## CONSTRUCTION

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WINNERS AND ENTRIES







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Front Cover: SKA Africa Radio Antenna Positioner Back-up Structure Photograph courtesy of ska.co.za

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# SEE CONSTRUCTION

OFFICIAL JOURNAL OF THE SOUTHERN AFRICAN INSTITUTE OF STEEL CONSTRUCTION



## in this issue...

#### **SAISC COMMENT**

| Steel is a world class industry                     | 2   |
|---|-----|
| STEEL AWARDS 2015                                   |     |
| Honorary Life Member: Jim Guild                     | 4   |
| Sponsors: Steel is                                  | 5   |
| Main Sponsor  | 6   |
| Judges on Steel is                                  | 8   |
| Overall Winner                                      | 9   |
| Charities: The greater good                         | 15  |
| Table Decor Sponsor                                 | 16  |
| Table decor in a glass of it's own!                 | 16  |
| Photo competition                                   | 18  |
| ASTPM Tubular Category Sponsor and nominations.     | 25  |
| B&T Steel Factory & Warehouse Category              |     |
| Sponsor and nominations                             | 29  |
| GRS Metal Cladding Category Sponsor and nominations | 37  |
| Saint-Gobain Light Steel Frame Category Sponsor     | 01  |
| and nominations                                     | 44  |
| Partner Sponsors                                    | 66  |
| Residential Category nominations                    | 70  |
| Mining and Industrial Category nominations          |     |
| Architectural Category nominations                  | 81  |
| Bridge Category nominations                         | 91  |
| Retail Project Category nominations                 | 96  |
| Key service providers                               | 102 |
| SAISC NEWS  |     |
| Membership list                                     | 103 |

## Join us on and You Tube

## editor's note

l asked everybody else to tell me what they think and now I have to come up with something original.



So here it is. Steel is...
the team that builds it. Team single yes,
because they have to work as one to make it
work.

Time and time again we see very complex projects come to fruition because there was a great project team behind it who saw the value of early involvement and open communication channels. The most successful projects are usually the ones where the client is part of the 'think tank' and open to practical suggestions.

Saving money is always a key issue, now more than ever. With teamwork the architect, engineer and steelwork contractor can put their minds around how to fit this project into the budget but still make it look good, be an efficient structure and be built with quality workmanship.

Steel Awards is the culmination of those efforts. The projects and beautiful photos thereof (please do your project justice – send them pretty pictures!) are important but they will not mean much without the project team next to them. To each and every team member, from the big developer to the welder on site doing the last perfect weld – steel is nothing without you.

To get to this 'culmination' is quite a journey. Without our Steel Awards Sponsors this journey would not even have begun. After lots of meetings with Paolo and Spencer, Marlé Lötter and the rest of the SAISC team take this further until every candle is lit and the credit roll of the audio visual presentation has run to.... The End.

We hope this Issue Vol. 39 No 5 2015 does the efforts of the steel construction Industry and the Institute for Steel Awards 2015 justice.

# Main Sponsor NENG STEEL

Notwithstanding market conditions, Aveng Steel continues to focus on developing value-add products and maintaining its focus on operational efficiency improvements to supply customers with a diverse range of products.

## Aveng Steel, tried, tested steel solutions provider

Aveng Steel is proud to be the Main Sponsor of the prestigious 34th Steel Awards. This continued sponsorship, strengthens our commitment to the steel industry. The company has firmly established its pedigree in the market which is underpinned by its business units comprising Aveng Trident Steel, Aveng Steeledale and Aveng Fabrication.

The partnership with the SAISC Awards spans a proud six years through the Aveng Steel Fabrication business unit, previously known as DSE.

Aveng Steel continues to be the supplier of legacy infrastructure projects. To this end the company provides a turnkey service which magnifies its range of capabilities. These include the supply of structural steel, automotive materials, special steel, reinforcing bars and mesh, pipe and tube manufacturing and steel fabrication.

Aveng Steel forms part of the Manufacturing and Processing arm of the Aveng Group and operates in the following market segments: Mining, oil & gas, marine, power, road & rail, water, buildings: commercial and industrial, process plants & industrial.

Its strategy is based on a foundation of multi-disciplinary business units within the Aveng Group. The comprehensive skills base within the Aveng Group enables Aveng Steel to deliver solutions across the full spectrum of the Aveng Group's capabilities.

BELOW: Solar Sishen Project.

OPPOSITE PAGE: Kusile Power Station Mainframe.



Aveng Steel has a footprint in all nine South African provinces and continues to strengthen its regional network of over thirty branches in Southern Africa. It also extends all of its offerings beyond the domestic market to Southern Africa where it is represented in Zambia, Namibia, Lesotho, Mozambique and Swaziland.

Aveng Steeledale established a presence in Maputo in 2014 to serve the increasing demand for its products in Mozambique.

Notwithstanding market conditions, Aveng Steel continues to focus on developing value-add products and maintaining its

also available. Manufacturing of welded tube is offered, including an extensive range of squares and rectangular sections.

The coil processing division offers cut-tolength, blanking, slitting, press and tool cutting, angle cutting and edge dressing services.

To expand its product offering, Aveng Trident Steel has invested in various capital projects over the past year. The latest additions include a tube laser, which is capable of cutting tube structures that would not be possible with conventional cutting methods.

The comprehensive product range includes: cut and bend reinforcing steel, stock lengths, construction mesh (all references), white mesh, wire products, pre-assembled reinforcing steel and much more.

Aveng Steeledale's vision remains to further entrench its market leadership by providing the technology, products and services which meet, and where possible, exceed stakeholders' expectations.

#### **Aveng Steel Fabrication**

As the leading fabricator of structural steelwork and other industry-related products, Aveng Steel Fabrication has a proven track record of consistent, reliable and efficient services to a broad range of customers.

Aveng Steel Fabrication's Vanderbijlpark workshops were established in 1947, and since then it has grown from strength to strength. One of the most significant strides was the upgrade and expansion to the workshop facility in 2010. This included a totally revamped workshop with 60 000m<sup>2</sup> under cover. This area has six fabrication bays that cater for light, medium and heavy structural steelwork, plate work, autofabrications, heavy plate girders and tubular items.

The latest CNC machines are used for the fabrication disciplines and serviced by overhead cranes. The specialised offering to the industry includes an established detailing office using Tekla and Bocad systems.

Aveng Steel Fabrication maintains strict safety and quality controls in all work undertaken, certified to ISO 9001 Quality Management System as well as EWF/11W 3834 ISO Welding Certification.

Aveng Steel Fabrication has a proud history of being involved in some of South Africa's most notable projects, including the stadiums which were built for the 2010 FIFA World Cup.

Looking forward, Aveng Steel is well placed regarding new ventures, specifically throughout the African continent. The cluster is committed to establishing long term partnerships in order to provide added value services to the industry.



focus on operational efficiency improvements to supply customers with a diverse range of products.

#### **Aveng Trident Steel**

Aveng Trident Steel provides vast structural steel sections; plate and sheet metal of various sizes; and has a comprehensive range of carbon and alloy spring steel.

Processing by the specialised cutting division includes state-of-the-art computerised high definition plasmas, lasers and gas cutting machines. Guillotining, chamfering and bending are

#### Aveng Steeledale

Aveng Steeledale was formed in the mid 1950s and grew both in size and stature to become a major technology leader in the reinforcing steel industry. Today it is recognised throughout South Africa and its neighbouring countries as one of the largest reinforcing steel and mesh suppliers, with 21 branches.

Aveng Steeledale provides products which are ISO 9001 compliant, has a quality management system and a full product package that complies with local and international safety requirements.

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#### **Roeland Park Office Block Development**



#### **Anglo American Cel**

#### **PROJECT TEAM**

Client:

Anglo American

Architect:

ROM architects

Structural Engineer:

Arup (Pty) Ltd

Quantity Surveyor:

**AECOM** 

Project Manager:

Arup (Pty) Ltd

Main Contractor:

NMC (Pty) Ltd

Steelwork Contractor:

Genrigg



#### Comair Slow Lounge at Cape Town International Airport

**PROJECT TEAM** 

Client:

Comair Limited

Owner:

Airports Company of South Africa

Blueprint Architects (Pty) Ltd

Structural Engineer:

KFD Wilkinson (Pty) Ltd

Quantity Surveyor:

Multi QS

Project Manager:

Target Projects

Main Contractor:

Stefanutti Stocks

Steelwork Contractor:

LJ Le Roux Industries

**Cladding Erector:** 

Scheltema

Cladding (Bullnose):

Facade (Glass and Cladding) Installation:

PROJECT MANAGERS

ARCHITECTS

Tel: 021 461 0077 Fax: 021 461 0097 E-mail: info@targetprojects.co.za

116 Loop Street, CapeTown, 8001 Tel: 021 426 2622 Fax: 021 426 1398 E-mail: info@blueprint.co.za Multi Quantity Surveyors
QUANTITY SURVEYORS

PO Box 471, Century City, 7446 Tel: 087 740 5270 Fax: 086 596 7554 E-mail: info@multiqs.co.za

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CONSULTING STRUCTURAL AND CIVIL ENGINEERS 1230 Picbel Parkade, Strand Street, Cape Town, 8001 Tel: 021 425 1610 Fax: 021 425 1646 E-mail: kfdw@iafrica.com

Triocon Consulting Engineers
CONSULTING MECHANICAL, ELECTRICAL AND **ELECTRONIC ENGINEERS** PO Box 36573, Chempet, 7442 Tel: 021 552 4949 Fax: 021 552 4291 E-mall: info@triocon.co.za

CONSULTING MECHANICAL ENGINEERS PO Box 2540, Bellville, 7535 Tel: 021 948 3033 Fax: 021 948 3010 E-mail: info@bnass.co.za

Keith Fletcher & Associates FIRE CONSULTANTS PO Box 2272, Sun Valley, 7985 Tel: 021 789 0947 E-mail: khf@iafrica.com



Stefanutti Stocks Western Cape MAIN CONTRACTOR PO Box 6221, Roggebaai, 8012 Tel: 021 386 6336 Fax: 021 386 6207 E-mail: buildingwc@stefstocks.com



#### Sandton City Atrium on 5th – Facade Support Structure

#### **PROJECT TEAM**

Client:

Liberty Life

Architect:

MDS Architects / MMA JV

Structural Engineer:

Aurecon

Quantity Surveyor:

MLC / Crane Construction

Consultants JV

Project Manager:

GHC Africa

Main Contractor:

Sandton JV

Steelwork Contractor:

Tass Engineering (Pty) Ltd

**Detailing Company:** 

Tass Engineering (Pty) Ltd

Erector:

Us Erections cc



#### Society House Hotel and Retail Upgrade



#### Steel Spire on top of The Sandton Tower

#### **PROJECT TEAM**

Client:

Liberty Life

Architect:

MDS Architects / MMA JV

Structural Engineer:

Aurecor

Quantity Surveyor:

MLC / Crane Construction

Consultants JV

Project Manager:

GHC Africa

Main Contractor:

Stefanutti Stocks

Steelwork Contractor:

Tass Engineering (Pty) Ltd

**Detailing Company:** 

Glen Banks

Erector:

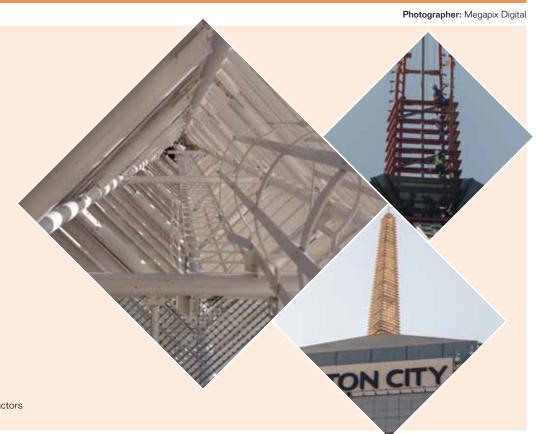
On Par Erection Works cc

Heavy Lift Crane Supplier:

Santana Lifting Projects

**Painting Contractor:** 

DRAM Industrial Painting Contractors









#### TRT Line 1A Tshwane Rapid Transport - A Re Yeng



#### **Dorp Street Facade**



# KHOMBANANI STEEL

## Our quest is lasting impressions

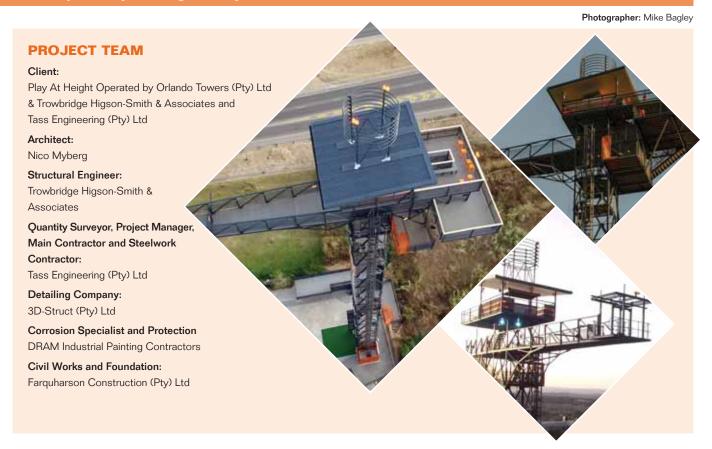


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#### Pineslopes Play At Height Bunjee Tower







#### **WINNER: ARCHITECTURAL CATEGORY**

## **Multichoice City**

#### From the project entry motivation by Craig Thompson, **Pure Consulting**

#### **Judges' Comment:**

This design allows natural light to enter the atrium and provides a very pleasant, relaxing environment for the users. Visually the steel structure does not clutter the roof zone.

These two features demonstrate that steel elements can add significantly to the appearance and usage of concrete buildings. Multichoice City is a large expansion to the east of the current Multichoice/MNET campus on Bram Fischer Drive in Randburg. The primary purpose of the building is for offices and a call centre but also as a flagship for the current facilities.

The use of steel has played a vital role in emphasising the filigree detail that completes the building. The front of the building facing west on Bram Fischer Drive has a very large cantilever 'peak cap' roof that cantilevers out towards the street. This roof has been sculpted to ensure that form follows function with a very elegant narrow leading edge.

The roof itself structurally comprises fabricated box girders tapered in section cantilevering generally 12 metres (maximum cantilever being 13.5 metres). The closed box form is further stabilised by a tubular bracing network ensuring, despite the large cantilever, that the structure remains stable. The back edge of the roof allows free flow of wind



under it to ensure wind uplift forces are minimised

The soffit of this roof is clad in Brownbuilt Klip-Lok 406 roof sheeting underslung from a propped purlin system propped off the upper Metsec purlins that support the cladding. The edges of the sheeting are carefully trimmed and finished off with fascia elements that ensure the roof remains elegant and a dominant and imposing feature as visitors or occupants

#### **PROJECT TEAM**

#### Client:

Multichoice

Multichoice Support Service

#### Architect:

GLH and Associates Architects

#### Structural Engineer:

Pure Consulting (Pty) Ltd

#### Quantity Surveyor:

BTK Pretoria Inc

#### Project Manager:

M Studio consulting

#### Main Contractor:

Group Five

#### Steelwork Contractor, Detailing

#### Company:

Tass Engineering (Pty) Ltd,

Nancy Engineering

#### Cladding Supplier:

Global Roofing Solutions

#### **Cladding Erector:**

Cladco Projects

#### ETFE Cushion Roof Design and

Supplier:

Novum Holdings LLC South Africa

approach the building from the west (see page 37 for more cladding details).

Also facing Bram Fischer Drive is a 'jelly bean' shaped portion of the building which is clad in active glass louvres that open and close automatically to shade the interior from the late afternoon sun whilst leaving uninterrupted views for most of the day. Tubular steel arms cantilever out from the slab behind to support a curvilinear tubular member that supports the glass louvres and mechanical actuators.

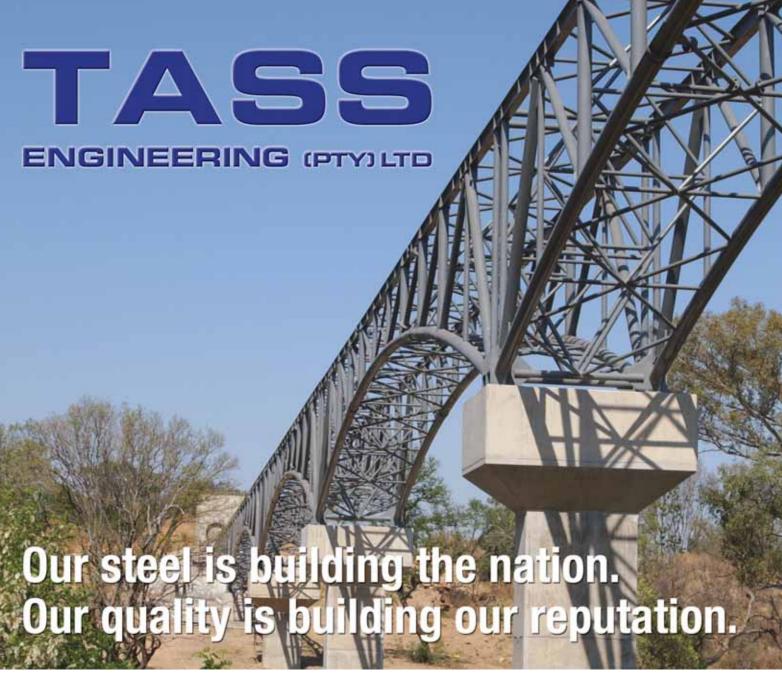
A visitor entering the building is immediately greeted by a grand open volume atrium space with a wonderfully elegant tubular strutted arch structure supporting air inflated ETFE cushion roof cladding. The strutted arch spans in order of 24 metres and its form is ideal for

resisting the more dominant uplift wind forces of such a structure, whilst being quite slender in form as a result of the very light in mass ETFE cushions. The atrium space is further complemented by beautifully detailed structural steel staircases.

Early involvement with the two steelwork contractors in the design process played a major role in achieving the beautiful end result. The design workshops not only resolved connection details but also the back propping details to the ground floor slab so that cranes for the roof erection could work from this level.

