

Public Works

DIGEST

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Construction at Quad E is part of the Whole Barracks Renewal Program at Schofield Barracks, Hawaii. Photo by Ken Hays. Page 10

U.S. ARMY INSTALLATION MANAGEMENT COMMAND

IMIGOM



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New theme emphasizes new roles

by Maj. Gen. John A. Macdonald

You may have noticed that the theme for this July-August edition of the *Public Works Digest* is called “Engineering” rather than “Facilities Engineering,” as it has been named in the past. Allow me to explain.

The title *facility engineer* goes back to the 1980s, at least. It spoke to all aspects of the Directorate of Public Works’ business — master planning, real property, resource management, environmental, housing, engineer plans and services, utilities and operations.

We are no longer just facility engineers. Our roles have broadened and multiplied. We are also businessmen, accountants and environmentalists. We are landlords, public speakers, authors and more. In all cases, true professionals.

Today’s *Digests* are organized by themes in the major functional lanes. Those themes are “Master Planning and Military Construction,” “Housing,” “Environment and Sustainability,” “Energy and Water,” “Annual Report Summaries” and now, “Engineering.”

This “Engineering” edition will concentrate on topics that are not covered by the other themes. It will focus on topics that generally revolve around the execution of our annual Operations and Maintenance,



Maj. Gen. John A. Macdonald
U.S. Army photo

Army; Sustainment, Restoration and Modernization; and Municipal Services funds. This \$2.5-billion-a-year program covers the whole gamut of day-to-day Public Works operations, annual work planning, engineering/design/construction of OMA-funded projects like barracks, all issues with our transportation infrastructure maintenance, custodial, grounds maintenance and other such responsibilities.

Barracks. The engineering pacing item is barracks. Whatever else we do, barracks must always take priority to give our Soldiers quality living conditions. Barracks must be sustained in a good quality condition. This is not compromisable.

We must, as we always have, find ways to get more for our dollar. This does not mean “doing more with less.” It means

doing the right thing, at the right time, for the right price. That is what “Engineering” is all about. Finding a better way to get the job done.

Fiscal year 2008 is the most robustly funded year we have ever seen for Sustainment, Restoration and Modernization. Congress is supportive of funding major restorations of our aging inventory. Timing of funds is never good, and getting quality designs and contracts awarded in a timely manner is one of our most pressing challenges, but you are meeting it head on and producing excellent products.

As always, this edition is filled with great articles on all the best and brightest initiatives you folks are doing across the Army around the world. In addition to stories on Whole Barracks Renewal projects, the Army Transportation Infrastructure Program, and correction of mold and mildew problems, you will find some reports on new technology and about goings-on here in the D.C. area, along with a robust Professional Development section that includes advice and training opportunities.

When I am not traveling and seeing the great things you are accomplishing, I enjoy reading about them. You are doing great work. Keep it up!

The name change of the theme of this issue is a small thing but will cause us to rethink what we do and keep us moving forward as we find better and more effective ways to serve our Soldiers.

Excellence — better than we were yesterday but not as good as we are going to be tomorrow.

Maj. Gen. John A. Macdonald is the deputy commanding general of the Installation Management Command.



Acronyms and Abbreviations:

OMA	Operations and Maintenance, Army
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This 40-year-old Advanced Individual Training barracks at Fort Gordon, Ga., is being renovated to provide standard quarters for Soldiers and extend useful building life. Photo and rendering courtesy of U.S. Army Corps of Engineers, Savannah District



This rendering depicts the expected appearance of a typical “Rolling Pin” barracks after renovations.



Engineering improvement programs from the Corps

by James C. Dalton

Army installations tackle their operations and maintenance requirements and many other challenges on a day-to-day basis. In addition, installations are facing tremendous challenges in executing the huge demand for facilities to support the Army's changing needs resulting from Army Transformation, Army Modular Force, Global Defense Posture Realignment and Base Realignment and Closure.

Army's engineering arm

USACE is responsible for design and construction of Military Construction projects. We have established many active communities of practice that build, maintain and provide expertise and capability to accomplish this mission. Supporting Army installations, the Office of the Assistant Chief of Staff for Installation Management and the Installation Management Command is our core military mission.

The Engineering and Construction Community of Practice establishes engineering technical policy and standards to ensure compliance with public laws and provides leadership in executing those policies and standards. USACE divisions and geographic districts offer direct technical support and life-cycle services in the engineering, construction, operation, maintenance, repair and alteration of Army installations. Our designated centers of expertise and labs are regularly called upon by the installations for their expert advice and services.

Acronyms and Abbreviations

ACSIM	Assistant Chief of Staff for Installation Management
BIM	Building Information Modeling
CASI	Center for the Application of Sustainable Innovations
CoP	Community of Practice
DoD	Department of Defense
E&C CoP	Engineering and Construction Community of Practice
ERDC	Engineer Research and Development Center
IMCOM	Installation Management Command
MILCON	Military Construction
TEN	Technical Excellence Network
USACE	U.S. Army Corps of Engineers



James C. Dalton
Photo by F.T. Eyre

To help Army installations meet the new energy, sustainable and water conservation goals set by Congress, executive orders, the Department of Defense and the Army, the E&C CoP incorporated in the design criteria and MILCON Transformation Model Request for Proposal new requirements to reduce energy and resource consumption and the use of environmentally preferred products and materials.

- Some of these new requirements are:
- Design new buildings to use at least 30 percent less energy than the baseline.
 - Meter all utilities.
 - Specify premium motors, Energy-Star and Federal Emergency Management Program equipment.
 - Use renewable energy.
 - Reduce water consumption by 16 percent from the baseline.
 - Phase out ozone-depleting compounds.
 - Achieve Silver rating under the U.S. Green Building Council's Leadership in Energy and Environmental Design for New Construction.
 - Divert at least 50 percent of construction and demolition waste.

Knowledge networking

Faced with multiple reorganizations, decreasing staff, retirement of experienced personnel and increasing workloads, USACE found questions that used to be relatively easy to answer became much tougher. We saw the need for a single web site that could point engineers and scien-

tists to those answers. Such was the beginning of the USACE Technical Excellence Network.

TEN is a web-accessed relational database that contains information from each of the 17 subcommunities that make up the E&C CoP. TEN contains areas of expertise of many of the subCoPs, identifies subject-matter experts, posts learning opportunities, lists USACE centers of expertise and has links to information on Career Program 18, the USACE Enterprise-wide Lessons-Learned system and USACE technical publications.

In June 2007, TEN went from being on the USACE intranet to an extranet site that is open to all with Common Access Cards operating from dot-mil domain networks. So now, much of TEN is accessible to the Army Public Works community, plus Navy, Air Force and other DoD users.

We encourage the Public Works community to use the site for answers to its questions and also to share lessons learned with us. TEN is located at <https://ten.usace.army.mil>. It currently has more than 4,000 registered users and receives more than 25,000 hits per month. Users can post questions to a discussion forum, search for documents and get links to the USACE Environmental CoP and the Installation Support CoP.

USACE's Engineer Research and Development Center created the Center for the Application of Sustainable Innovations in 2007 to help Army installations achieve sustainability goals. CASI, hosted at the ERDC Construction Engineering Research Laboratory in Champaign, Ill., functions as the hub of a network, providing access to expertise from all of the ERDC laboratories and numerous partners. The partners include:

- Center for Sustainable Design at the University of Illinois;
- National Defense Center for Environmental Excellence;
- National Renewable Energy Laboratory; and



Fort Gordon trainee barracks getting upgrade

by Jennifer Small

The Army's home of technology is getting a facelift that will be more than skin deep. The Fort Gordon, Ga., Trainee Barracks Upgrade project will completely renovate 35 buildings.

The project will modernize 40-year-old barracks and supporting buildings and extend their lives by 25 years to provide standard quarters for Advanced Individual Training Soldiers. Plans call for completing the upgrades by 2015.

"This is a long overdue project," Fort Gordon Garrison Commander Col. John Holwick said. "The vast majority of my installation is trainees. Over 4,000 roll through here each year. These [buildings] were state-of-the-art [when they were built], but they've started to fail. We decided that we had to extend the life of these, to bring them up to 2008 standards.

"They say this will extend the life 25 years, but I think it will be closer to 40; these are sound structures," he said.

The project includes the upgrade of 18 barracks, one brigade headquarters building, four battalion headquarters buildings, four dining facilities and eight company administration buildings. The buildings will be gutted to the shell, which is a less

expensive alternative to a complete rebuild that keeps as much of the structural integrity of the buildings as possible.

The current phase, to be completed in February, includes the renovation of one barracks building, one dining facility, one battalion headquarters and the 15th Signal brigade headquarters, for a cost of about \$17 million.

U.S. Army Corps of Engineers, Savannah District officials awarded the four-building contract to Tetra-Tech, of Atlanta, in September. The contract contains the potential for awarding future projects, according to Gary Wilder, the Corps' Fort Gordon project engineer.

The first step in the current project is demolishing, to steel and concrete, the first



Crews demolish all building systems and finishes down to bare structure to enable renovation to modern systems, layout and finishes. Photos by Hillary Torchia, U.S. Army Corps of Engineers, Savannah District

barracks building and rebuilding a 40,645 square foot, three-story barracks.

"We are doing this to provide adequate living spaces that meet new Army standards," said the Corps' Fort Gordon resident engineer, Phill Payne. "We are making sure that entry-level Soldiers get a good introduction into the Army."

The old buildings are inconvenient and out-of-date. Soldiers complained about ➤

(continued from previous page)

- Engineering and Support Center, Huntsville.

CASI is a community dedicated to helping the Army and DoD achieve and enhance sustainable approaches to regional and master planning, facility design and facility operation, maintenance and deconstruction. Its capabilities include: formal and informal demonstration projects; expertise to provide planning and design guidance; and web assets to link with a community of experts, consult databases and interact with smart lessons-learned environments. CASI will also assist the Army and DoD in measuring progress toward achieving sustainable planning and design goals.

Technology advances

In the design and construction arena, USACE recognizes Building Information Modeling as the technology of choice for the industry. We are committed to using BIM as part of our tool kit to deliver quality facilities on time and within budget.

BIM-based deliverables are a requirement for fiscal year 2008 MILCON Transformation projects. For projects under our continuous-build program for Army standard facilities, we will be combining, reusing and improving standard BIM-based designs to support our transition to an adapt-build facility-delivery approach.

The Army, as a large owner and operator of facilities, should receive long-term

benefit from BIM-based life-cycle facility data for total asset management and operations and maintenance, including 3-D visualization and clash detection, space management, warranty management and energy analysis.

USACE is very proud of its support to Army installations. We will continue to improve and provide quality, sustainable and responsive services to enhance the installations' mission capability and the quality of life for our Soldiers and their Families.

James C. Dalton is the chief of the Engineering and Construction Community of Practice, Headquarters, USACE. 



Bulletin describes solid waste stream for base camps

by Gary Gerdes

A Public Works Technical Bulletin issued by the U.S. Army Corps of Engineers characterizes, for the first time, the makeup of solid waste generated at military base camps. PWTB 200-1-51, *Solid Waste Generation Rates at Base Camps*, is available online at http://www.wbdg.org/cch/ARMYCOE/PWTB/pwtb_200_1_51.pdf.

Information in the bulletin represents findings from two earlier studies at base camps in the Balkans. Two sites were included — one, a camp that had recently transitioned from contingency operations and one that had matured to semipermanent infrastructure capable of sustaining long-term missions. Conducted by the U.S. Army Engineer Research and Development Center, the research covered only nonhazardous solid waste: plastic, light metal, paper and cardboard, scrap wood, sewage sludge, ashes and miscellaneous trash.



To characterize waste at the base camps, garbage was sorted by category, weighed, and the moisture content determined.

Results showed that overall solid waste produced at the two camps was roughly similar. However, the amounts of specific waste types differed greatly. For example,

much more plastic trash was found at the transitioning contingency operations camp than at the established camp. This finding was probably due to gradual replacement of single-serving bottled water with central distribution points for purified water at the older camp.

By understanding the types of solid waste produced under different circumstances, military base camp planners will be better able to develop strategies for its disposal. This information will allow for proactive efforts to procure equipment and services to handle the waste in a timely fashion.

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Gary Gerdes is a project manager, ERDC-CERL.



Acronyms and Abbreviations

CERL	Construction Engineer Research Laboratory
ERDC	Engineer Research and Development Center
PWTB	Public Works Technical Bulletin

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the lack of showers and modern amenities.

“Sometimes you have to wait a half hour for the shower,” said Pfc. Edgardo Camacho of the 15th Signal Battalion. These new barracks will be more comfortable. That’s the most important thing. I think it will just help [troop] morale.”

The new barracks will consist of two-person suites with a bathroom in each, a new and modern air conditioning system, plumbing and electrical upgrades, and a computer lab. It will also include the addition of exterior walkways to the second and third floors, with all rooms having exterior access.

“The Army is a world-class organization, therefore our Soldiers should be living in world-class facilities,” said Lt. Col. Steve Middleton, deputy brigade commander, 15th Regimental Signal Brigade. “When you recruit new Soldiers into the Army, you want them to have the newest equipment, training and facilities. This

will help to achieve that.”

All design specifications for the renovations must meet the Silver level of Leadership in Energy and Environmental Design standards, an Armywide mandate. Structures must be built to reduce waste sent to landfills, conserve energy and water, reduce harmful greenhouse gas emissions, be healthier and safer for occupants, and incorporate sustainable design features.

“Fiscal year 2008 mandates that we now design and build to meet those standards,” Payne said. “There is a cost to it; it impacts the upfront cost, but it is supposed to be more cost-effective in the long run [by reducing energy waste].”

The price tag for the eight-year project is \$365 million.

“It’s going to change the whole look of Fort Gordon,” Holwick said. “We’re the home of technology for the Army — for



Existing narrow interior hallways will become utility corridors once exterior walkways are added.

the whole military — so we have to give the look of a world-class post, and this should do it.”

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Jennifer Small is a public affairs specialist, U.S. Army Corps of Engineers, Savannah District.





Army tests technology to prevent mold in buildings

by James P. Miller

Service members deserve clean, healthy living quarters free from mold and mildew. The Office of the Assistant Chief of Staff for Installation Management is actively addressing the problem of mold and mildew growth in barracks and other military facilities. To bring this recurring and costly problem under control, ACSIM undertook a multiyear effort to better understand the source of the problem, develop and demonstrate cost effective solutions that really work and, ultimately, implement them throughout the Army.

As part of this effort, ACSIM asked the U.S. Army Engineer Research and Development Center to demonstrate a promising technology on three barracks facilities at Fort Stewart, Ga. Dedicated Outdoor Air Systems can potentially eliminate mold and mildew growth by removing moisture from outdoor makeup air before it enters the building heating, ventilating and air-conditioning system.

Problem

Mold and mildew infestation is a serious concern not only for the U.S. military, but for many types of public and private facilities, especially those located in hot, humid climates such as the southeastern United States. Mold and mildew growth occurs when the following conditions are present:

- mold spores
- nutrients
- favorable temperatures
- moisture

Mold spores are everywhere. They like to feed on building materials and the contents of buildings, and they also thrive over the same range of temperature as the indoor environment. Therefore, the only effective way to inhibit mold and mildew

growth is to limit the amount of moisture available to spores.

For years, the Army's approach to managing mold and mildew problems has been similar to that of most other building owners or operators: eliminate leakage of water into the building from pipes and through walls and roofs; design, install and maintain HVAC systems to dehumidify the interior environment as well as possible; exhaust humid air from bathrooms and kitchen areas; and promptly clean, repair or replace building materials that become infested with mold or mildew.

In cases where mold and mildew damage was severe, expensive building renovation projects were often performed to completely remove and replace all internal flooring, ceilings, wallboard and furnishings; thoroughly clean all structural members; and upgrade HVAC systems to better control humidity within the building. However, the Army often found that within five to 10 years, many of these recently renovated buildings had chronic mold and mildew problems severe enough to warrant complete renovation all over again.

All buildings require ventilation air from the outdoors to meet the breathing requirements of the building occupants and to pressurize the building to prevent infiltration of unconditioned outdoor air into the building. HVAC systems draw in large quantities of outdoor air to satisfy this requirement.

In hot, humid climates, such as southeastern United States, this ventilation air carries with it massive quantities of water vapor that exceeds the dehumidification capacity of conventional HVAC systems. The result is that typical HVAC systems introduce large amounts of water vapor into buildings, causing interior relative humidity to be high and creating ideal environments for mold and mildew growth.



One of the DOAS being tested at Fort Stewart, Ga., uses a commercial off-the-shelf system to precool and pre-dry the outdoor air. Photo courtesy of ERDC-CERL

Possible solutions

During summer 2007, ERDC's Construction Engineering Research Laboratory installed DOAS technology on three barracks — Buildings 630, 631 and 637 — at Fort Stewart. A DOAS filters outdoor air, dries it to a very low humidity level and then delivers it to the building at temperatures approaching that of the building interior.

The effect of the DOAS is to “decouple” the dehumidification process from the building space temperature control process. The DOAS system is dedicated to dehumidifying the outdoor air, and the conventional HVAC system is dedicated to maintaining the space temperature requirement.

By decoupling the dehumidification and space temperature control processes, both systems operate most effectively, resulting in drier, more comfortable interior conditions. Keeping the building interiors at or below about 50 percent relative humidity is expected to greatly reduce or eliminate mold and mildew problems within barracks and other facilities.

Three different DOAS methods were used at Fort Stewart. Building 630's system had direct expansion evaporator coils installed downstream of chilled water coils in existing outdoor air units. The heat rejected by the DX system was returned to the ventilation air downstream of the ➤

Acronyms and Abbreviations	
ACSIM	Assistant Chief of Staff for Installation Management
CERL	Construction Engineer Research Laboratory
DOAS	Dedicated Outdoor Air Systems
DX	direct expansion
ERDC	Engineer Research and Development Center
HVAC	heating, ventilation and air conditioning



Correcting mold, mildew more than surface deep

by Jack Osborne

Mold and mildew growth in Army facilities has been recognized as a problem for years. For the most part, corrective action has been to remove the visual evidence without correcting fully the sources of the difficulty. While mold growth is a potential problem in all Army facilities, coastal areas of the country and wet climates are much more susceptible. The climate at Fort Polk, located in central Louisiana, is considered wet and is the focus here.

