

REHABILITATING THE WALT WHITMAN SUSPENSION BRIDGE: PROJECT TEAM ACHIEVED A MASSIVE FEAT IN ENGINEERING AND COORDINATION

Sherwin-Williams partnered with Corcon, Inc. to restore one of the longest suspension spans in the world

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WALT WHITMAN SUSPENSION BRIDGE SPANS THE DELAWARE RIVER BETWEEN PHILADELPHIA, PENNSYLVANIA, AND GLOUCESTER, NEW JERSEY

Restoration of the Walt Whitman Suspension Bridge over the Delaware River was a massive project that faced logistical, engineering and coating challenges. Applicators had to work around automobile traffic; create a containment system; build access platforms; raise scaffolding to 378 feet; and coat steel surfaces in all weather, including the colder winter months. Over 918 days, the crew blasted and prepped surfaces, and applied a Sherwin-Williams primer, intermediate coat and topcoat, ensuring the preservation of this historic bridge. Recognizing its difficult, complex nature, the project earned the 2018-2019 SSPC George Campbell Award from SSPC: The Society for Protective Coatings.

SITUATION:

After completing a bridge deck replacement in 2015, the Delaware River Port Authority (DRPA) issued a \$57 million contract to blast and recoat the full interior and exterior of the bridge's two, 378-foot towers, as well as deck support steel and suspension cables. The contract also required steel repairs. Aside from some maintenance overcoating and spot painting, the bridge had not been repainted since it was constructed between 1953 and 1957.

Totaling 11,981 feet in length, the Walt Whitman Bridge features a 2,000-foot main span – the 13th largest suspension span in the United States and the 78th in the world. The sheer size of this project was a significant

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challenge in itself. But the applicators faced additional challenges related to scheduling, site access, traffic control, containment and even a pair of nesting peregrine falcons.

The Walt Whitman Bridge traverses a 40-foot-deep channel over the Delaware River, with major commercial port facilities under, upstream and downstream of the structure. Shipping vessels, vehicle traffic, homes, businesses and an airport are all within the vicinity of the bridge and, therefore, needed to be protected from dust, debris and coating material.

EXECUTION:

To guard against contaminants escaping the project area, the team constructed a full containment system around the towers and deck support steel. To enable access, the crew had to erect 378-foot scaffolding around the bridge's piers and install platforms covering 325,000 square feet. Then, the applicators performed their work inside the containment system, using dust collectors to capture blasting debris. Vacuum units and collection dumpsters were staged on the ground below.

The primer for the piers and deck steel was Sherwin-Williams Zinc Clad® III HS Organic Zinc-Rich Epoxy Primer, a direct-to-metal coat that exhibits self-healing properties if damaged. The intermediate coat was Macropoxy® 646 Fast Cure Epoxy, a high-solids, high-build, fast-drying polyamide epoxy that ensures adequate protection of sharp edges, corners and welds. The topcoat was Acrolon™ 218 HS Acrylic Polyurethane, which is a polyester modified, aliphatic, acrylic polyurethane that delivers color and gloss retention for exterior exposure. Project engineers and specifiers selected these products due

to the three-coat system's approval by the Northeast Protective Coating Committee (NEPCOAT), its successful performance on other DRPA projects and its long history of providing excellent long-term asset protection.

While applicators used the above three-coat system for the majority of the bridge preservation, the project team made a strategic decision to switch the primer to Sherwin-Williams Corothane® I Galvapak 2K Zinc-Rich Primer during colder weather conditions. This moisture-curing urethane primer can be applied in temperatures down to 20°F, providing a longer window for applicators to prime the bridge's steel without concern about coating adhesion.

Experts from Sherwin-Williams served technical roles as part of this team, including Technical Service Representative Tim Davis and Bridge & Highway Representative Mark Milano. Both experts held the required NACE Coating Inspector Level II certifications. In addition to approving each coating layer, Davis and Milano helped to influence problem resolutions and successful coating applications for the project.

OUTCOME:

The project was completed in 915 days, plus an extra month for the construction monitoring team to close out the project. This time frame included extensions for steel repairs not originally planned for, including deficiencies discovered after blasting, as well as nonessential repairs to secondary members. The Walt Whitman Suspension Bridge is now a stunning green color, brightening the skyline from New Jersey to Pennsylvania. The Sherwin-Williams Acrolon 218 HS Acrylic Polyurethane topcoat will ensure color and gloss retention for years to come.

THE SHERWIN-WILLIAMS DIFFERENCE

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