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Case Study

Double tunnel: 3x faster railway- tunnel construction

ViaCon corrugated steel solution cuts down construction time on a second tunnel in Algeria. Corrugated steel solutions add flexibility to tunnel construction projects when time is of the essence.

THE CHALLENGE

During the construction of the Birtouta-Sidi Abdallah-Zéralda railway tunnel in Algeria, the construction company built a first tunnel in concrete, which

took several months. Facing deadline constraints, they needed to speed up construction significantly, which is how they decided to build the second tunnel with corrugated steel.

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3x faster railway-tunnel construction

THE SOLUTION

ViaCon Poland consulted with contractors to design and assemble the second railway tunnel in corrugated steel. Construction time was reduced considerably compared to the multi-month construction of the concrete tunnel. Estimates put installation time at three times faster than the first concrete tunnel, being completed in just a couple of weeks.

ViaCon's SuperCor SC-94R corrugated steel structure type made the difference in completing construction on the second tunnel in a timely fashion.

SPECIFICATIONS

Product: Corrugated steel structure SuperCor

Live load: According to EN 1991

Cover depth: 6.71 m under the road;
6.00 m in remaining area

Backfilling parameters: Aggregate compacted to 98% standard proctor density ($\gamma = 24,10 \text{ kN/m}^3$ up to 2 m over the crown and $\gamma < 20,30 \text{ kN/m}^3$ over that)

Seismic effect: Considered; calculation of horizontal acceleration ratio: $A_h = 0,4$

Durability: 100 years

Corrosion protection: Zinc coating of thickness conforming EN ISO 1461 standard, internal surface of the structure painted with polyurethane paint of thickness $100 \mu\text{m}$

Span: 12.02 m

Rise: 12.02 m

Bottom length: 180.08 m

Top length: 138.62 m

Steel: S315MC

THE ADVANTAGE

The double-tunnel solution demonstrates the comparatively easier and shorter construction/installation time for corrugated steel solutions versus concrete.

The complete solution helped the customer complete the project approximately three times faster.

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