



Project Overview

FRP RETROFIT OF CONCRETE COLUMNS IN PARKING GARAGE

Name: Port Clinton Garage
Type: Parking Garage
Location: Port Clinton, Ohio
Completed: April 2009

PROBLEM

A parking garage in Port Clinton required strengthening of six columns due to additional dead loads on the roof slab. The columns were 18 ft high and had a diameter of 18 inches. The construction of a new column or the increase of column dimensions would have led to significant time and cost expenses.



SOLUTION

QuakeWrap® FRP Strengthening System was selected to retrofit the 6 columns. Two wraps of uniaxial glass fabric were applied as a column confinement increasing the column compressive strength above the critical limit due to the additional roof loads. A team of 2 workers applied 9 vertical sections of wraps along the height of each column. The installation was quick and inexpensive. The confinement with the FRP wrap provided for increase in the compressive strength of the column as well as future corrosion protection.



Technical Highlights

- Six concrete columns required increase in strength
 - 2 wraps of QuakeWrap® FRP glass fiber were applied in 9 vertical sections on each critical column.
 - 1,400 ft² of FRP fabric were installed by a 2 men crew in 5 days.

Credits

Consultants: Richard Bowen & Associates, Cleveland, OH
General Contractor: Roth Bros., Inc., Youngstown, OH



“The FRP Retrofit Experts”