

Sustainability is focus of Earth Day

*by Public Affairs
Air Force Civil Engineer Center*

Each year Air Force installations around the world observe Earth Day on April 22 by taking actions to support the Air Force's Earth Day theme of "Conserve Today - Secure Tomorrow."

This year, Air Force activities will focus on sustainability, referring to the capacity to continue the mission without compromise and operate into the future without decline - either in the mission, or the natural and man-made systems that support it.

Sustainability includes, to a large degree, sustainable installations and is important to making sure that we have and will continue to have, the water, materials and resources to protect human health and our environment.

In its 2013 Strategic Sustainability Performance Plan, adopted by the Air Force, the Department of Defense outlined four key priority areas: energy and reliance on energy, chemicals of environmental concern, water resource management and maintaining readiness in the face of climate change.



The Air Force is committed to reducing energy demands at its installations and increasing the availability of renewable energy sources.

While the Air Force's commitment to sustainable and energy-efficient facilities is not new -- the first policy to "apply sustainable development concepts" to facilities and infrastructure

projects dates back to 2001 -- the Air Force issued guidance in June 2011 building on the Air Force's vision for sustainable installations where new vertical and major renovations fully incorporate federal requirements for high-performance and sustainable buildings. This includes achieving a minimum of 20 Leadership in Energy and

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Battle of the Buildings

by J.T. Denney
AFCEC Public Affairs Intern

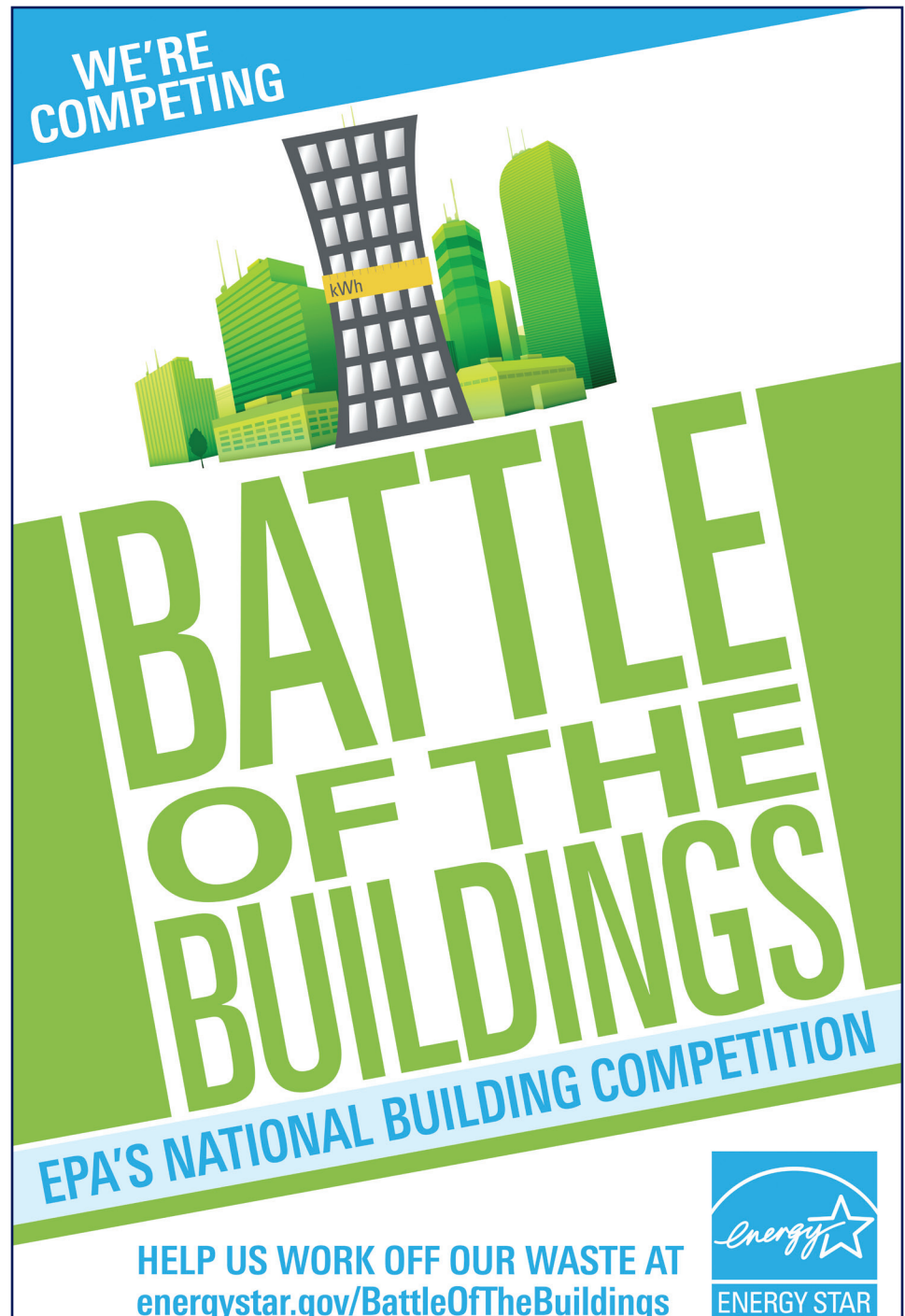
Reaching a goal can be more fun if you make it a competition. That's why for the last four years Energy Star has sponsored a competition called "Battle of the Buildings." It's a six-month, coast-to-coast competition among commercial buildings to reduce energy and water use. Last year, more than 3,000 buildings battled it out including shopping centers, apartment buildings and schools.