The building has achieved a Four Star Design Rating from the Green Building Council and is currently being assessed for the 'as built' rating.





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

#### **Current projects:**

- Eastgate Refurbishment (1 500t) Liberty Properties
- Menlyn Maine Central Square (250t) Menlyn Maine Investment Holdings
- · Fourways Bungee Tower and Sky Bar Play at Height
- Nelson Mandela Square refurbishment Liberty Properties
- · Warehouse extension (250t) ABI Devland
- Frankenwald Warehouse Extension (200t) Capital Property Fund
- Mall of Africa Central Skylight, Bifurcated Columns (250t) Novum Holdings
- Modderfontein Private Hospital (120t) Busa Holdings
- South African Breweries, Conveyors, Buildings, Stairs (200t) SAB Alrode
- Gautrain O.R. Tambo Platform Extension (100t) Gauteng Provincial Government

- · Rosebank Towers (110t) Abland
- · Cresta Gardens Shopping Centre (85t) Cresta Gardens
- Waterfall Park Bridges (55t) Atterbury Projects
- Natalspruit Hospital: Bridge and Doctors & Nurses Accommodation (250t) - Department of Infrastructure and Development
- Louwlardia Warehouse (180t) Capital Property Fund
- Nelson Mandela Children's Hospital (35t) Nelson Mandela Children's Hospital







#### **Steyn City Gatehouse and Bridges**

## **PROJECT TEAM**

Steyn City Properties (Pty) Ltd

Architect:

SCAD SA in JV with NSIKA, DBM &

Boogertman + Partners

Structural Engineer:

WSP Group Africa

Quantity Surveyor:

Brian Heineberg & Associates cc

Project Manager:

Metrum Project Management

Main Contractor:

Group Five (Pty) Ltd, WBHO Group

Steelwork Contractor:

Tass Engineering (Pty) Ltd, Spiral Engineering cc

(Spiral staircase - Gatehouse)

**Detailing Company:** 

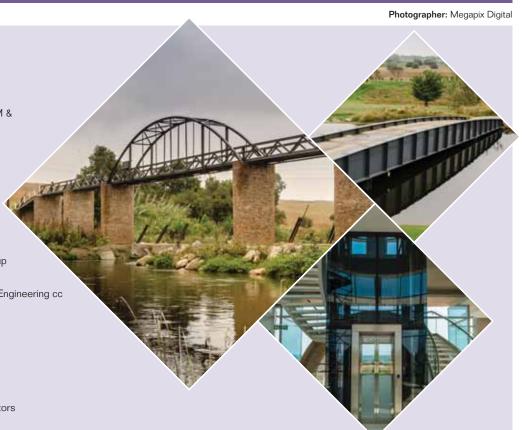
3D Struct cc

**Cladding Erector:** 

Funane Steel Erectors cc

Painters:

DRAM Industrial Painting Contractors



#### **Daventry Road Bridge**

### **PROJECT TEAM** Atterbury Property Holdings (Pty) Ltd Architect: Studio 3 Architects International (Pty) Ltd

DG Consulting Engineers (Pty) Ltd

**Quantity Surveyor:** 

Structural Engineer:

SSQS Trading (Pty) Ltd

Project Manager:

Pro Arnan (Pty) Ltd

Main Contractor:

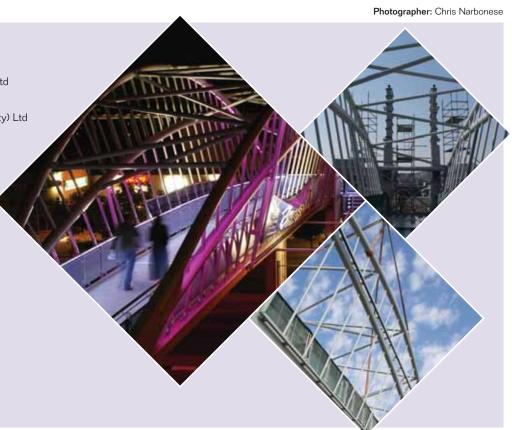
Archstone Construction (Pty) Ltd

Steelwork Contractor:

Ferro Eleganza (Pty) Ltd

**Detailing Company:** 

Ferro Draughting (Pty) Ltd





## **ELEVATING THE INDUSTRY**

With 5500m<sup>2</sup> of factory space, Ferro Eleganza has the capacity to produce from 250 tons of light structural steel to over 350 tons of

heavy structural steel per month. With state of the art CNC machines the fabrication details are received and processed directly from their in-house detailing office.

- Airport Junction Shopping Centre Botswana 1750 tons
  Brits Granite Factory 450 tons
  JD Group Warehouse Rosslyn 360 tons
  Brits Mall 750 tons









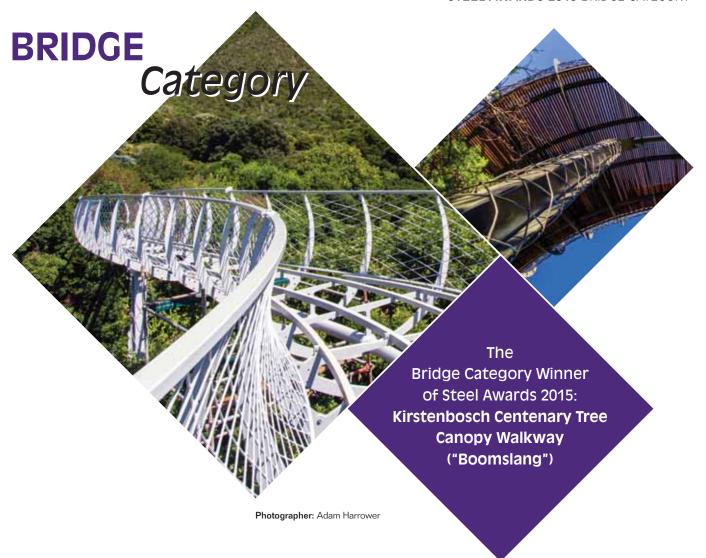












#### **WINNER: BRIDGE CATEGORY**

## **Kirstenbosch Centenary Tree** Canopy Walkway ("Boomslang")

From the project entry motivation by Henry Fagan, **Henry Fagan and Partners** 

#### Judges' Comment:

The end result is an efficient flowing structure that provides the visitor with a memorable experience. To top this, the project not only met the professional team's requirements but also increased the numbers of visitors to the Gardens by over 30% thus making it a commercial success.

A true team effort.

The brief can be summarised in a few words: to design a pedestrian bridge between the tree tops of the Arboretum at Kirstenbosch. The actual project is an intricate 'story' of how well the whole project team worked together to realise this short but challenging brief.

The walkway was designed to be organic and blend unobtrusively into the forest, while minimising damage to the trees. To achieve this, a delicate structure, carefully located between the trees, and finished in colours that would blend in was needed. Steel was clearly the material of choice, to satisfy these criteria.

To minimise disruption and damage to the vegetation, a comprehensive survey of the area was done. Columns were located relative to trees, and were not necessarily placed at the most efficient structural support positions. Where it was not possible to avoid a particular tree, it was allowed to pass through the structure, and was tied back to ensure that it



experienced minimum interference from the structure. The surveyor was required to accurately set out the position of each column, and the position and orientation of the two abutments on site, so that when steel was delivered to site, everything fitted.

Rather than adding the deck and hand-railing on top of a conventional structure comprised of trusses or beams, components were designed to be multi-functional, with balustrades and safety mesh being an integral part of the primary structure.

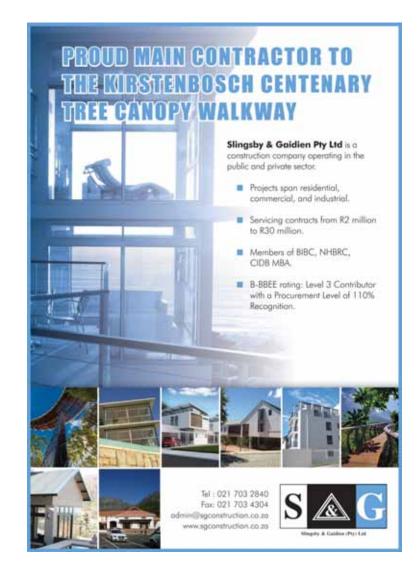
The spine of the structure, a single tube section, forms the bottom chord of a truss. The box section handrails double as the top chords of the left and right trusses. Ribs, cut from 8mm plate at 1m centres, serve both as stanchions and as the vertical elements of the trusses. The ribs are made up of three parts bolted together below the deck. This ensures efficient use of material; facilitates handling in the confined areas between trees; and limits the use of heavy equipment in this sensitive area.

Two longitudinal angle rails, onto which the transverse walkway planking is fixed, also serve more than one purpose. In the interim stage, when only the lower central portion of the walkway is erected, these angles serve as top chord members of a triangular truss, with the circular hollow section being the bottom chord.

The 8mm rods forming the safety mesh contribute to the structure as truss diagonals. Their gradient varies with span, being steeper near the columns where shear forces are highest and shallower at mid-span. The curves thus introduced soften the appearance and give the structure an organic feel.

This project was more like crafting a sculpture than designing a structure. To develop a sensitive and appropriate design given the practical constraints of the site required that the architect and engineer collaborate very closely from the outset.

All the elements of the bridge were defined in a 3-dimensional model developed by the steelwork contractor using Tekla software.



#### **PROJECT TEAM**

SANBI (South African National Biodiversity Institute)

#### Architect:

Mark Thomas Architects, in Association with Christopher Bisset

#### Structural Engineer:

Henry Fagan & Partners

#### Quantity Surveyor:

Bernard James & Partners Quantity Surveyors

#### Main Contractor:

Slingsby & Gaidien Construction

#### Steelwork Contractor, Detailers:

Prokon Services

#### Land Surveyor:

Stern & Ekermans

#### Galvanizer:

Advanced Galvanizing

#### **Corrosion Protection Consultant:**

Koning Vadas Blom Associates

All components were pre-assembled in the workshop at precisely the correct angles and slopes, with two adjacent



sections being connected at a time, to check the geometry and ensure that the required smooth transitions between the curves were achieved.

When installed on site everything fitted perfectly, with no on-site cutting or welding being required. Plant size and access were restricted and designated

areas were allocated for hoarding, to protect the natural vegetation.

Since being opened to the public, the Boomslang has proven to be extremely popular. The increase in gate income from more visitors allowed the capital costs of the bridge to be recovered within one year of it being opened.

## **MANUFACTURING QUALITY STEEL PRODUCTS SINCE 1911**













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George Stott and Company (Pty) Ltd is ISO 9001:2008 certified and holds a Level 3 BBEE certification

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#### **DURBAN**

#### The QuadPara Association of KwaZulu-Natal

The Quad-Para Association of KwaZulu-Natal supports active independence for quadriplegics and paraplegics in KZN. As in 2014 the funds raised at Steel Awards 2015 in Durban will be donated to help fund specialised equipment for the Victor Daitz Capacity Building & Care Centre. They are still a long way from their financial target.

Contact: +27 (0)31 701 7444 | qan@mweb.co.za | www.qak.org.za

#### **CAPE TOWN**

#### The Bumble Bee Fund

Scientifically the bumble bee should not be able to fly... and yet it does. Just so, the Bumble Bee Fund gives 'wings' of mobility to children with conditions like Spina Bifida. The funds raised will go towards a wheelchair for Ortile Masilo, whose muscles are too weak to even smile due to Congenital Myopathy. His own wheelchair would hugely increase his independence around the house.

Contact: +27 (0)82 451 6433 | admin@bumblebeefund.co.za | www.bumblebeefund.co.za















# Steel is... a WORLD class industry

By Paolo Trinchero, Chief Executive Officer, SAISC

This year will again be recorded as one of enormous CHALLENGE for our Industry, but as always we show that we are indeed men and women of steel. I would like to congratulate the winners and ENCOURAGE our members to continue to participate and grow our Industry into the future.

The quality of the entries has once again proved that we have a competent and capable industry. This year we had 81 entries, demonstrating that in line with this year's theme Steel is... strong, sustainable, aesthetically pleasing, light, ductile, versatile, lasting, cost effective, slender, fast-track (etc...) and most importantly the future.

Steel structures of all types are now readily achievable due to the all-round attributes of the material, it's no wonder steel is being used more and more.

What is encouraging is the broad range of projects from residential houses to commercial projects, mining and industrial, energy and real show-piece entries. This bodes well for us as we need to ensure that we play in as many sectors of the South and Southern African economies as possible.

This year a number of projects displayed characteristics of a winning industry. They showed innovation in every process and the integration of design, detailing, fabrication and erection, using modern CNC equipment and software in which our industry has invested in so heavily.

The winner is particularly interesting as it took a very professional SKA team a great deal of

time and effort to secure the project for South Africa. It demonstrates that in order to generate future work in the industry much closer relationships are required with developers and project owners going forward. This is going to be particularly important in our efforts to secure more work outside our borders.

The SAISC is passionate about training our next generation so we can continue to take advantage of opportunities in South and Southern Africa. We would like to see the industry working harder on integration and competitiveness as displayed by our winning entries.

I would like to thank the entrants which have made this event possible, the judges, the SAISC support team and our sponsors. Having had the privilege of attending some of the site visits and event meetings one realises the amount of work that goes into making Steel Awards such a successful event.

This year will again be recorded as one of enormous challenge for our Industry, but as always we show that we are indeed men and women of steel. I would like to congratulate the winners and encourage our members to continue to participate and grow our Industry into the future.



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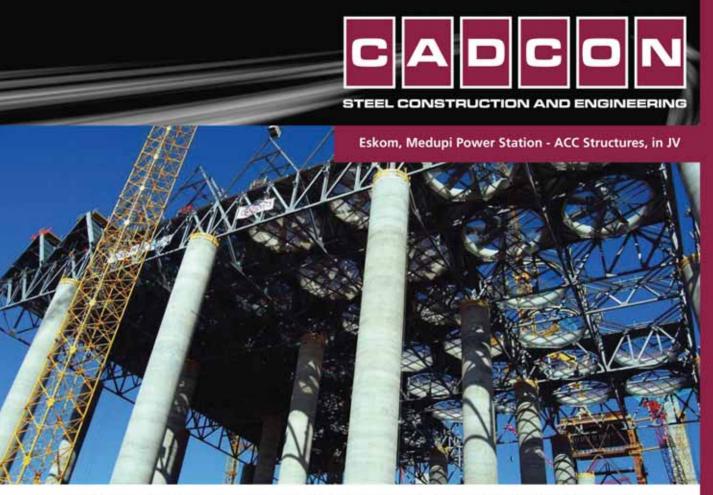






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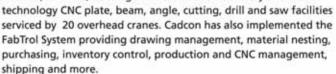
Established in 1987, Cadcon, as a vibrant and reputable entity, has grown into a leading steel construction, designing and engineering organization involved in major projects in and around Southern Africa and internationally. Cadcon operates from their 15 400 m<sup>2</sup> workshop and office facilities in Centurion, Pretoria, housing state of the art machinery and latest











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.

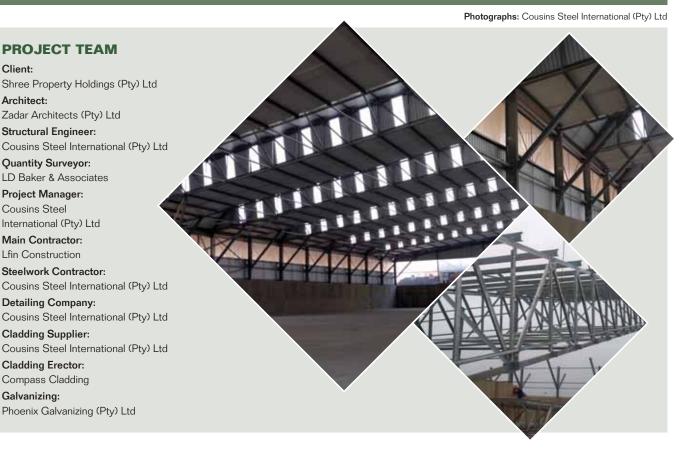
Furthermore, Cadcon's unique packages include the design and supply of buildings through Mictec, Cadcon's in-house engineering design department. Additional services include crane, truck and trailer hire.

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.

