COLORED CONCRETE WORKS®

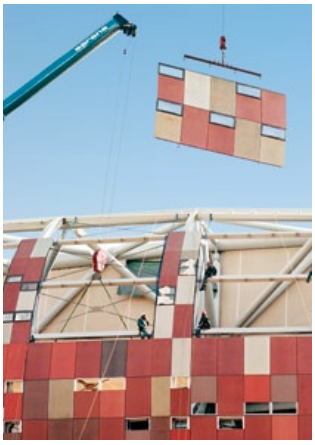
www.colored-concrete-works.com

Case Study
Project
Soccer City Stadium
Johannesburg,
Republic of South Africa

LANXESS
Energizing Chemistry

One of the largest soccer arenas in the world. The Soccer City Stadium can accommodate 88,958 spectators.

The unique façade was created using panels of through-coloured glass-fiber-reinforced concrete.



Soccer City: The global capital of soccer in 2010

World Cup, soccer history and architecture

Soccer City, the largest World Cup stadium in South Africa, is more than just an arena for world-class soccer. It's also a shining example of state-of-the-art stadium architecture.

The spiritual home of South African soccer was constructed in 1984 as the "National Stadium South Africa". And in an interesting snippet of sporting history, this is where the final games of the 1996 African Cup of Nations were held – a tournament that South Africa ultimately won. Since 2004, the arena has been known officially as the "First National Bank Stadium".

As part of a massive renovation project that was more or less a complete rebuild, Soccer City was made ready for the World Cup. Working alongside Damon Lavelle of architectural firm Populous, Bob van Bebber and Piet Boer of Boogertman Urban Edge + Partners created a new high-tech façade made of glass-fiber-reinforced concrete coloured with Bayferrox® pigments – a design that is setting new standards in architecture. Another architectural highlight is the players' tunnel below the western tribune. With a form akin to a mineshaft it provides a reminder of Johannesburg's gold mining tradition.

One of South Africa's architectural landmarks

An intelligent and innovative façade concept communicates the flair and unique culture of the African continent.

A symbol of tradition and the future.

Although South Africa's largest soccer stadium exudes an air of modernity and internationality, the underlying architectural concept is inspired by the calabash, a very traditional and typically African clay pot. An intrinsic element of African culture, this pot is also a symbol of the melting pot of cultures that Africa has represented since time immemorial. However, it is not just the shape of the stadium that gives the structure its distinctly African flavor. Panels made of glass-fiber-reinforced concrete coloured with Bayferrox® pigments to create traditionally African hues transform Soccer City into a unique visual experience.

Built to echo the shape and colour of the calabash, the façade rests on a raised podium known as the "pit of fire", yet another reference to traditional African culture. Nine vertical openings in the façade face toward the other World Cup stadiums in South Africa. A tenth opening points in the direction of the Olympic Stadium in Berlin, where the final of the 2006 World Cup was played. These openings symbolize the path to the final.

Following the completion of the rebuilding works, the imposing arena has space for 88,958 spectators to cheer on their teams from the ultra-modern tiered seating. A selection of exquisite restaurants and 190 special boxes with 7,466 business seats ensure comfort of the very highest standard.

Both visually and technically, Soccer City has become one of South Africa's newest landmarks and, even without the added draw of the World Cup, is proving a major attraction for visitors from across the globe.

"Architecture that reflects the local culture communicates a sense of belonging and community."

Bob van Bebber,
Senior Architect – Design Director
Boogertman Urban Edge + Partners

Born in 1963, Bob van Bebber obtained a Bachelor's degree in Architecture from the University of Witwatersrand in South Africa in 1991. He has been partner and director of architectural firm Boogertman + Partners since 2000. Bob van Bebber is a member of the South African Council for the Architectural Profession and the Institute for South African Architects.

His partner, the architect Piet Boer, was born in 1977. He completed his studies of architecture at the University of Pretoria in 2000 with a Bachelor degree.

Soccer City is the most important stadium of the 2010 World Cup and an outstanding example of scale, innovation, design and technology.