Fort Polk has 33 Voluntary Army-era style barracks that were built in the early 1970s. All have shown various degrees of mold growth. Over the years, attempts have been made to correct the problem with limited success. The original barracks' design provided seasonal heating or cooling only (two-pipe hydronic systems supplying ceiling-mounted fan-coil units), relatively no wall insulation (double wythe wall, perlite filled concrete masonry unit and brick veneer), no vapor barrier and a poorly sealed building envelope.

In May, the Installation Management Command provided funds to the Corps of Engineers' Fort Worth District to develop a comprehensive design-build request-for-proposal contract to address the issues associated with mold and mildew growth

in 16 Voluntary Army-era style barracks, comprising about 575,000 square feet. A team of design engineers, architects, forensic engineers, researchers from the Corps' Construction Engineer Research Laboratory, Directorate of Public Works planners, energy engineers and building managers was formed to share knowledge on current technologies and establish a plan that would correct the systemic problems associated with mold and mildew growth while maximizing energy efficiency.

Investigation and historical data collected by the team resulted in a list of contributing factors to the mold and mildew growth. Remember, for mold to grow all that is needed is a food source, moisture and mold spores. The contributing factors were:

- heating, ventilation and cooling systems incapable of removing the high latent (moisture) loads;



This 1970s barracks at Fort Polk, La., exhibits the mold and mildew problems common to similar structures in wet climates. Photos courtesy of U.S. Army Corps of Engineers, Fort Worth District

- missing and failing insulation on chilled water and domestic cold water piping, resulting in condensation dripping on wall and ceiling surfaces;
- condensation forming on fan-coil units located above the ceiling;
- infiltration through the building envelope, especially at the plumbing chase, which was open at both crawl space and chase top creating a chimney effect;
- flooded crawl spaces created by poor rain and groundwater drainage; ➤

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evaporator coils to raise the ventilation air temperature to as close as possible to the desired building space temperature.

Building 631's system was similar except that the existing outdoor air units were abandoned in place, and a new air handler unit was provided to handle all conditioning of outdoor air. Building 637 used a commercial off-the-shelf system that used two stages of DX cooling to pre-cool and pre-dry the outdoor air, followed by a desiccant wheel to further dry and reheat the outdoor air stream.

Trials

These three DOAS systems were put into operation in September 2007 while

the buildings were unoccupied. CERL collected several weeks of operational performance data in September and October while the weather was still hot and humid. All three systems demonstrated an ability to significantly reduce the moisture levels within the unoccupied barracks rooms.


Although these preliminary results appear to be promising, the ultimate test is to see how well the systems perform when the buildings are occupied. As a result, ACSIM funded CERL to conduct follow-on operational performance testing with the buildings occupied during summer 2008.

The most obvious goal of this testing is to determine how effectively these three systems maintain conditions in the build-

ings that discourage mold and mildew growth, but ACSIM is also very interested in identifying the most energy efficient, sustainable and cost effective solution. As a result, the follow-on operational testing will measure the energy performance of these three buildings and compare them to a similar baseline, i.e., unretrofitted, barracks facility.

Results of this follow-on effort are due at the end of fiscal year 2008.

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Jim Miller is a researcher in the CERL Energy Branch, Champaign, Ill. 



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- moisture migration through CMU evidenced by efflorescence on interior wall surfaces, as a result of poor flashing, grout and perlite insulation damming between brick and CMU, and wicking of moisture from the ground;



Condensation causes damage like that evident on this barracks at Fort Polk, La.

- poor control of chilled water temperatures supplied by the central energy plant chillers, further limiting the fan-coil units' capability to properly remove moisture;
- dorm exit doors left open to the breezeway, increasing quantities of unconditioned outside air;
- poorly sealed, single-pane windows that are often found open allowing unconditioned air to enter the occupied space;
- laundry rooms poorly ventilated and improperly conditioned;
- interior surfaces of exterior CMU walls painted with multiple coats of non-permeable paint, such as enamel, creating a vapor barrier; (for humid climates, the proper location for the vapor barrier is at the exterior wall surface;) and
- interior gypsum board partitions, ceilings and other hygroscopic construction materials that provide food sources for the ubiquitous mold spores.

The design-build request for proposal contract will address each of the systemic problems associated with mold and mildew growth and maximize energy efficiency by implementing the following:

- The brick veneer and windows will be removed to expose sources of water leaks and allow corrective action to be taken. The entire building envelope will be caulked and sealed to minimize air leakage.

- To increase the wall system's thermal efficiency and provide a proper vapor barrier, the brick veneer will be replaced with an external insulating finish system. Placing the insulation on the outside of the CMU provides increased thermal performance over interior insulation (mass wall effect) and retains the durable interior finish.
- Replacement windows will be double-pane, high-efficiency, key-operated units. The windows can be opened by Directorate of Public Works personnel if extended power outages occur.
- The open breezeway and stairways will be closed, reducing infiltration and exterior wall area.
- Upon completion of the building envelope, a blower door test will be performed to determine actual leakage rate.
- To maintain proper humidity levels, dedicated outside air units with heat recovery from central exhaust return will provide a sufficient quantity of deeply dehumidified ventilation air to offset the exhaust air, provide a slight positive pressurization of the building and offset moisture gains from showers, people, cooking and any water vapor migration through the building envelope.
- Each dorm room will be provided with a closet-mounted, four-pipe, fan-coil unit to provide year-around temperature control. Occupants will have limited temperature control; they will be able to adjust plus or minus 3 degrees from the set point.
- Supply air diffusers will be provided that direct air away from walls and ceilings to prevent subcooling of surfaces, which is a major cause of condensation and resulting mold growth.
- Four central energy plants are being revitalized using high efficiency centrifugal chillers, variable-speed pumping, variable-speed cooling tower fans and integrated controls to optimize the plant operation and provide constant chilled-water-supply temperature at all load conditions. Distribution piping will be


replaced with a high-performance, pre-insulated piping system.

- Crawl spaces will be regraded to allow water to be carried away by the storm drainage collection system. A mud slab with vapor barrier will seal the ground moisture from the ventilated crawl space. The crawl space will be separated from the building envelope with an insulating board with integrated vapor barrier, attached to the structure's underside.
- Laundry rooms will have separate HVAC systems to maintain the area under a slight negative pressure to minimize moisture migration to other parts of the building.
- New building materials — such as gypsum board, joint tape and compound, and paints — will be mildew resistant where available.
- After the existing paint is removed from interior CMU walls, a highly permeable latex paint will be applied preventing moisture from being trapped.
- Cold water piping will be closed cell type insulation.
- Sustainability and energy conservation will be realized by implementing Leadership in Energy and Environmental Design for New Construction and Energy Star products, respectively.

To insure the bidding community fully understands the goals of the contract and the importance of this opportunity to increase the quality of life for Soldiers at Fort Polk, the team will provide an on-site prebid conference with presentations on contract intent with regard to building moisture control, drying of construction materials, building envelope sealing methods and building leakage testing procedures.

If you wish to receive specific information on this project or obtain contact information for the experts and consultants who were involved in this task, contact the POC below.

POC is Jack Osborne, 817-886-1932, jack.d.osborne@usace.army.mil.

Jack Osborne is chief, Engineering Services Branch, U.S. Army Corps of Engineers, Fort Worth District. 

Acronyms and Abbreviations

CMU	concrete masonry unit
HVAC	heating, ventilation and air conditioning



Schofield quad renovation receives praise from historical society

by Stefanie Gardin

Old photographs are fun to look at because they show how people and places have changed over time.

However, if you compared an old photo of Schofield's historic troop barracks, known as the quads, to the actual buildings today, you would be hard-pressed to tell the difference.

The Army and the Historic Hawaii Foundation couldn't be happier.

The Historic Hawaii Foundation presented U.S. Army Garrison, Hawaii with a Preservation Honor Award for the garrison's rehabilitation of Schofield's historic Quads C and E, which date to 1916 and 1920, respectively.

"The recipients of the awards demonstrate various ways to make history come alive and to create tangible connections between the past and the present," Kiersten Faulkner, executive director of the Historic Hawaii Foundation, wrote in a release. "While each project is different, all are exemplary in demonstrating how preservation builds community."

The rehabilitation effort maintains the barracks' historic significance while, at the same time, providing Soldiers with all the modern conveniences in the interior renovations.

The U.S. Army Corps of Engineers, as well as contractors Nan Inc., Mason Architects Inc., and Architects Hawaii, were also honored for their support.

"We're very proud of the preservation work done by our contractors and our project managers for the U.S. Army Garrison Hawaii in the rehabilitation of these historic quads," said Lt. Col. Charles H. Klinge, commander of the Corps' Honolulu District.

The devil is in the details

The renovation of Quads C and E began in 2003, and while most of the effort involved a great deal of manpower, there



Soldiers march past Quad C during the 1920s. Quad C was built in 1916. U.S. Army photo

was quite a bit of "bookpower" involved, too. Ken Hays, the USAG Hawaii architectural historian, conducted extensive research, searching out photographs and drawings of the quads so that the team would know what features were necessary to bring the buildings back to their historic state and how to display them correctly.

Cornices, lanais, guard railings, lighting, windows and even gutters and paint colors were scrutinized and restored. However, the restoration was no easy task, according to Hays. Several hurdles popped up along the way.

First, restoration is a very detailed process, so it took some "coaching" to convince everyone involved of the importance of



From the lights to windows to gutters, Quads C and E were restored to look like they did in the early 1900s. Photo by Ken Hays

restoring each of the features. Second, a number of the materials and designs needed are not common or even produced any more.

"We had to translate all of these 'needs' into new modern materials that meet anti-terrorism [and] force protection standards, in particular for the windows and the doors," Hays said. "Getting those manufactured to historic standards was quite a challenge." ➤

Acronyms and Abbreviations

USAG	U.S. Army Garrison
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Finally, the team had to come up with several creative work-arounds to balance today's needs with historical accuracy. A good example was the outdoor lighting.

For safety and security, the quads need brighter lighting now than they needed or had in the early 1900s. However, affixing brighter lights to the walls of modern-day quads would destroy the historical accuracy of the buildings.

"We came up with a lighting plan that really became invisible on the buildings when you look at them," Hays said. "Now, all the lights are mounted on the inside surface of the columns, so when the viewer is looking he really doesn't see any lights at

all; they're hidden.

"We had to work out a lot of details like that," Hays added.

Roots of the family tree

Legally, federal agencies have an obligation to preserve their historic structures to the maximum extent possible. On a more human level, though, the renovations preserve the legacy of the barracks, which have been kind of the anchor of Schofield operations since they were built, according to Hays. Some units, like the Wolfhounds in Quad D, have lived and worked in the same quad since it was built.

As well as being a part of national history, the quads are part of state and local history. They've served Soldiers through

every major conflict, taking a few bullets themselves Dec. 7, 1941. The quads have also been featured in films like "From Here to Eternity."

"There's a great tradition I think for the Soldiers that live here," Hays said. "I've had many of the Soldiers come up and tell me that their dad, their granddad and even great granddads have been in these quads."

Barracks of old come of age

Behind every successful preservation effort, one still has to address the current occupants' needs, and the Army continues to meet this challenge head on. While the exteriors of Quads C and E look very much like they did in 1916 and 1920, the interior is a stark difference. Gone are the days of multi-person bathrooms and rows of bunk beds.


Now the rooms in these quads are designed to meet the Army's "1 + 1" standard; each Soldier has a private room, and two Soldiers share a kitchen area and bathroom.

"This really is a model of how preservation can work, and it works kind of perfectly because everybody wins," Hays said. "The Soldiers live to a very high standard ... they have extremely nice living quarters, and the heritage of the Army, the state and the nation gets preserved."

Schofield Barracks has eight historic quads. The Army is renovating five quads and demolishing three, which will be

replaced with new barracks. This construction is part of the Army's Whole Barracks Renewal Program at Schofield — a more than 10-year, \$1 billion-plus effort to improve the quality of life for single Soldiers.

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Where open-bay sleeping quarters like these were once the norm, Soldiers' living accommodations are getting an overhaul at Schofield's quads. U.S. Army photo



Spc. Justin Jones, stationed at Schofield Barracks, checks one last thing before heading out the door of his recently remodeled "1 + 1" room in Quad E. Photo by Stefanie Gardin



Over time, architectural features like these brackets were knocked off of the quads. The renovation team made plaster casts of surviving brackets in order to recreate and replace missing brackets. Photo by Ken Hays



Army Transportation Infrastructure Program 101

by Ali Achmar

The objective of the Army Transportation Infrastructure Program is to “provide safe, reliable, efficient and cost effective transportation infrastructure systems and dams that promote the health and welfare of the Soldiers, civilian employees, their Families, contractor workforce and retirees, and provide the capability for garrisons to accomplish assigned missions.” This is the Army policy found in Army Regulation 420-1, Chapter 7.

The ATIP program has an annual budget of \$8 million. These funds are used to determine the condition, deficiencies and recommended repairs to Army transportation facilities. By centrally managing and funding the program starting in 2006, the Army was able to comply with public laws and regulation for inspecting and evaluating these facilities. In the past, it had been difficult to determine which installations complied and which did not.

Headquarters, Installation Management Command leadership decided to centrally fund and manage the program for the following reasons:

- to gain efficiency;
- because decentralization in 1998 did not work;
- to ensure public laws and regulation are met;
- for consistency; and
- so that data can be retrieved from one source.

The ATIP team consists of:

- Headquarters IMCOM program manager – Ali Achmar
- Office of the Assistant Chief of Staff for Installation Management, Program Proponent – Mike Dean

Acronyms and Abbreviations	
ACSIM	Assistant Chief of Staff for Installation Management
AR	Army Regulation
ATIP	Army Transportation Infrastructure Program
ERDC-WES	Engineer Research and Development Center, Waterways Experiment Station
IMCOM	Installation Management Command

- Six IMCOM regions POCs:
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 - IMCOM-Pacific – Wayne Urada, 808-438-8991, wayne.urada@us.army.mil
- Execution team and project managers from the Engineer Research and Development Center, Waterways Experiment Station, Vicksburg, Miss:
 - Bridge Safety Program and ERDC-WES team leader – Terry Stanton
 - Airfield Pavement Evaluation Program – Andrew Harrison
 - Railroad Track Inspection Program – Lulu Edwards and Chad Gartrell
 - Dam Safety Program – Tina Holmes
 - Water Front Facilities Evaluation Program – Carmen Lugo-Cintron

Army Airfields Pavement Evaluation Program

This program consists of 45 major airfields identified as critical category I, and noncritical category I. Each of these airfields has a unique mission that was identified by the U.S. Army Aeronautic Service Agency and approved for special pavement evaluation or inspection. All other airfields and heliports pavements are treated as normal pavement, according to AR 420-1, Chapter 7.

The airfield evaluation consists of two types:

- *Nondestructive Testing* – This evaluation will determine the structural integrity of the pavement. Critical-category airfield evaluation is done every five years and noncritical category every eight years.
- *Visual inspection* – This inspection will determine the Pavement Condition Index, which ranges from zero to 100, failed to excellent respectively. Critical-category airfields are evaluated every five years and noncritical-category every eight years.

Army Bridges Safety Program

All Army bridges are considered open to the public, according to AR 420 -1, Chapter 7. Currently, the Army inventory is estimated to include around 2,000 bridges. Routine bridge inspection is required ➤



A railroad inspector examines tracks at Fort Hood, Texas. Photos courtesy of ATIP



The tarmac at Hunter Army Airfield, Fort Stewart, Ga., is tested while air traffic takes off from a neighboring runway.



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— by Public Law 95-599, *Surface Transportation Assistance Act of 1978*, and 23 U.S. Code 151, *Bridge Inspection Standards* — every two years. Bridges are inventoried annually.

Because of the large number of bridges in the Army inventory, the garrisons were divided into two categories assigned to either odd or even years. About one-half of the bridges will be inspected in the even-numbered years and the other half in the odd-numbered years. The program also includes underwater inspections, fracture critical inspection, scour evaluation and load rating of the bridges.

In addition, IMCOM sponsors two bridge training courses every year: the Army Safety Inspection of In-Service Bridges course and the Army Safety Inspection of In-Service Bridges Refresher course. These courses are announced by Headquarters IMCOM Public Works Division.

Army Railroads Program

The Army inventory list for railroads exceeds 1,326 track-miles worldwide. The objectives of the program are: to perform detailed inspections every four years to determine mission readiness of track facilities for supporting Army Strategic Mobility, provide an estimate of materials and costs to repair tracks, identify hazardous conditions that require immediate attention, and provide design and cost estimates for new construction.

In addition, regulations require an internal rail defect inspection every five years. This test identifies deficiencies inside the rails.

The program has two courses: Railroad Track Maintenance and Safety Standards and Advanced Railroad Track Maintenance and Recertification. These courses will be announced by Headquarters IMCOM Public Works Division.

Army Dam Safety Program

Currently, the Army has 210 dams in its inventory. They consist of 155 low-hazard, 22 significant-hazard and 33 high-hazard dams. Dams safety inspection and inventory are required by Public Laws 92-367, 104-303 and 107-310.

The objective of this program is to capture all Army dams, perform dam inspection, identify deficiencies and repair needs every five years, develop emergency action plans for high- and significant-hazard dams, and standard operating procedures for low-hazard dams. The inspection follows Federal Emergency Management Agency guidelines: FEMA 93, *Federal Guidelines for Dam Safety*, and FEMA 145, *Dam Safety; An Owner's Guidance Manual*, and complies with the states' minimum requirements.

Headquarters IMCOM Public Works Division, ACSIM and ERDC-WES are developing a dam safety inspection course. This course will be offered annually start-



Guidance is being established for inspection of the Army's ports, like this one at Fort Eustis, Va., and other waterfront facilities.

ing in fiscal year 2009.

