PROJECT PROFILE

Alcatraz Cellhouse

Structural Stabilization and Seismic Upgrade | San Francisco, CA

CLIENT

National Park Service

BACKGROUND

The Cellhouse on Alcatraz Island was one of the first reinforced concrete structures in the Bay Area. Originally built as a military prison in 1912, the Cellhouse is perhaps best known as the maximum security federal penitentiary that housed some of the nation's most infamous criminals until it was closed in 1963. Alcatraz Island is now a National Historic Landmark, attracting one million visitors each year.

Due to its location in the middle of San Francisco Bay, the Alcatraz Cellhouse is extremely vulnerable to earthquake damage and the corrosive effects of salty sea air. To preserve a building in this harsh environment, the National Park Service needed engineers and materials scientists who could not only assess the condition of the aging Cellhouse but design repairs and seismic upgrades that could be implemented while the Cellhouse remained open to the public.

SOLUTION

WJE engineers performed a detailed survey of the Cellhouse and employed computer-generated structural evaluation techniques to predict the building's ability to withstand earthquakes. With the help of state-of-the-art petrographic analysis, the materials scientists at WJE were able to test samples of concrete from the Cellhouse, determine its remaining service life, and plan for the building's preservation.

WJE structural engineers proposed various seismic designs that would improve the safety of the Cellhouse and reduce the potential for damage in the event of an earthquake. The engineers also designed plans to repair the damage caused by corrosion. WJE continued to assist the National Park Service throughout every phase of the project, including the preparation of construction documents and construction administration services.

In recognition of their work on the Alcatraz Cellhouse, WJE received the California Preservation Foundation's Preservation Design Award and an award for excellence in the repair of historic structures from the International Concrete Repair Institute.

WJE ENGINEERS ARCHITECTS MATERIALS SCIENTISTS