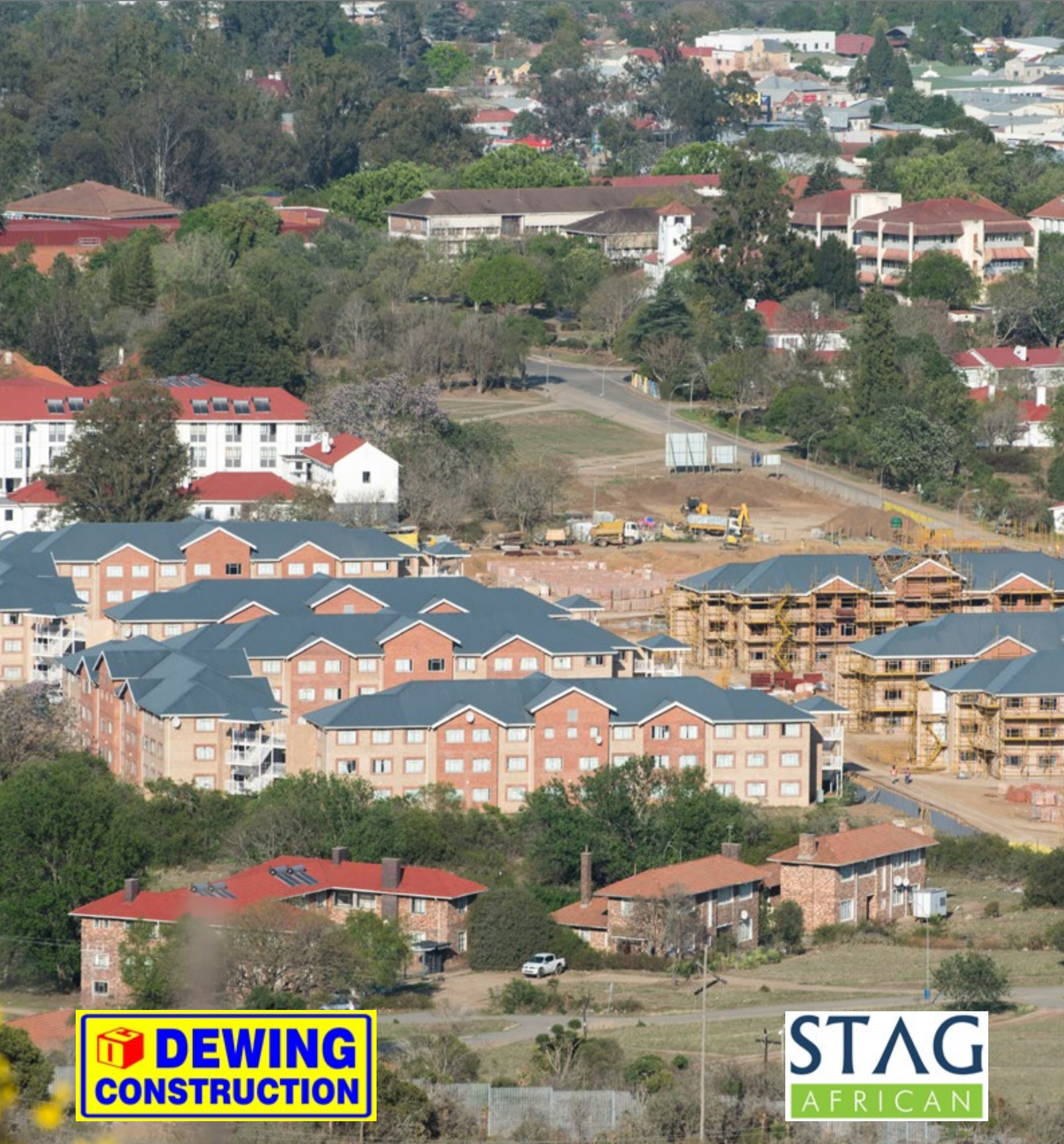




# SOUTH AFRICAN BUILDER<sup>®</sup>

No. 1143 • October 2020

Established 1923 • Official Journal Of Master Builders South Africa





# Light Steel Frame Hospitals In Support Of The Fight Against The Coronavirus

By John Barnard, Director, SASFA

**A** total of eight projects, 39 000m<sup>2</sup> floor area, using 1 000 tons of LSF

It is easy to forget the anxiety that prevailed some six months ago when the Covid-19 infections ran rife. It was during this time that it was decided to urgently add hospital beds to existing capacities to cater for the expected exponential growth in demand for hospital facilities. The core requirement was that construction had to take place at a rate faster than what could be supplied by masonry construction. Accordingly, innovative building systems had to be considered, and light steel framing stood out as the most viable alternative.