Army Waterfront Program

The Waterfront Program is a new addition. Surprisingly, the Army owns waterfront facilities that require inspection per Unified Facilities Criteria 4-150-07. These facilities are used for logistics and Army support for deployments, ammunition, supplies and dry dock for maintenance and repair of ships.

To date, 19 facilities have been identified throughout the IMCOM regions. Currently, the team is working on identifying the facilities, establishing guidance and defining the inspection schedule.

Headquarters IMCOM Public Works Division's web site for the ATIP is under construction. This site will be behind Army Knowledge Online and will contain documents and information

pertaining to the program, such as inspection reports, training course information, inspection schedules, regulations, public laws and much more.

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Ali Achmar is the ATIP program manager, IMCOM. 



A bridge at Fort Riley, Kan., undergoes its biannual safety inspection.



Army dams, like the Heiner Lake Dam at Fort Hood, Texas, are inspected according to FEMA guidance.



Fort Jackson DPW trains for GFEBS

by Clyde Reynolds

My fellow Star Trek fans out there may recall the aliens who emphatically stated, "Resistance is futile."

It's a mantra that often comes to mind here at Fort Jackson, S.C., as we attempt to get a good grasp on the enormity of the General Fund Enterprise Business System and to understand and quantify the second- and third-order effects it will have on all Directorate of Public Works business processes.

GFEBS is a web-based system that will allow the U.S. Army to share financial and accounting data across the service, and Fort Jackson is its initial launch site. This article is the second installment in my series on GFEBS implementation at Fort Jackson. In this issue, I will cover the training requirements for GFEBS. But, before I get into specifics, I will discuss the roles and responsibilities of personnel involved in the care and feeding of GFEBS.

The 46 required roles for DPW personnel under GFEBS are:

- project structure controller,
- project cost controller,
- project financial controller,
- project schedule controller,
- project maintainer,
- project report reviewer,
- project time processor,
- project funds approver,
- project approver,
- project workflow monitor,
- asset master data maintainer,
- work notification processor,
- order maintainer,
- order approver,
- order planner,



Renee Sanders, Fort Jackson DPW, prepares to take computer-based GFEBS training. Photo by Clyde Reynolds

- permit approver,
- quality control processor,
- plant maintenance master data maintainer,
- permit controller,
- preventive maintenance controller,
- maintenance plan approver,
- material requirements planning maintainer,
- task list controller,
- bill of materials controller,
- warranty controller,
- physical inventory maintainer,
- plant maintenance reporter,
- purchase requisition processor,
- purchase requisition approver,
- purchase order processor,
- goods receipt processor,
- invoice processor,
- purchase requisition approval maintainer,
- real property maintainer,
- real property reporter,
- real property viewer,
- real property inventory inspection processor,
- record of environmental consideration maintainer\space utilization,
- plant property and equipment reporter,
- business process maintainer,
- cost plan maintainer,
- enterprise central component managerial reporter
- business intelligence managerial reporter,
- business intelligence labor reporter,
- cost driver collector and
- cost display user.

Of those 46 required roles, each has separate and distinct responsibilities for processing a GFEBS transaction. Each of these 46 roles potentially represents a person who is required to do something in the system to process a transaction.

The good news is that not every GFEBS transaction needs to be touched by all 46 of these personnel and that some of the roles can be performed by the same person. The not-so-good news, however, is that there is a specific training requirement for each of those 46 roles and responsibilities. These training events or courses range from a few hours to a few days each, with some being computer-based and some being in a classroom on site.

Because certain personnel can perform multiple roles, they will be required to complete multiple training courses or events. For Fort Jackson personnel, the computer-based training began July 14, and the instructor-led classes will begin Aug. 4.

All GFEBS training will occur and be completed over a two-month period. A ➤

Acronyms and Abbreviations	
DPW	Directorate of Public Works
FY	Fiscal Year
GFEBS	General Fund Enterprise Business System
IFS	Integrated Facilities System
IMCOM	Installation Management Command
STANFINS	Standard Financial Information System



License agreements for BUILDER to offer vendor options

by Dana Finney

The first set in a planned series of licensing agreements with industry will make the BUILDER engineered management system available to the private sector while creating a competitive market from which Directorates of Public Works can acquire this tool. The U.S. Army Engineer Research and Development Center signed three separate agreements with Calibre, Inc., that will enable the company to sell BUILDER software and services.

BUILDER is a web-based application that optimizes maintenance and repair decisions for buildings. As with other Engineered Management System products such as PAVER and RAILER, it provides an objective engineering analysis based on



BUILDER uses a combination of inspection and condition indexes to manage building maintenance and repair. Photo courtesy of ERDC

condition index ratings.

“Our strategy is to establish multiple options for vendors from which facility managers, owners and operators can purchase BUILDER,” said Lance Marrano, project manager at ERDC’s Construction Engineering Research Laboratory, which developed BUILDER. “The priority is to ensure that BUILDER users have easy access to support services and expertise that will help them implement the system successfully.”

BUILDER Version 3.0 was just released upon the signing of the agreements with Calibre. Version 3.0 is a network-based, multi-user system that includes:

- inventory of building major components;
- photo imaging;
- checklist-style, pen-based inspections;
- condition indexes;
- functionality ratings;
- condition prediction capabilities;
- revised remaining service lives based on condition;
- seismic and other building compliance ratings;
- budget planning procedures;
- prioritized long-range work-planning procedures;
- presentation graphics, linkages to AutoCAD, MicroStation and other building drawings;
- built-in geographic information system viewing capability; and
- ability interface to an external GIS. ➤

Acronyms and Abbreviations

CERL	Construction Engineer Research Laboratory
DPW	Directorate of Public Works
ERDC	Engineer Research and Development Center
GIS	geographic information system

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significant number of DPW personnel will be attending multiple courses, some for more than 300 hours, and will be absent from their work places for an extended period of time, some for more than two months.

With so many DPW folks gone for a lengthy period of time and not having the luxury of “shutting the doors,” the GFEBs contractor is providing temporary personnel to perform critical DPW functions while folks are receiving GFEBs training. It is challenging finding folks who are familiar with the Integrated Facilities System and DPW operations and are willing to work in a temporary position.


Nevertheless, those contractor-provided folks started work in mid-July. They will remain on board through Nov. 15 to provide some overlap and as smooth a hand-back to the DPW personnel as possible.

In closing, I remind everyone that GFEBs fielding at all other Standard Financial Information System locations — essentially the rest of the Army — will start only six months after Fort Jackson. On or about April 1, 2009, all other Army garrisons will begin transitioning to GFEBs.

So, it will behoove you to get smart on GFEBs immediately. It is coming fast and will be here before you know it. Whether

you’re ready or not, you will be using GFEBs in the very near future. That’s right — you will be assimilated, and resistance is futile.

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Clyde Reynolds is the director of Public Works, Fort Jackson. 

Deployment of GFEBs Releases

Release	Scope	Description	Begins	Ends
1.1	Fort Jackson	Technology Demonstration for real property at Installation Management Command garrison	May 2006	June 2006
1.2	Fort Jackson	Full capability at IMCOM garrison	FY 2008 Quarter 4	FY 2009 Quarter 1
1.3	Armywide	Fielding at all STANFINS locations, including Guard and Reserves	FY2009 Quarter 2	FY 2011 Quarter 4
1.4	Armywide	Fielding at all Standard Operation and Maintenance Army Research and Development System locations	FY 2010 Quarter 1	FY 2011 Quarter 4



Ship shape: Fort Eustis DPW maintains active seaport

by Mary Beth Thompson

The Army's naval presence on the James River in southeastern Virginia may come as a surprise. Just upriver from the Navy's facilities in Hampton Roads, the Army's 87-acre port at Fort Eustis, with more than 4,000 feet of pier space and one "landship," offers sometimes curious and often novel challenges to the Directorate of Public Works.

The DPW takes care of the port in the same way it supports the rest of the post, according to Susan Miller, acting deputy director of Public Works. It supplies utilities, responds to emergencies, ensures environmental rules are followed, sees to master planning, and develops and executes maintenance and repair projects.

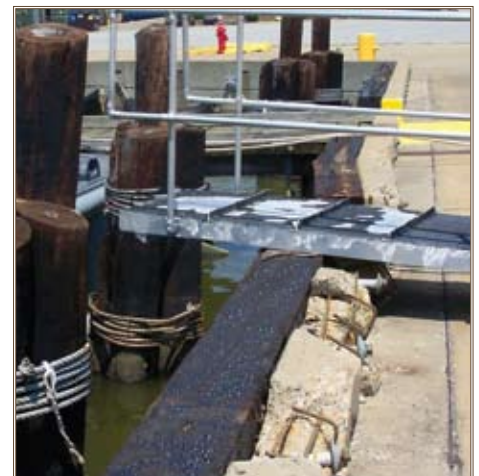
Yet, there are differences. Take, for example, the 615-foot floating pier that is attached to pilings with roller clamps that allow the pier to move up and down with the tide.

"We had to replace the pilings, and you can't go down to Wal-Mart and buy them," said Phil Reed, chief of the Engineering Services Division. First, Reed and his team had to determine whether the existing system was sufficient, and then they worked with contractors to manufacture replacements.

The next project at the floating pier will replace and upgrade the battery stations. These stations, which stand about 4 feet high right on the dock, are large, ➤



The case of the disappearing catwalks provided an intriguing problem to be solved by the Fort Eustis DPW. Photos by Mary Beth Thompson



(Above) The Fort Eustis DPW's latest challenge is to find a new solution to replace these damaged curbs on an older section of the main pier.

(Left) Phil Reed, chief of the Engineering Services Division at Fort Eustis DPW, discusses the battery stations that need replacement on one of the piers.

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The legal documents signed with Calibre include a patent license agreement for three BUILDER patents, a trademark license agreement and a copyright license agreement.

"We also entered into a cooperative research and development agreement with Calibre to provide our customers with a robust support network and to enable the company's investment in further improving and developing BUILDER tools," Marrano said.

CERL intends to negotiate similar agreements with several other potential providers, including the University of Illinois at Urbana-Champaign, which previously hosted the BUILDER Support Center. Unlike exclusive patent licenses, this competitive approach will ensure that BUILDER remains affordable for installation customers and others.

With some 55 percent of the Army's real property maintenance budget spent on buildings, it is imperative to make sound maintenance and repair decisions based on an objective condition assessment. Well-

maintained facilities support the mission and ensure quality of life for Soldiers and civilians. In addition, engineered management systems like BUILDER can help DPWs meet the requirements of Executive Order 13327, *Federal Real Property Asset Management*, and Army Regulation 420-1.

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saltwater-proof electrical outlets and fresh water sources for the ships that tie up there.

“It’s all new to us,” Reed said. “We have to have the sea-going Soldiers point out what’s broken, so we can have it repaired. We just apply basic engineering fundamentals to a wet project.”

Some of the port’s 56 ocean-going vessels are deployed now, said harbormaster Carrie Curran, but, at any time, there may be about a dozen landing craft of different types, 10 or so tugs of various sorts, perhaps a crane and a fuel barge, logistical support vessels, work boats and security boats in port.

The harbor actually serves dual missions.

“The port is set up in two totally separate quadrants,” said Randy Brown, Fort Eustis’s master planner. “It’s one large port, but one-half of it is the training side, and the other half is the active-duty side.”

Part of the Army’s Maritime Training Campus, the one-of-a-kind landship is a naval-gray rectangular structure that sits on a pier. It is roughly 400 feet long, 100 feet deep and several stories high and simulates a ship for training purposes. Its “roof” is fitted as a ship deck. Complete with crane, the landship is used to teach marine students from all services such skills as on-loading and off-loading vehicles.

“We do maintenance on the landship just like we would a building,” Reed said.

Several classroom structures require similar attention. Down the road, the DPW maintains a stockpile of “causeways,” interlocking road sections that float. Causeways can be used to connect a ship to land when it cannot get close to shore so that supplies can be on- or off-loaded by vehicle.

On the operations side of the port, a 50-plus-year-old pier was replaced with a new \$15-million, 750-foot by 75-foot pier in 2003. It features state-of-the-art technology for docking boats, like the pier’s configuration, rubber sheet bumpers and

fenders, and 23 catwalks — long aluminum walkways that look like overextended gang-planks. Supported by concrete pilings, the catwalks project out perpendicularly from the pier and allow access to docked ships.

“We came to work one day, and — I’m not making this up — three were missing,” Reed said.

Army divers found the lost catwalks at the bottom of the James River. Exactly what occurred will forever remain a mystery, according to Reed and Curran, but suspicion centers on a freak weather funnel.

The catwalks had been anchored on one end so the other could expand and contract with the temperature and move in the wind. Examination showed that the bolts and welds that had held them were simply sheered off.

“The welds snapped off so cleanly you would not have even known they were welded,” Reed said. “We had to repair the actual welds and put on new bracing, and we had to do it for every single catwalk.”

The project resembled a normal engineering one, except that a barge with a crane was needed to accomplish the work, he said.

Barges are not the only unusual tool that Reed and his engineers employ. They consult with the nearby Navy and civilian ports to learn about the current standards for items like docking, barriers, bumpers and curbs. They rely on the U.S. Army Corps of Engineers to help them with the numerous codes and environmental regulations that apply to Fort Eustis’s 22 miles of coastline and active port, and they hire divers to examine areas under the piers that are not visible from above.

“There’s no text book that you can go to for this stuff,” Reed said. “We have to use our common sense and look at state-of-the-art construction. And we have to hold the cost down to whatever our post commander can afford.”

The part of the main pier that was not replaced in 2003 is more than 50 years old. On a 400-foot section that sees heavy use from smaller craft, the concrete curbs are damaged and broken. The curbs are framed

with huge timbers on the water side, and these show similar problems. The “dolphins,” groups of pilings lashed together that serve as bumpers between the boats and the pier, have also taken a beating. Some lean into the pier.

Curran asked the DPW to replace the curb. However, it’s more than a curb repair job, Reed said.

He and his team are currently developing alternative solutions. Their goals are to repair the problem, prevent reoccurrence to the extent possible, satisfy the harbormaster and keep the costs at a reasonable level.

“Well, you don’t learn any of this in engineering school at all,” Reed said. The team examined the existing structure, then studied the 2003 pier and talked with the Navy for ideas and possibilities.


“We came down here with all kinds of smart people and brainstormed this,” Reed said. “We asked them to be bold, think out of the box. It’s not a big design project; it’s just — what do we think the solution should look like? It’s very exciting to design our own solution.”

As Reed described options under discussion, he commented on the novelty of tackling unusual problems such as this one.

“Believe it or not, we actually pinch ourselves on site,” he said. “This is so much fun — being able to figure out how to come up with a new system that can save the concrete and still take the force of these boats.

“I was talking with my engineers about this the other day,” Reed said. “We have a fantastic opportunity to serve the Army in a capacity that other DPWs don’t, because how many ports are there? How many times in your career will you be taking care of an actual dock with ocean-going vessels?”

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Acronyms and Abbreviations	
DPW	Directorate of Public Works



San Antonio BRAC: a study in tri-service, community cooperation

by Brian Dwyer

The numbers behind the Base Realignment and Closure Program in San Antonio, Texas, offer only a glimpse of its complexity: more than \$3 billion of construction and renovation projects financed by three sources, including Base Realignment and Closure, Military Construction, and Sustainment, Restoration and Modernization funds; roughly 180 major and minor facilities; as much as 8.5 million square feet of space; and a deadline for completion that's a little more than three years away.

A program of this size would be expected to bring inherent management challenges, but the San Antonio BRAC Program adds several intricacies because of its tri-service nature and the need to maintain a dialogue with a strongly engaged civilian community.

Three in one

The program aims at providing facilities and infrastructure to accommodate the movement of military missions and personnel to San Antonio as a result the 2005 BRAC law. Among other things, BRAC mandates call for integrating several medical training and research missions that are associated with the Army, Air Force and Navy and bringing them to one location in San Antonio.

Coordination among these three services, therefore, is essential to completing many projects and using certain funding streams. Another unusual demand of the program is the need to build and renovate sophisticated hospital and research facilities at two military medical centers without disrupting their ongoing delivery of health-



This aerial rendering shows the future SAMMC, which will expand the existing Brooke Army Medical Center by about 50 percent. Graphic courtesy of the Joint Program Management Office

care services.

The program's multitude of moving parts warranted the standing up of a new organization to facilitate tri-service collaboration and ensure more efficient project execution. The Joint Program Management Office was established within the framework of organizations chartered to support BRAC implementation in San Antonio.

The JPMO oversees the engineering design and construction efforts of the San Antonio BRAC Program. This organization represents a partnership between the U.S. Army Corps of Engineers, the U.S. Air Force Center for Engineering and the Environment, the U.S. Naval Facilities Engineering Command and private-sector contractors. The JPMO will ultimately include as many as 200 individuals and is supported by more than 400 personnel from various USACE districts, AFCEE and NAVFAC offices, and several architectural and engineering firms.

"We have assembled an extremely talented cadre of professionals from engineering and management fields from the ranks of the Army, Air Force, Navy and private sector to establish the JPMO," said David Thomas, JPMO director. "While merging the three services has required a period of transition, having access to all of their resources and contracting tools has moved

us forward with a tremendous momentum and is certainly a force multiplier for the Department of Defense."

Multitasking

BRAC construction and renovation work is scheduled to take place across San Antonio on Fort Sam Houston, Camp Bullis, and Lackland and Randolph Air Force Bases through the BRAC-mandated completion deadline of September 2011. The \$3 billion cost is spread across fiscal years 2007 through 2011. The major structures being built or remodeled include living quarters, clinics, hospital facilities, a bridge, classrooms, laboratories, field training areas, dining facilities, fitness centers, historic buildings, a parking garage and administrative space.

Beyond its BRAC responsibilities, the JPMO is managing almost \$700 million of ongoing or planned construction. These projects bring the JPMO's total workload to more than \$3.7 billion. Among these non-BRAC efforts are projects related to the revitalization of the Air Force's basic training campus at Lackland and the Army's Warrior in Transition and Grow the Army initiatives.

