

SIKANews

SIKA SYSTEM SOLUTIONS FOR ELBPHILHARMONIE HAMBURG

The Elbphilharmonie concert hall, with its unmistakable silhouette, has already become an impressive new landmark on Hamburg's skyline. The visionary design by Swiss architects Jacques Herzog and Pierre de Meuron has transformed an old brick warehouse into an architectural and cultural beacon that shines across the German metropolis. In implementing the scheme, the German construction group HOCHTIEF opted to use numerous Sika products and system solutions.



The Elbphilharmonie's spectacular roof construction required an absolutely trouble-free and, above all, durable waterproofing solution, which meets the most stringent technical demands. The project team opted to use a Sika system solution.

SIKA CONCRETE TECHNOLOGIES: ADMIXTURES FOR CHALLENGING CONCRETE STRUCTURES

The fully stripped-out Kaispeicher warehouse now houses parking areas, restaurants and storage spaces. Forming the interface between the restored

warehouse and the new-build structure is the approximately 3,100 m² Plaza, a public viewing deck offering a spectacular 360° panorama. The spacious foyer is dominated by large ceiling vaults and inclined concrete columns.

Due to the magnitude of the loads permanently supported by the freestanding columns, the columns themselves are made from high-strength concrete. To optimize concrete strength and durability, Sika supplied a total of 40 tonnes (metric tons) of the concrete additive Sika® Silicol SL.

The most stringent (class 4) requirements were placed on the fair-faced concrete in the stairwells and elevator shafts. The universal Sika® ViscoCrete® superplasticizer was specified for many of the complex concreting operations to improve flow properties and lengthen workability. Used for over 63,000 m³ of concrete, the admixture also increased the material's strength.

SIKA CORROSION PROTECTION: ROBUST STEEL PROTECTION FOR STAIRWAYS AND LOADING HATCHES

Stairways opening off the Plaza lead to the centerpiece of the Elbphilharmonie: one of the acoustically best concert auditoria in the world. The steel stair balustrades, which are subject to extremely heavy wear and are required to offer long-term abrasion and impact resistance, were provided with a robust anti-corrosive finish using the SikaCor® EG system. The multi-coat system ensures high chalking resistance and color retention. Given that the coating initially applied to the balustrade had started to corrode within a short space of time – Sika turned up right on time with the ideal solution.

SIKA CONSTRUCTION BONDING AND SEALING: SCINTILLATING PLAY OF LIGHT ON GLASS FACADE

The over 70-meter high glass feature of the Elbphilharmonie is reminiscent of a giant, shimmering, blue crystal. With 1,100 glass units, the impressive facade covers a total area of around 20,500 m². The one-off glass elements are elaborately curved and fitted with special, small reflectors that deliver an ever-changing choreography of mirrored sunlight, sky hues and harbor lights. The reflective function also prevents the incidental solar radiation from heating up the building. The adhesives and sealants used for the glazing are exposed to the typically harsh Hamburg climate



From foundation to roof: Numerous products and system solutions were supplied by Sika for Hamburg's new landmark building.



The building incorporated the Sarnafil® TS 77-20 FPO polymeric membrane as well as other products from Sika's premium brand.

of alternating sunshine, rain, storms and gale-force winds. The project team thus opted for the use of Sikasil® two-component structural silicone adhesive and a two-component silicone sealant for fabrication of the individual glass units. In addition to the adhesives and sealants for the glass facade, Sika also supplied sealant solutions for the floor joints in the break rooms and stairwells.

SIKA ROOF WATERPROOFING: 800 TONNES OF ELEGANCE

To ensure absolutely trouble-free and above all, durable performance, the waterproofing solution for the spectacular roof assembly was required to meet the most stringent technical demands. The waves and tips of the roof and the "paillette" covering installed as the final step posed a severe challenge that was successfully mastered through the use of Sika system solutions.



Sika's anti-corrosion solutions provided the loading hatches of the former Kaispeicher warehouse and the stair balustrades with a hardwearing protective finish.



Sika sealants were also specified for the floor joints.

The steeply sloping trapezoidal steel sheeting was covered with the Sarnavap 5000 E self-adhered vapor barrier, topped with multi-layer insulation. Due to the extremely steep roof inclination in places, the design team opted to use a flexible Sika Sarnafil® multi-ply polymeric membrane, which also provides enhanced fire protection. This roof assembly then served as the base for tubular supports to carry the 5,800 white-coated, round, perforated aluminum-sheet "paillettes", which fulfil a purely aesthetic purpose. Therefore provision had to be made for several thousand penetrations during the installation of the roof membrane. The resulting junctions were formed with Sarnafil® T

galvanized-steel flashings. The total length of the weld seams incorporated on the Elbphilharmonie roof runs to 15 km. With the underlying roof membrane no longer accessible after fixing and sealing of the paillettes, it was crucial to ensure absolute watertightness and durability of the installed materials through the use of Sika products.

The Elbphilharmonie is a structure that poses exceptional architectural, design and construction challenges. Both the client and construction teams were duly impressed by the convincing solutions delivered by Sika, as construction chemicals specialist, for all required applications.

FURTHER INFORMATION

- [Website of the Elbphilharmonie](#)
- [Website of Herzog & de Meuron with a special issue on Elbphilharmonie](#)

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