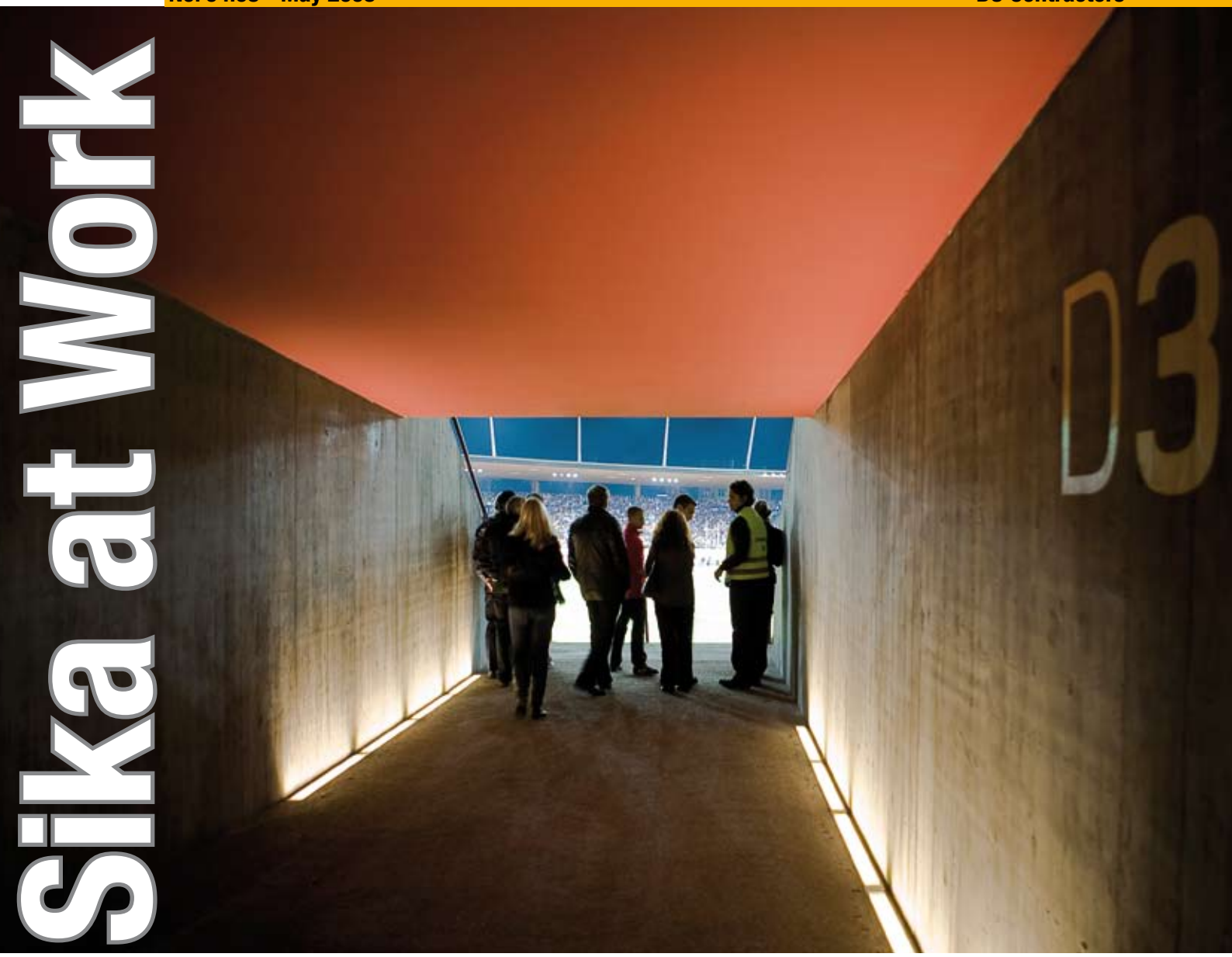