The peak of construction activity is projected to occur in the middle of 2009 when as many as 1,800 workers are expected to be spread across the various job sites. ➤

Acronyms and Abbreviations

AFCEE	Air Force Center for Engineering and the Environment
BAMC	Brooke Army Medical Center
BRAC	Base Realignment and Closure
JPMO	Joint Program Management Office
METC	Medical Education and Training Campus
NAVFAC	Naval Facilities Engineering Command
SAMMC	San Antonio Military Medical Center
USACE	U.S. Army Corps of Engineers



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The largest BRAC project involves additions and renovations to Brooke Army Medical Center on Fort Sam Houston and renovations to Wilford Hall Medical Center at Lackland. The BAMC project will expand the size of the existing hospital by roughly 50 percent. A seven-story addition will house emergency facilities, operating rooms, clinical and administrative space, and an extension of the hospital's internationally acclaimed burn rehabilitation center. A 5,000-space parking garage and a central energy plant also will be built. As much as 288,000 square feet of the existing BAMC facilities will be renovated.

The changes to Wilford Hall Medical Center will convert the hospital into an ambulatory care clinic. The work will cover almost 146,000 square feet across three floors and the basement.

When the work at BAMC and Wilford Hall is finished, the operations of the two medical centers will be combined, so that they will operate, in effect, as a single complex that will be called the San Antonio Military Medical Center. BAMC will become the SAMMC North campus, absorbing the military inpatient and related specialty care services currently provided at Wilford Hall. Wilford Hall will become the SAMMC South campus and focus primarily on outpatient care.

SAMMC North will be one of the larg-

est inpatient facilities in the Department of Defense. SAMMC-South will be the military's largest ambulatory outpatient clinic. In all, more than 200 clinics and support functions will move during the transition.

The logistical hurdles faced by the SAMMC project reflect some of the difficulties associated with construction of the Medical Education and Training Campus on Fort Sam Houston. METC is the equivalent of a small college campus that's being built in the middle of a large, active installation.

The complex will have more than 1.9 million square feet of facilities, including dorms, classrooms, laboratories, a physical fitness center and a 4,800-person dining facility.

Construction traffic routes and delivery schedules are being arranged to avoid main thoroughfares, so that the flow of materials can be maintained without interfering with post missions.

"Having heavy construction on the same sites as medical missions and other ongoing post operations requires continuous coordination and communication," said Leon Carroll, JPMO Construction Management chief. "We have to balance the need to deliver materials and workers to these sites with the needs of thousands of military personnel and civilian employees who must carry out their duties at the same time."

Ultimately, the METC complex will

consolidate the enlisted medical training programs of all branches of the U.S. military. Medics, corpsmen, nuclear medicine technologists and other specialists will be trained there. The campus is expected to accommodate an average daily student enrollment of more than 9,000 and an average annual enrollment of about 32,000, making it the largest institution of its kind in the world.

Another primary component of the BRAC Program concerns the construction of medical research facilities. They include the 150,000-square-foot Joint Center of Excellence for Battlefield Health and Trauma Research. It will bring together tri-service research teams focused on finding ways to enhance the delivery of combat casualty care.

The facilities built and renovated on Fort Sam Houston alone during the BRAC Program are expected to make way for as many as 12,000 additional military and civilian personnel. While many of these individuals will come in support of medical and research missions, many others will arrive as a result of the relocation of several field agencies and commands.

Renovation projects will provide administrative space for the Installation Management Command; the Army Environmental Command; the Army Contracting Agency; the Family and Morale, Welfare and Recreation Command; and the Network

Enterprise Technology Command. About a dozen historic structures, most of which are 75 or more years old, are being refurbished to accommodate these realignments.

Reaching out

In a community that already touts itself as "Military City, U.S.A.," the anticipated growth at Fort Sam ➤



The Joint Center of Excellence for Battlefield Health and Trauma Research is under construction adjacent to Brooke Army Medical Center. Photo by Brian Dwyer



Building 2000 on Fort Sam Houston is among several historic structures that are being renovated as administrative space to support the BRAC relocation of multiple commands and field agencies. Photo courtesy of the Fort Sam Houston Public Affairs Office



Master planners gather in Nashville

by Frank Hall

One hundred fifty-eight master planners from diverse headquarters, regions, installations, commands and contractor partners participated in the 2008 Master Planning Summit in Nashville, Tenn., June 24-26. The summit structure of general sessions and breakout tracks provided varied forums for policy direction, technical guidance, graphic tools and lessons-learned discussions to assist installations in developing state-of-the-art real property master plans.

This summit also supported the Army's intent to reintroduce a holistic approach to the installation real property master planning process through the leveraging of standard real property master plan products and services.

Installations are the home stations where the Army lives, works, trains and from which it projects power. Installation real property master plans are the summaries of all buildings, facilities, ranges, infrastructure, utilities, roads, natural resources and land features on the installation. They provide the strategic planning tool for the



Brig. Gen. Dennis Rogers, National Capital Region District commander and deputy director of operations and facilities, Installation Management Command, addresses the audience at the Master Planning Summit. Photo by Frank Hall

short-range and long-range development of Army installations.

In this era of dynamic Army change and conflict, current and accurate installation real property master plans are needed to support Army Transformation, force

increases, Base Realignment and Closure execution, modularity, global repositioning, Soldier and Family programs, Warrior in Transition campuses, relocatable buildings, standard design and Military Construction programs.

The following topics were briefed and discussed at the summit:

- Regions' master plans status;
- Army Mapper;
- Warrior in Transition area development guides;
- Soldier and Family support centers;
- Real property master plan digests;
- Centers of Standardization;
- Huntsville's centralized programs;
- Status of barracks initiatives;
- Army Barracks Emergency Expansion Capability Analysis;
- Furniture Program;
- MILCON programming update;
- Master plan common levels of service metrics;
- Comprehensive Energy and Water Master Plan;
- Master Planning Technical Manual update;

Acronyms and Abbreviations

MILCON	Military Construction
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Houston has prompted elected officials to provide a heightened degree of support for the BRAC Program. The City of San Antonio established an Office of Military Affairs and joined Bexar County and the business community in forming the Military Transformation Task Force. Another organization, the San Antonio Integration Office, is charged with coordinating BRAC actions in San Antonio.

The JPMO has established working relationships with these governmental entities, along with utility providers, to address workforce availability, transportation and utility infrastructure capacity, and contracting opportunities. JPMO representatives participate in city- and county-sponsored contracting fairs that pair

subcontractors with contractors that are interested in pursuing BRAC contracts.


The JPMO also maintains a project chart called the storyboard, which is posted on the website www.sanantonio.gov/oma and updated each month. The storyboard shows all BRAC and regular Military Construction projects that are pending and have been awarded. This chart allows contractors and subcontractors to see the types of contracting opportunities available over the next couple of years, so they have time to position themselves effectively for the selection process.

San Antonio stands to receive immediate and long-term economic benefits through the construction contract awards and the arrival of thousands of personnel at Fort Sam Houston. The total value of

the construction contracts scheduled to be awarded through the end of this fiscal year is about \$1 billion.

Contract awards in the 2009 fiscal year are expected to total as much as \$500 million. The normal level of expenditure for Military Construction in an average year for the San Antonio area is between \$65 and \$100 million. In light of the city's BRAC losses in the past, the gains from ongoing Military Construction hold great potential for further solidifying the military's valuable presence in San Antonio.

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IMCOM realigns U.S. Regions, creates National Capital Region District

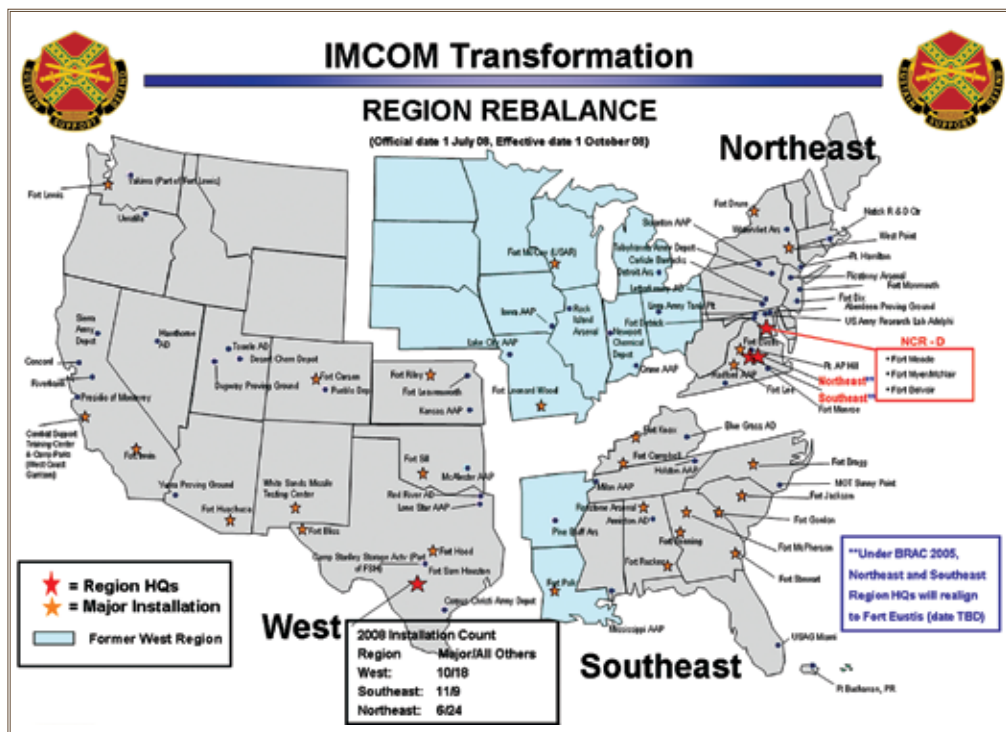
by Installation Management Command Public Affairs

Installation Management Command realigned the boundaries of its three U.S. regions July 1, moving 13 states and support of their 11 installations of various sizes from the West Region to Northeast and Southeast regions and forming a new entity, the National Capital Region District.

The 2005 Base Realignment and Closure law consolidated the Northwest and Southwest regions in 2006. The combined West Region was very large, taxing region staff to adequately oversee all its far-flung installations. With this move, installations including forts Leonard Wood, Mo., and McCoy, Wis., move to Northeast, while Fort Polk, La., and Pine Bluff Arsenal, Ark., move under Southeast.

The realignment of the states within IMCOM's Northeast, Southeast and West regions will increase effectiveness and efficiency of regional resources, officials said.

With the former structure, the IMCOM-West staff was responsible for installations in 27 states ranging from Ohio to the West Coast, said Maj. Gen. John Macdonald, IMCOM deputy commander. Now that region boundaries have shifted, the West Region staff will spend less time traveling across the country and more time with commanders stationed



This map shows how the Installation Management Command continental U.S. regions realigned July 1. Graphic courtesy of IMCOM Public Affairs

within borders comparable to the other continental U.S. regions.

Another part of the region rebalance is development of the National Capital Region District, commanded by Brig. Gen. Dennis Rogers. Rogers is also the deputy director of operations and facilities at Headquarters, IMCOM in Arlington, Va.

Former Northeast Region installations Fort Meade, Md., Fort Belvoir, Va., Fort Myer, Va., and Fort McNair, Washington, D.C., are now under Rogers' command as part of the National Capital Region District. When Headquarters, IMCOM relocates to San Antonio, Texas, in 2011, the district will remain and operate out of Washington, D.C., area offices.

This realignment provides a distribution of the major continental U.S. installations that is more evenly balanced across the regions. These actions are part of the Army's strategy to complete Base Realignment and Closure and other stationing actions by September 2011.

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From an IMCOM news release.



(continued from previous page)

- Top-driven planning methodology;
- U.S. Army Forces Command stationing;
- Future trends affecting facilities;
- Aviation issues;
- Proposed barracks metrics;
- Web Real Property Planning and Analysis System update;
- "Lost or missing scope" on MILCON;
- Planning charrettes;
- Future Year Defense Program area design guides;
- Transportation infrastructure;

- Facility Reduction Program;
- Fort Lewis Master Plan update;
- Mold problems in barracks; and
- Army Space and Planning Criteria Manual.

The briefing slides are available for downloading at www.modularmy.org. The site requires registration.

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Acronyms and Abbreviations

IMCOM Installation Management Command



Camp Bullis battles encroachment, conserves species

by Elaine Wilson

With about 28,000 acres of predominantly wild landscape, Camp Bullis, Texas, located near Fort Sam Houston, is a hot spot for military field exercises and battlefield training. While the range remains a go-to place for realistic training, concern about encroachment has become a big issue.

Situated in one of the most coveted areas of the city of San Antonio, developers are swiftly closing in on the installation, cutting a wide swath into the forests around Camp Bullis.

Camp Bullis is not just home to a slew of military training missions, but is also home to five federally endangered species, most notably the golden-cheeked warbler. The tiny bird, which migrates up from Mexico to Central Texas each year, likes to nest in the old, thick growth of oak and juniper so common on Camp Bullis and the surrounding areas.

"Endangered species don't stop at the fence line," said Chris Beck, natural resources manager, Directorate of Public Works. "According to long-standing federal law and U.S. Fish and Wildlife Service guidelines, everyone, not just the military, is prohibited from 'taking' endangered species."

But as development in the area has advanced, the warblers have sought refuge

on post. Their growing numbers are one indication of approaching encroachment.

"The warbler population has increased 50 percent over the past five years calculated on a running three-year average," Beck said. "Our most recent annual species surveys have estimated about 1,100 warblers at Camp Bullis, one of the bigger populations in the Texas Hill Country."

Beck is one of several full-time environmental specialists at Camp Bullis. They have the challenge of balancing critical military training missions with a delicate ecological system. At the same time, post leaders continue to work closely with environmental agencies and local and state government officials to protect Camp Bullis from encroachment.

According to Jim Cannizzo, an Army environmental lawyer, Fort Sam Houston leaders have called for legislation that would require developers to give notice of construction that involves tree clearing of two acres and up within a five-mile radius of Camp Bullis. Also, developers and realtors would be required to inform buyers that they are purchasing property adjacent to a busy military facility that may routinely cause noise and other issues.

Finally, the Army would like to see a state law passed that would require developers to conduct an endangered species survey before clearing significant amounts of trees around Camp Bullis, Cannizzo said.

Other efforts under way include a request for counties to require use of dark-sky lighting within three miles of Camp Bullis. The lower-intensity lighting is angled toward the ground, making the lighting friendly for next-door neighbors as well as military neighbors.

The goal is to protect Camp Bullis so it can continue serving as a military training

ground for the Army, Air Force, Navy and a host of other federal agencies, which is a mission directly tied to the continued viability of Fort Sam Houston, Cannizzo said.

Under the Base Realignment and Closure initiative, the Fort Sam Houston community is slated to grow by more than 11,000 personnel by 2011. The growth is, in part, based on the proximity of Camp Bullis, Cannizzo said.

"The field training area [Camp Bullis], along with a large clinical facility [Brooke Army Medical Center] and medical training facility [Medical Education Training Campus] make Fort Sam Houston a logical choice for centralizing medical training here," Cannizzo said. "But if you knock off one of the legs off the three-legged stool, it collapses."

As post leaders work to protect Camp Bullis from encroachment, the resource managers continue their efforts to conserve the camp's natural resources.

"We work closely with U.S. Fish and Wildlife Service and other environmental agencies to ensure we are doing what we need to do in our conservation efforts," said Beck. "We spend hundreds of thousands of dollars each year directly on conservation measures and research."

Included in the measures is the protection of endangered species like the warbler and the lesser-seen black-capped vireo plus three cave invertebrates, or bugs. However, a growing population of endangered birds can be a show-stopper for training in the vicinity.

Part of compliance measures involves designating "core habitat" from warbler observations along with a seasonal — March 1 to Aug. 14 — 100-meter light, noise and smoke buffer zone, providing increased protection in the areas during the nesting season, Beck said.

In addition, the military is restricted to impacting less than two acres of trees a year in the areas of occupied habitat. ➤



A house, part of an upscale neighborhood called the Dominion, is situated near Camp Bullis' western border. Photo courtesy of Fort Sam Houston



Army approves standard design for child development centers for children up to 5 years old

by Debra Valine

In the years to come, when Soldiers and their Families move from installation to installation, children enrolled in child development and youth activity centers on post should feel like they are coming “home.” The centers should be familiar to them because the facilities will have been built to meet Army Standards.

Child development centers for children from 6 weeks to 5 years and youth activity centers for 11-18-year-olds will be designed and constructed to an Army Standard signed March 12 by Lt. Gen. Robert Wilson, assistant chief of staff for installation management. The standard for child development centers for children ages 6-10 is addressed in a separate standard approved by the Army Facilities Standardization Committee Oct. 19, 2004.

The standards are mandatory for all child development center Military Construction, Army projects in fiscal year 2008 and beyond.

The U.S. Army Engineering and Sup-



An artist's rendering illustrates the new child development center standard design approved by the U.S. Army for children up to 5 years old. Graphic courtesy of U.S. Army Engineering and Support Center, Huntsville

port Center, Huntsville, Ala., is the Center of Standardization for child development centers and youth activities centers for all facilities in the continental United States.

“We created a standard that includes our customers’ mandatory interior designs,” said Richard Grulich, chief of the Architectural Branch at the Huntsville Center. “These designs incorporate mandatory criteria to ensure these facilities can be accredited. Another thing is that the standards will ensure similarity in facilities across the Army.”

Using the standard design, installations will hire contractors that will turn out the same kind of design. Installations will real-

ize cost savings from using contractors that have learned from the experience rather than having less-experienced contractors come in for each CDC and have to fight through the process each time, Grulich said.

“In the past, the district could build a facility in FY 2008 and not another one until FY 2010,” Grulich said. “You get an inconsistent product that way.”

Huntsville Center does all the engineering services and creates a model of what the building will look like when finished.

