before failure. Interestingly the theory does coincide with the theory in the manufacturing process. Class 4 members are more difficult to make as the strip tends to locally buckle between the rolling stands. Also import to note, in the cases of Class 4 members, higher strength does not lead to higher resistance. In fact the higher the strength the lower the permissible d/t ratio for Circular Hollow Section and the lower the permissible b/t ratio for square or rectangles for these Class 4 members. These sections should be avoided wherever possible.

In these cases rather change the section to at least a Class 3 section. In most cases this is done by simply going down in diameter, width or height or by increasing the thickness of the section. In most cases this will also reduce the cost of the structure and provide the end users with a more efficient structure. The definitions of the various classes for flexural compression for the standard grade of 355 are shown below.

Conclusion

Should you use Class 4 members it is important to use only the effective area for all the geometrical properties of the section. This will significantly reduce the strength of the section. In order to avoid these complications that also result in inefficient structures only specify Structural Hollow Sections that are Class 1 to 3 members.

CLASS DEFINITIONS – SANS 10162-1 Maximum width-to-thickness ratio – elements in flexural compressions		
Class	Maximum for CHS	Maximum for flange of SHS
1	d/t ≤ 13000/fy=36.6	b/t ≤ 420/SQRT fy = 22.3
2	d/t ≤ 18000/fy=50.7	b/t ≤ 525/SQRT fy = 27.9
3	d/t ≤ 66000/fy=185.9	b/t ≤ 670/SQRT fy = 35.6
4	d/t > 185.9	b/t > 35.6
The maximum width-to-thickness ratio for axial compression		
Class	Maximum for CHS	Maximum for flange of SHS
4	d/t > 23000/fy = 64.8	b/t > 670/SQRT fy = 35.6

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

Current projects:

- Eastgate Refurbishment (1 600t) - Liberty Properties
- Menlyn Maine Central Square (250t) - Menlyn Maine Investment Holdings
- South African Breweries, Conveyors, Buildings, Stairs - SAB Alrode and SAB Chamdor Brewhouse (350t)
- Gautrain O.R. Tambo Platform Extension (100t) - Gauteng Provincial Government
- Rosebank Towers (130t) - Abland
- Natalspruit Hospital: Bridge and Doctors & Nurses Accommodation (250t) - Department of Infrastructure and Development
- Government Printing Works (300t)
- Discovery Sandton (220t) - Zenprop
- Integrated Rapid Public Transport Network (200t) - Ekurhuleni Metropolitan Council
- Golden Era Can Line Plant (525t) - Golden Era Group
- EPX Warehouse (225t) - EPX
- Northgate PV Support Structure/Car Ports (100t) - Sasol Pension Fund
- Aeroton Roof Jack (3 800m²) - Capital Property Fund
- Fourways Mall Roof Structure (60t) - Fourways Precinct
- Discovery Corporate Offices Sandton, Skylight Roof (50t) - Growthpoint Properties

Basics of Steel

ISO 3834 Part 3 Certificate No. ZA-014

Contact details: Tel +27 (11) 975 0647 • Fax +27 (11) 970 1694 • E-mail tasseng@mweb.co.za

TOUGH TIMES call for a MAN(ager) OF STEEL

By Hylton Gudmanz,
Executive Coach and Strategy Implementation Consultant
hylton@focusedpeople.biz

"We cannot become great by minimising our capacity to deliver. Our teams must withstand a heavy workload without buckling under the stress, and serve stakeholders with an attitude that encourages client retention and ongoing business projects."

Clark Kent a.k.a. Superman is known for his super-strength, agility, laser-eyed stare and his ability to deflect the bullets of attackers. He is a unique, competent, durable and tough opponent, as we are bound to see in the forthcoming Superman v Batman movie. Superman is also, thankfully, a compassionate person, protective of his adopted planet and responsive to its people.

Twenty-first Century managers, especially those within the steel industry, are increasingly being called on to display all of the characteristics mentioned above. Many of us have had parents, teachers and bosses who trained us to be tough, with little room for error or questioning authority. This "grooved" us into a certain way of behaving. A way that honours consistency, stability, predictability and control. Unfortunately, this is no longer the default pattern of business, as I'm sure you've discovered.