Similar to the popular show "The Biggest Loser," teams will have weigh-ins in July, October and December. Winners will be announced in April 2015. You must have complete data for calendar year 2013 entered into Portfolio Manager to participate. Any building that an organization owns, manages or occupies can be entered.

Buildings with planned upgrades are great candidates. Even low-cost investments can result in big energy savings. Buildings where you can engage or incentivize occupants may have a leg up on the competition. Look across your major command, base and even across the street to find potential team mates. A base may want to team up with downtown businesses to make it a community-wide effort. A major command may want to pick five buildings across the command to form a team.

In 2012, the competitors reduced their total greenhouse gas emissions by more than 280,000 metric tons of carbon dioxide, equivalent to the annual electricity use of more than 43,000 homes.

There are multiple ways to win including top team, top building, top building in a category or 20 percent reduction by a team and building. The Environmental Protection Agency's website provides tools and guidelines to maximize their output including social media, emails,




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EPA'S NATIONAL BUILDING COMPETITION

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ENERGY STAR

newsletters, web banners, buttons and posters.

The call for applications starts April 16th and deadline to enter is May 16th. Official launch of the competition is July

2014.

Visit <http://www.energystar.gov/BattleoftheBuildings> or <http://www.energystar.gov/buildingshelp> for more information.

Earth Day...

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Environmental Design, or LEED, points dedicated toward energy efficiency and water conservation.

At Aviano Air Base, Italy, a new 144-Airmen dormitory was constructed in accordance with the latest energy efficiency standards, guaranteeing energy-saving performance. The facility's energy-reduction initiative included a solar-heating system for domestic hot water production. The 64-panel heating system provides domestic hot water for the entire building, providing anticipated energy savings of at least 50 percent.

Several sustainable technologies were installed atop a roof on a security forces building at Goodfellow Air Force Base, Texas: solar-power generation, solar thermal, above-sheathing ventilation and rainwater catchment. The features are expected to reduce the utility bill, produce energy and provide water for irrigation. Preliminary data shows a 44-percent reduction in energy consumption.

Besides energy conservation, the Air Force is also focusing on reducing the use of hazardous and toxic chemicals and materials as part of its sustainability efforts.

At Vandenberg AFB, Calif., the 30th Civil Engineer Squadron implemented a green product procurement initiative to encourage more than 220 client shops to specify more environmentally friendly commodities when submitting their hazardous material requests. Any time a hazardous product is requested, the HAZMART team researches and recommends green alternatives.



Solar water-heating panels for the dormitories on Aviano Air Base, Italy, are comprised of 64 panels. This renewable energy initiative provides 10,000 liters of hot water production capacity, and saves approximately \$4,000 a year. (U.S. Air Force photo/Senior Airman Matthew Lotz)

Sometimes, making a change in an existing process can drastically reduce the production of hazardous waste. Engineers with the 72nd Air Base Wing at Tinker AFB, Okla., installed a filter press to remove water from hazardous industrial sludge prior to disposal. The filter reduced the amount of sludge disposed by 92 percent and over seven million pounds per year, saving about \$1.2 million annually.