“We have been involved in the standard design for child development centers since the mid-1980s,” said Jay Clark, an

Acronyms and Abbreviations

CDC	child development center
FMWRC	Family and Morale, Welfare and Recreation Command
FY	fiscal year

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Of the roughly 28,000 acres at Camp Bullis, about 10,000 acres are identified as potential habitat. Construction at Camp Bullis is therefore concentrated in non-habitat areas to limit the impact on the environment.

The resource managers also look underground for endangered species, to include two species of cave beetles and one cave spider. These cave bugs seek out deep, dark crevices in underground caves, which also happen to serve as recharge features for the Edwards Aquifer. The aquifer, which is the largest sole-source aquifer in the country, provides water to about 1.7

million people.

“These caves are directly tied to aquifer recharge,” Beck said. “To prevent possible contamination, we have vegetation buffers around these caves [and] are dedicated to keeping the buffer area as pristine as possible.”

The resource managers keep a close eye on the endangered invertebrates, since their continued existence is just as important on a human level as on an ecological one.

“These invertebrates are an indicator species,” said Beck. “We ensure they are thriving. If they’re healthy, that means the

aquifer is healthy.”

As a result of the resource managers’ efforts, the endangered species at Camp Bullis are flourishing.

“We’ll continue our work toward ensuring the viability of species here,” Beck said. “I think that speaks volumes for the military’s dedication to natural resources and conservation.”

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Wiesbaden: the comeback kid

by Evan Duncan

Since gaining acclaim 60 years ago as the transport hub for the Berlin Airlift, the Wiesbaden, Germany, military community hasn't seen much military construction funding. But in a few years' time, this community will be the most apparent manifestation of U.S. Army restationing, with several major projects programmed during the next five years. In some places, the dust has already started to fly.

Wiesbaden has a "build it and they will come" attitude. And it shows.

A morning drive through the city's military Family housing areas showcases as many backhoes and trucks hauling cement to nearby construction sites as minivans and buses hauling children to neighborhood schools. In almost every direction, the skyline is littered with cranes. ➤



Michael Dennis, the Corps' senior construction control representative for Wiesbaden Family housing renovations, explains the scope of effort to a construction crew member. Photos by Evan Duncan

(continued from previous page)

architect with Huntsville's Engineering Directorate. "In the last few years, we had to do a significant revision to the standards due to the direction of the vice chief of staff of the Army to reduce from seven sizes down to three on both the child development centers and the youth activity centers."

As the Center of Standardization for CDCs, Huntsville Center will be out in the field for all the design charrette meetings whenever an installation is getting ready to design a facility. It will make sure the installation meets the standards for such things as square footage per child and services offered, Clark said.

"We primarily look at the floor plan to ensure it meets the Army standard. The design-build contractor will ensure the customer gets the look they want," Clark said.

Huntsville Center will take all the lessons learned and the as-built drawings and incorporate them into the standard, Grulich said. The idea is to increase the Leadership in Energy and Environmental

Design rating from Silver to Gold or even to Platinum. The requests for proposals will go out seeking the higher rating.

"Jay has been our lead on the CDC age 0-5 standard, but we have several other team members who have been doing an excellent job," Grulich said. He named James Dunn and Pat Hensley, who did the computer-aided drafting and design; Stephen Evans, the project architect; and Art Dohrman, the program manager. Other people also provided expert support, such as Al Rein, an architect with the Corps' Little Rock District, who was the lead on youth activity centers.

Linda Harwanko and Peggy Hinson at the Family and Morale, Welfare and Recreational Command, the customer and proponent, were the leads for the Department of the Army effort to construct CDCs meeting unique Army requirements, Grulich said. Marty Schroeder, Tom Dolen and Kevin Sheff composed the FMWRC technical team and provided critical guidance to the design process.

"This program will be really big because we will be building 20-30 of the

child development centers and youth activity centers," Grulich said. "Sen. [John] Murtha has a list; he wants to insert a lot of projects into FY '08."

"This standard should make building the facilities easier," Clark said. "We have come up with a standard design that can be built using several different types of construction such as pre-engineered, modular, metal or wood stud. It complies with Military Construction Transformation philosophy by simplifying construction methods and reducing construction costs."

"Almost all of these projects have to do with restationing troops, replacing obsolete facilities and building the new brigade complex," Grulich said. "I see the program expanding even more through 2012."

"If we keep on building these things, they will get better and better," Grulich said.

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Debra Valine is the chief of Public Affairs, U.S. Army Engineering and Support Center, Huntsville, Ala.



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One of the biggest areas of growth in this enduring community in the last few years has been the military Family housing areas, which have undergone continuous renovations to bring about a better standard of living for the warfighters and their Families, U.S. Army Corps of Engineers officials said.

In that time, the almost abandoned Aukamm housing area has again sprung to life. The whole neighborhood renovations total \$93 million and include modernized living spaces, new playgrounds and more parking areas.

Nearby, the Hainerberg housing area has seen similar revitalization, including new streets, utilities and larger living spaces — not to mention the new ultra-modern hotel, which has seen more growth spurts than the highschoolers across the street. The \$31 million, 164-room lodge is expected to open in fall 2009.

The rooms in the fan-shaped building will not only replace those in the American Arms Hotel, but exceed them in size and comfort. Each room has a private bathroom and kitchenette to offer more to guests.

However, it's the renovated housing that is critical to retaining Soldiers, said Michael Dennis, Europe District senior construction control representative for the renovations.

“Placing the Soldiers in nice new quarters could be the difference in retaining their services,” he said, “and the amenities they've added here are really nice.”

In Aukamm alone, 23 new multifamily housing and duplex buildings are currently under renovation, bringing the six-year total to 113 buildings with about 500 units. Many have been “right-sized” from three smaller apartments into two larger ones to accommodate the growing military Family.

“You have to take care of the Families first before you start building larger proj-

ects, like the bowling alleys and hotel complexes,” Dennis said.

But there are projects even larger than the \$8.3 million bowling alley or the hotel. Heidelberg-based U.S. Army Europe and the U.S. Army V Corps command headquarters will merge to form 7th Army Headquarters and move to Wiesbaden within four years. Smaller units, such as the 5th Signal Command from Mannheim and the 66th Military Intelligence Group from Darmstadt, will also move to Wiesbaden.

Officials estimate these changes will bring the military and U.S. civilian population in Wiesbaden to about 6,600.

Upcoming military construction and renovation projects on the garrison in support of these moves include a network warfare center, a consolidated intelligence center and a 1,280-person command-and-control facility, the largest single construction project the Army has ever seen in Wiesbaden. Also expected are significant improvements to the existing commissary and post exchange facilities, as well as a housing program that will flank the south side of the airfield, where farmers' fields currently lie, with 326 new dwelling units.

Preconstruction plans for these projects include the rerouting of traffic for truck access, storage, parking and pedestrian routes; the surveying of groundwater, soil and native species; the clearing of unexploded ordnance; and a complete upgrade of the water, sewer, electrical, heating and telecommunications infrastructure, including running new lines to the proposed construction sites.

Appropriately, the first move of the U.S. Army Corps of Engineers, the construction agent for the program, was to start plan-



Rubble from the interior walls of an apartment in the Aukamm neighborhood covers the floor during an early stage of renovations.

ning. The Corps is developing a land-use plan for new and renovated commissary and post exchange facilities as well as several other plans for the Wiesbaden garrison, including a master plan, a stationing plan and an integrated strategic sustainability plan.

To integrate these moves, the Corps has banded with the U.S. Army Garrison Wiesbaden's Directorate of Public Works and the local German government's construction management firms to propose a Transformation Stationing Management Office, where representatives from each group would be colocated in a single building.

The colocation — a proven project paradigm for the Corps — will shorten channels of communication among construction parties and deliver products more quickly to the customer.

Transformation planners expect that by 2013, Wiesbaden will have completed its transformation from a stagnant post that saw its heyday 60 years ago to the U.S. Army's European hub.

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Joint base conference held at Fort Lewis

by Rich Bartell and Joe Jimenez

More than 200 representatives from Department of Defense installations participated in the first Joint Base Implementation Review Conference at Fort Lewis, Wash., June 23-27. The joint bases will be installation support platforms for warfighters and global missions.

The federally mandated plan to establish joint bases affects nearly 500,000 military and civilian workers, according to Air Force Col. Kenny Weldon, DoD joint basing program manager. That figure will nearly double when the greater military community is included.

“Twenty-six bases will become 12, supporting more than a million people when you add Families, retirees and contractors,” said Weldon.

He noted that the task of combining so many bases is complex; however, time, resources and manpower are devoted to ensuring that joint basing meets the 2011 deadline.

“There are many complex details to overcome, but we are committed to the success of joint basing — it will succeed,” he said.

Fort Lewis and McChord Air Force Base are among the 26 installations combining to form 12 joint bases by the year 2011. Weldon pointed out that Fort Lewis and McChord have a history as a joint base.

“Fort Lewis began in 1917 with McChord Field following in 1938,” he said. “That’s really the genesis of Joint Base Lewis-McChord, and the two installations have been working together ever since.”

Several topics were discussed over the course of the conference. Participants had the opportunity to learn about: the effects of joint basing on human resources, common themes and working groups. They also heard progress reports from all 12 of the soon-to-be joint bases.

The conference was hosted by Wayne Arny, deputy under secretary of defense for installations and environment. Arny is a

career Navy aviator and federal government administrator with more than 40 years service. He is responsible for military installations worldwide. In addition, Arny is the DoD’s senior real property officer and the department’s representative to the Advisory Council on Historic Preservation.

Fort Lewis Garrison Commander Col. Cynthia Murphy and McChord Air Force Base’s director of Joint Base Lewis-McChord Initiative, Col. Shane Hershman, commented on the benefits the conference will have for upcoming Joint Base Lewis-McChord.

“This conference is just what we need as we begin the next phase of developing Joint Base Lewis-McChord,” said Murphy. “Up to this point, the guidance from the Defense Department gave us a generic framework for creating all 12 joint bases. We now need to complete the details of an agreement with Air Force units at McChord between now and next summer to integrate our installation support services. The conference helps us to better

understand the common issues, design the unique requirements of our joint base and make sure it supports all of our war-fighting units.”

Hershman described the cooperative nature of joint base planning between McChord and Fort Lewis.

“On the battlefield in the Global War on Terror, our combined services blend to make our great military force even better,” he said. “The successes we’ve seen are a direct reflection of our joint force, which the dedicated Soldiers and airmen on what will soon be known as Joint Base Lewis-McChord are to be proud of.

“McChord and Fort Lewis have been working closely since 2005 to build Joint Base Lewis-McChord,” Hershman said. “We are excited to hone our joint base planning at this conference.”

Commanders of installations becoming joint bases presented reports on the progress of integrating their bases. The conference highlighted major issues to

Joint basing implementation

(Lead component in parenthesis)

Phase I installations – Jan. 31, 2009

- Naval Amphibious Base Little Creek / Fort Story, Va. (Navy)
- Fort Myer / Henderson Hall, Va. (Army)
- Andrews Air Force Base / Naval Air Facility Washington, Md. (Air Force)
- McGuire Air Force Base / Fort Dix / Naval Air Engineering Station Lakehurst, N.J. (Air Force)
- Navy Base Guam / Andersen Air Force Base, Guam (Navy)

Phase II installations – Jan. 31, 2010

- Anacostia Annex / Bolling Air Force Base, Washington, D.C. (Navy)
- Naval Station Pearl Harbor / Hickam Air Force Base, Hawaii (Navy)
- Fort Lewis / McChord Air Force Base, Wash. (Army)
- Charleston Air Force Base / Naval Weapons Station Charleston, S.C. (Air Force)
- Elmendorf Air Force Base / Fort Richardson, Alaska (Air Force)
- Lackland Air Force Base / Randolph Air Force Base / Fort Sam Houston, Texas (Air Force)
- Langley Air Force Base / Fort Eustis, Va. (Air Force)



Design guidance for central vehicle wash facilities updated

by Gary Gerdes

A newly published Public Works Technical Bulletin contains information to update existing design guidance for central vehicle wash facilities. PWTB 200-1-55, *Update to UFC 4-214-03 Central Vehicle Wash Facilities*, is available online at: http://www.wbdg.org/ccb/browse_cat.php?o=31&c=215.

The CVWF is a one of the most successful pollution-prevention concepts developed and implemented by the U.S. Army Corps of Engineers. The recycle treatment systems used at the more than 25 existing facilities now save some 2.5 billion gallons of water every year.

The first modern CVWFs were constructed in the early 1980s. Wash facilities are still being constructed, primarily as a result of Base Realignment and Closure installation realignments. New Brigade Combat Teams are being formed, and new wash facilities are being planned and constructed to accommodate their tactical vehicle washing needs. However, guidance for the planning and design of those facilities was somewhat dated.

Headquarters, USACE published design guidance for CVWFs in 1992 in the form of Technical Manual 5-814-9, *Central Vehicle Wash Facilities*. In January 2004,



Lessons learned from 20 years of operating central vehicle wash facilities were considered in updating design guidance. Photo courtesy of U.S. Army Engineer Research and Development Center

TM 5-814-9 was replaced by a Unified Facilities Criteria document, UFC 4-214-03, *Central Vehicle Wash Facilities*. The original TM was converted to the UFC document without change. Information in the UFC has not been updated since the TM was originally published.

Several events have driven the need to update TM 5-814-9:

- New families of tactical vehicles, particularly the Stryker variants, have replaced the older vehicles as part of a continuing program to modernize and transform the Army.
- Washing vehicles is now a means of preventing the spread of nonnative invasive

species, primarily by removing weed seed carried by the vehicles from training areas.

- Lessons learned from the past two decades of operating CVWFs needed to be formally documented.

The PWTB can be used as a reference guide to qualify or supersede guidance in the UFC. Information is organized to align with numbered paragraphs in the UFC.

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Gary Gerdes is a project manager, Construction Engineering Research Laboratory, Champaign, Ill.



Acronyms and Abbreviations

CVWF	central vehicle wash facility
PWTB	Public Works Technical Bulletin
TM	Technical Manual
UFC	Unified Facilities Criteria document
USACE	U.S. Army Corps of Engineers

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be resolved by the joint base planners at all levels from local installations to the DoD. Participants learned approaches to solutions from other installations, and DoD planners identified higher level issues that

Acronyms and Abbreviations

DoD	Department of Defense
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might require policy revisions.

The next conference is scheduled in October at San Antonio.

The implementation of the 12 joint bases will occur in two phases. The first implementation phase of five joint bases will begin Jan. 31 and end Sept. 30, 2009. The second phase begins Jan. 31 and ends Sept. 30, 2010. All joint bases must be

operational by Sept. 15, 2011.

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Rich Bartell and Joe Jimenez work in the Fort Lewis Public Affairs Office. Article is reprinted with permission from the Northwest Guardian.





Fort Lewis embraces sustainable design, construction

by Brendalyn Carpenter, Jeanette Fiess and Benjamin Saddoris

For almost a decade, the Army has challenged its installations to restructure their planning and operations to support a sustainable force capable of simultaneously meeting mission requirements, safeguarding human health, improving quality of life and enhancing the natural environment. One of the areas in which this has been particularly evident is architectural engineering, a fact necessitated by the wide-ranging impacts of building design, construction and operation.

At Fort Lewis, Wash., sustainable building design has been a focus for more than six years. The installation and its partner, the Seattle District of the U.S. Army Corps of Engineers, have been agents of change in administering the Fort Lewis Military Construction program. Through these efforts, Fort Lewis and the Seattle District have challenged designers to “think sustainability” and find sustainable technologies that could be integrated into building designs.

Beginning with the fiscal year 2003 Whole Barracks Renewal Project, Fort Lewis adopted performance standards that would reduce environmental impact, promote greater worker productivity, extend long-term use of its facilities and reduce costs over time. Initially, Fort Lewis adopted the Army’s Sustainable Project Rating Tool, which addressed military specific design standards similar to those set by the U.S. Green Building Council’s Leadership in Energy and Environmental Design rating system.

The FY 2003 Barracks were designed using the SPiRiT system and include various sustainable features. Alternative flooring such as stained and polished concrete offer both increased durabil-

ity and decreased maintenance. A heat recovery system pulls heat from dryer vents and circulates it within the building. All appliances are Energy Star certified. Waterless urinals decrease overall water usage, and energy-efficient hot-water heaters are programmed to support peak demand periods and then “rest” during lulls.

In addition, rain-water harvesting cisterns collect water for toilet flushing and irrigation.

The inclusion of such features in the FY 2003 Barracks design represented first attempts to implement green building and design techniques at Fort Lewis.

The following year, Fort Lewis adopted LEED as its official standard for new construction, following the U.S. Green Building Council’s update and improvement of the rating system. Subsequently, the FY 2004 Whole Barracks Renewal Project, completed in 2006, was the first to be registered for LEED Silver rating. Certification is expected by fall 2008.

This project achieved a 30-percent reduction in potable water use by installing waterless urinals, low-flow plumbing fixtures and a 350,000-gallon rainwater cistern used for irrigation. Water demand was similarly reduced through landscaping that uses native and drought-resistant plants rather than large areas of turf.

In addition, the building’s ductwork was sealed during construction to prevent contaminants from entering the ventilation system. Low-emitting paints, adhesives, sealants and carpets also improve indoor air quality. Contractors working on the project



The FY 2006 Barracks complex, a Chief of Engineers Design and Environmental Honor Award winner, was designed to preserve the surrounding trees, built with exterior sunshades and oriented to maximize daylighting. Photos by Jeanette Fiess

recycled more than 90 percent of construction waste.

Fort Lewis and the Seattle District again incorporated sustainable features into the FY 2005 Whole Barracks Renewal Project, completed in spring 2008. Rain-water-harvesting cisterns used to flush toilets are expected to achieve more than 40 percent savings of potable water use, and, for the first time, energy conservation in new construction significantly exceeded the American Society of Heating, Refrigerating and Air Conditioning Engineers 90.1 standards.

