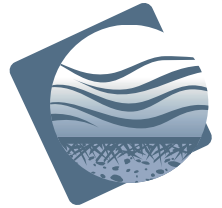




At the Lab. In the Field.  
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## Orlando International Airport Orlando, Florida



CONCRETE  
WATERPROOFING

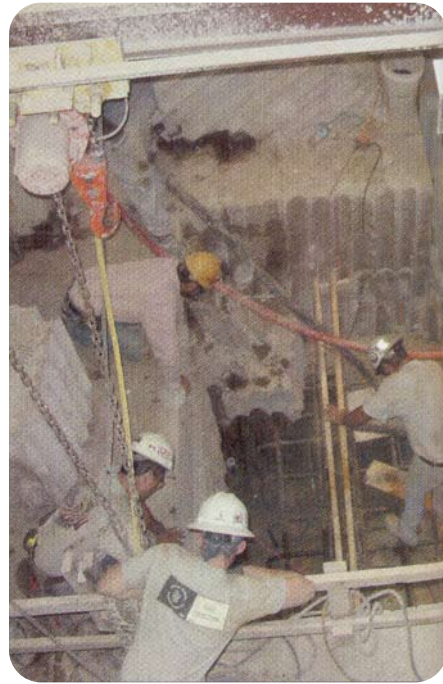
QUESTIONS: 1-800-267-8280 or [www.kryton.com](http://www.kryton.com)

### BACKGROUND

Many of the estimated 28.9 million people (approximately 79 000 daily) that visit the Orlando International Airport each year utilize the airport's parking facilities. In recent years, however, increased traffic has created a bottleneck at the four access points that carry visitors from the parking garages into the terminal.

To improve traffic flow, the airport is currently upgrading the four access points, each of which includes a tunnel from the parking area to an elevator lobby, four elevator shafts and escalators. The tunnels, elevator lobbies and escalators are being upgraded, the 4-story elevator shafts are being removed and reconstructed and small, slow hydraulic elevators are being replaced.

Since the airport continues to operate at full capacity during the improvements, access points are being upgraded two at a time. Further complicating the situation is the fact that, with the local water table only three to four feet below ground, the concrete tunnels and lower ends of the elevator shafts are submerged with as much as 10 feet of static head pressure.



*Above: Cutting through the existing tunnel presented workers with tight, difficult working conditions.*

### SOLUTION

While the traditional concrete waterproofing method in Florida is bentonite sheet systems, the project team was not convinced that this system could guarantee leak-proof construction, particularly in the joints between existing and new concrete. Instead, the team opted to use integral crystalline waterproofing, choosing Kryton's Krystol™ concrete waterproofing system. "I did some research," says Sandi Roneker, project manager for URS, Teng O'Brien Kreizberg, the owner's representative on the jobsite. "We decided to try integral waterproofing in the new concrete, and chemical

PROJECT CASE STUDY

The Kryton Group of Companies.

1645 East Kent Avenue, Vancouver, BC Canada V5P 2S8 Tel.: 1-604-324-8280 Toll Free: 1-800-267-8280 Fax: 1-604-324-8899 E-mail: [info@kryton.com](mailto:info@kryton.com) Web: [www.kryton.com](http://www.kryton.com)

grouting with the integral waterproofing at the connections to the existing concrete. This let us avoid digging and shoring and trench boxes where we tied into the tunnels."

To prevent against future water infiltration, existing above grade concrete is being treated with Kryton's Hydrostop penetrating sealer. Krystol™ T1/T2, a cementitious, brush-applied crystalline waterproofing product, is being applied to just above the waterline. Finally, the joints between existing and new concrete are being sealed with Krystol™ Waterstop Grout to provide a permanent waterproof barrier.

Krystol™ Internal Membrane (KIM™) waterproofing admixture is being used in all new concrete poured in the tunnel and elevator shaft upgrades. When added to a concrete mix, KIM cures to form crystals that fill the spaces between concrete particles, permanently waterproofing the structure. KIM™ reacts with incoming water to self-seal small concrete cracks, providing lasting protection against leakage from any direction.

The first two access point improvements were completed in August 2003 and to date, the upgraded tunnels and elevator pits remain dry and leak-free. The airport improvement project is scheduled for completion late in 2004. "There were a couple of small weep holes when we stopped dewatering", says Roneker, "but those soon sealed themselves up. The dewatering has been turned off since August 2003, and so far there are no leaks at all".

## **LOCATION**

Orlando Florida

## **OWNER**

Greater Orlando Aviation Authority

## **INSPECTION ENGINEERS**

Deatrick Engineering Associates

## **READY-MIX SUPPLIER**

Florida Rock Industries

## **CONTRACTOR**

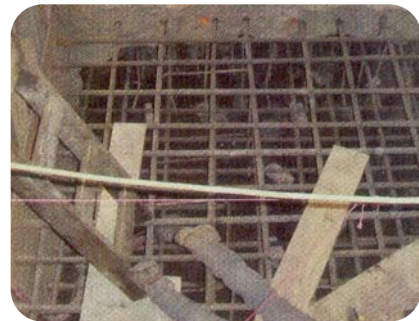
Hensel Phelps Construction

## **OWNER REPRESENTATIVES**

URS, Teng/O'Brien Kreitzberg J. V.

## **DISTRIBUTOR**

The Crystal Group, LLC



*Above: Workers cut out existing concrete with core drills and tied in new rebar.*