Wastewater treatment plays an important role in conservation. In 2013, Hurlburt Field, Fla., began operations to clean and recycle water for reuse. The water will predominantly be used for irrigation and wash rack purposes.

"Hurlburt Field is in a water resource caution area," said Jonathan Colmer, air

and water program manager for the 1st Special Operations Civil Engineer Squadron at Hurlburt. "Implementing the Hurlburt Field Reuse System will help conserve these groundwater resources for years to come."

Airmen and their families are encouraged to demonstrate their support by committing to perform an act of "green" at home or work to benefit the environment. Make your commitment at www.facebook.com/blueactsofgreen.

The Air Force Civil Engineer Center has posted an Earth Day Toolkit at <http://www.afcec.af.mil/news/earthday2014>.



Answer on the back page

How many buildings were registered to compete in last year's Battle of the Buildings competition?

Expeditionary facility energy reduced 60 percent in AOR tests

by Jennifer McCabe
AFCEC Public Affairs

The Air Force recently completed the first expeditionary test of its new energy-efficient shelter system at an air base in Southwest Asia. This follows five years of joint Air Force-Army research in New Mexico, California and Florida.

Standard Basic Expeditionary Airfield Resources, or BEAR, shelter systems use up to 13,000 gallons of fuel a day to bed down up to 3,300 people in austere locations. At the expeditionary site, the test shelters reduced energy 63 percent compared to standard shelters. This is

equivalent to 2.4 million gallons of fuel a year.

The expeditionary test included eight Air Force shelters and seven Army shelters and ran from August to December 2013. Researchers added shade flies or photovoltaic-covered flies, insulated liners, LED lights, thermal reduction coatings, insulated vestibules with flies and hard doors to the shelters. They made energy-efficient improvements to the environmental control units as well.

"The Airmen were amazed at how the thermal coating on the ECUs kept the metal close to ambient temperature," said Rod Fisher, an expeditionary

modernization engineer at the Air Force Civil Engineer Center, Det. 1, Tyndall Air Force Base, Fla. "While doing a walk-through with the Airmen, I placed my hand on an ECU and just held it there."

Fisher said the thermal coating, insulated duct covers and a new shelter configuration cut the required number of ECUs in half — one ECU can now cool two shelters rather than one.

The changes not only save energy and money, they also improve living conditions. The vestibules help keep out light, and the liners and flies help soundproof the shelter.

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This shelter with a vestibule, hard door and shade fly is similar to those tested in Southwest Asia. These energy-saving measures along with photovoltaic flies, insulated liners, LED lights, thermal coatings and improvements to environmental control units reduced energy use 63 percent in recent tests. This shelter is on display at Tyndall AFB, Fla. (U.S. Air Force photo/Jennifer McCabe)

Lighting project to save \$400K

by Steve Elliott

JBSA-Fort Sam Houston Public Affairs

Thanks to the good idea of a concerned citizen, the multi-story parking facility at the San Antonio Military Medical Center will get a major energy conservation facelift.

"A local resident called to say he was seeing the bright lights on in the SAMMC garage during the day. He thought it was a waste of money and energy," said Frank Thomas, Joint Base San Antonio resource efficiency manager.

"I went to check it out, contacted Brooke Army Medical Center leadership and then conducted a light system audit. An energy conservation project was initiated as a result."

After the garage opened several years ago, there was a noticeable uptick in energy costs of approximately \$300,000 a year to JBSA, with another \$150,000 in annual lighting maintenance, Thomas said.

"When the garage was originally planned, it was designed with older, less-efficient lighting. This is sometimes the case with a project that takes many years to come to fruition," Thomas added.



The San Antonio Military Medical Center's multi-story parking facility is getting a major energy conservation facelift and will come at no cost for Joint Base San Antonio-Fort Sam Houston. (U.S. Air Force photo/Frank Thomas)

"The lighting industry is evolving at a very rapid pace and new and improved efficiencies are hitting the market continually."