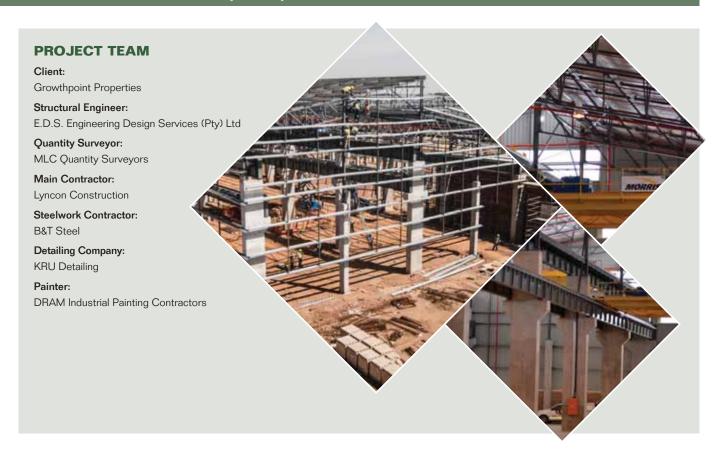




#### **208 Gale Street Shree Property**



#### MAN Diesel and Turbo Facility Hilltop Industrial Park



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FOR MORE INFORMATION CONTACT HANS-PETER

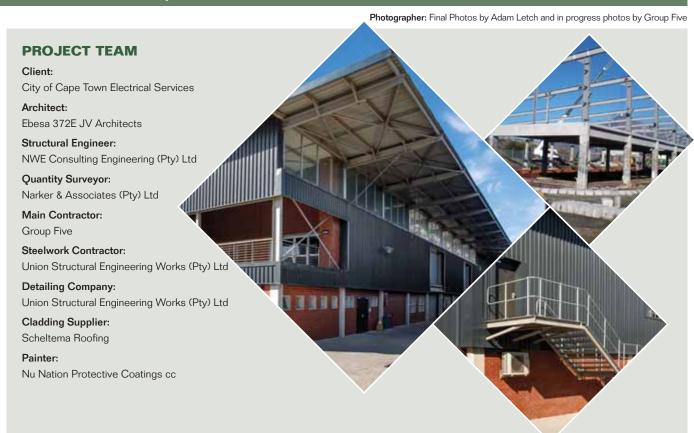
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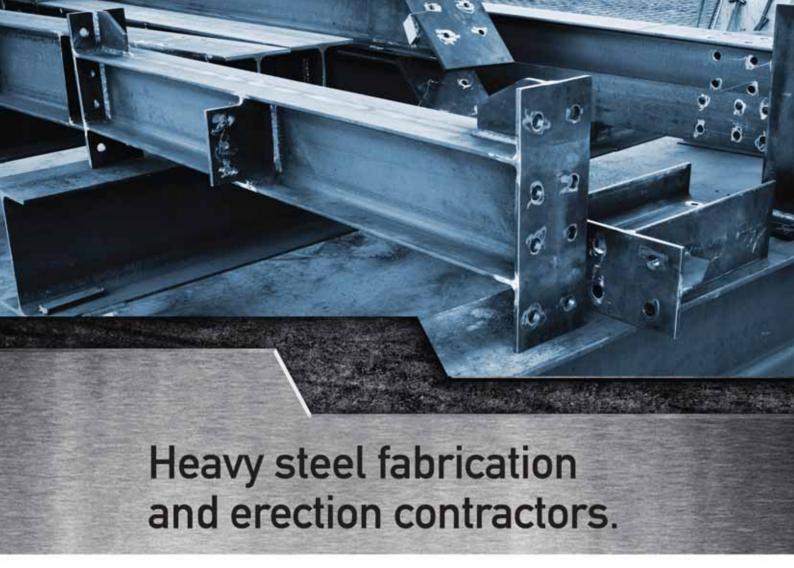
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#### **DHL Supply Chain**

#### **PROJECT TEAM**

Client:

JT Ross

Architect:

**Empowered Spaces** 

Structural Engineer:

Sutherland (Pty) Ltd

Quantity Surveyor:

MLC Quantity Surveyors

Main Contractor:

Bantry Construction

Steelwork Contractor:

Mazor Steel

Cladding Supplier:

Roofing Guarantee

Civil Engineers:

VIP Consulting Engineers



#### Armco Galvanizers Boksburg - Refurbished roof over process tanks

#### PROJECT TEAM

Client:

ARMCO Galvanizers

Structural Engineer:

Tass Engineering (Pty) Ltd

Main Contractor:

Tate & Nicholson

Steelwork Contractor:

Tass Engineering (Pty) Ltd

**Detailing Company:** 

Tass Engineering (Pty) Ltd

Cladding Supplier:

Tate & Nicholson / Modek

**Cladding Erector:** 

Tate & Nicholson

**Asbestos Sheeting Removal:** 

Rapid Spill Response (Pty) Ltd

Painting:

**DRAM Industrial Painting Contractors** 





#### **B&T STEEL**

#### Contact: Bryan Wilken

Tel: +27 (0)13 665 1914 ◆ Fax: +27 (0)86 528 3349 ◆ 16 Flambojant Street, Delmas 2210 marketing@btsteel.co.za ◆ www.btsteel.co.za ◆ Facebook: https://www.facebook.com/BTSteel

winner this year: New Distribution Centre for Value Logistics



B&T Steel was established in 1995 when directors Trevor van Vuuren, Norman van Vuuren and Ben Dicks realised that there is a niche market opportunity for supplying quality steel structures to local and export markets. Since most of our clients came from Witbank, Pretoria and Johannesburg, we started operations in a small rented factory with two offices in Delmas, Mpumalanga.

B&T Steel currently occupies 90 000 square metres of land and employs some 180 people that specialise in detailing, fabrication and erection of structural steel in South Africa and Sub Saharan Africa. At B&T Steel we pride ourselves in our well-equipped workshops with automated CNC machines, which enable us to improve on basic concepts, time constraints, accuracy and productivity. We have our own mobile cranes and have been BBBEE compliant for a number of years.

We make sure that we always stay on top of our game through continuous skills development especially through Merseta, the accredited training institute.

The B&T team takes great pride in its uncompromising commitment to world-class quality and service excellence, as well as their sound knowledge of steel construction. This unified team has unlimited passion for the steel industry that shows in their approach to both business and their customers.

B&T Steel is proud to be the Factory and Warehouse Category Sponsor of the SAISC's Steel Awards 2015.



WINNER: B&T STEEL FACTORY AND WAREHOUSE CATEGORY

## **New Distribution Centre, Value Logistics**

By Spencer Erling, Education Director, SAISC

#### Judges' Comment:

This entry is one of those model projects where from start to finish you can see the structure was well-designed, the team worked closely to make the programme work and the architects could fulfil their vision in terms of the aesthetically pleasing office facility. Well done!

Photographer: Adam Letch



If you think of the company Value Logistics (which is by the way quoted on the Johannesburg Stock Exchange) and you move around South Africa as much as I do, you are sure to notice how many Value Logistics trucks drive around the country and how many distribution centres they have built.

So for Steel Awards judging alone we have seen their installations at Cato Ridge (Between Durban and Pietermaritzburg, which was the site that Spencer took UKZN students to visit during construction some years ago), Bloemfontein, Elandsfontein (serving Gauteng), Klerksdorp and Nelspruit.

Their website proudly boasts owning 4 600 trucks and 350 000 square metres of undercover facilities, so it was exciting for our judges to visit their latest facility in Kraaifontein, Western Cape. The site was fully occupied and operational by the time we visited it in June.

In order to offer the wide range of logistical services that Value Logistics does, they need to have distribution centres which enable them to offload, sort, store, reload and deliver any product imaginable, from the biggest to smallest quantities, both domestically and internationally.

The Western Cape installation consists of two warehouse, one for Value Logistics (about 13 000 square metres) and one for Freightpak (about 7 000 square metres), as well as support facilities such as wash bay and vehicle inspection facility, despatch, refuelling, gatehouse and canopies to many of the structures.

As one would expect these warehouses are massive with columns spaced far apart with the double pitched roof supported on light transverse roof trusses, which in turn are carried by long span, longitudinal lattice girders between the columns. In this instance, the lower sections of the columns are made using tilt-up concrete columns. The substantial clear height inside the buildings takes you by surprise, until you notice very high racking storage areas in some parts of the warehouse. Such buildings in their very nature need height for storage and for handling vehicles to operate.

The Klip-Lok 700 roof sheeting was of course rolled in long lengths on site.

One of the outstanding features of such a project is the fast track nature of the client's requirements. This takes careful

and close co-ordination between the professional team and the main and specialist steelwork contractor. In order to meet the very tight programme it was necessary to work on both warehouses simultaneously.

The steelwork contractor decided, in order to achieve the necessary speed of construction safely, to erect the trusses in pairs, boxed together with purlins, stays and sag system as well as bracing where applicable. Apart from the speed this achieves, working at height is substantially reduced.

And then there is a little architectural gem tucked away on this otherwise very functional and industrial site. We have come to expect a two-storey rectangular box that houses the offices for such a project.

Definitely not so in this case. Behold, this beautifully detailed reception area, with an exposed steel supporting structure to the glass fronted with ponds and decor that turns this otherwise good industrial

project into an absolute winner! Truly deserving of the B&T Steel Factory and Warehouse Category for excellence in the use of steel.

#### **PROJECT TEAM**

#### Client:

Lougot Property Investments (Pty) Ltd

#### Architect:

Loudon Perry Anderson Architects

#### Structural Engineer:

Sutherland (Pty) Ltd

#### **Quantity Surveyor:**

JMHT Quantity Surveyors

#### Main Contractor:

Group Five Coastal

#### Steelwork Contractor and Detailing Company:

Union Structural Engineering

Works (Pty) Ltd

#### Cladding Supplier:

Scheltema Roofing

#### Painter:

Nu Nation Protective Coatings cc

#### Erectors:

L&A Steel Erectors

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## JIM GUILD

#### SAISC HONORARY LIFE MEMBER

The SAIW offered me endless opportunities to grow and develop the institute to the point that it now makes a great contribution to preparing young people for a career in welding and supports the welding industry in many ways. It has also given me exposure to the international welding industry.

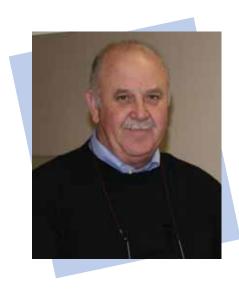
For his immense contribution to the steel construction industry in general and to the institutes of steel construction and welding, Jim Guild, recently retired Executive Director of the Southern African Institute of Welding (SAIW) has been awarded an Honorary Life Membership of the Southern African Institute of Steel Construction.

Jim, who was born in Goldthorpe, South Yorkshire, England in 1948 attended Wath Grammar School where he completed his 'A' levels in 1966 and then the University of Surrey where he completed his BSc Honours in Metallurgy.

In 1972 with a job offer from Dunswart Iron and Steel - which doubled the salary of his existing job with British Steel - Jim came to South Africa and after spending three years with Dunswart he moved to AECI where he spent 24 years ending up as the manager of materials engineering.

At the end of 2000, Jim joined the SAIW where he spent 16 years, 15 of which as Executive Director.

Paolo Trinchero, CEO of SAISC, says that it is apt to describe Jim's achievements at the SAIW as massive. "It is common cause that when he started as Executive Director at the end of 2000, the SAIW was really a very small organisation with no international recognition of its courses. It was struggling financially and was fully reliant on sponsorship for its income. In short it was hardly a going concern. Today it is the leading welding training organisation on the continent, self-sufficient and with cash reserves. Its courses are recognised



internationally; it has more than doubled its training population and has earned the respect of the global welding community.

Jim puts the SAIW successes down to exceptional teamwork. "From the beginning everyone rallied around to help get things going the way we wanted. My team's input was invaluable and throughout my tenure each and every person at the SAIW played his and her part to ensure that we met all our goals and achieved what we did".

Jim adds that South Africa has been great to him and his family. "I came to fill a job for which I didn't have any experience at double my salary. Within two months I got a 20% increase – from R450 per month up to R500. A month later I was called into the boss's office (Mr Gerntholtz) and I was told that I was being promoted. I thought this really was the land of milk and honey until he advised me that the promotion entailed nothing other than that I could now call him Paul!"

AECI was a great and steady job which allowed Linda and me to bring up our two children and really enjoy their childhood. Then the SAIW offered me endless opportunities to grow and develop the institute to the point that it now makes a great contribution to preparing young people for a career in welding and supports the welding industry in many ways. It has also given me exposure to the international welding industry and much as we may often doubt ourselves we punch well above our weight and, all in all, our industry has much to be proud of," Jim says.

Jim remains a member of the board of directors of the International Institute of Welding and is currently Chairman of the IIW International Authorisation Board which is the IIW body responsible for all IIW personnel training, qualification and certification systems. It is also the IIW body responsible for certification of quality systems of welding companies.

Jim has been married to Linda for just short of 40 years and they have two children, Laura (38) married and living in the UK with two children Grace and Blake and James (36) married and living in Sydney with two children Ambrose and Emerson.

Jim expressed his gratitude for this gesture of the SAISC. "Over the years I have worked closely with this important and professional industry institution and their recognition of my work is deeply meaningful to me."



FACT SHEET: Judges: 8; Associations represented: 7; Conveners: 2; LSF Observer: 1; Locations visited: KZN, Pretoria, Johannesburg, Cape Town, Klerksdorp, Carnavon, Nelspruit, Rustenburg; Projects visited: 28; Hours in Pajero to Carnavon: 24

#### Friedrich Strey of Strey Architects representing the SA Institute of Architects (SAIA)

Steel is... industrial but also luxurious: It can be used on mines and in art galleries.

Louis Breckenridge, Executive Director and representing the Constructional Engineering Association (CEA)

Steel is... the universal construction material.

Franco Mordini of Macsteel Tube and Pipe representing the Association of Steel Tube and Pipe Manufacturers of SA (ASTPM)

Steel is... the material of choice for the 21st century.

Johann Nel, Acting Secretary General and representing the SA Iron and Steel Institute (SAISI)

Steel is... magic, you can bend it, shape it any way you want it.

Dennis Nash retired and part-time consultant for Aurecon representing the Joint Structural Division (JSD)

Steel is... a pleasure to work with!

John Barnard, Director and observer on behalf of the Southern African Light Steel Frame Building Association (SASFA)

Steel is... green.

Colin Shaw, Executive Director and representing the Association of Steel Tube and Pipe Manufacturers of SA (ASTPM)

Steel... is a very versatile material and can easily be made fit for purpose.

Spencer Erling, Convener of the Steel Awards judging panel on behalf of the SAISC

Steel is... in my blood.

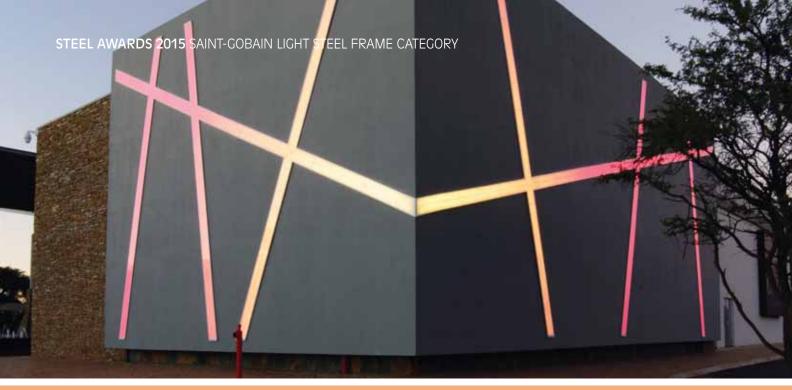
Andrew de Klerk of Everite, Group Five representing the Southern African Light Steel Frame Building Association (SASFA)

Steel is... accurate, clean, recyclable, strong yet sustainable.

John Truter of WSP | Parsons Brinckerhoff, Structures, Africa representing Consulting Engineers South Africa (CESA)

Steel is... the answer to any engineer's wildest dreams.





#### **COMMENDATION: SAINT-GOBAIN LIGHT STEEL FRAME CATEGORY**

## Kuruman Casino Facade

This is a great example of an ETICS facade, which product has been described as the future of architectural cladding.

Photographer: Japie Niemand Photography



The judges commended the Kuruman Casino project for its External Thermal Insulation Composite System otherwise called ETICS facade.

Architects and engineers have in the last few years recognised the insulating values and architectural flexibility offered by this system. This is illustrated by the number of ETICS entries received this year as well as previous years' winners and entries like the Deloitte Office Park in Pretoria and Cell C Head Office at the Allendale offramp on the N1 highway near Midrand.

The 300 square metre facade is supported on a light steel framed structure which was factory built. A sheath wall comprising OSB board is added to the frame. The external lining is a moisture barrier called Ecran membrane which is fixed to the sheath, followed by EPS insulation boards. The board is then primed and sealed with a decorative acrylic resin topcoat.

The external insulation results in a 'warm frame' which prevents condensation on the steel frame adding to the durability of the light steel frame structure.

ETICS provided the flexibility to create the intricate features of the architects' design with attractive durable finishes. For example the architects chose to run lights recessed diagonally (aptly named 'chop stix' by the contractor) into the

facade that would have been extremely difficult to achieve using other construction methods.

The multi-layered system was quickly completed in the last two months of the year.

This is a great example of an ETICS facade, which product has been described as the future of architectural cladding.

