

106 SUCCESS STORY

Repair or Replace: the Army's Analysis Dispels Age-Old Myths

Fort Belvoir, Fairfax County, Virginia



“It was a very complex decision process, and it’s a process that not every installation has gone through, but is going to probably have to go through. Fort Belvoir and our partners recognized that since we’re leading the way, we better make sure we do it right the first time.”

—CHRISTOPHER DANIEL
Former Cultural Resources Manager,
United States Army Garrison, Fort
Belvoir

THE STORY

Fort Belvoir, established in 1912, served as the home of the U.S. Army Engineer School from 1922 to 1988. As part of the Army’s nationwide rebuilding program in the 1920s, the original temporary wood-frame buildings in the residential and administrative cantonment were replaced with permanent masonry structures. The new buildings were designed in the Colonial Revival style. Fort Belvoir utilized a landscape plan that embraced the City Beautiful Movement, highlighting aesthetic beauty and separating functional areas. In 1988, the Engineer School relocated, and the installation became the home for numerous Department of Defense agencies. The Fort Belvoir Historic District, which includes the core buildings of the Engineer School, was determined eligible to the National Register of Historic Places in 1996 and features more than 200 contributing buildings.

THE PROJECT

In 2003, Fort Belvoir entered into a partnership to privatize all family housing through the Residential Communities Initiative (RCI). This resulted in the transfer of military family housing management to Fort Belvoir Residential Communities (FBRC), a public-private corporation. This included 137 historic homes available for military families within the Washington, D.C. region. A particular concern was the condition of the original windows in the residences, which had only received routine maintenance and emergency repairs since construction. Issues included life safety, natural ventilation, energy performance, and aesthetics.

THE 106 PROCESS

The Army, the federal agency carrying out this project, was responsible for conducting the Section 106 process under the National Historic Preservation Act. Section 106 requires that federal agencies identify historic properties and assess the effects of the projects they carry out, fund, or permit on those properties. Federal agencies also are required to consult with parties that have an interest in the fate of the property when adverse effects are likely to ensue.

Photos: Historic windows and replacement windows at Gerber Village, Fort Belvoir (photos courtesy U.S. Army)

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Photos: Above, replacement window installation underway; Right, a worker repairs, abates historic frames on a house in Fort Belvoir Historic District. (photos courtesy U.S.Army)



Under an existing Section 106 Programmatic Agreement regarding the RCI, FBRC was required to maintain the historic homes in accordance with the Secretary of the Interior's Standards for Rehabilitation. The challenge was how to achieve window upgrade goals and meet the Standards. Fort Belvoir and FBRC developed a pilot study to provide a cost/benefit analysis of two options: replacing the existing wood windows with new energy-efficient sashes in the same style as the originals, or fully rehabilitating the original windows and then re-installing them.

Before the study started, Fort Belvoir and FBRC worked with consulting parties to review specifications and scope of work, including a scoring methodology to evaluate rehabilitation and replacement. When the pilot study was completed in 2013, the scoring demonstrated that rehabilitation and replacement had similar costs, and both performed well in energy, aesthetics, and health and safety. Taking this into account, Fort Belvoir and FBRC proposed a combination of window repair and replacement. A Memorandum of Agreement was executed that outlined repair in 31 units and replacement in 106 units in accordance with a prescribed set of standards.

THE SUCCESS

Often federal agencies opt to replace rather than repair windows in historic buildings without a thorough analysis of options, as the prevailing belief is that new windows will save time and money and be more energy efficient. Lacking sufficient data to support the replacement option and responding to consulting parties' concerns, FBRC committed to complete a pilot study to determine the better option including historic integrity as a factor. The outcome surprised many, as it revealed replacement does not necessarily have an advantage from a cost or environmental perspective. Having accurate data, FBRC proposed a creative solution, which was acceptable to consulting parties. Over the next 10 years, FBRC will repair and replace windows in the historic housing. The resulting mix of refurbished historic windows and new replacements will improve the quality of life for residents on Fort Belvoir while maintaining the historic character of the Fort Belvoir Historic District to the highest degree.

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For more about Section 106 and the ACHP go to www.achp.gov



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