



**RHINO**  
CARBON FIBER  
REINFORCEMENT PRODUCTS

## CFRP CASE STUDY

# MASONRY WALL REINFORCEMENT: BLAST LOADING UPGRADE



### LOCATION

Akron, Ohio

### CLIENT

WALLFORCE Foundation Support Systems

### PRODUCTS USED

- RCF™ High Strength Anchoring Epoxy Paste
- Rhino Carbon Fiber™ CFRP (Unidirectional, Vertical): 400 GSM in Various Widths
- Rhino Carbon Fiber™ CFRP (Bidirectional): 560 GSM in Various Widths
- RCF™ Saturant-Adhesive Epoxy



## CASE BACKGROUND

The WALLFORCE Foundation Support Systems company was responsible for repairing a chemical processing facility that experienced a catastrophic explosion. They reached out to the **Rhino Carbon Fiber™** company and reviewed their complete line of concrete crack repair and structural strengthening products and determined that using **Rhino Carbon Fiber™** products would be the best solution to repair the structure.

The WALLFORCE Foundation Support Systems company was on a tight schedule to complete the repairs and get the facility operating again, and they engaged Uzman Engineering out of Malvern, PA to put together the structural design to meet the requirements of the project. They determined that they needed to reinforce two sides of a three-story stairwell and several walls in the building.

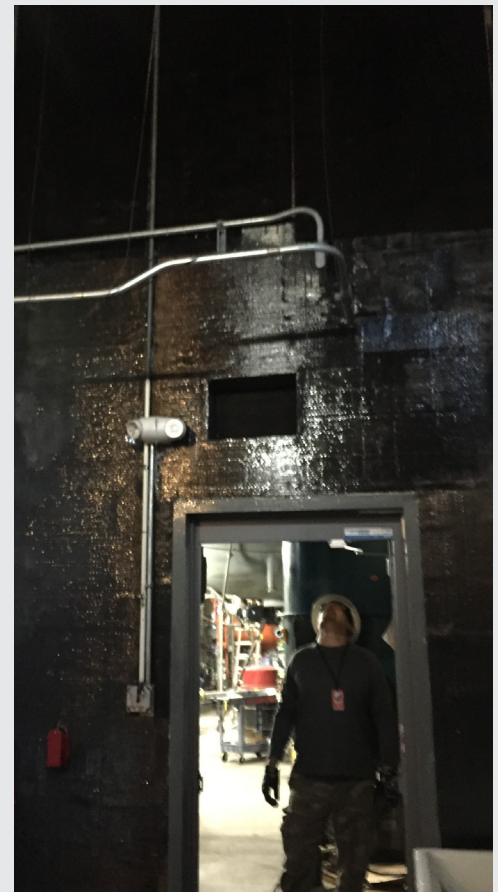
Upon completion of on-site bond testing in multiple areas within the structure, the WALLFORCE Foundation Support Systems company determined that portions of the existing coating could remain on the walls and that CFRP could be bonded directly to the roughened surface coating. In other areas, the coating bonds failed prematurely or failed between layers so the coating had to be removed before CFRP application.



## THE SOLUTION

**RCF™ High Strength Anchoring Epoxy Paste** was used to seal large cracks. To strengthen the stairwell and walls to prevent dynamic cracks, 400 GSM in various widths of **Rhino Carbon Fiber™ CFRP (Unidirectional, Vertical)** and 560 GSM in various widths of **Rhino Carbon Fiber™ CFRP (Bidirectional)** were used, which were applied with **RCF™ Saturant-Adhesive Epoxy**. Different areas within the structure required different weave orientations, weights and widths to meet the requirements for the repairs.

Using **Rhino Carbon Fiber™** concrete crack repair and structural strengthening products enabled the WALLFORCE Foundation Support Systems company to meet the needs of the project while staying on schedule and on budget. The **Rhino Carbon Fiber™** company supported the project by ensuring timely delivery of all materials required for the project.



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