#### **PROJECT TEAM**

#### Client:

Kuruman Casino

#### Architect:

FFA Architects (Pty) Ltd

#### LSF Contractor:

Razorbill Properties 127 (Pty) Ltd

#### Structural Engineer:

Razorbill Properties 127 (Pty) Ltd

#### Detailer:

Razorbill Properties 127 (Pty) Ltd

#### **Cladding Erector:**

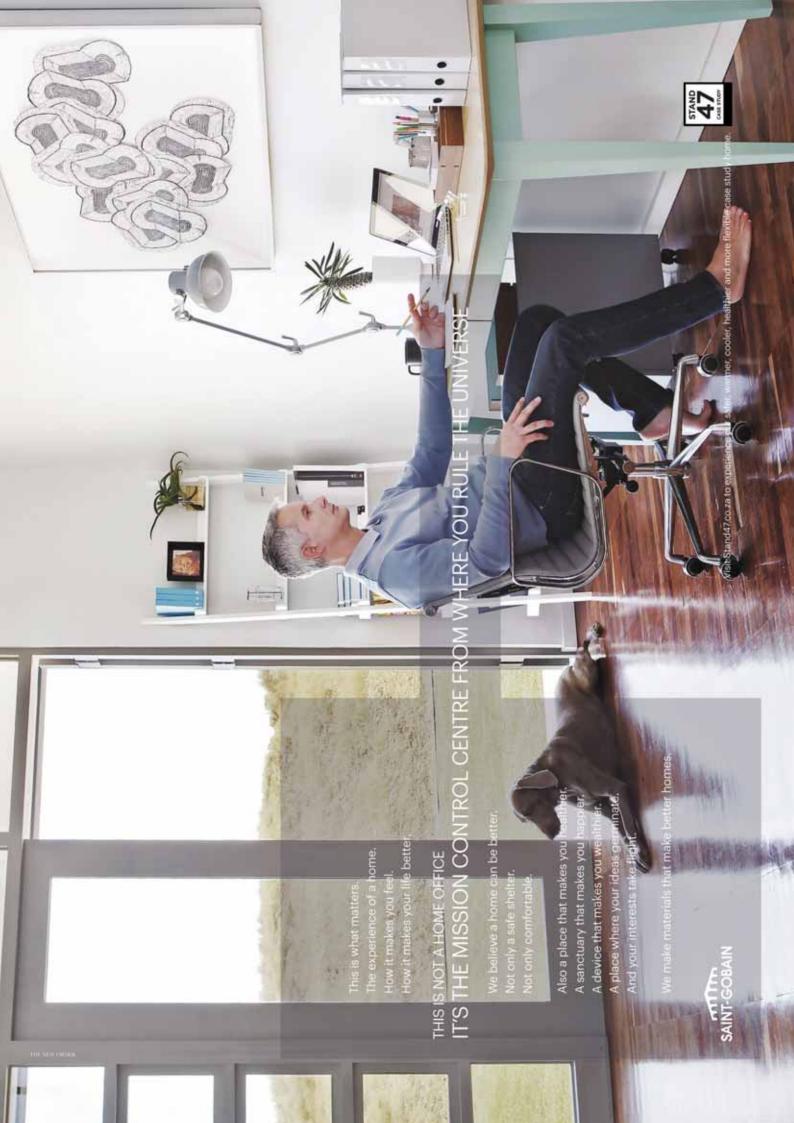
Razorbill Properties 127 (Pty) Ltd

#### Main Contractor:

W.F. Kroon

#### Cladding Supplier:

Saint-Gobain Weber SA



Copperleaf 1 STAND ALONE HOUSES

#### **PROJECT TEAM**

#### Client:

Mitchell Walker

#### Structural Engineer:

Silverline Group Engineering

#### **Quantity Surveyor:**

Silverline Group

#### Project Manager:

Silverline Group

#### Main Contractor:

Silverline Group

#### LSF Contractor:

Silverline Group

#### **Detailing Company:**

Silverline Group Engineering



#### **Anistemi Retirement Village (House 3735)**

**STAND ALONE HOUSES** 

#### PROJECT TEAM

#### Client

Central Bridge Trading 420 cc

#### Architect:

Architectural Studio

#### Structural Engineer:

Razorbill Properties 127 (Pty) Ltd

#### Project Manager:

Razorbill Properties 127 (Pty) Ltd

#### Main Contractor:

Razorbill Properties 127 (Pty) Ltd

#### LSF Contractor:

Razorbill Properties 127 (Pty) Ltd

#### **Detailing Company:**

Razorbill Properties 127 (Pty) Ltd

#### Cladding Supplier:

United Fibre Cement Company (Pty) Ltd

#### Cladding Erector:

Razorbill Properties 127 (Pty) Ltd



**Far Hills Estate STAND ALONE HOUSES** 

# **PROJECT TEAM**

# Client:

Eduard and Vida Hanekom

## Architect:

Michaal de Jager

# Structural Engineer:

Silverline Group Engineering

# Quantity Surveyor:

Silverline Group

## Project Manager:

Silverline Group

# Main Contractor:

Silverline Group

# LSF Contractor:

Silverline Group

# **Detailing Company:**

Silverline Group Engineering



#### **Smokey Grove STAND ALONE HOUSES**

# **PROJECT TEAM**

# Client:

Dale Jackson

# Architect:

KLG Architects

# Structural Engineer:

Silverline Group Engineering

# **Quantity Surveyor:**

Silverline Group

# Project Manager:

Silverline Group

# Main Contractor:

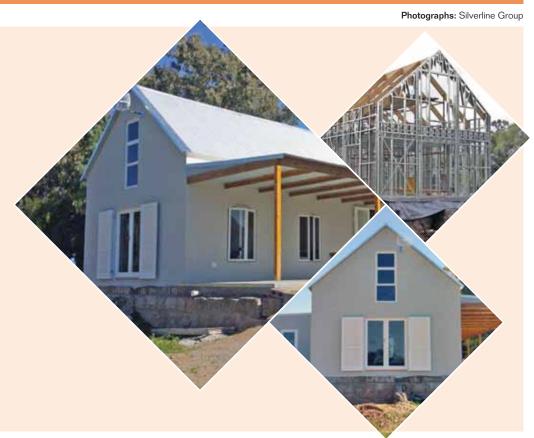
Silverline Group

# LSF Contractor:

Silverline Group

# **Detailing Company:**

Silverline Group Engineering



# Lady Pohanba Private Hospital, Windhoek

**ROOFS** 

# **PROJECT TEAM**

## Client:

Howard & Chamberlain Architects

#### Architect:

Howard & Chamberlain Architects

# **Quantity Surveyor:**

Hendrik Herselman

# Project Manager:

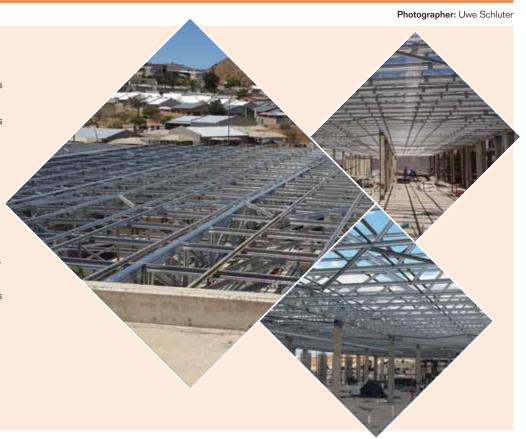
Hosman

## Main Contractor:

Stefanutti Stocks Construction (Namibia)

# LSF Contractor, Detailer, Supply of Profiles:

Ultra-Span LGS- MiTek Industries South Africa (Pty) Ltd



# **Riversands Incubation Hub, Diepsloot**

**ROOFS** 

# **PROJECT TEAM**

## Client

Century Property Developers

# Architect:

Century Property Developers

# Structural Engineer:

C-Plan Structural Engineers

# Quantity Surveyor and Project Manager:

Bain & Heyns Quantity

Surveyors and Project Managers

# Main Contractor:

GD Irons

# LSF Contractor, Detailer, Supply of Profiles:

Ultra-Span LGS- MiTek Industries South Africa (Pty) Ltd

# Cladding Supplier and Erector:

The Roofing Guarantee Company



# **Northgate Shopping Centre Extension**

**ETICS** 

Photographer: Herman Steynberg

# **PROJECT TEAM**

# Client:

Iguana Projects (Pty) Ltd

# Architect:

LPA Architects & Redevelopment Specialists

# Structural Engineer:

Razorbill Properties 127 (Pty) Ltd

# Project Manager:

Razorbill Properties 127 (Pty) Ltd

# Main Contractor:

Iguana Projects (Pty) Ltd

# LSF Contractor:

Razorbill Properties 127 (Pty) Ltd

# **Detailing Company:**

Razorbill Properties 127 (Pty) Ltd

# Cladding Supplier:

Saint-Gobain Weber SA

# Cladding Erector:

Razorbill Properties 127 (Pty) Ltd



**ETICS** 

# **PROJECT TEAM**

## Client

Neotrend (Summit Place) and Protea Hotels /

Marriot

## Architect:

Boogertman + Partners Architects,

Etienne De Beer Architects

(Fire & Ice)

# Structural Engineer:

Hage Project & Consulting

Engineers (Pty) Ltd

# Main Contractor:

GD Irons

# LSF Contractor:

Ohlhorst LBS

# Cladding Supplier:

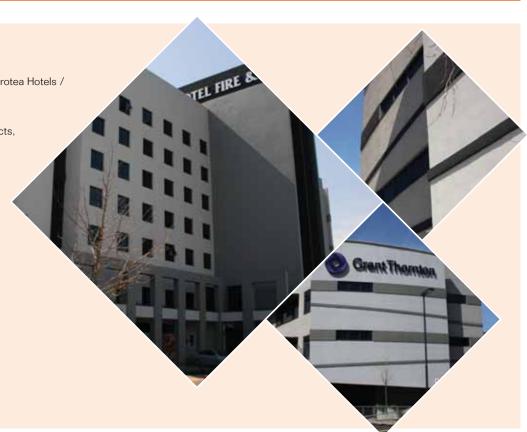
Weber St Gobain

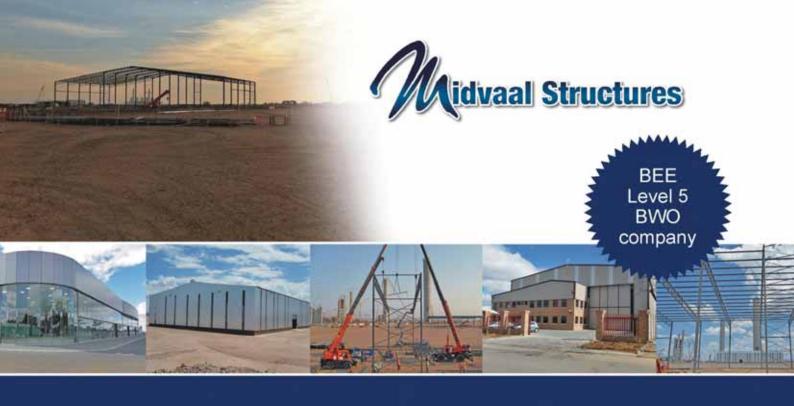
# Cladding Erector:

Ohlhorst LBS

# Light Steel Frame Supplier:

Clotan Steel





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# Sasol Chemcity - Incubation Facilities and Main Incubator Office Building

**ETICS** 

**PROJECT TEAM** 

Client:

Trencon Construction (Pty) Ltd

Architect:

Impendulo Design Architects

Main Contractor:

Trencon Construction (Pty) Ltd

LSF Contractor:

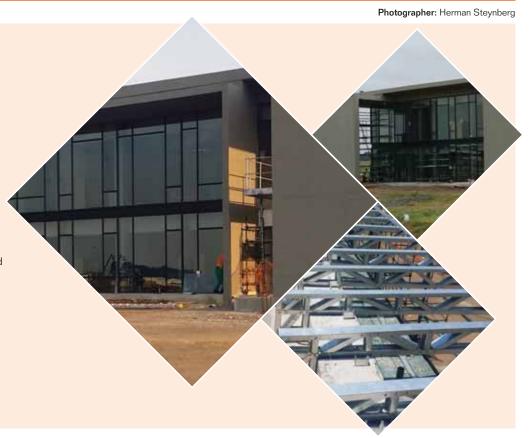
Razorbill Properties 127 (Pty) Ltd

Cladding Supplier:

Saint-Gobain Weber SA

Cladding Erector:

Razorbill Properties 127 (Pty) Ltd



# Sealtight Vaal – LWS Mini Warehouse

**COMMERCIAL PROJECTS** 



Client:

Sealtight Vaal (Johan Koekemoer)

Architect:

Simons & Lee Architects

Structural Engineer:

Donnic

Project Manager:

Ecoframe

Main Contractor:

Ecoframe

LSF Contractor:

Ecoframe

Detailing Company:

Ecoframe

Cladding Supplier:

Ecoframe

Cladding Erector:

Ecoframe

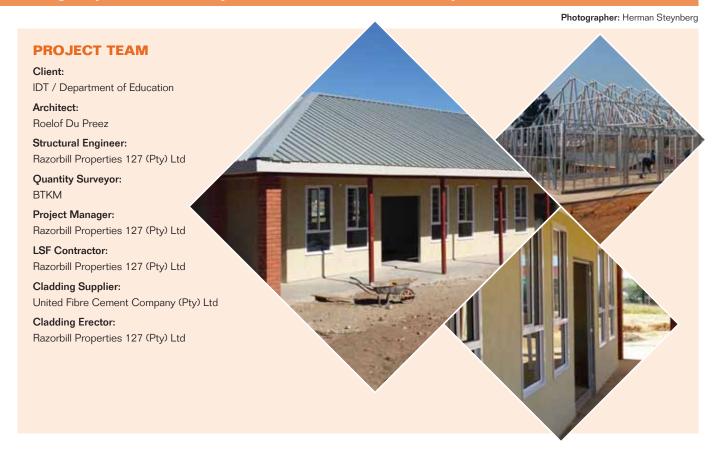
Foundation:

Melwic



# **Emergency ECDC – ACM Project : Nobuhle Junior Secondary School**

# **COMMERCIAL PROJECTS**







# **Commercial Entries by SILVERLINE GROUP**



# **PROJECT TEAM**

# Structural Engineer:

Silverline Group Engineering

# Quantity Surveyor:

Silverline Group

# Project Manager:

Silverline Group

# Main Contractor:

Silverline Group

# LSF Contractor:

Silverline Group

# **Detailing Company:**

Silverline Group Engineering

Photographs: Silverline Group



# **SA Army**

## Client:

SA Army Foundation

# Architect:

BASE Architects & Associates





# **Double & Treble Storey Entries by SILVERLINE GROUP**



# **PROJECT TEAM**

# Structural Engineer:

Silverline Group Engineering

# Quantity Surveyor:

Silverline Group

# Project Manager:

Silverline Group

## **Main Contractor:**

Silverline Group

# LSF Contractor:

Silverline Group

# **Detailing Company:**

Silverline Group Engineering

Photographs: Silverline Group



# **Langebaan Double Storey**

# Client:

Louis-Ras Joubert

# Architect:

Level 7 Architects





# **Double & Treble Storey Entries by SILVERLINE GROUP**



# **PROJECT TEAM**

Structural Engineer:

Silverline Group Engineering

Quantity Surveyor:

Silverline Group

Project Manager:

Silverline Group

Main Contractor:

Silverline Group

LSF Contractor:

Silverline Group

**Detailing Company:** 

Silverline Group Engineering

Photographs: Silverline Group





# **Upward Extension Entries by SILVERLINE GROUP**



# **PROJECT TEAM**

Structural Engineer:

Silverline Group Engineering

Quantity Surveyor:

Silverline Group

Project Manager:

Silverline Group

**Main Contractor:** 

Silverline Group

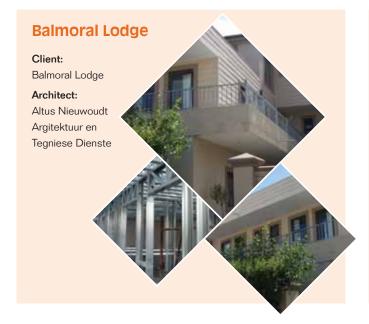
LSF Contractor:

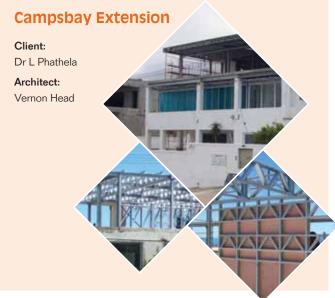
Silverline Group

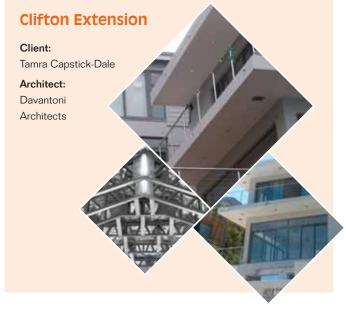
**Detailing Company:** 

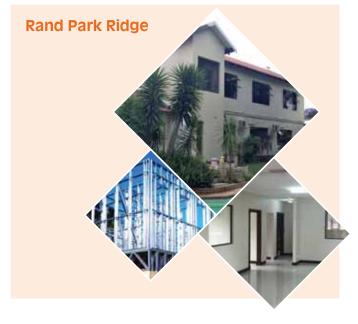
Silverline Group Engineering

Photographs: Silverline Group











# SAINT-GOBAIN CONSTRUCTION PRODUCTS SOUTH AFRICA (PTY) LTD

SAINT-GOBAIN

# Contact: Kerry Henning

Tel: +27 (0)12 657 2800 ♦ Fax: +27 (0) 11 252 6251 ♦ za.enquiries@saint-gobain.com ♦ www.saint-gobain.co.za

1 Shale Road, N1 Business Park, Cnr Old Johannesburg Road and Tlokwa Street, Kosmosdal ♦ PO Box 50416, Randjiesfontein, 1683

**Saint-Gobain**, the world leader in the habitat and construction markets, designs, manufactures and distributes building materials, providing innovative solutions to meet growing demand in emerging economies.

Since 1665, Saint-Gobain has consistently demonstrated its ability to invent products that improve quality of life.

As one of the top 100 industrial groups in the world, **Saint-Gobain** continues to deploy its technological know-how, often in partnership with the most prestigious universities and laboratories. To give an idea of our commitment to innovation, 20% of **Saint-Gobain** products did not exist five years ago. **Saint-Gobain** is among the 100 most innovative companies in the world according to the 2011, 2012 and 2013 Thompson Reuters Survey.

The **Saint-Gobain** construction products brands represented in South Africa include Gyproc, Isover, PAM and Weber. These provide system solutions incorporating plasterboard and gypsum plasters; glasswool and mineral wool for thermal and acoustic insulation; a variety of foam insulation products; ductile iron and cast iron products; wall, floor and pool finishes; and tile adhesives and grouts.

We believe that our commitment to the region extends beyond the products we provide. To this end, the Technical and Specifications Department of **Saint-Gobain South Africa** provides specialist expertise and resources to architects and specifying professionals in the industry. It also invests in skills development through the **Saint-Gobain** Academies.

Saint-Gobain prides itself on being a responsible business player that prioritises local investment. We see ourselves as a socio-economic organisation that contributes to local growth, is committed to finding solutions to major environmental challenges, and which eagerly takes on social issues.



**JOINT WINNER: SAINT-GOBAIN LIGHT STEEL FRAME CATEGORY** 

# House De Clercq and Cottage, **Mount Verde, KZN**

# Judges' Comment:

We have had many houses entered into Steel Awards since we started this category but surely this house has by far highlighted all those wonderful attributes that makes the LSFB product special.

Photographer: Barcode Media



Set in an agricultural estate, surrounded by sugar cane, cattle grazing and the like, the house is described as a perfect example of what light steel frame building methods are designed for. It does not look like a LSF house trying to look like a brick home. Early involvement of the contractor with the design team enabled them to push the limits of LSFB.

Even the industry strikes in July did not delay handing over the 900 square metre house as promised for by December 2014.

With a clever mix of a LSF system, with plated LSF beams and some hot rolled steel they were able to achieve the client's desire for an industrial look with thin sharp lines to produce a top-of-the-class beautiful up-market home.

# Some of the outstanding features:

Hot-rolled steel: Structural steel H-beam forms the structure of the centre living area, main facade and three patio areas.

A mono-pitch roof structure required 1 250m<sup>2</sup> of roof sheeting and necessitated varying beights of LSF walls.

Exposed LSFB construction, finished in black paint. Even in the double garage there is exposed LSF in its original galvanized finish with a light steel frame storage rack hanging off the roof - such a simple practical idea!