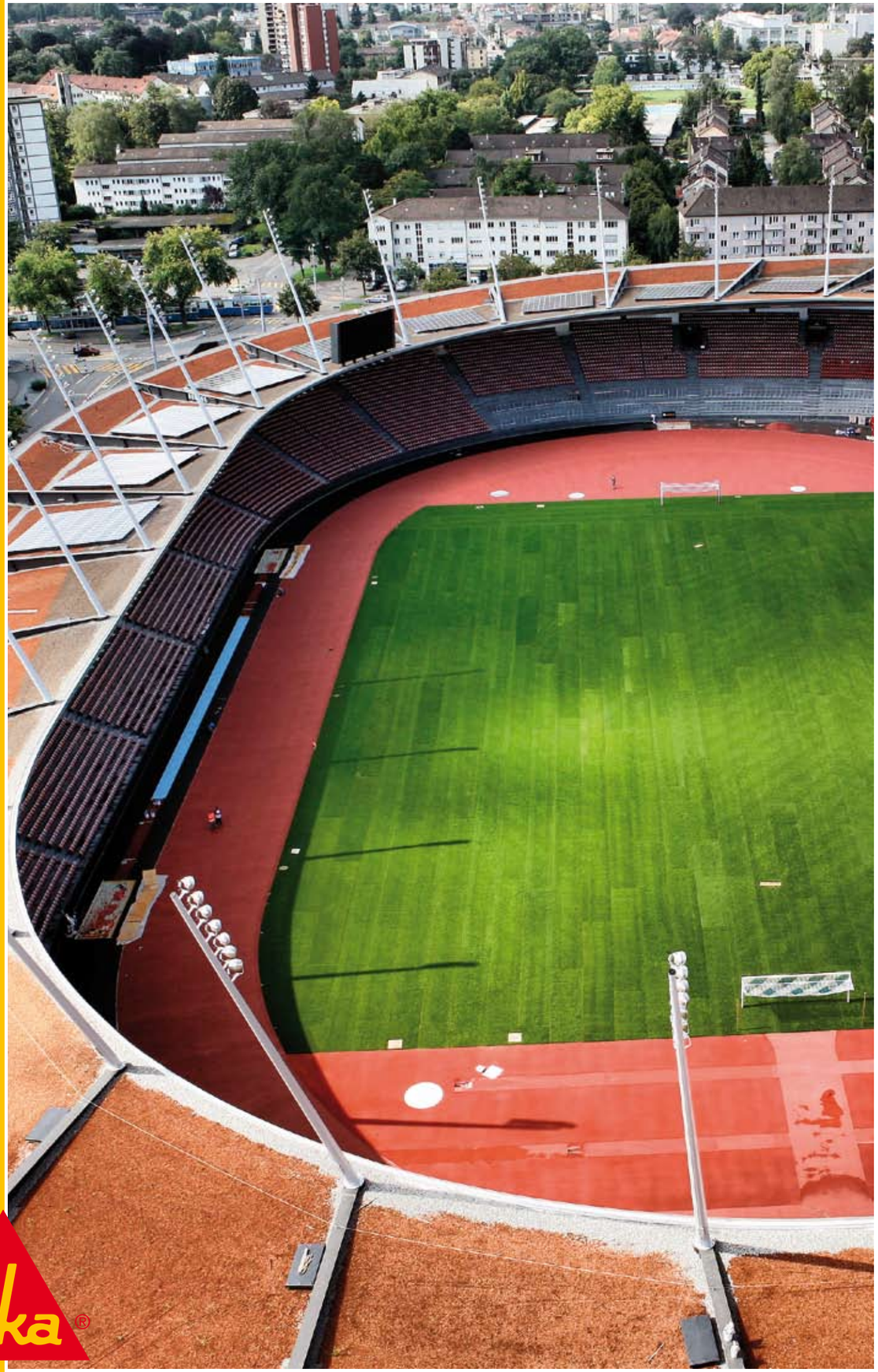
No. 04.08 - May 2008 BU Contractors

