

Sustainable Removal of WWII Wooden Buildings moves ahead at Fort Lewis

Some 320 of Fort Lewis' World War II-era wooden buildings are scheduled for removal over the next four years.

What makes this project different is that the majority of the material generated from the demolition activities will be salvaged or recycled rather than ending up in a local landfill.

Fort Lewis expects to exceed the Army Chief of Staff for Installation Management's new mandate requiring a 50-percent diversion of non-hazardous construction and demolition debris generated by the removal of buildings, renovations, and construction on military installations.

"In fact, the contractor for this current project is well on its way to achieving above 95 percent diversion," said Elizabeth Chien, an environmental engineer for Seattle District.

The Corps contract for the removal of 12 buildings on North Fort Lewis, which include two-story barracks, classrooms and a gym, calls for a minimum 50-percent diversion rate with additional financial benefits to the contractor for achieving increasing diversion ranges.

"The concept, 15 years ago, was to look at an old building as something nobody wants, smash it to the ground, and send it to the landfill," said Matt Schultz, contractor project manager.

"Thankfully, the Army and the Corps of Engineers have recognized that, first of all, it costs us money to dispose of things in the landfill. Second, we're running out of real estate [for] landfills; and finally, we're sitting on a lot of (reusable) wood and other products that came from our old growth forests, so let's try to do deconstruction rather than demolition."

To be completely accurate, the work being done on North Fort Lewis is neither deconstruction nor demolition.

"A more balanced approach is to blend mechanical demolition with hand deconstruction. You want to find that sweet spot where you get maximum recovery without significant increase in cost," Chien said.

Contractors say reaching this new standard requires a change their approach to building removal. "Efficiency is the key," Schultz said. "We start off looking at a building and trying to understand what markets exist for what you're looking at. We only really get to discover what's in these buildings when we start peeling the outer shells off."

Markets for the majority of material have already been identified. Porcelain bathroom fixtures, aluminum, steel, clean wood, concrete, brick and painted wood are all segregated on-site for future transport to reuse markets. Additional items such as roofing material, plastic, carpet and window glass will go to recycling.

For example, two-by-fours, plywood, flooring materials, electrical power boxes and lights were donated to Camp Caisson, the detainee training facility on North Fort Lewis.

At least four guard shacks have been repaired so far and 100 additional two-by-fours have been stockpiled for future repairs and improvements.

Later, the contractor was approached by Sgt. Brett Miller, 82nd Cavalry, Oregon Army National Guard, who was looking for salvageable building materials. Miller was at nearby Madigan Army Medical Center for treatment of injuries sustained while serving in Iraq. While there, he wanted to find work for himself and other troops to do while they



Ken Smith, department of public works (DPW), Rebekah Barker, U.S. Army Corps of Engineers (USACE), Paul Steucke (DPW), Steve Perrenot (DPW), Matt Schultz, with the main contractor on this project, MCS Environmental, Elizabeth Chien (USACE) show off their sustainability work. (Brendalyn Carpenter Photo)

recovered.

Miller and the contractor made an agreement under which he and other troops could come to the site and take materials for small beautification projects around the installation. Some of their projects included picnic tables, BBQ pits, patios and storage shelves.

They also transplanted shrubbery from around the old buildings being demolished to new areas, such as into gardens and green space areas. The activity not only kept the troops active while recovering, but proved an extremely effective diversion tactic that also improves the appearance of the installation. One of the driving factors to finding alternative uses for some of the materials comes from people driving by this site who see something different from typical demolition.

"When you do traditional demolition and all you do is turn old buildings into toothpicks and shreds and throw it in the bin, people look at that and say, 'it's garbage.' But when you do something like this where you have intentionally segregated materials, rather than seeing a pile of trash, people driving by see a resource," Chien said.

In order to deconstruct these buildings the contract team devised a system that would be both cost effective and provide a high yield of reusable materials. They determined that the best way to remove the framing lumber was to cut large panels off the building and lower them to the ground with a long-reach forklift, a technique which proved to be a safe and very effective means of deconstruction.

A rough estimate of man hours and equipment times for building removal for the one story barracks is about seven days for a crew of seven at 10 hours a day. The two-story buildings take a little longer at 10 days for a crew of eight at 10 hours a day.

More important, perhaps, is the collaboration between soldiers and contractors to find ways to benefit both parties. The contractor has found a free waste diversion tactic, and the soldiers gain free building materials for mission training and to provide rehabilitation activities that also improve the aesthetics of the installation.

"The success of this project is based on a joint effort between Fort Lewis, the Seattle District and the contractors who all support a vision of recycling and reuse rather than disposal - in other words, sustainable building removal," Chien said. (Contributing to this article were Elizabeth Chien; Brendalyn Carpenter, Fort Lewis Sustainability Outreach Coordinator; Nathan Mowry, USACE, Engineer Research and Development Center and Dick Devlin)