



## The Project

Situated less than 20 meters (approximately 66 feet) from the Atlantic Ocean, the 200,000 m<sup>2</sup> (over 2 million ft<sup>2</sup>) Morocco Mall, soon to be the largest shopping center in North Africa, is built on a formerly undeveloped area on the southern side of Casablanca.

The shell-shaped shopping center will provide ample retail and leisure space including a 400-seat IMAX cinema, 250 restaurants and shops. It will also house an aqua center as well as a children's park, organic garden, skating rink, spa, and an art space dedicated to Moroccan handicrafts. Work on the structure is due to be completed by late 2010.

**“The largest mall in North Africa, it is a unique and amazing architecturally designed structure, further enhanced by the Grace products that help protect it.”**

— François Challier, Field Market Development, Grace Construction Products

**Owner:** Aksal & Nesk Investment (Kingdom of Saudi Arabia)

**Designer:** OGER International (France) & Arup (Italy)

**General Contractor:** Société General des Travaux Marocains (Morocco)

**Chartered Building Surveyor:** SOCOTEC Maroc (Morocco)

## ► The Challenge

The project is situated on an extension of the main Casablanca waterfront promenade and prone to the effects of seawater. Therefore, the designer and the owner needed waterproofing products that would protect the massive concrete slab and the foundation walls from water penetration, as well as from the salt and sulfates in the ground environment. These naturally occurring compounds can quickly deteriorate the concrete and shorten the lifespan of the mall structure.

## ► Grace Solution

The site's proximity to the water and the harmful salt and sulfate environment made choosing a waterproofing system for the mall's basement areas an important design decision. After review of several waterproofing alternatives, Grace's Preprufe<sup>®</sup> 300R and Bituthene<sup>®</sup> 3000 waterproofing membranes were selected over the originally specified system and proved to be the best choice for the project. Test data on Preprufe vs. other products showed that it outperformed the competition, remained watertight, showed no effect from salt and sulfates, was easier and quicker to install and provided a number of value-added benefits.

Preprufe<sup>®</sup> pre-applied waterproofing system is based on a unique patented technology. Its Advanced Bond Technology<sup>™</sup> allows the concrete to fully adhere to the membrane, preventing ingress of water between the membrane and the structure, unlike conventional non-adhering membranes, which are vulnerable to water penetration. Preprufe is not harmed by wet/dry cycling and there's no risk of swelling during the construction phase. Preprufe is chemically resistant in all soil types and waters and accelerates project completion schedules.

Bituthene 3000, sheet-applied waterproofing membrane has been the product of choice for substructure walls in projects throughout the world for years. Grace's Adcor<sup>®</sup> 500S, Serviseal<sup>®</sup> 195 and Bituthene<sup>®</sup> Liquid Membrane were also included in the final waterproofing specification.

## Grace Product Solutions Used

**Preprufe<sup>®</sup> 300R Pre-Applied Waterproofing System**

**Bituthene<sup>®</sup> 3000 Waterproofing System**

**Bituthene<sup>®</sup> Liquid Membrane**

**Adcor<sup>®</sup> 500S Waterstops**

**Serviseal<sup>®</sup> 195 Waterstops**

For questions, email us at: [international.projects@grace.com](mailto:international.projects@grace.com)

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