

# Subway Architecture Design in Seoul Calls for GCP Products

Seoul Subway utilizes Preprufe® 300R and Bituthene® 3000 to solve waterproofing issue

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Project	Seoul Subway Line 9
Client	Seoul Subway
Main Contractor	Chung Suk Engineering
Consultant	Global Specifications Consultant
GCP Solutions	PREPRUFE® 300R pre-applied waterproofing, BITUTHENE® 3000 waterproofing

## Project Profile

### Extending major rail line

Seoul, South Korea is home to more than 11 million people. To cater to the transport needs of its mushrooming population, the city extended its subway network and added a new line that is 25.5km long with 25 stations. Seoul Subway Line 9 links Gimpo Airport in western Seoul to the Gangnam business district in southern Seoul.

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### Delivering positive/blind side waterproofing

A major transfer point of Line 9 Section 1 is Dongsan Station. An underground station, it sits underneath a roadway in the old city center of Seoul. Due to its location within the business district, the tunnel construction space is confined, which presented challenges for waterproofing design.

Kim Jae Hyuk, vice president of Chung Suk Engineering, explained the challenges the architectural team faced. “The diaphragm wall was designed as the soil retention system in most parts of this project. The greatest concern was to ensure positive/blind side waterproofing application for this continuous wall system.

S. J. Oh, then global specifications consultant at GCP Korea, explained why a fully bonded system is critical for positive/blind side waterproofing. "When structures are constructed below ground, they are subject to water pressure. In the case of positive waterproofing, the water pressure will be coming externally against the membrane on the structural foundation. When waterproofing membranes are not fully bonded to the structure, all it takes is a single leakage to cause water ingress and extensive damage."

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### Optimizing waterproofing of rapid transit system

Working with Chung Suk Engineering to gain an understanding of the project requirements, the team at GCP put together a waterproofing solution proposal to address those concerns. "We considered all the project requirements and proposed a waterproofing system that included PREPRUFE®300R waterproofing membrane for the substructure, BITUTHENE®3000 waterproofing membrane for above ground slabs and vertical walls (cut and cover portion), and Servipak®3 as protection board system," explained Oh.

### Question on spec? Consult our Design Advantage team

When the Chung Suk Engineering team visited the mass rapid transit projects construction site, the fast and easy installation of the PREPRUFE® waterproofing membrane system was also evident. PREPRUFE® was applied on wet concrete and was immediately trafficable after installation, which was a tremendous aid to the construction schedule.

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