Building Strong

Building Green

Military construction conserves energy and resources

Sustainable design has long been a part of the Corps of Engineers' military construction program, but in recent years, the Corps' efforts to "build green" have taken root across the nation.

With the Army's switch to the Leadership in Energy and Environmental Design (LEED) rating system in 2006, construction in today's military uses the same environmental design tool as the private sector. And in today's age of environmentalism – where the drive to "go green" is sweeping the country – the Corps of Engineers strives to implement better ways to conserve energy and non-renewable resources.

"We've come a long way as far as conforming to LEED standards by the U.S. Green Building Council," said Judy Milton, architect and LEED expert with the Savannah District. "And we're bringing all of our construction contractors and designers along with us. It's part of how we do business now."

LEED advances in sustainability

A program of the U.S. Green Building Council (USGBC), the LEED rating system is a point-based rating tool that uses objective, measurable criteria to promote and recognize achievement in the design, construction and operation of environmentally sustainable buildings.

A project using the LEED rating tool must meet all prerequisites by USGBC and earn a specified number of LEED credits. USGBC awards credits in five areas of human and environmental health: sustainable sites, water savings, energy efficiency, materials selection and indoor environmental quality. A project can satisfy one of four levels of LEED – Bronze, Silver, Gold and Platinum – based on the number of points earned.

The LEED rating system also offers independent, third-party certification of LEED achievement by the Green Building Certification Institute, a sister organization to USGBC. Currently, approximately five percent of Corps of Engineers buildings go through the formal certification process, and this number will increase in coming years.

Soldiers and their children cut the ribbon on a new Child Development Center at Fort Stewart, Ga., during a grand opening ceremony. The $6 million facility meets LEED Silver criteria as established by the U.S. Green Building Council. *USACE Photo by Tracy Robillard.*

Silver is standard

The Army adopted LEED in 2006 in place of it's former green rating system, commonly referred to as SPiRiT – Sustainable Project Rating Tool. As part of it's switch to LEED, the Army further mandated that all new construction and major renovation projects must satisfy a minimum level of LEED "Silver" criteria.

"The Corps of Engineers' military construction program is at historic proportions. We have a significant volume of construction coming out of the Army, and the vast majority of it carries LEED Silver requirements," Milton said. "The Army's commitment is important to our nation, because we're helping to transform the industry just by virtue of our demand for sustainable design and construction."

The Savannah District builds LEED Silver barracks at military installations throughout Georgia and North Carolina, such as this barracks pictured under construction at Fort Bragg. *USACE photo by Tracy Robillard.*

LEED features on Savannah District military construction projects range from solar collection panels and geothermal heat pumps to high-efficiency fixtures and advanced indoor air ventilation systems. Other common LEED features are use of recycled building materials, natural landscaping and rainwater storage tanks, reflective roofs, low-odor paints and carpets, and eco-friendly lighting and mechanical systems.

For more information on LEED and the U.S. Green Building Council, visit www.usgbc.org.

By Tracy Robillard

Corps builds LEED Platinum fire station at Fort Bragg

One of Savannah District's most prized sustainable projects is a Community Emergency Service Station currently under construction at Fort Bragg, N.C., designed to achieve the highest LEED rating – Platinum. Once certified, the fire station will become one of the elite few LEED Platinum Certified facilities in the federal government.

The $2.6 million, 8,300-square-foot fire station is slated for completion by R.A. Connelly, Inc., of Bradenton, Fla., by summer 2010. The design, by HSMM (Hayes, Seay, Mattern & Mattern) Inc., of Charlotte, N.C., incorporates mechanisms that save 35 percent more energy than a similar fire station built to code.

This Community Emergency Service Station at Fort Bragg will satisfy LEED Platinum criteria – saving 35 percent more energy than a similar fire station built to code. The building is scheduled for completion by summer 2010. *Artists' rendering provided by HSMM.*

The facility's LEED Platinum features include low-flow water fixtures and a captured water system to collect rain water for washing fire engines and flushing toilets, reducing potable water consumption by 83 percent. The design also includes a solar water heater to offset at least 7.5 percent of total building energy costs, high-efficiency heat pumps, occupancy light sensors and an energy-efficient roof.

The majority of building materials are recycled and come from local and regional suppliers, thus reducing the amount of energy needed to transport them. Other materials like carpet, paints, adhesives and sealants are low in Volatile Organic Compounds and are environmentally friendly. Additionally, a permanent recycling area for paper, plastic, cardboard and other household items will enhance the building's sustainable lifecycle, along with bicycle storage areas and the use of low-emission, fuel-efficient vehicles.

"We look at the building system holistically and use off-the-shelf technologies to ensure the finished product is economical," said Catherine Bingham, Savannah District project manager. "And most of the time, that means it will also be environmentally sound. Saving water and saving energy helps our environment, but it also saves money in the building's lifecycle."

By Tracy Robillard