A high-tech façade in traditional tones

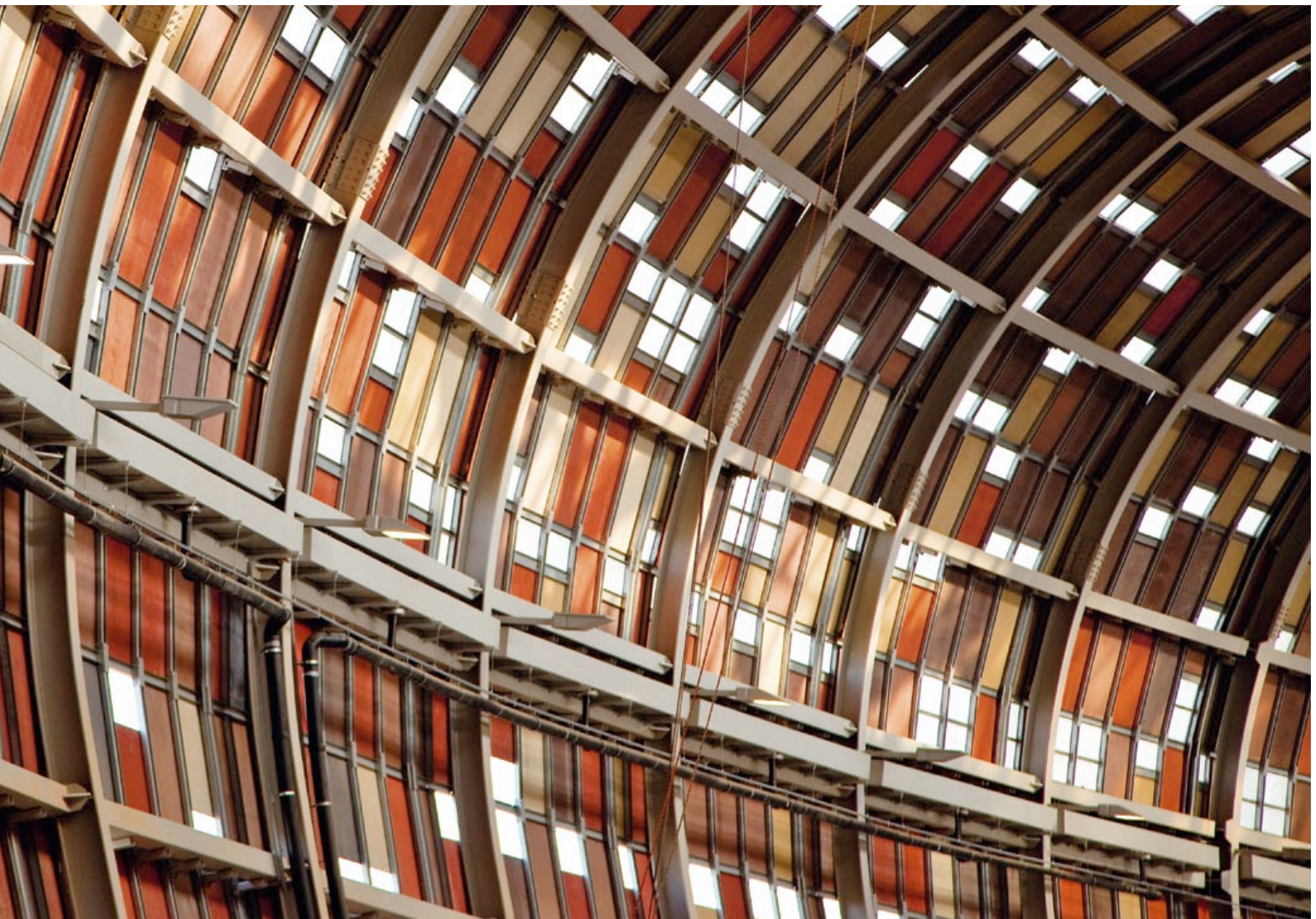
The construction of Soccer City has not only created a brand new landmark for South Africa, but has also set new architectural standards for modern soccer stadiums. Its most outstanding feature is the innovative and intelligent façade concept that impresses on both a technical and esthetic level. It was possible to make this unconventional design a reality thanks to the input of German/Austrian company Rieder Smart Elements, which supplied fibreC elements for the 28,000-square-meter outer cladding of Soccer City.

