

Penetron Puts the Drive Back in New York's Park Avenue Tunnel

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EAST SETAUKET, N.Y. ([PRWEB](#)) February 20, 2020 -- The US\$24.5 million renovation of New York's Park Avenue Tunnel was completed by the beginning of 2020. [PENETRON ADMIX](#) was added to the shotcrete mix to ensure a waterproof – and more durable – new tunnel.

The Park Ave Tunnel in the New York City borough of Manhattan, also called the Murray Hill Tunnel, is a 1,600-foot-long (488 m) tunnel that passes under seven blocks of Park Avenue in Murray Hill, from 33rd Street to 40th Street. Originally constructed in the mid 1800's, the New York City Department of Transportation Division of Bridges realized the tunnel was in dire need of structural remediation.

Designed by WSP – Parsons Brinkerhoff Architects and built by Tully Construction, the Park Avenue Tunnel rehabilitation project called for a new shotcrete lining to both strengthen and waterproof the renovated tunnel.

“Shotcrete, or sprayed concrete, is shot through a hose at high pressure onto a surface,” explains Christopher Chen, Director of The Penetron Group. “The force of the application compacts and consolidates the applied shotcrete simultaneously, creating a solid concrete structure.”

Second Thoughts About Waterproofing

At the start of the project, the waterproofing specifications designated a polymer-modified topical mortar to be applied as a spray. However, as the design evolved, a decision was made to add a crystalline waterproofing admixture into the shotcrete instead. The material submittal was prepared by Tully Construction and Cruz Concrete (the shotcrete applicator) and included performance testing provided by US Concrete Products and Penetron. A thorough evaluation process followed.

“The tests and evaluations were important because the process of applying shotcrete is very dependent on the material properties; it's absolutely critical that admixtures do not change the set characteristics or the slump of the mix,” adds Christopher Chen. “Unlike poured or pumped concrete, there are no forms to hold shotcrete in place. A shotcrete mix with a delayed set can fall off a vertical or overhead surface. If the slump of the mix is increased, the shotcrete will run down the surface; if the slump is decreased, rebound may increase – where the material is too "dry" and bounces off the surface.”

Switching to Penetron – and Simplifying the Job

Once approved, the project specifications were changed to add [PENETRON ADMIX](#), an integral crystalline waterproofing admixture to the shotcrete mix. This eliminated a job step as the admixture was now added to the shotcrete at the factory, and was packaged and delivered by US Concrete Products. The contractor was able to follow the previous process without any changes to the process or the schedule.

“PENETRON ADMIX fully met the criteria set forth in the project specifications and was shown not to interfere with the shotcrete's placement characteristics or in-place properties,” says Christopher Chen.

Getting a Stronger Concrete Structure

Wet process shotcrete was applied as a 9" to 12" internal reinforced shell along the entire vertical and overhead portions of the Park Avenue Tunnel, resulting in a structure that was much stronger than the original tunnel. Cruz Concrete applied the PENETRON ADMIX-enhanced shotcrete to approximately 60,000 square feet.

Warren Cruz, Owner and General Manager of Cruz Concrete, told Penetron: “Your product worked impeccably. When a leak showed up, it sealed within two days.”

The Penetron Group is a leading manufacturer of specialty construction products for concrete waterproofing, concrete repairs and floor preparation systems. The Group operates through a global network, offering support to the design and construction community through its regional offices, representatives and distribution channels.

For more information on Penetron waterproofing solutions, please visit [penetron\(dot\)com](http://penetron(dot)com) or [Facebook\(dot\)com/ThePenetronGroup](https://www.facebook.com/ThePenetronGroup), email [CRDept\(at\)penetron\(dot\)com](mailto:CRDept(at)penetron(dot)com), or contact the Corporate Relations Department at 631-941-9700.



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