The barracks project’s company operations buildings will save 36 percent more energy than required by the ASHRAE standard, which amounts to a \$30,000 per year energy savings for the four-building compound. Daylighting is a major contributor to this overall savings, as 80 percent of building interiors have access to natural light. In another first for Fort Lewis, 50 percent of the wood used for formwork, cabinetry and doors is Forest Stewardship Council certified.

Fort Lewis and Seattle District took a different approach to designing the FY 2006 Barracks. First, architects and engineers conducted an eco-charrette to ➤

Acronyms and Abbreviations	
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers
FY	fiscal year
LEED	Leadership in Energy and Environmental Design
SPiRiT	Sustainable Project Rating Tool



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identify sustainable features that were practical, economical and achievable. Significant attention was given to the building's siting to ensure the best daylighting and to preserve surrounding trees.

Additional innovations were explored and integrated, such as sensors that will



This FY 2003 Barracks courtyard features native landscaping and pavers set in pea gravel to allow storm water run-off.

turn out lights when the room is unoccupied. Exterior sunshades maximize the benefits of daylighting while keeping out the summer sun and moderating the building's overall temperature. In all, a 32 percent energy savings is expected.

Overall budget constraints, however, limited the team's ability to integrate some previously used and new sustainability features, including rainwater-harvesting cisterns and solar hot-water heating. Yet, the process for sustainable construction at Fort Lewis is continually improving, and lessons learned will ensure future success for the \$1.9 billion budgeted for base construction over the next five years. The new construction will include administrative and operations buildings, and facilities that support Family morale, welfare and recreation as well as barracks.


In addition, Fort Lewis and the Seattle District have established a practice of incorporating incentives into new contracts that encourage a more aggressive approach in applying LEED standards to new construction. This procedure means the integration of sustainable features is no longer an additional consideration but rather an expectation for all new construction. And, in accordance with the Army's new Sustainable Design and Development policy, starting in FY 2008, all new Military Construction Armywide will achieve a minimum rating of LEED Silver.

Together, these efforts ensure Fort Lewis design and construction adheres to the bold, long-range vision of a sustainable Army set forth in the *Army Strategy for the Environment*. With the continued partnership of the Seattle District, Fort Lewis is integrating these sustainable design principles into its larger master plan by creating an Army and Air Force Exchange Service pilot project lifestyle center. The center will include not only sustainable buildings but a vibrant mixed-use downtown neighborhood within walking distance of residences and administration areas.

This development will preserve training land by infilling new structures into the existing downtown area and combining facilities of compatible use. Its continuous network of sidewalks, bike lanes and mass transit corridors will offer easy access to new residences, retail, offices and entertainment — promoting individual health, on-post social interaction and reduced pollution.

Such efforts represent the next step in sustainable design as the Army moves forward beyond individual building design to creation of sustainable neighborhoods and, ultimately, sustainable installations.

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Brendalyn Carpenter is the sustainability outreach coordinator, Fort Lewis, Wash.; Jeanette Fiess is an electrical engineer, U.S. Army Corps of Engineers, Seattle District; and Benjamin Saddoris is a post-doctoral fellow, Directorate of Public Works, Fort Lewis. 

Sustainability lessons learned

The challenges to sustainable construction include lack of awareness of sustainable design and concern over the higher costs associated with a sustainable building versus traditional building design and construction. Seattle District designers, some of whom also serve as sustainability coordinators at project sites, have the important role of addressing these concerns and managing other challenges as they arise.

These designers champion the cause for incorporating sustainable features into the fundamental design from the outset to reduce the incremental costs associated with sustainability. They also encourage the consideration of new products and technology to help further the cause.

Additional strategies for ensuring sustainability in architectural projects include:

- Educate all parties involved in the project — the contractor, designers, project managers.
- Ensure contractors know what is required or expected. Contractors are required to have a LEED-accredited professional on staff.
- Review LEED specifications in preparatory and safety meetings where the information reaches subcontractors and laborers.
- Encourage contractors to approach sustainability requirements in the same manner as safety requirements. It's not optional.
- Require contractors to provide quarterly reports of their documentation to ensure they are making appropriate progress as they track LEED credits.
- Conduct site inspections to ensure daily operations reflect sustainability requirements and documentation.



Fort Bragg wins White House Closing the Circle Award

by Erin McDermott

Fort Bragg, N.C., won a prestigious 2008 White House Closing the Circle Award for its exemplary work with sustainable design. The Office of the Federal Environmental Executive announced that Fort Bragg had been named the winner of the Sustainable Design/Green Buildings Award in recognition of the installation's breakthrough efforts to integrate nationally accepted Leadership in Energy and Environmental Design standards in the design, construction, maintenance and operation of its infrastructure.

"Our Sustainable Design/Facilities Team is the cornerstone program of our garrison strategic planning efforts to become a sustainable community," said Paul Wirt, chief of the Environmental Management Branch and the Sustainable Communities Team leader. "The cross-functional team is setting the standard for Army sustainability with their innovative projects for both our new construction and existing buildings."

With a \$2 billion, 2008-2010 construction budget and performance targets that affect more than 20 million square feet of proposed and existing infrastructure, Fort Bragg's LEED program far surpasses baseline Army requirements and is well ahead of the Army timeline. To date, the installation has registered more than 43 buildings totaling 5.2 million square feet in the LEED Portfolio Program, making it the second largest contributor of square footage to the LEED-Existing Buildings program in the U.S. Green Building Council inventory. Fort Bragg has also received approval to register and certify an additional 27 projects totaling 2.8 million square feet.

Fort Bragg's commitment to LEED standards enabled the installation to secure an Environmental Security Technology Certification Program grant to build an Emergency Services Building to LEED Platinum specifications, the highest LEED rating. Data on energy efficiency, water usage and other aspects will be collected



Representatives of Fort Bragg's Sustainable Communities Goal Team, Master Planning, Engineer Division and Environmental Division, and of the U.S. Army Corps of Engineers pose in front of the Golden Knights facility, one of the installation's innovative sustainable-design buildings. They are (left to right): Erin McDermott, Hector Cruz, Ted Kientz, Dennis Abell, Rob Harris, Tom Blue, Mike Lynch, Paul Wirt, Dave Heins, Glen Prillaman and Lance Locklear. Photo by Katie Gard, Environmental Management Branch, Fort Bragg

from this building and a similar facility on the installation to compare associated costs and returns-on-investment of green buildings. This effort will help determine the feasibility of adopting LEED standards in Military Construction.

Other advancements include the construction of a 4,322-square-foot building from steel shipping containers, and the design and development of several innovative LEED systems tools, including a LEED Vendor Database to help Fort Bragg project managers and local Army engineers identify local and regional suppliers of construction products and materials that meet LEED requirements.


"Fort Bragg has been blessed historically with a robust Military Construction program that is expected to continue for several years, especially considering Base Realignment and Closure and Army transformation initiatives," said Rob Harris, chief of the Engineering Division and Facilities Team leader. "Our garrison's expansive sustainability program is just a natural response to such construction intensity.

"Fort Bragg has, for better or worse, a

massive economic, social and environmental impact on the surrounding community, and we want to assure it is as positive an impact as possible. Airborne and Special Operations soldiers are a special breed; it is part of our duty to develop and manage sustainability programs that emulate their spirit."

Each year, OFEE recognizes federal employees and facilities that demonstrate outstanding environmental stewardship in the areas of waste prevention, recycling, green purchasing, environmental management, green/sustainable buildings, electronics stewardship, or alternative fuel use and reduced fuel usage under Executive Order 13423, *Strengthening Federal Environmental, Energy and Transportation Management*. This year, OFEE recognized 15 winners and 14 honorable mentions out of 200 nominations.

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Erin McDermott is the community resource coordinator, Environmental Management Branch, Fort Bragg, N.C. 

Acronyms and Abbreviations	
LEED	Leadership in Energy and Environmental Design
OFEE	Office of the Federal Environmental Executive



Facilities Reduction project mitigates explosive hazard at Tooele Depot

by Debra Valine

A project to remove an ammunition processing building at Tooele Army Depot presented an explosive challenge to the Facilities Reduction group at the U.S. Army Engineering and Support Center, Huntsville, Ala. Building 1245, which was used as a munitions (TNT) washout facility, contained equipment likely coated with unknown amounts of explosive residue that made traditional demolition dangerous.

The building contained equipment that was too large to remove and had to be rendered “safe” for unrestricted release as scrap before the building could be demolished. To get to that point in the project, Huntsville Center had to ensure the explosive danger was eliminated.

Larry McFarland, the project manager at Tooele, and Huntsville Center Technical Manager Kevin Healy turned to PIKA International, a company that uses a process called *thermal convection*, to destroy explosive residue. Thermal convection uses controlled heat from a standard source, similar to how a self-cleaning oven works, to destroy explosive residue in a building, rendering it safer for a “near normal” demolition effort.

Using a thermal convection system is a first for Huntsville Center.

Finding innovative solutions for facility removal is not new for Huntsville Center. Each project is unique, and project managers look for the best technical method of removal at the least cost to the customer. Other examples of creative facility removal have included implosion, sealed bid auctions and the establishment of a directed demolitions team.

“PIKA’s proposal to prepare the building using the TCS and demolition of Bldg. 1245, resulted in a savings to the government of approximately 60 percent of the original program costs,” Healy said.

Preliminary demolition activities started May 29. Demolition was completed in mid-July.

When the initial preparatory operations were conducted at the site June 15, hidden explosive residue exploded, causing the corrugated tin building shell to crumble and come off the steel beam frame.

“That will save us a lot of man-hours,” said Paul Ihrke, the vice president of federal programs for PIKA. “This really helped the demolition process along. The tin can now be sent to the recycling facility without further processing.”

The initial operation was conducted according to the work plan and approved explosives safety submission and executed flawlessly with no one getting injured, Ihrke said.

“We do this to get to any hidden residue,” said Lloyd George, the PIKA senior unexploded ordnance supervisor at the site. “We maintain the maximum safety distance of 2,373 feet, which is the Department of Defense Explosive Safety Board-approved minimum separation distance, before we conducted the venting operations. No one was in the area on Sunday [June 15].”

PIKA built an insulated enclosure around the TNT washout facility equipment so that any explosive residue on the equipment could be burned off with the TCS. The combination of the enclosure and the TCS created a portable oven to destroy the hidden explosive residue. The “oven” burned propane that was routed into the enclosure.

Two TCS units operated at around 750 degrees Fahrenheit for six to seven hours to remove any explosive residue. The residual ash was wiped off, just like a self-cleaning oven.

“We take anything of hazard out of the building and place all the pipes and other



Workers build an insulated enclosure around the TNT washout facility equipment at Tooele Army Depot, Utah. Photo by Debra Valine

pieces of equipment on top of the TNT washout machine,” George said. “Everything that might have explosive residue on it will fit into the enclosure being built for the operation.”

“The concrete will be busted up and reused on site as clean hard fill for sumps or sent off site for recycling,” said Lewis Kovarik, PIKA’s on-site safety officer. “The steel and tin will be cut up and sent to a recycling facility. When we’re finished, there won’t be anything left.

“Everything leaving Tooele will have a chain of custody letter explaining that the material is free of explosives,” Kovarik said.

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Debra Valine is the chief of Public Affairs, U.S. Army Engineering and Support Center, Huntsville, Ala.

Acronyms and Abbreviations	
TCS	thermal convection system



Value engineering pays off for environmental projects

by Greg Mellema

In 2007, the U.S. Army Corps of Engineers began a collaborative effort to conduct value engineering studies for the U.S. Environmental Protection Agency's Superfund Program. The Huntsville Engineering and Support Center, Directorate of Environmental and Munitions Center of Expertise, located in Omaha, Neb., has completed nine VE Studies for EPA so far, with significant results and realized benefits.

"I believe the program has been a tremendous success by providing real value to projects, in terms of improved quality, enhanced construction methods, reduction in waste volume generated and financial savings," said Lindsey Lien, VE program manager at the EM CX.

"Our VE team, led by a certified value specialist, is a dynamic and experienced group, engaged with the entire design team to ensure that VE results enhance the value of a project by increasing benefit and/or reducing unnecessary resource utilization," Lien said.

Results from the VE study results are substantial. For the nine projects studied, the remedial action cost estimates total \$217,600,000 with VE recommendations



A value engineering team visits a Utah Superfund Site. Photo by Lindsey Lien

totaling \$30,295,000, an average of 13.9 percent in reduced project costs. The average VE study cost is \$52,000, representing a 65:1 benefit-cost ratio.

The VE initiative complements the other optimization methodologies developed in large part at the EM CX. These programs include: Technical Project Planning, which is used extensively to cost-effectively plan data acquisition

requirements over the life of a remedial action; and the EPA Remediation System Evaluation process, used to optimize operational remediation systems.

"A good VE study does require some upfront planning and coordination," Lien said. "Typically, from project initiation to final report, a study will take approximately three to four months, with the bulk of the time allocated to upfront design review and coordination. Once the team assembles on site, the VE team meets for two to four days, with the final report being provided about four to six weeks later.

"In addition to supporting EPA," Lien continued, "our team is now positioned to conduct VE studies for environmental projects executed under Formerly Used Defense Sites, the Defense Environmental Restoration Program and other programs as well."

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Greg Mellema is an engineer assigned to the U.S. Army Engineering and Support Center, Huntsville's EM CX in Omaha, Neb.

Acronyms and Abbreviations	
EM CX	Environmental and Munitions Center of Expertise
VE	value engineering

Help DLA identify useful green products

by Steve Perez

The Defense Logistics Agency established a new Green Products Team whose job it is to make it easier for customers to locate and order green products. To get the most bang for the buck, the team needs your help to ensure that it focuses primarily on those products and processes that are most challenging to you today.

Examples of green products include items with recycled or low volatile organic compound content, and items that are energy-saving or nontoxic. The Green

Products Team wants to catalog useful new products and include them in the federal supply system so that DLA customers can easily order them.

Do you know of any locally purchased products that you would like to see made available through the supply system? Or do you have a process that currently involves the use of hazardous materials for which you want green alternatives? If so, contact the DLA Green Products Team via any of the following methods:

- e-mail GreenProducts@dla.mil;

- call 804-279-5226 or DSN 695-5226; or
- use the web form at

http://www.dscr.dla.mil/userweb/aviation-engineering/BUY_GREEN/buygreen_form.asp.

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Steve Perez is a management analyst, Green Products Program, DLA.

Acronyms and Abbreviations	
DLA	Defense Logistics Agency



Fort McCoy looks at lead contamination on small-arms ranges

by Rob Schuette

With heavy weapons training a reality for the present and well into the future because of the Global War on Terror and the need to prepare troops for future missions, training and environmental officials at Fort McCoy, Wisc., decided to inspect the installation's small-arms ranges for issues related to lead contamination.

AMEC Earth and Environmental Company of Minneapolis was contracted to develop a range environmental management plan for the installation. The project included the review and inspection of all small-arms firing ranges at McCoy.

"To our knowledge, such a study has never been done on Fort McCoy," Mark McCarty, chief, Natural Resources Branch,

Environmental Division, Directorate of Public Works, said. "Our intent was to identify any potential environmental concerns that could be associated with possible lead contamination or migration at our firing ranges. By evaluating the risks and prioritizing our response, we can ensure the future sustainability of our firing ranges, thus protecting our mission well into the future."

AMEC analyzed the existing small-arms ranges and developed a range environmental management plan in accordance with applicable guidance published by the Army, the U.S. Environmental Protection Agency and the Interstate Technology Regulatory Council.

Although designed as a stand-alone

project, it was actually part of an overall strategy, according to Gene Nall, chief of Range Operations.

"The study is important because it shows the public that Fort McCoy is committed to maintaining a clean environment while we perform our training mission," Nall said. "Each project is separate but deals with different areas of cleanup."

A previous project to inspect the Badger Drop Zone was geared toward past training practices on the installation. That project addressed training conducted before the environmental impacts of training became a concern, Nall said. The small-arms range project is more proactive and geared toward maintaining installation ranges in an environmentally sound manner. ➤

Corps' new sustainability directory to maintain expertise

by Harry Goradia

The U.S. Army Corps of Engineers created the Sustainable Design and Development Directory of Expertise at its Savannah District. The SDD DX will be supported by the Center for the Advancement of Sustainability Innovations at the Engineer Research and Development Center, Construction Engineering Research Laboratory as an element for technology support and corroboration with the U.S. Green Building Council and other organizations engaged in research and development for future tools.

The SDD DX consists of:

- Judith Milton, Savannah District, 912-652-5441;
- Richard Schneider, ERDC-CERL, 217-373-6752; and
- Annette Stumpf, ERDC-CERL, 217-373-4492.

The SDD DX will maintain technical expertise in the rapidly changing and evolving area of SDD, including criteria

and requirements, Leadership in Energy and Environmental Design rating tools and emerging technologies to achieve SDD goals. It will support Headquarters, USACE in the development of criteria, research and development, and technology transfer. It will also provide planning, design and construction support services, and training and advisory assistance to others on reimbursable basis.

Upon request, the DX is capable of providing the following functions for SDD and related matters:

- interpretation of Army, Air Force, USACE, Department of Defense and other federal policies, regulations and requirements;
- training on philosophy, concepts and history of SDD;
- training and consultation on implementation of LEED;
- review of contract documents, installation design guides and other documentation

for inclusion of SDD;

- interpretation of LEED credit requirements;
- participation in planning and design charrettes;
- assistance in government validation process; and
- development of technical guidance and guide specifications.

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Harry Goradia is the proponent for SDD, Headquarters, USACE. 

