MELROSE HEIGHTS BOLTED WATER TANK

Built in 1925, the Melrose Heights 1.5-million-gallon water tank in Columbia, South Carolina, received a new lease on life after project engineers scrapped plans to replace the aging structure and chose instead to renovate it with a long-lasting coating system from Tnemec. "Everyone knew that this would be an extremely difficult coating project due to the tank being surrounded by houses, large trees, and busy streets," Tnemec coating consultant Dan Anderson acknowledged. "To make the difficult project even more challenging, the tank is a bolted construction with more than 25 legs. A typical water tank might have six legs, so there was several times the amount of steel on this tank than a typical elevated water tank."

The tank's old coating system was chalking badly and its lower section was heavily corroded, so surface preparation consisted of SSPC-SP10/NACE No. 2 Near-White Metal Blast Cleaning for interior steel and SSPC-SP6/NACE No. 3 Commercial Blast Cleaning for exterior steel. "When the tank was painted 15 years earlier, blasting residue had gotten into nearby homes resulting in numerous complaints from neighbors," Anderson recalled. "This time, a containment system was built around the entire tank to prevent the spread of blasting residue, and as a result no complaints were reported."

Nearly 400 gallons of 94-H_2O Hydro-Zinc, a single-component, zinc-rich urethane primer, was spray-applied to both interior and exterior steel. Another 500 gallons of Series FC20 Pota-Pox, a fast-curing polyamide epoxy, were spray-applied to the tank's interior. "Due to the difficulty of coating all of the legs supporting the tank, the city wanted the coating system with long-lasting performance," Anderson noted. "So they specified the zinc primer with its outstanding long-term corrosion resistance on this tank, as well as two new 2-million-gallon elevated water tanks."

Nearly 600 gallons of Series 66 Hi-Build Epoxoline, a polyamide epoxy, were roller-applied as an intermediate coat on exterior steel, followed by a finish coat of Series 740 UVX, an advanced technology polyfunctional aliphatic urethane that offers superior color and gloss retention. The tank's upper bowl received 170 gallons of Series 740 in white, while the legs and bottom of the bowl used 350 gallons of Series 740 in blue.

"Typically, the legs are a small portion of the overall recoating project, but in this case they represented the bulk of work," Anderson added. "There was so much steel underneath the tank and on the legs that they required twice the amount of coating compared to the tank itself."

FEATURED PRODUCTS

Series 94-H_2O Hydro-Zinc
Series FC20 Pota-Pox
Series 66 Hi-Build Epoxoline
Series 740 UVX

PROJECT INFORMATION

Project Location
Columbia, South Carolina

Project Completion Date
June 2009

Owner
City of Columbia

Engineer
Chao, Inc.
Columbia, South Carolina

Field Applicator
Utility Service Co. Inc.
Madison, North Carolina

Over 500 gallons of Series 740 UVX added color and gloss protection for the Melrose Heights bolted water tank.

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