Large glazed openings to capture the stunning view. Glazing and opening sizes



No direct water or electrical supply was available for the first four months on site thus water tanks and generators were required. As LSF is a dry building system minimal water was required during this stage.

were a challenge as the client wanted maximum clear views and wide opening spans. Luckily this was achievable using a combination of doubling up LSF beams and plating them with 1,0mm galvanized sheet and L-headers.

Part of the feeling of 'openness' is an *indoor-outdoor Koi pond* with a glass shop front partly submerged into the water.

**Exterior wall cladding** was done with some flat fibre cement board with a fine

texture plaster finish and imported Shera plank tongue and groove. *Interior* walls were cladded with Gyproc 15mm Firestop boards and 102mm cavity batt insulation in the wall cavity.

And finally to complete this perfect picture of a stunning house and a spectacular view - a garden filled with *indigenous plants* and rock walls built from the rock found whilst levelling the site.

# **PROJECT TEAM**

#### Client

Kim and Paul De Clercq

## Architect:

Earth Energy Architecture

# Structural Engineer:

Martin & Associates

Project Manager, Main Contractor,

LSF Contractor and Cladding Erector:

Shospec (Pty) Ltd

# Steelwork Contractor:

Barnmaster

## **Detailing Company:**

Steel Frame Developments – (light steel frame roll former)/ Martin and Associates & Barnmaster

(for structual steel ) Cladding Supplier:

Capco

# Little Africa – Parys Farm House

**STAND ALONE HOUSES** 

# **PROJECT TEAM**

## Client

Michelle & Johan Huyser

# Architect:

De Raedt Designs

# Structural Engineer:

Donnic

# Project Manager:

Ecoframe

# Main Contractor:

Ecoframe

# LSF Contractor:

Ecoframe

# Detailing Company:

Ecoframe

# Cladding Supplier:

Ecoframe

# Cladding Erector:

Ecoframe

# Foundation:

Melwic



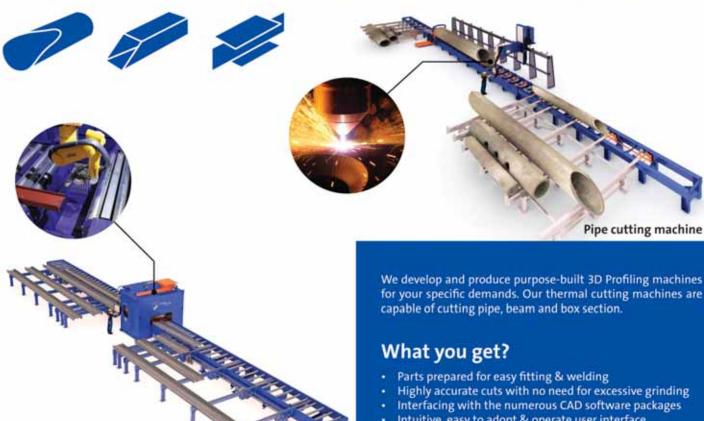


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# Local contact: RETECON (PTY) LTD

E: machines@retecon.co.za Johannesburg : +27 11 976 8600 Gape Town: +27 21 555 2270/1 Durban: +27 31 701 8149



**JOINT WINNER: SAINT-GOBAIN LIGHT STEEL FRAME CATEGORY** 

# **Mediclinic Midstream, Centurion**

# **Judges' Comment:**

This project illustrates all the beneficial aspects of steel – formability, guaranteed high strength, low mass, straight and true elements, narrow tolerances, ease of transport, handling and erection, with life-long corrosion protection supplied by the thin zinc coating.

And to top it all – the cost of the light steel roof structure was 50% lower than timber trusses!

Photographer: Uwe Schluter



It is a pity that the patients can't appreciate the light steel roof structure of the Mediclinic Midstream in Centurion. Nevertheless the story is an excellent advertisement for light steel frame roofing.

Due to the early involvement of the LSF contractor and profile supplier, the architect was convinced that the design should include a LSF roof structure to reduce the total load effect on the supporting structure.

The Ultra-Span (a pre-fabricated light gauge steel roof truss system) roof structure covered 9 100 square metres of the roof and weighed in at almost 45 tons of steel. This comes to just below 11 kilograms per square metre which is very light considering some of the roof trusses span 19 metres with considerable live load requirements. The design allowed for supporting 100mm thick FBI insulation between the truss top chords and the purlins.

The large span-deep Ultra-Span trusses were assembled on site eliminating transport problems of the large components (smaller units were assembled in the factory).

Four of these large trusses were assembled into braced roof sections before hoisting them into position by the site tower cranes. This combined process ensured overall





# LIGHT GAUGE STEEL

The low mass per m2 (between 2-10kg) of this roofing system ensures both savings on the supporting structure as well as on transportation and erection costs whilst also being vermin proof and non-combustible.

Large sections of the roof can simply be pre-assembled on the ground and hoisted into position on the walls – making this one of the most viable systems with a large range of applications up to a clear span of 40m.

Supported through a substantial network of licensed truss suppliers, Ultra-Span is equally ideal for all local and export applications where it can be pre-assembled or site assembled.



creating the advantage

# The non-combustible solution.









completion in just five months despite the weather's best efforts to interfere.

## Judges' comment

This project illustrates all the beneficial aspects of steel - formability, guaranteed high strength, low mass, straight and true elements, narrow tolerances, ease of transport, handling and erection, with lifelong corrosion protection supplied by the thin zinc coating. And to top it all - the cost of the light steel roof structure was 50% lower than timber trusses, and 30% lower than what welded heavy steel trusses would have cost!

No wonder that the use of light steel roof structures such as Ultra Span is growing rapidly, replacing timber, and even competing with heavy steelwork in certain cases!



Main Contractor:

**Detailer, Supply of Profiles:** Ultra-Span LGS- MiTek Industries

Ultra-Span LGS- MiTek Industries

South Africa (Pty) Ltd

South Africa (Pty) Ltd

**Cladding Contractor:** 

Rainbow Sheeting

LSF Contractor:

Hi-Tech Nail

Basil Read

# **St Peters College Auditorium**

# **PROJECT TEAM**

# Client:

St. Peters College

# Architect:

Roger Davies Architects

# Structural Engineer:

ADA Consulting Engineers

# Quantity Surveyor:

Hamlyn Gebhardt

## Main Contractor:

Mand M Construction (Pty) Ltd

# Steelwork Contractor:

Nancy Engineering

# Cladding Supplier:

Global Roofing Solutions



# Rosebank Mall Upgrade

# **PROJECT TEAM**

MDSA Leasing Agents

# Architect:

MDS Architecture

# **Principal Agent:**

MDS Architecture

# Structural Engineer:

D.G. Consulting

# Quantity Surveyor:

Norval Wentzel Steinberg

# Main Contractor:

WBHO Construction (Pty) Ltd

# **Detailing Company:**

DG Consulting

# Cladding Supplier:

Macsteel Roofing

# Cladding Erector:

The Roofing Guarantee Company

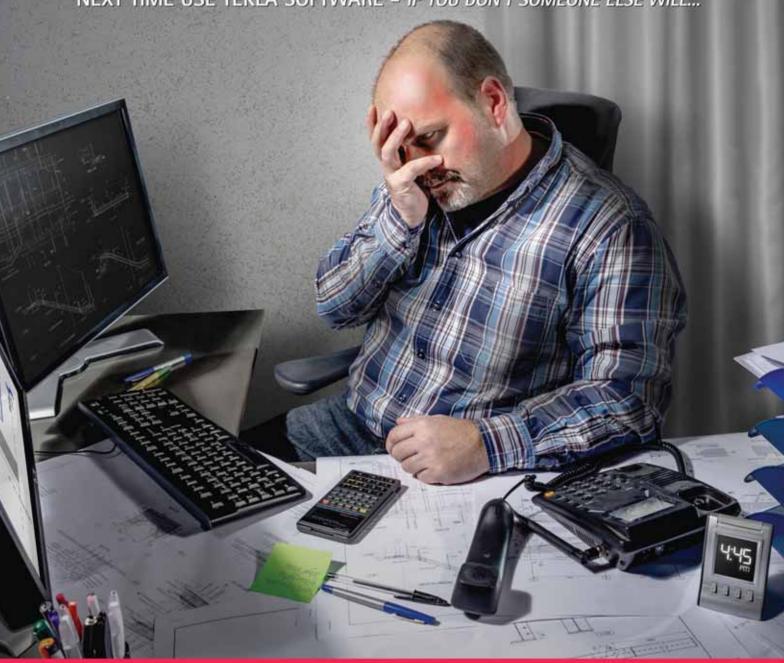


# THAT FEELING...

...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. 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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# **Covenant Fellowship Church International (CFCI)**



# Warehouse Upgrade Kumba



# Cell C Warehouse Midrand - Cladding









# **GLOBAL ROOFING SOLUTIONS**

# Contact: Lyle Jeffery

Tel: +27 (0)11 898 2900 ◆ Fax: +27 (0)11-892 1455 ◆ Lyle@globalroofs.co.za www.globalroofs.co.za ◆ Cnr Tile Road & Paul Smit Street, Boksburg North, 1461



Global Roofing Solutions (GRS) is a leading South African metal roofing manufacturing company, comprising two entities, Brownbuilt and HH Robertson, both with track records that extend over six decades.

In 1977 GRS introduced the first mobile rolling mills in SA and today the company continues to lead the field in the mobile mill arena. GRS's mobile mills are the most sophisticated of their kind in Southern Africa. This was followed in 1999 by a world record when it rolled a 136m long single sheet of its Klip-Lok 406 profile. Innovation milestones have continued: the company holds several patents, including the now generically-known 'inverted box rib' (IBR) profile, and was the first manufacturer to offer the unique embossing feature on its sheeting.

GRS's sustained success is based on its proven product range, combined with a service commitment to deliver the exceptional. Quality products, including leading brands Klip-Tite™; Klip-Lok™; Brownbuilt™, Zip-Tek, and Nu-Rib 762, are supplied for projects ranging from low-cost housing through to multi-million rand shopping centre developments. GRS also manufactures composite steel floor decking (permanent shuttering) profiles, as well as metal roof tiles.

GRS's expanding footprint includes fully-equipped manufacturing operations in major centres across South Africa, along with established facilities in five other African countries. This positions GRS as the ideal roofing solutions partner on all major commercial building, entertainment and residential projects in Sub-Saharan Africa.



**WINNER: GRS METAL CLADDING CATEGORY** 

# **Cladding for Multichoice City**

This category is set to grow as cladding becomes more and more sophisticated and architects see it as an expression of their creative vision. This is clearly visible in the Winner of the Metal Cladding Category – Multichoice City.

The underslung cladding to the peak cap feature on the new Multichoice City must be one of the most visible cladding solutions passed by thousands of commuters daily.

Hanging underslung cladding is a process not for the feint hearted. It is exceptionally difficult to do well especially with hidden fixing type cladding used on this project. The Brownbuilt material for the cladding design was mounted using the unique H9 clip.

The cladding is to a 12 metre cantilever which follows its structural shape requirements tapering from width at the support end to a narrow tip. Understandably, the installation procedure was a challenge due to the length of the sheet and the fact that the underslung design demands few or no blemishes. The curved end detail succeeds in making the extremely narrow tip edge of the cantilever the important feature it has become to finishing this daring architecture.

Specialised flashings were incorporated on the edges of the canopy between the roof and the underslung sheets, these flashing had a unique individual radius due to the complex design. Klip-Lok 700 was used on the roof, which was suited to its low pitch.

The cladding completes the stunning architecture of this building – also the winner of the... (yes, you guessed it!)



# **PROJECT TEAM**

# Client:

Multichoice

Multichoice Support Service

# Architect:

**GLH** and Associates Architects

# Structural Engineer:

Pure Consulting

## Quantity Surveyor:

BTK Pretoria Inc

## Project Manager:

M Studio consulting

# Main Contractor:

Group Five

# Steelwork Contractor, Detailing

# Company:

Tass Engineering (Pty) Ltd

## Cladding Supplier:

Global Roofing Solutions

# Cladding Erector:

Cladco Projects

# There is no approved or equivalent

# No other product has this performance! KLIP-TITE - ONLY FROM GRS

Developed through continuous in-house testing of Klip-Lok 700, it was evident that failures occurred due to deflection of the pan during high wind loads causing the sheets to disengage. The following improvements were thus developed:

- Transverse stiffeners were introduced in the pan, to achieve a balanced system design.
- Transverse stiffeners reduce the deflection of the pan, increasing the wind uplift resistance.
- The ultimate wind-uplift resistance of Klip-Tite exceeds expectations.
- Klip-Tite has retained the superb properties normally associated with Klip-Lok 700.
- Transverse stiffeners are a first in the South African sheeting market.

Talk to us, The Smart Roof People on 011 898 2900 or visit www.globalroofs.co.za or email info@globalroofs.co.za

Delivering the Exceptional











# ArcelorMittal South Africa Recent product developments







Increased longevity



Environmental awareness



Infrastructure development



Transport efficiency

# Heavier plates

Our recently upgraded plate mill's production range expanded to even heavier steel plates for the wind tower industry, which is applicable for the renewable energy sector, amongst others.

# Chromadek Ultim

Intended for heavy industrial or marine conditions.

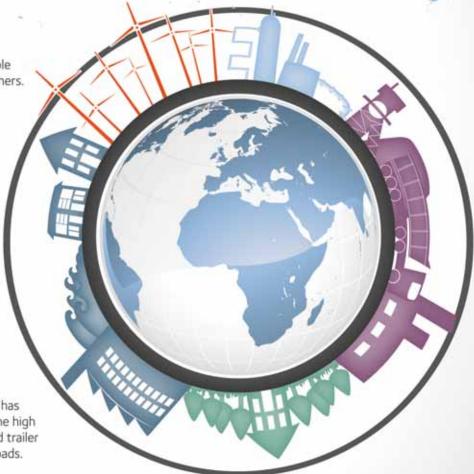
# Chrome free Chromadek and Chromadek Ultim

Chrome free: Increasing environmental sustainability by reducing hazardous substances that may find its way into the environment.

# Wider hot rolled coil

A recent side guide redesign now enables the mill to accomodate a maximum width of 1935mm, which is ordered as 1925mm.

S700MC High strength hot rolled coil
ArcelorMittal South Africa's Supraform range has
been extended from 550MPa to 700MPa. The high
strength material – primarily for the truck and trailer
industry – can accommodate increased pay loads.



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Contact: Kara Jansen van Vuuren

Tel: +27 (0)16 889 4110 Fax: +27 (0)16 889 3487 PO Box 2, Vanderbijlpark, 1900 kara.jansenvanvuuren@arcelormittal.com www.arcelormittal.com/southafrica/

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# ArcelorMittal focused to keep transforming tomorrow

It is with confidence and pride that **ArcelorMittal South Africa** shares its latest product developments. Despite tough seasons and challenging day-to-days, we still work together at becoming an ever-growing innovative manufacturer at the service of its most important stakeholders, our customers.

Product developments and product range expansions are a cardinal tool to transforming tomorrow. A major drive behind the plate mill upgrade was to contribute to a sustainable future. By supplying even heavier steel plates, we show that we realise our country's increased reliance on renewable energy, and that we take contributive action.

The fact that we need nature way more than nature needs us is another realisation that allowed chrome-free thinking to manifest in how Chromadek® is manufactured. Know that your choice to buy Chromadek® or Chromadek Ultim® is a responsible and future-minded one. Those that hold tomorrow, count on our green choices today.

Furthermore, there were also new developments on our most common product, hot rolled coil. A recent side guide redesign now enables the mill to accommodate a maximum width of 1 935mm, which is ordered as

1 925mm. The Supraform® range has also been extended from 550MPa to 700MPa. The choice to use a high strength material that can accommodate increased pay loads when manufacturing a truck's trailer, results in more efficient transporting for the customer you supply to.

**ArcelorMittal South Africa** is proudly South African and pledge to work tirelessly, to strive to offer high-quality products and to never stop transforming.

# EVRAZ HIGHVELD STEEL & VANADIUM



Contact: Robert Martin

Tel: + 27 (0)11 663 0284 robertm@evrazhighveld.co.za www.evrazhighveld.co.za

**EVRAZ Highveld Steel & Vanadium** is a vertically integrated iron ore, steel and vanadium slag producer. Titaniferous magnetite ore is mined at the Mapochs Mine at Roossenekal in Limpopo for the production of vanadium-bearing slag, iron and steel products at the steelworks, based at our headquarters, at eMalahleni, Mpumalanga.

Since its initial establishment in 1960 and the commencement of production in 1964, EVRAZ Highveld's group profile has undergone various changes. In 2007, EVRAZ Highveld became part of the EVRAZ Group S.A., one of the world's largest vertically integrated steel and mining businesses with

operations in Russia, Ukraine, USA, Canada, Italy, Czech Republic and South Africa, and whose shares were listed on the FTSE100 during 2011.

EVRAZ Highveld is a global leader in vanadium feedstock production, which is marketed locally and into the European market through Hochvanadium Holdings AG, a wholly-owned Austrian-based subsidiary. The company is the second largest steel producer in South Africa and the primary producer of medium and heavy structural sections and ultra-thick plate for the local and global markets.

# GENREC ENGINEERING

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# Genrec

**Fabricating Innovative Steel Solutions** 

Contact: Paul Heyns, New Business Development & Sales Executive

Tel: +27 (0)11 876 2322 Fax: +27 (0)86 765 0363 Private Bag X035, Wadeville, 1422 paul.heyn@murrob.com www.genreceng.co.za

# Fabricating innovative steel solutions

Since it was formed over sixty years ago, Genrec Engineering has expanded services, grown its client base, and become a well-known and highly respected enterprise.

The company's core values - honesty, integrity, accountability, care, respect and Ubuntu (humanity to others) help the business to not only maintain its ongoing success, but guide it towards the future.

As a respected steel fabricator and contractor, the company has worked on numerous infrastructure projects across a range of markets. Genrec specialises in the manufacture of structures and equipment for its diversified industry sectors which include: power generation, mining, petrochemical, mineral beneficiation, infrastructure, oil and gas, and industrial.

