Feeney, Inc. Case Study:

USS Arizona, Pearl Harbor



A Facelift for the USS Arizona Memorial

With one of the most recognizable quotes in history, "December 7, 1941 – a date which will live in infamy," Franklin D. Roosevelt brought the nation together in a time of despair and tragedy. The Pearl Harbor Memorial, comprised of the WWII Valor in the Pacific Monument; which includes the USS Arizona, USS Utah and USS Oklahoma memorials; Battleship Missouri Memorial; USS Bowfin Submarine Museum and Park; and the Pacific Aviation Museum recently celebrated its 75th anniversary by commemorating the 2,403 lives lost.

Gearing up for the big event, the USS Arizona Memorial underwent a renovation. More specifically, the Memorial's exterior was one of the primary aspects of the project, including a new railing system. After undergoing a bidding process, Feeney, Inc., an Oakland, California-based company that specializes in manufacturing high quality stainless steel and aluminum railing products, was selected to assist.

"In the end, we chose Feeney's DesignRail® railing for a variety of reasons, including its ability to provide a low visibility profile," said Isobel Hertlein, an administrator for the Hawk Contracting Group, which was in charge of the project. "The railing doesn't detract from the actual memorial, and it offers a safety barrier for practicality."

Brad Adsit, LEED-AP, CSI-CDT and Feeney's Director of Product, recommended the company's DesignRail® aluminum railing with a clear anodized finish to help withstand both the high level of salt water exposure as well as humidity. "Since the USS Arizona Memorial is right on the water, we

needed ito be sure the materials selected were durable enough for the conditions and the climate," said Adsit. For the railing's infill, Feeney's stainless steel CableRail was chosen for its durability in harsh conditions as well as its ability to provide open, unimpeded views through the railing.

Since the DesignRail® railing frame is constructed from aluminum and the CableRail infill cables are stainless steel, it was important to keep the different metals from touching, so Feeney supplied isolation bushings to line the inside of the drilled post holes where the cables passed through. According to Adsit, this is an important "best practice" for projects located in areas with heavy salt water exposure. "Dissimilar metals combined with salt water can cause electrolysis, which in turn, can create a battery-acid like secretion that can stain and etch the aluminum posts," he said.

Feeney also provided high-density neoprene isolation pads to protect the aluminum post base plates from any corrosion that might be experienced due to salt water exposure between the concrete deck surface and the base plate.

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In addition, the railing system had to be compliant with the American Disabilities Act as well as endure high volumes of traffic. "The advantage of Feeney's DesignRail® with CableRail infill is that it's very durable and requires minimal maintenance, making it perfect for the extensive daily wear and tear," Adsit explained.



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As visitors arrive at the USS Arizona site by boat, they disembark onto the new dock and walk across the new access ramp and bridge to the Memorial and viewing area. The railing funnels visitors towards the bridge and also prevents them from being in close proximity to the edge of the dock. "For safety reasons, an upgraded railing system was a must-have," says Hertlein. "The original design of the renovated railing system would not have been able to stop small children or adults from crawling under the access bridge into the non-public area of the Memorial. However, we recommended a more secure railing design to the National Park Service for added safety measures."

Another interesting detail on the USS Arizona renovation project is that Feeney worked with a supplier of specialty sliding gate hardware and aluminum extrusions to create a custom horizontal sliding gate. According to Hertlein, the gate was purposely designed to allow authorized personnel to access the back side of the dock, underside of the bridge and ramp area as well as a small Davit lift for general maintenance purposes.

An additional, notable element is on the post located immediately adjacent to the "building" entrance. The piece was custom fabricated to match the slope of the exterior wall. "Due to safety concerns, this particular section of the railing system needed to bridge the gap between the walkway and the memorial," said Adsit. When manufacturing the piece, we had to pay special attention to detail." The bottom of the post needed to be cut at the necessary angle and attached to the base plate so it would run parallel to the memorial wall. Feeney also had to make sure the adjacent post was longer because it sits on a lower portion of concrete. Finally, the tops of the posts, the holes for the cables and top rail all had to align once the posts were set in place.

The project wasn't without its challenges. The Memorial was closed for the 14-day renovation period, so coordination and execution was very tight. "All crew members and building materials had to be shipped from the mainland by barge," explains Hertlein. "We also encountered last-minute changes in the overall design, as required by the National Park Service, but in the end we were able to complete the project and reopen the site on time."

For more information about DesignRail® Aluminum Railings, please visit our website at **feeneyinc.com/Railing-Systems**



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