Sika at Work



Stadium Construction and Refurbishment – Winning with Sika Systems

EURO 08



Sika - A Strong Team for EURO 08

In preparation for the EURO 08 Championships, football stadiums throughout Switzerland and Austria have been prepared – major new developments and refurbishment projects are already completed or will be completed in time for the arrival of the fans and the world's media.

Sika has been heavily involved in these projects with our full range of products and services – from the basements to the roofs

In both the new construction and refurbishment works – with concrete, steel and timber – internally and externally – Sika has made an important contribution to the quality of all of these magnificent structures that will host the tournament.

Almost all of Sika's wide range of technologies, systems and products have been utilised to achieve the design objectives of the stadiums and their associated infrastructure and commercial developments, for their Owners, their Architects and their Engineers.

Sika's expertise and experience have been called on extensively by the responsible General and Specialist contractors to ensure not only that the design requirements can be achieved, but that they can be continuously and reliably achieved, practically on site, throughout the year and in all different weather conditions.

The Swiss and Austrian Teams are good footballers – but the Sika Team is a clear winner and worldwide leader in many construction technologies, systems and products for stadium construction.

Sika for Success with Stadiums – from the basements to the roofs

St. Jakob Park Arena, Basle (CH)

Project Description

The St. Jakob Park Arena in Basle is the largest stadium in Switzerland, with a football seating capacity of 42,000 fans and it is also used for an extensive range of other commercial purposes and events.

This stadium was the first of the new generation of stadiums built throughout Switzerland in the run up to EURO 08, it was designed by Herzog & de Meuron. The St. Jakob Arena became a new symbol of the city of Basle almost as soon as it opened in 2004. It was so popular that an extension was designed soon after it opened and this will be completed in time for EURO 08.

The St. Jakob Park development houses the largest shopping centre in North-West Switzerland, a large residential home for the elderly and commercial offices. The new extension now incorporates a large Mercedes dealership, an increase in the number of retail outlets to 50 and an additional venue for smaller events, plus its new landmark – the “Tower”. Directly below the pitch there are 680 underground parking spaces on two levels. The new 70 m tall glass tower provides 5000 m^2 of office space and more than 30 new luxury apartments with fantastic views. A new 4000 m^2 conference hall with additional catering facilities provides the venue for meetings and smaller events.

Construction Requirements

Below ground waterproofing, joint sealing and crack-free concrete construction. Seamless resin flooring and waterproof deck wearing surfaces.

Sika System Solutions

Sika waterproofing solutions and concrete concepts were used for the original construction and the extension to this major project. Sikament® and Sika®Control admixtures were used to optimise the workability and low-shrinkage properties of the concrete that had to be installed in large pour volumes. Bonded Sika membranes were used for the below ground external waterproofing and joint sealing. Sikafloor® polyurethane and epoxy based flooring systems were used for the interior finishes and the waterproof deck wearing surfaces throughout.

Foto Serge Du Pasquier - architectes.ch

Stade de Genève Complex, Geneva (CH)

