



## PROJECT CASE STUDY

**Location:** University of Notre Dame

**Engineer:** Keller Engineering

### *Description*

Air handling/exchange rooms in the basement of the Theodore Hesburgh library draw exterior air, which is then exchanged and conditioned for the entire structure. These air handler fans draw a lot of air, which was causing temporary deflection of the soldiered CMU block walls, as the air handling units essentially create a vacuum in their respective rooms.

### *Requirements & Challenges*

The library is used year around for students and guests at the campus of the University of Notre Dame. The deflection of the walls needed to be remedied with minimal disruption to the service of the unit. Also, the soldiered CMU block would require a repair method that was cost effective, and could be installed in very limited access and workspace.

### *Solution*

Keller Engineering designed a carbon fiber retention application using bi-directional woven mesh. 3D Structural used the HJ3 carbon fiber epoxies and 10" carbon mesh strips to secure and reinforce the interior CMU block wall. An epoxy-based strengthener was applied to the wall between the strips for additional support.

The repairs were scheduled during the Christmas-New Year break to limit interruptions of conditioned air service throughout the building.

### *Results*

A total of seven carbon fiber reinforcement strips were installed inside the air handler room. A post-installation inspection of one year intervals continues to show a solid repair with no continued signs of deflection.

Significant time and cost savings to the University added to the success of the project!

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