



Dammam Underpass - Repair

City of Dammam, Saudi Arabia
2009

BACKGROUND

The City of Dammam is the capital of the Eastern Province of Saudi Arabia and the third largest city in the country after Riyadh and Jeddah. It is an important commercial hub and port in Saudi Arabia. When the King Fahed Dammam Road underpass, one of the city's principal road arteries, was experiencing cracking and leaks, the city knew it couldn't let its structural integrity be undermined.

The existing underpass had an expansion joint every 30 metres (m). The tunnel stretched to 750m with a width 20m. It had originally been waterproofed on the wet-side by a polyurethane coating but the external waterproofing wasn't effective in keeping moisture out of the concrete. Water had slowly seeped through the expansion joints and larger cracks could be seen between the asphalt and concrete. Vertical cracks in the wall and horizontal cracks in the slabs were also visible. Polyurethane resin was injected to fix the cracking but this solution was not successful in keeping the water from entering the structure.

SOLUTION

The task to fix the King Fahed Dammam intersection was given to the Kabbani Construction Group. The contractor hired a specialized team of inspectors from Inspectech, who conducted a detailed inspection of the main structure. They examined both the bottom reinforced foundation slabs and cold joints between vertical and horizontal slabs. Due to the extent of cracking, the team decided to remove a whole slab of existing concrete and cast a new one with Krystol Internal Membrane (KIM).

By using Kryton's KIM the contractor was able to:

- Save considerable time and money by eliminating the need for external membranes
- Increase the quality and longevity of the concrete through reduced shrinking and cracking
- Protect reinforcing steel by preventing the penetration of waterborne contaminants, sulphates, chlorides and other chemicals that can come in contact with road systems

By completion, roughly 15,000 cubic meters of KIM had been used. The project was successfully completed at the end of 2009 and no leakage has been observed to date.



The Dammam underpass is now leak-free.



Before repair work leaking and cracks were a problem.

CLIENT

Dammam Municipality

CONSULTANT/DESIGNER

Khatib and Alami

READY-MIX SUPPLIER

Saudi Ready-Mix

MAIN CONTRACTOR

Sinopec

WATERPROOFING SUB-CONTRACTOR

Kabbani Construction Group

PRODUCTS AND TECHNICAL SPECIFICATIONS

Learn more at www.kryton.com

Krystol Internal Membrane™ (KIM)®