SIKA AT WORK

BRIDGE DECK WATERPROOFING ON SYDNEY HARBOUR BRIDGE, AUSTRALIA

WATERPROOFING: Sika® Concrete Primer, Sikalastic®

BUILDING TRUST

BRIDGE DECK WATERPROOFING

PROJECT DESCRIPTION

The iconic Sydney Harbour Bridge has undergone major road maintenance. Completed ahead of the structure's 80th anniversary on March 19th 2012, the works involved the application of a unique waterproofing system from Sika in very challenging weather conditions.

The project aimed to prevent surface water damaging the structural elements of the bridge, including the concrete bridge deck and steel support structure. Sika partnered with an experienced contractor to ensure the waterproofing application was delivered within a very tight schedule, minimising service downtime on this highly trafficked, critical infrastructure link.

PROJECT REQUIREMENTS

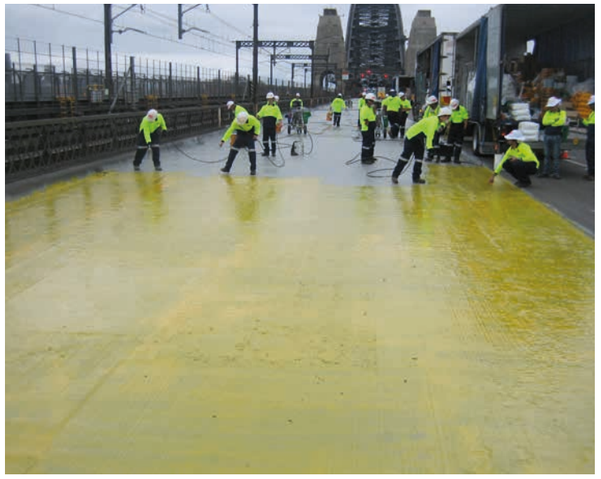
Works included resurfacing and replacement of its original 80 year old waterproofing system. NSW Roads Maritime Services (RMS), the regional authority in charge of the bridge, started an investigation to find possible solutions to preserve and upgrade this Sydney icon. The requirements of the waterproofing system were clearly defined including adhesion, tensile and flexural testing as well as cyclic performance. The main target was to select a system that could handle the movements of the structure, provide crack-bridging capabilities, and reduce the risk of corrosion and structural damage on the bridge deck and steel structure. Because of the high traffic loads, the out-of-service time of the bridge had to be reduced to a minimum for the installation of the waterproofing system, whilst minimising future repairs. In addition, the new asphalt resurfacing aimed to provide a smoother and more durable surface to reduce road noise.

SIKA SOLUTIONS

Sika® Concrete primer and Sikalastic®-841 ST polyurea spray, utilising a fast curing and hard wearing product combination, was lab tested and trialed on approx. 500 m^2 eight months prior to the final application on approx. 11,000 m^2. The combination of Sika's Concrete Primer and Sikalastic®-841 ST polyurea spray resulted in a system that enables almost immediate return to service time.

An additional layer of an accelerated low viscosity epoxy resin, Sikafloor®-161 with hardener Sikafloor®-345, was applied as an adhesive for the innovative Sikalastic®-827 HT pellets, which were broadcast into the wet surface to create a strong chemical and mechanical bond between the liquid applied membrane and asphalt wearing course.

The membrane is specifically designed for waterproofing and anti-corrosion applications on steel or concrete for both new and refurbishment projects.



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ADDITIONAL INFO

As initially planned, it was possible to cover a surface of approximately 5,000 m² of exposed concrete with the advanced and fast curing waterproofing system during one weekend. Because of the fast curing primer and membrane, even rain showers during the execution of the work did not create any difficulties; the concrete surface could be dried by heaters and the work continued. The application was executed in the most effective way to ensure the system was applied and completed one area after another to minimize the risk of contamination between layers. This way of application on the construction site was made possible only by the quick curing nature of the system from Sika.

PROJECT PARTICIPANTS

Client: NSW Roads Maritime Services (RMS)
Contractor: Concrete Remedial Services
Sika organization: Sika Australia

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