

Building Removal at Badger Army Ammunition Plant **Demonstration of Building Deconstruction and Material Salvage**

The Badger Army Ammunition Plant (BAAP) is being transferred from U.S. Army ownership to three new owners: Wisconsin Department of Natural Resources, USDA Dairy Forage, and the Ho-Chunk Tribal Nation. Future plans by these organizations require that most of the existing 1,300 buildings be removed. If building deconstruction (dismantlement) and lumber salvage were to replace demolition and landfilling, millions of board feet of high-quality lumber could be reclaimed for reuse and recycling. One very promising market for this lumber is structural framing and millwork in new construction and remodeling.

Like many of the U.S. military's industrial manufacturing and infantry training facilities, the BAAP was built in the early years of World War II. Because metal was in great demand for the war effort, many of the military's structures were built from wood. The standing timber in these military structures is some of the last remaining of our Nation's once-vast old-growth forests. We believe that the BAAP contains a wealth of high-quality lumber that has great potential for reuse. In addition, implementing deconstruction at the site will reduce the tonnage of materials to be landfilled, reduce overall building removal costs, provide local construction jobsite training, and stimulate local small business development.



Building deconstruction.

Background

In FY 2002, the USDA Forest Service, Forest Products Laboratory (FPL), received initial Congressional funding (\$475,000) to evaluate the feasibility of using building deconstruction at the BAAP. This evaluation includes quantifying the quality and volume of salvageable lumber at the site and assessing the feasibility of

using local community groups (for example, Habitat for Humanity, Operation Freshstart) for some of the building removal. Though not complete, initial results indicate that many buildings at BAAP are suitable for deconstruction using these and other Wisconsin-based groups interested in material salvage.

As technical experts in lumber salvage and wood-framed building deconstruction, the FPL is working cooperatively with the Wisconsin DNR in planning future wood building removal at the BAAP. The next logical step is to demonstrate, on a realistic scale, that deconstruction can work at the BAAP.

Objective

The objective of this research is to demonstrate the feasibility of using deconstruction and lumber salvage and verify costs, time expended, and salvage potential



for building removal. In this project, executed in cooperation with the Wisconsin DNR, five each of four building types (approximately 100,000 ft² total) that have been identified as suitable for removal (no contamination present) will be deconstructed. In addition, we propose additional research to develop standards for deconstruction so that lessons learned at the BAAP can further the use of deconstruction and material salvage nationally.

Approach

Two major tasks will be performed:

1. Implement a pilot deconstruction project for four building types (20 buildings total)
 - Use deconstruction to remove selected buildings (to slab level) using Habitat for Humanity and other local groups (after suitable training)
 - Verify yields and identify local markets for salvaged lumber and other recyclables
 - Verify cost savings, time expended, and on-the-ground costs for deconstruction
2. Develop standards for deconstruction
 - Work with industry associations and government and standards agencies to develop standard practices for deconstruction and lumber salvage
 - Work with other government agencies to develop policies on mitigation of lead-based paint in lumber from deconstruction

Expected Outcomes

This research will demonstrate the feasibility of using deconstruction and material salvage and verify costs, time expended, and salvage potential for building removal. This information will be used directly by the U.S. Army, the new owners of BAAP, and the deconstruction industry on a national level.

Timeline

This project will be completed in 2007.

Cooperators

USDA Forest Service, Forest Products Laboratory
Wisconsin Department of Natural Resources
U.S. Army
Olin Corp.
U.S. Army Corps—CERL
U.S. Environmental Protection Agency (EPA)
University of Wisconsin
Habitat for Humanity
WasteCap Wisconsin

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