

Project Brief

## Navy Pier 12 Upgrade



San Diego, CA, USA  
August 1997



This project involved the upgrade of an existing pier to meet demands for higher vertical and lateral loads not in the original 1947 design criteria. The work included concrete repair, carbon composite (Tyfo® SCH-41S System) reinforcing to the bottom of the decks and batter pile strengthening.

The existing pier was designed to serve 30-ton cranes while the new criteria calls for 50-ton crane access. The lateral loads assumed in the 1947 design have been increased to address current seismic codes.

Four-layers of the Tyfo® SCH-41S System were applied to increase the bending capacity of the decks in selected locations. The application was performed from suspended scaffolding that would float at high tide. After the repairs were complete the Navy proof tested the installation to ensure field performance.

The project involved a number of different strengthening techniques using advanced composite materials. The installation is being continually monitored by the NFESC and is one of several navy projects using externally bonded FRP materials.

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