IN THE FACING PAGE. The tram depot in Koželužská St in Olomouc (Czech Republic) had been in operation for more than a hundred years before undergoing refurbishment works. **RIGHT.** Mapei products were used for repairing concrete and anchoring works on the structures bearing the tracks.

Olomouc (Czech Republic)

Tram depot

THE CONCRETE ELEMENTS BEARING THE TRACKS WERE REPAIRED WITH MAPEI SOLUTIONS

The tram depot in Koželužská St in Olomouc (Czech Republic) has been in operation for more than a hundred years. The city obtained the concession to build and operate the tram line in 1898 but the plans to build a street line actually dated back to 1892. Technical and operational tests were conducted at the beginning of 1899 and tram operation officially began on April 1st.
Over the years, the depot has undergone many structural repairs in order to expand the premises to accommodate the ever-increasing number of public transport vehicles. However, despite all the changes that have been made, it was not possible to enlarge the depot to the necessary dimensions untill very recently.

The latest renovation operations
After decades of operation and many extensions, the depot clearly deserved a renovation, which was finally carried out in December 2018. The maintenance of the assembly pits of the 3rd and 4th tracks of the depot was the most important part of the project. The bearing structures showed structural failures and were at the limit of safety, which was caused not only by years of operation, but also by the constantly increasing weight of the tram cars since 1899.
Therefore, the rails were temporarily dismantled, and the existing concrete and reinforced concrete structures were demolished down to the depth of the foundations. The demolition exposed the damaged concrete elements and steel reinforcement, but especially highlighted the completely inadequate sizes of the existing structures for today's purposes. The refurbishment operations began with the pouring of the concrete for the foundation. This was followed by the reinforcement, the pouring of the concrete base and pillars. And finally, the tracks were reassembled. The length of the tracks was preserved, and the depot can now handle maintenance work on four cars at a time even after the refurbishment works.

Concrete repair and coating
The concrete surfaces needed to be chemically treated as a part of the renovation project, and the Mapei's proposal was chosen as the most suitable solution. MAPEGROUT T60, a fibre-reinforced shrinkage compensated thixotropic mortar, was used to repair and reconstruct the reinforced concrete structures. This mortar is suitable for the repair of all concrete and reinforced concrete surfaces exposed to sulphate attack, or for hydraulic works damaged by corrosion.
All concrete surfaces were then skimmed with PLANITOP 540, a fine skimming mortar based on based on cementitious binders, selected graded aggregates, admixtures and synthetic powder polymers. The product is suitable for smoothing cement-lime based or prepacked cured traditional renders, uneven concrete elements and "hardened" render units in interiors and exteriors, as well as for levelling ready-mix concrete units such as panels, columns and beams. After curing, the layer is characterized by high adhesion to the substrate.
MAPEFILL high-flow non-shrink cementitious grout was used to anchor the tracks. This mixture is mainly used for anchoring machinery, bolts, steel structures, turbines, milling machinery, etc., to concrete. Even after a short curing time, the mix has a very high flexural and compressive strength, excellent adhesion to steel and concrete and resists dynamic/mechanical stresses very well.
Once the repair operations were completed, MAPECOAT I24 two-component epoxy paint coating was applied on the surfaces to provide resistance to mechanical stresses and chemicals, oils and hydrocarbons. After mixing it with ADDITIX PE, a thickening and thixotropic additive for epoxy and polyurethane compounds, the product was used for the final treatment of the floors and walls of the depot. Mixing these products increases the thixotropic properties to such an extent that the mixture can also be used on vertical surfaces and plinths.

Find out more MAPEGROUT T60

TECHNICAL DATA
Tram depot, Olomouc (Czech Republic)
Owner: Dopravní podnik města Olomouce, a.s.
Main contractor: Dopravní podnik města Olomouce, a.s.
Concrete repair contractor: IDS Olomouc a.s.
Mapei coordinator: Jan Bébar, Mapei spol. sro (Czech Republic)
Photos: Aleš Berka

MAPEI PRODUCTS
Concrete repair: Mapegrout T60, Planitop 540
Anchoring: Mapefill
Coating concrete surfaces: Mapecoat I24, Additix PE

For further info on products: mapei.com, mapei.cz