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In This Issue...

Sustainable Design and Development (SDD)

US Army Corps of Engineers®

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LETTER FROM THE EDITOR

"The earth belongs to each generation during its course – no generation can contract debts greater than may be paid during the course of its own existence." These words can be attributed to Thomas Jefferson, third President of the United States, and they are still echoed throughout our government halls today under the umbrella of Sustainable Design and Development or SDD.

Since the Army plans to implement SDD at all of its installations, the August/September 2001 issue of the Public Works Digest provides a guide to just about everything you need to know about sustainable design and development. Harry Goradia, HQUSACE, explains how the Army is launching its SDD program and John Scharl, OACSIM, provides an update of what we've done with SDD so far as well as the plans for the future. Rik Wiant, HQUSACE, shares his views on the relevance of master planning to sustainability.

In addition, there are several articles from the Construction Engineering Research Laboratory (CERL), which is heavily involved in the implementation of SDD. Brian Deal discusses the impact of "encroachment" as military installations interact with private communities, while Annette Stumpf introduces CERL's SDD web page.

Several installations wrote about what they are doing to meet the mandate to incorporate SDD when designing, constructing, operating, reusing or removing the built environment and how they are doing these things in an environmentally and energy-efficient manner. By applying SDD, they can ensure that the Army continues to lead the nation in building an environmentally friendly and energy efficient future. The experiences of Forts Bragg, Lee and Monmouth are presented as lessons learned, both good and bad, based on design charrettes.

The Automation section details the development and application of measuring tools, such as LEED and SPiRiT, to track the progress of SDD.

On another note, the Installation Support Division was saddened by the transfer of several long-time key members working with real property management systems like IFS to the Office of the Assistant Chief of Staff for Installation Management (OACSIM). Tony Vajda, Stu Grayson, Bob Nichols, Jeri King, Darlene Fuller and Jeff Orgel will be sorely missed. Read about the reasons behind this move and how it may impact your installation in Randy Klug's article on the inside back page..

Mark your calendars for the DPW Training Workshop, which will take place at the Doubletree Hotel in Crystal City, Virginia, 11-13 December 2001. DPWs, start planning now! Don't miss this opportunity to get the latest on SDD and all those things you need to be familiar with to keep your installation humming.

The October 2001 issue of the Digest will feature news in the energy arena. Please note that the call for articles deadline, which normally has a three-week window, has been extended by a week. Due to numerous requests, I have pushed back the deadline to September 14 to compensate for time lost due to end-of-summer vacations.

Until next time…

Alexandra K. Stakhiv

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Army launches Sustainable Design and Development Program

by Harry Goradia

Harry Goradia

Sustainable design and development (SDD) can be described as a *holistic* way to approach planning design, construction and demolition. An integrated design undertaking, it emphasizes a whole system plan, multidisciplinary teams, and improving environmental goals and procurement practices.

SDD is not a new concept. It goes back to the Greece of Aristotle and Colonial America of Thomas Jefferson. More recently, in 1996, the President's Council on Sustainable Development published a report that identified three overarching areas (efficiency, environmental health and social well-being and equity) in which to strive for balance as part of promoting the principles of SDD. To achieve sustainable goals, the Council's report stated that these considerations are interdependent and should be followed simultaneously, in a balanced manner.

Recent Executive Orders and the strong support of our Army leaders have rejuvenated interest in the SDD concept. This renewed emphasis has enabled the Office of the Assistant Chief of Staff for Installation management (OACSIM) and the US Army Corps of Engineers (USACE) to develop the Army's SDD program so that the Army can build healthier and more livable communities for our personnel.

To improve mission capabilities and quality of life at its Army bases, the Department of Army has developed a policy to create Sustainable Army Communities. This Sustainable Army Communities Policy calls for incorporating the principles of SDD into ***all*** actions and decisions that affect Army installations.

While today's SDD has many definitions, USACE has adopted one that practicing engineers and architects can associate with easily. This definition appears in the USACE Technical Letter (ETL) 1110-3-491:

"SDD is the design, construction, operation and reuse/removal of the built environment in an environmentally and energy efficient manner. It meets the needs of today without compromising the ability of future generations to meet their needs."

By now, all of our DPWs, USACE Districts and MACOMs should have heard about the USACE/DA Sustainable Design and Development (SDD) program. This systematic, engineering process provides guidance on how-to-do-it, checklists, tools and scoring systems that integrate environmental concerns into the design and development process.

Architect/Engineer (A/E) communities feel that many of the things they do inherently have some, if not all, sustainable features built into our professional products. Much of the USACE technical guidance has incorporated SDD. However, we still need measuring tools to track our progress as we design greener and greener facilities.

The U.S. Green Building Council (USGBC), which is made up of volunteers, developed a rating tool called Leadership in Energy and Environmental Design (LEED). This tool is used extensively by practicing A/Es. Many local and state authorities have developed their own tools.

The Army has enhanced LEED by adding some military specific criteria and is calling it the Sustainable Project Rating Tool (SPiRiT). (See article on p.) SPiRiT allows us to score our designs for sustainability with four levels of achievement, Bronze, Silver, Gold and Platinum.

Recently issued DA and USACE policies require all Army projects to be scored against SPiRiT and to achieve the Bronze level. To help educate our practicing designers, USACE has conducted SDD workshops at every District designing military facilities.

The OACSIM and USACE are currently in the process of identifying some projects in FY 02 and beyond as SDD showcase facilities. The intent is to achieve a higher level of sustainability in these projects and validate life cycle cost effectiveness of some of these measures. I encourage you to nominate suitable projects for consideration by contacting John Scharl at (703) 428-7614 at ACSIM.

There are a few projects currently underway at our installations that are using SPiRiT and their progress is reported in this issue of the Digest. (See articles on pp)

As Corps districts start adopting SPiRiT, we will learn many lessons. The Construction Engineering Research Laboratory (CERL) web page (http://www.cecer.army.mil/SustDesign) will post these lessons learned. The web page also has frequently asked questions that may be useful to designers.

Since SDD means integrating the decision-making process across Army installations, all our decisions need to be based on the greatest long-term benefits. The concept of "cradle-to-cradle" must be strictly adhered concurrent with the elimination of waste. We must go even further and recognize the interrelationship of our installation actions with the world around us.

There are many benefits that installations can gain from applying SDD, not the least of which is enhancing quality of the life for soldiers and civilians and their families. In addition to being in compliance with the Executive Orders for "Greening the Government," installations can achieve better designs, leading to better mission performance through increased productivity.

Sounds great, right? So how do we ➤

Sustainable Design and Development—the Army just got Greener!

by John Scharl

Sustainable Design and Development (SDD) is an evolving concept and process for the systematic consideration of current and future impacts of an activity, product or decision concerning the environment, energy use, natural resources, the economy and quality of life.

The preamble of Executive Order 13123, "Greening the Government through Efficient Energy Management" states that: "…with 500,000 buildings, the Federal Government can lead the Nation in energy efficient building design, construction, and operation. As a major consumer that spends $200 billion annually on products and services, the Federal Government can promote energy efficiency, water conservation, and the use of renewable energy products, and help foster markets for emerging technologies."

EO 13123 established goals for greenhouse gases reduction, energy efficiency improvement, industrial and laboratory facilities, renewable energy, petroleum, source energy, and water conservation. It also mandated federal agencies to adopt sustainable design and development principles.

In April 2000, the Deputy Assistant Secretary of the Army for Installations and Housing established the Army's policy incorporating SDD principles into installation planning and infrastructure projects. The OACSIM was charged with implementing the SDD policy and USACE providing the supporting technical guidance.

The following are some key SDD policy accomplished to date:

- ACSIM policy memorandum sent to MACOMs.
- Sustainable information site established on ACSIM web-page.
- Presented SDD at DPW and MACOM Commander Workshops.
- SDD included in revised Army Energy Plan.

John Scharl

- Published SDD information brochure for Garrison Commanders
- Partnering with National Academy of Science's Sustainability Working Group and U.S. Green Building Council.

Additionally, over the past year, USACE developed and conducted SDD training workshops for COE and installation facility planners and designers at select Corp Districts; held the first ➤

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do it? The process involves integrating the principles of SDD into planning and development actions; and infrastructure project life-cycle planning, programming, design, contract, construction, operation, maintenance, renovation and disposal processes.

We need to do it now and we need to do it to the fullest extent possible while balancing funding constraints and the requirements of our customers.

The Assistant Chief of Staff for Installation Management and the US Army Corps of Engineers are taking specific actions to include SDD into installation master plans and infrastructure projects. The ACSIM has the overall responsibility for implementing the Army SDD policy with supporting technical guidance from the Corps.

Here are just a few of the actions already undertaken by ACSIM and the Corps:

- Incorporating SDD into the Value Engineering Program.
- Showcasing Army MILCON projects.
- Conducting SDD training courses for Army engineers and planners
- Promoting SDD principles at leadership conferences.
- Developing SPiRiT, a Sustainable Project Rating Tool for scoring the sustainability of installation facility projects (see article on p. 20).

What can you do at your installation? The all-important key is to include SDD principles in your installation projects and planning as well as mission statements and strategic plans. It is crucial to establish long-term improvement objectives at every level of your organization. You can start by making SDD training available to DPW personnel.

Further, encourage the inclusion of SDD strategies and "green" clauses in your installation procurements. By doing so, you can lower your initial and life-cycle costs. Also try to use renewable energy sources, such as passive solar heating and photvoltaics, and maximize resource reuse and reuse historic buildings and existing facilities.

We need to incorporate sustainable principles in our facilities not because it is mandated, but because it is the right thing to do. Applying them can provide a healthier working and living environment and it is good for our environment. We want to leave this planet in a better condition for future generations.

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Sustainability encroachment and room to maneuver

by Brian Deal

Understanding sustainable systems is becoming vital for military installations. Globally scaled environmental problems such as climate change, ozone depletion, biodiversity and habitat loss will continue to require changes in the way military installations operate.

In addition, one of the most important sustainability issues facing the entire Department of Defense (DoD) today is rapid urban expansion on the borders of our installations.

DoD maintains over 10 million hectares of training, testing, and facility lands. The continued availability of these resources is critical for the maintenance of readiness and power projection capability. The rapid pace of urbanization outside our installations threatens this availability.

Land use change is resulting from increasing urbanization and population along with the spread of low-density development. For example, in northeastern Illinois a population increase of 4% from 1970 to 1990 resulted in a 46% increase in urbanized land uses.

From a military perspective, understanding urban change is becoming paramount. Extreme urban growth and the resultant sprawling patterns of development have begun to infringe upon the installation's ability to maintain its mission focus.

Some installations' economic and environmental contributions to the local community are becoming outweighed by perceived land use incompatibilities. The incompatibilities (noise, dust, shared resources, land use, land value and availability) arise as the local community expands and competes for available resources.

Eventually the installation's benefit to the community is surpassed by the community's need for the available resources. The post can then be perceived as a barrier to continued local growth. The resulting friction between the community and the installation may interfere with the military's ability to effectively maintain its mission, operations, and land management goals.

Therefore, a clearer understanding of the spatial interactions between the military community, its planning policies and the adjacent private sector community is an important step toward a more complete understanding of possible sustainable development strategies.

Fort Carson, Colorado, is a prime example of an installation where urban growth may now constrain military land use (see Figure 1).

Add to this encroachment an increase in land use constraints inside the installation boundary due to resource protection (threatened and endangered species, etc.) and resource scarcity (water, energy, etc.) and the problem becomes increasingly complex.

Executive Order 13123 requires federal agencies implement sustainable design and development principles for the siting, design, and construction of new facilities. The Corps of Engineers Engineering Technical Letter (ETL) 110-3-491, Sustainable Design for Military Facilities, requires that sustainable design principles be used to create a built environment that optimizes the functionality and operability of the total system.

An assessment of the current state of the DOD's sustainable land use planning policies – "Sustainable Planning; A Multi-Service Assessment" -- concludes that sustainable development is most successful where cooperation between military and civilian communities is maximized.

A clearer understanding of the spatial interactions between the military community, its planning policies, and the adjacent community is an important step toward resolving these issues and forming sustainable development strategies for both the civil and military communities. Research at the Construction Engineering Research Laboratory (CERL) on Sustainability, Encroachment, and Room to Maneuver (SERM) has begun to respond to these challenges.

The SERM work includes:

- Identifying linkage factors and exter- ➤

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Army sustainable charrette at Fort Bragg ($250M Barracks Complex Project) integrating lessons-learned into other barracks design; published ETL 1110-3-491 (SD for Military Facilities); included SDD in Corps Construction Design Guides, Specifications and A/E Selection Criteria; are partnering with industry design and construction community to include SDD in projects; active members of OSD Work Group that Tri-Service Sustainable Planning Guide; and recently joined the US Green Building Council's Leadership in Environment and Energy Development Steering Committee.

Starting 1 June 2001, all Army infrastructure projects are to be evaluated and rated for "sustainability" using the Sustainable Project Rating Tool (SPiRiT). The SPiRiT, developed by the OACSIM and USACE, is a self-evaluation process that will help installations and designers quantify and measure the sustainability of infrastructure plans and projects.

The initial Army goal is for all MACOM and installation projects to achieve a minimum SPiRiT Bronze sustainability rating. Most projects can reach a Bronze sustainability rating without increased costs while still improving installation sustainability and balancing available resources with customer requirements.

To achieve the greatest benefits from SDD, the Army needs to consider and include SDD practices when identifying and justifying initial project costs and their affect on the facilities life cycle costs.

Under current programming and budgeting procedures, many facility projects are focused on primarily justifying first-costs in construction and repair projects. This can result in "designing-out" sustainable strategies and features, because they increase first-cost and opportunities for more significant future savings are lost.

Sustainable and environmentally sound facilities can be built with less ➤

nal urban growth connections that place some military installations at risk.