The world we live in has been described using an acronym borrowed from the U.S. Military, VUCA, meaning "volatile, uncertain, complex and ambiguous". Futurist Bob Johansen has said that the antidote is "vision, understanding, clarity and agility". In essence, we need to lead (envision, enable), manage (provide clarity of focus, standards, priorities) and coach (listen, probe to really understand, reduce complexity by "chunking" things into manageable segments).

Our people need to adapt, innovate and advance, not reduce and shrink back. We cannot become great by minimising our capacity to deliver. Our teams must withstand a heavy workload without buckling under the stress, and serve stakeholders with an attitude that encourages client retention and ongoing projects.

Douglas McGregor (MIT Sloan) differentiated between Theory X and Y: a belief that people are essentially unmotivated, untrustworthy and need to be controlled to perform (X) versus a belief that people are intrinsically motivated, inherently creative and will unlock drive to perform if shown the value of a goal (Y). Which is the default stance in your organisation, or your team? I'm guessing there is a blend, but it may favour a bit more "X" than is helpful.

The Manager of Steel needs to be strong, for sure, and this means resilience, confidence in his or her unique value contribution and personal strengths and competence in completing the work of the organisation. Deflecting personal attacks comes from a secure place of knowing self through experience and overcoming hardship. Open leadership is probably required: sharing our "thinking" and receiving feedback graciously is well described in the recent book by team leadership expert, Patrick Lencioni.

Hylton Gudmanz is an Executive Coach and Strategy Implementation Consultant, based in Johannesburg and active throughout Africa. He is passionate about effective leadership and agile growth in challenging times. He has a Masters degree in Personal and Professional Leadership from the University of Johannesburg and his undergraduate B.A. focussed on cross-cultural communication (isiXhosa, English and Psychology). Hylton has worked with leaders from Sasol, Saint Gobain Construction, Alstom (Actom), Hitachi, PPC (Cimerwa), Bombela and across multiple other industries. He equips leaders and their teams for the 21st Century connected work environment and hosts the (Pan-African) School of Coaching with IDM Business School.

The book is called Getting Naked (bit.ly/1OhQIEM) and the process is, yes, about as comfortable for some people as being forced to part with their clothing in public.

Revealing true emotions and making a stand can, at times, be career-limiting or at least disruptive. But robust dialogue enhances team collaboration and innovation, if the "safety net" of the team culture is authentically supportive. The case for "vulnerability" (allowing "kryptonite" near you at times) is simple: the more we share, the more we are trusted. If others know what our thoughts are, they will likely include us and share their own ideas, issues and "intuition". John F. Kennedy was the "perfect president", but was losing popularity. When he failed with the Bay of Pigs initiative, and took responsibility for this, his popularity... improved! The people responded to his vulnerability with greater support!

Responsiveness is another worthwhile "weapon". It means communicating your vision, expectations and boundaries clearly and listening more, asking more (as opposed to telling), and making more of an effort to understand the team's expectations and perspectives, and adapt the plans accordingly. If you also commit to protect your team, and give them good "PR", you will sustain morale effectively, through "outsider" interference, isolation (from failure or client loss) and other hurdles. It all starts today. It may surface as the opportunity to greet a stranger, a question that demonstrates listening, an expression of interest in the work someone is doing or a safety concern on a project. It could be a chance to publicly recognise a job well done.

These "VUCA moments" make a difference, and Clark Kent had to learn these by becoming a journalist and being in a team, so that he could serve the world. He needed a mentor or coach, too, as we all do from time to time. If we are open to constantly adapt and learn, we will earn trust and a powerful reputation and we will thrive, not just survive, in this VUCA world.

Here's to you, Manager of Steel!

ISF STEPS UP INTERNATIONAL MARKETING

of Southern Africa's structural steelwork and general construction capabilities

Contact: Neels van Niekerk, Director ISF
Email: neels@isf.co.za
Tel: +27 (0)11 726 6111

The ISF Chairman, Dodds Pringle and Director, Neels van Niekerk, just returned from an extensive visit including attending the PDAC mining event in Toronto, Canada as well as further interacting with the London based main contractor procurement team for the Anadarko Mozambique LNG project.

