



Project Data

Location	United States
Completion	2023
Project Type	Steel Pile Rehabilitation
Products Used	SeaShield Series 500 & FX-70 System

Project Details

In the early 1900's Alcatraz Island was used as a military prison and sits approximately 1.5 miles offshore within San Francisco Bay. In the 1930's, the military prison was converted into a federal prison and was operational until 1963. During the 29 years operating as a federal prison, there were several high-profile criminals who served prison time there such as Al Capone, Machine Gun Kelly, and Whitey Bulger.

In the early 1970's, Alcatraz Island was opened to the public as a tourist attraction and now sees over an estimated 1.5 million visitors per year. Denso was asked to provide several SeaShield™ products to repair 111 piles on the Alcatraz Wharf Repair Project. Both the General Contractor and the Dive Contractor elected to work with Denso as they had successfully installed several SeaShield Systems on numerous projects in the past and were very pleased with the performance and ease of installation.

Denso's SeaShield Series 500™ was used, as well as a version of our Series FX-70™, in conjunction with a rebar cage. The SeaShield Series 500 was selected for piles that exhibited some sign of slight degradation, but ultimately were deemed structurally sound, to provide a long-term durable system for corrosion prevention. The 550™ Epoxy Grout, used within the Series 500 system, is an extremely flowable and pumpable high strength epoxy grout that will fill in any small voids and/or cracks that may be present.

The SeaShield Series FX-70 was used on piles that were deemed no longer structurally sound. The components of the FX-70 System (SeaShield FiberForm™ Jacket, SeaShield FX-225™ Cementitious Grout, and SeaShield 550 Epoxy Grout) were used in conjunction with rebar to provide a full structural repair to these piles. All SeaShield Fiber-Form Jackets on this project were manufactured with a black finish to minimize visibility.

Benefits

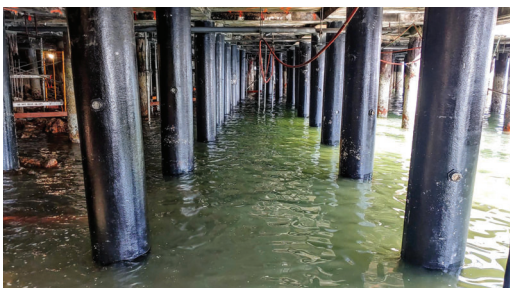
- Economically repair damage in place — no need for costly cofferdams or dewaterings
- High impact resistance & Long maintenance-free service life



The installation of the SeaShield™ systems underway.



Tensionable strapping is used to hold the SeaShield™ jackets in place during injection of the epoxy grout.



The underside of the Alcatraz Wharf showing some of the 111 completed SeaShield™ protected piles.

Date Published: 01/2024

Denso North America - Canada (Ontario)
 90 Ironside Crescent, Unit 12 / Toronto, M1X 1M3
 Tel: 416-291-3435 Fax: 416-291-0898
 sales@densona-ca.com

www.densona.com
 A Member of Winn & Coales International

Denso, Inc. - USA
 9710 Telge Road / Houston, TX 77095
 Tel: 281-821-3355 Fax: 281-821-0304
 info@densona.com