A number of smaller hospital projects, not all related to Covid-19, was completed using light steel frame (LSF) during the first half of the year, viz

- **Niemeyer Hospital:** Utrecht, KZN, client: DOH, Covid-19 related, scope: roof only, May to Aug 2020 (LSF contractor: Lakeshore Trading)
- **Sonstraal Hospital:** Western Cape, client: DOH, scope: walls and roof, 1300m<sup>2</sup> and 43t, July to Sept 2020 (LSF Contractor: Steel Modular Construction, Africa)

- **Dorris Goodwin Hospital:** Client: DOH, 80m<sup>2</sup>, 1,5t, April 2020 (LSF contractor: Shospec)
- **Town Hill Hospital:** Roof only, 2500m<sup>2</sup> and 19t, Apr to Sept 2020 (LSF contractor: Shospec).
- **George Mukhari Hospital:** Garankuwa, 746m<sup>2</sup> floor area – floor joists, walls and roof. 22t of LSF used in a premanufactured panel system – 10 blocks of 1 140m<sup>2</sup> => 63t of LSF
- In Cape Town, LSFco is busy with **Sonstraal hospital in Paarl** – 1 400m<sup>2</sup>, requiring about 47t LSF.

The two mega projects aimed at providing for the expected threat of Covid infections were the Jubilee field hospital in Hammanskraal (north of Pretoria), and the Baragwanath Hospital (near Soweto).

## Project name: Jubilee field hospital, Hammanskraal (North of Pretoria)

Concor was the main contractor for the Jubilee Field Hospital. Futurecon was awarded the contract for the supply and erection of the LSF for the internal and external walls and roofs, clad, lined and insulated with windows installed.



From 27 July 2020 they had to complete the project in 10 weeks on 27 September 2020.

The project entailed the supply of 10 000m<sup>2</sup> of hospital wards and associated buildings, housing beds in general wards, and in high and intensive care. The foundations were supplied by Concor.

Futurecon had to hand over 1 000m<sup>2</sup> of hospital buildings per week. And they kept to the programme, barring two weeks when they were not allowed onto the site due to disturbance caused by the local communities.

They used fibre cement external cladding, supplied by Etex Group (Marley Building Systems). OSB timber strips were used as thermal break between the external cladding and the LSF. A vapour permeable membrane was installed around the outside of the wall frames to waterproof and draughtproof the buildings, while allowing any vapour in the wall cavities to escape outwards. 102mm thick Cavity Bat glass wool insulation was installed in the wall cavities, with 15mm fireproof gypsum board on the inside, to provide a 1-hour fire rating.

The installers of the services found installation in the LSF walls very easy and quick, as there was no cutting and chasing of masonry walls required. They were able to carry out their work in tandem with the LSF project teams, speeding up the completion of the final project. Even before this project was finished, enquiries were received to upgrade the existing Jubilee hospital, and to supply hospital buildings in sub-Saharan Africa.

**Project name: Baragwanath Hospital, Soweto**

The Gauteng Department of Infrastructural Development issued a project to add 500 ICU beds to Baragwanath Hospital to supply additional ICU capacity for Covid-19 patients,

and thereafter to serve as a permanent extension of the hospital.

The floor area of the 20-ward expansion is 23000 m<sup>2</sup> which includes passageways and ancillary buildings. Approximately 470 tons of LSF (20kg / m<sup>2</sup>) was supplied for the single storey extension with roof trusses spanning 27m between external walls.

Trumod was appointed as a subcontractor to Bambanani Construction, who in turn were contracted to Enza Construction for the building of the 500-bed ICU facility at Baragwanath Hospital.

