

New Jersey Department of Transportation
Bureau of Research

Technical Brief



Self Cleaning Coatings for Graffiti Prevention Removal and De-Pollution (Demo Project)

Transportation system related structures, such as concrete walls and bridge abutments, naturally lend themselves to vandalism and various elements of environments. Due to the rough surface of concrete faces, cleaning them and providing weather protection is often challenging and costly. Thus, NJDOT had a demand for concrete coatings that are resistant to paint and pollution and that can reduce cleaning time.

Background

An inorganic matrix coating was developed and customized for three different field locations in this demonstration research project. Without testing, observation and documentation of this coating in three field applications, the ease of application, durability and long term performance would be unknown. This research study provides the details, pictures and results of these three successful field applications.

Research Objectives and Approach

The primary objective of this project was to demonstrate the field results of utilizing this inorganic polymer composite coating for relatively large surfaces encountered in transportation structures and to document the findings. The three field locations consisted of a retaining wall in South Orange, a retaining wall in Woodbridge, and a wing wall under an overpass in Milltown. Various application and cleaning methods were utilized and documented. The picture above shows the first field location two years after the coating application.



Findings

This field demonstration project proved that the inorganic-polymer coating can be easily applied to large surfaces. The system was deemed easy to work with and the applications can be carried out using paint rollers or brushes. Extensive surface preparations were not needed prior to the application of the coating except to have the surface pressure washed and allowed to air dry. Observations of the coating surface when magnified 200 times showed uniform coverage and absence of cracking. Finished surfaces continue to provide an aesthetically pleasing appearance, compatibility with the parent material and resistance to deterioration.

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A final report is available online at: <http://www.state.nj.us/transportation/refdata/research/>.
If you would like a copy of the full report, send an e-mail to: Research.Bureau@dot.state.nj.us.

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