NvN advises that our international competition are all stepping up their efforts to secure contracts in the vastly reduced international construction market. We have no choice but to follow suit and we urge South African companies to increase their marketing efforts, not only inside South Africa, but also to their clients outside our borders.

The general message from the mining community present at the PDAC event was clear: "No recovery expected in the short term, cost cutting to keep mines alive must be the short term objective".

The exception seems to be the gold mining industry. Gold is not viewed as a commodity but as "safe money". Although Canada's Central Bank, for example, just sold their last bit of gold, this is not the general trend. More and more private and banking concerns are again beginning to favour gold in the current global economic uncertainties. This in turn has led to the recent turning point in the international gold price.

We were therefore not surprised to learn of many EPCMs involved in new gold studies, both greenfield and brownfield. We can expect an increase in budget quote requests in the shorter term.

We are also currently engaging with logistics companies in an attempt to find economically feasible container rates to Central American countries to enable South Africans to partake in the current copper and gold mining developments of that region.

The ISF has realised some time ago that we must reduce our export dependencies on the mining industry with infrastructure and energy the two obvious alternatives. In energy our best progress is with oil and gas, currently concentrating on projects in Northern Mozambique.

An ISF team visited the major oil & gas EPCMs in Houston during August last year. This was followed with a visit during November last year to the French office of the CCS JV that won the contract for the construction of the Anadarko project and a visit to the London Procurement office in March this year.

Although most companies tend to be fixated on possible supply to the main onshore "battery" or nearshore jetty structures for the Anadarko project (total exceeding 100 000 tonnes), many opportunities exist for our members and other South African enterprises in the numerous sub-contracting packages for "outside battery" infrastructure.

The ISF will have a stand at the largest global oil & gas event, OTC Houston May '16, and we will use the opportunity to again visit the major Houston EPCMs. Three Houston based consortiums are currently bidding on the Mozambique LNG Onshore part of the ENI Mozambique LNG project.

This will be followed up with the ISF assisting the dti in arrangements for the visit to the gas rich Mozambican side of the Rovuma Basin in the Cabo Delgado province to take place during late May this year.

ISF
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THAT FEELING...

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

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POST CONSTRUCTION installations on ROOFS and SERVICE ACCESS

by Dennis White, Director, SAMCRA

SAMCRA
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On occasions when we have been invited to inspect a roof over a shopping centre we are stunned by the amount of post construction activity the roof is subjected to. This can vary from the inappropriate installation of aerials, ventilators, extractor ducts, air conditioning units and more recently alternative energy systems. Damage from regular foot traffic is another cause for concern.

The vast majority of roof structures are designed as inaccessible with imposed loading based on access for the installation of the cladding and thereafter maintenance of the cladding system and gutters only.

Occupancy within shopping centres is transient which gives rise to changing demands for services such as extractor fans and ducts for restaurants, fire vents and auxiliary air conditioning units. Most extractor fans require a 600mm square opening in the cladding which is positioned randomly between purlins, often without any additional supporting steelwork, the fan and duct are supported by the cladding. Regularly the painted steel supports with small base plates are placed directly in the pan of the cladding, invariably between purlins. Occasionally raw wooden blocks are used as bearers. The support frames for solar heaters pose an even greater risk as the loading is much greater. Some PV panels have support systems that utilize concrete blocks as ballast which can considerably increase the loading to the cladding and supporting steelwork. Fire vents are frequently attached to and supported by the cladding in a manner that impedes the thermal movement of the cladding. In addition to the increased risk of crevice corrosion at the interface of the supports with the cladding plus the accumulation of debris around the supports there is an increased risk of flooding of the pans during heavy rain. Inadequately designed back-flashing to fire vents (which are over a metre wide) contribute to the flooding of adjacent pans. The placement of conduits and pipes in pans pose similar problems. Such obstructions can also cause the accumulation of hail, resulting in flooding. Whilst cable trays laid transversely across the cladding ribs near gutters may prevent/reduce the flow of hail into unguarded gutters the accumulated hail behind the tray can exceed the design loading. The loading from foot traffic during the installation of these items if often much higher than that associated with maintenance of the cladding.

