

“LEEDing” the way in sustainable design and construction



The Moody Dormitory project at Moody Air Force Base, Ga., received a “gold” rating for energy efficiency and environmental sustainment from the U.S. Green Building Council. The Savannah district oversaw construction of the buildings.

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 made significant advances 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 strives to implement better ways to provide sustainable facilities.

“We’ve come a long way as far as conforming to LEED standards by the U.S. Green Building Council (USGBC),” 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 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 and earn a specified number of credits. Credits are awarded in five areas of human and environmental health: sustainable sites, water, energy, materials selection and indoor environmental quality. A project can satisfy one of four levels of LEED achievement – 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 5 percent of Corps buildings go through the formal certification process, and this number will increase in coming years.

In 2006, the Army mandated that all new construction and major renovation projects satisfy LEED silver criteria. The Air Force mandated the same policy in 2007. The majority of those projects do not seek third-party certification from USGBC. Instead, the Corps

internally validates the buildings for achieving LEED silver requirements.

"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."

Going for Gold and Platinum

One of Savannah district's most prized sustainable projects is a Community Emergency Service Station 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 was completed in March 2011. The design incorporates mechanisms that save 35 percent more energy than a similar fire station built to code.

Now that the fire station is completed, it will receive operational monitoring during occupancy to ensure that it performs as designed.

"One of the credits for LEED platinum certification for this facility requires follow-on testing and monitoring during the first year of occupation to ensure that the facility is operating effectively as it was designed," said Greg Beers, resident engineer, Pope Resident Office, Fort Bragg, N.C. "The conditions of the facility have to be measured under use to see if it's going to actually produce better conditions and meet energy savings and other requirements for LEED credits."

The facility's LEED platinum features include low-flow water fixtures and a captured water system to



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 was completed in March 2011. Photo provided by Gary Poling, Project Engineer, Savannah District.

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.

Also included is a permanent recycling area for paper, plastic, cardboard and other household items which will enhance the building's sustainable life cycle, along with bicycle storage areas and facilities for low-emission, fuel-efficient vehicles.

Another successful "green" project is the \$15.6 million Moody dormitory facility, built by the Savannah district at Moody Air Force Base, Ga. Completed in February 2010, the project was just awarded gold certification by the Green Building Certification Institute.

At 46,791 square-feet, the 120-person facility serves unaccompanied enlisted airmen. Each airman gets a private room, which has a walk-in closet and a bathroom. All four suitemates share a common area furnished with couches, a TV and a complete dining area.

One of the largest energy efficient features of both projects is the geothermal ground water heating and air conditioning system. It operates at a significantly lower cost than traditional gas, oil or electric-based installations, because heat is pumped from water deep in the earth. Since water is denser than air, more heat can be pulled from water with less energy. In the summer, the process is reversed. The system draws excess heat from inside the building, and the underground piping carries the heat deep into the ground for the earth to absorb.

Additionally, the designs of both projects incorporate recycled building materials, such as wood doors, carpet and wall tiles, recycled structural steel, and metal roofing. Local suppliers provided most of the materials, reducing the amount of energy to transport them and adding a boost to the local economy.

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 include 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 and Rashida Banks, Corporate Communications Office