



Waterproofing the underground car park of the Deichtorhallen in Hamburg

New parking view

The Deichtorhallen Hamburg, which were restored in 1989, are famed and admired not only in the northern German city. The two former wholesale market halls with their impressive industrial architecture are among the largest and most spectacular exhibition spaces in Germany and are internationally renowned. In addition to the “House of Photography”, the northern Deichtorhalle offers the largest single exhibition space for contemporary art in Europe.

In 2010, the waterproofing, insulation and energetic refurbishment of the entire underground car park was carried out as part of a refurbishment project. This involved waterproofing the car park in front of the “House of Photography” with KEMPEROL BR. The 2,500 m² concrete surface also functions as the roof of the underground car park.

Double ceiling with expansion joint

Seeing as the parking spaces of the underground car park are located beneath the above-ground parking deck, moisture must be prevented from entering the basic structure of the building from above. Damage to the approximately 100-year-old concrete ceiling of the underground car park was so far advanced that a new sloping concrete ceiling had to be constructed. This 20 cm thick layer was poured directly onto the existing concrete ceiling.

Fresh concrete does not subsequently bond with hardened concrete. In order to absorb any potential shear stress, the waterproofing of the upper slab was designed as a two-layer expansion joint with an inserted loop on the outside. To prevent moisture from making its way to the bottom, the entire construction was waterproofed also at the sides to a depth of almost 50 cm.

The architects in charge of this project had specified liquid applied waterproofing as their material of choice. The contract for waterproofing the area in front of the Deichtorhallen was awarded to Rolf Könsen Bedachung GmbH from Bremen. Two layers of mastic asphalt were used as the heavy-duty wearing course, which is the reason why KEMPEROL BR was chosen. This highly heat-resistant liquid applied waterproofing can be combined with 250°C hot mastic asphalt without

any loss of performance and is recommended for heavy-traffic parking decks. Mastic asphalt alone does not offer adequate waterproofing in the overlap areas. Work commenced with the new concrete substrate being shot-blasted and any holes being filled with KEMPERTEC filling compound, a mixture of KEMPERTEC EP Primer and KEMPERTEC KR Quartz Sand Mixture. The entire substrate was initially primed with KEMPERTEC EP Primer with KEMPERTEC NQ 0408 Natural Quartz Scattering before KEMPEROL BR M Waterproofing was applied. KEMPEROL BR M is the name of the two-component, pre-accelerated product variant that is suitable for machine application using the KEMPERATOR.

KEMPERATOR ante portas

The car park offered an ideal application scenario for the KEMPERATOR, which rationalises KEMPEROL application, especially on larger areas. The application machine from KEMPER SYSTEM ensures whole areas can be waterproofed much faster than by individual workers. An advantage that is also reflected in the overall costs. Operation is easy and straightforward: The roll of fleece is fitted onto a cartridge and the tank filled with KEMPEROL. As the fleece passes through the machine, it is saturated with KEMPEROL before being guided by a roller system onto the surface free from creases and folds. Any air bubbles are simply pressed out with the nylon roller.

A single layer of KEMPEROL was applied across the entire surface and pulled down approx. 50 cm at the edges of the underground car park slab. The upper finish was formed by the heavy-duty wearing course, i.e. the two layers of mastic asphalt.

Project Data

Project

2500 m² parkinglot in Hamburg

Owner

Deichtorhallen-Ausstellungs GmbH

Builder

IMPF – Hamburgische Immobilien Management Gesellschaft mbH, Hamburg

Architect BDA

Dittert & Reumschüssel, Hamburg

System

KEMPERTEC EP-primer, KEMPERTEC KR Quarzsandmischung, KEMPERTEC NQ 0408 natural quartz KEMPEROL BR und KEMPEROL BR M water proofing

KEMPER SYSTEM processor

Rolf Könsen Bedachung GmbH, Bremen

