

**The Green Point Stadium
Cape Town**

Project Description

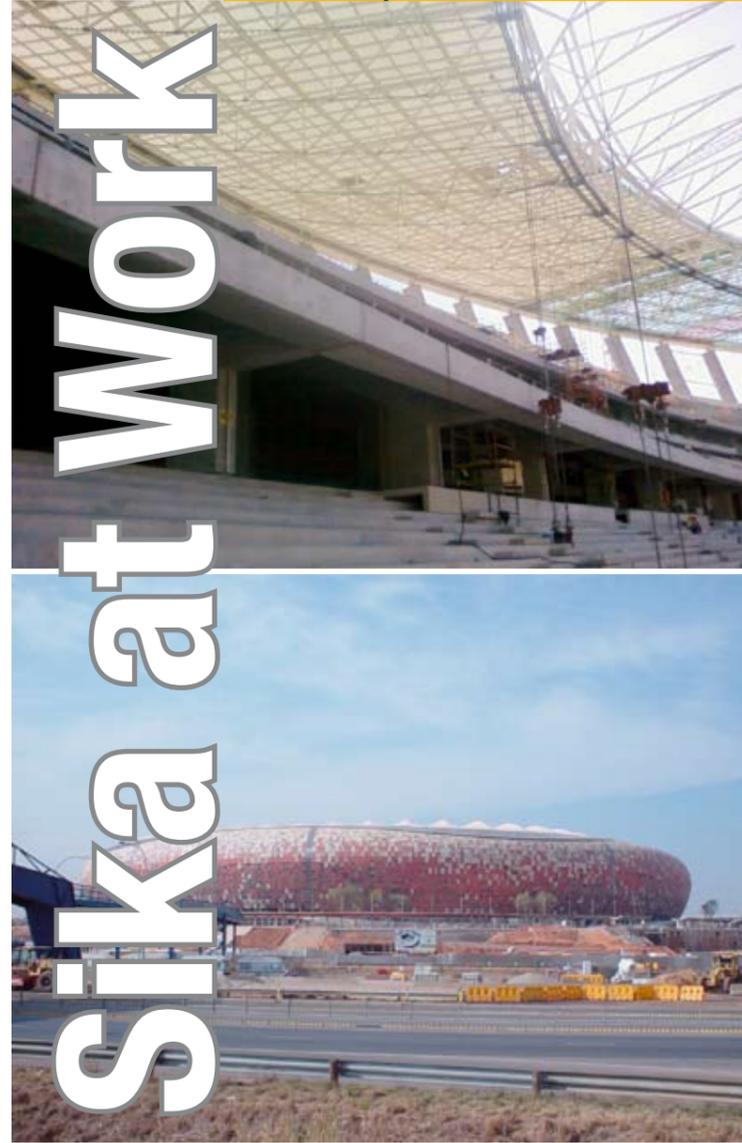
The Green Point Stadium, revamped and now renamed as the Cape Town Stadium, has been transformed into South Africa's second largest for the 2010 World Cup. It is a new 70,000 seater, all weather, multi-purpose, world-class stadium with technically advanced, environmentally sustainable materials and building procedures employed throughout.

Project Requirements

High performance adhesives and grouts for the new structural column base plates and their holding down bolts, plus pre-batched structural micro-concrete, for use as a Self Compacting Concrete to be poured around congested reinforcement in difficult structural connections.

Sika Solutions

- Sika® Anchorfix®-2** high performance anchoring adhesive was used for structural fixings and holding down bolts (1 000 cartridges).
- SikaGrout®-212** expanding, cementitious grout was used for grouting in the base plates and column foundations (100 tons).
- Sikacrete®-214** was used as free flowing structural micro-concrete for the self compacting concrete applications (50 tons).
- SikaTop® Armatec®-110 EpoCem®** as a bonding agent and anti-corrosion steel reinforcement coating (2 tons).
- Sika® MonoTop®-612** fibre reinforced repair mortar was used for all necessary repairs to the precast and insitu concrete on site (30 tons).



Sika Solutions for the 2010 World Cup Soccer Stadiums, South Africa

Joint Sealing, Structural Bonding, Repair and Protection, Grouting and Anchoring

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The Harry Gwala Stadium Pietermaritzburg, Kwa Zulu Natal

Project Description

The Harry Gwala Stadium on Alexander Road in Pietermaritzburg has undergone a complete facelift and has been extended to provide the main regional training location in Kwa Zulu Natal for the World Cup 2010.