Acronyms and Abbreviations	
ERDC- CERL	Engineer Research and Development Center, Construction Engineer Research Laboratory
LEED	Leadership in Energy and Environmental Design
SDD DX	Sustainable Design and Development Directory of Expertise
USACE	U.S. Army Corps of Engineers



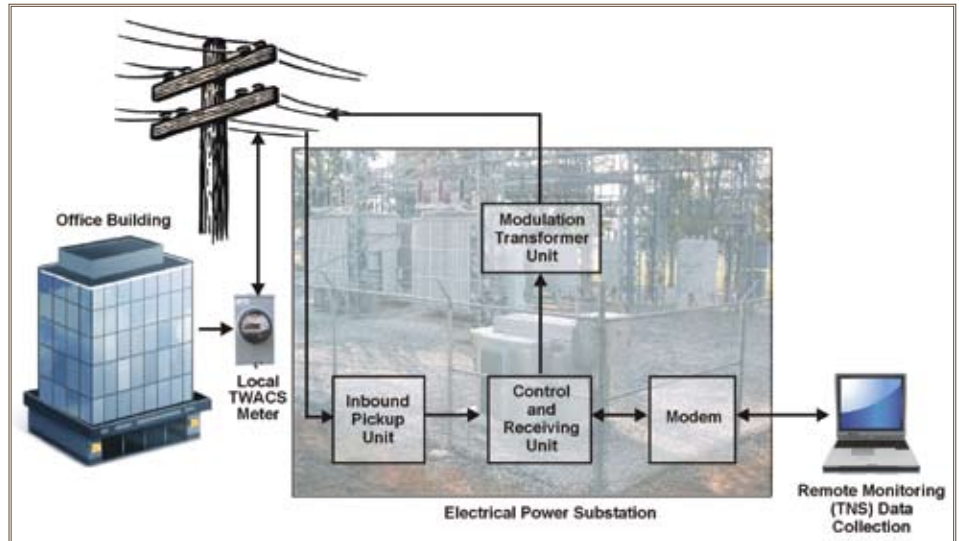
How Fort Benning handles advanced metering

by Michael L. Aident, Steve Dudley and Vernon Duck

Section 103 of the 2005 Energy Policy Act requires that most federal buildings have electric meters installed by Oct. 31, 2012. In 2006, Fort Benning, Ga., initiated a project to evaluate alternative technologies that could be used to meet the metering and advanced metering requirements of EPOA.

EPOA calls for *advanced meters* to be used for those facilities where it is economically practical. An advanced meter is one that collects and transmits the electricity usage for a facility at least once an hour. A *standard meter* is defined as one that collects the electricity usage but does not transmit this data.

Fort Benning has more than 4,000 buildings that were evaluated to determine if they were required by EPOA to receive advanced meters. The Office of the Chief of Staff for Installation Management established a standard that buildings with more than 29,000 square feet or those that have an annual electrical cost of greater



This graphic pictorial shows schematically how the communication data flow from the building. Graphic by Michael Aident and Linda Hall

than \$35,000 would receive the advanced meters. Applying these criteria to the buildings at Fort Benning resulted in a list of about 120 buildings that would initially receive the advanced meters.

The plan was to first install meters on those buildings where the occupants reimburse the government for their electrical use and then install the new meters on the buildings that are tied into the energy ➤

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A previous project to inspect the Badger Drop Zone on Fort McCoy was geared toward past training practices. Based on the installation Archive Search Report, the drop zone was once used as an impact area. Over the years, it was surface cleared and returned to use as a training area. That project used wide area analysis and other investigations to determine if any unexploded ordnance remained. It addressed training conducted before the environmental impacts of training became a concern, Nall said. The small-arms range project is more proactive and geared toward maintaining installation ranges in an environmentally sound manner.

The small-arms range plan outlines a series of recommended environmental stewardship practices for the long-term management of lead and other range-related materials at the firing range com-

plex, McCarty said.

The plans' implementation will allow Fort McCoy to:

- identify potential environmental concerns associated with lead contamination or migration at the facility's firing ranges;
- evaluate the risk and prioritize appropriate actions to manage any existing issues;
- integrate site-specific, best management practices for managing lead in existing and/or future range designs; and
- determine which ranges are the most conducive to future upgrading or transformation in regard to lead and potential remediation requirements associated with land-use modifications.


The inspection indicated the greatest concern of lead concentrations was on Range 1, the Combat Pistol Qualification Range. AMEC did an advance site visit in April to inspect the project area

on Range 1 and collect soil samples. The results revealed the extent of the soil to be removed and the lead deposited in the soil was much less than originally expected.

"Soil that was stockpiled at the top of the slope was removed and consolidated within an existing berm away from the bank of the La Crosse River and vegetated," McCarty said. "Due to the (favorable) results from the advance site visit, the screening of impacted range-floor soil was not needed."

Revegetation of the disturbed soil with native vegetation, along with stabilization of the soil was the best way to limit the transport of lead to the river, he said.

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Rob Schuette is a writer-editor, Fort McCoy, Wis. Article is reprinted with permission from The Real McCoy. 



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management and control system. Fort Benning's long term plan is to use the advanced meters to monitor all of the energy-consuming facilities.

Fort Benning began the project of complying with the metering requirements in 2006 by evaluating various metering technologies that could be used to provide the meter data. This included evaluating LonWorks and BACnet direct digital control technologies as well as local wireless technologies.

The evaluation recommended that, for Fort Benning, the Two-Way Automatic Communication System technology should be used, although all of the technologies were capable of complying with the EPAct directives for advanced metering.

The primary reasons for selecting the TWACS technology were:

- Flint Energies' experience with using this technology as their revenue meters at commercial and residential buildings in their service area;
- expandability of the system so that new buildings could be added easily;
- adaptability of the system to accept, in addition to the electric meters, other meters, such as natural gas and water;
- functionality of the communication system to meet current and future information needs; and

- ability to expand the system to also transmit control functions that can be used in future load shedding.

The TWACS technology consists of specially designed meters, located at the buildings, that communicate through the existing high voltage power lines to an electrical power substation where the data is retrieved from the power lines. The substation-installed TWACS equipment includes:

- Inbound Pickup Unit – All communications between the meters and the data collecting server pass thru the IPU. There is one IPU for each breaker service in the substation.
- Control and Receiving Unit – The CRU monitors and controls the timing and traffic of all communications on the power lines.
- Outbound Modulation Unit – The OMU encodes the outbound information



A TWACS meter for a 600-amp, 480-volt service is installed on the cooling system at Building 2878. Photos by Michael Aident

to the meters into the TWACS format and passes it to the MTU. The message may command the meter to respond with the remotely acquired data, take a control action or download an internal parameter.

- Modulation Transformer Unit – The MTU takes the TWACS encoded information that is on a

480-volt circuit and transforms the voltage up to 12,770-volt primary power line distribution voltage.

- Communication Modem – Provides for two-way communication between the remote data collecting server and the local TWACS system.

The purchased cost of a meter varies from \$900 to \$2,500 depending on the size of the building and the electrical service to the building. A meter for a building that has a 400-amp, 120/208-volt service would typically cost about \$900. A meter for a building that has an 800-amp, 480-volt service would cost about \$2,500. Meter installation can vary from \$2,000 to \$3,000 depending on site-specific installation requirements.

The TWACS equipment located at each substation costs about \$75,000 installed. Fort Benning currently has six substations. Of these, funding has been acquired to install the necessary TWACS equipment at two substations. The long term plan is to install the TWACS equipment at all substations. Once the substation TWACS equipment is installed, the cost to meter any particular facility is minimal as the only expense will be for the meter.

From the substation the data is sent via a modem using a wireless phone service to a server operating with TWACS Net Server software. The TNS communicates bidirectionally with the CRUs to request and receive data from the advanced meters located at the buildings.

The TNS software collects and stores the meter data in a database. This data is electronically imported into a database program, developed by contractor Shaw Environmental & Infrastructure, that allows the Fort Benning energy manager and ➤



The control system communication equipment (foreground) sits inside the Mannfield electrical substation fence.

Acronyms and Abbreviations	
CRU	Control and Receiving Unit
EPAct	Energy Policy Act of 2005
IPU	Inbound Pickup Unit
MTU	Modulation Transformer Unit
OMU	Outbound Modulation Unit
TNS	TWACS Net Server
TWACS	Two-Way Automatic Communication System



Achieving energy reduction the Navy way

by Cecile Holloway

After working in the Navy's environment for 20 years, it is quite an adjustment to the Army's corporate world. But when it comes to energy, we use and talk the same lingo. The energy objectives and goals have similarities but might differ in the approach to processes and implementation

Still, the Department of Defense tri-services have the same commitment to reduce energy use. At DoD installations, *manage* and *reduce* are the key words in energy and water resources. These key words emphasize the mandates of the Environmental Policy Act of 2005 to the energy managers.

The Army's commitment is guided by the *Army Energy and Water Campaign Plan for Installations*, which was developed in 2005. (Editor's note: *The campaign plan initiatives were discussed in the September/October 2007 Public Works Digest.*)

During my tenure with the Navy, energy managers were proactive in developing energy awareness in the workplace through newsletters, posters and by distributing energy campaign materials during the annual celebration of Energy Awareness



Cecile Holloway
Photo courtesy of Cecile Holloway

Month. We invited the utility service providers to get involved with the celebration, too.

The building monitors at the installation levels were continually engaged in using checklists for monitoring their assigned buildings. To ease manual monitoring of energy-consuming equipment, control devices were installed to automatically shut down air conditioning and lighting in hallways, office spaces and bathrooms.

We also encouraged the energy managers to become certified, continuously learn about new technology through energy workshops and symposia, develop everyday energy awareness and participate in Tiger-Team initiatives. Tiger Teams are routinely used by the Navy to focus on a particular issue or problem.

The Navy established a Tiger Team of energy professionals to perform audits and surveys of "low-hanging" energy conserva-

tion measures for installations. The Energy Tiger Team's efforts were centrally funded, and the team spent a maximum of one week auditing and surveying an installation.

The team provided its recommendations to the installation or headquarters and followed up quarterly until the recommendations were fully implemented. Sometimes, the recommended ECMs could be employed without any additional resources.

We leveraged the use of Energy Savings Performance Contracts and Utility Energy Service Contracting in implementing the ECMs recommended by the energy service companies or utility service providers. The Energy Team was creative in finding alternative resources to develop these ECMs, since Energy Conservation Investment Program funds are limited to renewable energy projects.

These two types of contracting vehicles — ESPC and UESC — were instrumental in providing upgrades to the utility infrastructure and facilities mostly in steam plant decentralization or distributed steam generation. Through UESC or ESPC, we also improved the existing processes by employing solar for domestic water heating; using compact fluorescent lighting, T-8 lamps and daylighting technology in high bay areas; making use of efficient gas-fired boilers; and installing control devices.

The success of using ESPC and ➤

Acronyms and Abbreviations	
DoD	Department of Defense
ECM	energy conservation measure
ESPC	Energy Savings Performance Contract
UESC	Utility Energy Service Contracting

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other users within Fort Benning to sort and print reports of the data.

The Fort Benning advanced meter software program allows the user to access the data for a building by direct manipulation of the database or, graphically, by using a GPS-linked mapping application. The mapping application allows the user to point and click on a building and call up the electric meter for that building.


As of July, 120 advanced meters have

been installed at Fort Benning with another 80 meters to be installed over the next six months. TWACS equipment will be installed in the remaining four substations over the next two years with the buildings powered from these substations also tied into the system.

Electrical usage data is currently being collected by the system from all of the installed advanced meters. This data will then be used to monitor and reduce energy use at the buildings with the highest

usage rates.

POCs are Steve Dudley, 706-392-6102, George.Dudley1@conus.army.mil; Michael Aident, 865-694-7333, michael.aident@shawgrp.com; and Vernon Duck, 706-545-0922, vernon.duck@us.army.mil.

Steve Dudley is the resource manager, Shaw Environmental & Infrastructure, Fort Benning, Ga.; Michael Aident is a controls engineer, Shaw Environmental & Infrastructure; and Vernon Duck is the energy manager, Directorate of Public Works, Fort Benning. 



Energy reduction: Aiming high by going for zero

by Bill Stein

The Army is showing leadership within the government with a new program called Net Zero Energy Installations. So, what is an NZEI? A net-zero-energy building is one in which the energy used on an annual basis is equal to that produced at that same building. The NZEI Program draws the circle around the entire installation so that the installation produces as much energy on an annual basis as it uses.

This calculation includes both thermal and electrical energy. It also includes water.

The Army has set a goal of having five NZEIs by 2015 and 25 NZEIs by 2025. While the current federal goal is to design and construct new buildings to 30 percent better than the American Society of Heating, Refrigerating and Air Conditioning Engineers' energy standards, installations will have to do much more than the minimum to reach the NZEI goal.

On a whole-installation basis, reaching the NZEI goal means reducing the total use by as much as 70 percent using effi-



Bill Stein
Photo by Mike A. Dial, Fort Huachuca, Ariz.

ciency measures and providing the remaining 30 percent demand by on-site electrical and thermal energy production. This on-site production would be provided by renewable energy, such as biomass, biogas, geothermal, solar, wind or any other local fuel or energy supply.

How much will all this cost? It is estimated that to bring an installation to net-zero energy and water use will require an expenditure of about 12 times the annual cost of energy and water.

So, how do we get there from here? Alternative financing is the key. The vast majority of the projects that will help

achieve the goal will involve contracts such as power purchase agreements, enhanced-use leases, Utilities Energy Services Contracts, Energy Savings Performance Contracts, and available rebates and loan programs from local utilities.

One of the first installations to pursue the NZEI Program is Fort Irwin, Calif. Fort Irwin is looking at various options, focusing on solar thermal electric power generation, wind power generation and a waste-to-energy power plant. The installation is exploring the use of the various alternative financing mechanisms mentioned above with the goal of achieving these projects in one to three years.

Fort Carson, Colo., and Hawthorne Ammunition Depot, Nev., are in line for net-zero-energy efforts as well.

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Bill Stein is the manager of the Renewable Energy Program and the Net Zero Energy Installations Program, Facilities Policy Division, Office of the Assistant Chief of Staff for Installation Management.

Acronyms and Abbreviations

NZEI	Net Zero Energy Installations
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UESC depended on the team's effort and the aggressiveness of the project leader, the contracting officer, the contracting officer's technical representative and, most of all, a good working relationship with the energy service companies or utility service providers.

We developed plans of action and target dates to award these ECMs by using the typical approach of a year-plus-one implementation — i.e, design/survey the first year and execution the next year. The execution of the planned program was tracked monthly and the results provided to upper management. Due to the diligence of the team, the Navy Washington

region awarded and implemented three UESCs in fiscal year 2008 alone.

The Army conducts a similar program at installations called Energy Awareness and Conservation Audits. The program uses contract energy professionals, who are accompanied by Installation Management Command personnel from the headquarters or region.

POC is Cecile Holloway, 703-604-2452, cecile.holloway@us.army.mil.

Cecile Holloway, formerly of the Navy Engineering Command, Washington, D.C., is a support staff engineer for utility and energy issues, Office of the Assistant Chief of Staff for Installation Management.

Call for ARTICLES

The September/October 2008 issue of the Public Works Digest will feature

Energy and Water

Deadline is August 19

Submit articles to mary.b.thompson@usace.army.mil 202-761-0022



Building the bench for Career Program 18

by Lt. Gen. Robert L. Van Antwerp

When do you transform the Army? When you are at war and have the resources and “real-world classrooms” to test things out. When do you build the bench and needed competencies in Career Program 18? When you have the largest workload since World War II, maybe in our history, and the resources and real-world classrooms to train the next generation and test things out.

To move from good to great, we need “Level 5” leaders. We need the right people, disciplined people, on the CP-18 bus and in the right seat on the bus. We need to be “Army Strong” at all levels, from new personnel to the most experienced, with a good balance of diversity — age, ethnicity, gender and education. We need leaders in their fields, certified as professional engineers and project management professionals, and licensed to professionally practice their craft.

Context: the largest workload; an aging infrastructure; an aging workforce with thousands of baby boomers eligible to retire in the coming years; a shortage of college graduates with degrees in science, technology, engineering and math; and, meanwhile, other countries, like China and India, graduating about three to five times as many engineers per capita as we are in the United States.

Many of you have heard me talk about the walnuts-and-rice jar, walnuts being the big priorities. Well, improving technical competency is a walnut. We have a limited period of time because of the workload-created opportunity — three to four years — to turn the trends around and build the force so it is “Built to Last!”

We have already begun to take a number of initiatives. We held a National Technical Competency Workshop at U.S. Army Corps of Engineers’ headquarters, in which



Lt. Gen. Robert L. Van Antwerp
Photos by F.T. Eyre

representatives from academia, private industry, contract partners, customers and professional societies, as well as teammates from each USACE division and headquarters senior leaders tackled the major challenges we face on this issue. It was also a major focus at this year’s ENFORCE, the annual engineering conference, at Fort Leonard Wood, Mo.

Some of the initiatives we’re considering address training and equipping our current workforce, recruiting at the national, regional and local level, and motivating students to study math and science.

Regarding the current workforce, we want to ensure CP-18 employees are challenged and growing their skills by giving them the right amount of technical work to do. We also want to help our teammates achieve the technical certification in their career field. We’ll be considering a beefed-up Training-with-Industry program and looking for opportunities to bring the trainers to the Army. That may include more frequent use of virtual training programs, where appropriate.

We could use a more structured mentorship plan, to make sure our employees are getting the guidance, support and training

they need throughout their career life cycle. I hope to foster an environment where the staff is part of a lifetime of learning and teaching.

And, we need to be diligent with exit interviews when our teammates leave the organization to gather that anecdotal information about how to better retain our quality staff members.

Looking to the future, the Army has to become the employer of choice for new graduates in technical career fields, or even for established professionals who are looking for that mid-career change. We have to make sure people know what we do and what opportunities exist within CP-18, regardless of organization and location.

For example, USACE’s New Orleans District uses some innovative ways to build the bench in the Big Easy, such as networking and building relationships with faculty at universities, deans of engineering schools and professors who are tapped into the skills and strengths of particular students. Of course, this supplements, not replaces, traditional recruiting at career fairs and other direct-to-students efforts.