- Developing the evaluation criteria for: global climate change impacts, installation/community economic, environmental and social interactions.
- Developing a spatially dynamic decision support tools (DSS) tool to simulate the growth patterns of an urban community (the Military Land Use, Evolution and Impact Assessment Model – MLEAM, is underway).
- Developing land use policy scenarios and given evaluation criteria to determine future environmental and land use sustainability impacts.
- Developing a methodology for determining regional sustainable indices as they relate to community interaction variables, climate change and urban risk assessments.

The overall goal is to narrow the gaps in our basic understanding of military and community interactions so we can improve the facility and mission sustainability of Army installations.

Military installations represent unique and difficult-to-replace assets. The encroachment of rampant urban growth is beginning to compromise the fundamental mission and overall sustainability of some of our valued military assets. It is imperative that we better understand the complex relationship between military and civilian communities in order to project a more sustainable future. The SERM research hopes to improve this understanding.

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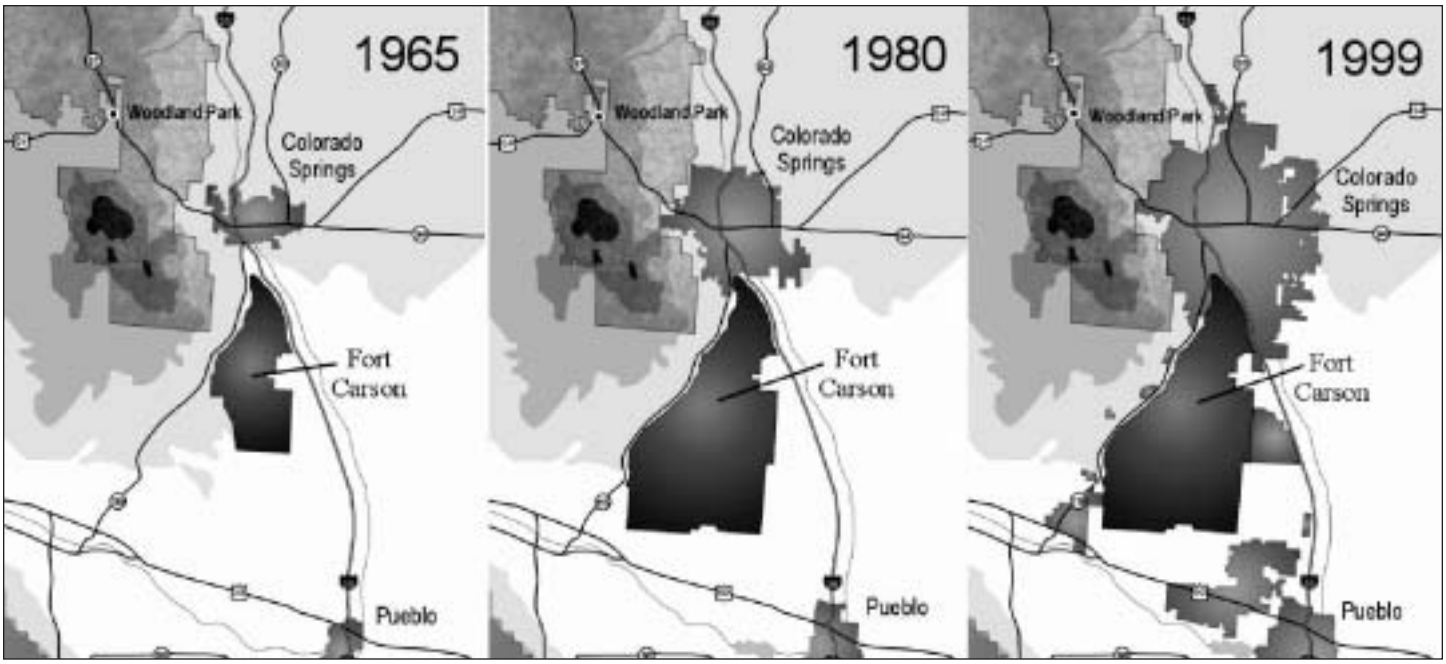

Figure 1. Three time steps showing the growth of Colorado Springs in relation to Fort Carson.

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money. However, the challenge is to consider low-cost strategies along with some higher first-cost strategies that can significantly reduce the life cycle costs of facility projects.

Another key factor in successfully applying Army's SDD program is the need to change the traditional linear project design process to an integrated design team approach. The team should include all the stakeholders, such as the facility owner, users, operators, architects, engineers, designers, planners, energy and environmental managers, contract officers, construction contractor and the public works staff.

Engaging the perspectives and expertise of the various team members throughout the plan, design, build and commissioning process enables the setting and keeping of sustainable goals. It helps in deciding current and future resource priorities, materials, mission needs and building performance; and ensuring contract documents are written to support sustainable design, construction and performance objectives. It also facilitates the team's awareness of how facility systems and materials considered affect initial project and life-cycle costs, operations and maintenance practices, and ultimate facility performance over the facilities lifetime.

Current plans are to designate several MILCON projects each year as SDD Showcase Projects. All installations are encouraged to designate their own SDD Showcase Projects and strive for higher sustainable rating levels (Silver, Gold and Platinum).

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ACSIM/USACE team wins GSA national award for SDD initiative

by Alexandra K. Stakhiv

Each year, federal agencies responsible for the management of federal real property and the workplace develop and implement many good ideas and practices that oftentimes go unrecognized throughout the federal community. The U.S. General Services Administration (GSA) established its annual Achievement Award for Real Property Innovation competition to help recognize the successes of the federal real property community, improve communications, and share the best ideas federal agencies are using.

Entries cover various categories, which encompass best practices in real estate policy, real property management, acquisition, construction, sustainable development, budget, performance, and many more.

This year, a four-member jury of distinguished real property professionals, representing both the public and private sectors, selected the Department of the Army's "Sustainable Army Communities," and GSA's Public Buildings Service's "Linking Budget to Performance" as the two winning entries from the Best Policy category.

The six-member Army team consisted of John Krajewski (Chief, Facilities Policy Division, ACSIM); John Scharl (Engineer, Facilities Policy Division, ACSIM; Harry Goradia (Engineer, Engineering and Construction Division, HQUSACE); Stephen Flanders (Chief, Civil and Insfrastructure Engineering Branch, CRREL); Richard Schneider (Principal Investigator, Engineer Research and Development Center, CERL); and Fredrik Wiant (Installation Planning Specialist, Installation Support Division, HQUSACE). Working together, they developed and are helping to implement the SDD policy for the Army.

Krajewski, who led the Army team, was quick to point out that they also received invaluable assistance and support from other members of their respective organizations.

"This is the second consecutive year that a team led by the ACSIM Facilities Policy Division has received this prestigious award," said Krajewski proudly. "Our award last year was for privatizing utilities."

The winning team: (l to r) Harry Goradia, John Krajewski, Richard Schneider, Stephen Flanders, John Scharl, and Rik Wiant.

GSA is also honoring for the first time three honorable mention entries: the U.S. Department of Transportation's United States Coast Guard's "Shore Facilities Capital Asset Management," U.S. Postal Service's "First Straw Bale Post Office," and Environmental Protection Agency/U.S. Army Corps of Engineers/GSA's "EPA's New Sustainable Campus."

The GSA Office of Real Property (in the Office of Government-wide Policy) will hold the fifth annual Awards Ceremony on October 3, 2001, in Washington, DC, where the winners will receive a plaque and monetary award.

For more information on the program, please contact Pat Rubino, (202) 501-1457. PWD

Is your post *Fat City?*

by Rik Wiant

One of the messages to master planners this year has been that one of the most important steps toward achieving a sustainable installation is reduction of POV (privately owned vehicle) trips. The solutions are generally either mass transit, or "muscle-powered" transit (biking, running and walking).

This was not always well received. When first suggested, "muscle-powered" transportation sounded "dead on arrival." The soldiers "right" to drive from the barracks to the motor pool seemed right up there along with the flag, mom and apple pie – definitely a quality-of-life issue.

Research now shows that suburban sprawl (now typical of many posts) is bad for your health and a major contributor to our current epidemic of obesity. The June issue of American Planning Association's

Sustainabilty and master planning

by Rik Wiant

"Sustainability" has become the latest buzzword in many Army installation conferences. This is surely in part a result of the memorandum from the Deputy Assistant Secretary of the Army for Installations and Housing from a year ago, implementing four critical Executive Orders. But more important, it is because installations are beginning to see sustainability improvements as absolutely necessary, if they are to remain a viable location for their mission forces.

Sustainability is critical to readiness. The realization comes in several forms - in the escalating cost of energy, in threatened water rationing, in training restrictions due to threatened and endangered species, or reductions to reduce noise in adjacent suburbs, or in the inability to open a new landfill. We might even see a day when the Environmental Protection Agency (EPA) or a local air quality district would ask commercial and government operations to reduce vehicle usage, postponing field training events.

Typically, installation responses have been limited and piecemeal, even though the problems are interconnected. Often the master planner has not been involved in the installation response. In the short run, this may gain some minor improvements, but major improvements demand holistic solutions, and these always have a real property dimension.

This is immediately apparent when an installation, like Fort Bragg recently, decides to take a long-term look at what it will take to be come "sustainable." (See p. 13) The 17-18 April Conference pulled leaders from across the installation, as well as from North Carolina state agencies, EPA and other Army activities.

Broken into several thematic groups (e.g., buildings, energy, water supply, etc.), the conference participants came up with both creative solutions and aggressive goals. But it was immediately apparent that many of these were interrelated, and dependent for success on improvements to the built environment. For example, alternative fuel vehicles could improve air quality, but they will require new fueling stations. Similarly, some reduction of vehicle trips might be possible by promoting commuting by bicycle, but to feasible, there need to be bike lanes and opportunity to shower and change at the worksite.

But even more important than coordinating the activities necessary for these measures to be successful, there has to be a process for evaluating those with the most potential for meeting installation goals. No one can afford all these good ideas, so there needs to be a trade-off analysis, similar to that used in a planning charrette for a "green building," using the new Sustainable Project Rating Tool (SPiRiT). (See p. 20)

Rik Wiant

The planner and the master plan play an important part at nearly every step of the process. This was dramatically emphasized at the Bragg workshop, where master planning appeared as one of the key actors on nearly every initiative.

So what do you do if you are a master planner or real property chief and "sustainability" is one of those many things that has just "crept up on you." The easiest way to get started thinking about sustainability has been with the USACE Distric PROSPECT courses conducted during the last nine months. These are now nearly complete, but future courses are being considered. In addition, the topic will be frequently covered at upcoming workshops.

But the quickest way to get started right now is to visit the ACSIM, CERL or ISD sustainability websites. These and other links are available on the Headquarters USACE Installation Support Division's website Planning and Real Property Library. There is also a new sustainability list-server, Sustain-Net, where there has been an active discussion of sustainability practices. You can subscribe by sending a blank message to join-sustain-net@list.denix.osd.mil

PLANNING has an excellent article on this along with things local communities can do about it.

A major part of this has to be addressing bicycle and pedestrian commuting in your transportation plan. Quoting from an American Medical Association report, "Reliance on physical activity as an alternative to car use is less likely to occur in many cities and towns unless they are designed or retro-fitted to permit walking or bicycling." The "Fat City" article points to a number of websites and other resources that will stimulate your thinking about this.

There is a certain irony for members of an organization where physical readiness is a byword to live in communities where nearly everyone commutes to work in a car. At the same time, they have to do their fitness runs in the street traffic. This is an area where some planning and investment can improve health, readiness and real quality of life, as well as force protection by reducing use of POVs in sensitive areas.

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"Charrette"— what does it mean? The term "charrette" comes from the practice of architectural students in nineteenth century Paris who often drew their projects as they were carried on the cart – en charrette – on the way to the design jury. Today, charrette refers to an intensive design workshop involving people working together under compressed deadlines. A charrette in the field of sustainable design will work best by bringing in professional experts who have not been involved in the project design. In an intensive workshop setting with a project team of users, designers, owners, and other stakeholders, these experts will review the project for sustainable design opportunities and work with the project team to assess the project with a specific rating tool.

Lessons learned during Fort Monmouth charrette

by Dagmar B. Epsten

A sustainable project means greater comfort for its occupants, higher energy efficiency, lower water use, fewer infrastructure needs, and lower operational cost. The best way to work toward these goals is to implement design charrettes.

Using the U.S. Army's newly developed Sustainable Project Rating Tool (SPiRiT), The Epsten Group recently provided a design charrette for the U.S. Military Academy Preparatory School in Fort Monmouth, New Jersey.

SpiRiT, which consists of a credit point rating system with eight different categories, gives points for conducting charrettes. Two of the seven credit points in the *Holistic Delivery of Facility* category specifically require charrettes, and, for achieving the other five, charrettes can be an essential element (see the chart on p. 11).

To realize the maximum benefit from a charrette for a SPiRiT certification, The Epsten Group recommends the following:

You should have a charrette leader who is a sustainable design expert familiar with SPiRiT. You will need a minimum of two charrettes during the process, preferably one during the programming phase and one during the design development phase. Each charrette should be followed by a report prepared by the sustainable design expert, each having a points summary page. For all charrettes, you will need to discuss submittals for the rating documentation and assign responsibility to either a project team member or the sustainable design expert.

During the first charrette, the leader should train the entire team in the holistic delivery process. All stakeholders need to participate, including users, contracting staff, construction representatives, project manager, and design/engineering team members.

For review in the first charrette, the project team should draft a written statement of project goals and metrics; and in the second charrette, a draft of a life-cycle cost analysis.

Based on the Fort Monmouth charrette, I recommend these steps for organizing a charrette:

STEP ONE: Determine need, participants, and dates

Once the commitment to a sustainable design charrette is established and the participants identified, all stakeholders should commit to potential charrette dates.

