

Steel Staircase Wins Artistic/Architectural Award at 2005 Steel Awards

The steel staircase, the focal point of House du Toit, situated on the lower levels of Paarl Mountain, has been named the winner in the category for the Artistic Architecture and Innovative Use of Steel at the 2005 Steel Awards.

The staircase, designed by Bartel Viljoen, is an ingenious combination of a functional feature and architectural sculpture. Set in a 'glass-covered canyon', the shadows cast by the shape of the contoured stair continuously change with the moving sun. The hull-shaped stair floats above the sandstone floor, with its keel forming the main support for the structure. The rusted finish adds to the image of a vessel slowly becoming part of nature again.

As an artwork, it was structurally difficult to analyse and hence design. In the end it was decided that it had to be physically built full size and tested in the workshop before it could receive a final nod of approval.

The mere fact that it weighs three tons implied the need for structurally sound support underneath, enhanced by the cable stays connected to the roof structure.

The treads are internally cut out of contour shelves made of 4 mm thick steel and are spaced apart at riser height with welded stainless steel rods. In lieu of balustrades the closeness of the contours does the job. The chunky support under the creation satisfies the structural needs. The changes to the outer lines of the contour shelves are what create the sculptural artistic nature of the stair. Undressed clean simple welds, slightly rusted appearance of the steel contour treads coated with a matt clear finish mixed with shiny polished look of the stainless steel rods add to the drama of the creation.

This contour-inspired staircase set in the 'gorge' between the two wings of the house linking the main area via the foyer to the two separate bedroom wings above is a daring feat which the judges believe deserves recognition in the excellence both in the use of steel as an art feature as well as the innovative use of steel.

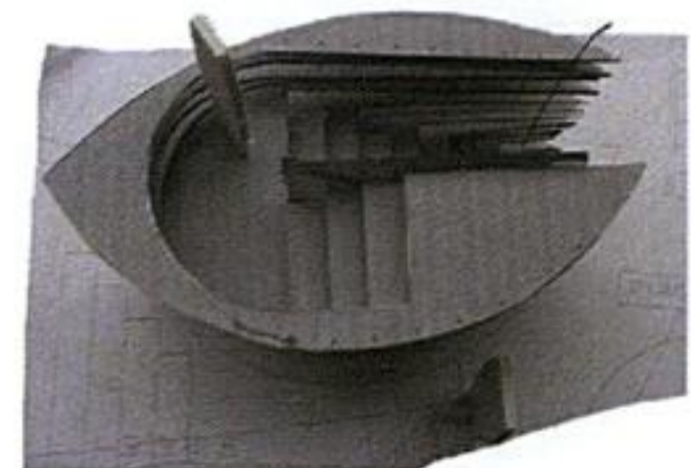
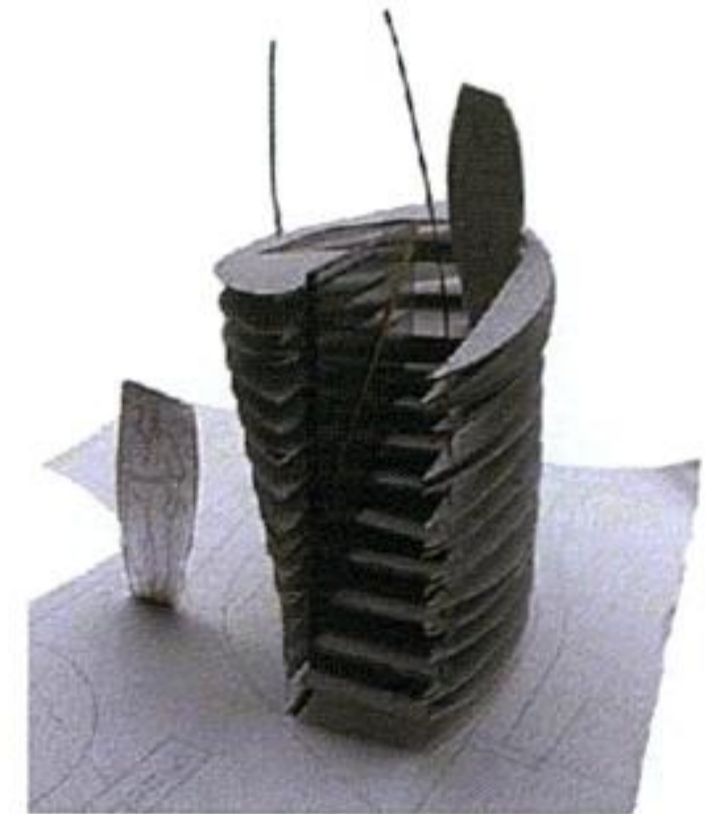
The project team consisted of: Owners Piet and Ansie du Toit; architect Albertyn Viljoen Architects; structural engineer Grobler & Associates Consulting Engineers; quantity surveyor Marius van Tonder; main contractor J J Dempers Meester Bouers; and steelwork contractor Metalo.

The Diamond Hill Tollgate Structure (pictured below left) was named the overall winner of the 2005 Steel Awards. Other steel structures recognised for their excellence included the staircase for House Du Toit (Artistic Architecture and Innovative Use of Steel category), The Innovation Hub (Excellence in Execution Category), Leros Bridge (Tubular Structures Category), Obajana Cement Works (Export Projects Category), House Toussaint (Residential and Functional Architecture Category) and the Woodchip ship loader at Richards Bay harbour (Industrial, Mining and Engineering Category).

The 2005 Steel Awards, presented on 11 August 2005 at the SAISC's annual awards ceremonies held concurrently in Midrand and Durban and linked via a two-way satellite, were hosted by the SAISC and its partner sponsors Macsteel Service Centres SA, the Association of Steel Tube and Pipe Manufacturers of South Africa, Bolt and Engineering Distributors, Trident Steel, Cadex SA distributors of Tekla Structures, Kulungile Metals, Angus McLeod & Vital Engineering and Barloworld Robor.



Staircase in situ



Model of House du Toit staircase



Diamond Hill Tollgate structure



The House du Toit staircase, from below and from above