An independent government estimate gave the project of price tag of \$1,586,000. However, the resource efficiency manager at the

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Thank you to all the people and programs who submitted Federal Energy Management Program award nominations. While the Air Force can only submit 15 to the Department of Energy for consideration, you are all winners!

AFSPC, Energy Team
RAF Lakenheath, Housing
Tinker AFB, Energy Team
RAF Mildenhall, Steve Perry
Ramstein AB, Energy Program
Selfridge ANGB, Shannon Bergt
MacDill AFB, Fuel Efficiency Office
Spangdahlem AB, Exterior Lighting
Davis-Monthan AFB, Energy Program
Dover AFB, Energy Reduction Program
Nellis AFB, Energy Management Office
USAF Academy, Sustainability Program
Seymour Johnson AFB, Energy Program
JB Andrews, Energy Conservation Program

AMC, Surfing Aircraft Vortices for Energy (SAVE)
Hill AFB, Energy Management Team Progress Award
Hurlburt Field, Graywater Tank and Distribution System
MacDill AFB, 6th Civil Engineer Squadron Energy Center
Fairchild AFB, Polar Overflight for Deploying to CENTCOM
Fairchild AFB, 92nd Operations Group Fuel Efficiency Office
JB Elmendorf-Richardson, Landfill Gas Waste-to-Energy Initiative
Dept. Assistant Sec. for Energy, I Am Air Force Energy Campaign
Offutt AFB, Bernie L. Davis Maintenance Facility Energy Upgrades
Vermont ANGB, 158th Fighter Wing Energy Management Program
Wright Patterson AFB, Advanced Power and Thermal Research Bldg.
Dept. Assistant Sec. for Energy, Air Force Energy Analysis Task Force
AMC, OCONUS Alternate Airfield Requirement for Mobility AF Sorties

JBSA Lighting

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time, Craig Henry, coordinated an Air Force Productivity Enhancing Capital Investment fund award for \$978,200.

"The relighting project became the inaugural energy conservation project partnered locally with CPS Energy and JBSA," Thomas said. "The JBSA energy team and contracting office leveraged the existing area-wide Public Utility Contract for Electricity, Natural Gas, and Regulated Energy Management Services with CPS Energy, and the CPS bid for the project came in at an amazing \$581,647."

After the project wraps up in May, it will save an estimated 11,223,800 Btu or 3,288,573.4 kilowatt hours annually. There will also be an annual savings of \$252,233 in energy and up to \$150,000 in maintenance costs. "This project will pay for itself in a very short time," Thomas added.

By using CPS Energy's energy conservation rebate program, the local utility company will rebate up to 60 percent of the cost of the project, or approximately \$230,000.

"Federal funding came through a manpower arena program called

Productivity Enhancing Capital Investment or PEI," Thomas said. "It's an Air Force Program established in 1977 that uses self-sustaining funds to purchase equipment or facilities."

If anything, Thomas notes, lighting throughout the garage will be improved. The new fixtures are more reliable, illuminate faster and last longer. In addition, energy-saving LED lighting will be used on the roof.

"I guess you can say that one phone call from a concerned citizen was the first step towards a major energy savings for Joint Base San Antonio," Thomas said.

Cut in half

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The shelters are now on their way to Guam for tropical testing. The Air Force will also test the new BEAR System for Load and Installation Management. BSLIM can manage power loads from the BEAR power plant, manually or automatically turn off loads during critical demand periods or to conserve energy, and integrate renewable energy into the BEAR grid.

"We'll be able to truly manage our base from an energy perspective," said Fisher. "If there are unoccupied tents, we can

shut off generators. If we lose the power plant, we can go into an 'island' mode." The loads will be prioritized so that the system uses renewable energy it has first, said Fisher.

"Airmen will no longer have to run around starting up back-up generators. The BSLIM box will sense the loss of power and start generators automatically."

Tests will continue through 2015.



New energy-efficient environmental control units like this one with thermal coating and insulated ducts along with other initiatives helped the Air Force cut its expeditionary facility energy use by more than 60 percent in recent tests. (U.S. Air Force photo/Jennifer McCabe)

energyguiz

Q. How many buildings were registered to compete in last year's Battle of the Buildings competition?

A. Answer: More than 3,000. Form your Air Force team and sign up today!



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