

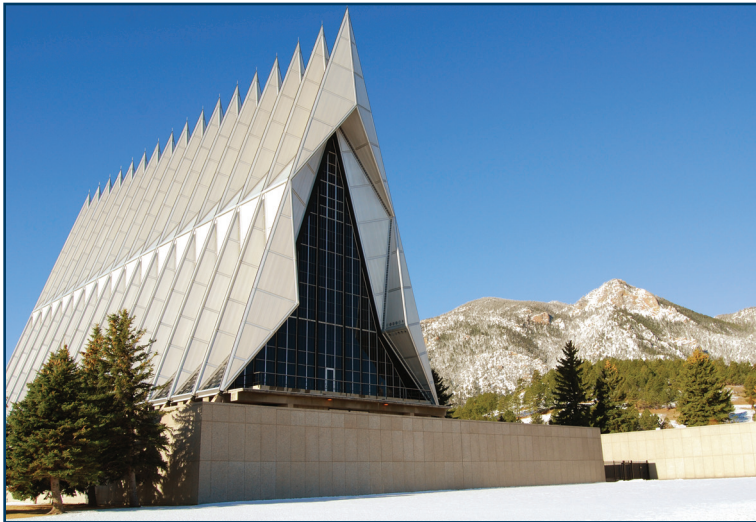
ENVIRONMENTAL AWARDS

10th Air Base Wing, Air Force Academy / Sustainability – Non-Industrial Installation

INTRODUCTION

The Academy encompasses approximately 18,455 acres along the Rocky Mountain Front Range in Colorado, about 16 miles north of Colorado Springs and 60 miles south of Denver. The Academy opened in 1958 and supports 4,400 cadets, 2,100 active-duty military residents, and 1,400 community civilians.

The Academy is committed to conducting its mission in an environmentally responsible manner that will protect human health and natural resources and preserve the unique character of the Academy by maintaining a balance between the built environment and the natural environment. The Academy is also committed to complying with all applicable environmental laws, regulations and other requirements. This commitment encompasses the integration of sound environmental practices into daily decisions and activities.



The Cadet Chapel is the most popular man-made attraction in Colorado, with more than a half million visitors every year. Groundbreaking began on the iconic landmark Aug. 28, 1959, and was completed in 1963 at a cost of \$3.5 million.

FY 2010 ACCOMPLISHMENTS

- The “Falcon Green” outreach program gets to the heart of the Academy’s Energy Strategic Plan. It helps focus everyone on improving our stewardship of fiscal and natural resources and becoming leaders in the world of renewable energy
- Received \$18M in American Recovery and Reinvestment Act (ARRA) funds for the new six Megawatt solar photovoltaic array. This project alone is expected to reduce the Academy’s carbon-based electrical energy consumption by 11% and save more than \$1M annually
- Designed building construction to earn at least a United States Green Building Council Leadership in Energy and Environmental Design (LEED) Silver certification to reduce energy
- Installed 46,000 square-foot photovoltaic roofing system at Vandenberg Hall that produces 240,000 kilowatt-hours per year
- Awarded \$2.1M in energy conservation projects, reducing energy consumption by 6,932 million British thermal units (MBTU) per year with a first year cost savings of \$102,000
- Awarded Tree City USA for the 17th straight year. Planted 100 seedlings on Arbor Day with over 35 community volunteers. Partnered with the U.S. Forest Service for future reforestation by collecting over 500,000 pinecone seeds for the Rocky Mountain area
- Hosted the Academy’s first ever Native American Tribal Consultation which red carpeted five tribes, ultimately paving the way for a Memorandum of Understanding (MOU)
- Restored neighboring ecosystem by removing understory vegetation from 500 acres of pine forest and 300 acres of oak brush reducing the fuel hazard of wild fires
- Hosted the 5th annual America Recycles Day event diverting 9,600 pounds of electronics from the landfill
- Installed two solar powered aerators to prevent algal growth resulting in an overall reduction in herbicide usage by 500 pounds
- Reduced chemical additives below US Environmental Protection Agency (EPA) Toxic Release Inventory (TRI) reporting limits. Zero TRI chemicals reported to the EPA for 2010

BACKGROUND

The Academy was established in 1954 with the mission to educate, train, and inspire men and women to become officers of character, motivated to lead the United States Air Force in service to our nation. The Academy, which is a National Historic Landmark District, has many unique structures totaling approximately eight million square-feet (60% in the cadet area). Overall leadership of the Academy is provided by the Superintendent.

