

Case Study

Clarksville, TN

Carbon Fiber Grid Stitch



Project Overview

Maintenance crews discovered a significant crack running across the concrete floor while replacing carpet inside the property. The crack extended parallel to the rear wall and raised concerns about structural stability and long-term performance of the slab.



Before

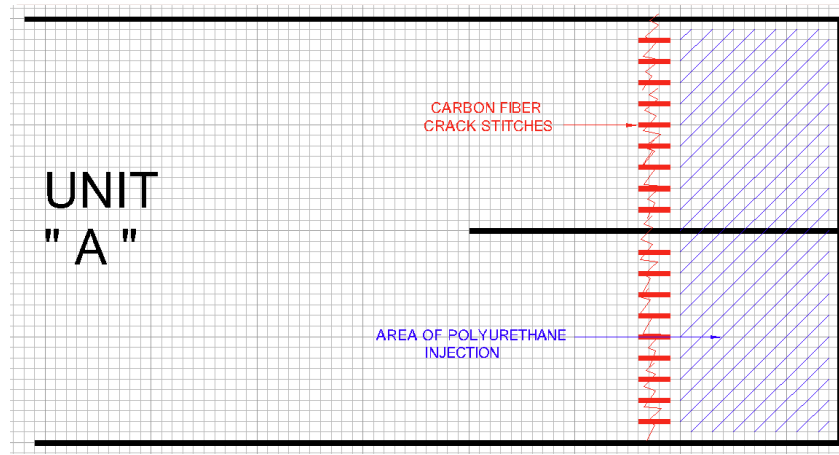
Upon inspection, the USS team found the concrete floor had settled more than 1.5 inches vertically. This settlement created a major crack across the slab and caused visible gaps beneath the exterior walls and baseboards. The slab had also begun separating from the structure itself, resulting in a loss of lateral support and compromising the integrity of the floor system.

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Challenges

- One of the biggest challenges on this project was the amount of vertical settlement that had already occurred. The slab had dropped over 1.5 inches, creating uneven flooring conditions and structural separation between the slab and surrounding building components. The crack extended across the concrete floor, making stabilization critical before any cosmetic repairs could be considered.
- The settlement also created voids beneath the slab, meaning the floor no longer had proper support underneath. Restoring both elevation and structural integrity required a solution that addressed the underlying soil and void issues while reinforcing the damaged concrete.



Solutions

- USS implemented a multi step structural repair solution designed to both stabilize and strengthen the slab system.
- First, expanding polyurethane foam was strategically injected beneath the concrete slab to fill existing voids and carefully lift the floor back toward its original elevation. This process stabilized the underlying support system and corrected the vertical settlement without the need for full slab replacement.



- Once the floor was successfully raised and stabilized, the team installed Fortress Carbon Fiber and Epoxy Grid Stitches at 12 inches on center across the crack. This reinforcement system restored the structural strength of the concrete floor and permanently stabilized the damaged area, helping return the slab to its original performance condition.

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