



RHINO
CARBON FIBER
REINFORCEMENT PRODUCTS

CONCRETE CRACK LOCK® STITCHES & CFRP CASE STUDY

SALT BARN CORNER WALL FAILURE REPAIRS



LOCATION

Cambridge, Ohio

CLIENT

The City of Cambridge, Ohio

PRODUCTS USED

- RCF™ High Strength Anchoring Epoxy Paste
- Rhino Carbon Fiber™ Concrete Crack Lock® Stitches
- Rhino Carbon Fiber™ CFRP (Unidirectional, Vertical): 400 GSM, 24" Wide
- RCF™ Saturant-Adhesive Epoxy



CASE BACKGROUND

After a winter with below average snowfall, the City of Cambridge, Ohio was left with an excess of unused road salt on hand in its storage building. Due to its salt contract obligations, it was required to accept and store additional quantities of salt for the following year's winter. This necessitated overfilling its salt storage building, resulting in damage to the structure.

Cracks formed along the back of the storage building structure and the back wall began to tip outward. Initial repairs were performed by first patching the cracks and then adding steel banding to the areas to reinforce the fractures and stop movement. However, since steel is prone to corrosion, these repairs failed incredibly fast. The City then sought another solution.

The first suggested approach by the City was an extensive repair plan that involved new walls being poured to brace the failing wall. When the City Engineer reviewed that repair plan, he had concerns with it, so he looked for an alternative solution and found one utilizing CFRP.

THE SOLUTION

The City Engineer reached out to the **Rhino Carbon Fiber™** company and after reviewing the product attributes, studying the technical specifications and contemplating the possible alternatives, he determined that the best solution would be to first patch the cracks with **RCF™ High Strength Anchoring Epoxy Paste** and non-shrink repair mortar, and then reinforce the cracks with **Rhino Carbon Fiber™ Concrete Crack Lock®** stitches. The corners were wrapped with 400 GSM, 24” wide **Rhino Carbon Fiber™ CFRP (Unidirectional, Vertical)** and applied with **RCF™ Saturant-Adhesive Epoxy**.

After analysis, the City chose the CFRP solution over the method involving pouring new walls which had been previously considered. As a result, the City’s maintenance crews were able to complete the repairs in a matter of a few days and at a much lower cost than that of forming and pouring new walls. The **Rhino Carbon Fiber™** team responded quickly with the products required, enabling the repairs to be completed prior to temperatures falling so that the salt barn could be used to store salt for the following winter.



SALT BARN WALL CRACK



FAILED STEEL BANDING



FAILED STEEL BANDING



RHINO CARBON FIBER™
CONCRETE CRACK LOCK® STITCHES



RHINO CARBON FIBER™
CRFP (UNIDIRECTIONAL, VERTICAL)