RHINO
CARBON FIBER
REINFORCEMENT PRODUCTS

CFRP CASE STUDY

BELOW GRADE GYMNASIUM WALL STABILIZATION

LOCATION
Lincoln, Nebraska

CLIENT
Epp Concrete Construction

PRODUCTS USED

- Rhino Carbon Fiber™ CFRP (Unidirectional, Vertical): 400 GSM, 24" Wide
- RCF™ Saturant-Adhesive Epoxy

ICC ES®

CASE BACKGROUND

The Epp Concrete Construction company was contracted to repair a bowing gymnasium wall in a below grade project they were working on. They determined that CFRP was the appropriate solution for the repair. Typically, bowed wall repair systems are installed on walls from crawl space height to anywhere from 7' to 10' in height; in this case, the wall was 18' tall. To complicate matters further, there were four large windows on the wall.

Prior to addressing the bowing wall, a drainage issue on the exterior of the building had to be addressed since the saturated soil had been a major contributor to bowing walls. There was a parking lot adjacent to the gymnasium which sloped such that the runoff was directed toward the back of this wall. The drainage issue was remedied by removing a portion of the parking lot and installing a paved gutter.

THE SOLUTION

Once the water issue was addressed, it was time to strengthen the wall to prevent any further movement. 400 GSM, 24" wide **Rhino Carbon Fiber™ CFRP (Unidirectional, Vertical)** was applied with **RCF™ Saturant-Adhesive Epoxy**. CFRP was also installed under the windows to transfer the load.

Due to the size of the wall and the amount of surface preparation work required for the CFRP installation, the Epp Concrete Construction company elected to bring in a subcontractor to sandblast the entire wall. Per ICRI 310-2R, the surface profile of the concrete prior to CFRP installation should be a CSP 4. Once the blasting was completed, the crew was able to proceed with the CFRP installation.

By utilizing CFRP, the Epp Concrete Construction company was able to stabilize the wall without adding any obstructive bracing material to the interior thus minimizing the footprint of the repair.

BOWING GYMNASIUM WALL

RHINO CARBON FIBER™
CRFP (UNIDIRECTIONAL, VERTICAL)

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