

# Milan Metropolitan Underground Tunnel Relies on PREPRUFE®

PREPRUFE® used to waterproof 25,000 m<sup>2</sup> of underground construction

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Project	Milan Metropolitan
Client	Milan Metropolitan
Main Contractor	Costruzione Grandi Lavori Fincosti Spa
GCP Solutions	PREPRUFE® pre-applied waterproofing, BITUTHENE® waterproofing

## Project

### Meeting the challenges of underground construction

Milan's Metropolitan line set out to build an artificial tunnel 1 km long. Waterproofing was carried out for the horizontal foundation slab, against vertical diaphragms and for the roof, with a total area of 25,000 m<sup>2</sup>. The underground construction work was commissioned by Milan Metropolitan, contracted out to Costruzione Grandi Lavori Fincosit Spa, and the waterproofing was laid by Eng.Prati Srl.

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## High water table adds complexity to construction

Located south of Milan, the tunneling and mining site runs close to the canal for about 1 km, with the constant presence of a water table under pressure. Having considered the complexity and importance of the underground construction work to be carried out, Milan Metropolitan sought and selected a highly reliable waterproofing system that would provide effective and permanent protection of the important structure.

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## Waterproof membrane prevents water migration

Milan Metropolitan selected the PREPRUFE® pre-applied waterproofing membrane. The product has a unique ability to develop a high level of adhesion to concrete during the pouring and hardening phase. Consisting of a robust film of high density polyethylene, PREPRUFE® waterproofing ensures impermeability and, in the event of accidental damage, prevents lateral migration of water between the membrane and the structure itself.

The PREPRUFE® system has a high resistance to hydrostatic pressures – up to 80 meters high, is highly resistant to any chemical agents dissolved in the water, and does not require additional mechanical protection.

The PREPRUFE®300R membrane was laid on the screen, followed by laying the reinforcement and pouring of the main slab. PREPRUFE®160R was mechanically fixed directly to the surfaces of the diaphragms and the BITUTHENE® System, was then laid after spreading primer on the surfaces of the covering screeds. Both PREPRUFE® and BITUTHENE® provide a waterproof system, with complete adhesion for tunneling and mining.

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