Genrec prides itself on its pivotal role as a global partner in steel fabrication and heavy machining. The company has taken on numerous projects for clients in countries across the globe, such as Dubai, Canada, Chile, Mozambique, Tanzania, Mauritania, Zambia, Oatar and Abu Dhabi and has earned a reputation as an internationally recognised and highly respected professional steel fabricator.

Rather than deal with separate companies, clients are able to facilitate all aspects of their projects through Genrec as services include: total project management, design and detailing, light, medium and heavy

structural fabrication, planning and programming, heavy machining, painting, trial and pre-assembly, transport, steel erection, site, logistics, surveying and QC services.

Genrec's facility encompasses over 55 000 square metres of covered workshops along with open areas, spanning 19 500 square metres. The plant is equipped with the latest systems, CNC equipment, welding process and high-volume blasting and painting resources.

# NJR STEEL



Contact: Colin Chapman

Tel: +27 (0)11 477 5515 Fax: +27 (0)11 477 5550 PO Box 58337, Newville, 2114 cchapman@njrsteel.co.za www.njrsteel.co.za

Since 1980 NJR Steel Holdings (Pty) Ltd has grown from strength to strength by continuously enhancing our product range and capacity. NJR Steel currently operates seven manufacturing businesses and our products are distributed through seventeen NJR Steel trading branches, strategically located across five provinces. Our NJR Steel Export business services our customers in Africa.



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Selected industries that NJR supply steel to, include fabrication; construction; mining; security; civils; merchants; profiling; transport; low cost housing; DIY and farming. These are continuously expanding as a result of new products being stocked.

NJR's manufacturing divisions include:

- NJR Steel Fencing now stock and distribute our De-Fence range of fencing solutions offering the market 'the new alternative' when specifying or selecting security fencing products and services. This aesthetically pleasing product is also being stocked and offered through our branch network, direct to the public.
- NJR Steel Mesh has the capacity to draw, straighten and cut to size, indented and smooth rod in various sizes, and produce welded mesh in either sheets or rolls, and customised sheets on request.
- NJR Steel Wantsteel, our Palisade division has new fully automated machinery which has allowed us to expand our range, increasing our capacity.
- NJR Steel-Reinforcing, situated in North Riding, is a high-tech world class, cut-and-bend facility which has enabled us to penetrate the reinforcing market.
- NJR Steel Paint manufactures light industrial, domestic, contractor and decorative paint for the construction and retail market, from our factory in Marlboro.

The group also has de-coiling and roofing lines which allow us to roll corrugated, IBR and Widespan in various thicknesses of galvanized and Chromadek products to size.

NJR Steel's geographical footprint and extensive product offering, continues to give us a strategic advantage over our competitors.

# MACSTEEL - AFRICA'S **LEADING STEEL SUPPLIER**



Contact: Dave Dawkshas, Group Executive: Marketing & Sales

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With a proud history spanning more than 110 years, Macsteel Service Centres SA continues to develop and expand, reinforcing its position as the leading merchandiser and distributor of steel and value added steel products in Africa.

Consisting of nine dynamic Business Units and operating from a network of 79 service centres, branches and warehouses, Macsteel supplies the entire Sub Saharan geographic region with the full range of carbon steel, special steel, stainless steel, aluminium products and value added steel processes to all sectors of industry.

Macsteel's extensive stockholding, comprehensive product range and superb infrastructure combined with its technical competencies and continuous improvement initiatives, enhances its status as the preeminent supplier of steel products to a vast customer base bearing testimony to their unwavering confidence in the future of the steel industry in South Africa and Africa as a whole.

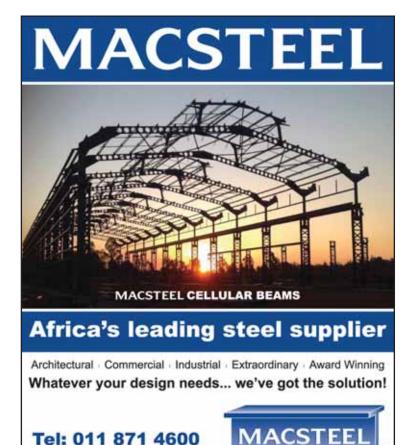
Macsteel invites YOU to test their mettle and forge an enduring partnership with them as YOUR preferred steel supplier of choice!

Contact: Dave Dawkshas, Group Executive: Marketing & Sales

Tel: +27 (0)11 871 0000 Fax: +27 (0) 11 823 3860

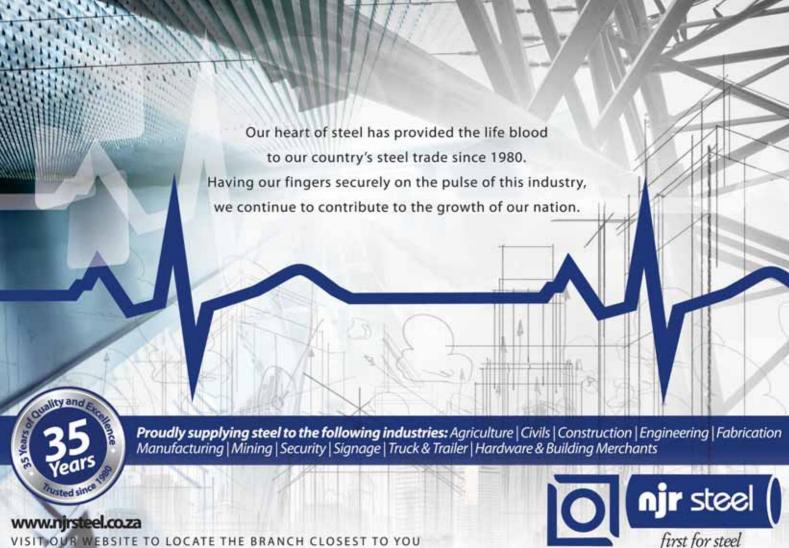
PO Box 7729, Johannesburg, 2000 7 Brook Road, Lilianton, Boksburg

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TRADING







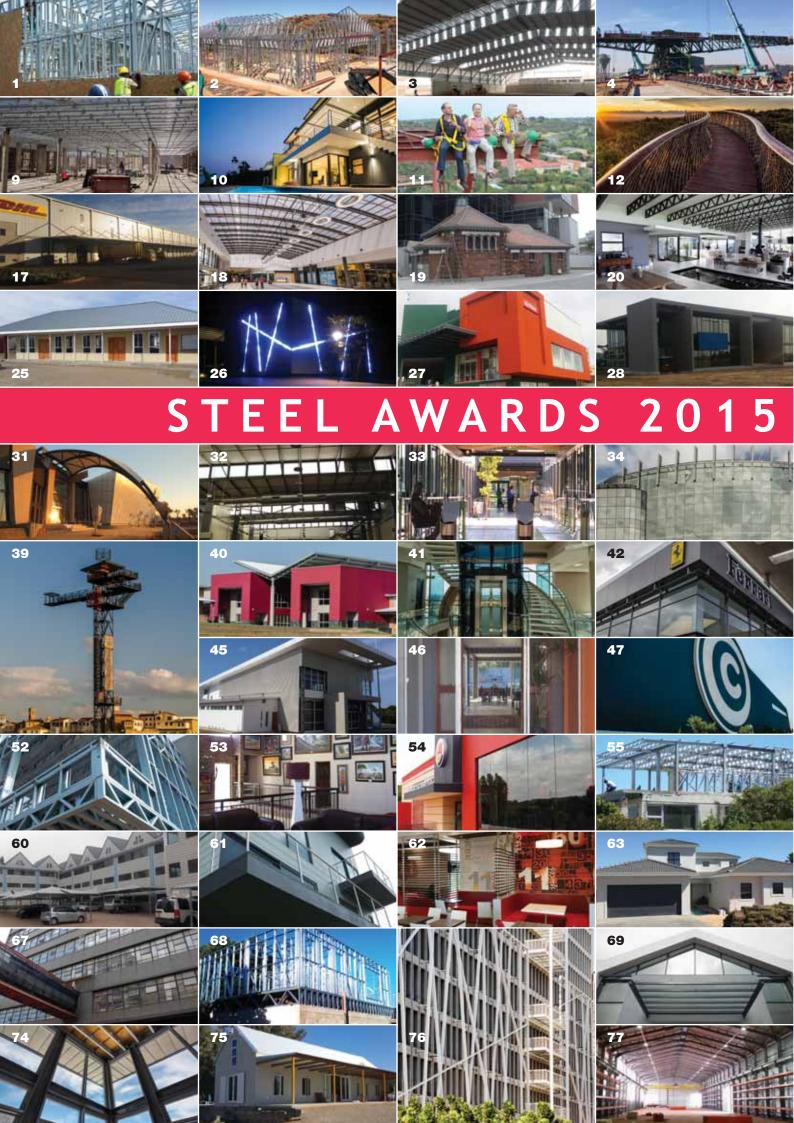
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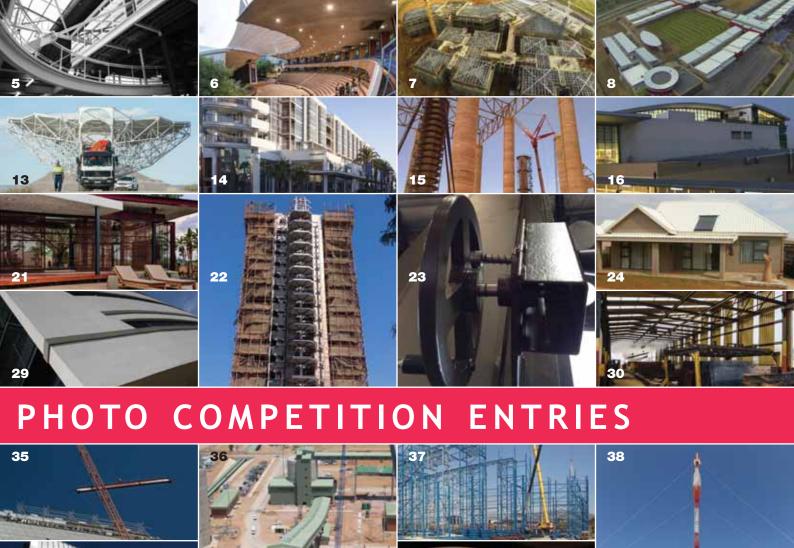
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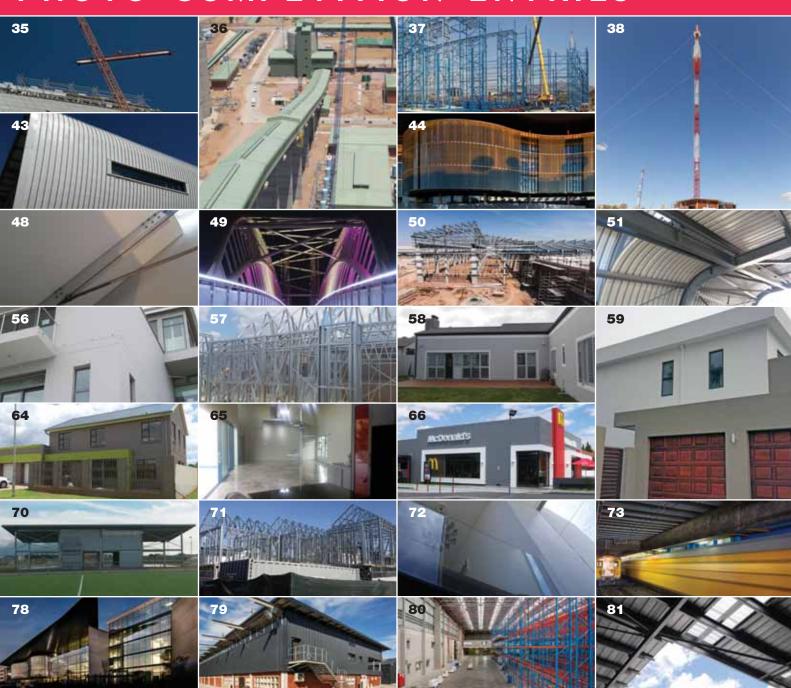


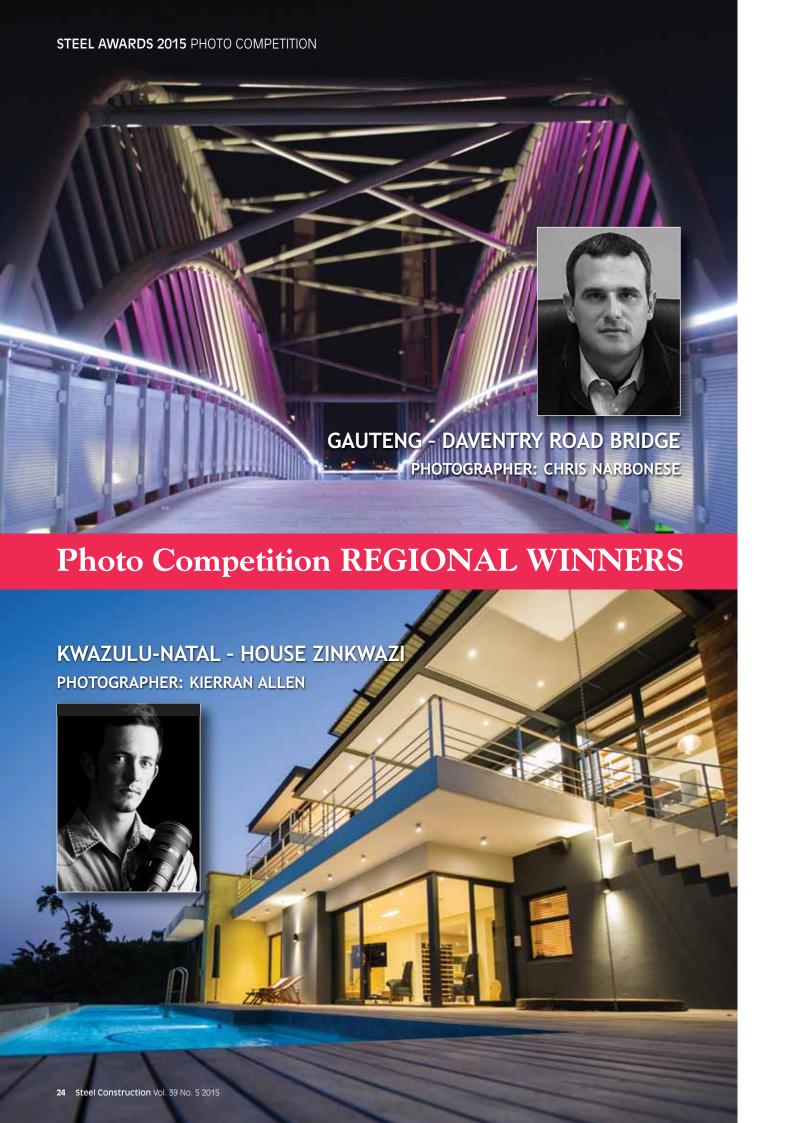












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It is the most advanced and integrated way to manage the shop-detailing, fabrication and erection of all steel structures. Tekla Structures is a model based system that reduces errors, increases productivity, and provides the highest levels of automation of fabrication and project management by interfacing with MIS and with CNC machinery.

Tekla Structures BIM software provides an accurate, detailed, and data rich 3D environment that can be shared by structural engineers, architects, concrete rebar detailers, steel detailers, steel fabricators, project managers and clients. At every stage the detailed models enable the highest level of constructability and production control.

The Software Maintenance Agreement benefits users by providing them with support, upgrades and fast efficient help when required. Local first level technical support is provided by experienced professionals, with years of industry experience, who assist all levels of users. Users on maintenance get access to the Tekla User Account. This includes online help, an experienced and helpful online user community, the Tekla Warehouse and access to the latest software releases.

Cadex SA, Tekla's regional reseller, brings more than 60 years of experience in the Southern African steel construction industry to their clients.

Visit www.tekla.com for details about more configurations and tools.

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# PHOTO COMPETITION ENTRIES

- Sealtight Vaal
- Little Africa
- 208 Gale Street
- **Tweefontein Stackers**
- **UP Amfi Roof Structure**
- Mediclinic Midstream
- Riversands Incubation Hub
- 9 Lady Pohamba Hospital
- 10 House Zinkwazi
- 11 The Edge Restaurant
- 12 Kirstenbosch Centenary Tree Canopy Walkway
- 13 SKA Africa Radio Antenna Positioner - BUS
- 14 Breakwater Apartments
- Medupi Power Station -ACC
- 16 Comair Slow Lounge CTIA
- 17 DHL Supply Chain
- 18 Matlosana Mall
- 19 Newtown Junction
- House De Clercq KZN
- **New Gym and Entertainment** Area

- 22 Society House Hotel Upgrade
- 23 Anglo American Cel
- 24 Anistemi Retirement Village
- 25 Nobuhle School
- 26 Kuruman Casino Facade
- 27 Northgate Extension
- 28 Sasol Chemcity Incubation
- 29 Summit Place & Fire & Ice
- 30 ARMCO Galvanizers Boksburg
- 31 Forest Hill City
- 32 Porsche Pretoria Centre
- 33 Tshwane Rapid Transit
- 34 Sandton City Atrium on 5th
- 35 Steel Spire Sandton Tower
- 36 Medupi Coal & Ash
- 37 Ferrochrome Furnaces **Factory**
- 38 Sentech Masts
- 39 Pineslopes Bunjee Tower

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- Steyn City Gatehouse William Nicol Showroom
- 43 St Peters College Auditorium
- 44 Multichoice City Cladding
- 45 Covenant Fellowship Church
- 46 House De Clercq Cape Town
- 47 Cell C Warehouse
- 48 House Molenaar
- 49 Daventry Road Bridge
- MAN Diesel and Turbo
- 51 Buscor Whiteriver Bus **Terminus**
- 52 House Badenhorst
- 53 Balmoral Lodge
- 54 Burger King Norwood
- 55 Campsbay Extension
- 56 Clifton Extension
- 57 Copperleaf 1
- Far Hills Estate
- Fresnaye Double Storey
- **Hartenbos Apartment** Revamp

- 61 Houtbay Harbour House
- 62 KFC Umtata
- 63 Langebaan Double Storey
- 65 Lynwood
- 66 McDonald's
- 67 Mooi City
- 68 Rand Park Ridge
- 69 SA Army
- 70 Valhalla Park
- 71 Waterfall Estate JHB
- 72 Fresnaye Three Storey
- 73 Parade Infill Deck CT Station
- 74 Roeland Park Office
- 75 Smokey Grove
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<sup>\*</sup> B&T is fully BEE compliant and a member of the South African Institute of Steel Construction (SAISC). the International Steel Fabricators Council (ISF) and the Gauteng Master Builder Association.