Project Description

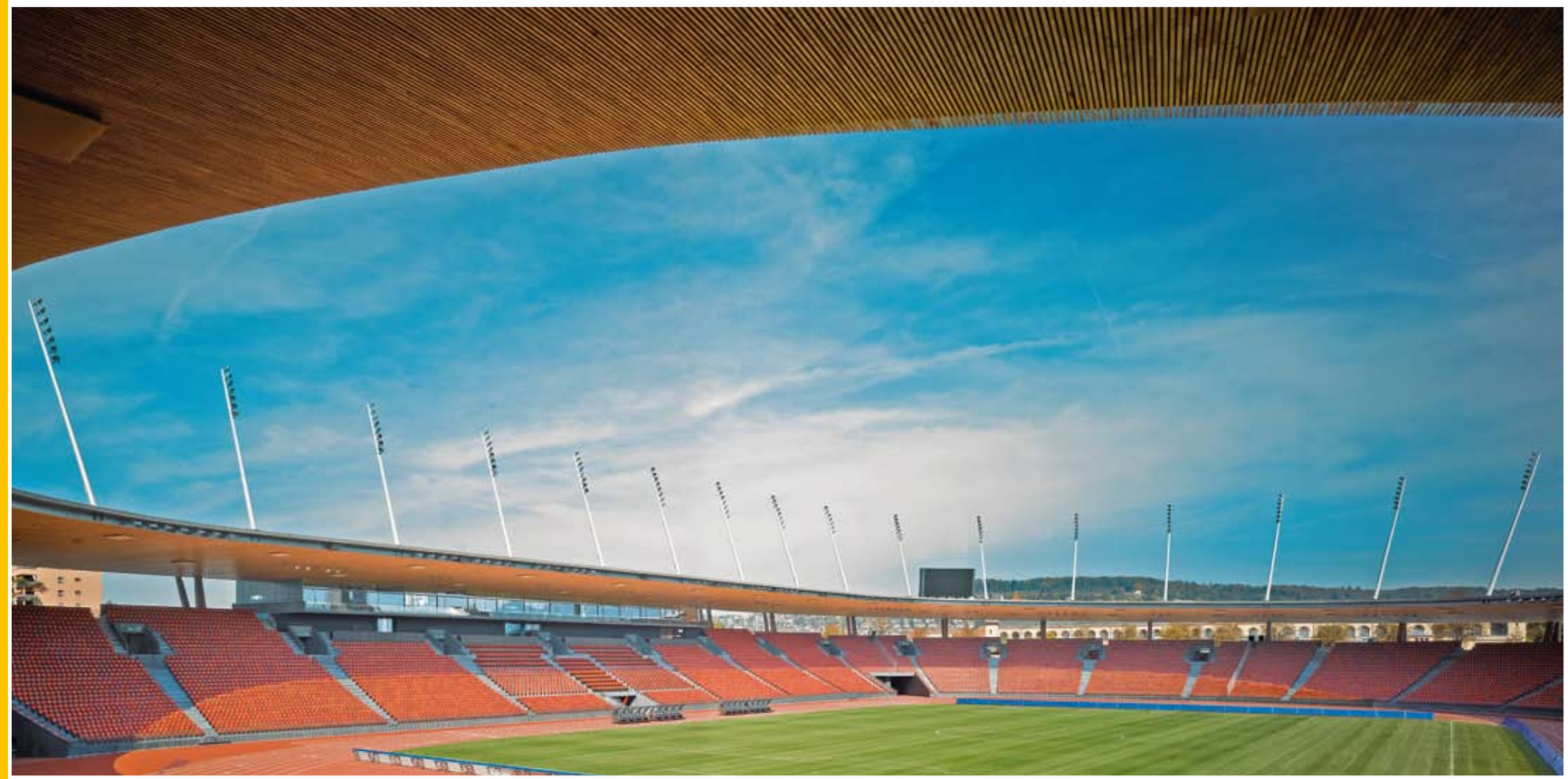
Three group matches will be played at the relatively new Stade de Genève in the La Praille District of Geneva near the French border. It is a modern football stadium providing covered seating for more than 30,000 fans and was opened in April 2003. It has direct access to its own train station and is close to the motorway. It was built as part of a development that includes a 32,000 m^2 shopping centre, a multi-storey car park, a hotel, a cultural centre, commercial offices and TV studios. In a new design innovation the pitch was excavated and then built up below the surrounding natural ground levels, so now it is about 4 m below its original ground level. This makes the whole stadium fit more harmoniously into the landscape and this idea has now been copied in many other venues around the world.

Construction Requirements

The client’s engineers demanded a watertight construction to keep groundwater out of the groundwater from the underground car park and the other service areas below ground level. Also waterproof wearing surfaces were required for the car park decks to keep out de-icing salts and also improve their image and appearance.
The elegant structural steelwork with its main beams 32 to 39 metres long, required durable corrosion protection to class C3 of ISO 12944, with low and infrequent maintenance. The wood block floors in the commercial areas also needed to be economically but securely fixed, and laid as soon as possible on the new concrete and screeds.

