Appropriate engineering to get kudos

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Nomponjwana community water-supply project


The gravity base structure

While the winners of this year's South African Institution of Civil Engineering (Saice) and South African Black Technical and Allied Careers Organisation (Sabtaco) awards were nowhere near the size of past awarded projects, there was no lack in quality and innovation, reports Saice president Allyson Lawless.

"Twenty years ago, the winner would have been a Carlton Centre or a Cape Town highway, but the trend today leans much more towards smaller community-focused projects," she tells *Engineering News*.

As a result, Saice will be changing its award categories next year.

"We are seeing many refurbishment projects, for example, which, apart from saving millions of rands, are so innovative and extraordinary that they need to be recognised," explains Lawless.

Yet, there still exists no category for these type of projects.

"The bottom line is that ingenious engineering solutions have to be recognised no matter what the size of the project," maintains Lawless.

Four winners emerged at this year's awards, which marked the first time that established and emerging engineering professionals jointly acknowledged outstanding performance in the field of civil engineering.

The Nomponjwana community water-supply project won the community-based project category.

This R9-million water-supply scheme near Melmoth, in northern Kwazulu-Natal, supplies about 18 300 people with potable water.

The water travels through 170 km of reticulation pipelines to reach the people through yard taps at their homes.

The maintenance and operation of the scheme is under the control of Amanzi Nomponjwana, the interim water-service provider under the mentorship and guidance of Mhlathuze Water.

Hogsback dam, in the Eastern Cape, received a commendation in this category.

The dam was built using natural uncut stone, which was manually embedded into a cement mortar mix similar to the ancient Roman method of using rubble masonry concrete.

The only mechanical equipment used were two concrete-mixers, a concrete dumper and a loader to transport the mortar from the mixer to the dam wall.

In turn, the category for projects by previously-disadvantaged consultants was subdivided into two sections, one for aviation projects and another for railways and stations.

The winner of the first section was Cape Town International Airport for the design of its R113-million international arrivals terminal.

About 40% of the three-phase project has been set aside for contracting to black-empowerment businesses.

The first phase of the project, the temporary arrivals hall, was opened in December last year and, on completion at the end of February 2001, the airport will be able to handle 950 passengers an hour, which is treble its present capacity.

The Katlehong/Kwezine railway line won the award in the railways and stations section.

Another water-engineering project, the R130-million Paris dam, won the award in the technical excellence section.

Situated on the Bivane river, a tributary of the Pongola river, near Vryheid, in Kwazulu-Natal, the 72-m-high dam has a capacity of 115-million cubic metres.

Undertaken by the Impala Irrigation Board, the dam is one of the largest dams built in South Africa in the last few years and believed to be the largest privately-owned dam in the country.

Apart from making water available for domestic use to rural communities in the area, the dam supplements the 14 000 ha Pongola irrigation scheme.

Water has also been made available to another 700 ha developed for small growers.

In addition, two commendations were made in this category, namely Phakisa freeway and the gravity base structure for the world's largest tethered control buoy.

The R100-million Phakisa freeway, in Welkom, Free State, consists of a 4,24 km asphalt track, and is 12 m wide with 11 corners.

The freeway is considered unique in Africa in that, in addition to the Formula One circuit, it also incorporates a 2,5 km, 12° banked oval which can accommodate Indy and V8 Nascar-type stockcars at speeds of over 300 km/h.

Situated off the Western Cape coast, the gravity base consists of a cellular ballastable/deballastable reinforced-concrete block.

The gravity base is used to anchor the Mossgas control buoy, which is a taut-moored facility, and consists of a floating buoyant structure moored by multiple tethers to the gravity base on the seabed.


Phakisa freeway


Hogsback dam


Paris dam

Weighing 2 500 t (dry weight), the length of its sides is 15,5 metres, and the height of the sides is 10,5 metres.

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