In total, 2,100 modules each consisting of 16 fibreC panels were used to construct the façade. With their authentic tones and dynamic surface, the coloured glass-fiber-reinforced concrete panels successfully reflect the architects' desire to create an outsized representation of the calabash pot so typical of Africa. Another key reason behind the decision to use coloured concrete was the climate. Strong winds and dust from the nearby gold mines create a sandblast effect that would be too much for a conventional coating to deal with.

To manufacture the coloured panels, the glass-fiber-reinforced concrete was pigmented with liquid colours from Harold Scholz using the world renowned Bayferrox® pigments.

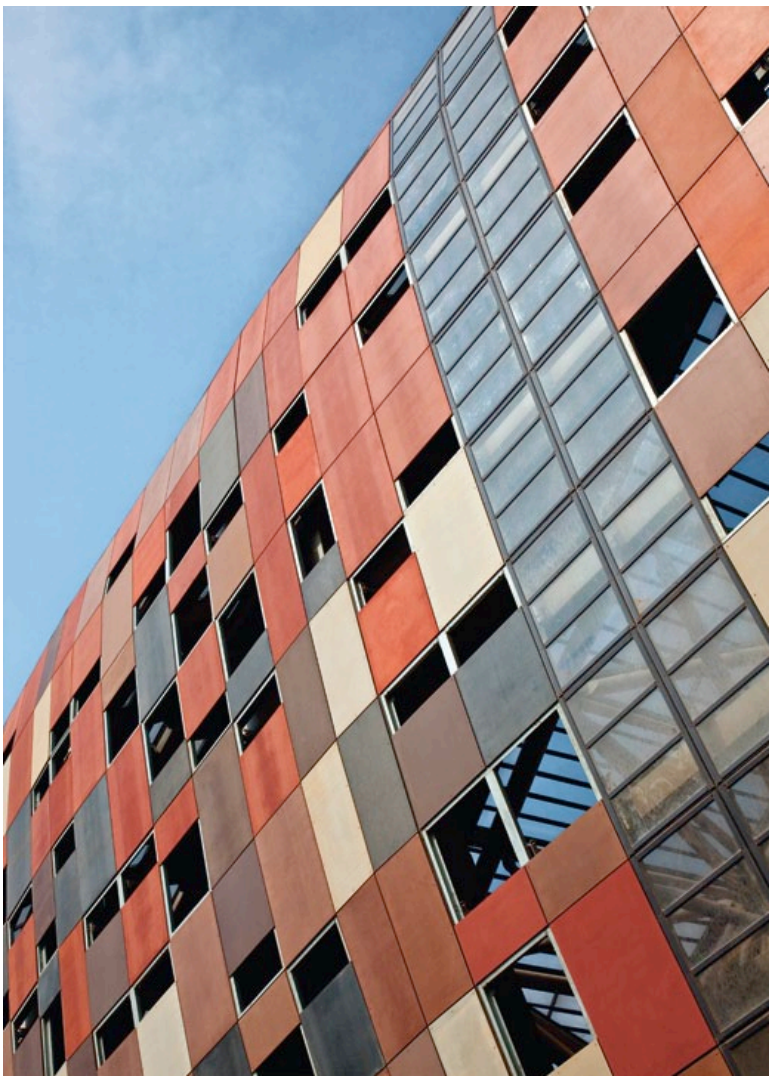
Modern architecture with an African feel

2,100 modules of through-coloured glass-fiber-reinforced concrete form a façade covering 28,000 square meters.



Project data

Soccer City, South Africa's first national stadium, has been renovated to stunning effect.



Location
Johannesburg, Republic of South Africa

Architecture
Boogertman Urban Edge + Partners
in partnership with Populous

Client
City of Johannesburg

Project participants
Façade: Rieder Smart Elements GmbH

Construction period
Façade installation between August 2008
and July 2009

Area
28,000 m^2 façade constructed using
fibreC glass-fiber-reinforced concrete panels

Volume of concrete
80,000 m^3

Colour supply form
Pigment slurry

Liquid pigment preparation based on Bayferrox® 350 liquid

Liquid pigment preparation based on titanium dioxide pigment

Liquid pigment preparation based on Bayferrox® 503

Liquid pigment preparation based on Bayferrox® 110

Liquid pigment preparation based on Bayferrox® 420

Liquid pigment preparation based on Bayferrox® 600

For more information contact our LANXESS country representative.

