



Vilnius (Lithuania) LENTVARIS RAILWAY BRIDGE

A COMPLETE SYSTEM FOR STRENGTHENING,
REPAIRING AND PROTECTING THE COLUMNS

This railway bridge was built in 1924 and was lately in need of repair. When considering the retrofitting of its masonry columns, the Lithuanian Railways requested a system able to improve the bearing capacity and the stability of the columns with minimal intervention and change of the cross-section.

Besides, the appearance of the columns had to be kept as similar as possible to the original one, since the structure is considered of architectural and historical value.

Strengthening and repairing

The substrates were first smoothed with PLANITOP SMOOTH & REPAIR R4, a structural, R4-class, rapid-setting, shrinkage-compensated, thixotropic, fibre-reinforced, cementitious mortar, which is applied in a single layer from 3 to 40 mm thick for repairing and smoothing concrete. The product not only ensured a sound and structurally stable surface for further installation of FRP materials, but also reduced the waiting time before applying

the epoxy adhesives belonging to the FRP-based system for structural strengthening.

This system involved a combination of CARBOPLATE E200, pultruded plates made from high strength, medium-modulus carbon fibres, and MAPEWRAP C-UNI-AX 600 carbon fibre fabrics for strengthening the columns.

Additional products supplied by Mapei for concrete repair included MAPEFER 1K, corrosion-inhibiting cement mortar for the protection of reinforcing rods; MAPEGROUT SV, fast-setting and hardening compensated-shrinkage, easy-flow mortar for repairing concrete; MAPEFIX VE SF, chemical styrene-free vinyl ester anchor for structural loads and construction bars in concrete.

Finally, the repaired surfaces were given a final aesthetic touch and protection by using ELASTOCOLOR PAINT, an acrylic resin-based paint in water dispersion which forms a flexible finishing coat impermeable to water and aggressive agents in the atmosphere.

MAPEWRAP C UNI-AX SYSTEM

Structural strengthening system consisting of high-strength, high-modulus unidirectional carbon fibre fabric and epoxy resins to impregnate and bond the fabric.

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IN THESE PAGES.

Mapei was able to provide products for concrete repair, structural strengthening and final protection of the concrete surfaces of the columns.

TECHNICAL DATA

Year of construction: 1924
Period of the Mapei intervention: 2018-2019
Design: JSC "Plentprojektas"
Client: Lithuanian National Railways
Contractor for strengthening: JSC

"Švykai"

Mapei distributor: JSC "Velve M.S.T" Lithuania
Mapei coordinator: Trond Helgedagsrud, Mapei AS (Norway), and Giulio Morandini, Mapei SpA (Italy)
Photos: Artūras Ručinskas

MAPEI PRODUCTS

MapeWrap Primer 1, Carboplate E200, MapeWrap C-UNI AX 600, MapeWrap I2, Adesilex PG2, Planitop Smooth & Repair R4, Mapegrout SV, Mapefill N-LH*, Malech, Mapefix VE SF, Elastocolor Paint

*This product is manufactured for the local market by Mapei AS, the Norwegian subsidiary of the Group.

For further information on products see mapei.com and mapei.no