Copenhagen Cityringen is the fourth construction phase of the Copenhagen Metro, a circle line in the city center consisting of a double-tube tunnel system comprising 17 stations.

The Metro tunnels and stations are located at a depth of up to 25 m below ground. The special feature of the foundation soil is a limestone formation, which forms a groundwater horizon, and the upper structures which are located in the groundwater. The foundation pits of the stations were secured with bored pile walls. A loosely laid (sealing) membrane was installed on these walls and divided into compartments using joint tapes. Afterwards the actual concreting could be carried out.

As the membrane was damaged during concreting, the formed compartments were sealed with **WEBAC® 240 + Bseal I**.

WEBAC® 240 + Bseal I is the first choice material. The polymer-reinforced component Bseal I provides for excellent adhesion, reliably bonds the membrane to the concrete wall, thus preventing lateral infiltration and permanently sealing the structures.

Profit from our long-standing experience and WEBAC quality products for your success.

Do you have any questions? Please contact us!

Tel. + 49 40 67057-0

Further Information

You can find the technical data sheet for **WEBAC® 240 + Bseal I**, all our application brochures and more information in our **download area www.webac-grouts.com**.

Visit us from time to time – don't miss any news!

webac-grouts.com

WEBAC®

Our Formula – Your Solution

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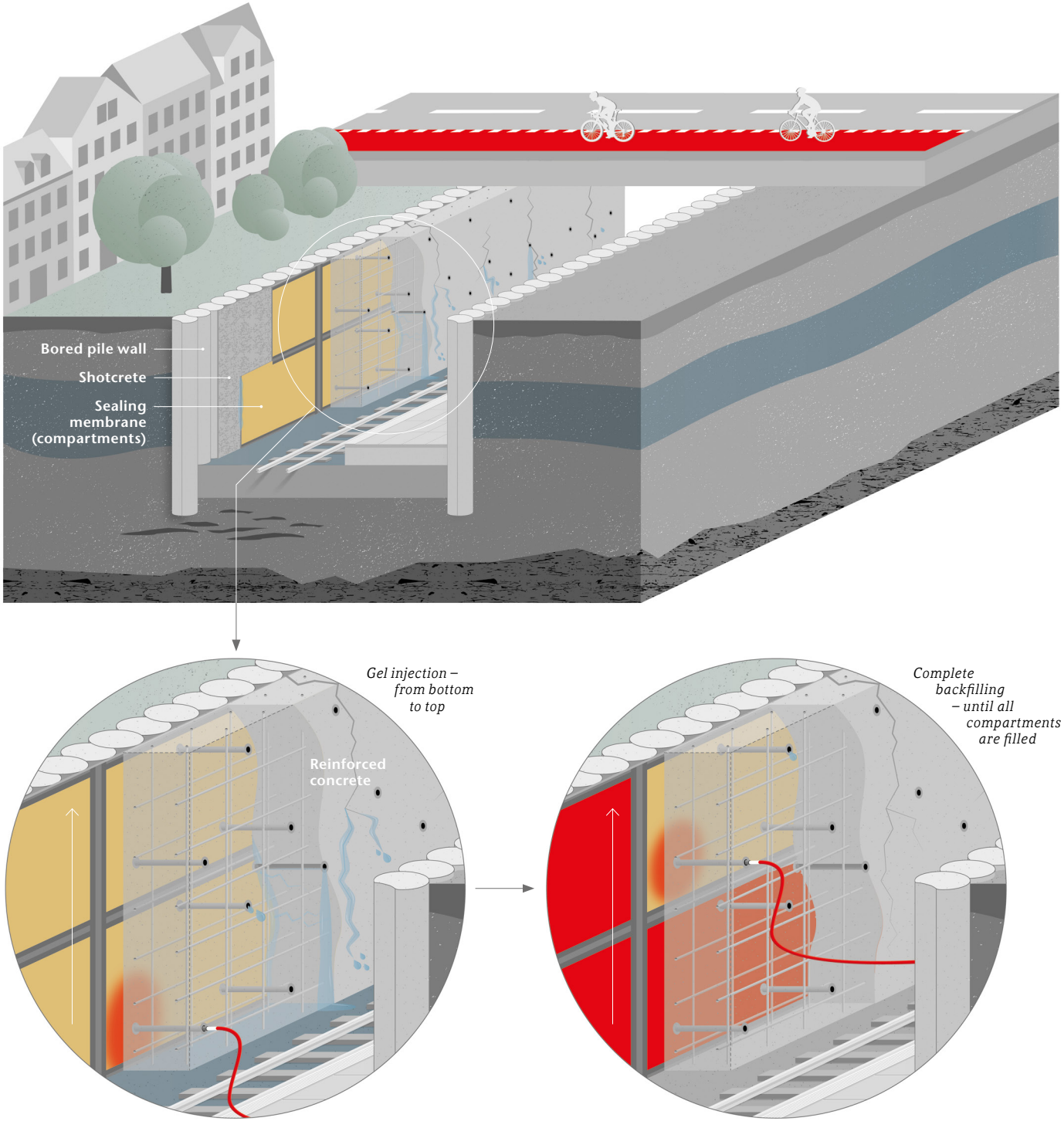
WEBAC®

WEBAC® 240 + Bseal I

Permanent sealing of damaged membrane – Case study Metro Copenhagen



Work process of compartment sealing

- Check for lateral infiltration in adjacent compartments
- Backfilling by means of gel injection: filling of the space between concrete wall and sealing membrane using **WEBAC® 240 + Bseal I**
- Objective: Increasing the corrosion protection of the external wall reinforcement (compartment sizes from a few square meters to over 200 m²)
- Continuous monitoring of the injection pressure

Filling of compartments

- Application of **WEBAC® 240 + Bseal I** using injection pump **WEBAC® IP 2K-F1**; depending on the size of the compartment, two pumps were used to obtain a continuous injection pressure and material flow.
- The reaction time of **WEBAC® Bseal I** was specially adapted to the size of the respective compartments, in this case to a reaction time of approx. 15 min at a structural element temperature of approx. 12 to 15 °C (54 to 59 °F).
- The injection ports were then rinsed with a predefined amount of water to allow a secondary injection.

The excellent adhesion of **WEBAC® 240 + Bseal I** to the membrane ensures reliable protection from backflow, prevents lateral infiltration and provides a reliable seal.