Project Overview

FRP REPAIR OF REINFORCED CONCRETE BEAMS IN PARKING STRUCTURE

Name: City Court Garage
Type: Parking Structure
Location: Tucson, Arizona
Completed: June 2005

PROBLEM

The City Court Parking Garage on Alameda Street was damaged by corrosion due to water running down the roof. Twelve inverted T-beams had deteriorated to the point of requiring shoring steel beams to share the loads transmitted by the double-T prestressed concrete beams framing into them.

The original retrofit called for new secondary steel frame to support the double-T beams. This option was expensive and very time-consuming; the city required a speedy solution.

SOLUTION

The City chose to go with a Design-Build concept and QuakeWrap® Repair System was selected as the most cost effective option. All inverted T-beams were wrapped with a single layer of QuakeWrap® composite glass fabric to provide for the missing (corroded) steel and reestablish the original design capacity.

The FRP retrofit job was finished ahead of schedule in 3 weeks.

Technical Highlights

- Inverted T-Beam reinforcement was damaged by corrosion
- Original retrofit design using a new steel framing system was too expensive and required too much time to construct.

- o QuakeWrap, Inc. was awarded a Design-Build contract by the City.
- o Corrosion damage in twelve beams was repaired
- o These beams were wrapped in composite glass fabric and painted.

Credits

Consultant: Caruso Turley Scott, Inc., Tucson, AZ
General Contractor: Concord Companies, Inc., Tucson, AZ