FYFE®

PROJECT PROFILE: STRUCTURAL STRENGTHENING TYFO® SYSTEM

PALOMAR COLLEGE

Parking structure seismic rehab

OVERVIEW

Fyfe Company was successful in designing the carbon fiber-reinforced polymer (CFRP) materials for a comprehensive seismic rehabilitation of an existing parking structure. The Palomar Community College District procured a property to expand its campus and quickly initiated design activities due to a proposed change in occupancy from commercial office building to an educational institution. As a California community college entity, the facility requires plan check approval by DSA (Department of State Architect) and strict seismic design requirements (CBC 2001).

The engineer of record retained by Palomar College quickly identified some areas needing seismic rehabilitation and considered CFRP for the repairs. After initial evaluation, Fyfe Co. determined that the Tyfo® system was a viable repair option to bring walls, columns and beams up to the required seismic code standards. Fyfe provided a stamped design including calculations and shop drawings, which the structural engineer of record was able to incorporate into the design package for DSA review and approval. The design package received DSA approval.

Swinerton Builders then bid the FRP work and retained one of Fyfe's installers for the Tyfo® product installation activity. Fyfe's engineering team remained engaged on the project by supporting Swinerton. Fyfe conducted multiple site visits to view changed site conditions as it related to column and beam confinement applications. While it was originally assumed that columns and beams would have clearance on all sides to receive composite, Swinerton requested Fyfe provide additional guidance during the construction phase. Swinerton and the owner requested Fyfe to provide alternate confinement methods at areas where they preferred avoiding the removal of obstacles.

Column shear wrap

"The Palomar parking structure rehabilitation project was a challenging DSA project. We had challenges related to schedule (multiple mobilizations) and to inspections and consideration of field modifications. The best thing that Fibrwrap Construction was able to provide was their follow through and staying consistent with their support on a tough project. Fyfe and Fibrwrap came up with good solutions when challenging field conditions presented themselves."

Willian Beigh, Project Manager Swinnerton.

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By using composite anchors, which are discrete carbon fiber ropes to confine structural elements, Fyfe was able to avoid the removal of obstacles in some areas. Fyfe's certified applicator successfully installed the Tyfo® system for wall in-plane shear, wall out-of-plane flexure, column shear and beam flexure and shear.

This demonstrates Fyfe's engineering team ability to navigate the strict requirements of a rigorous plan check agency. Fyfe's materials received approval for unique seismic strengthening code requirements, and Fyfe's certified applicator supported a customer with the highest quality and no safety incidents in the field.

Project Overview	
Project	Palomar College Parking Structure Seismic Rehab
Location	San Diego, California
Owner	Palomar College District
Contractor	Swinerton

Wall shear wrap

Wall flexure

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