Project Requirements

The Main Contractors Erbacon Ltd, were not satisfied with the application characteristics and performance of the fixing adhesives they were struggling to use, for installing the base plates of the new structural columns; particularly with the temperature variations on site and in terms of the flow properties demanded by the engineers. A high performance adhesive was also needed for positioning and fixing the new precast concrete elements.

Sika Solutions

Sika Technical Services were asked for advice and were able to solve the Contractors problems and meet the Engineer's performance specifications, by using **SikaGrout®-212** expanding cementitious grout under the base plates for the new structural steel columns.

Sikadur®-42 epoxy high strength grout was ideal for the high strength bedding under the precast units and for fixing the holding down bolts.

Sikadur®-30 thixotropic epoxy adhesive was also used for the same precast components and bolts in vertical areas where flowable products could not be used.

Additionally **Sikafloor®-261** was also used as an abrasion and wear resistant, but attractive floor surfacing in the projects visitor meeting area.



The Moses Mabhida Stadium Durban, Natal

Project Description

The new Moses Mabhida Stadium on the site of the old King Parks Stadium in Durban was completed on schedule in 2009, well ahead of the 2010 World Cup. It has a total seating capacity of 70,000 people, with 151 additional VIP Suites, hospitality and visitor facilities, all within the overall building area of 85 000 m².

Project Requirements

High strength grouting of the main structural steel column base plates into the foundations was required, together with watertight sealing of the exposed connection joints in the spectator terraces and at high movement areas of the external façade.

Sika Solutions

SikaGrout®-212 has been used for grouting under the column base plates because of its very good flow characteristics, with rapid strength development and high final strengths.

The **Sikadur® Combiflex®** System has been supplied as the joint sealing system to ensure watertight joints throughout the terraces and on the difficult high movement areas of the facade.

Sikagard®-720 EpoCem® has also been used as a protective levelling coating for early age finishing of the concrete units in the on-site precast yard and **SikaTop® Armatec®-110 EpoCem®** has also been used as an anti-corrosive coating for reinforcing steel and a bonding agent for repairs to the precast elements when damage occurred during handling, transport and erection.



The Nelson Mandela Bay Stadium Port Elizabeth

Project Description

The new Nelson Mandela Bay Multipurpose Stadium project was built by the Grinaker Lta – Interbeton Joint Venture and was completed in 2009. It will have a seating capacity of almost 50,000 people for the 2010 World Cup.

The eye catching roof and façades of this stadium, which is in an elevated position only two kilometres from the Indian Ocean coast, were specifically designed to withstand Port Elizabeth's notoriously high wind speeds.

Project Requirements

Watertight sealing was necessary for all of the whole project for the movement and the connection joints in the facades and in the terraces, plus the movement joints between the different precast concrete elements. All of the products for this project also required very high UV light resistance for external exposure in this location.

Sika Solutions

Sikaflex® AT Facade high performance, extremely UV resistant hybrid-PU sealant was used as it was suitable for all of the stadium's connection joints and the sealing of the movement joints between the precast concrete elements. (20,000 x 600 ml sausages).

The **Sikadur® Combiflex®** system was used to provide a watertight seal for the difficult 20 mm horizontal joints, incorporating a negative bulb as required to compensate and safely accommodate the excessive movement.



The Soccer City Stadium Johannesburg

Project Description

The Soccer City Stadium in Johannesburg is one of the major new sporting venues provided for the 2010 World Cup and its legacy in South Africa's capital city. It was originally built as the FNB Stadium in 1987 and it has now been significantly enlarged to a seating capacity of 94,700 for the World Cup in 2010. Extensive changes have been made with the upper seating tier extended around the full circumference of the stadium and an encircling façade and roof has also been added.

Project Requirements

Secure grouting of the new structural steel column base plates; sealing of the floor connection joints between the new precast elements and a structural adhesive for bonding and holding the precast units into position.

Sika Solutions

SikaGrout®-212 expanding, cementitious grout was used for grouting the column base plates (50 tons).

Sikaflex® -11 FC fast-curing, one component, polyurethane sealant and adhesive was selected for the projects construction joints (12 tons, 60 000 linear metres).

Sikadur®-31 CF thixotropic, epoxy resin based structural adhesive was used for bonding the precast units (20 000 litres).

SikaTop® Armatec®-110 EpoCem® was used as the bonding agent for floor screeds and concrete overlays (350 kg.)

Sika MonoTop®-612 repair mortar was used for repairing damaged precast units and making good damaged insitu concrete (20 tons).

