

Sika at Work

Project Participants

General contractor: Max Boegl Poland Sp. Ltd.
Owner: City of Wroclaw, Wroclaw 2012 Sp. Ltd.
Design: JSK Architects Ltd.

Municipal Stadium, Wroclaw

One of the Largest Single-Level Stadiums in Europe

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Project Description

The City of Wrocław Municipal Stadium is the third largest in Poland and located in the West of the country, close to the Czech and German borders. Construction began in April 2009 and was completed in September 2011, including its integration with both local and regional transport infrastructure, such as the new tram line to the City Centre. The stadium has been built as part of a multi-purpose complex that also includes commercial offices, conference halls, a fitness centre, a casino and is home for the local football team WSK Śląsk Wrocław.

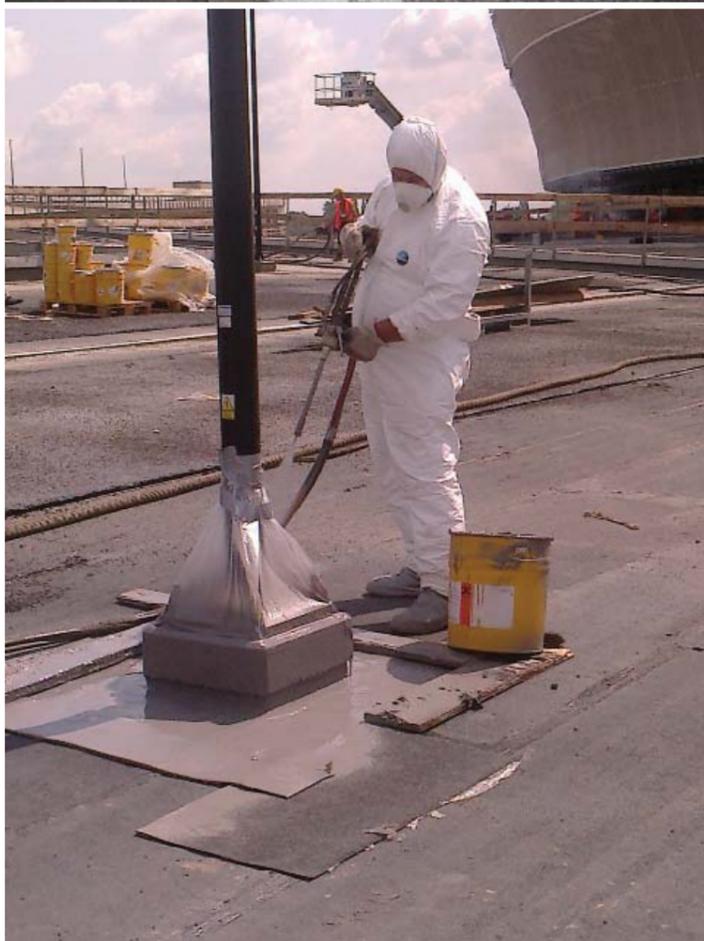
The building was created using the architectural concept of a 'Chinese-Lantern' and this distinctive shape is highlighted by the innovative design of its roof and external walls. The facade is covered by a lightweight glass fibre mesh fabric that is coated with Teflon, which gives the whole massive building structure a unique transparency. This quality is highlighted and almost unlimited coloured designs can be produced within the façade using a sophisticated lighting system that creates quite stunning visual effects.

The façade and the roof structure are anchored into the foundations all around the base of the stadium. The 6-storey stadium has a capacity of 42,771 spectators, all seated and all covered, and includes extensive VIP and Business Facilities, with numerous restaurants, bars and retail areas. All types of sports and events are now held in the Municipal Stadium, with the biggest so far, being several games in the UEFA EURO 2012 European Football Championships.

Project Requirements

An expanding, pourable, consistent cement grout was required for grouting the steel support stanchions and rings into the reinforced concrete foundations, plus the joints between the precast reinforced concrete elements that were used to form many of the internal walls, floors, terraces and stairways, all had to be securely and durably made watertight.

All of the exposed and trafficked surfaces, including some of the car parking areas built over other facilities, also had to be made waterproof and it was specified that the waterproofing solution must conform to German Standards ZTV-ING, part 7, section 1 and section 2, to be suitable for use beneath asphalt wearing surfaces in some of these areas.



Additionally many of the internal facilities such as restaurants and VIP areas etc., wanted to have a high quality wood floor finish, but with minimal noise transmission from the anticipated heavy foot traffic.

Sika Solutions

SikaGrout®-4N polymer-modified, expansive, cement based grout was selected to grout around the steel support structures and their holding down bolts into the reinforced concrete foundations.

The **Sikadur-Combiflex®-SG** Joint Sealing system was used to seal the joints between the precast reinforced concrete units in the structure. This is a high performance, over-banding, sealing tape system based on a combination of structural **Sikadur®** epoxy adhesive and a **Sikadur-Combiflex®-SG** polyolefin membrane tape. This system allows and accommodates joint movement in any direction, including large joint movement beyond the capability of traditional joint sealants. The applied **Sikadur-Combiflex® SG** system is also extremely durable, watertight and highly chemically resistant for use throughout the stadium.

For waterproofing the concrete slabs below trafficked surfaces in accordance with ZTV-ING, the prepared concrete was first primed with **Sika® Ergodur-500**, penetrating epoxy resin based sealer and primer, followed by **Sika® Ergobit**, polymer-modified, welded bitumen sheet waterproofing with raised fabric reinforcement which is specifically designed for waterproofing horizontal areas of civil engineering structures subjected to vehicular traffic. The Sika liquid applied membranes (LAM) **Sikalastic®-821 LV**, membrane (spray applied) and **Sikalastic®-822** (applied by hand), polyurethane based solutions were used for waterproofing other exposed concrete surfaces, including areas with difficult access or complex profiles.

SikaBond®-T45, one-component, polyurethane based, elastic adhesive was selected for full surface bonding of the wood floors throughout the interior of the stadium. This material was selected due to its proven track record in a great many prestige buildings and similar facilities around the world, providing acoustic insulation and noise reduction by up to 14dB. The **SikaBond®-T45** system includes primers for any damp, rough or porous substrates, whilst the long open-time allows the installers to ensure correct placing and positioning of the wood floor pieces; the **SikaBond®-T45** system is then fast curing to allow for early access.