STEP TWO: Define scope

When soliciting a proposal from outside experts, give some idea of the size and complexity of the project and an intended time length for the charrette. Typically, you want more than one charrette leader, and you should decide what disciplines should be represented. Additional experts can be consultants to the charrette leader.

In the case of Fort Monmouth, I led the charrette assisted by two consultants, a mechanical engineer and a lighting engineer.

Decide whether you want to have the experts review the project before the charrette, or on site, or as part of the charrette. Have the charrette leader introduce basic Sustainable Design and Development (SDD) concepts and the SPiRiT method unless the team has received prior training.

STEP THREE: Sign agreements and finalize arrangements

Assist the outside experts with lodging and travel arrangements. In the Fort Monmouth charrette, the charrette location was on base within walking distance of guest housing and an easy drive from the renovation project.

STEP FOUR: Share preliminary project information

Make any documentation submitted to the experts beforehand as complete as possible. Allow time during the charrette to fill the outside consultants in on the project. We didn't have enough information beforehand nor time planned into our schedule to become thoroughly familiar with the Fort Monmouth project. For our next charrette, we will allow extra time to visit the site and review the drawings.

STEP FIVE: Room preparation

The main room should be big enough for everybody to be seated comfortably, with space for smaller group work sessions as well as tfor hanging up drawings and notes. Since the charrette leaders will likely be traveling, local team members should provide all necessary supplies, equipment and snacks. At Fort Monmouth, there was a kitchen adjacent to our conference room.

STEP SIX: Introduction

The amount of time for introducing the project and SPiRiT will vary depending on how familiar the project team is with SDD and SPiRiT and how familiar with the project the consultants have become. At Fort Monmouth, we had assumed that the team was familiar with the history of SDD, but probably should have focused more on the overall background. We did train everybody on SPiRiT.

STEP SEVEN: Working groups and summaries

Numbering about 20, we frequently had participants missing due to conflicting schedules. While we had a prepared agenda, we strayed as specific needs developed. A rule we had set from the get-go that we could never be behind schedule helped us to accomplish everything we planned.

At Fort Monmouth, we split into three simultaneous work groups for approx- ➤

imately half the time. In the future, this work group portion could perhaps be increased, as this is where the real work gets done. As SPiRiT is broken into categories, we discussed different categories in the workgroups. The SPiRiT credit rating was assessed by evaluating each credit point carefully. The results were reported back to the larger group for additional comments.

STEP EIGHT: Discussion of issues

We reconvened as a larger group, at times, to report back from the work groups and also to discuss issues as they arose. Examples of main issues include force protection versus sustainable landscaping, how to provide commissioning of mechanical systems, the large amount of hot water used in showers, the recycled content of high impact resistant gypsum board, and how to limit facility abuse by occupants. We kept those discussions in the larger group, but could have also delegated them to the work groups.

As the SPiRiT process was fairly new to everyone, asking for feedback and input on the process frequently ensured everyone's participation. However, a more pre-determined approach next time with fewer and shorter feedback times will optimize time spent on technical issues.

STEP NINE: Development of an action plan

Toward the end of the first day and in the second half of the second day, the group focused on project schedule and phasing, budget considerations, how SPiRiT should be documented, assignment of responsibilities, to what extent a consultant should be involved throughout the process, and where to go from here. It is very important to assign and record names to any follow-up tasks. In the Fort Monmouth project, several follow-up items were received too late for inclusion in the report.

STEP TEN: Report

The Epsten Group was to develop a list of required submittals for the report as documentation for the credit points sought. Although we submitted the list when due, the Epsten Group was instructed to finish the report without inclusion of late submittals. As it is, the report clearly describes each SPiRiT point and the Fort Monmouth response, summarizes all discussions, and includes all notes of the charrette. However, further documentation would have been desirable for the long-range documentation of the SPiRiT effort.

With qualified leaders, a charrette will give a fairly realistic assessment of the potential SPiRiT rating. We found that the Fort Monmouth team had not fully understood SPiRiT requirements and overestimated the rating. The team was hoping for a Platinum rating (greater than 75 out of 100 credits points); but under the guidance of the outside team, the consensus was that the project would achieve a Silver rating (35 to 49 points).

As the project team noted, with the SPiRiT process still in development, it is unclear how the final SPiRiT rating for Fort Monmouth will be determined. The Epsten Group developed suggested

Following are the credit requirements from SPiRiT version 1.4:

6.C1 **	***Holistic Delivery of Facility***	
Intent:	*Encourage a facility delivery process that actively engages all stakeholders in the design process to deliver a facility that meets all functional requirements while effectively optimizing tradeoffs among sustainability, first costs, life cycle costs and mission requirements.*	
Requirement:	❑ *Choose team leaders that are experienced in holistic delivery of facilities.*	1
	❑ *Train the entire team in the holistic delivery process. The team must include all stakeholders in the facility delivery, including the users, the contracting staff, the construction representatives, project manager, and design/ engineering team members.*	1
	❑ *Identify project goals and metrics.*	1
	❑ *Plan and execute charrettes with team members at critical phases of the facility delivery.*	1
	❑ *Identify and resolve tradeoffs among sustainability, first costs, life cycle costs and mission requirements through charrettes and other collaborative processes.*	2
	❑ *Document required results for each phase of project deliverables that achieve the project goals and are measurable throughout the facility life span.*	1

As SPiRiT Version 1.4 does not define how the achievement of these objectives can be verified, The Epsten Group (TEG) has developed recommendations for suggested documentation of all the SPiRiT points. For the Holistic Delivery of Facilities, recommendations are:

Suggested Certification	Submittal 1 (TEG)	*Experienced team leaders:* Description of project leader's **experience with minimum of one previous project certified by SPiRiT**.
Submittals	Submittal 2 (TEG)	*Train the entire team:* Sign-in sheet showing attendance of representatives of project team at either a SPiRiT **charrette** or SPiRiT training workshop.
	Submittal 3 (TEG)	*Identify project goals and metrics:* Written **statement of project goals and metrics**, dated no later than 100% Schematic Design (early implementers: 50% Design Development).
	Submittal 4 (TEG)	*Charrettes with team members at critical phases:* Summary page of a minimum of 2 **charrette** reports.
	Submittal 5 (TEG)	*Identify and resolve tradeoffs:* Points summary page of **charrette** report establishing which credit points have been agreed upon as feasible.
	Submittal 6 (TEG)	*Identify and resolve tradeoffs:* Summary of **life-cycle cost analysis** (LCCA) according to the Federal Facilities Council Technical Report, Sustainable Federal Facilities: A Guide To Integrating Value Engineering, Life Cycle Costing, and Sustainable Development, FFC # 142, 2000.
	Submittal 7 (TEG)	*Document required results:* Summary of **report** with Draft Submittals for SPiRiT, Summary of report with Final Submittals for SPiRiT.

Fort Bragg's charrette targets SDD opportunities

In early 2000, planning for the Combat Aviation Brigade (CAB) Barracks Complex and Separate Battalions Barracks Complexes at Fort Bragg, North Carolina, had reached a stage of completion known as a "10-percent design." In other words, the broad outlines of the project had been defined, but the overall design was only about 10 percent complete. This made it possible to change specifics as they related to environmental sustainability.

Knight Architects organized and conducted a sustainable design charrette to critique the 10-percent design. Their goal was to identify opportunities for incorporating sustainable design principles into the project and to suggest strategies to better integrate sustainable design concerns within the existing Army design and procurement process.

Basing their observations on site design, energy consumption and materials analyses conducted during the charrette, the sustainable design team made recommendations for Fort Bragg and for the Army as a whole in the following four areas.

The area for the barracks at Fort Bragg has been significantly reduced.

Site analysis

The existing Army procurement process does not systematically consider state-of-the-art environmental and sustainable site design issues in the project initiation and site evaluation. Therefore, sustainable site design is not planned for or funded.

At Fort Bragg, we recommend a redesign of the site plan to reduce the footprint of development by 20 to 25 percent. This will decrease project first cost, maintain force protection, improve quality of life at the brigade level, and reduce degradation of the existing wetlands. From an Army perspective, we recommend that steps be taken to incorporate sustainable site planning concerns within the DD Form 1391 process.

LEED™ analysis

The Army has not yet aggressively incorporated the spirit of Executive Orders related to sustainable design, such as EO 12873, "Federal Acquisition, Recycling and Waste Prevention," which mandates the use of recycled content material and recyclable materials and assemblies in new construction.

At Fort Bragg, we recommend that a target of 25 percent recycled content be set, as described in the LEED™ Green Building Rating System, and that aggressive construction and demolition (C&D) waste specifications be employed. From an Army perspective, we recommend that model specifications be created and adopted to guide both materials selection and C&D practices.

Energy analysis

Compared to other aspects of sus- ➤

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documentation for each SPiRiT point, and proposed evaluation by a small review team. This process is still in flux, and further development is necessary.

During the Fort Monmouth charrette, all the participants learned more about applying sustainable design principles to a building project, and about shortfalls in current construction operations that limit sustainability. The teams communicated freely on a variety of issues, enhancing the overall understanding of the project.

The charrette included the discussion of the SPiRiT rating tool itself, and led to contributions by The Epsten Group to the process developed by the Corps' Construction Engineering Research Laboratory (CERL). Future charrettes will give the CERL further feedback on how the rating system works in practice.

For a full report of the charrette, go to: http://www.cecer.army.mil/SustDesign/FtMonmouth.pdf

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tainable design, the Army has been more aggressive at capturing energy efficiency opportunities. However, Executive Orders mandating use of renewable energy sources and reduced emissions, most notably EO 13123, "Greening the Government Through Efficient Energy Management;" superceded by EO 12902, "Energy Efficiency and Water Conservation at Federal Facilities," have not received similar attention.

At Fort Bragg, we recommend the adoption of modest-sized renewable energy systems, including building integrated photovoltaics and solar thermal hot water. We also recommend the inclusion of a number of energy conservation, water and high-efficiency system strategies including single duct variable air volume systems in barracks; occupancy sensors to control thermostats; daylighting; improved barracks lighting and controls; enhanced wall and floor assemblies, heat recovery from shower drains; low-flow fixtures; and sunshading where appropriate. From an Army perspective, we recommend that annual building energy analysis be incorporated earlier in the design process, carried through design completion and verified after occupancy begins.

Process analysis

There is currently no explicit mechanism by which sustainable design considerations can be evaluated within the traditional Army design and procurement process.

At Fort Bragg, we recommend that the current project seek to achieve the equivalent of a Certified (formerly Bronze) LEED™ rating while ackowledging the deficiencies of the LEED™ system in the military, residential context. From an Army perspective, we recommend that steps be taken to incorporate sustainable concerns, including objective goals and improved life-cycle costing models—into standard prototype designs, base installation manuals and discipline-based criteria documents.

(Extracted from the report prepared by Knight Architects for Fort Bragg.) PWD

Fort Bragg sets goals for long-term sustainability planning

by KrisTina Wilson

The story is the same everywhere in the US: Water quality and quantity are declining, energy needs and costs are rising, and air pollution is becoming a chief concern. How will Fort Bragg address these problems while maintaining its status as the premier power projection platform in the Army?

The answer, environmental experts believe, lies in sustainability planning. Sustainability is defined by planners as operating in a manner today that does not prevent our ability to operate in the future.

Fort Bragg took the first step toward meeting this challenge by bringing together installation, Army Forces Command, Department of the Army, regulators and members of the local community to an Environmental Sustainability Executive Conference April 17-18.

Stakeholders at the conference developed 25-year environmental goals by breaking into working groups to examine issues concerning energy, buildings, air quality, water supply, water quality, materials and procurement, and training areas.

COL Addison Davis, Fort Bragg's Garrison Commander, challenged the participants to, "Examine the baseline issues, determine the end-state we want to achieve, set aggressive, attainable, and quantifiable goals; and pull together teams that engage the right stakeholders to ensure Fort Bragg's history of proud service to the nation, and the world, continues indefinitely."

During these breakout sessions, the attendees discussed solutions to the issues and developed initial strategic goals. Each of the groups briefed their initial goals to all of the conference participants. Participants were then asked to cast seven votes to recommend final goals. From these, the Garrison Commander selected the final goals for Fort Bragg.

The 10 strategic goals aim to find ways to meet the mission of combat readiness while maintaining environmental stewardship.

Members of the Army and local community were to meet again on July 23-27 to find ways to make long-term goals a reality at Fort Bragg.

"Our challenge now … is to develop and implement a program to accomplish each of these objectives," Davis said in a memo to participants at the conference.

The meetings in July were to kick off phase two of the planning process – establishing working groups to handle each objective. During the meetings, the groups were given the opportunity to meet with representatives from Army Forces Command, the Army Environmental Center and the Construction Engineering Research Laboratory to determine what kind of technical assistance and additional resources may be necessary for the team to succeed.

"The working group meetings are the first step in the actual planning and implementation phase of the 25-year Integrated Strategic Environmental Plan," said Leslie Walrath, the FORSCOM Environmental Sustainability Planner assigned to Fort Bragg.

Teams were composed of key individuals from across the installation with organizations that have responsibility for areas covered by the goals, Walrath said. "No single role was more important than any other role. Each team member was equally vital to the process," she said.

The 10 goals established at the April conference will form the basis for the Integrated Strategic Environmental Plan (ISEP), the blue print for the installation's long-term success in terms of infrastructure and natural resources.

Participants at the conference were asked to develop goals "based on an integrated approach that includes all stakeholders – military, civilian, communities, regulatory agencies – to achieve a meaningful con- ➤

Fort Lee's Harrison Villa—a showcase for sustainable design

The Army is using a showcase program to demonstrate sustainable design and development practices. One such example is the Harrison Villa housing project located at Fort Lee, Virginia.

The project, consisting of 120 homes, was the first Army project designated as an Energy Star Housing Project by the Environmental Protection Agency. Energy Star label projects installed such as high-efficiency lighting and appliances use less energy, save money on utility bills, and help protect the environment.