Sika System Solutions

Sika® Viscocrete® technology helped to produce homogeneous, watertight concrete with outstanding workability and in total 50,000 m^3 of concrete with Sika admixtures were produced.
The 30,000 m^2 of concrete decks in the underground car park were sealed and protected with a coloured Sikafloor® deck coating system.
The 28,000 m^2 of structural steel corrosion protection was achieved economically in just two coats with SikaCor® systems.
The internal wood block floors were bonded using the elastic SikaBond® system.



The Letzigrund Stadium, Zurich (CH)

Project Description

On 7 September 2007 the Letzigrund Stadium held its first major event since its complete refurbishment as a prelude to the spectacle of EURO 08.

The new Letzigrund Stadium has covered seating for 30,000 people under a projecting and curved timber roof designed in the shape of a mollusc – "Corcolum Impressum" and impressive it certainly is! This is purely a sporting and events stadium without any additional commercial services and uses. It will also host the legendary Zurich athletics meetings, top name music concerts and of course some of EURO 2008.

Construction Requirements

Concrete production using aggregates excavated from the site (during the operation to lower the level of the pitch by 7m and reduce the impact of the enlarged capacity on the environment). Durable corrosion protection to the steel support structure for the timber roof. Permanently elastic joint sealing of the new and existing elements of the concrete structure. Structural strengthening of existing reinforced concrete members. Resin flooring in the service and storage areas. Built-up single ply roof waterproofing system - which had to be installed during the winter months.

Sika System Solutions

Sika concrete admixtures were used for a total of 30,000 m^2 of structural concrete. Icosit corrosion protection was used for the 25,000 m^2 of structural roof support steel surfaces. Sikaflex joint sealing systems were used throughout for the waterproof concrete joint sealing. Structural strengthening works were carried out using Sika CarboDur CFRP systems.

In the interior the client relied on the Sikafloor® resin systems for the many different flooring requirements in the lounges, service and storage areas and the kitchens - over 4,500 m^2 of Sikafloor® systems were installed.

The architect designed roof used 24,000 m^2 of Sika Sarnafil® TG 66 single ply waterproofing membranes which are also very suitable for low temperature use.

Stade de Suisse, Berne (CH) – the Swiss National Stadium

Project Description

In summer 2005 Berne, the capital of Switzerland, celebrated the opening of the new Swiss National Stadium – the Stade de Suisse
The multi-purpose development consists of two below ground and five above ground floor levels. In addition to the football stadium capacity seating of 32,000, the development has a wide spectrum of different uses. These include a shopping centre, catering facilities, schools, a health and leisure centre, commercial offices, a medical training centre and a parking garage, all within the total floor area of 55,000 m^2.

With the stadiums many adaptations and uses that also include ice hockey and rock concerts, the Stade de Suisse has become a very popular venue.

Construction Requirements

Controlled curing of the concrete throughout the year and in all different temperatures. Structural grouting of the main support elements for the load bearing steel and reinforced concrete structure. Corrosion protection of the structural steel support for the grandstand roofs, according to SN EN ISO 12944 Class C3 “Long-term and with minimal maintenance”. Cost effective fixing and sound absorption for the interior wood floor finishes.

Sika System Solutions

Sika-Antisol® curing agents were used for the all-important fresh concrete curing. Structural grouting for load transfer was carried out with SikaGrout® systems.
On the structural steel the shop applied SikaCor® EG Rapid corrosion protection system was used for the base coat with the polyurethane based SikaCor® EG 120 system for the top coat.
The fitness studio in the leisure centre was given a solid wood floor and SikaBond® T-52 FC elastic, sound and vibration absorbing adhesive was used. For optimum application and cost effectiveness the adhesive was mechanically dispensed and applied with the SikaBond® Dispenser 5400.

