

TOWNSEND COMPOSITE ELEVATED TANK

At first glance, the composite elevated tank (CET) in Townsend, Ontario, appeared to be an all-welded steel tank supported by a reinforced concrete pedestal, but as Tnemec coating consultant David Walker discovered, looks can be deceiving. "It's a unique design that has the steel tank sitting on a concrete column that extended through the center of the tank," Walker explained. "The steel tank is like a circular tire with the concrete column inside it."

After a thorough assessment of the CET that included adhesion testing, Walker determined the internal and external coating systems were failing. He recommended removal and replacement of the existing coatings with high-performance primers and topcoats. The specification included nearly 800 gallons of Series 406 Elasto-Shield, an aromatic polyurethane hybrid lining for both concrete and steel in immersion service. "Tnemec is unique for having primers that are NSF approved for use under Elasto-Shield," Walker noted. "Because of the Elasto-Shield technology, we were able to provide different thicknesses while adhering to the NSF requirements for steel and concrete."

Interior concrete was brush blasted and resurfaced using Series 218 MortarClad, an epoxy modified cementitious mortar that was applied with a stucco sprayer at 1/8-inch dry film thickness (DFT). Series 1 Omnithane, a modified aromatic polyurethane primer, was applied using an airless sprayer. Plural component equipment was then used to apply the Elasto-Shield finish coat at 40.0 mils DFT.

Interior steel was prepared in accordance with SSPC-SP10/NACE No. 2 Near-White Metal Blast Cleaning, primed with Series 91-H₂O Hydro-Zinc, a moisture-cured, zinc-rich urethane that was spray-applied, and topcoated with Elasto-Shield applied at 30 mils DFT. Both Hydro-Zinc and Omnithane primers are ANSI/NSF Standard 61 certified for use with Elasto-Shield in potable water applications.

The tank's exterior was prepared in accordance with SSPC-SP6/NACE No. 3 Commercial Blast Cleaning under a containment system so dust could be collected. Exterior steel was primed with Hydro-Zinc, followed by an intermediate coat of Series N69F Hi-Build Epoxoline II, an advanced generation polyamidoamine epoxy for the protection of steel and concrete. The exterior topcoat was Series 73 Endura-Shield, an aliphatic acrylic polyurethane that is highly resistant to abrasion and exterior weathering. Overall, more than 1,300 gallons of coatings were required to complete the project.

FEATURED PRODUCTS

Series 1 Omnithane
Series N69F Hi-Build Epoxoline II
Series 73 Endura-Shield

Series 91-H₂O Hydro-Zinc
Series 218 MortarClad
Series 406 Elasto-Shield



PROJECT INFORMATION

Project Location

Townsend, Ontario, Canada

Project Completion Date

October 2007

Owner

Haldimand County - Ontario, Canada

Engineer

Ontario Clean Water Agency - Toronto, Ontario

Field Applicator

JDCMI - Cambridge, Ontario

Series 406 Elasto-Shield was chosen for the Townsend composite elevated tank's unique design because the aromatic polyurethane hybrid lining can be used to protect both concrete and steel in immersion service.