This project also demonstrated the effect of energy-efficient equipped housing on resident satisfaction.

The Harrison Villa housing project resulted in a healthy environment for occupants, workers, visitors and neighbors providing homes designed for long-term durability, flexibility and eventual reuse while protecting and restoring the natural environment.

The construction of the new Harrison Villa homes at Fort Lee represents a new paradigm in military housing. The increased performance of these homes in terms of energy efficiency and overall comfort have yielded not only the obvious benefit of saving tax dollars, but also an increased desirability of these units among base personnel. In fact, it has been reported that there is some jealousy on the part of the commissioned officers since these homes were built to house junior non-commissioned officers. And the long waiting list to get into these houses is testament to the successful accomplishment of the goal of building homes in which residents would want to stay.

Demolition begins for the Harrison Villa project.

As a next step in improving the sustainability of residential units, additional attention should be given to the overall site planning to allow for optimal orientation of the units. While good solar orientation was listed as a goal for the homes in Harrison Villa in Phase I, it turns out that ➤

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sensus and ensure readiness."

Given these challenges, community members identified the following goals for Fort Bragg:

Challenge: Use of energy at Fort Bragg, whether it's generated on post or off, contributes to the high levels of ozone in the air. Further, the events this winter in California and across the nation raise serious concerns about the cost of energy and the availability of energy at ANY cost. How can Fort Bragg protect and secure the energy it needs to operate?

Goal: Eliminate energy waste, by giving commanders energy goals and data on actual energy use by 2002.

Challenge: Facility construction, operation, maintenance, and demolition is costly, leading to numerous environmental impacts and large energy and water use. How can Fort Bragg provide the world-class facilities that soldiers and families deserve, while minimizing associated pollution, resource depletion, and costs?

Goal: Design all new construction to LEED platinum standard by 2006.

Challenge: The state of North Carolina is increasingly concerned about ozone and other air pollutants. How can Fort Bragg minimize future costs and operational restrictions while improving regional air quality?

Goal: Develop acceptable regional commuting options by 2025.

Goal: Operate 100% of non-tactical fleet on alternative fuels by 2010.

Challenge: Potential sources of water for Fort Bragg consumption have been steadily declining (both in quantity and quality) due to overuse. How can Fort Bragg reduce its dependence on these sources and provide premium quality drinking water as well as the "right" quality water for other uses, without aggravating future regional water supply issues?

Goal: Reduce water consumption 90% by 2025.

Challenge: Contamination of regional water resources, particularly by sediments, is a critical consideration to North Carolina, because of the economic impacts associated with destruction of fish ➤

There is a long waiting list to get into the new sustainably designed homes at Harrison Villa.

many were oriented with their primary axis varying significantly from an ideal east/west direction. Studies have shown that this variation can increase the cooling load and operating costs within a building by as much as 30 percent. This significant solar heat gain in the late afternoon is proof that orientation requirements should be part of Request for Proposal (RFP) requirements.

The installation could also have taken more aggressive steps in the area of materials selection and resource efficiency. While consideration was given to the refrigerant selected for the air conditioning system, additional criteria should be included to address salvage and reuse of materials, recycled content and future recyclability, local availability, low embodied energy and low volatile organic compounds content.

In addition, the implementation of a demolition and construction waste management plan on the base should yield cost savings in landfill tipping fees.

Another important strategy to address is that of measurement and verification. Currently, the actual performance of the homes is not being documented, even though the units are provided with metering capabilities for all utilities as well as master meters for the development. Measurement of actual performance is a critical step in the refinement and improvement of the design process.

Collecting and comparing data for the units at Harrison Villa will be extremely valuable in verifying the efficiency of these sustainably-designed units as compared to older, conventionally-designed units. It would also serve as a comparison between units having different orientations, as mentioned previously.

Finally, collecting this data will also be help to sell sustainable design to a broader audience that includes other government agencies as well as the public.

(Extracted from the Harrison Villa Case Study Report) PWD

habitats, treatment of water to drinking quality, and the decrease of drinking water reservoir holding capacity. How can Fort Bragg minimize the future costs and potential operational restrictions associated with water pollution, while improving regional water quality?

Goal: Ensure water quality leaving Fort Bragg is equal to or better than water quality coming onto post by 2025.

Challenge: Fort Bragg buys $176M worth of products and materials every year—and throws away over 200,000 tons at a total cost well over $3M. How can Fort Bragg promote the sustainable manufacture, use, and disposal of materials and products, while minimizing costs and environmental impact? How can Fort Bragg stimulate local and national markets for environmentally preferred products?

Goal: Landfill zero waste by 2025.

Goal: Buy 80% environmental preferable products from local sources by 2025.

Challenge: Fort Bragg maintains 161,597 acres of land for training. Of this, only 72,236 acres are unrestricted for use. How can Fort Bragg provide enough usable land for military training—and ensure that training is not further constrained by concerns over potential environmental contamination and negative impacts on endangered species? How can Fort Bragg use its land requirements to address the effects of urban sprawl and regional needs for open space and biodiversity?

Goal: Educate 100% of personnel on environmental responsibilities, to cut enforcement actions to 0 by 2002.

Goal: Adopt compatible land use laws/regulations with local communities by 2005.

After the July meetings, there was an opportunity for the public to get involved in the process. State and federal regulatory agencies, as well as local community offices, were encouraged to share ideas and build partnerships as Fort Bragg works toward regional sustainability planning.

For more information, please contact the FORSCOM Environmental Sustainability Planner at (910) 396-3341, ext. 551.

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Huntsville Center's UMCS program supports completion of Pentagon Renovation's Wedge I

by Jean Pavlov

Built in 1943, the world's largest office building, the Pentagon, needed repairs. The Huntsville Center's Utility Monitoring and Control Systems-Mandatory Center of Expertise (UMCS-MCX) provided procurement and technical services for Automated Control Systems for the renovation of the Pentagon's Wedge 1 (the five 1,000,000 square foot "pie-shaped" wedges will be renovated one at a time).

The work, completed in March 2001, consisted of the selection of the controls and fire alarm contractor, and preparation of design and installation requirements for the contractor to prepare a technical and price proposal.

The Pentagon Renovation Program was created in 1990 to upgrade the facility to meet necessary 21st Century DoD requirements, and replace the antiquated building systems, which had deteriorated beyond the point of economical repair. The new renovation was essential in order to meet current health, fire, life, safety, energy codes, the Americans with Disabilities Act, and regulations.

To provide a safe and cost saving work environment, the facility needed reliable electrical, fire alarm/smoke control systems, air conditioning and ventilating systems. In addition, supervisory and control systems and data acquisition were needed for monitoring power and control of boilers and chillers in the Central Heating and Cooling Plant.

Wedge 1, the first corner of the Pentagon to be renovated, was supported by Huntsville Center's Utility Monitoring and Control System program.

The MCX Lead Project Engineer, Buland Mahmood, reviewed all design submittals, performed site inspections, reviewed installation procedures, and oversaw, with Pentagon Renovation Engineers, the testing of all controls. "We award the contract, and then work with the contractor on the design and installation of all controls. In this case, it was awarded to Johnson Controls," stated Mahmood.

At another level, the non-renovated parts of the Pentagon are under the management of Office of Secretary of Defense (OSD) Deputy Building Manager, Steve Carter, Sr., of the Pentagon Building Management Office (PBMO). The UMCS-MCX worked for OSD-PBMO to upgrade the existing controls in a cost effective manner to allow management of the various systems, renovated as well as non-renovated, as a single integrated and seamless system.

From left, Steven Carter Pentagon Building Manager; Rohollah Mahboobi, Johnson Controls Site Manager; Buland Mahood, lead program engineer from Huntsville Center.

The challenges of having software and hardware implemented while all systems remained fully operational in Wedges 2 through 5 presented unique issues and required unique solutions. The MCX met all engineering, performance, schedule, and cost controls requirements of OSD-PBMO.

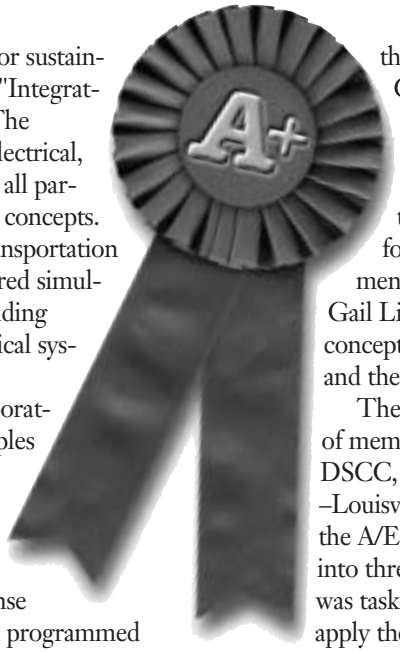
The extent of the renovation of the Pentagon's Wedge I was massive. The contractors stripped all equipment, flooring and interior walls down to columns, floor slabs and external walls during the renovation of this first wedge. After this phase, the new walls, utilities and state-of-the-art control systems were installed. It took three years to complete this first wedge.

In 1996, the Huntsville Center decided to use the Indefinite Delivery/ Indefinte Quantity (ID/IQ) contract process to bring on board qualified control companies who could provide equipment, installation services and integration of various facility systems. The commercial sector was rapidly moving to develop "smart buildings" which would use computer based controls to manage a comfortable environment, fire protection, data communication networks, and security systems.

In addition, the Pentagon archi- ➤

Fitness Center goes for the "Gold"

by Doug Pohl



A primary consideration for sustainable design requires an "Integrated Design" approach. The architect, mechanical, electrical, structural and civil designers all participate in the earliest design concepts. Issues of site, orientation, transportation and utilities must be considered simultaneously with program, building envelope, mechanical/ electrical systems and resources.

A design charrette incorporating sustainable design principles was held in April 2001 for a new Fitness Center at the Defense Supply Construction Center (DSCC) in Columbus, Ohio. The Defense Logistics Agency (DLA) had programmed the facility to strive towards a gold rating utilizing the new Sustainable Project Rating Tool (SPiRiT).

The rating tool (derived from the U.S. Green Building Council's LEED™ rating tool) uses a point system to determine levels of building performance or sustainability.

DLA's goal of a gold rating was quite ambitious, prompting the design agent (Louisville District Corps of Engineers) to hire architect Gail Lindsey, a member of the U.S. Green Building Council, to facilitate the sustainable design portion of the charrette.

The first day of the two-day charrette focused on the development of sustainable goals. Gail Lindsey introduced the concepts of sustainable design and the SPiRiT rating tool.

The design team, composed of members from DLA, DSCC, Corps of Engineers –Louisville, and KZF/BWSC, the A/E for the project, broke into three groups. Each group was tasked to independently apply the SPiRiT rating tool to the Fitness Center and determine, point-by-point, what level of sustainability could be achieved.

When the groups came back together and shared their results, each one found that a gold level (50-74 points) could be achieved. It was then that a gold level goal was established and the actual design portion of the charrette began.

Guided by the gold level goals of the SPiRiT tool and an integrated design approach, a high performance building is anticipated for the new Fitness Center.

A concept level submittal was due in July.

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tects designed effective controls for power, water and other utilities. These systems avert costly repairs, and allow for "in-time" repair of equipment. This feature allows performance of repairs without undue delay, and inconvenience to the DoD Staff.

It is expected that the Energy Management and Control System at the Pentagon will look at 100,000 instrumentation points and use the information to control all the systems in the Pentagon and its Remote Delivery Facility.

"Most automated control systems present unique problems for government procurement," said John Brown, Program Manager, Utility Monitoring and Control Systems. "Price, quality, standardization of products and time are only some of the reasons that the Huntsville Center was selected for this project."

"The Huntsville Corps of Engineers is the center of expertise for Utility Monitoring and Control Systems," said Mahmood. "When we are utilized by government agencies to the fullest extent, we save the taxpayers millions of dollars by employing in-house staff and contract vehicles which allow us to expedite work and reduce procurement costs. We provide engineering and technical support services at a fraction of the cost outside contractors would charge the Department of Defense," he said.

Efforts are now underway to renovate Wedges 2 through 5. "It is important that the automated control systems in the Pentagon be unified. The computerized systems all need to talk to each other," said Mahmood.

"Additionally, as far as manning, training, and parts needed for the equipment, it is essential the systems be manufactured and installed by the same vendors. It is critical to install highly reliable and expandable systems. Of particular concern are life safety and security systems that we cannot allow to fail for such an important facility in our national defense structure," he concluded.

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Fort Carson's "green" building

by Burla Martin

Fort Carson's Directorate of Environmental Compliance and Management (DECAM) is planning, designing, and constructing a sustainable or "green" training facility. The goal of this project is twofold. First, the DECAM wants to demonstrate that a building can be constructed using sustainable principles without increasing costs by simply considering and implementing options other than those of standard construction practices. Second, and more important, is forming and fostering a positive working alliance among the different directorates on post that play key roles in building or remodeling facilities.

The project began by forming a Green Building Team. The team is made up of personnel from several directorates, having backgrounds which span a wide variety of disciplines. Those disciplines represented included engineers, architects, contract specialists, a sustainability consultant, an agronomist, natural and cultural resources specialists, an energy manager, a National Environmental Policy Act coordinator, and an information technologist.

The team met on a weekly basis, typically for one hour. Minutes were recorded and action items assigned.

In addition to providing information on their area of expertise, team members volunteered to research and brief the group on new innovations or technologies which might be included in the new building design. Some of these were landscape design, parking and paving, heating, ventilation and air conditioning (HVAC), water conservation, construction methods and materials, interior products and construction waste.

The team applied for and was awarded a Design Assistance Grant from the Federal Energy Management Program (FEMP). Pacific Northwest National Laboratories (PNNL) was the design group assigned to Fort Carson, and they provided valuable professional assistance with sustainable concepts from early team meetings through the design phase.