Ernst-Happel Stadium, Vienna (A) – the largest stadium for EURO 08

Project Description

The Ernst-Happel Stadium is located in the recreational Prater District of Vienna, it is the largest of the EURO 08 match venues with a seating capacity of 53,000. The Cup Final will kick off there on 29 June 2008.
This stadium was originally completed in 1931 and having been refurbished several times, it is still the national stadium for the Austrian national team and is also used as a venue for major rock concerts and other open-air events. The stadium has a direct connection to the Vienna metro system with the new “Stadion” station. Immediately adjacent to the stadium is the new Vienna Stadium City Centre for shopping, leisure, sport and culture, including the new multi-storey car park. The new centre was opened in August 2007 and has 60 retail units with a total sales area of 21,000 m^2 and 2,000 m^2 of catering facilities. The car park decks are all supplied with fresh air, are very bright and have a different colour concept for the lanes and parking spaces on each floor.

Construction Requirements

A major part of the overall stadium refurbishment and this new city centre development was solving the areas massive parking problems with the construction of the new car park, to support all of the surrounding facilities and venues.
This car park was therefore right at the forefront of public attention and the materials all had to be to the highest performance standards and at the same time economic for the public purse. The 60,000 m^2 of deck coating systems had to meet all of the defined and diverse requirements for the different areas of the car park, including wear and abrasion resistance, vapour permeability, de-icing salt and UV light resistance, oil and chemical resistance, slip resistance and finally – to be available in almost any colour to meet the architects innovative designs and zone marking concepts.

Sika System Solutions

The complete range of Sikafloor® car park deck systems were able to safely meet and accommodate all of the client, the engineer and the architect’s stringent requirements.

AFG Arena, St. Gallen (CH)

Project Description

This new Eastern Switzerland commercial centre including the new stadium, will be fully completed in time for the Euro 2008 tournament. Complete with large retail areas, leisure facilities and a sports park, it has been built on a 50,000 m^2 site in St. Gallen-Winkeln. The development includes a multi-story shopping centre of 65,000 m^2 and the stadium known as the AFG Arena, with capacity for 21,000 seated spectators. The shopping centre includes 1250 below ground parking spaces and the large leisure centre facility covers more than 11,000 m^2.

An interesting feature of this development and the stadium, which is located directly on the motorway, are the four access bridges across the motorway for pedestrians and the car parks feeder roads that allow the AFG Arena to be fully evacuated within just 4½ minutes.

Construction Requirements

Watertight construction of all of the below ground areas. Durable corrosion protection of all of the exposed structural steelwork, including the roof substructure. Seamless single ply built up roofing of the shopping centre and especially the IKEA superstore. Elastic bedding and dampening of the glazed parapets.

Sika System Solutions

Watertight concrete was produced on site with Sika® Viscocrete® technology to support the Sika-Permaton system with its full system warranty. The joint sealing was carried out with 11,500 metres of Sika Forte waterbars and 1,000 m^2 of the Sikadur® Combiflex® system. In total, 83,000 m^2 of concrete with Sika admixtures were produced for the project.

The steel structure and substructure of the grandstand roof with a surface area of 22,000 m^2, plus the four steel pedestrian access bridges with a surface area of 10,000 m^2, were protected with the SikaCor® corrosion protection system. The glass parapets were bedded and given a tough elastic, dampening seal with Icosit® KC Grout and Sikaflex® AT-Connection sealants.

The 14,000 m^2 of flat roof waterproofing on the IKEA store and the shopping centre was produced using the complete Sika-Sarnafil system, including vapour barrier, thermal insulation and the single ply TPO based membrane Sarnafil® TG.

Stadion La Maladière, Neuchâtel (CH)

Project Description

A 'State of the Art' football stadium, retail shopping centre, commercial and leisure facilities, all in one development and with a fabulous lake view, has recently been built in Neuchâtel, Switzerland. The stadium has a seating capacity of 12'500 and the retail centre has 60 different shops in an area of 27'000 m^2. The towns Central Fire Station and 6 multi-purpose sports halls have also been incorporated into the development. The main structure is 198 metres long and 115 metres wide and the total investment was over 280M CHF. It has three floors above ground, plus an additional three floors below ground level.

