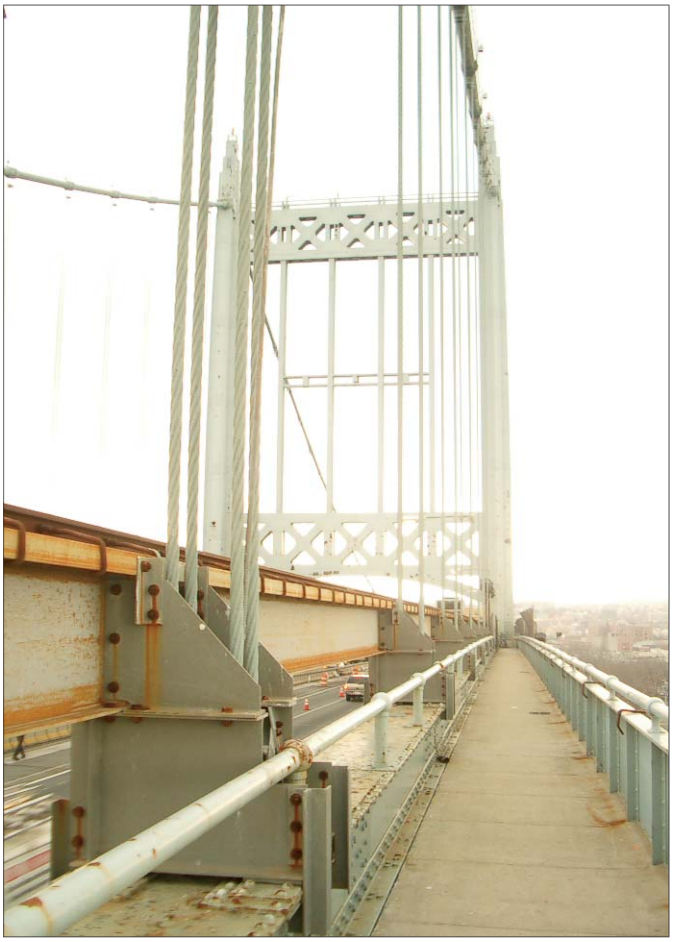
Redecking the Triborough Bridge

Weldable primer accomplishes multiple duties on New York's Triborough Bridge redecking job.

Completed in 1936, New York City's Triborough Bridge carries some 200,000 vehicles a day between Queens, Manhattan, and the Bronx. In 1997 the Metropolitan Transportation Authority's bridges and tunnels division began a multi-year, $550-million program to renovate the bridge.

The massive reconstruction project was let in a number of sections including a full deck replacement on the Queens section of the bridge, a $150-million project including 250,000 sq ft of orthotropic steel deck for the suspended portion. The replacement panels are pre-formed in panels a little over ten ft wide, the width of one road lane, weighing about 15 tons apiece. Anchorage and viaduct decking add up to an additional 175,000 sq ft of precast concrete panels.



New York City's Triborough Bridge has been undergoing a $550-million renovation program since 1997.

General contractor for the Queens portion is American Bridge/Koch Skanska, a joint venture between American Bridge Corporation (www.americanbridge.net) and Koch Skanska (www.skanska.com), which constructs bridges and other support structures for transportation agencies. The bridge carries eight lanes of traffic, and only one lane can be closed at a time.

With construction nearing completion, the galvanized steel median barriers are being put in place. Assembled into modules, the barriers are 28 ft long. Two median barriers are welded down to each steel deck panel. The steel deck plates with new design barriers offer extended room for traffic.

As delivered, the steel deck panels are covered with a temporary coat of grit-filled epoxy for protection and traction. Before the barrier modules can be welded to the deck panels, the epoxy coating must be shot-blasted off, and galvanization in the weld area of the median barriers must be ground off down to bare metal to facilitate a clean weld. Then the deck is power-washed and a coating of Bloxide aluminized rust preventive weldable primer is rolled on the deck.

Bloxide is supplied by Tempil (www.tempil.com), an Illinois Tool Works company. The proprietary primer is applied to fill several needs. It protects the weld areas of the massive deck sections before welding, improves weld quality, and serves as a protective coating to avoid corrosion through years of use, since the sections will be semi-exposed after the work is done. The primer was rolled on at temperatures above 50 degrees F.