Because the project began as a Pollution Preventing (P2) initiative, funding was requested and received through the Forces Command (FORSCOM) Pollution Prevention Program. In order to meet P2 payback requirements, the team would have to document that sustainable design had lower life-cycle costs. To that end, the team developed a cost-saving analysis, which is easily understood by laymen and sets realistic performance standards to back it up.

The team initially chose the Green Building Rating System, Version 2.0 as established by the U.S. Green Building Council, Leadership in Energy and Environmental Design (LEED). LEED Standards were incorporated into the Scope of Work (SOW) of the contract.

However, through team member investigation, the group became aware that the Army recently adapted the LEED Rating System to more accurately address military construction issues. The Engineer Research and Development Center of the U.S. Army Corps of Engineers developed SPiRiT (Sustainable Project Rating Tool). Since the Team has not yet held an official charrette, Fort Carson will more than likely refer to SPiRiT where applicable.

Initially, contracting experts advised the team to seek a Request for Proposal (RFP) from the Installation's A/E SABRE contractor. After evaluating the SOW, the A/E's cost proposal came back significantly higher than the Independent Government Estimate (IGE).

The group's second option was to contract through the U.S. Army Corps of Engineers, Omaha District. The Corps office reviewed the SOW and determined they could meet the specifications within budget constraints. In order not to trigger Major Construction, Army funding status, the total project costs cannot exceed $500,000.

At present, the team is to finalize a date for the charrette. Because the team has accomplished so much legwork up front, it is anticipated that the charrette will go well.

Obviously with funding limitations, every sustainable design concept available or desirable may not be incorporated into the building. The team is confident, however, that it can provide a sustainable training facility for Fort Carson and accomplish both goals--documenting life-cycle cost savings while utilizing sustainable concepts and promoting a team approach to implementing sustainable design concepts installation-wide.

One notable lesson learned to date is the importance of accomplishing thorough investigation and research of potential contractors for their sustainable design experience. Ask to see a portfolio and/or documentation of previous projects.

A good, sustainable design contractor should have lots of information available on alternative design concepts and systems. If a potential contractor says it will cost more to provide the documentation required to justify life-cycle costing, they are probably in a learning phase and might not be the best choice.

POCs and co-chairs of the Fort Carson Green Team are Burla Martin, Scott Clark, and Kelly O'Neill, (719) 526-0973, 5251, and 6838 respectively.

Burla Martin is a physical scientist in the Directorate of Environmental Compliance and Management at Fort Carson, CO.

(This article contains excerpts from "Sustainable Design at Military Installations" by Kelly O'Neill and Scott Clark.) PWD

New ERDC/CERL Sustainable Design and Development web page

by Annette Stumpf

A new web site, ERDC/CERL's Sustainable Design and Development Resource, is now available to the public.

The Sustainable Design and Development Resource web site is located at: http://www.cecer.army.mil/SustDesign. The Sustainable Design and Development (SDD) web site is intended to help the Army and USACE Districts plan, design, build, and operate facilities in a sustainable manner. This web page contains reference information to help people comply with current sustainability criteria. It contains links to case studies, policy, training resources, important conferences and events, and the best available sources of information. The SDD website will be kept up-to-date to provide timely guidance.

Major topics include:

- What Is Sustainable Design and Development (SDD)?
- How Do You Do SDD?
- What Is the Corps Doing? (SPiRiT)
- What Are Other Federal Agencies Doing?
- Current Events
- Frequently Asked Questions
- SDD Resources

All federal agencies have been directed by Executive Order to develop and adopt the principles of SDD. The Army has directed USACE to adopt SDD practices in the design and construction of Army facilities. Starting FY02, all 1391s will require MILCON (MCA, MMCA, MCAR, AFH, OMA, & NAF) projects to meet current policies on sustainability.

Headquarters, U.S. Army Corps of Engineers (HQUSACE) has published guidance on appropriate SDD practices in ETL 1110-3-491, Sustainable Design For Military Facilities, 1 May 2001. To help USACE Districts benchmark their accomplishments, USACE and ACSIM have jointly developed the Sustainable Project Rating Tool (SPiRiT) based on LEED 2.0 TM, Copyright © 2000 by U.S. Green Building Council. SPiRiT is detailed in Appendix C of ETL 1110-3-491, and also at: http://www.cecer.army.mil/SustDesign/SPiRiT.cfm.

Annette Stumpf

For more information on the SDD website, please contact Annette Stumpf, (217) 352-6511 EXT: 7542
e-mail: annette.l.stumpf@erdc.usace.army.mil

Note: The ERDC/CERL Sustainable Design and Development Resource web site was developed with the assistance of Gloria Franczak, a web developer at CERL PWD

Sustainability ratings for Army projects

by John Scharl

In a May 2001 memorandum to MACOM commanders, the ACSIM established the Army policy that beginning 1 June 2001, all infrastructure projects be evaluated and rated for "sustainability" using the Sustainable Project Rating Tool (SPiRiT). The SPiRiT, developed by the OACSIM and USACE, is a self-evaluation process that will help installations and designers quantify and measure the sustainability of infrastructure plans and projects.

Projects are rated for sustainability in eight facility categories:

- Sustainable Sites.
- Water Efficiency.
- Energy and Atmosphere.
- Materials and Resources.
- Indoor Environmental Quality.
- Facility Delivery Process.
- Current Mission.
- Future Missions.

SPiRiT levels are based on the total project points earned (Bronze — 25 to 34 Points; Silver — 35 to 49 Points; Gold — 50 to 74 Points; Platinum — 75+ Points). The initial Army goal is for all MACOM and installation projects to achieve a minimum SPiRiT Bronze sustainability rating. However, installations are encouraged to designate projects for Gold and Platinum sustainable ratings. Most projects can reach a Bronze sustainability rating without increased costs while still improving installation sustainability and balancing available resources with customer requirements.

Understanding and applying the principles of Sustainable Design and Development and using the SPiRiT rating process to improve day-to-day decisions and infrastructure projects is a gradual process. With experience and use, higher SPiRiT rating levels can be achieved. The ➤

SPiRiTed tool aids in SDD

by Richard Schneider and Harry Goradia

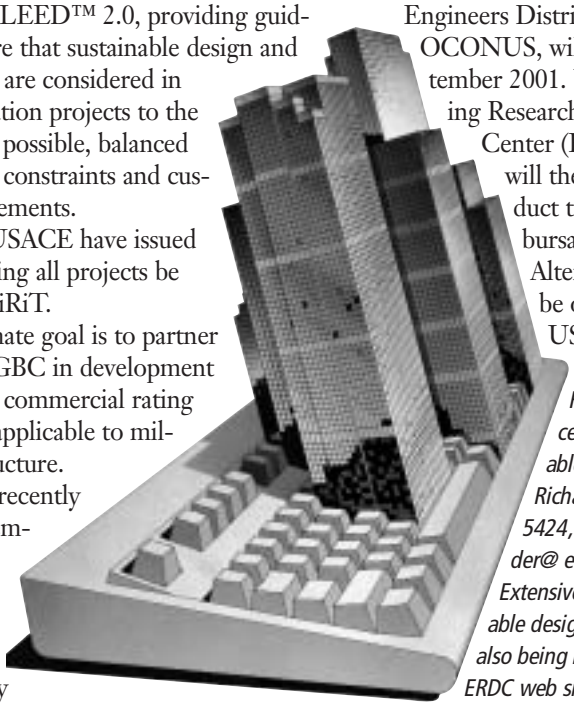
The U. S. Army Corps of Engineers (USACE), in conjunction with Department of the Army Staff, has developed SPiRiT, an easy-to-use rating tool which allows building delivery teams to score various design features defining how sustainable a facility will be over its life cycle. Announced last November (see Public Works Digest, Volume XII, No. 6) as the Sustainable Project Rating Tool (SPRT), SPiRiT Version 1.4 is now being released in final format for application to military facilities.

SPiRiT v.1.4 is a Microsoft Word formatted document with point summary sheets in Microsoft Excel making it both easier for users to print and use while allowing for automated tallying of point scoring results. SPiRiT v.1.4 can be downloaded from the web at http:// www.cecer.army.mil/sustdesign/SPiRiT.cfm.

In the development of SPiRiT, USACE reviewed a broad representation of rating schema available at the time to score facility design sustainability, including the U. S. Green Building Council (USGBC) LEED™ Green Building Rating System Version 2.0 (Leadership in Energy and Environmental Design). USACE and DA staff decided to use LEED™ 2.0 supplemented with criteria more germane to military installation planning, design, and construction to achieve Army sustainable design and development goals. SPiRiT supplements LEED™ 2.0, providing guidance to ensure that sustainable design and development are considered in Army installation projects to the fullest extent possible, balanced with funding constraints and customer requirements.

DA and USACE have issued policy requiring all projects be scored by SPiRiT.

The ultimate goal is to partner with the USGBC in development of a standard commercial rating tool equally applicable to military infrastructure. USACE has recently become a member of the USGBC Steering Committee and is actively participating in the development of a suite of LEED™ products addressing Commercial Buildings, Commercial Interiors, Residential, and Operations rating schemes.



Future products will address Community and Development Oriented rating tools. SPiRiT will be used in the interim until LEED™ 3.0 is released, which is anticipated to be in 2003.

The initial rounds of training in Sustainable Design and Development, currently being conducted at Corps of Engineers Districts, CONUS and OCONUS, will conclude 30 September 2001. U.S. Army Engineering Research and Development Center (ERDC) researchers will then be available to conduct training on a reimbursable basis. Alternatively, training may be obtained from the USGBC.

For more information concerning SpiRiT and sustainable design, please contact Richard Schneider, (217) 373-5424, e-mail: richard.l.schneider@ erdc.usace.army.mil. Extensive information on sustainable design and development is also being made available on the ERDC web site at http://www.cecer.army.mil/sustdesign/ Corps District personnel should contact Harry Goradia, (703) 428-6460, e-mail: harry.goradia@hq02.usace.army.mil; and installation personnel should contact John Scharl at (703) 428-7614 or e-mail: john.scharl@hqda.army.mil for assistance with the application of sustainable design and development.

Richard Schneider is a researcher in ERDC and Harry Goradia is an engineer at HQ USACE. PWD

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Army's SPiRiT is an adaptation of the US Green Building Council's sustainable building rating system that's being used by industry.

For additional information, please go to the OACSIM and USACE web-sites at http://www.hqda.army.mil/acsimweb/fd/linksSDD.htm and http://www.cecer.army.mil/sustdesign/

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Mark Your Calendars!

DPW Training Workshop
December 11-13, 2001
DoubleTree Hotel
Crystal City, Virginia

For more information, go to http://www.hq.usace.army.mil/ISD/

Solid waste treatment to cut volume, offer recycling options

First Demo Site: Fort Campbell, KY

by Dana Finney

A research team began work at Fort Campbell in June to assess whether a new technology can successfully reduce the volume of municipal solid waste (MSW) while providing useful end products. A novel grinder system is designed to shred mixed household garbage, pull out glass, metal, and plastic, and turn the rest of the waste into cellulose "fluff" which may have beneficial use as a soil amendment. The waste plastic has potential reuse in building products such as recycled plastic lumber.

The Engineer Research and Development Center's Construction Engineering Research Laboratory (CERL) is demonstrating the technology in partnership with Headquarters, U.S. Army Forces Command, Fort Campbell's Public Works Business Center (PWBC), and Bouldin & Lawson Worldwide, Inc.

Cities across the nation face a huge challenge in managing municipal solid waste, and the problem is growing as landfills reach capacity. Military installations, like cities, are responsible for proper disposal of MSW produced on post. Army installations disposed of 1.2M tons of garbage during the first three quarters of FY99 at a cost of $53.2M.

New grinder system (left) shreds waste and separates by-products.

At Fort Campbell, the population averages about 100,000 on any given day, including division personnel, support troops, Guard/Reserve units, families, and civilian staff. According to Adam Alexander, contract environmental engineer in Fort Campbell's PWBC, "We landfill 17,000 tons of municipal waste each year – and that's a lot of garbage. We haul it to a regional landfill in Montgomery County, where it costs about $20 per ton for disposal."

Cellulose pulp may have reuse to restore damaged lands.

The grinder that CERL is testing has several stages. First the MSW goes into a low-speed, high-torque shredder. Next are two grinding processes, followed by a trip through a magnetic separator which removes metal from the material. After that, it enters a hydrolyzer before final drying and separation steps.

"The hydrolyzer is like a giant pressure cooker," Alexander said. "It uses extreme heat, steam, and pressure to kill bacteria and viruses while breaking down carbon bonds in the material."

At the end of treatment, by-products include an odorless, colorless cellulose pulp (called "fluff) and separate, low-volume residues of metal, glass and plastic. "We hope to be able to process 3,000 to 5,000 pounds per hour," said Deborah Curtin, CERL project leader for the demonstration. "We expect to reduce the waste volume by more than 80 percent."

A second part of the Campbell project, slated for the fall planting season, will be to apply the cellulose pulp to two test plots. This material will first be analyzed to ensure it is environmentally safe to use. Chemist Patricia Kemme at CERL's Environmental Chemistry Lab said that the samples will be taken after the demonstration ends so they will represent the cumulative material rather than sampling at discrete times. The material will be analyzed using the Toxicity Characteristic Leaching Potential (TCLP) and will be screened for pesticide, herbicide, PCB, and dioxin contamination.

"We'll also be making site visits to test the air quality for particulates and to sample residue in the baghouse to decide how that can be disposed," Kemme said. Further, researchers will test soil in the experimental plots to document whether the areas are free from contaminants prior to applying the fluff.

According to Alexander, "Once the pulp passes all the tests, we're going to experiment with using it as a soil amendment by planting different types of vegetation ➤

Fort Lewis wins White House Closing the Circle Award for 2001

by Connie Lee

Fort Lewis Public Works was presented the Closing the Circle Award for their commitment to the Greening of the Government from the Office of the Federal Environmental Executive. Under Executive Order 13101, this prestigious recognition is part of the 2001 White House awards program recognizing federal employees and facilities for significant contributions to or significant impacts on the environment under the Executive Order.

