

# One of the Largest Transit Projects in the World Uses PREPRUFE® for Waterproofing

4 out of 5 contractors choose PREPRUFE® Plus waterproofing to deliver dry metro stations with ease and reliability



Project	Doha Metro
Owner	Qatar Rail Company
Gold Line	Consultants: Arcadis Group, Atkins PMC: Louis Berger, Egis JV Main Contractors: Aktor, Yapi Merkezi, Larsen & Toubro, STFA, Al Jaber Engineering JV
Green Line	Consultants: SSF Group, Turner & Townsend PMC: Hill International Main Contractors: Saudi Binladin Group, HBK Contracting Company WLL, Porr Solutions JV
Main Station: Msheireb	Consultants: Atkins, DB International, Louis Berger / Egis JV, Mott MacDonald, Turner & Townsend, Woods Bagot PMC: Bechtel Corporation, Fluor Corporation, Parsons Brinckerhoff Main Contractors: Samsung C&T, OHL, Qatar Building Co JV
Red Line South	Consultant: DB International, Intalferr PMC: Jacobs Main Contractors: QDVC, GS E&C, Al Darwish Engineering JV
GCP Solution	Preprufe® Plus waterproofing, Bituthene® 8000 HC waterproofing

# The Overview

## The Project

The multi-billion dollar Doha Metro system in Qatar, is one of the largest metro transit projects in the world. Scheduled for completion in 2026, the Doha Metro network will consist of four lines and around 100 stations covering the greater Doha area, connecting major residential, commercial and industrial zones.

The transportation infrastructure will be built in two phases.

1. Phase 1 is expected to be completed in 2019, and will include the construction of two of the major stations at Msheireb and Education City, as well as over 30 other stations.
2. Phase 2 is scheduled to be delivered by 2026 with over 50 more stations to be developed.

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*"We chose GCP Applied Technologies' products based on two main factors. First, reliability and knowing the products, and second, ease of use."*

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Constantinos Demetriades, Project Director, Aktor

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## The Challenge

Contractors for the Doha Metro system were taking no chances when it came to selecting a reliable and high-quality waterproofing construction product.

In Doha, any waterproofing membrane must succeed against demanding conditions: ground water, an average annual temperature of 32°C, and, critically, the presence of chlorides and sulphates, which attack the reinforcement and the concrete, respectively.

With some membranes, water can leak through potential defects in installation and track behind it, migrating to other parts of the structure. The transit project's construction specifications state that the stations must remain completely dry throughout a 120-year design life.



## The Solution

Four out of five winning transport business contractors chose PREPRUFE®Plus membrane based on its proven performance and the reputation of GCP Applied Technologies in the region. A fully bonded waterproofing membrane, this innovative system was installed before the concrete was poured and bonds to the structural concrete, preventing water tracking behind the waterproofing layer or problems caused by ground movements.

Because PREPRUFE®Plus membrane bonds to the concrete, the risk of water seepage was minimised.

GCP supplied more than 1 million square metres of membrane for four of the five underground contracts, including the transportation infrastructure contract to construct the major downtown intersection station at Msheireb.

### About PREPRUFE® waterproofing and GCP

PREPRUFE®Plus patented adhesive properties allow it to bond to concrete but not to foot traffic or debris. PREPRUFE®Plus also has double adhesive "ZIPLAPS™," which provide a more robust lap between adjacent sheets.

PREPRUFE®Plus waterproofing was used mostly below the bases of the transit project's stations and for the walls in some locations, such as where they are cast onto diaphragm walls. BITUTHENE®8000 HC is also a part of the waterproofing system and is being used where the outside of the walls can be accessed after striking formwork.

One of the important elements for waterproofing the station was getting the detailing right. GCP drew upon a vast library of details gained over the past two decades while installing over 50 million square metres of PREPRUFE®globally.



## GCP in Doha

GCP Applied Technologies has recently been developing details for Msheireb Station, which will be situated at the heart of the Doha metro system where three lines intersect. GCP knows this area well, having worked on transport infrastructure basements in the major Msheireb Downtown Doha development since 2010.

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