

Directorate of Public Works-Environmental

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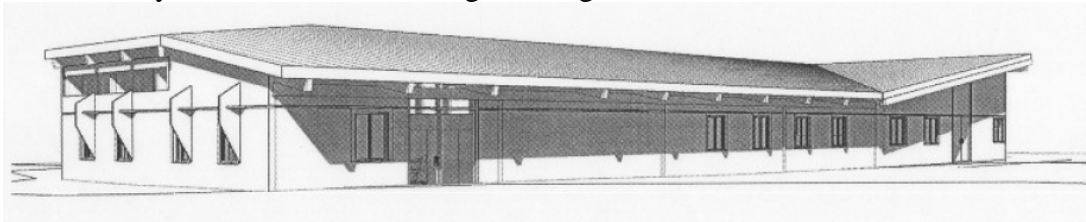
Going lean, clean, and (Army) green: DPW tackles environmental issues By Christine Luciano

The Fort Hood Directorate of Public Works engineering division is working with DPW environmental towards a greener future. Although the perception exists that engineers are the tree cutters, and environmentalists are the tree huggers, on Fort Hood both divisions are working together towards sustainable design and development.

Currently, Fort Hood's engineering and environmental divisions are in the process of designing three 5,000-square-foot office buildings to meet the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) Silver standards. The Army is transitioning from the Sustainable Project Rating Tool (SPiRiT) used to rate environmental aspects of buildings to the LEED rating system for military construction projects starting fiscal year 2008. To comply with Executive Order 13423, Strengthening Federal Environmental, Energy, and Transportation Management, Fort Hood is using LEED as a tool to implement sustainable design and development for high performance construction.

Compressed straw building

One of the LEED Silver buildings will be the future DPW Environmental Office. This building will have solar panels and a rainwater collection system, and it will be completely constructed with structural insulated panels made out of compressed straw and oriented strand board. The other building is designed to have the first green roof on Fort Hood, active daylighting and xeriscaping with vegetation acclimated to Texas. From these pilot projects, Fort Hood will learn how to better implement the Army's environmental strategies and goals.



The new DPW Environmental office will feature solar panels, a rainwater collection system, and will be completely constructed with structural insulated panels made out of compressed straw and oriented strand board.

The DPW engineers have also taken environmental initiatives by implementing a sustainable roofing product into projects and installing light emitting diode (LED) lights on the Installation.

DPW Engineer Sammy Jackson researched for a product that was better than asphalt shingles, required less maintenance, and would save the Installation money. Jackson learned about a product called Duro-Last Cool Zone, an Energy Star sustainable roofing product that has a high solar reflectance rating recognized by the Environmental Protection Agency.

Jackson first used this product when the III Corps building needed a new roof. “DPW had a budget of \$1 million to replace the roof, but with research to find a sustainable product, we were able to install the Duro-Last for \$600,000 and have a cost avoidance of \$400,000,” Jackson said.

Instead of the traditional process of applying tar and asphalt shingles onto roofs, Duro-Last is a prefabricated membrane that laborers roll to install. “There is minimal waste and extra sections of the Duro-Last are recycled for walk pads,” Jackson said. “The end result is a high quality product that makes the building cooler and in turn saves energy.”



Contractors roll the insulation onto the roof of building 29014, which can be accomplished in almost half the time as placing traditional asphalt shingles.

“Asphalt shingles generally have high polycyclic aromatic hydrocarbons, which are trace contaminants that occur naturally in crude oil, coal, and other hydrocarbons,” said Jennifer Rawlings, DPW environmental pollution prevention coordinator. “This is an environmental concern because weathered shingles are toxic to aquatic life, and several are suspected carcinogens. But this is changing and with engineering’s support we are making progressive steps towards sustainability to meet Fort Hood’s goals of LEED Silver for all new construction projects.”

New power saving measures

DPW engineer Michelle Lenis is also working a project to install LED lights and reflectors at Gray Army Airfield and LED traffic lights throughout the Installation. The project first started last year when the engineering division replaced Hood Army Airfield with LEDs and installed radio controllers for power. The result was a savings of over \$60,000 a year. “Since Hood Army Airfield is not monitored 24 hours a day, 7 days a week, the power was on constantly,” Lenis said. “But with the LEDs and a radio frequency for pilots to tune into to turn on the power, we were able to drastically reduce our electricity consumption from 67 percent to 4 percent.”

Traffic lights replaced

Engineering’s success led them to taking initiatives for future projects, such as the LED traffic light that is currently in process of being completed by the end of the calendar year. On Fort Hood there are 1362 traffic lights that will be completely replaced with LED lights and will save the Installation an average of \$25,000 a year. “There are so many advantages to LEDs,” Lenis said, “the life cycle is 10 times longer lasting about 10 years and they require much less maintenance and labor.”

These projects demonstrate how engineering is making greener decisions and finding long term sustainable, innovative solutions to save energy. “This is a win-win situation for everybody- for environmentalists and engineers,” Lenis said. “There is no down fall on a project like this. Engineering is continuing on with their good work including implementing environmental aspects into everything we do.”