



WORLD WIDE WEAVE

The drum is calling

Metal mesh as an expressive shell for the national statistics authority in South Africa

The colorful spectrum of cultures, religions and peoples is what inspired South Africa's epithet as the *rainbow nation*. Almost 25 years ago, the republic sealed the end of apartheid with a new constitution and elected Nelson Mandela president. The rapid infrastructural and economic growth since then has permanently transformed people's perceptions of South Africa. Today, the country is one of the most important emerging economies. The national statistics authority, Statistics South Africa (Stats SA) in Pretoria, plays a key role when it comes to measuring this inexorable progress. With new headquarters costing more than €100 million, the authority was given premises befitting its importance. The South African architectural firms GLH and Terra Ether designed the building jointly and gave it an unmistakable face with a façade made of metal mesh from GKD – GEBR. KUFFERATH AG. Adorned with more than half a million buttons, it conveys the authority's message in a visual and symbolic manner.

Two years after entering office, Nelson Mandela launched the first census in post-apartheid South Africa in order to provide a sound basis for the country's prospering democracy. More than 20 years later, the Stats SA organization founded for this task has assumed international importance. While the authority's reputation grew, the workforce at Stats SA also expanded from 500 to 3,500 employees nationwide, who were most recently spread across four different buildings in the capital city of Pretoria. A custom-built home for the organization that would offer enough space for all employees in a single location had therefore been under consideration since



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as early as 2005. On an area spanning 60,000 square meters on the outskirts of the government district and within walking distance to Freedom Park, a building complex with 31,800 square meters of office space thus came into being. The ambitious project was also one of the first public sector buildings to be financed through a public-private partnership (PPP). The requirements placed on the architects at GLH and Terra Ether were challenging: a dilapidated group of historical buildings spread out on the property in a manner reminiscent of a circle of wagons was to be integrated into the new complex. Furthermore, the entire area is part of an infrastructural program for regenerating the Salvokop suburb encompassing a total of ten projects. The new building for Stats SA was therefore also to act as a catalyst for the wider plan. The key task for the architects, however, was to convey the work of Stats SA and its function to the public through the construction of the new headquarters.

A variety of references to culture and tradition

Their solution was a building complex that visualizes the vision and mission of Stats SA through rich symbolism. Like a gigantic drum with five fingers, the building, which was awarded four stars by the Green Building Council South Africa (GBCSA), harmoniously blends into the surrounding hilly landscape. The zigzag roof of the main entrance is evocative of the curves which Stats SA uses to present the results of its surveys. The architectural equivalent of the five key areas in which statistics are gathered are the fingers arranged behind one another, each of which is given its own identity through the choice of color and roof angle. Thanks to its visually seamless metal mesh shell, a rotunda at the main entrance has an appearance reminiscent of a drum. This instrument symbolizes communication in African culture and illustrates the authority's task of gathering and conveying information. Furthermore, in Africa the drum invites all people to come and



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take part. At the same time, the drum-shaped building is a reference to the site's history: during the days of mail trains it was called *Signal Hill*, as the imminent arrival of the trains was announced from here. The ingenious interplay of more than 500,000 stainless steel buttons affixed to the woven skin creates a pattern that replicates the inscription of a Stone Age counting tool found in 2002, thereby making a further reference to the field of activity of the statistics authority. For this purpose, office blocks 1 and 5 were provided with cladding made of Omega stainless steel mesh, with a button pattern similar to pearl embroidery. The specially developed buttons each measuring 30 to 50 millimeters were attached to the metallic skin by hand in accordance with a design by Marius Botha. Most of the buttons were left untreated, but a smaller number were given a bronze-colored coating.

Combination of symbolism and solar protection

A total of 2,280 square meters of Omega mesh were used to create 41 panels with various widths and a height of 10.14 meters. When cladding the drum, the panels were bent and fixed in place using staples in such a way that they consistently follow the form of the building in parallel and on the same level. During this process it was also important to align the joints of the pattern precisely from one panel to the next. Therefore, the design of the staples was crucially important for the authentic appearance of the drum cladding. GKD Buismet used a total of 75 different types of custom-made staples when mounting and tensioning the fabric. Alongside the curve of the building, the button pattern presented the South African subsidiary of the metal mesh specialist with the biggest challenge of its history. The four different button types varied not only in their shape and size: all 500,000 buttons also had a precisely specified position on the mesh in order to produce the pattern. These had to be marked individually on the panels in the factory using corresponding templates. The buttons could not actually be



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mounted in the factory as the transport of the fully assembled panels was not an option: due to the gigantic dimensions of the elements, the risk of damage to buttons or the mesh would have been far too high. As a result, the buttons had to be installed at the construction site when mounting the mesh. To do so, every individual panel was slowly raised using chain blocks so that the buttons could be manually attached to the mesh one by one using self-locking nylon nuts and M3 spacer bolts. The enormous time pressure and the large number of untrained local workers further complicated this mammoth task. However, Terra Ether Architects not only chose the GKD mesh due to its special appearance and flexibility for the façades: on the drum the cladding also functions as effective solar protection as well as serving as a fall guard on the balconies. For its use in the office blocks, the proven solar protection function was decisive.

Foundation stone for urban transformation

The new building for Stats SA, the so-called *ISibalo*, was erected in just 18 months. In the Nguni languages *isibalo* means a mathematical sum and is derived from the word *ukubala*, meaning *to count* – the core field of activity of the statistics authority. The building ensemble consisting of a drum and five fingers surrounds the restored historical railway buildings. Former dirt tracks documented in aerial photographs are reflected in the new network of paths that connects the old and new buildings. Alongside the intricate routes themselves, the original pathways printed onto the new footpaths as a pattern also bear witness to this. Because of the sensitive and multilayered way in which the new architecture is linked with the local culture, the new head office of Stats SA embodies the sense of confidence in South Africa as well as the self-conception of the statistics authority – making it a foundation stone for the envisaged infrastructural reorganization.

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GKD – GEBR. KUFFERATH AG

The owner-run technical weaver GKD – GEBR. KUFFERATH AG is the global market leader for metal and plastic woven solutions as well as transparent media facades. Under the umbrella of GKD the company combines four independent business units: Industrial meshes, Process belt meshes, Architectural meshes and Transparent media façades. With its six plants – including the headquarters in Germany and other facilities in the US, South Africa, China, India and Chile – as well as its branches in France, Great Britain, Spain, Dubai, Qatar and worldwide representatives, GKD is never far from its customers.

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Picture 1: On an area spanning 60,000 square meters, the building complex of the national Statistics authority, with 31,800 square meters of office space in Pretoria was built.

Picture 1-6 © GLH-TE JV



Picture 2: A total of 2,280 square meters of Omega mesh by GKD were used to create 41 panels with various widths and a height of 10.14 meters.



Picture 3: Thanks to its visually seamless metal mesh shell by GKD, a rotunda at the main entrance has an appearance reminiscent of a drum.

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Picture 4: The ingenious interplay of more than 500,000 stainless steel buttons affixed to the woven skin by GKD creates a pattern that replicates the inscription of a Stone Age counting tool.

Picture 1-6 © GLH-TE JV



Picture 5: On the drum the cladding by GKD also functions as effective solar protection as well as serving as a fall guard on the balconies.



Picture 6: The building ensemble consisting of a drum and five fingers surrounds the restored historical railway buildings.

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