The 306th Flying Training Group, a tenant organization that reports to Headquarters Air Education and Training Command (HQ AETC), specifically supports powered flight, soaring, and parachute training for the cadets.



The “Falcon Green” outreach program gets to the heart of the Academy’s Energy Strategic Plan. It helps focus everyone to be leaders in renewable energy. It is an integral part of our Environment Management System (EMS) process.

PROGRAM SUMMARY

The Academy has established and achieved objectives geared toward integrating sustainable practices into the management of mission activities.

- An energy strategic plan was developed and implemented, including the identification of multiple energy opportunities. The Academy continues to work to be the first Air Force ‘net-zero’ base
- Awarded the Air Force General Rawlings Award for Environmental Excellence for its outstanding unit level environmental program and the Base Energy Manager recently won Air Force Energy Manager of the Year
- Chaired weekly work request review panel, identified as a best practice in the external Environmental, Safety, and Occupational Health Compliance Assessment and Management Program (ESOH CAMP)
- Modified the pest management process with the replacement of herbicide spraying devices with sponge applicators eliminating overspray

- The fifth annual America Recycles Day event diverted more than 9,600 pounds of electronics including personal computers, televisions, DVD and CD players, stereos, speakers, and VHS players from the landfill
- Partnered with US Fish and Wildlife Service to control unwanted fish species in the base lakes. Routinely performs aquatic weed and algae control to improve water quality
- Recycled 34,500 pounds of household material with the privatized housing recycling program within the first month of collections
- Saved over ten million gallons of water within six weeks by installing auto-adjusting irrigation control systems, saving approximately \$10,000
- Managed the only Federal installation household waste in Colorado “Drop and Swap” diverting over 26,000 pounds of paints, oils, antifreeze, etc. from landfills
- Increased the use of recycled waste water to 97% by installing \$1.1M in non-potable water lines
- Standardized building temperatures in the winter (68 degrees) and summer (78 degrees) reducing energy usage by 4.5% per year

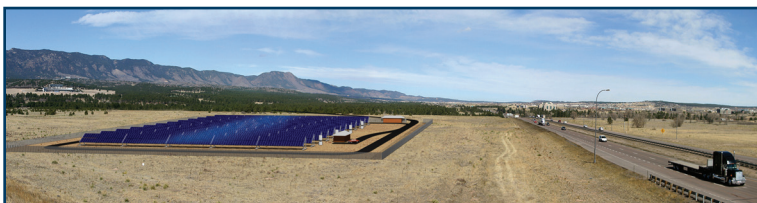
The Academy created a focus-driven Environmental Management System (EMS) by incorporating the existing environmental programs into an integrated management system. The EMS has been instrumental in educating the base populace on various federal, state, and local environmental laws and regulations. The Academy’s EMS success is based on the Plan-Do-Check-Act process solving methodology and includes the following:

- Annual ESOHCAMP assessments
- Compliance Site Inventory development and maintenance
- Quarterly inspections of operational areas
- Monitoring and maintenance of environmental compliance sites
- Tracking all findings of non-compliance to closure
- Tracking the storage and usage of hazardous material and waste items

SUSTAINABILITY ACCOMPLISHMENTS

LIVABLE COMMUNITIES, MASTER PLANNING & GREEN BUILDINGS

In November 2010, the Academy broke ground on a new solar photovoltaic power system. The 30-acre, six megawatt system is designed, built, and operated in partnership between the Academy, Colorado Springs Utilities, and Sun Power Corporation and will be completed in Summer 2011.



This is an artist rendering of the Academy's solar array project now under construction. The Academy obtained American Recovery and Reinvestment Act funds for the new 6 Mega Watt solar array. This project alone is expected to reduce the Academy's electrical energy consumption by 11% and save more than \$1M annually.

The solar array is the latest step in the Academy's Net-Zero Initiative, with a goal to generate 100% of electricity needs via on-base renewable energy sources by the year 2015. Other Academy energy efforts include ongoing renovations, building construction designed to earn at least LEED Silver certification, installation of solar panels on rooftops, the addition of hybrid and E-85 vehicles to the Academy's fleet, and measures to reduce the base's overall energy use. To date, the Academy has awarded \$2.1M in energy conservation projects and reduced consumption by 6,932 MBTUs per year, with a first year cost savings of \$102,000.