There were thirty-nine winners in nine categories, ranging from recycling to life cycle assessment and environmental cost accounting in this year's award presentations. Fort Lewis Public Works was selected from among 200 nominations.

Juan D. Lopez, Acting Chief of Staff of the White House Task Force on Recycling, said, "This year's honorees exemplify our federal workforce commitment to preserve the environment and precious resources by increasing the purchase of green products and services, reducing the generation of wastes and establishing highly effective environmental management programs at their locations."

The Closing the Circle award recognized in the Fort Lewis' Environmental Management System (EMS) a masterful re-organizational effort that strategically enhanced work process systems using an internationally certified systems approach to environmental management. Recognized by countries around the world and adopted by the U.S. in 1996, the Fort Lewis Public Works and Environmental & Natural Resources Division (ENRD) environmental management system was modeled after the ISO 14001 EMS standard. Singular differences in this approach to management targets processes for environmental management system requirements as opposed to environmental performance standards.

"An unexpected consequence from ➤

(l to r) COL Richard Conte, Paul Steuke and Randy Hanna proudly display the Closing the Circle Award.

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in moderate military traffic areas. We want to see if nutrients left in the material can benefit plant growth or if the substance can serve as a soil stabilizer."

A third phase of the project will evaluate the waste plastic for efficacy as a raw material in producing recycled plastic lumber products. CERL materials scientist Richard Lampo, who has worked extensively with recycled plastic, will test products that the contractor will develop using extrusion. "The plan is to assess those properties we know are important in producing good quality recycled plastic lumber, such as flexural strength, density, and thermal expansion," Lampo said. If the waste holds up to the standards, there may be a market for it in the recycled plastic lumber industry. Waste metals will also be examined for possible sale to the Defense Reutilization and Marketing Organization.

The Fort Campbell demonstration will last for two weeks, after which the grinder will be moved to a second site at Fort Benning, GA. Operating data from the projects will help Curtin's team document the economics of using this type of MSW treatment, as well as monitor additional environmental factors such as volatiles in the waste stream.

A DoD goal for military installations is to divert 40% of MSW from landfills by 2005. "We're not going to have landfills forever," said Alexander. "If there's a technology that will help us eliminate some of that waste to be landfilled, we need to be giving it our attention."

For more information, contact Deborah Curtin at CERL, (217) 398-5567, Deborah.R.Curtin@erdc.usace.army.mil or Adam Alexander at Fort Campbell, (270) 798-9773, Alexander2@emh2.campbell.army.mil.

Dana Finney is the Chief of Public Affairs at CERL. PWD

(Award continued from previous page)

the ISO systems process was that it imbedded environmental management within our maintenance and repair mission," said Jim Benson, Program Manager of Work Management.

"Our EMS also made Public Works more competitive, more efficient on a global scale," said Paul Steucke, Division Chief of Environmental & Natural Resources Division.

In the planning and implementing stages of the EMS for third-party certification, "Fort Lewis faced one of the largest challenges of any commercial or military organization to date, addressing the greatest number of environmental aspects and the most diverse organizations of any previously registered company," said Steucke.

The scope of the effort included the environmental aspects and impacts of more than 19,000 soldiers and 29,000 family members, and approximately 5,000 civilian personnel training, working and living on the 86,000 acres of Fort Lewis.

Benefits already realized through the installation's efforts include cost savings and avoidance of more than $1.0 million, reduction in green house gases of 155,510 pounds (78 tons), and source reduction in the use of 178,458 pounds (89 tons) of hazardous chemicals.

According to COL Richard Conte, Director of Public Works, "ISO 14001 does far more than make us an environmentally responsible organization – it is creating a culture of continuous improvement – a true learning organization. We have seen enormous benefits in unlocking the wealth of knowledge and innovative ideas throughout Public Works. It has also created an increased sense of personal and professional accountability that extends beyond environmental compliance to improved business practices, cost savings, and higher quality work. Achieving and sustaining certification is a really huge accomplishment that speaks volumes about the pride and professionalism of the great public servants who take care of Fort Lewis."

The Public Works directorate's implementation team continues to promote and challenge others to join its grassroots EMS program.

"The implementation team blazed a path not previously taken within the military or government. The EMS champions were unwavering in their commitment in the face of unknown obstacles and an uncertain role for an ISO 14001 EMS in the future. Fort Lewis was the first to challenges its leadership, first to volunteer when called, first to register and first to champion the EMS message," said Deputy Director Randy Hanna.

Fort Lewis Public Works was the first Army Directorate to be ISO certified. It continues to champion the EMS message and foster continual improvements in environmental stewardship by partnering with the National Defense Center for Environmental Excellence (NDCEE) in the development of EMS implementation guidance for other military organizations. In accordance with its leadership role, Fort Lewis Public Works donated its award winning EMS document to NDCEE to re-distribute throughout the DoD.

POCs are Susan Schieche, (253) 966-1781 and Paul Steucke, (253)-966-1760.

Connie Lee works in the Environmental and Natural Resources Division, Public Works, at Fort Lewis, WA. PWD

Keeping the green in Shades of Green

by Brian Japak

One look at the beautiful landscape at Shades of Green (SOG) on Walt Disney World Resort confirms that this is an environmentally-friendly organization. But saving another kind of green, dollar green, is also a priority in this self-sufficient Armed Forces Recreation Center in Orlando.

As a NAF activity, the Armed Forces Recreation Center depends on efficiency and economy to keep values high while maintaining self-sufficiency. With 1996 energy costs of over $700,000, the SOG management team set about identifying potential dollar savings and more environmentally-friendly operating options. Any solution had to address a cooling demand of over ten months a year and the requirement for top quality guest comfort.

After exploring a number of options, it was determined that three major actions were required to produce savings and reduce energy demand: internally produced chilled water, replacement of control systems with more energy-efficient models, and re-lamping the property to take advantage of modern lighting technology. Smaller changes, such as giving guests the option of re-using their towels instead of changing them each day and increased recycling efforts, were also implemented in the interest of both economy and the environment.

As a result of these actions, the savings for the period March 2000 through February 2001 were nearly $400,000, more than $1.75 per square foot of the facility. By comparison, the CY 1996 cost for utilities totaled $701,919, approximately $3.25 per square foot. Even after paying for the cost of improvements, these changes yield a positive cash flow, permanent improvement in the facility's operating expenses, reduced energy demand, and minimized waste stream. In addition to cost savings, SOG has been recognized for two consecutive years as the "Recycler of the Year" by Reedy Creek Energy Services.

At SOG, what's good for the environment is also good for the soldier in terms of reduced cost.

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Brian Japak is the Director, Support Operations, Shades of Green in Orlando, FL. PWD

Teamwork creates quality drinking water at Bragg, Pope

by KrisTina Wilson

A few years ago, the Fort Bragg personnel who turn river water into clean, safe drinking water were at a crossroads. Efforts to treat the water were not working as well as they had in the past and the post water system was experiencing abnormally high levels of certain contaminants.

Committed to providing the community with safe drinking water, representatives from the Public Works Business Center, the EPA and the North Carolina Division of Environment and Natural Resources agreed that outside help was needed.

They teamed up with the Center for Health Promotion and Preventive Medicine (CHPPM) to develop a comprehensive action plan to provide the highest quality water to the post. This teamwork has helped Fort Bragg to enjoy some of the best drinking water available in the area.

CHPPM evaluated the entire water system to include the water source (the Little River), the water treatment process, and the storage and distribution of water.

While a lot of work needed to be done, Fort Bragg had a solid foundation for success.

CHPPM noted in their initial assessment that the Water Treatment Plant staff was motivated to produce good quality water, the necessary certifications were current, the storage facilities were in excellent condition, and the distribution system was well operated and maintained.

TTHMs (trihalomethanes) are odorless, colorless and tasteless. An EPA study showed that TTHMs were present in virtually ALL chlorinated drinking water.

"In spite of the problems they were having, everyone at the plant was helpful and they cared," said Todd Richards, CHPPM project manager.

"A lot needed to be done but the plant did not need any major infrastructure upgrade."

Improvements still were necessary in the operation of the plant and the design of the water treatment system. General structural improvements also were crucial to the improvement of water quality.

Fort Bragg quickly repaired inoperable and leaking water pumps and removed debris from intake systems. Personnel also changed the methods of treating the water including chemical treatment, filtration, corrosion control and disinfection procedures.

The Water Treatment Plant was able to make such great improvements in a short amount of time because of the partnerships they developed with outside organizations and the dedication of its staff, said Steve Griffin, supervisor of the Water Treatment Plant.

The pump house after its facelift.

"All of the guys at the plant were real active in the changes. They assisted in every way possible," Griffin said.

New monitoring equipment at the plant was added to help operators better manage the treatment process. With the new equipment came additional employees.

"More personnel enabled us to do more monitoring, sampling and analysis," Griffin said. "This helped us to better control formation of contaminants."

The contaminants that Griffin referred to are known as TTHMs or trihalomethanes. High levels of TTHMs are caused when chlorine is added to water that contains large quantities of organic materials, such as plants and animal matter. Disinfecting surface water with chlorine is necessary to protect against infectious diseases.

Before these improvements at the plant were made, Fort Bragg was cited for five violations of the Safe Drinking Water Act totaling $1.26 million.

While numerous water quality announcements were sent to water customers, Fort Bragg did not meet the legal requirements for proper notification. Also, efforts to educate the public about lead in the drinking water were not sufficient to meet regulatory standards.

Since the fine, Fort Bragg began publishing quarterly water quality announcements in the Paraglide and will continue to do so.

"There will never be a time when our water customers do not have access to water quality information," said Herman Crawford, Fort Bragg's Drinking Water Program manager.

In addition to the published reports, water customers are notified of changes in water treatment procedures. They may also call the water hotline (910) 396-5323 with any questions or concerns.

Fort Bragg will pay $312,500 of the fine in cash and the remainder will be spent on supplemental environmental projects (SEPs) designed to enhance the quality of life for soldiers and their families.

These SEPs are undertaken in connection with a settlement agreement with the U.S. Environmental Protection Agency under Part B of the Safe Drinking Water Act, 42 U.S.C. Section 300g, and its implementing regulations at 40 C.F.R. Part 141. Among the projects required, Fort Bragg will assist other installations with drinking water issues and study ways to control erosion and stormwater runoff.

Today, not only is Fort Bragg's water in compliance with all Safe Drinking Water Act regulations, it is expected to ➤

Army environmental scientists win White House award

by Beth A. Martin

A visit to the White House is an exciting event. Just ask two employees of the U.S. Army Center for Health Promotion and Preventive Medicine, Aberdeen Proving Ground, MD, who were invited to a ceremony, held on June 12.

Pat Rippey and Beth Martin, both Environmental Scientists with the Ground Water and Solid Waste Program, won a 2001 White House Closing the Circle Award. They were winners in the Education and Outreach category for services they provided in the areas of recycling, pollution prevention, and affirmative procurement. John Howard, Jr., the Associate Director of the White House Council on Environmental Quality, along with DOD dignitaries, presented the award.

As a job-sharing team, Rippey and Martin provide technical services to Army installations worldwide in the areas of solid waste management, environmental compliance, and environmental contamination. Over the past 18 months, they have devoted a substantial amount of time to providing training seminars to Army bases on a mandatory program that requires federal purchases to include items made with recycled materials. This "buy recycled" program is called Affirmative Procurement.

(l to r) Patricia O. Rippey and Beth A. Martin provide services in the areas of recycling, pollution prevention, and affirmative procurement.

Rippey and Martin developed a training seminar to teach federal employees about the requirements and how to implement an Affirmative Procurement Program. In January 2000, they began traveling to Department of Defense facilities to teach the class, and have conducted 25 seminars to date. This effort, along with other training tools and information provided through their web site, was the basis for their nomination for the White House Award.

In addition to the Affirmative Procurement seminar, the team has authored Integrated Solid Waste Management Plans for 8 Army installations and 12 Pollution Prevention Plans.

Martin developed the proposal for a recycling program that resulted in the diversion of 1,640 tons of waste from the landfill and revenue of $90,000, annually.

Rippey recommended recovery of building materials providing $20,000 in cost savings and diverting 178 tons of debris from the landfill for a single demolition project. Applying this procedure for 13 other buildings slated for demolition will save the installation $260,000 and divert 2,314 tons of waste from disposal.

These are just a few examples of the benefits, both economic and environmental, that the Army has gained from their expertise. Their hard work and dedication to the Army and the environment were recognized at the national level when they received the White House award.

For more information, please call the Public Affairs office at the US Army Center for Health Promotion and Preventive Medicine at the Aberdeen Proving Ground, MD, (410) 436-2088 or (800) 222-9698. PWD

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remain in compliance even after stricter water quality standards are introduced later this year.

Steve Griffin checks the chloramine meters.

"The Fort Bragg water system already is in compliance with the tougher new standards," Crawford said.

The Water Treatment Plant also worked hard to eliminate lead contamination in water. In the past, small levels of lead entered the water when it "leached" or dissolved from the solder on the distribution pipes and sometimes from faucets.

Lead is more likely to leach when the water passing through the pipes is corrosive, or has the ability to break down metals.

"With our new treatments, we can control lead levels in the water by lowering its corrosive components and prevent the leaching that happened before," Griffin said.

TTHM levels have been in compliance since the second quarter of 2000 and lead levels have been in compliance since 1998. Even though water quality is better than ever, PWBC continues to work hard to establish partnerships to produce safe drinking water.

The Preventive Medicine Branch at Womack Army Medical Center reviews all water quality reports to address the concerns of the post community. In addition, Fort Bragg plans to seek additional outside help for a study of the TTHM formations in the water.

