

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



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.













info@rhinocarbonfiber.com

© Rhino Products USA, Inc. All rights reserved. RHINO CARBON FIBER™ and all other RHINO design marks are trademarks of Rhino Products USA, Inc.

None of the authors, contributors, administrators, or anyone else connected with Rhino Products USA Inc. or any of its affiliates (collectively, "Rhino"), in any way whatsoever, can be responsible for your use of the information, instructions or advice contained in or linked from this or any related document. All liability with respect to actions taken or not taken based on the contents of this or any related document is hereby expressly disclaimed by Rhino. The content of this document is provided "as is;" no representations are made that the content is error-free.