Sections of these roofs are subjected to regular high levels of foot traffic for maintenance of non-cladding items resulting in considerable damage to the cladding and flashings. Areas most susceptible to damage are the points of access onto the roof, jumping from one level to another, eaves and areas behind parapets which are used as hoisting points together with access for cleaning windows, etc. These areas need to be protected with suitable designed ladders, platforms and walkways.

In all cases the protective coating/s to the cladding system suffers irreparable damage thereby greatly reducing its durable working life.

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SASFA TRAINING COURSE FOR BUILDING CONTRACTORS

MARCH 2016

By John Barnard, Director, SASFA

SASFA has successfully presented its 6-day training course for light steel frame building contractors – for the 21st time! The course was presented at the training facilities of Marley Building Systems (previously Lafarge Gypsum) in Alrode during the week 29 February to 5 March 2016.

The course is growing in popularity, as an increasing number of building contractors, developers, architects and engineers wish to become more knowledgeable about LSFB.

The course will be presented again in September 2016, in Cape Town.

The course is split into two sections:

Steel frame materials, components, and erection (4 days), covering introduction, the steel making process, properties of coated steel sheet, foundations, manufacturing of light steel frames and trusses, construction tools, wallframe set-out, handling, loads, floor framing, wall framing, roof structures,

SOUTHERN AFRICAN LIGHT STEEL FRAME BUILDING ASSOCIATION

www.sasfa.co.za

ABOVE LEFT: The practical work done during the course involves the erection of a 6m x 4m, three roomed building, including roof trusses. It is only partially clad on the final day.

ABOVE RIGHT: The students pictured with Willem Venter from Marley Building Systems, who presented the lining part of the course – ranging from Quantity Surveyors and Project Managers to CEO's of their companies.

RIGHT: Peter de Bruyn, Training Manager of Bosch South Africa, explaining the range of power tools supplied by Bosch. He appears regularly on TV on the Home Channel DIY program "Get it done!".

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, tools and installation methodology.

This is followed by the 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 walls, 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 Gauteng, Swaziland, North West Province, and Mpumalanga. They generally had prior building industry experience. They all rated the course highly, especially mentioning the value of the practical work. As part of the course, the students have 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 has successfully completed this course since its inception in 2009 to 325.

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

POLASA making steady progress

by Kobus De Beer, Director, Polasa

During the past year POLASA (Powerline Association of South Africa) consolidated its membership and started working in various areas of common interest. An important objective was to participate in joint working groups between Industry and ESKOM to address problems and develop sustainable solutions.

POLASA was requested to look into methods and proposals to reduce the cost of construction of power lines. This request for input is testimony that Eskom has acknowledged POLASA as a valuable and powerful partner to achieve practical results.

Two of the six areas identified are briefly outlined below.

Safety, health, environment, quality & training

Regular meetings are scheduled throughout the year alternating between the bi-montly ESKOM Safety Meetings with all contractors and the regular POLASA Safety and Training meetings held with industry and ESKOM participating. All these meetings are held at Megawatt Park and an open invitation to all industry and ESKOM personnel applies. This results in a high degree of mutual support, the continuous search for better ways and the co-ordination of initiatives.

The following expectations from industry were listed:

- **A platform where industry would listen to the challenges experienced by Training and SHEQ Departments**
- **A common goal achieved by voicing and addressing true challenges and concerns and finding suitable solutions**
- **Understanding the true needs so that training providers can adapt the approach to provide more effective training and provide the support required**

POLASA
POWER LINE ASSOCIATION OF SOUTH AFRICA
www.polasa.co.za

The following SHEQ and training challenges give a good idea of the work to be done and the content of discussions:

- Having to contract local labour that have no exposure to what the industry is about and the need to be inserted into the high risk industry and be operational within a short time span
- Lack of standards across industry for minimum requirements applicable to all contractors.
- Focus is only on mandatory training not other skills e.g. soft skills
- Majority of incidents involve local employees or sub-contractors.
- Supervisors sometimes of very low level of competency/literacy but technically competent.
- Supervisors hesitant to transfer over skills to new young employees.
- Registration to SACPCMP will shortly be requirement for construction supervision.
- Pressure on finishing the project leaves little time for training.
- Community expects contractor to employ and upskill - so need solutions that include them.
- Training is viewed as responsibility of training departments and providers, yet line management also have a responsibility of coaching and reinforcing.
- People with literacy problems are required to work with complicated machinery / procedures.
- Line managers sometimes create a wrong perception of safety officer "policing".
- Stringent tender requirements for SHEQ personnel competency apply.
- Client SH Officers place unreasonable / inapplicable demands on contractor.
- Application to OSH Act and Regulations "cumbersome".

