



RHINO
CARBON FIBER
REINFORCEMENT PRODUCTS

CFRP CASE STUDY

CRACK REPAIR & CONFINEMENT



LOCATION

Houston, Texas

CLIENT

Gadberry Construction Company

PRODUCTS USED

- RCF™ Structural Epoxy Injection Resin
- Rhino Carbon Fiber™ CFRP (Bidirectional): 560 GSM, 24" Wide
- RCF™ Saturant-Adhesive Epoxy
- Elastomeric Stucco

CASE BACKGROUND

The Gadberry Construction Company out of Houston, Texas determined that repairs on the thrust blocks on a basketball pavilion they were working on could be completed with CFRP. The pavilion consisted of a basketball court with an arched roof over top of it that was supported by steel arches, and these arches sat on thrust blocks on both sides of the court.

During the erection of the arches, the base plates had to be slid over anchor bolts that were cast into the thrust blocks and some cracking occurred around the anchor bolts on a few of the thrust blocks.

Per Item 786 in the Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges, the Texas Department of Transportation requires bidirectional high-strength carbon fiber fabric, fully saturated with compatible epoxy resin per manufacturer's recommendations, to form a CFRP system when making concrete repairs.

THE SOLUTION

The Gadberry Construction Company worked with The City of Houston's structural engineers to come up with the appropriate solution for the thrust block repairs. They determined that the best solution was to first inject the thrust blocks with **RCF™ Structural Epoxy Injection Resin**, and then wrap the blocks with 560 GSM, 24" wide **Rhino Carbon Fiber™ CFRP (Bidirectional)** applied with **RCF™ Saturant-Adhesive Epoxy**. The Gadberry Construction Company hired Olshan Foundation Repair Co. of Houston, LLC to complete the repair.

After the CFRP installation per sub paragraph 2 of Item 786 of the standard, the contractor had to provide appearance coating recommended by a CFRP system manufacturer to protect the CFRP from ultraviolet radiation, and match color of the protective appearance coating to adjacent concrete. Elastomeric stucco was used to protect the CFRP and give the City a maintenance free coating that would not crack over time.



CRACKED THRUST BLOCK



RHINO CARBON FIBER™
CFRP (BIDIRECTIONAL)



ELASTOMERIC STUCCO