Right now the weld surfaces of the barrier modules are protected in their temporary placement. When other work is finished the area will be cleaned up, the barriers set in place over the protected sections, and the modules permanently welded to the deck.

Unique Application

The steel plates are exposed all the time, so the joint venture engineers thought the primer was a good way to protect the plates and provide for weld-

As the Triborough Bridge renovation project draws to a conclusion, galvanized steel median barriers are being placed.

The rust preventive coating protects surfaces and prepared edges from rust, eliminates cleaning of rust before welding, and is excellent for extended periods of outside steel storage. In the welding process, it allows striking a welding arc without removal, protects the weld pool, and leaves no inclusion residue or slag. Aluminum in the primer acts as a scavenger in the weld pool and reduces porosity and pinholing, assisting in achieving X-ray quality welds.

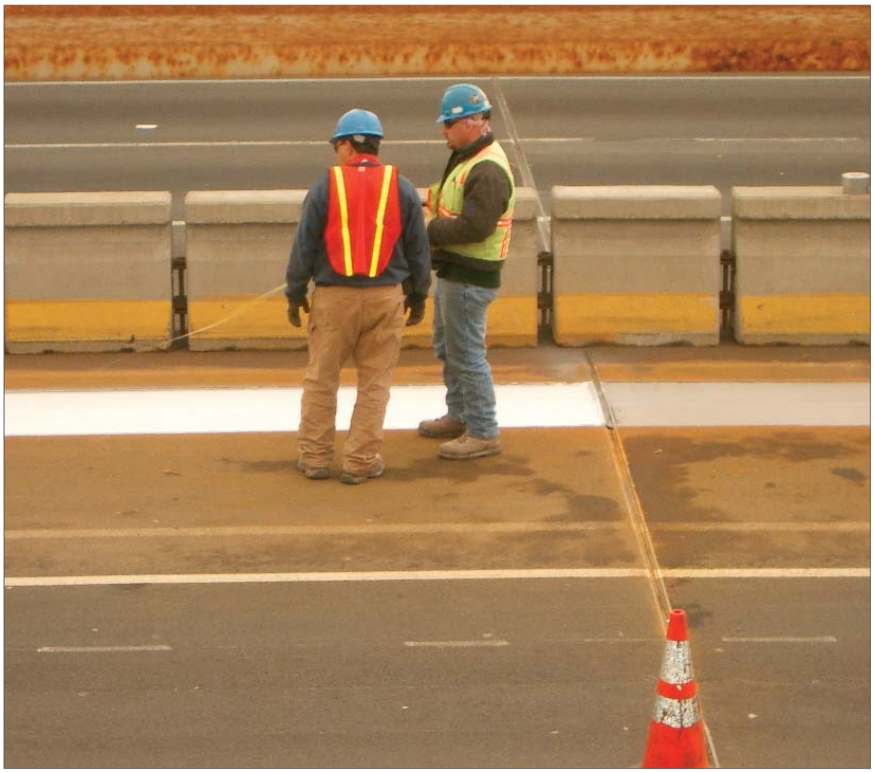
The primer is effective on all steels including high tensile, carbon moly, and chrome moly and acts as an excellent primer for paint and other coatings. It can be applied by brush, dip, or spray, and resists temperatures up to 800 degrees F.

In general, one gallon of the primer covers about 800 sq ft. The Triborough Bridge application used the product thicker than the standard .75 mil dry thickness for longer protection, and because of the coarseness of the steel due to shot blasting. About 20 to 25 gallons of the primer will be used on this 7000 sq ft application. GE

ing on the barriers without need to remove the coating. The barriers themselves are galvanized and the galvanized coating has to be removed before welding. But primer-protected surfaces can be welded without removal, saving time and trouble while continuing to protect the welding surface.

Engineers at American Bridge/Koch Skanska had not used the primer in this multi-faceted application before. They were, of course, familiar with the weldable primer and thought its applications might be extended with good results. They anticipate parts of the steel plates that are permanently exposed will be protected by the primer, increasing their working life. In fact, joint venture engineers may decide to apply the primer to the edges of the orthotropic deck panels for all future jobs.

The joint venture requested test samples to examine for porosity before working, and were satisfied with the results. The primer has been approved by DNV and ABS for welding with no inclusions, no porosity.



Median barrier weld surfaces are protected by a proprietary primer that protects the weld areas, improves weld quality, and continues to ward off corrosion throughout the years.