Rolling and assembly of the LSF wall panels and roof strusses by Trumod started on 7 August 2020, and was essentially completed by mid-October 2020, on time, eight weeks from start – which meant delivery of LSF for 2 000m<sup>2</sup> of floor area per week.

Trumod rolled the LSF, and assembled wall panels and trusses at their factory in Springs before delivery to site. Most of the internal walls consist of standard drywall construction, ie 63mm wide non-loadbearing drywall studs, clad with gypsum board. Trumod also supplied the profiled roof sheet for the entire project.

The Baragwanath project has been a great example of all the benefits that LSF has to offer – speed of construction, off-site fabrication which reduced the number of workers on site, accuracy, good insulation and neat finishes. Whilst the start of the project was delayed due to architectural and engineering issues, once the green light was given, Trumod managed to claw back on lost time and the project is shortly due for completion.

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New Replacement Swingbridge at the V&A Waterfront



## Bridging The Digital Divide – V&A Replacement Swingbridge Takes Top Honours At The SAISC's Inaugural Virtual Steel Awards

COVID-19 has undoubtedly been the biggest catalyst for change in 2020. Industries, organisations and individuals have, out of necessity, been forced to cross the digital divide, embracing technology at an unprecedented pace. Teams have sat wide eyed in virtual meetings, considering how to adapt their age-old, tried-and-trusted approaches to meet the challenges of the new normal.

The Southern African Institute of Steel Construction (SAISC) has remained true to its role of industry champion during this challenging time, focusing on innovation, positivity and creativity – particularly with regards to its flagship event the Steel Awards 2020.

In previous years, the face-to-face awards drew an average of 900 participants to three different regional events in Gauteng, Cape Town and Kwa-Zulu Natal. When faced with the options of cancelling, postponing or migrating to an online event the SAISC and its forward-thinking sponsors chose to innovate.

“We’re facing unprecedented times that call for greater unity, trust and innovation in our industry,” expresses Mohammed Asif Qasim, Co-Founder and Director of Unica Iron and Steel, Main Sponsor of the Steel Awards 2020.

Qasim explains that Unica took up the main sponsorship of Steel Awards 2020 because the company wanted to assure the industry of its support and commitment to growth. “Unica recognized the need to associate with an organisation where our voice is heard by the people

who matter. We want to make fruitful contributions to the industry and we believe there is no better platform than the Steel Institute to ensure our voice is heard on key issues, including export tax on scrap, duties on imports and incentives for industry,” he expresses.

With the support of a community of sponsors, the 38<sup>th</sup> Steel Awards was hosted for the first time ever as an exclusively virtual event on 15 October 2020. The event was primarily live streamed through an online platform (<http://www.eventmobi.com/steel>) made possible by Digital Trailblazer sponsor, Macsteel.

“Considering hosting a virtual event was a radically different approach, and the idea was initially met with scepticism from our stakeholders” expresses SAISC Marketing Director, Denise Sherman. “By addressing concerns, exercising creative thinking and adapting our strategy to mitigate the impact of Covid-19, we achieved exponential growth in participants for the 2020 awards event,” she adds.

When compared to the traditional live event, the online Unica Steel Awards 2020 more than doubled audience numbers, and expanded its geographic reach beyond South African borders. Viewers from all over Southern Africa and even as far afield as Kenya, Cameroon, The United Kingdom, The Netherlands and New Zealand were able to see the excellent work on display.

Sherman confesses that she was concerned about how this vastly different approach would be received by the industry. “The stakes were high. The team and I poured a tremendous amount of effort into ensuring the online event would reflect the excellent standard people have come to expect from Steel Awards. Thankfully, I was able to breathe a sigh of relief when the comments started pouring in,” she says. The SAISC has received overwhelmingly positive feedback from its members and other built environment professionals. “The common theme has been gratitude for the acknowledgement of excellence from project teams and hearty congratulations for persisting and innovating even in tough times,” Sherman says.

Chairwoman of the SAISC, Nicolette Skjoldhammer, echoes Qasim and Sherman’s sentiments on the importance of community and innovation. “In these difficult times it is easy to forget how strong we are as an industry and how successful we can be when we work together. It is why initiatives like the Steel Awards



The Precinct Lifestyle Hub



Bakers Transport Cato Ridge

are so important to reflect and celebrate members of the industry," she asserts.