The football pitch is in an unusual location - 8 metres above street level and directly above the shopping centre. The 6 multi-purpose Sports Halls are on the top floor with spectacular views over the lake through the huge 1'500 m^2 glass walls.

Construction Requirements

This development is literally right on the edge and much of it below the level of Lake Neuchâtel, including the basement car park which has 930 parking places, all more than 7m below the water level.

The below ground waterproofing was clearly one of the most important requirements and waterproof concrete was specified in accordance with European Standard EN 2006. More than 60'000 m^3 of this specialist concrete had to be placed in just 10 months. Additionally there were stringent requirements for waterproofing the pile caps and service penetrations, plus strict crack width limitations and jointing details.

The huge glass walls also had to be structural and yet allow almost complete and uninterrupted views.

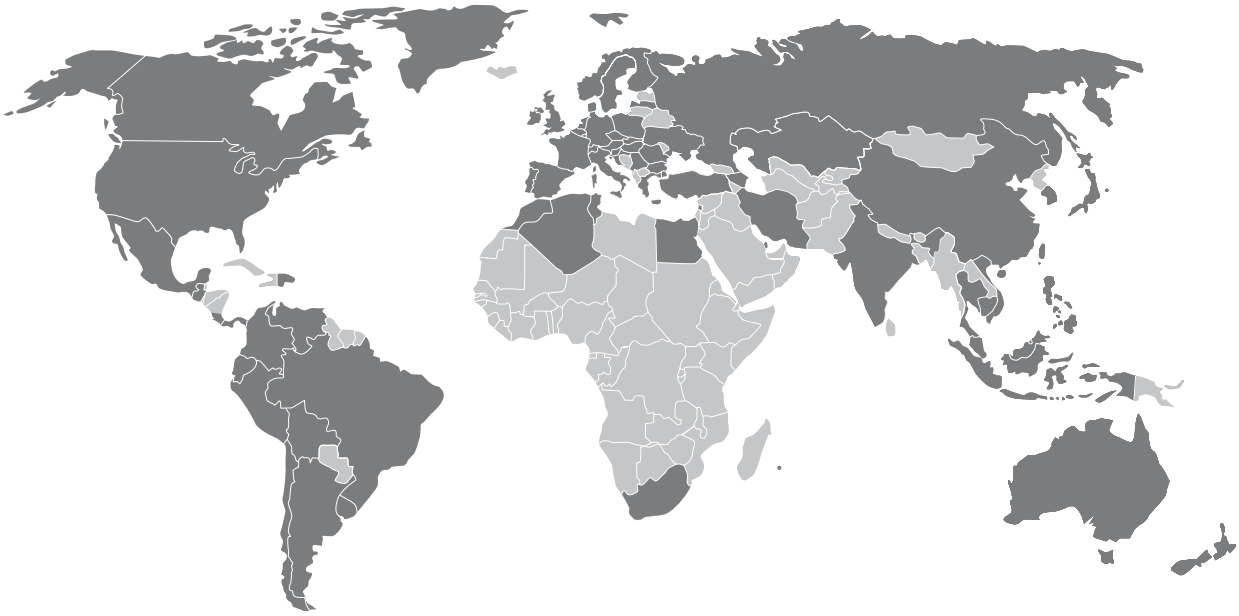
Sika System Solutions

Watertight engineering support and supervision with the Sika-Permaton "White Tank" system, for the foundations, plus floors and walls using Self Compacting Concrete (SCC) concrete, all produced with Sika ViscoCrete technology.

For the integral joint sealing works, Sika Waterbars were used.

The glass façade was formed using the Sikasil® Structural Glazing System.

Sika – a global Player in Specialty Chemicals for Construction and Industry



- 5 continents
- over 70 countries
- 90 production and marketing companies
- approx. 12 000 employees

Sika is a leading Swiss company, globally active in specialty chemicals. Its local presence worldwide links with customers directly and ensures the success of Sika and its partners. Every day highly motivated people strive to provide the best customer service.

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