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U.S. Army Corps of Engineers
Louisville District

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Designed with sustainability in mind

Fort Campbell project going for gold

Katie Newton, public affairs

A new sustainability pilot project—the Fort Campbell Sustainment Brigade Administration Facility— is finishing up and is on track for the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) gold certification thanks to the project design team's plan to incorporate green features.

The 30,900 square foot facility, which will house the Sustainment Brigade Defense Finance (DFAS) to process military pay actions, boasts many sustainability features. It includes a Photovoltaic Panel system, Geothermal HVAC, rainwater harvesting system and will reduce energy consumption by 50 percent.

"It's been a big success from design, construction, the customer's and the user's perspective," said Derek Henry, Louisville District project engineer/architect.

Although Fort Campbell has LEED certified projects, this is the first of its kind for the U.S. Army Corps of Engineers Louisville District's in-house design team.

"The intent of the pilot project was to establish a regional baseline solution for design elements and design processes most suitable for sustainable design at Fort Campbell with the idea that the elements and processes utilized for this design could be replicated on future projects at Fort Campbell," said Henry.

The project design team worked to ensure that no green feature was overlooked for this $12 million project. The team focused on several areas in the planning phase including:

- Storm water management: Through the use of pervious pavement, bioretention and rainwater harvesting, all storm water is retained onsite for infiltration.
- Geothermal HVAC heat pump system: Using the earth as a heat source in the winter and a heat sink in the summer, this design takes advantage of the moderate temperatures in the ground to boost efficiency and reduce the operational costs of heating and cooling systems.
- Solar hot water: The solar hot water heating system is used to save energy on domestic hot water heating. Energy collected from rooftop solar collectors will be used to heat 30 percent of the facility's domestic hot water.
- Rainwater harvesting system: Rainwater will be used for flushing water closets and urinals with potable water back up. This resulted in a 41 percent reduction in potable water use.
- Lighting design strategy: Pendant direct/indirect lighting provides more uniform lighting levels throughout the spaces and provides brighter ambient light with fewer fixtures. Lighting controls in the outer zones of the building are equipped with daylighting sensors and dimmable fixtures to take advantage of free energy and high quality light provided by the sun.
- Building orientation: The building features a passive solar design to maximize solar interior light and is positioned with primary occupied spaces along the southern exposure.
- Building envelope – insulated concrete forms (ICF): ICF were utilized for their thermal and building envelope qualities, creating an energy efficient exterior wall system.
- Photovoltaic panel array with localized micro inverters: On-site renewable energy generation was implemented to lower the overall energy consumption of the facility. Energy generated is put back into the grid rather than supporting the facility demand.

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The new Sustainment Brigade Administration Facility at Fort Campbell was designed with the latest sustainability features.

All of these features help to meet the LEED criteria for gold certification, which is expected in January 2014.

"Achieving LEED gold is a significant accomplishment for Louisville District in-house design and our partners demonstrating our capabilities in sustainable design and construction," said Henry. "A true atmosphere of partnership and trust between engineering, construction, Fort Campbell Department of Public Works, and the contractor was critical to the project's success. No single entity would have been successful without all parties being successful."

Project design team

Derek Henry - Project Engineer/Architect
Isaiah Weilbaker - Civil Engineer
Josh Mudd - Structural Engineer
Vu Nguyen - Mechanical Engineer
Beau Gaddie - Electrical Engineer
Todd Chandler - Electrical Engineer/Lighting Design
Jessica O'Bryan - Interior Designer
Justin Roosa - Geotechnical Engineer
Ron Holmberg - Stormwater Design
Luke Cooper - Cost Engineer
Jessica Charles - Construction Project Engineer
Nora Hawk - Project Manager
Alex Herrera - Project Managers