Germany
LANXESS Deutschland GmbH
Business Unit Inorganic Pigments
Rheinuferstraße 7–9
47829 Krefeld
GERMANY
Tel.: +49 2151 88 7741
Fax: +49 2151 88 4133

USA
LANXESS Corporation
Business Unit Inorganic Pigments
111 RIDC Park West Drive
Pittsburgh, PA 15275-1112
USA
Tel.: +1 412 809 2000
Fax: +1 412 809 3599

Singapore
LANXESS Pte. Ltd.
Business Unit Inorganic Pigments
No. 9 Benoi Sector
SINGAPORE 629844
SINGAPORE
Tel.: +65 6725 5828
Fax: +65 6266 5329

Australia
LANXESS Pty. Ltd.
Business Unit Inorganic Pigments
Unit 1, 31 Hill Road
HOMEBUSH BAY NSW 2127
AUSTRALIA
Tel.: +61 28748 3927
Fax: +61 29748 6103

Japan
LANXESS K.K.
Business Unit Inorganic Pigments
Marunouchi Kitaguchi Building 23F
1-6-5, Marunouchi, Chiyoda-ku
TOKYO 100-8215
JAPAN
Tel.: +81 3 5293 8017
Fax: +81 3 5219 9776

United Kingdom
LANXESS Ltd.
Colour Works
Lichfield Road
BRANSTON
Burton-on-Trent
Staffordshire, DE14 3WH
UNITED KINGDOM
Tel.: +44 1283 714222
Fax: +44 1283 714201

Brazil
LANXESS Indústria de Produtos
Químicos e Plásticos Ltda.
Av. Maria Coelho de Aguiar, 215
Bloco B, 20. Andar 058040902 SAO
PAULO
BRAZIL
Tel.: +55 15 3261 9304
Fax: +55 15 3261 9371

South Korea
LANXESS Korea Ltd.
Business Unit Inorganic Pigments
395-62, Shindaebang-Dong
Dongjak-gu
SEOUL, 156-712
REPUBLIC OF KOREA
Tel.: +82 2 829 6681
Fax: +82 2 847 3062

Central Eastern Europe
LANXESS Central Eastern
Europe s.r.o.
Stetinova 4
811 06 BRATISLAVA
SLOVAKIA
Tel.: +421 905 719 637
Fax: +421 2 32151624

Spain
Europigments, S.L.
Business Unit Inorganic Pigments
Arquitectura, 27
Polígono Industrial Els Garrofer
08340 VILASSAR DE MAR
SPAIN
Tel.: +34 93 75407 70
Fax: +34 93 75407 84

China
LANXESS Shanghai Pigments
Co. Ltd.
Business Unit Inorganic Pigments
No. 845, Qi Lian Road
SHANGHAI, 200331
CHINA
Tel.: +8621 52847860
Fax: +8621 52500337

India
LANXESS India Private Ltd.
Business Unit Inorganic Pigments
Kolshet Road
THANE – 400 607
MAHARASHTRA
INDIA
Tel.: +91 22 2531 1251
Fax: +91 22 2545 5152

France
LANXESS S.A.S.
Inorganic Pigments
Le Doublon A
11, avenue Dubonnet
92407 COURBEVOIE CEDEX
FRANCE
Tel.: +33 (0) 961 35 77 87
Fax: +33 (0)1 30 41 36 90

LANXESS Deutschland GmbH
Inorganic Pigments
Rheinuferstraße 7–9
47829 Krefeld
Germany
Fax: +49 2151 88 4133
E-mail: coloredconcreteworks
@lanxess.com
www.lanxess.com
www.bayferrox.de
www.colored-concrete-works.com

Visit our website:
www.colored-concrete-works.com

LANXESS
Energizing Chemistry