

Repairs of Woodbridge Wharf Dominica, West Indies

ROSEAU, DOMINICA, WEST INDIES

SUBMITTED BY GEMITE PRODUCTS INC.

The wharf at the main port, Woodbridge, in Dominica, West Indies, constructed in the mid-1970s and extended in 1989, was constructed using steel pipe piles, cast-in-place concrete beams, and concrete structural deck. The Woodbridge Port is the lifeline of the island and the point of all cargo imports and exports for the island. The main berth of the wharf is 800 ft (244 m) in length and is positioned parallel to the shore.



removed and sandblasted, the exposed reinforcing steel sandblasted, and cement-based materials used for protection and as a bonding slurry for repair mortars. Repair materials included hand-applied, polymer-modified, fiber-reinforced and shrinkage compensated mortar; and a wet process shotcrete mortar specially formulated for an extended open time, while allowing application from 0.5 in (12.7 mm) to several inches. The surface of the concrete deck received a thin surface overlay to waterproof and protect the existing concrete against further salt penetration, while able to withstand heavy traffic and impact from heavy containers. The high-flow repair slurry mortar was spray applied in two coats for a total thickness of 0.25 in (6 mm) and broom finished.

Special challenges included performing the work from a floating platform, moving with sea and tide, making the installation extremely difficult. Over 60,000 sf (5575 sm) of surfaces were restored or protected, some underwater. The project started in 2015 and finished in 2016.

The tidal wave action caused concrete cracking in the structure, allowing water to penetrate the concrete resulting in corrosion of the reinforcing steel, severe concrete spalling, and significant delamination on the underside of the deck and structural beams. Many steel piles required structural repair because the corrosion compromised structural integrity.



The repair program included the following items: Cement-based rustproofing, with a migrating corrosion inhibitor, was applied to protect steel surfaces. Deteriorated concrete was

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