FRP RETROFIT OF BRIDGE PIERS SUBJECTED TO CORROSION DAMAGE

Name: I-40 Bridge
Type: Bridge Structure
Location: Oklahoma City, Oklahoma
Completed: June 1997

PROBLEM
Interstate Highway 40 (I-40) passes through Oklahoma City and includes a viaduct that passes over a Union Pacific railway. Many of the piers were damaged by corrosion. A conventional retrofit, which would increase column diameters from 3-ft to 4-ft, was not acceptable because the wider columns would interfere with the railroad right-of-way.

SOLUTION
QuakeWrap® FRP Repair System was selected since it could provide the corrosion repair with insignificant increase to the pier’s cross section. QuakeWrap® composite glass fabric was wrapped around the 3-ft diameter piers, adding only ¼ of an inch to the column width.

Once the FRP repair was done, the piers were painted to simulate a concrete surface.

Technical Highlights

- 13 columns received corrosion repair
- Columns were 3-ft diameter by 35-ft high
- Repair could not disrupt railroad traffic
  - 9,000 ft² of QuakeWrap® composite glass fiber used
  - Added less than ¼-inch to the column diameter
  - Entire project took three days

Credits
Structural Engineer: Oklahoma Department of Transportation
General Contractor: Concrete Services Corporation, Tulsa, OK

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