

# Competition proves long term value of stainless steel

 [engineeringnews.co.za/article/competition-proves-long-term-value-of-stainless-steel-2017-10-27](http://engineeringnews.co.za/article/competition-proves-long-term-value-of-stainless-steel-2017-10-27)

The winner of the [Southern Africa Stainless Steel](#) Development Association's ([Sassda](#)'s) [Eiffel Tower](#) life cycle costing competition was announced earlier this month, having proven the success of the association's new cellphone application (app) and the long-term value of [stainless steel](#) as a structural material.

"In 2013, during a [training](#) programme, the International [Stainless Steel](#) Forum asked students to consider the cost savings that could have been achieved if the [Eiffel Tower](#) had been constructed out of [stainless steel](#) rather than [mild steel](#). Today, thanks to our app, obtaining an accurate answer is possible," says [Sassda](#) executive director [John Tarboton](#).

He explains that, although [stainless steel](#) is generally costlier than other materials initially, it delivers lower long-term costs. However, as the calculation of the long-term cost benefits it affords is a complicated process – influenced by several complex factors such as the cost of capital, net present value and discounted cash flows – this aspect is too often overlooked.

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"Although engineers do consider these costs, they are not accountants and it became clear that a tool was needed to simplify the process and allow for accurate material cost comparisons over the entire life cycle of a [project](#)."

In the 1990s, [Sassda](#) was, thus, involved in the development of a computer programme for performing life cycle cost calculations and, moving into the digital age, the association took steps in July to enhance the accessibility of the programme by introducing a cellphone life cycle costing app.

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The app is freely available from the [Google Playstore](#) and the [Apple App Store](#) and Tarboton highlights that it can be used to compare the life cycle costs of a variety of [construction](#) materials, making it applicable across the [consulting engineering](#) and quantity surveying industries, as well as potentially in other sectors such as

aluminium.

Taking a creative approach to launching the app in [South Africa](#), [Sassda](#) ran a competition, starting in February. This required entrants to download the app and, taking the current inflation rate, the cost of capital and the real interest rate into account, calculate the total life cycle costs (in dollars) that would be incurred to build the [Eiffel Tower](#) in 2017 using [mild steel](#), and compare this with the cost of using either utility [ferritic stainless steel](#) or [lean duplex stainless steel](#).

“In 1889, the [Eiffel Tower](#) cost \$1 495 137.43 to build and, since then, has undergone routine painting every seven years – which is a complicated and costly exercise, owing to its size. “What is clear from our calculations, is that if the [Eiffel Tower](#) had been made from [stainless steel](#), the [maintenance](#) of the iconic structure would have been made easier and much more cost effective. “However, considering that [stainless steel](#) wasn’t even invented in 1889, we can forgive the engineer, [Gustav Eiffel](#), this oversight.”

Calculating the life cycle costs involved calculating the initial costs – including material costs at current prices, [fabrication](#) costs and other [installation](#) costs – as well as the operating costs if the [Eiffel Tower](#) was given a [design](#) life of 100 years, taking into account the dismantling costs and scrap value of the structure in the calculations.

Unlike [mild steel](#), Tarboton notes that [stainless steel](#) does not require painting. In addition, [lean duplex stainless steel](#) has twice the strength of [mild steel](#) or utility [ferritic stainless steel](#) and a thinner thickness can, thus, be used. However, it does require washing every 20 years to ensure that its original finish is maintained. Alternatively, utility [ferritic stainless steel](#) can be used, which does not require painting or [cleaning](#), as it is corrosion resistant and designed to weather by forming a brown patina.

“Our aim with the competition was to encourage [engineering](#) and quantity surveying professionals to download and ‘test-drive’ the app, so that they could see first-hand how easy it is to use. “ The app makes the crucial, but multifarious, process of life cycle costing more accessible.”

Proof of this was provided by the fact that 64% of the entrants submitted correct answers during the competition.

Sixty finalists were randomly drawn from the pool of entrants that submitted the correct answers to the calculations, with 30 finalists from [Johannesburg](#), and 15 each from [Cape Town](#) and [Durban](#). The winner of the competition – [Amrish Punwasi](#) – was drawn earlier this month at a French-themed event held at [Sassda](#)’s head office, in [Johannesburg](#), and awarded an all expenses paid trip for two to [Paris](#).

“I am not an engineer, but I downloaded the app and decided to enter the competition for the fun of it and to see how easy the app was to use – which it was!” says Punwasi, who works in the [security](#) management division of the Western Cape Department of [Health](#).

“The competition has been a great success and as we advance the capabilities of the app, we are considering holding a life cycle costing competition every two years. We are eager to continue proving the value of [stainless steel](#) over the long term and strengthening demand for the material in [architectural and structural applications](#), especially,” concludes Tarboton. 🇷🇵