DRINKING WATER TANK, FELLBACH, GERMANY

VANDEX CEMLINE FOR REINSTATING DRINKING WATER RESERVOIR

Fellbach drinking water reservoir with a total capacity of 10 million litres

In the last quarter of the 19th century, there was hardly ever any shortage of water for either drinking or industrial use in the vineyard village of Fellbach. In 1896, the Fellbach local council decided to examine the "Dreibrunnenquellen" (source of the three springs) on the northern slopes of Kappelberg for its yield and its hygienic suitability. It was also here that, following a resolution of the newly founded FELLBACHER WASSERVERSORGUNGS-GRUPPE, a high-level tank with a capacity of 800 m³ was constructed in 1902.

In 1957, the Fellbacher Group had the high-elevation tank enlarged for a second time, by 9,000 m³ (to a volume of 11,400 m³).

Description of the structure
The structure to be renovated is a rectangular water tank, covered with earth on the Kappelberg in the semi-elevated location of Fellbach. There are two water chambers, each with a water capacity of 5,000 m³. The complete construction is of steel-reinforced concrete.

Access to the water chambers takes place via the valve house. The two water chambers have a height of approx. 5.30 m. In each chamber there are 36 mushroom-head columns, in a support grid of 5.00 by 5.00 m.

The coatings on the wall, floor and support surfaces are all extensively damaged. The roof has a plaster coating that is approx. 5 mm thick, and appears to be hollow over large areas.

Remedial Specification. Mushroom head with visible planking
On the ridges of the mushroom heads there are traces of reinforcement corrosion, and it is suspected that the concrete cover is extremely thin in this area. Spalled areas of the structure should be exposed, the steel should be sandblasted and protected with mineral VANDEX CORROSION PROTECTION M. After the chiseled out areas have been reprofiled, VANDEX UNI MORTAR 1 will be applied to the sprayed mortar layer to increase the concrete cover. The final coating will be carried out by applying of VANDEX CEMLINE SG (3 mm) in "orange peel" surface finish.

Roof/Ceiling
All spalled and loose material must be removed either in their entirety or locally. The ceiling area is then reinforced with the VANDEX UNI MORTAR 1 sprayed mortar layer. The 3 mm thick final coating is carried out using VANDEX CEMLINE SG to form a stalactite-type spray structure.

Walls and columns
After careful water and sand blasting of the wall surfaces, concrete repair will be carried out. Here also, for repair spots VANDEX UNI MORTAR 1 will be applied. A 5 mm intermediate layer of VANDEX CEMLINE MG then follows. The final coating will again be a multiple application of VANDEX CEMLINE SG (3 mm). The surface should be trowelled smooth.

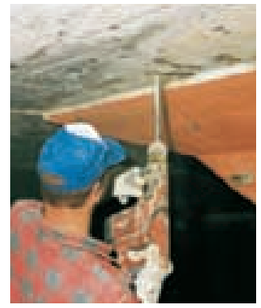
Slabs
After thorough cleaning, the floor surface will be coated in the same way as the walls. Here also, the surfaces will be trowelled smooth.

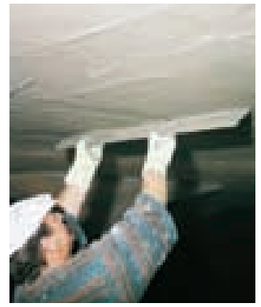
The specification is completed by the application of VANDEX MINERALIT for walls, columns and slabs.

The high water flow rate and/or the strong turbulence, necessitated the use of a material having a high resistance to this form of cyclical stress. The new VANDEX CEMLINE system has been selected, as it promises an extended service life.

Total areas treated: 5,700 m².

Planning: *Ingenieurbüro Jürgen Schumacher, D-70736 Fellbach;* ***Special Building Materials:*** *Vandex Isoliermittel-Gesellschaft mbH, D-22525 Hamburg;* ***Contractor:*** *Schmutz GmbH, D-76189 Karlsruhe,* ***Operator:*** *Stadtwerke Fellbach, D-70736 Fellbach*





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