COMPLIANCE WITH EXECUTIVE ORDERS 13423 & 13514

In support of their environmental policy, the Academy:

- Maintains an effective EMS, promotes the use of best management practices, and minimizes or eliminates adverse impacts to the environment and the community
- Sets environmental goals, measures progress, and communicates results regarding the Academy's operations and its environmental accomplishments to the community Evaluates new and innovative technologies and practices, maintains an effective pollution prevention program, minimizes the generation of wastes, maximizes recycling, and disposes of any remaining wastes in an environmentally responsible manner
- Responsibly uses resources such as energy, water, fuel, and other natural resources, and adopts processes that promote conservation whenever possible

- Conducts regular EMS and operation-specific environmental performance reviews and takes corrective and preventive action when needed to address actual or potential non conformances

The Academy has embarked on unique initiatives to strengthen environmental protection. The Falcon Green Program minimized energy use, cost, and reduced waste generation. Falcon Green incorporates the triad approach of conservation, innovation, and education to conserve today's energy, implement innovative sources of renewable energy, and educate tomorrow's Air Force leaders regarding a sustainable future. Notable successes to date include turning computers off every night and consolidating printers. The Academy strives to improve efforts continually to meet



Windows are being upgraded in Vandenberg Hall and throughout the Academy. Energy conservation projects of \$2.1M, reducing energy consumption by 9,809 MBTUs/Year with a cost savings of \$144K/year. Another project installed 46,000 sq ft of photo voltaic roofing system at Vandenberg Hall that produces 240,000 kWh per year.

the sustainability goals outlined in Executive Orders (EO). They have replaced \$4M in potable water line projects, dramatically improving water quality. In addition, they have installed \$1.1M in non-potable water utility lines and use recycled wastewater for 97% of all base-wide irrigation. As Air Force energy leaders, the Academy has placed restrictions on building heating and cooling temperatures, saving 4.5% of energy usage per year.

The Air Force Academy Cadets have embraced, and in some cases driven, sustainable and green activities throughout USAFA. Their initiatives evaluating lighting in the dormitories, development of bio-fuels from waste dining hall grease and rigorous self-imposed recycling initiatives have given testimony to the Falcon Green Initiatives pervasive nature. Concomitantly, it shows the extensive progress being made to change the culture of tomorrow's leaders of the Air Force; a foundational concept in the Air

Force's Energy Strategic Plan. A culture of sustainability grown at the Air Force Academy has an infinite return on investment to the Air Force and the Nation.

MATERIAL MANAGEMENT

The Academy policy is to practice pollution prevention whenever feasible. In situations where waste cannot be prevented, it should be recycled. Waste that cannot be prevented or recycled should be treated in an environmentally safe manner. Disposal should be employed only as a last resort. The Academy's Hazardous Materials Program manages the procurement and use of hazardous materials to support Air Force missions, protect the safety and health of Academy personnel and nearby communities, minimize the use of hazardous materials consistent with mission requirements, and maintain Academy compliance with environmental requirements for hazardous material usage.



Biologist, Brian Mihlbachler, monitors the Academy's invasive weed program. Ten listed noxious are managed using biological controls (insects), thus reducing pesticides. Long-term monitoring with the Colorado Natural Heritage Program is in place to identify new weed species and evaluate weed control efforts.

The Academy strives to work with every organization on base to find the safest and cleanest way to do business. Notable highlights to date include:

- Replacement of industrial solvent with Zep Green parts cleaner, eliminating Occupational Safety and Health Administration (OSHA) and EPA hazardous issues
- Used biological, hand-pulling, and mechanical methods for weed control, a key in achieving the Department of Defense (DoD) herbicide reduction goal
- Reclassifying 81% of hazardous waste as universal waste enabled the Academy to maintain small quantity generator permit status

RECYCLING PROGRAM

The Academy recycles newspaper, plastics, cardboard, metals, phonebooks, and glass using receptacles located in the Community Center parking lot. Plastic, paper, and cans are collected in numerous facilities throughout the installation. Housing residents participate in a curbside recycling program that allows them to recycle over 15 different materials. In addition to recycling, base housing residents who have reusable hazardous products they no longer need, such as bathroom cleaning supplies, can take them to a dedicated Household Hazardous Material Drop and Swap site.

