

World Trade Center Repairs

New York, NY, USA (2013)

PRODUCTS USED:

Krystol® Leak Repair System
Krystol T1®



OWNER:

Port Authority of New York and New Jersey

DEVELOPER:

World Trade Center Properties

CONSTRUCTION MANAGER:

Tishman Construction

CONTRACTORS:

Urban Foundation Engineering
Dry Concrete
Judlau Contracting Inc.

DISTRIBUTOR:

Dry Concrete

BACKGROUND

The new World Trade Center (WTC) Transportation Hub is just one of several new WTC buildings, which make up the improved vision of downtown New York. Symbolizing the resilience and renaissance of both New York and the United States of America as a whole, this new vision included a careful balance of sustainable commercial space, convenient transportation, and a destination cultural center.

To make this vision a reality, however, the project used an unprecedented collection of architects, artists, and urban developers, including Santiago Calatrava, David Childs, Norman Foster, Frank Gehry, Daniel Libeskind, Fumihiko Maki, and Richard Rogers. Everyone involved had a vision to create a grand new urban center for the twenty-first-century New York.

Despite the collection of well-known names working on the project, there were still obstacles to overcome. For instance, the WTC complex was established in a flood zone in Lower Manhattan, which is two blocks away from the Hudson River. The nearby Route 9A underpass and north extension commuter passages were experiencing what many below grade concrete structures face in that situation — water infiltration. Leaking concrete cracks, damp areas, and water penetration through joints were all becoming increasingly hazardous to the area, which was used by hundreds of thousands of commuters every day due to its close proximity to the new Freedom Tower.

Many products were applied to attempt to mitigate the water damage. However, none used at the time could overcome the problems caused by the failed external sheet membranes that had been used initially. The external sheet membranes were impossible to replace or repair as well due to their blindside application, which offered no way to access them.



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Eventually, injection systems were used to address the leaking cracks and persistent damp areas, with results proving only temporary, while costing thousands of dollars in additional labor.

SOLUTION

Kryton distributor Dry Concrete's Greg Maugeri and Billy DellaSorte personally assessed the problems the passages were facing. Through countless early morning site visits, the Dry Concrete team performed trials and provided support and technical expertise.

As longtime Kryton distributors, Dry Concrete had a strong familiarity with the Krystol Leak Repair System, and with their experience, they could confidently recommend the system as a permanent solution to the leakage problems. After Dry Concrete tested the products on a wall of one of the passageways, the project's decision makers agreed with the distributor's recommendation.

The Krystol Leak Repair System was the only concrete repair solution that was able to stop the leaks and return the problem areas to a dry state. Approved by both the Downtown Design Partnership and the Port Authority of New York and New Jersey, it was put to work, sealing the leaking cracks in the Route 9A underpass and north extension commuter passages while providing permanent protection against high groundwater pressure.

Over time, the proprietary chemicals used in the Krystol products will only get more effective at preventing water penetration around the underpass and north extension areas. Because the chemicals lie dormant throughout the life of the concrete structure, they react to any present moisture to create hair-like, permanent crystals, which stop any water from entering the concrete.