#### PHOTOGRAPHER: ADAM HARROWER - Bio

I'm a senior botanical horticulturist at Kirstenbosch National Botanical Gardens where I've worked for the past 14 years. I achieved my BSc at UCT and continued my training at the Royal Botanic Gardens at Kew, London. I currently manage the area of Kirstenbosch in which the Boomslang has been built, namely the enchanted forest.

Photography is hobby of mine but also an integral part of my work documenting plants in the wild. Being able to photographically document the Boomslang as it was being built was a superb opportunity to market the walkway in the social media which in turn generated a lot of hype even before the project had reached completion.



#### Last year's winner Stephen O'Raw, comments...

"A successful architectural photograph requires a number of potentially disparate elements to come together, something the photographer has done very well with this image.

It is important to show both the detail and the context of the architecture, a difficult thing to do and for which the photographer should be particularly commended in this case.

The sinuous lines of the walkway lead the viewer's eye into the frame before revealing the natural beauty of the setting. The details of the steelwork take their rightful place as a dominant element, an element that is shown off by the colours and textures flowing from a good choice of time of day and light. The image shows mastery by the photographer of the technical elements of making an image with such extremes of contrast and focus depth.

A worthy winner of the Steel Awards 2015 Photo Competition."



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**COMMENDATION: RESIDENTIAL CATEGORY** 

# House De Clercq, Cape Town

### From the project entry motivation by Dr Hennie de Clercq

A structure consisting of I-section beams and columns enables the open plan and the cantilever 'stoep', while carrying most of the storey above. Much attention was given to the details and finishes of this structure as it constitutes a key architectural feature.

The judges felt that the home of none other than Hennie, retired CEO of the SAISC, and Helena de Clercq was worthy of a commendation.

The key notion behind the house is that of outside living, with 'outside' incorporating essentially everything on the ground floor, with as few boundaries as possible.

Thus the single, large living room, encompassing the kitchen, dining and lounge area, opens to the patio on the one side and onto a wide 'stoep' without columns on the other, bordering on the fynbos garden.

A structure consisting of I-section beams and columns enables the open plan and the

cantilever 'stoep', while carrying most of the storey above. Much attention was given to the details and finishes of this structure as it constitutes a key architectural feature.

Just as the ground floor is intended to be as open as possible, so the first floor, containing the bedrooms and study area, is intended to be a safe, warm refuge. The floor structure is made of cold-formed lipped channels and the walls and roof of light steel frame construction. The roofs are clad with concealed fix sheeting.

The balustrade of the staircase is made of 4.5mm thick steel plate, unpainted, supporting the wooden handrail. The two parts of the face of the house facing the street, on first floor level, were covered with 2mm thick steel sheet, consisting of unpainted CQ. These sheets have now rusted to a rustic, reddish-brown colour.



#### **PROJECT TEAM**

Dr and Mrs H. de Clercq

#### Architect:

Mrs Debbie Preller

Structural Engineer:

By Design

**Project Manager:** 

Owner

#### Steelwork Contractor:

Union Structural Engineering Works (Pty) Ltd



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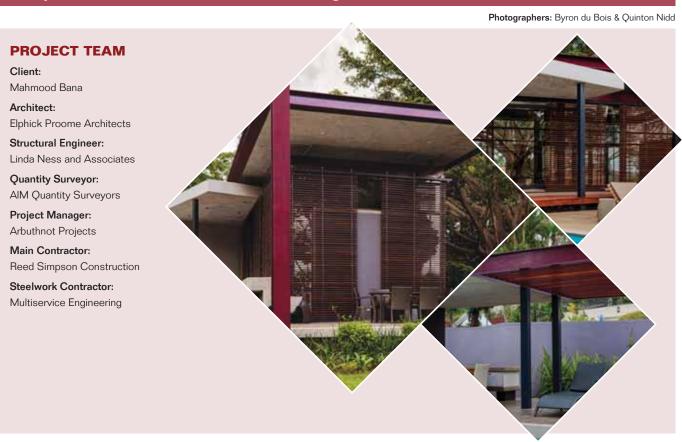
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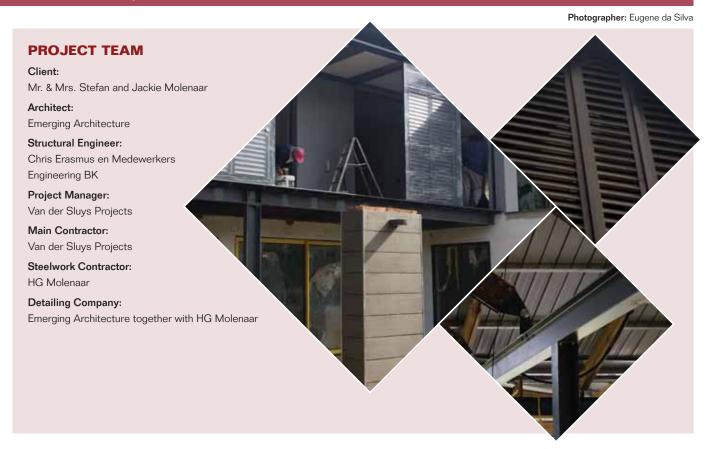
#### **Breakwater Apartments**



#### New Gym and Entertainment Area for Existing Residence

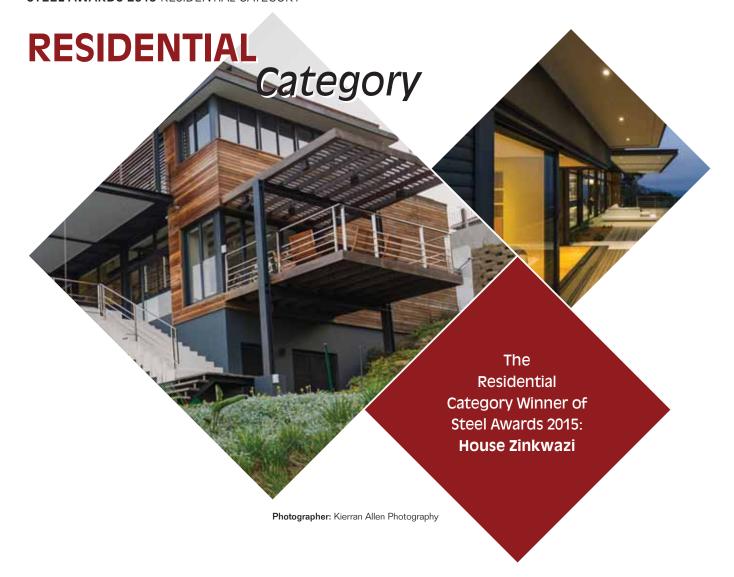


#### **House Molenaar, Paarl**





# Mondo Cané structural steel detailing & design services



#### **WINNER: RESIDENTIAL CATEGORY**

# House Zinkwazi

### From the project entry motivation by Rob Young, Young + Satharia

#### Judges' Comment:

It was an absolute pleasure to go and have a look at this home.

Even more of a pleasure was to see first-hand the innovative, yet functional use of steel - finished off by some skilled and very neat fabrication.

A great example of what can be achieved using our material of choice.

Paul Simson, Chairman, SAISC KZN Regional Committee

Located on the steep eastward facing slopes above the beach, this gem has unimpeded views from the living spaces using glass window walls framed by an exposed structural steel structure.

The expression of this building is derived directly from its usage requirements enclosed spaces are built in concrete and masonry and open or transparent spaces are constructed from steel and glass. These functionally focussed structural systems define the aesthetic language of the building.

Due to the steepness of the site, with an average slope of one in three, the challenge to construct the house influenced the building system. The foundations comprised continuous flight auger concrete piles into the sandy soils under a reinforced concrete sub-structure. Access was only possible from the vacant adjacent site by means of earthwork terraces. The structural steelwork frame was erected by a purpose-made lift frame,



due to the access road being some ten metres above the floor level.

The proximity to the coast required careful attention to the coating of the steel. It was therefore decided to use steel with a high specification duplex paint coating system. The balustrades are fabricated from stainless steel.

It is designed to be almost self-sufficient in terms of electricity and water supply.

- Rainwater is stored in a 20 000 litre tank under the driveway, filtered and pumped to the house.
- Photo-voltaic solar panels mounted on the roof charge a bank of batteries connected to an invertor system.
- · Water is heated by solar collectors and

a heat exchanger.

- The pool water is heated with a thermal blanket preventing heat loss.
- Passive shading devices provide protection to the glazing from the sun.
- The re-cycle-ability of structural steel also contributes to the green building philosophy.

Due to the slenderness of the structure and the architectural requirements necessitating all connections to be visible within the living area, careful attention was given to the design of all connecting and bracing elements. This required close co-operation at the design stage between architect and engineer. As a result the architecture and structural detailing were inter-dependent leading to the uniqueness of this winner.

#### **PROJECT TEAM**

#### Architect:

John Smillie Architects

#### Structural Engineer:

Young + Satharia

#### Quantity Surveyor:

Cardwell & Wonfor Quantity Surveyors

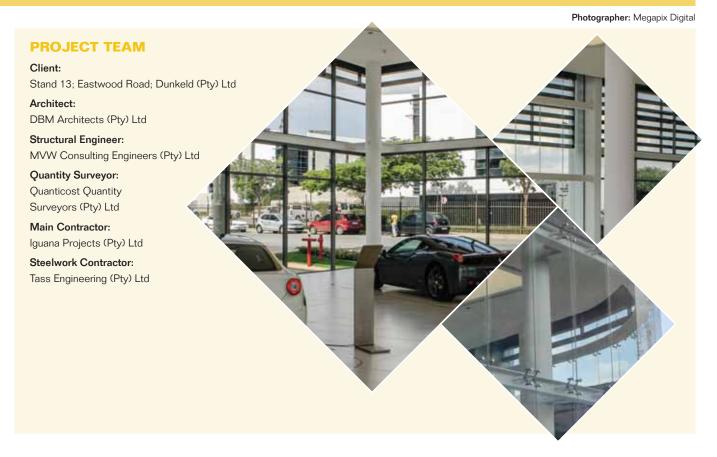
#### Main Contractor:

Vista Construction

#### Steelwork Contractor:

Impact Engineering



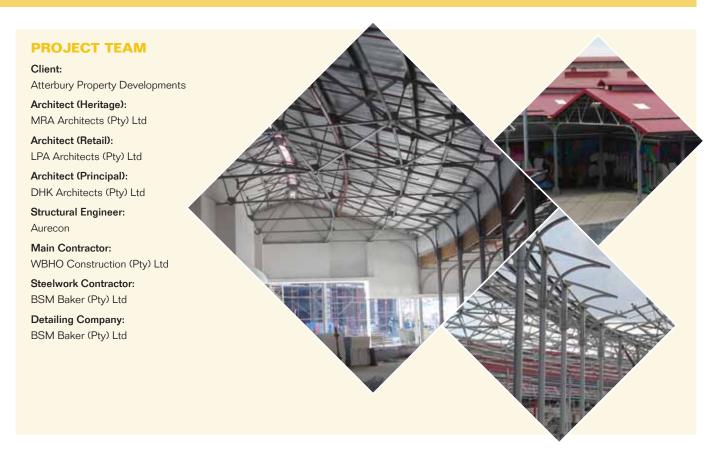




#### Buscor Whiteriver Bus Terminus



#### Newtown Junction



#### Forest Hill City





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# **CENTRAL WELDING WORKS**







#### Porsche Pretoria Centre

**PROJECT TEAM** 

Client:

OT Venter Investments cc

Architect:

Empowered Spaces Architecture cc

Structural Engineer:

LS & A Consulting Engineers (Pty) Ltd

**Quantity Surveyor:** 

BTKM Quantity Surveyors

Main Contractor:

Probest Projects (Pty) Ltd

Steelwork Contractor:

Central Welding Works (Pty) Ltd

**Detailing Company:** 

Segmiller Engineering services cc

**Painters** 

**DRAM Industrial Painting Contractors** 



# Steel Awards 2015 Key service providers

#### **GAUTENG**

MC & Entertainment: Gilan Gork - Through USB Speaker Bureau

Visual production: Sian Clark Communications - Sian Clark. sianclark@vodamail.co.za, www.sccommunications.co.za

 $Technical\ support:\ Multi-media\ Events-Tim\ Fish,\ tim@multi-media.co.za,\ www.multi-media.co.za$ 

Event management support: Ping Pong Communication - Nadine Piek, nadine@ping-pongevents.co.za

Framing of awards certificates: Omni Arts & Crafts - Viv van Zyl, 082 492 8603, viv@lantic.net

Media coordination for all venues: Brooke Browde Communications - Alan Browde, alanb@bbcomms.co.za

Graphic Design: ...with pepper communications – Reneé Pretorius, renee@withpepper.co.za

#### **WESTERN CAPE**

MC & Entertainment: Al Prodgers – Through USB Speaker Bureau

Event photography: ProTeknik Services - Daniel, daniel@proteknikservices.co.za

Event management support: Attitude Events - Alfreda Coetzee, alfreda@attitude-events.co.za

Technical support: Multi-media Events - Tim Fish, tim@multi-media.co.za, www.multi-media.co.za

#### **KWAZULU NATAL**

MC & Entertainment: Riaad Moosa - Through USB Speaker Bureau

Event photography: Xposure Photography - Gail van Vuuren, gail@xposurephotography.co.za, www.xposurephotography.co.za

Event management support: Extreme Classic Events - Judy Parkins, admin@extremeclassiceventsco.za

Technical support: Superior Vision - Warren Loots, warren@superiorvision.co.za



#### WINNER: RETAIL PROJECT CATEGORY

# The Watershed, V&A Waterfront

# From the project entry motivation by Tom Linder, LH Consulting Engineers

#### **Judges' Comment:**

All-in-all, the architectural ingenuity employed in creating interconnected and interesting spaces with detail-intensive design has led to the development of a world-class facility using an existing building. 'The Watershed' is the name given to the redeveloped Blue Shed, which was situated along the pedestrian route from the Victoria Wharf Mall to the Two Oceans Aquarium. Previously, part of this historic warehouse was occupied by a craft market, with the remainder having long been vacant and in poor condition. It consisted of a double-bay structural steel shed which straddled the zone between a working dry-dock and the heavily trafficked Dock Road, leaving an awkward and narrow route for pedestrians along the busy road.

The Watershed project was born out of an urban strategy to improve and upgrade the pedestrian experience, whilst seeking to provide a so-called Innovation Hub and exhibition space. There was also a desire to reinstate and enhance the Blue Shed craft market. To achieve this, the alterations involved opening the gable ends of the building, and re-routing the pedestrians through the warehouse to create an inside-out / outside-in space, with two new floor



Bob (35) knows the most efficient way to design, detail, and fabricate a steel structure. His company uses Tekla to automate detailing, fabrication and project management through interfacing with MIS systems and CNC machinery. What's more important, sharing the Tekla model allows all the project team members to stay in the building information loop real-time.

Tekla BIM (Building Information Modeling) software solutions provide a data-rich 3D environment that can be shared by contractors, structural engineers, architects, steel detailers and fabricators, and concrete detailers and manufacturers. Choose Tekla for the highest level of detail, accuracy, constructability and integration in project management and delivery. Visit our website to learn more about Tekla solutions and references.

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levels to house the Innovation Hub, exhibition hall and retail tenancies.

The ground floor space has been converted into an 'undercover street', with the upper floors flying over. The stalls have been re-constructed as moveable timber units, such that this area could be vacated temporarily for larger events. It was therefore important that the 23m wide central area was column-free.

The construction needed to be lightweight to avoid overloading the existing foundations, columns and gantry beams. Steel was the obvious choice. The infill flooring similarly needed to be light, but

The final detail comprised two layers of 28mm plywood decking, with the upper layer floating on load-bearing strips of acoustic insulation. The lower layer was supported on timber joists fixed between the steel framing.

also had to meet stringent acoustic criteria.

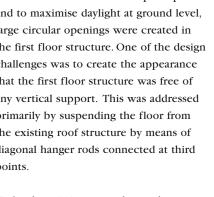
Another driving force in the overall design was the need to visually connect the spaces on the various levels. Again, structural steel was the ideal material to achieve this. In line with this principle and to maximise daylight at ground level, large circular openings were created in the first floor structure. One of the design challenges was to create the appearance that the first floor structure was free of any vertical support. This was addressed primarily by suspending the floor from the existing roof structure by means of diagonal hanger rods connected at third points.

Under the existing gantry beams, hanger posts were incorporated in lieu of direct connections to the existing columns, although thin restraint brackets were required to stabilise the floor against sway effects.

Since the floor structure is highly visible from the underside, many of the splice connections in the primary floor beams were site-welded.

Nine metre-high gates guard the entrances when the building is closed. These gates are easily rolled away to one side on hightolerance cast-in steel tracks to provide open gables when the market is open.

From an energy and sustainability point of view, translucent skylights; high performance glazing; roof insulation in enclosed areas; ridge ventilators and the open gable ends were used to passively provide comfortable internal conditions. Air-conditioning to selected offices and retail spaces were linked to a centralised 'chiller', which also serves the adjacent building. The re-use and conversion of the existing shed helped to reduce wastage and the multi-use planning allows efficient and flexible use of the available bulk.