The Academy recycled 8.4M pounds of material and disposed of 13.1M pounds of trash in 2009, which equates to a 39% diversion rate of refuse from landfills. The Academy also recycles bulk scrap metal, concrete, asphalt, various recyclable hazardous wastes, used cooking oils, bio-solids, toner cartridges, and government-owned electronics. Recycling events include celebrations of Earth Day and America Recycles Day. The last America Recycles Day electronic event collected 9,600 pounds of electronics to be recycled.

GREEN PROCUREMENT

Unprecedented renewable energy initiatives were realized at the Academy. Solar power was made a reality when the Academy partnered with the local utility company on an \$18M six megawatt solar array. This project cut fossil fuel use by 11% and was voted one of ten DoD Best ARRA projects. Renewable energy funds were increased by \$5.6M balancing energy consumption and resulting in exceeding EO mandates. The USAF awarded five FY10 Energy Program projects valued at more than \$3M. Design reviews were held on over 100 engineering projects allowing asbestos, recycling, and green procurement to be added to design/construction specifications. The Academy replaced 95% of motor oil purchases with refined motor oils resulting in no loss of quality and zero complaints.

EDUCATION, OUTREACH, & PARTNERING

Earth Day & Arbor Day

The Academy organized the fifth annual Earth Day Art and Poetry contest at Douglass Valley Elementary School. Approximately 400 students in Grades 1-5 participated. All students were given an informative brochure, developed by the Academy, to help educate the students on green energy, as the topic for 2010 was "The Green Generation." The Academy judged the contest and selected multiple winners from each grade level whose work was then displayed in the base library. All students received a certificate of appreciation for their participation.



Environmental Technician, Jeanie Duncan, organized the 5th annual Art/Poetry contest at our elementary school. All students were given a brochure on green energy as this year's topic is "The Green Generation." There were multiple winners from each grade level, whose work was displayed in the base library, and all students received a certificate.

The Academy celebrated Arbor Day with a seedling planting event, assisted by our Wing Commander and Smokey Bear. Thirty five students from the Academy's Falcon Youth Outreach Center planted 100 seedlings in an event focused on cultivating an appreciation in our youth for protecting and sustaining our forests. The Academy received a Tree City USA Growth Award at the Arbor Day ceremony for outstanding accomplishments in urban forest education and management.

Mountain Pine Beetle Management Program

The ponderosa pine forests of the Academy faced a serious threat due to rising mountain pine beetle populations. Recognizing the risk to our pine forests in 2006, we performed intensive field surveys, promptly removing infested trees to minimize further beetle migration. We implemented a preventative spray program, and expanded our forest thinning program to increase long-term health and vigor in forests at high risk for beetle attack.

Because ecosystem threats "know no boundaries," our focus expanded beyond the Academy property to coordinate with adjacent landowners, including privatized lands on the installation. Addressing this threat from a regional standpoint through coordination with the US Forest Service, El Paso County, and others has been an essential facet of the strategy to control the infestation.

The stunning success of the pine beetle strategy is evidenced by a dramatic decrease in beetle populations, down 96% in 2010 from the population peak in 2007. Nearly 300 infested pines were removed in 2007. By 2010, this number had decreased to twelve. Had the infestation been ignored several years ago, the pine mortality could have approached 10,000 trees by the summer of 2010.

Protecting the beautiful forests that comprise the fabric of the Academy continues to be our top forest management priority.

Cone Collection and Reforestation Program

The Academy established a seed bank of tree seed which could prove critical in meeting future reforestation needs, especially considering the possibility of a catastrophic event such as a devastating wildfire. Locally adapted seed is important to grow healthy trees that are genetically well acclimated to the environment.



Forestry Technician, Steve Wallace, checks on the health of an Academy tree. The Academy's award winning forestry program has controlled the on base beetle infestation which is devastating much of the Rocky Mountains. A cone collection and seedling planting program ensure future health healthy forests.

To enhance biodiversity, our FY10 cone collection included Douglas fir seed, in addition to Ponderosa pine. The seedbank is now sufficient to grow 1.25M seedlings, and will be expanded to include additional species in the future as cone crops allow. Seed is stored at a USFS tree nursery, where it remains viable for over two decades. The nursery has grown 500-1000 seedlings annually for the Academy. Five hundred seedlings were planted in 2010 to reforest a recently burned area and several pockets that were cleared due to heavy dwarf mistletoe infection.