Skjoldhammer believes that if the Southern African steel industry is to survive what will arguably be a few more tough years, both innovation and collaboration are urgently needed from the bottom of the supply chain to the top and back again. "We need to take this adversity and use it as a driver for creativity and creating opportunities," she adds.

Ingenuity, creativity and excellence were showcased during the livestream event, with the coveted titles of "Overall Winner" and "Bridge Category Winner" going to the team from the [New Replacement Swingbridge at the V&A Waterfront](#).

Situated in South Africa's oldest working harbour, the V&A Waterfront is a mixed-use development, offering visitors from near and far a world-class experience when it comes to entertainment, shopping, dining and accommodation.

The V&A already had a swing bridge that was well-used and well-loved. It was an efficient structure that opened and closed up to 60 times a day, carrying up to 2,4 million people per year. It was, however, 22 years old: a lifetime in the context of the V&A. The 2m wide walkway, which once seemed appropriate, could no longer cope with the rising numbers of pedestrians.

Both steel and FRP were considered at the early stages of the project as the only materials that were light enough to limit the loads on the moving mechanical parts and to limit the foundation size. However, as the design progressed the use steel was the obvious choice.

The new swing bridge has a span of 40m. The deck is cable-stayed with a single plane of four locked coil cables connecting to a central, upstand spine beam. The spine beam is a 500mm wide fabricated box with a total depth of 800mm, but only 470mm protrudes above the top of the deck. The reclining pylon is in the continuity of the main central beam and its stiffness transfers the cable loads into the piled substructure. The steel with timber deck is rotated on a slewing bearing, which is stressed down onto a doughnut-shaped pile cap by 34 vertical Freyssibars.

"It wasn't just about technical engineering, but about design, architecture urban design and peoples experience. Everyone was very passionate about the end product, and because of that a huge amount of effort went into it," beams project nominator John Anderson, General Function Manager, Structures at SMEC South Africa

**Other category winners and commendations for the Unica Steel Awards 2020 are as follows:**

- In the Architectural category, the winning entry

was [The Precinct Lifestyle Hub](#)

- Commendations for the Architectural category include [Bakers Transport Cato Ridge](#), [Botha's Halte Primary School](#), [The New Barloworld and Caterpillar Head Office and Showroom](#), and [Menlyn Main Parklane West Atrium Staircase](#).
- In the Industrial category, the winning entry was the [Vamosem Semi-Mobile Crushing Plant](#)
- The [Sappi Saiccor Woodyard Upgrade Conveyor System](#) received a commendation for the Industrial Category
- In the Association of Steel Tube and Pipe Manufacturers (ASTPM) Tubular category, the winner's trophy went to the [Menlyn Main Parklane West Atrium Skylight](#) project
- The [Bakers Transport Cato Ridge](#) project team was elated after scooping two category awards and a commendation during the livestream. The project won the Safintra South Africa Metal Cladding category and the Factory and Warehouse category. A commendation was awarded to the team for the Architectural category.
- A commendation for the Factory and Warehouse category was awarded to the [Corruseal New Offices and Warehouse, Boksburg](#) project.
- The top honour for the Export category was awarded to the [Douala Grand Mall](#) project in Cameroon.
- The Safal Steel Innovation and Sustainability category winner was the [Whale Trail Staircase](#)
- Commendations for the Safal Steel Innovation Category were also awarded to the [28 Day Modular House](#), and the [Pods at Dwarsberg Trout Hideaway](#)

"In the light of the pandemic and related economic pressures which we face in South Africa, the industry's agility and adaptability was clearly reflected by their enthusiasm and participation in this year's virtual Steel Awards," says Paolo Trincherro, CEO of the SAISC.

Trincherro further affirms that without the support of the steel community, this ground breaking event would not have been possible. "The SAISC would like to express its gratitude to all event sponsors including Unica Iron and Steel, Cadex Solutions SA, Macsteel, Safal Steel, Safintra South Africa, the ASTPM, NJR Steel, Stewarts and Lloyds, BSI Steel, Pro-Roof Steel and Tube, and Aveng Trident Steel.

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



Menlyn Main Parklane West Atrium Skylight