Fort Bragg barracks receives pioneering force protection retrofit by Erin Barstow

A new innovative technology being used on Warriors in Transition barracks at Fort Bragg, N.C., stands to revolutionize force protection for the installation.

In August 2008, work began on the former Old Nurses’ Quarters to retrofit the concrete-reinforced structure into a handicapped-accessible barracks for Soldiers recuperating from injuries sustained during duty. The building is being retrofitted with an innovative fiber-reinforced polymer product designed to strengthen the structure against earthquakes, terrorist attacks and other potential structural damage.

The new technology complies with Department of Defense design specifications UFC 4-010-01, DoD Minimum Antiterrorism Standards for Buildings, and UFC 4-023-03, Design of Buildings to Resist Progressive Collapse, for facilities taller than two stories.

FRP is a very durable, lightweight composite material constructed from fiberglass or carbon fiber for the purpose of repairing and reinforcing concrete, masonry, wood and steel structures. The material, which resembles wallpaper, is flexible, versatile and easily adheres to most surfaces and shapes — including walls, beams, columns, slabs, steel girders, pipes and utility tunnels. FRP requires no special equipment to apply and, at only one-twentieth of an inch thick, can fit in tight or difficult-to-access areas or around columns without adding bulk.

FRP can retrofit existing buildings and courthouses, facilities in Washington, D.C., and U.S. embassies. Because FRP retrofitting does not require adjustments to a building’s foundation, application is noninvasive and can typically be completed in fewer than 75 days. Thus, FRP retrofits stand to substantially reduce overall project costs and environmental impacts by circumventing the need for major demolition and reconstruction and its associated wastes. In addition, retrofits can be performed while the building is occupied, allowing operations to continue without interruption.

While FRP retrofits do not require adjustments to a building’s foundation, application is noninvasive and can typically be completed in fewer than 75 days. Thus, FRP retrofits stand to substantially reduce overall project costs and environmental impacts by circumventing the need for major demolition and reconstruction and its associated wastes. In addition, retrofits can be performed while the building is occupied, allowing operations to continue without interruption.

While the Warriors in Transition barracks are the first facility on Fort Bragg to receive FRP retrofits, the future implications of this method are many. As funding becomes available, similar retrofits may be considered for future projects, such as the Old Post District and the XVIII Airborne Corps Headquarters.

POC is Nathaniel Hermann, resident engineer, Army Corps of Engineers, 910-396-9977, nathaniel.j.hermann@usace.army.mil.

Erin Barstow is the community resource coordinator, Directorate of Public Works, Fort Bragg.

Acronyms and Abbreviations

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>DoD</td>
<td>Department of Defense</td>
</tr>
<tr>
<td>FRP</td>
<td>Fiber-reinforced polymer</td>
</tr>
</tbody>
</table>