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Featured Projects

World War II-Era Chapel Move Highlights "Green" Sustainability

By Kayla Overton

A "moving experience" rolled on as an 87-ton, World War II-era chapel was hauled to its new home at the Sequim Training Area Center for Environmental Education and Earthworks near DuPont, Washington.

In 2005, the old chapel at Fort Lewis' North Fort was removed from the Army Corps of Engineer's list of chapels by the chief of chaplains. It was determined not to be historically significant and was cleared for demolition under a national programmatic agreement. Faced with tens of thousands of square feet of building demolition per year for the next five years, Fort Lewis waste managers have been working hard to find ways to minimize the debris going to local landfills. The chapel would become one of their success stories.



*With its steeple dismantled and sitting on the ground, the chapel is hoisted up on wheels and is ready for its journey.
Photo by Kayla Overton, USACE Seattle District.*

"The idea of moving the chapel started as a simple conversation over lunch about how we could use materials from the chapel in an education center, in order to meet our long-term sustainability goals," said Elizabeth Chien, environmental engineer, Corps of Engineers, Seattle District. "That's when we thought, 'Why not demonstrate the ultimate in reuse and move it intact and use it as the educational center?'"

Without the heart and determination displayed by the Corps and Fort Lewis team, the chapel would have been torn down. After careful planning and getting the funding in place, the chapel was on track to be relocated.

The monumental task of moving the chapel took three weeks of preparation. On the day of the move, 23 workers—utility linemen, heavy equipment operators, flagmen, laborers, fence erectors and movers—worked in synchronization to move the building 1.5 miles off of Fort Lewis.

"The move was a huge success and went according to plan," said Jeremy Mickey, project manager for contractor MCS Environmental, Inc. "The chapel was placed perfectly into the newly prepared foundation excavation on the first try. The skill and coordination of all parties made the placement of the building look as simple as parallel parking a compact car."

"Everyone involved has their own expertise." said Tom Tolman, Corps of Engineers Seattle District architect. "Working together made the project much better than any one person could have made it." Tolman is one of three professionals accredited by the Corps of Engineers Seattle District Leadership in Energy and Environmental Design (LEED) trained to promote sustainability by balancing the social, economic, and environmental aspects of a project. LEED focuses on low-impact site development, recycling, reusing materials, saving water, saving energy, and creating healthy indoor environments.



Rich Littooy, Barry Poirrer, and Elizabeth Chien, all of the Corps of Engineers' Seattle District, observe as the chapel is placed into its new location. Photo by Kayla Overton, USACE Seattle District.

"On this project it's important to note that 100 percent of the building will be reused or recycled," Tolman said.

Recovered materials from the chapel will be incorporated in the education center, used elsewhere at Fort Lewis, or sent to local salvage yards or recyclers. The steeple will be used as the top of a gazebo, bricks from the chimney will be used to edge walkways, and roughly 2,600 square feet of pine flooring and 560 square feet of windows, doors, and paneling will be reused or recycled. "This is one place where we have combined our sustainability goals," said Ken Smith, environmental program manager for Fort Lewis.

The Corps' Construction Engineering Research Lab (CERL), located in Champaign, Illinois, is providing more than \$500,000 to the project in order to demonstrate high-durability and high-performance materials under the DoD Corrosion Office program. The Fort Lewis project focuses on sustainable and durable construction products that demonstrate reduced waste, durability

(corrosion resistance), efficient energy use, reduced water use, and increased quality of life.

In addition to using green technologies, the corrosion program demonstrates the performance of durable materials. These include fiber-cement exterior siding materials, metal roofing with high-performance coatings, recycled plastic lumber, and translucent skylight panels, and others. "This is a great opportunity to demonstrate durable, long-lasting, high-performance building materials," said Tom Napier, a CERL research architect.

The building was designed with sustainability design features in mind. For example, instead of using pressure-treated lumber, structural-grade plastic lumber made from recycled plastic bottles will be used. "The wood has great holding abilities, said Mike Iacono, project designer. Up front it may be expensive but it has great long-term benefits."

Where the steeple once stood tall there will be a sky light. Eight additional skylights will be installed to distribute light evenly. Heating, ventilating and air-conditioning occupation sensors will also be used; the sensors are carbon-dioxide sensors that are able to tell how many people are in the building and regulate the temperature and fresh air supply.

The chapel's new location, a previous landfill site, was closed in 2004. The 240-acre landfill is now in the process of a renovation of its own. Future plans at the site also include attracting rare and candidate endangered species from Western Washington such as the Mazama pocket gopher, streaked horned lark, and butterflies such as the Taylor's checkerspot, zerene fritillary, and the Mardon skipper. Other animals such as bald eagles, deer, and bears are also found in the area.

Other noticeable changes that will be introduced at the site include improving the wet oak habitat, thinning the fur trees to improve mid-level tree development, introducing prairie grass on the tops of capped landfill mounds, and creating a stormwater treatment wetland.



Here is a final rendering of what the Fort Lewis Chapel will look like when it is finished. Photo by Mike Iacono.

The "moving experience" will continue to grow as other "green" building designs are implemented in future Corps projects.

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