Project Report/July 2024

Ceiling Refurbishment in the Listed KJF Specialist Clinic Prinzregent Luitpold in Scheidegg, Germany

The KJF specialist clinic Prinzregent Luitpold is picturesquely located in Scheidegg in the Bavarian-Swabian district of Lindau (Lake Constance), Germany. The children's sanatorium, built in 1912 and opened in 1916, was created with a donation from Prince Regent Luitpold and was intended to serve the recovery of city children "900 meters above sea level, in a wooded, windless location". The buildings are now listed under monumental protection.

The investor planned for a core refurbishment of the kitchen and dining area - actually while the clinic was still in operation and the school's classrooms above were being used for the patients.

Around 170 square metres of ceiling area in the main kitchen, scullery and cold storage rooms on the ground floor were enhanced. The aim was for the areas made of unreinforced tamped concrete to meet fire protection requirement F 90.

To do this, the specialist first removed the existing Rabitz ceiling. This revealed local defects or gravel nests in the vaulted concrete and old recesses or less compacted concrete, which had to be repaired at the same time. Contaminants and foreign bodies were also removed. The concrete surface of the tamped concrete cap ceiling was prepared to a roughness depth of > 1.0 millimetres by means of compressed air blasting with solid blasting media. The applicator then applied a layer of 4 centimetres of dry-mix sprayed mortar to the vaulted ceiling construction until the specified minimum component thickness of 10 centimetres was reached. At the same time, he repaired local defects in the vault structure. The surface remained coarse sprayed.

The team of experts opted for the **StoConcrete Repair Prime TS 136** system to refurbish the vaulted ceilings. This was especially developed for low-modulus sub-base concretes from existing concrete classes. The existing concrete found was less strong because it had been compacted or tamped by hand in accordance with normal practices at the time of construction. The

polymer-modified concrete repair product StoCrete TS 136 is applied using the dry-mix sprayed method. Low rebound, large layer thicknesses in one operation and the ability to be applied while the building is in operation without having to interrupt classes in the rooms above were other decisive properties.

Properties of **StoConcrete Repair Prime TS 136**

- StoCretec CEM repair system
- Concrete repair product using the dry-mix process
- For restoring the structural integrity of concrete members
- Strength and deformation properties adapted to substrates with low strength and low modulus of elasticity (Existing concrete*)
- In accordance with EN 1504-3, repair mortar class R3
- Application possible also under dynamic stress
- Building material class A2-s1, d0 in acc. with EN 13501-1, non-combustible
- Fire resistance class F120 (ETK) in acc. with DIN EN 1365-2
- Fulfilled exposure classes: XO, XALL, XC1-XC4, XBW1-XBW2, XF1-XF4, XW1-XW2, XSTAT, XD1-XD3, XS1-XS3, XDYN, XM1
- High resistance to carbonation
- Voluntary monitoring system A (DIN 18200)
- Layer thickeness15 - 60 mm
- Corrosion protection available in the system
- Low rebound, large layer thickness in one application cycle
- Flexible work interruption and long conveying distance possible

Who & What

Project:	KJF Fachklinik Prinzregent Luitpold, Deckensanierung, Scheidegg, DE
Investor:	Katholische Jugendfürsorge der Diözese Augsburg e.V., DE
Architect:	FG Architekten und Sachverständige GmbH, Sondhofen DE
Structural planning:	böller bischof Beratende Ingenieure PartGmbB, Lindenberg, DE
Applicator:	Rauer Bau- und Betonsanierungs GmbH, Dietenheim, DE

Realisation: 2/2024

StoCretec Competence: **StoConcrete Repair Prime TS 136**

Corrosion protection	StoCrete TK
Dry-mix sprayed concrete	StoCrete TS 136

Photos: böller bischof Beratende Ingenieure PartGmbB

*)Existing concrete: In its Technical Rule on the repair of concrete structures (German original: Technische Regel „Instandhaltung von Betonbauwerken“, version: May 2020), the Deutsches Institut für Bautechnik (German institute for structural engineering) has defined 5 categories of existing concrete (A1 to A5). The term ‘existing concrete’ refers to concrete that has already been installed in buildings and structures as opposed to concrete material yet to be installed. In German, these categories are called ‘Altbetonklassen’ which translates to ‘classes of existing concrete’. Existing concrete is categorised according to its compressive strength and surface tensile strength. Before repairing existing concrete, its ‘Altbetonklasse’ needs to be determined in order to select a suitable mortar or concrete.

Photo: KJF Fachklinik Prinzregent Luitpold

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