Design, engineering and SCOT (Steering Committee of Technology) for line construction

This working group seeks best practices for Line Construction that will benefit Eskom overhead Transmission & Distribution projects and contractors in terms of:

- Safety during construction.
- Improved construction methodologies.
- Keeping track of new technologies and innovations (including international practices).
- Providing input towards Method Statements in line with Construction Regulations.
- TRMSCAAC related issues.
- Training Centre Initiatives

These meetings cover a host of subjects such as SCOT resources from Technology Division Centre of Excellence (COEs) and the Operating Units within SCOT. Study Committees are effective in developing optimal and efficient technical solutions as well as transferring technical knowledge.

Care is taken to ensure that the technology direction is influenced by all affected parties and that standards are not developed in isolation. The functionally responsible manager benefits from engaging with other interested and affected parties within a SC.

Construction Care Group Structure / Work Groups:

- WG 1: Cross Rope structures. (Now referred to as "Guyed Structures")
- WG 2: Method Statements & Improved Construction Methodologies.
- WG 3: TRMSCAAC Update, Contractor/Eskom Training & Steel Manufacturing quality related issues.
- WG 4: EAL Training Centre Initiative.
- WG 5: Line Crossing Systems.

Some progress already made:

- Introduction of the Proposed EAL (Eskom Academy of Learning) Training Facility - the intent is to make it a "world class training facility".
- Trainees will be equipped to develop safe work methods for line construction and maintenance.
- To select the correct tools for the job.
- The facility will aim to develop a standardized approach for line construction activities and ensure alignment with Construction Regulations Practices.

Work is continuing on the other identified areas of common interest and will be reported on progressively: ***Commercial & Contracting, Designation of Components & LAP lists, Project Execution and Influencing Stakeholders.***

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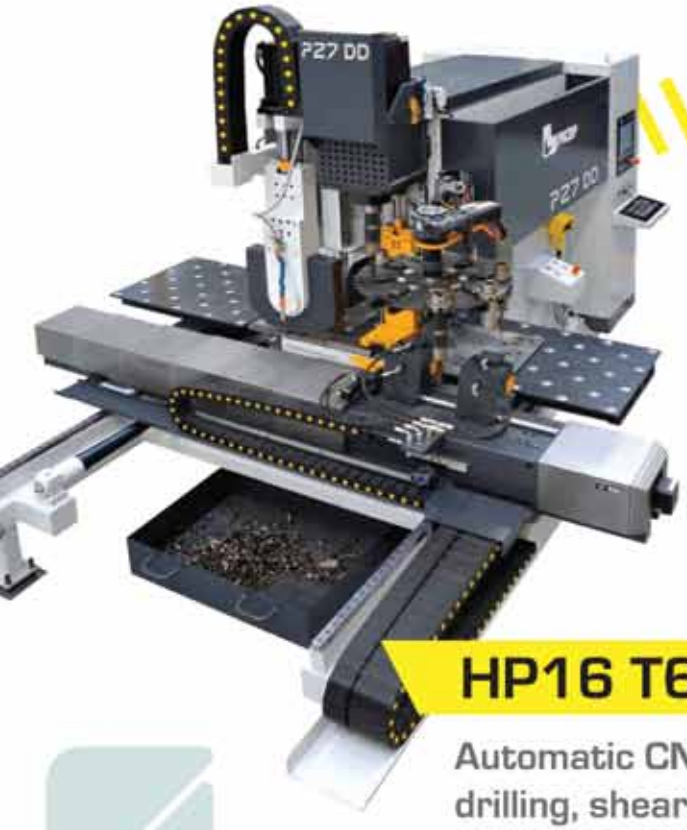

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SOCIAL SNIPPETS:

By Marlé Lötter, Events Manager, SAISC

"STEEL MELTDOWN" MEMBERS BREAKFAST

28 January 2016

CEO of the SAISC, Paolo Trinchero, led a lively information and Q&A session on challenges facing the industry, as well as the roles and activites of various stakeholders in addressing these issues.