We are going to target our recruiting more appropriately to the specific competencies we will need in the future, as a result of our gap analysis. So, we’ll seek out specific skills, such as geotechnical or Geographical Information System, and reach out to students and institutions with those strengths. To be built to last, we have to have people who are masters in their trade as well as pentathletes. ➤

Going from good to great is:

- delivering superior performance in all missions;
- setting the standards for our profession;
- having a unique, positive impact on our nation and other nations; and
- building a civilian engineer corps to last.

Acronyms and Abbreviations

CP-18	Career Program 18, Engineers and Scientists – Resources and Construction
USACE	U.S. Army Corps of Engineers



Huntsville Center offers electronic security, intrusion detection systems training

by Jenny Stripling

In the aftermath of 9/11, a greater emphasis on new technology and higher levels of security for military facilities worldwide emerged. Installations are upgrading, and in some cases installing, electronic security systems that support higher levels of security.

Electronic security design

The Mandatory Center of Expertise for electronic security systems, located at the U.S. Army Engineering and Support Center, Huntsville, offers the ESS Design Course to train professionals on the proper selection and application of current, state-of-the-art equipment and software. The course gives participants the basic knowledge and skills necessary to contribute to an ESS design.

Instructors begin preparation and planning of course material between October and December yearly, with course sessions running from mid-January through Sep-



tember. In a typical year, the ESS Design Course offers four sessions at the dedicated training facility at Redstone Arsenal, Ala., and three sessions at various locations both in the United States and overseas. In the past three years, mobile training teams have visited Florida, Virginia, Massachusetts and Washington, D.C., as well as Germany, Japan, Korea and Hawaii.

There is one ESS Design Course session scheduled in the remainder of this fiscal year. It will be offered at Destin, Fla., Aug. 18-22. The FY 2009 schedule is being planned. To find out more or to register for the course, e-mail: Contact-ESC@usace.army.mil.

"We usually travel overseas where there is a concentration of U.S. military person-

nel. If it's a task for them to come here, we go to them," said lead instructor Charles Malone. "The course can also be taken remotely within the U.S., but we strongly encourage students to come to our main training facility at Redstone, because it has all of the live equipment, classrooms, the whole works. They can actually see the types of systems they are going to be designing."

Each session begins on a Monday morning and ends on Friday for a total of 36 hours of organized classroom instruction. According to Malone, students are given lectures on the systems along with a hands-on experience that ensures adequate training and understanding of ESS.

"One week of the program gives our students an understanding of technology and equipment used in electronic security, such as card access, video cameras and intrusion detection," Malone said. "They put their knowledge of these security systems to good use by creating an ESS design, deciding what security equipment they should use, how to use it and why."

On the first day of class, students are given a one-page problem statement. ➤

Acronyms and Abbreviations	
ESS	electronic security systems
ICIDS	Integrated Commercial Intrusion Detection Systems
MCX	Mandatory Center of Expertise

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This is the beginning of getting the good-to-great flywheel in motion. We are just getting it started, and as we continue to focus on improving our technical competency and building a bench of disciplined people, we will gain momentum.

Thanks for joining in this critical walnut. When you look back four to five years from now and see a CP-18 corps that is built to last, you will have left an indelible print on our profession and our nation.

Essayons!

Lt. Gen. Robert L. Van Antwerp is chief of engineers, commanding general of the U.S. Army Corps of Engineers and functional chief of CP-18.

Walnut-and-rice jar

I have a jar full of walnuts and rice in my office that I often take on the road when I am going to talk about priorities. The walnuts represent the priorities, and the rice represents all the other stuff that gets in the way but has to be done all the time.

If you dump out the jar and put the rice back in first and then try to add the walnuts, they won't fit. You'll end up breaking some walnuts when you try to close the jar. If you put the walnuts in first, then add the rice, the rice will work itself around all the walnuts and fit in where it can.

The message is: tackle the priorities first, and then fit all the other stuff in as you can.





PROSPECT excellent source of Public Works training

by John Krajewski

The U.S. Army Corps of Engineers Learning Center at Huntsville, Ala., offers more than 220 Proponent Sponsored Engineer Training courses. More than 60 of the PROSPECT courses are Directorate of Public Works-specific or DPW-related. The full schedule and descriptions of DPW and all other PROSPECT courses are available at the ULC site, <http://pdsc.usace.army.mil/>.

The fiscal year 2008 course program is winding down, but there are still openings for select courses. DPW-oriented PROSPECT courses, along with their web pages, offered in the next 60 days with seats available are:

DPW Budget/Job Cost Accounting

Course No. 981

Aug. 4-7, Huntsville, Ala.

<http://ulc.usace.army.mil/CourseListDetail.aspx?CtrlNbr=981>

Peal Property Master Planning Visualization Technology

Course No. 948

Aug. 18-22, Huntsville, Ala.

<http://ulc.usace.army.mil/CourseListDetail.aspx?CtrlNbr=948>



John Krajewski
Photo by Mary Beth Thompson

National Electric Code Seattle Course No. 78

Aug. 18-22, Raleigh, N.C.

<http://ulc.usace.army.mil/CourseListDetail.aspx?CtrlNbr=78>

The FY 2009 catalog of courses, “the Purple Book,” is now available. Review the course schedule and register early; many courses fill up fast.

All in the DPW business should become familiar with and make use of the ULC training opportunities. Interns should take advantage of the fact that Department of the Army intern funds are available to pay for participating in appropriate PROSPECT courses.

Acronyms and Abbreviations

DPW	Directorate of Public Works
FY	fiscal year
PROSPECT	Proponent Sponsored Engineer Corps Training
ULC	USACE Learning Center
USACE	U.S. Army Corps of Engineers

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John Krajewski is an engineer, Public Works Division, Headquarters, Installation Management Command.



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Working in six-person teams, they have to design a system that meets the security objectives without exceeding the budget. Each team works on the problem the entire week and gives a group presentation on its design at the culmination of the course.

Cathy Works, an intern with the Security and Intelligence Branch of Headquarters, U.S. Army Medical Command, attended the course in April. She came into the course not knowing how much she really did not know about electronic security systems.

“By the end of the week, I was more knowledgeable on many aspects of electronic security systems and the individual components that comprise various systems,” Works said. “As an intern, I am required to attend various security-related courses and training sessions. This is one

of the most interesting courses I’ve taken in the past seven months.”

Intrusion detection systems

In addition to the ESS Design Course, Huntsville Center’s Electronic Security Center also provides the Integrated Commercial Intrusion Detection Systems Operator Training Course and the ICIDS III System Administrator Training Course, both offered at a state-of-the-art facility on Redstone Arsenal.

“This is the only training site for ICIDS,” said Ken Haynes, the MCX technical deputy. “We were able to set up a facility on Redstone and offer hands-on training to students.”


ICIDS are in place or installed at various government facilities. Through the operator’s training, students learn how to run a variety of intrusion detection systems and alarms, and how the ICIDS

works in conjunction with these. The system administrator course is designed to provide them with the skills required to successfully operate and manage a functional ICIDS III.

Recently, the classes offered have been a combination of operator’s training the first half of the week and the system administrator course the last half to avoid the inconvenience and expenses of travel. The two ICIDS courses go hand-in-hand, one building on top of the other.

Course calendars and information for ESS and ICIDS training can be found at <https://eko.usace.army.mil>. Click on “Training” in the left menu.

POC is Jenny Stripling, 256-895-1235, jenny.stripling@us.army.mil.

Jenny Stripling is a public affairs specialist, U.S. Army Engineering and Support Center, Huntsville, Ala. 



Mold remediation workshop to be presented in October

by James Dalton

Training will be offered to help U.S. Army Corps of Engineers design and construction engineers and Army Directorate of Public Works staff with mold and mildew remediation for new construction, major renovations and existing buildings. The week-long workshop will be held in Fayetteville, N.C., at the Doubletree Hotel Oct. 20-24.

It is very important that Corps Engineering and Construction staff and Army DPW staff be effectively trained in mold and mildew remediation. This is especially important for project managers of new construction and renovation projects, architects, structural engineers, heating, ventilation and air conditioning designers and HVAC controls designers, and installation energy managers, master planners, and

operations and maintenance personnel.

The workshop will include three days of classroom training at the hotel and two days of hands-on training at Fort Bragg, N.C.

There is no tuition charge for this training for Corps or Army installation personnel. Private sector attendees will be accommodated at no tuition charge on a space-available basis.

The Engineer Research and Development Center will conduct the workshop. This training has already been paid for by Headquarters, USACE, so you are

responsible only for any salary, travel and per diem. The workshop will start at 8 a.m. Monday and end at 3 p.m. Friday, so plan on five full days. Transportation will be provided from the Doubletree Hotel to and from Fort Bragg, so rental cars will not be needed to accomplish the training.

To attend this course, please e-mail your name and contact information to Dale Herron at ERDC, dale.l.herron@usace.army.mil. To reserve a sleeping room, contact the Doubletree Hotel before Sept. 19 at 910-323-8282 and ask for the U.S. Army workshop group rate.

POC is Gary Bauer, 202-761-0505, gary.g.bauer@usace.army.mil.

James C. Dalton is the chief of Engineering and Construction, USACE.

Acronyms and Abbreviations	
ERDC	Engineer Research and Development Center
HVAC	heating, ventilation and air conditioning
USACE	U.S. Army Corps of Engineers

Training-with-Industry opportunity available

by Ed Gauvreau

The call for applications for CP-18-funded Training-With-Industry for fiscal year 2009 was announced in July by Robert Slockbower, functional chief representative for Army Career Program 18. The selected applicant will receive on-site training in turbine mechanical engineering or turbine hydraulic engineering from Voith Siemens Hydro Power Generation, a hydro turbine manufacturer.

The duration of the assignment is from 121 days to one year. Pay Band-2 or General Schedule-11 and above employees may apply.

Applicants will be evaluated using the following criteria:

- individual technical and professional merit;
- ability to share the knowledge gained within the participant's community of practice;
- ability to enhance effectiveness as a result of the program; and

- ability to improve working relationships with counterparts in private industry.

Application packages should address the above factors, as appropriate, and include:

- application for Army Civilian Training Education Developmental System training opportunities;
- endorsements through the applicant's chain of command;
- nominee's Statement of Interest;
- utilization plan;
- Functional Review Form;
- Agreement to Continue in Service;
- Résumé using the Army Résumé Builder;
- Last three performance ratings;
- Request for Central Resource Support Form; and
- SF 181.

All applications must be complete with all requested materials and command endorsements. Incomplete applications will not be evaluated. A checklist and online

forms are available at http://cpol.army.mil/library/train/catalog/pkt_frcpd.html.

Submit application packages to: Brent L. Mahan; Director, Hydroelectric Design Center; P.O. Box 2946; Portland, OR 97208-2946. Mahan can be reached by phone at 503-808-4200, by fax at 503-808-4202 or by e-mail at brent.l.mahan@usace.army.mil.

Applications must arrive at the Hydroelectric Design Center by Friday, Aug. 22.

Decisions on acceptance into the program are subject to availability of funds.

Additional information can be found at <http://cpol.army.mil/library/train/catalog/ch03cp18.html>.

POC is Ed Gauvreau, 202-761-0936, edmond.g.gauvreau@usace.army.mil.

Ed Gauvreau is the CP-18 functional POC.

Acronyms and Abbreviations	
CP-18	Career Program 18, Engineers and Scientists – Resources and Construction



Spencer leads Corps' Installation Support Branch

by Mary Beth Thompson

E. Trent Spencer, the U.S. Army Corps of Engineers' new Installation Support Branch chief, is all about installations. He talks the talk, and he has walked the walk.

Spencer arrived at Headquarters, USACE in January from Fort Eustis, Va., where he was the director of Public Works. Spencer has also been the DPW for the U.S. Army Garrison Vicenza, Italy and the director of Engineering and Housing at Bindlach, Germany.

In addition to being the Installation Support Branch chief, he serves as the deputy chief of the Installation Support Community of Practice for USACE.

Spencer earned a bachelor's degree in civil engineering from Mississippi State University. He also has a master's degree in



E. Trent Spencer
Photo by Mary Beth Thompson

program management from Florida Institute of Technology. Of his 27 years with the federal government, he has spent 22 years in the DPW arena.

"I have worked in all the [DPW] divisions," Spencer said. "They wanted someone who has actually been out there and done these types of jobs to run this part of the USACE organization."

As the chief of the Installation Support Branch, he manages a program that makes engineer resources available across USACE and provides technical support to Army

commands and installations worldwide. His team renders centralized support to the Office of the Assistant Chief of Staff for Installation Management and the Installation Management Command in areas such as commercial utilities contracting, production of the *Public Works Digest*, and providing USACE liaisons and project manager forwards.

Spencer also works closely with USACE's Engineering and Support Center in Huntsville, Ala., on the actions they take in support of installations. His position gives him the opportunity to work with other subject matter experts from across the broad spectrum of USACE, IMCOM and ACSIM.

"Coming from an installation, you had basically a chain of command that you reported to," Spencer said. "Here, I branch out, and I can talk and work with people in ways I wasn't able to do before."

Two of the hotter issues on which his team is currently working are mold prevention in the barracks and energy

Acronyms and Abbreviations

ACSIM	Assistant Chief of Staff for Installation Management
DPW	Directorate of Public Works
IMCOM	Installation Management Command
USACE	U.S. Army Corps of Engineers

Boaz takes over as Northeast Region Public Works chief

Charles "Chuck" Boaz Jr. returned to federal service as the chief of Public Works, Installation Management Command, Northeast Region, after working in industry as an architecture integration analyst for Global Science and Engineering Solutions, a Division of L-3 Communications.

A distinguished military graduate of The Citadel, Boaz was commissioned as an engineer officer in 1981. He holds a bachelor's degree in civil engineering and a master's degree in management from Troy University. As an engineer officer, Boaz served in a variety of troop and staff assignments spanning all aspects of Army engineering, combat and training development, and special staff functions.



Charles "Chuck" Boaz, Jr.
Photo by

He credits his time with the Norfolk Engineer District for teaching him the business of the Army and his time as the director of Public Works and Logistics at Fort Monroe, Va., for helping form a

simple philosophy that he uses today. Just be CORRECT — competent, objective, resourceful, respectful, ethical, confidential and trainable.

To say he's excited about being back in the fold is an understatement.

"I've been serving and building for this country, its Soldiers, Families and allies for over half my life," Boaz said. "The idea of continuing to serve and contribute has always been at the forefront of my desires. To be selected to lead such a great team is humbling."

Article courtesy of Installation Management Command, Northeast Region Public Affairs.





Gauvreau heads Corps' Programs Branch

by Mary Beth Thompson

Ed Gauvreau considers himself a student of history. He brings to the job a desire to look for perspective in the happenings of the past that can be applied to current situations. Gauvreau is the new chief of the Programs Branch in the Installation Support Community of Practice at Headquarters, U.S. Army Corps of Engineers.

"I like to look for context," Gauvreau said. "I look into the past and, in any job I've had, certainly always asked where we've been to get background before we go forward."

He is also committed to using his own history — applying his experience — to assisting Army installations.

"I started at installations," he said. "I understand the challenges that anybody working at a garrison or a DPW [Directorate of Public Works] goes through on a daily basis to keep the base running."

Gauvreau received a bachelor's degree in architecture from the University of Notre Dame. Putting his degree to work for the federal government, he spent several years at Army and Navy installations as a designer and as a project manager. Later, he came to USACE Headquarters in Washington,



Ed Gauvreau
Photo by Mary Beth Thompson

D.C., and last year, he added a master's degree in public administration from American University to his credentials. Many employees are familiar with him through his role as the program manager for Career Program 18.

"Even though I've spent a great deal of time in Washington, I've never forgotten those experiences, and I always keep in mind that it's the folks down on the ground that really get the work done," Gauvreau said. "What I see as my role here is to find ways to help make them be more effective there. I want to create solutions, not more problems."

As the Programs Branch chief, he oversees a team that handles real property master planning, readiness and modernization support, the Defense Critical Infrastructure Protection Program, and the information technology management tools called PAX (Programming Administration and Execution) and CAPCES (Construction Appropriations Programming Control and

Execution System).

Currently, Gauvreau is working on several short-term tasks, including filling vacancies and determining future needs, as he becomes acquainted with his new responsibilities.

"The big challenge is that you're looking at a much bigger picture — dealing with a much broader perspective," he said. It's not just what the branch does, but how it fits into the larger organization, as well as Installation Management Command and the Office of the Assistant Chief of Staff for Installation Management, he explained.

"Since the ISCoP includes the former ACSIM-IMCOM team, we always had the requirements for those relationships," Gauvreau explained. "They've just become more paramount, particularly with the reorganizations currently going on at both ACSIM and IMCOM."

Finding the ways that USACE can best serve those organizations is the goal. Gauvreau is looking forward to seeing familiar faces and meeting new ones at various venues where ways to improve life for Soldiers, their Families and civilians can be explored.

"The Army is a Family; it's an organization that we are all an intrinsic part of," he said. "We should be finding ways to improve the whole, and I try to carry that through."

Mary Beth Thompson is the managing editor of the *Public Works Digest*.

Acronyms and Abbreviations

ACSIM	Assistant Chief of Staff for Installation Management
IMCOM	Installation Management Command
ISCoP	Installation Support Community of Practice
USACE	U.S. Army Corps of Engineers

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initiatives. Spencer is also nurturing an initiative to develop a Public Works hotline. Coordinated with ACSIM and IMCOM, the hotline would provide a number for DPWs to call with questions or to seek answers to problems that require special expertise.

"It will be an avenue for people to come through and get information," Spencer said. "A lot of what we're trying to do is,

of course, market the services we have here at USACE, because we do have a lot of specialized and very technical services that IMCOM, ACSIM and a lot of installations do not have anymore.

"The Corps — USACE — has a lot of people out there who can provide assistance," he said. "If we can't find one internal to the Corps, we'll find some specialized agency that does have that background. So feel free to call on us when you

need us."

His "how-can-we-be-of-service" attitude summarizes how Spencer sees his role as a "go-to" resource for installations.

"I want them to think of me as someone they can talk to if they need some advice or some kind of support," he said. "We are here to do that."

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U.S. ARMY INSTALLATION MANAGEMENT COMMAND

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