**PROJECT TEAM** 

#### Client:

V&A Waterfront Holdings (Pty) Ltd

#### Architect:

Wolff Architects (Pty) Ltd

#### Structural Engineer:

LH Consulting Engineers (Pty) Ltd

#### **Quantity Surveyor:**

Pentad Quantity Surveyors (Pty) Ltd

#### Main Contractor:

WBHO Construction (Pty) Ltd

#### Steelwork Contractor:

Mazor Steel (Pty) Ltd, Kilpin Engineering (Pty) Ltd, Olympic Steel

#### Cladding Contractor:

**GSM** Roofing

#### Glazing (Steel Windows):

Metal Windows



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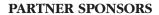
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by Peddinghaus' 24-hour technical support centre, the only one of its kind within the structural machine tool industry.

With manufacturing facilities, sales and service staff located throughout the globe, Peddinghaus' innovative designs and investment in cutting-edge technology will continue to grow with the evolving needs of the structural steel industry.

Peddinghaus' product lines include: Drill lines, plate processors, angle/detail machines, thermal cutting/coping, automated layout marking, structural band saws, ironworkers, shot blasting systems, material handling and Raptor 3D CAD/CAM software.

#### Contact: Patrick Pereira, National Sales Representative

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#### STEEL AWARDS 2015 TABLE DÉCOR



# in a GLASS of its own!

After considering several different options, the team of Peddinghaus, Steel Awards 2015 Table Decor Sponsor, assigned Ngwenya Glass in Swaziland to produce bespoke vases for every table at every venue. The centre pieces were all individually blown from 100% recycled glass and therefore every item is unique while the style is similar.

Since 1987 Ngwenya Glass has been using mainly old cool drink bottles collected by children and others from all over Swaziland to make glassware of beauty and function. The furnace is fuelled by old KFC cooking oil (yes that KFC!), old engine oil and a mix of paraffin. They actively drive roadside clean-up campaigns with local schools to instil environmental awareness in exchange for building materials and sponsorship of soccer teams. (Read more: http://ngwenyaglass.co.sz)

SAISC sincerely thanks Ian Walker, Lindy Casey, Patrick Pereira and the rest of the Peddinghaus team for their special contribution in terms of funds, time and effort towards the 2015 table decorations and individual gifts.

# 360°PLASMA PRODUCTION





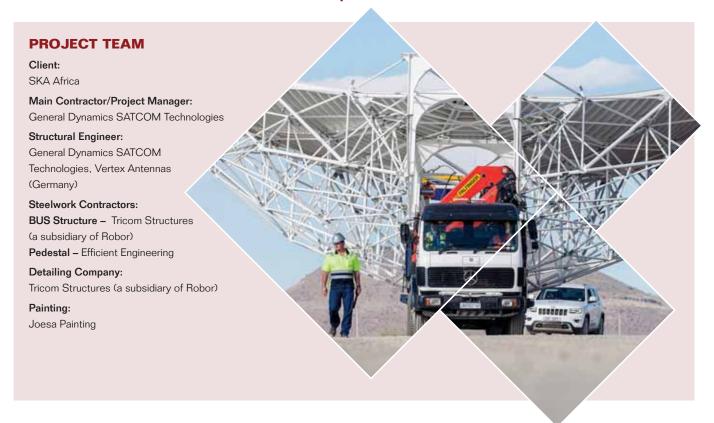
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#### **OVERALL WINNER AND TUBULAR CATEGORY WINNER:**

SKA Africa Radio Antenna Positioner Back-up Structure



#### **University of Pretoria Amfi Roof Structure**



#### The Edge Restaurant, Naval Hill

**PROJECT TEAM** 

Client:

Mangaung Metropolitan Municipality

Architect:

Reinier Brönn Architects & Associates cc

Structural Engineer:

MPS Consulting Engineers

Quantity Surveyor:

Rubiquant Quantity Surveyors

Project Manager:

Insite Landscape Architects

Main Contractor:

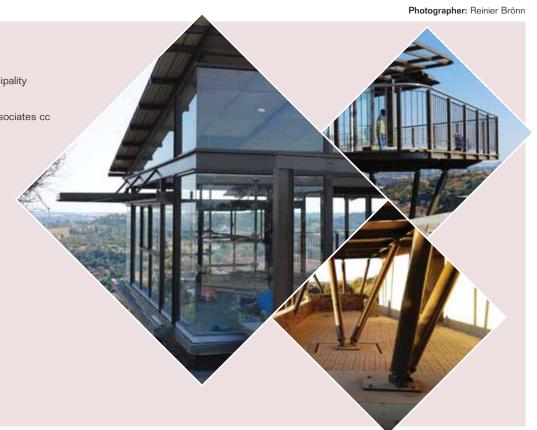
David Diva Construction

Steelwork Contractor:

Geleta's Construction

**Detailing Company:** 

MPS Consulting Engineers





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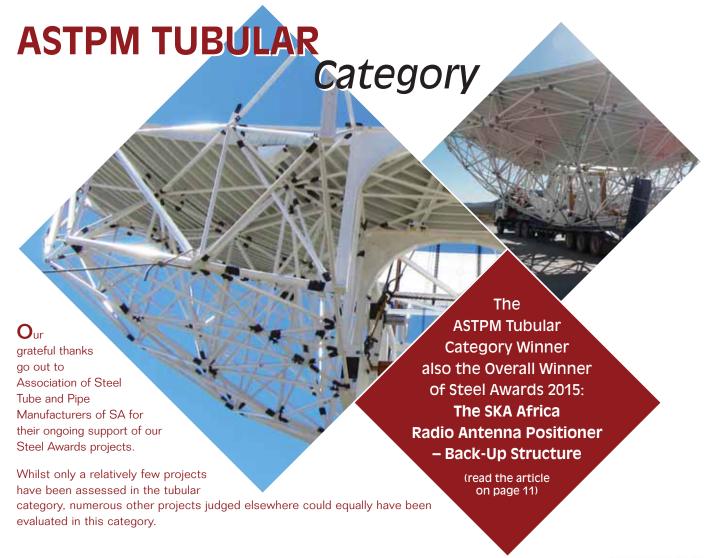




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Contact: Colin Shaw or Margie Olivier

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The Association of Steel Tube and Pipe Manufacturers of South Africa (ASTPM) was formed in 1983 to represent the welded carbon steel tube and pipe producers. The members account for over 70% of the installed capacity. Details, product range and all other relevant information are available on our website www.astpm.com.

During the 32 years existence of the Association the members have loyally supplied the local market and have also exported in excess of 1.5 million tons of tube and pipe to over 50 countries. This has only been achieved due to the top-quality product that these members produce which is in compliance with both local and international specifications.

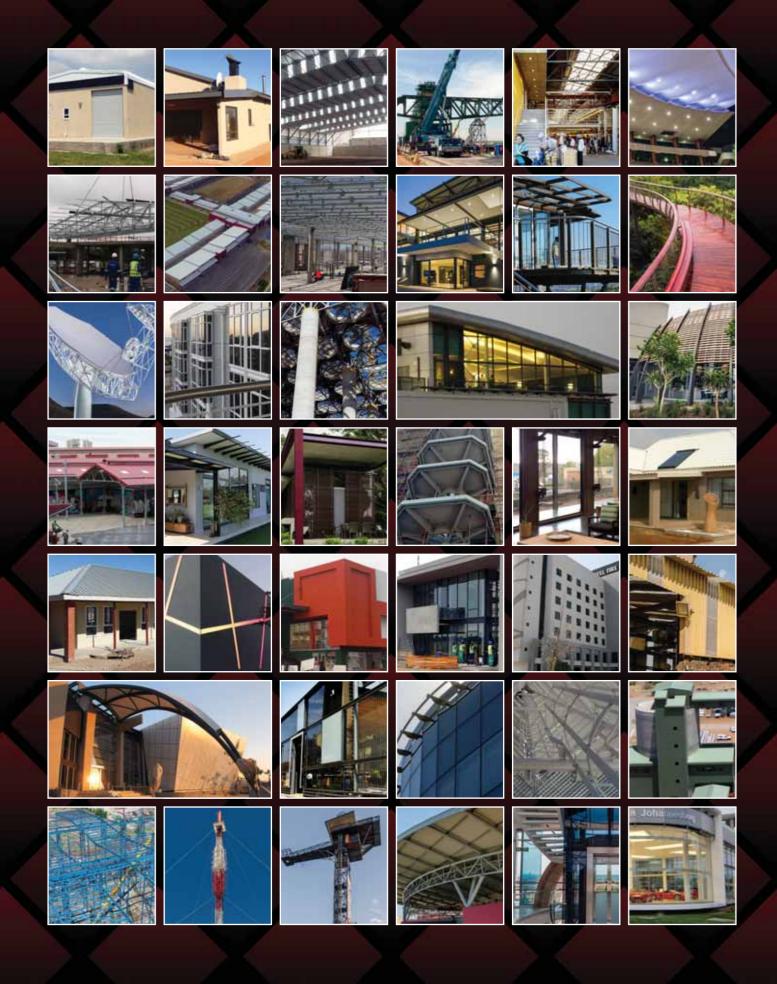
The Association continues to promote the use of tube and is active in ensuring that local standards are maintained and where necessary improved to meet local and international requirements.

The introduction of the standard Grade S355 Structural Tubing (launched in 2010) now provides a lighter and stronger steel solution to the structural steel industry and compliments the inherent benefit of tubular steel. Its success is proven by ever growing sales in S355 tube.

Our members continue to invest in this industry and are expanding in value added machinery that includes plasma and laser cutting technology. These products are now more user-friendly especially with connections that save time and labour costs for the fabricators and erectors, enabling them to pass the savings on to their customers.

The ASTPM is pleased to be able to continue their sponsorship for this worthy award, both now and into the future and wishes the SAISC every success for this flagship event.

# **Steel Awards 2015** Entries



#### Judges comments:

The use of tubular steelwork for the 64 antennae surely shows off the attributes of tubular construction and represents excellence in the use of tubular steelwork.

A scientific project of this nature that taxes the skills of South African engineers and scientists to rise above the challenges and make it work, must surely represent excellence in every way but especially a triumph in the excellent use of steelwork, truly deserving to be Overall Winner of Steel Awards 2015.



## **OVERALL WINNER AND TUBULAR CATEGORY WINNER**

# **SKA Africa Radio Antenna Positioner Back-up Structure**

By Spencer Erling, Education Director, SAISC

For the second year in a row the Overall Winner has come from the ASTPM Tubular Category – the support antennae at the SKA project. The project radiates excellence in every aspect of its purpose and structure, not only in the use of structural steel.





The SKA (Square Kilometre Array) project is an international effort to build the world's largest radio telescope collecting area.

To deliver the radio telescope and for it to achieve the desired results, the SKA project needed a huge leap forward in engineering and R & D. What a great opportunity for South Africa's young scientists and engineers from all disciplines. Surely one of the most exciting projects in the world of science to be involved in!

When operational, the SKA will provide astronomers unprecedented detail, thousands of times faster than currently and to a resolution 50 times that of the Hubble Space Telescope (angular resolution of 0.05 arcsecond).

Part of South Africa's technical capability displayed in the bid for the SKA was backed up by the design and build of the seven dishes for the MeerKAT Telescope. This 'mini-SKA' has in itself displayed excellence delivering images of Centaurus 14-million light years away.

The SKA Africa programme is for 64 antenna positioners to be completed late 2016, on a site 90 kilometres from Carnarvon, without mobile phone contact, far from engineering resources, so that by mid-2017 the SKA will be doing scientific work.

Carnarvon is a sleepy Karoo 'dorpie', but for those of us who love the desolation of deserts and the unspoilt nature of our Karoo, a visit to this part of the world is an absolute must for your bucket list.

Each receptor consists of three main components:

- 1. The antenna positioner, which is described as a steerable dish on a pedestal (our judges thought this in itself was superb use of steelwork),
- 2. a set of radio receivers,
- and the associated digitisers.

The antenna consists of an effective 13.5 metre diameter main reflector and a 3.8 metre diameter sub-reflector for optimal clean electromagnetic signals to ensure excellent optical performance, sensitivity and imaging quality.

The antenna framework is mounted on a Tee-shaped yoke, fabricated from thick plates which are connected to the pedestal by means of axles attached to line bored holes and bearings. The height is 19.5 metres and the mass 42 tons.

The electromagnetic and electronic data transfer is staggering in size way beyond the understanding of this IT challenged guy. Not all of the data transfer issues have been resolved - just another of the many challenges the SKA team face and no doubt will resolve.

The enormous complexity of the geometry for the antennae must surely compete with last year's Overall Winner, the Malapa project which in itself was complex but was built with the "luxury of our normal ±2 millimetre structural tolerances".

choice of the fabrication team, has been built with zero tolerance targets. The engineering, detailing, jig fabrication and construction move these structures into a different league from your run-of-themill tubular truss type project. The accuracy of dimensions after erection is critical to give the radio telescope maximum chance of achieving its fabulous expected accuracy.

Fabrication using jigs is done in Pretoria. Tube-to-tube connections at the nodes are all done using friction grip bolts. The faying surfaces are painted with

The assembly of the framework is done inside the purpose built factory close to the site. This includes the assembly of the aluminium sheet covering. After assembly, the framework is pulled out of the building and loaded onto trucks for movement to site.

The pedestal fabrication is largely out of plate and the interface between the pedestal and yokes of the support structure are line bored machined. Pedestals are erected before the antennae framework. The frame is offloaded and erected directly from truck to pedestals.



Prevention of distortion from welding to the yoke is just one of the many challenges faced by the fabrication team. The judges thought this was excellent use of plated steelwork highlighting the versatility of the fabricator's repertoire. The steelwork contractor is usually associated with tower steelwork.

The antennae positioner allows for a vertical (tilt) range of 15 to 88°, and an azimuth range of 360° to an accuracy within 1.4 thousandths of a degree under optimal conditions and a fairly 'rough' 7 thousandths of a degree during normal operational conditions. That's a degree of accuracy that is hard to grasp for us rough and ready structural engineers, remember we normally work to the nearest 2 millimetres.

The technology of the largely tubular antennae support structure, which by inorganic zinc rich primer, the only class B paint that achieves the required friction coefficient.

Small tube connections use overlapping Tee connections. The larger bores, with higher loads, where an eccentricity in the Zed direction could lead to moments in the connection, have been designed with cover splice plates to the Tee joints, thereby ensuring no eccentricities occur.

This type of structure is the perfect application for the use of circular hollow sections. Careful detailing enables the centre of gravity lines of the elements to meet in a common centroid. In some connections there are as many as 11 framing members.

The rest of the tubes receive their full paint specification before despatch to site.

#### **PROJECT TEAM**

#### Client:

SKA Africa

Main Contractor/Project Manager:

General Dynamics SATCOM Technologies

#### Structural Engineer:

General Dynamics SATCOM Technologies, Vertex Antennas (Germany)

#### Steelwork Contractors:

**BUS Structure:** Tricom Structures (a subsidiary of Robor)

Pedestal: Efficient Engineering

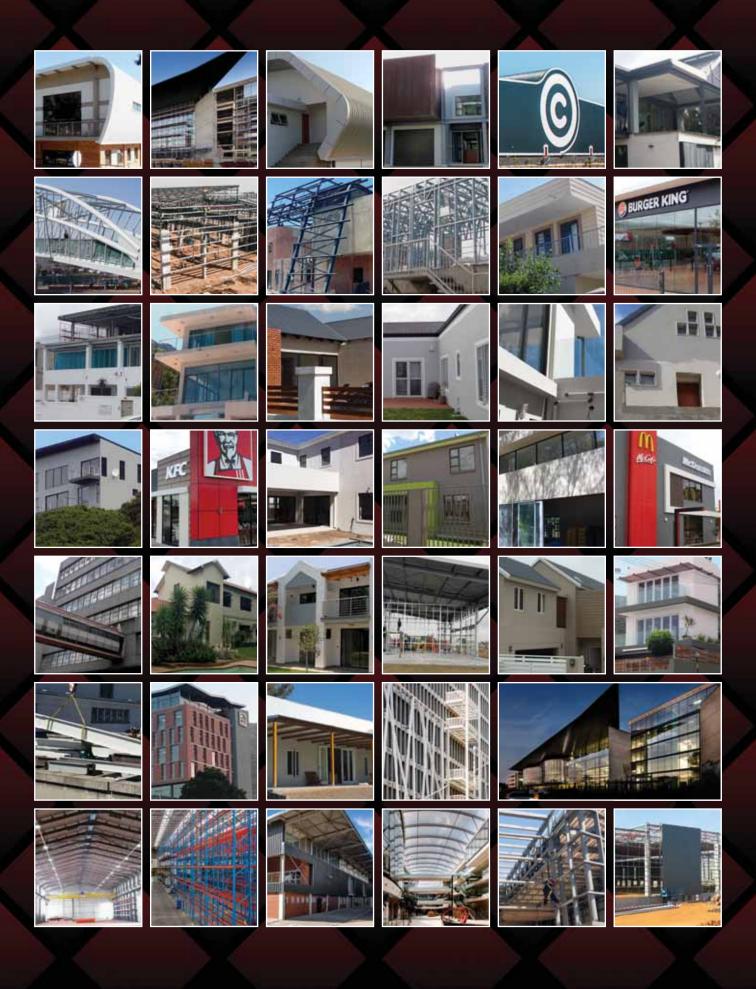
#### **Detailing Company:**

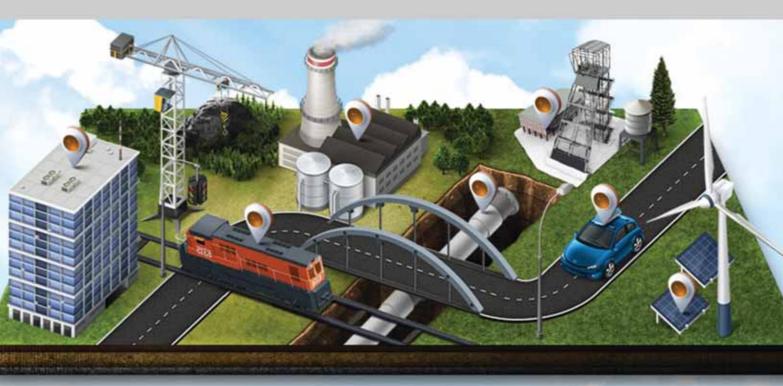
Tricom Structures (a subsidiary of Robor)

#### Painting:

Joesa Painting

# **Steel Awards 2015** Entries





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