For more information, please contact the drinking water hotline at (910) 396-5323 (396-LEAD).

KrisTina Wilson is the Environmental Resource Coordinator at Fort Bragg. PWD

Building an environmentally friendly wastewater treatment facility

by Alicia Gregory

Most people don't think about the millions of gallons of wastewater they flush down their toilets every day. And soldiers who are on a contingency mission probably think even less about it.

But someone had to think about it when more than 4,500 soldiers are producing great quantities of wastewater in a country whose sewage system is in disarray from several years of neglect due to civil war.

That someone was the U.S. Army Europe. And as tasked by USAREUR, the U.S. Corps of Engineers, Europe District, did much more than think about it.

Europe District was the construction agency in charge of completing two wastewater treatment plants in Tuzla, Bosnia – specifically Task Force Eagle Base and Camp Comanche. The completed projects are currently undergoing review to consider the inclusion of portable toilet waste that has been treated by disinfectants. These disinfectants destroy the microbes needed to complete the wastewater treatment process. The recently completed wastewater treatment plants cannot currently treat this waste, but they have been instrumental in improving the environmental health of the Tuzla area military bases since their completion last year.

"USAREUR, as the European Command's designated Executive Agent for environmental matters in the Balkans, periodically reviewed environmental issues associated with the operation," explained William Nicholls, former Environmental Officer for USAREUR during the project's life cycle from 1999 to 2000.

"From the initial deployment we knew that the wastewater treatment facility at the Task Force Eagle Base was insufficient to handle the load, and Commanche had no plant at all (waste was trucked daily to the Eagle plant, further overloading the facility). We did some studies, through the Corps; validated the requirement; then set to work designing the "correct fix" - effective, economical, and flexible (for changing troop concentrations)."

It was decided to build a new million dollar wastewater treatment facility at Tasks Force Eagle Base that would replace a 40-year-old Yugoslavian one that was old and very smelly, and another almost million dollar facility at Camp Comanche to reduce the amount of trucked waste to the Task Force Eagle Base, said Jimmy Walden, Project Engineer.

Creating this fix posed some challenges: a lack of local commercially available competition, location (it was essentially a high risk area), and force protection requirements.

The district team, lead by Daphne Ross, researched the types of treatment plants that would fit the criteria. That research led to the selection of a sequencing batch reactor (SRB) system manufactured by Farmatic, headquartered in Nortorf, Germany, with the plant's design being done by Buchart-Horn, Inc., headquartered in York, Pennsylvania.

The SRB system processes the waste in one container, which reduced the plant's cost. Its modular structure allowed for ease of construction.

"This basically old technology was rediscovered in the late 1980s in North America and Europe and is now using microchips to computerize the timing of the process," said Pat Brady, Engineering Technical Advisor. "SBRs are ideal for small communities or installations."

The advantage to this technology is the low installation cost, and low maintenance and operations.

"We also could not have a permanent structure due to requirements from USAREUR, NATO, and the Dayton Peace Accords, so this product fit the bill," said Daphne Ross, Project Manager. "Although the foundation and piping of the plants are stationary, components of the treatment plants are not. They are actually bolted together. Technically the major components could be disassembled and moved thus fulfilling the peace accords that state NATO forces are to remove all equipment upon leaving the region."

The Task Force Eagle wastewater treatment plants in Tuzla, Bosnia provide protection from contamination for not only our troops stationed in the region, but also to the local community. (Photo by William H. Flickinger)

"There are two reactors at each site," explained Ross. "While one is digesting the waste, the other is filling up. This allows for waste to be processed in a minimal amount of space, and offers the capacity of handling peak loads."

"The efficiency of treatment is excellent because you have all of the major phases of treatment accomplished in one place," said Brady. "In any standard process, microbes do the work. They eat the bad stuff, grow, and then die off as sludge. The oxygen transfer, which is needed to help the microbes do their ➤

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job, is maximized in this process because it is not flow dependent."

The waste biosolids are composted off-site and blended as a conditioner for remediated soil at an off-site facility, according to Andy Jantzer, Buchart-Horn's chief designer on the project.

What is released is clear water. Although not drinkable, it is well within the limits to be safely discharged in the river.

It took approximately one year to finish the construction of the facilities, which were completed by Feburary 2000. The construction and operations phases were coordinated by three offices: Europe District handled primary contracting, logistics and technical issues; the Corps' Base Camp Coordinating Agency's Project Engineer handled on-site inspection and field coordination; and contractor, Buchart-Horn, handled specialized technical issues such as shop drawings, design changes, plant process issues and milestone field inspections.

Buchart-Horn received the Diamond Engineering Excellence Award from the Consulting Engineers Council of Pennsylvania for their design of the Task Force Eagle Wastewater Treatment Plants.

In addition to completing the design of the wastewater treatment plants, Buchart-Horn was also awarded a technical assistance contract. This contract covered Buchart-Horn's involvement in both the construction and operations phases of the Task Force Eagle projects. Under this same contract, Buchart-Horn developed a comprehensive operations and management manual for each plant.

The design and construction of the wastewater treatment plants was a team effort by the Europe District, Corps of Engineers, Buchart-Horn, Inc. Farmatic, and the U.S. Army Europe's Environmental Office. *(Photo by William H. Flickinger)*

The plant's modular structure allowed for ease of construction. *(Photo by Daphne Ross)*

"The projects were necessary to protect our troops from contamination and diseases associated with improper treated and disposed of sewage," said Nicholls. "Further, the installation of modern treatment facilities reduced adverse exposure to the local populace and demonstrated our commitment to environmental stewardship."

A concept that has come out of this effort is something called the "Zero Footprint Base Camp" which is getting attention in the Pentagon.

The "Zero Footprint" base is essentially self-contained environmentally – all solid waste is reused (e.g., burned for energy) wastewater is treated and reused (e.g., for irrigation, dust control, fire protection) and hazardous waste is minimized or eliminated through careful material control.

"The immense success was that the concept was even considered, then actually came to fruition," said Nicholls. "This was probably the first time that environmental considerations were ever addressed in a U.S. military operation (foreign deployment) to any extensive degree and I believe it demonstrates the maturation of an environmental culture and ethic into the entire strata of the military. It has been 30 years since the National Environmental Policy Act was passed and the leadership of the military is now in the hands of this first generation of environmentally active Americans."

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Tobyhanna Army Depot marks cleanup milestone

by Craig Hoffman and Melissa K. Plummer

Tobyhanna Army Depot (TYAD), Pennsylvania, will soon become the first federal facility in Environmental Protection Agency Region III to be partially removed from the agency's Superfund National Priorities List (NPL).

EPA Region III Administrator Thomas Voltaggio plans to sign a final "Notice of Partial Deletion" later this year.

"I am very excited that TYAD will be the first federal facility in EPA Region III to have such a major portion removed from the NPL," said Lorie Baker, Superfund site manager for the U.S. Environmental Protection Agency.

"Generally, military installations are much more complex than the average private site due to the large land mass and to the many types of historical activities that are associated with such installations," said Baker. "Therefore, it is particularly rewarding to be involved in the cleanup and deletion of a military installation such as Tobyhanna."

Tobyhanna's removal from the NPL follows another milestone. In September 2000, TYAD became the first federal facility in Region III to achieve "Construction Complete" status. At that time, TYAD and Region III, in consultation with the Pennsylvania Department of Environmental Protection, signed a final Record of Decision covering 65 areas of concern.

"There are currently 37 Army facilities on the NPL," said Larry Nutter, current restoration oversight manager for Tobyhanna at the U.S. Army Environmental Center. "When each Army installation is cleaned up it should be delisted, so there will be many more in the future. It is an important milestone; the Army, the EPA and state regulators are all happy when installations are delisted."

Tobyhanna was placed on the NPL in 1990 due to the presence of volatile organic compounds in groundwater on or near the installation. The Army and EPA signed a Federal Facility Agreement that year. The agreement listed the 65 areas of concern that required investigation and/or cleanup. Since the agreement became effective, Tobyhanna and the regulatory agencies have completed three closeout documents and five Records of Decision. Of the original 65 areas of concern, 62 require no further action. The remaining three require long-term groundwater monitoring.

Known for using advanced technologies to ensure the success of soldiers on the battlefield, TYAD is the largest and most progressive communications electronics repair and fabrication facility in the Department of Defense.

EPA approved removing a major portion of TYAD from the NPL after finding no threat to health and the environment. A public notice has been placed in the Federal Register and the Regional Pocono Record newspaper inviting public comment. The 30-day comment period began June 13, 2001 and ended July 13, 2001.

After all the comments are addressed, TYAD will be partially delisted. The TYAD Restoration Advisory Board members and the public support the delisting effort.

In 1994, the estimated cost for the cleanup at TYAD was $33 million. Because of successful partnering with EPA and the Pennsylvania Department of Environmental Protection, TYAD has reduced the clean up cost to $16 million for a total saving to taxpayers of $17 million.

Technicians from OHM Inc. excavated and removed soil from the depot's Area B in July 1995. Removal of the solvent-bearing soil at the site near the Autocraft Shop significantly reduced solvent levels found in groundwater samples in the area. This improvement was a key factor in the depot being partially removed from the EPA's National Priority List this year.

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Craig Coffman works for Tobyhanna Army Depot and Melissa K. Plummer is with the Army Environmental Center. PWD

Army selects follow-on "Transformation" brigades

by Joe Burlas

Fort Richardson, Alaska; Fort Polk, Louisiana; Schofield Barracks, Hawaii; and the Pennsylvania Army National Guard will be the homes of the next units selected to transition into Interim Brigade Combat Teams (IBCTs).

"Land power remains an indispensable element in furthering America's enduring interests and provides an essential component of global engagement," said Secretary of the Army Thomas E. White. "These interim brigades will help us move towards a force that is more strategically responsive and dominant across the spectrum of military operations. Their improved deployability and lethality will enhance deterrence and meet an operational requirement that does not currently exist."

Army officials said they are coordinating with the contractor of the Interim Armored Vehicle to determine appropriate ways to accelerate IAV fielding for the two IBCTs at Fort Lewis. The Army plan is to complete fielding of the IAV for the other four brigades within three years after the Fort Lewis brigades are fielded. Once the new fielding dates are set, the Army will announce the planning dates for the other brigades.

Transformation to the IBCT design for the brigades is anticipated to take about one year for an active-component brigade, and about two years for an Army National Guard brigade, according to Army officials.

The latest brigade selections are conditional on results of an Army Program Environmental Impact Study currently being conducted, officials said. That study is slated to wrap up in the fall.

The first brigades to transform — 3rd Brigade of the 2nd ID and 1st Brigade of the 25th ID, both stationed at Fort Lewis, Washington — started the transition to IBCTs in 1999. They are scheduled to finish the process in fiscal year 2003 and 2004, respectively. "The Interim Force is a bridge to the Objective Force. The capabilities of the IBCTs fulfill an immediate requirement by substantially improving the lethality, survivability and tactical mobility of light forces while retaining the strategic deployability advantages of those forces," said Army Chief of Staff Eric K. Shinseki. "We believe the IBCTs will significantly contribute to the joint warfight as maneuver forces until technology has advanced enough to provide the Army with a lighter, more lethal and survivable Objective Force capable of rapid deployment."

Joe Burlas works for the Army News Service at the Pentagon. PWD

Revising the CP-18 ACTEDS plan

Representing Army CP-18 civilian employees, representatives for Army installations worldwide have been working hard to insure that all their constituent interests are included in the major ongoing effort to upgrade the Civilian, Training, Education and Development System (ACTEDS).

In initial meetings, CP-18 Career Program Managers (CPMs) and leaders discussed the current state of the career field and heard briefings on the impact of workplace initiatives such as commercial activities A-76 studies, privatization, Army transformation, workplace diversification, diminished civilian personnel presence, and loss of centralized recruitment and its successor, the electronic Vacancy Notification System. The goal of the participants, primarily from MACOMs representing military installation Public Works and facilities engineering careerists, was to identify the elements to revise and update the existing CP-18 ACTEDS plan.

Problems with the existing ACTEDS plan included outdated information on training courses and training providers and a lack of typical career progressions, required extensive research and analysis to identify and incorporate the career interests of the Army's environmentalists, and the need to advance important skills in communications, information management, procurement, personnel management, and leadership. In addition, Army initiatives in organizational restructuring and downsizing are removing critical corporate capabilities and continuity, resulting in the need for a system that replicates the formerly available on-site expert and face-to-face information to provide rapid-response for the anticipated younger, itinerant, and electronically-oriented future workforce.

Bill Brown, Deputy Director of Military Programs and CP-18 Functional Representative of the Chief of Engineers who manages this career program, provided the funds for revising the CP-18 ACTEDS Plan by contract or otherwise.

As our efforts, along with those of the CPMs and others, proceeded in spreading the word, participation by individuals from the greater CP-18 universe grew to include representatives from the ACSIM career field-29 (garrison management, HQUSACE and its civil works, districts, divisions, training, operations, and laboratories, individual careerists, and worldwide environmental personnel). All who were drawn into this effort volunteered their labor, insight and extensive commitment to revitalizing the CP-18 career program and identifying sources to satisfy career interests and answer many career-related questions.

After months of intense, collaborative effort, a meeting was convened on 15-16 August to review our progress. You are invited to take a look at the electronic version at http://www.jccs.com/cp18/index.html and let us know what you think.

Future efforts entail incorporating recommendations from the August meeting, demonstrating the web site at a CP-18 workshop being planned for November and again at the DPW workshop in December 2001, receiving approval from the appropriate Assistant Army Secretary responsible for the CPOL site, and replacing the existing CP-18 ACTEDS plan no later than January 2002.

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Congressional actions on the President's Budget Request

by Roland Biser

Finding out what is happening to the Military Construction Act on the Hill has never been easier. The Assistant Chief of Staff for Installation Management maintains a web page dedicated to keeping track of the actions taken by the various committees of Congress.

