

PROJECT REPORT

Augsburg, 26.08.2021

PCI supports the refurbishment of a Berlin sewer tunnel

Joint repair in Berlin's underworld

Berlin is crossed by an underground canal system of around 11,000 kilometers in length for the disposal of rainwater and wastewater. The joints in an accessible pipe route near the Spree river had become leaky and the rear side was also soaked through. The commissioned STRABAG AG renewed the joint seals on 84 socket joints within four months. PCI products were used for the total of 600 meters of joint.

The sewer is located - pipe in pipe - below Ebertstraße between the Brandenburg Gate and Potsdamer Platz. Built in the years after the Fall of the Wall, the accessible pipe route is not far from the Spree river and in the groundwater area. A sewer inspection brought to light the need for refurbishment: the 84 socket joints on the almost one kilometer long section of sewer were leaking. A special challenge was their moisture penetration on the rear side. Planning for the refurbishment began in 2019. Construction manager Rabiari Ghazi from the executing company, STRABAG AG in Berlin, contacted PCI Augsburg GmbH. Whether PCI products are suitable for joint repair depended on the official approval of the PCI sealant. PCI specialist advisor Rainer Bernhardt gave the green light and supported the craftsmen as early as the planning phase.

Drying up damp joint areas

STRABAG first closed the pipe route with a balloon to be able to start the refurbishing work. The mixed water had previously been diverted. Then three employees from the sewer technology and pipeline construction department set about removing the leaky joints. Equipped with protective clothing and headlamps, the employees tore out the old

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jointing material in sections by hand and cleaned the exposed joints of any residue. In doing so, they came across areas that were moistened on the back. In order for the new joint seals to be permanently impermeable and to adhere reliably, STRABAG had to ensure drying out the joints by blowing in hot air in the next work step.

Impermeability through 2-flank adhesion

It must be ensured that there is only two-sided adhesion when applying the sealant in joints. For this purpose, the craftsmen applied the adhesive primer PCI Elastoprimer 110 to the joint flanks to ensure that the sealant properly adheres to the inner edges. Any further adhesion to the substrate can result in stress cracks and endanger the impermeability of the joints. PCI DIN-Polyband polyethylene backer rod was used to avoid three-point adhesion. The craftsmen pressed the PE backing material into the joints. It complies with the requirements of DIN 18 540.

Sealing with PCI Escutan[®] TF

STRABAG used PCI Escutan[®] TF to seal the joints. The polyurethane sealant has the test certificates required for sewer construction: the general official approval and the BGB compliance certificate for 2-component sealants for sewage systems as well as the classification report EN 13501-1. PCI Escutan[®] TF is used for the elastic sealing of horizontal and vertical movement and connection joints and is suitable for sewage treatment plants, port structures, waterways and locks with pressurized water loads of up to 2 bar. Due to its elasticity, the material has a high resilience, is waterproof and resistant to pressurized water, weather conditions, aging and microbes. After mixing, the sealant can be processed by hand or by machine. Both methods were used in the Berlin pipe route.

"The decision to use PCI products for joint repair was spot on," says site manager Rabiar Ghazi, looking back. "The products were easy and quick to process. The good advice both

in advance of the planning phase and during the refurbishment work was incredibly helpful. We were able to clarify product-specific questions at the construction site and contact PCI specialist advisor Reiner Bernhardt at any time in the event of problems. We are therefore well prepared for subsequent orders of this kind and are certainly back at the start with PCI products."

Project data

Project:	Joint repair in Berlin's underworld
Subtitle:	PCI supports the refurbishment of a Berlin sewer tunnel
Location:	Berlin
Size:	84 socket joints with a total length of 600 m (25 mm x 20 mm)
Completion year:	2020
Task:	Repair of joint seals soaked through on the rear
Products used:	PCI Elastoprimer 110, DIN-Polyband (10 mm, 20 mm) PCI Escutan [®] TF, PCI Univerdünner
Company:	STRABAG AG, Direktion Nord-Ost
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Images



*Leaky joints in a pipe route below Ebertstraße between Potsdamer Platz and the Brandenburg Gate:
STRABAG AG refurbished 84 socket joints with PCI products.
(Link to high resolution [Photo](#))*



After the canal was closed, the craftsmen removed the old joints. ([Link to high resolution Photo](#))



The joints were moistened on the back in many places.
([Link to high-resolution Photo](#))



The joints were dismantled and cleaned, the joint depth was measured.
(Link to high resolution [Photo](#))



Drying the joint flanks (link to high-resolution [Photo](#))



■ For a reliable 2-flank adhesion, the adhesive primer PCI Elastoprimer 110 was applied to the inner edges of the joint and the PE backing material DIN Polyband was pressed into place. PCI Escutan[®] TF was used as a polyurethane sealant to re-seal the 84 socket joints.
(Link to high resolution [Photo](#))

About PCI

PCI Augsburg GmbH is part of MBCC Group and leader in the tile laying materials sector for specialist firms in Germany, Austria and Switzerland. In addition, the company supplies product systems for waterproofing, concrete protection and repair, as well as a complete product range for the flooring sector. The PCI Group employs a staff of more than 1,200 in Europe and generated sales of significantly over €300 million net in 2019. Further information about PCI on the Internet under www.pci-augsburg.de.

About MBCC Group

The MBCC Group is one of the leading suppliers of construction chemicals and solutions worldwide and has emerged from the carve-out of the former BASF Construction Chemicals business from BASF Group. We offer innovative and sustainable products and solutions for the construction industry across different sectors, such as buildings, structures, underground construction, new construction, as well as for renovation. Our strong brands Master Builders Solutions®, PCI®, Thermotek®, Wolman®, Colorbiotics® and Watson Bowman Acme® are well established in the marketplace. With our innovations, we address sustainability challenges in the industry. MBCC Group consists of approximately 70 legal entities worldwide and is home to around 7,500 construction experts in over 60 countries. For more information go to: www.mbcc-group.com.

We build sustainable performance.

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