A seedbank represents an important commitment to landscape health and sustainability. Our cone collection program affords the opportunity to partner with other agencies in providing high quality seedlings for current and future reforestation needs. This proactive investment in the future exemplifies a sound long-term approach to forest management, and a commitment to preserving this beautiful landscape.

Noxious Weed Control

The Academy has partnered with Texas A&M AgriLife Research Station since 1999 to control ten state-listed noxious weeds using biological controls (insects). Base-wide surveys and long-term monitoring has been implemented with the Colorado Natural Heritage Program to identify new weed species and evaluate the effectiveness of the control efforts. Monitoring of rare plant populations is also being conducted to assess the impact of invasive plants on ecosystem integrity and biological diversity.

Trails

The Academy sponsored a 24-hour mountain biking race on the Falcon Trail, a 12-mile long single-track located on Academy land. The event was so popular (98 riders) that USA Cycling™ has proposed holding their 24-hour race championship on the base in 2011. A renewed emphasis on trail repair, maintenance, and sustainability has increased the use of the recreational trails several fold. The Falcon Trail was selected by the local newspaper and readers as the best regional mountain biking trail in 2006 and 2010. Eagle Scouts have recently performed projects to improve the camping facilities and control soil erosion.

Wildlife Management

Working with the Colorado Division of Wildlife, USAFA has become a shining example of how to carry out effective urban wildlife management. Healthy, stable populations of mule deer, white-tailed deer, elk, black bear, fox, coyote, mountain lion, small mammals, and migratory birds all contribute to a highly valued Watchable Wildlife program. Twenty-two years of deer and elk hunting have provided many hundreds of hunters with a successful recreational experience, while also efficiently controlling the game populations to minimize property and habitat damage and vehicle accidents. Nuisance wildlife issues, most often occurring in base housing, have been aggressively addressed through “Living with Wildlife” information and other public education campaigns.

Threatened Species Conservation

The Academy is home to one of the largest populations of the federally threatened Preble’s meadow jumping mouse, a small rodent restricted to riparian corridors along the Colorado Front Range and in southern Wyoming. Since listing in 1998, the Academy has conducted and supported numerous field studies on the species’ ecology, biology, and population dynamics. Annual live-trapping surveys conducted since 1995 have produced the most extensive and continuous population dataset available for Preble’s. A Conservation Agreement between the base and the US Fish and Wildlife Service has been highly effective in conserving habitat and protecting the species, and along with the Integrated Natural Resources Management Plan (INRMP), was recently instrumental in preventing critical habitat designation on the Academy. USAFA is reaching beyond

their boundary and partnering with local developers and governments to improve regional stormwater management to help sustain mouse habitat, wetlands, and riparian areas.

Native American Consultation

The Academy hosted an inaugural government-to-government Native American consultation visit in June 2010, the first time the installation has engaged in dialogue with federally recognized Native American tribes regarding the preservation and protection of cultural resources. The primary purpose of the visit was to make formal introductions, disclose to the tribes what archeological resources have been identified at the Academy and how they have been managed, and to work toward a mutual agreement with the interests of the tribes and the Academy in mind. The visit included fact-finding tours of some of the 164 archeological sites on Academy property. Among the tribes represented were the Jicarilla Apache Tribe, the Northern Cheyenne Tribe, the Cheyenne Arapahoe Tribes of Oklahoma, the Oglala Sioux Tribe and the Southern Ute Tribe.



10th ABW Commander, Col Rick LoCastro, and the Civil Engineer Cultural Resources staff poses in front of the Academy Cathedral Rock with representatives of five Native American tribes. Native American Tribal Consultations are paving the way for a Comprehensive Agreement. This partnership will further ensure sustainability.

CONCLUSION

The Academy is dedicated to all aspects of leadership for the good of the Air Force and nation. The mission is to commission leaders of character who possess a foundation that includes sustainability as a consideration throughout their Air Force career and beyond. Just as the Rampart Range and the 7,250 feet elevation serve as inspiration to reach for the sky, the Academy is positioned to lead the charge in bringing a sustainable, balanced mark upon this earth. As documented herein, the Academy’s recent infrastructure and facility accomplishments are testimony to the leadership in sustainability that the Academy demonstrates to the nation.