DORMAN LONG LUNCH, HARVARD CAFÉ

25 February 2016

Dorman Long Lunch, currently in its 13th year, is a great opportunity to connect - which is always enjoyed by all who attend.

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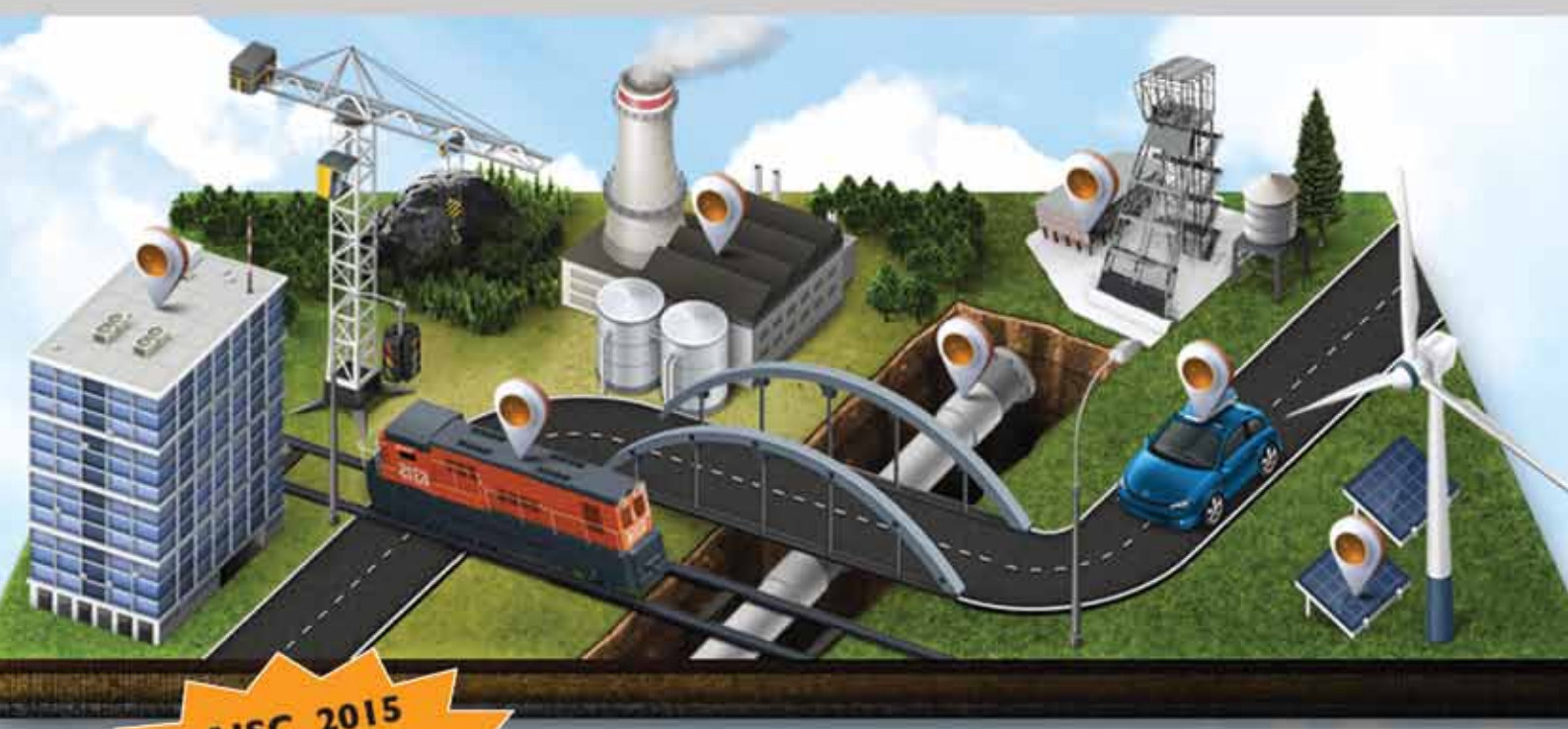

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