Each year, three bills are introduced: Military Construction Appropriations bill; Department of Defense Appropriations bill; and National Defense Authorization Bill. Each bill goes through a similar process with the significant actions being the House "markup," the Senate "markup," and conference action, wherein the House and Senate appoint members to meet together and resolve all differences between each chamber's markup of the President's Budget. Once conference action has occurred, and the respective chambers of congress (House and Senate) vote their approval, then the bill is sent to the president for signature to become a public law.

The graphic helps visualize the process.

You can get details, such as bill numbers, committee report numbers, and dates when actions occur at the ACSIM Web site: http://www.hqda.army.mil/rio/caco.htm

We invite you to check it out, and get on the mailing list to be notified when Congress takes action on any of the three bills.

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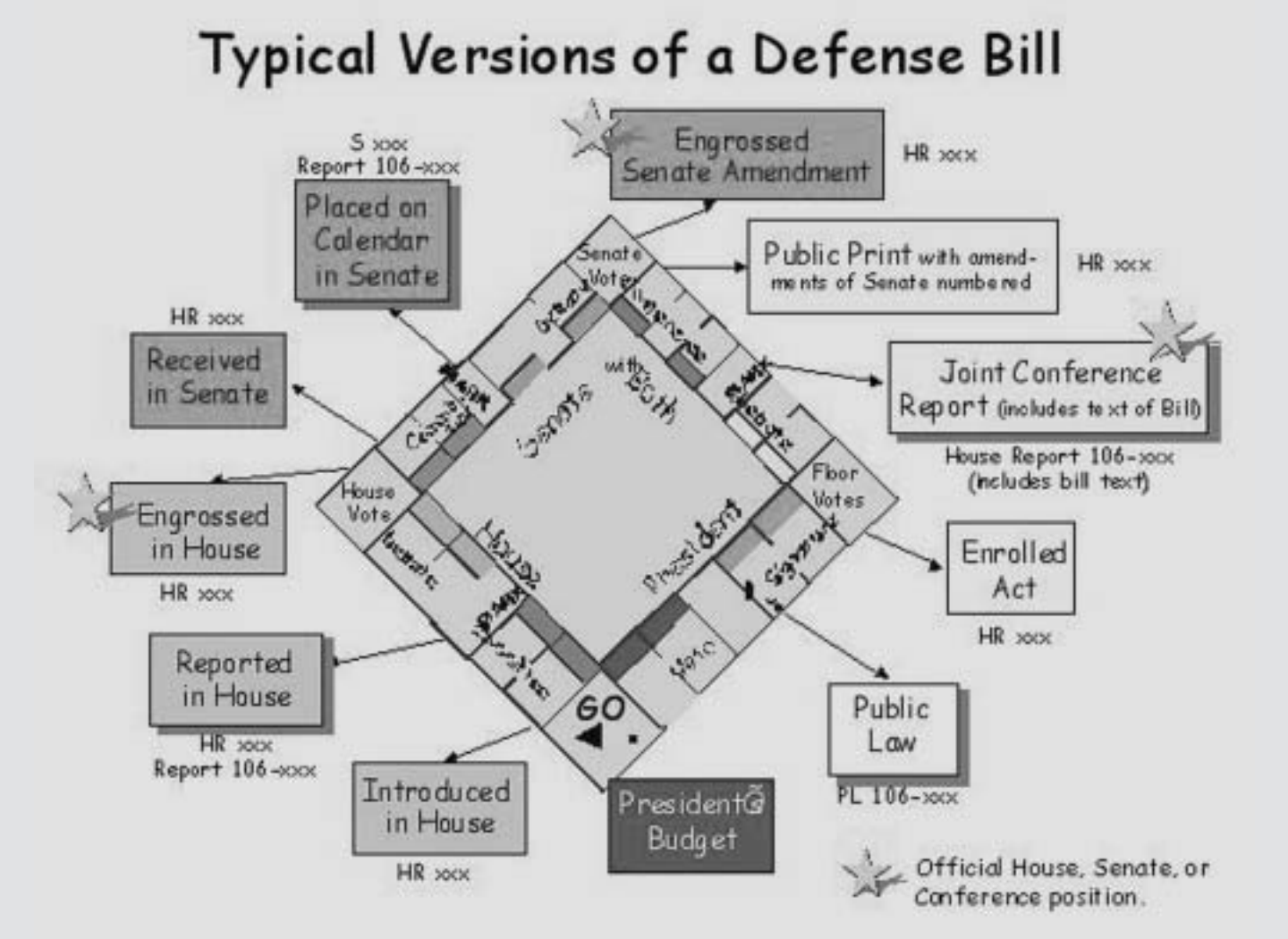

1391

by Alicia Gregory

In court you justify your position with evidence. And husbands come up with all sorts of incredible excuses to justify a night out with the boys. But if you want to justify a large dollar project to the Department of Defense or Congress, you better have a DD 1391.

"Europe District has built a business assisting BSBs (Base Support Battalions), ASGs (Area Support Groups), USAREUR (U.S. Army Europe), and others prepare DD 1391, the construction programming documents that get approval by submission up the command chain," said Jim Miller, project manager.

Miller is part of the Europe District team that prepares these programming documents for military customers. The other team members include project managers, Dave Gonzalez and Tim Huwe, and engineering technicians, David Buzard and Michael Evans.

"The DD 1391 is a document that gives both Congress and the Department of the Army answers to what for, where, when, how (including how much), and why on a project," said Huwe. "It also insures that the project meets the criteria needed by these officials."

Different from a regular work order, which is approved by the local Directorate of Public Works (DPW), or BSB commander, the DD 1391 estimates, describes, and justifies a project above a certain dollar amount. This documentation is used to obtain project approvals from the Department of the Army on repair projects costing more than $3 million and from Congress on new construction projects costing more than a half million dollars.

The military installations overseas sometimes still have a staff member designated to prepare DD 1391s, said Miller and Huwe, but many installations lost their experienced staff members due to the military drawdown overseas in the early to mid 1990s.

"The best way to complete this documentation is the old way, where the installation planner does the DD 1391," said Miller. An installation planner has the institutional knowledge of the installation. He basically knows all the "ins and outs" of his installation, which gives him an advantage to someone working outside the installation.

"We offer another way that also works well, then use our experience and expertise to keep the ASG and BSB planners informed of new requirements, to bring new personnel up to speed on engineering and technical issues in DD 1391 preparation, and to keep the program moving forward by working with our customers," continued Miller.

"Sometimes the installations don't have the personnel, or have too large of a workload to complete the programming documents," said Gonzalez.

"Most people only see the first few pages, or the summary, of the DD 1391," explained Huwe, "but these thick documents are much more involved than that. That is where the installations have difficultly. And that is where we come in."

The team performs cost estimates, construction analysis, and descriptions of the work to complete the thick document. They also may need to do a detailed economic analysis, security and environmental reviews, and information systems estimates.

DD 1391s reside on a worldwide database that contains records of all military construction projects. This database is managed by the U.S. Army Corps of Engineers. The database tracks project design and construction status. As of December 1999, the database has become web based, which makes access to the information easier to obtain.

"The database doesn't do the work for you," said Huwe. "You still have to create the document — but it does make things easier."

This team's whole purpose is to make things easier for the customer. "Often the customers will call us to ask for assistance," said Miller. The team provides hot-line assistance at no charge to the customer. The team charges for time spent producing DD 1391s, or for pieces needed for BSB-produced DD 1391s.

And the price is right for the full-blown DD 1391s. "We charge for the hours we spend on a project," explained Miller. "On unique projects we may charge $12,000 - $14,000, but on easier multiple projects we have achieved a rate of $5,000 a piece."

"AE firms can, and do, write DD 1391s, but often can't get into the DD 1391 (database), must spend extra time tracking down guidance, and feel obligated to document every item that the regulations call for because they don't have a feel for recent programming," said Miller. "One DD 1391 proposal done by an AE firm for an airfield would have cost $70, 000! But on one series of repetitive housing projects, we averaged a little more than $5,000 per DD 1391."

"Our customers know we do a good job," said Huwe. "We know the process and the system, and can make it happen behind the scenes."

Recently a customer, the 100th Area Support Group DPW, commended Miller for creating the ten bases DD 1391 documents for Efficient Basing East.

"The (DD 1391) produced were of astonishing quality considering the constricted timeframe in which they were created," wrote LTC Dwane Watsek, 100th ASG DPW. "A testament to the quality is the fact that ACSIM (Asst. Chief of Staff for Installation Management) validated the program within one week of the project review board conducted at DA level. This command would have been very hard-pressed to accomplish this task without Mr. Miller's dedicated assistance."

The team develops DD 1391s at an average of 30 to 50 different projects a year, worth $500,000 to $1 billion in programming.

And the team is often called upon by the installation DPWs or the district's own design project managers when a fuse is short, or when they can't get to it, said Miller.

That is what happened with the Wiesbaden Gym. The community worked on the DD 1391 documentation, but the deadline was Monday and the quality wasn't where they wanted it. So the District was called in to help. Gonzalez spent Thursday evening and Friday morning walking through the gym documenting deficiencies and wrote up the documentation over the weekend, but there was a still problem.

"The community is authorized a large-sized gym," explained Gonzalez. "But ➤

TRADOC/FORSCOM A-E Contracting Workshop

by Robert Winne

The second TRADOC/FORSCOM Architect-Engineer (A-E) Contracting Workshop was held in Colorado Springs, Colorado, July 24-25, 2001, hosted by the Fort Carson Directorate of Contracting. Robert Winne, Architect-Engineer Contract Manager for the Fort Lee Directorate of Engineering & Logistics (DEL), facilitated the two-day workshop, assisted by a representative from each Command's Principal Assistant Responsible for Contracting (PARC) Office (Roger Ash, TRADOC, and Sandy Bruner, FORSCOM).

The workshop displays a solid commitment from both Commands, the importance of informing and updating the Contracting and Engineering personnel on various issues and topics pertaining to A-E Contracting.

Workshop attendees included personnel from the Directorates of Contracting (DOC) and the Directorates of Public Works (DPW), who are primarily responsible for A-E Contracting at their respective installations. In all, a total of 13 installations and 33 Contracting and Engineering professionals attended the workshop. The TRADOC installations in attendance were Fort Benning, Fort Eustis, Fort Gordon, Fort Huachuca, Fort Leavenworth, Fort Lee, and Fort Monroe. FORSCOM was represented by the Army Atlanta Contracting Center, Fort Bragg, Fort Campbell, Fort Carson, Fort Dix, and Fort Hood.

One of the major topics discussed during the workshop was a thorough overview of the newly drafted and implemented "TRADOC/FORSCOM Architect-Engineering Contracting Guide Book." The guide, a collaboration between TRADOC and FORSCOM, is a comprehensive overview of the entire A-E Contracting process. Divided into six chapters, it is sequenced in chronological order of tasks, beginning with an Overview of A-E Contracting, including the delegation of responsibilities and ending with ACASS Performance Evaluations. The guide also contains 26 Appendixes with examples of various documents, forms and spreadsheets associated with A-E Contracting.

Other presentations during the workshop included lessons learned from several of the FORSCOM test sites; the Pre-Selection and Selection Board process; ACASS PC Program procedures; and a discussion on the feasibility of a consolidated A-E contracting concept.

The 2001 A-E Contracting Workshop was touted as a huge success, not only for the valuable information that was presented, but also for the network of contacts created for both Contracting and Engineering personnel for future use. The successful partnership between TRADOC and FORSCOM as well as the establishment of the annual A-E workshop will most certainly provide the resources necessary for the various Contracting and Engineering personnel to better serve their installations' Architecture and Engineering requirements.

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Robert Winne is the A-E Contract Manager at the Fort Lee DEL. PWD

TRADOC/FORSCOM A-E Contracting

"An Established Alliance"

by Robert Winne

The success of A-E Contracting within TRADOC, which is now being realized within FORSCOM under their on-going A-E test program, is a direct result of the joint-venture relationships that have been established between the Directorates of Contracting and the Directorates of Public Works. Together, both organizations are responsible for each aspect of the Contracting and Engineering processes associated with A-E Contracting.

TRADOC obtained permanent A-E Contracting Authority in April 1997, upon conclusion of a two-year test program and successful evaluation. At present, FORSCOM is in the final year of their test program, which includes Fort Carson, Fort Campbell and Fort Dix.

At the conclusion of the A-E test program within FORSCOM, personnel from the Secretary of the Army for Acquisition, Logistics and Technology (SAALT) and the U.S. Army Corps of Engi- ➤

(1391 continued from previous page)

even with a medium-sized gym, the problem was space on the ground."

The standard designs are developed with a U.S. installation in mind, but in Europe the sites on an average installation are smaller. "I had to modify the standard design to make it fit on the site," said Gonzalez.

The two men spent the weekend on a CADD machine adjusting the design in order to meet the short suspense.

"The DD 1391 was certified by Barry Saltsberg, an architect at the Corps' North Atlantic Division and programmed for FY 2004 at DA," said Gonzalez.

"People come to us because we tailor (DD 1391s) to the customer's need within the parameters of the process and current guidance," said Miller. "We're hired to meet peak requirements. And then we do it well."

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Alicia Gregory is a public affairs specialist with USACE, Europe District, Public Affairs. PWD

Revolutionary green roof technology lowers temperature, cost

(TRADOC continued from previous page)

neers will conduct a comprehensive evaluation similar to that conducted within TRADOC at the conclusion of their test period. Upon a successful evaluation, FORSCOM will obtain permanent A-E Contracting Authority.

Due to TRADOC's A-E expertise, key Contracting personnel have been called upon over the past several years to play the role of advisor to the FORSCOM PARC Office staff as well as with primary personnel from several of the test sites. This mentoring relationship has helped foster the programs at several of the test sites, creating dynamic working relationships between personnel across both commands. In fact, TRADOC has also assisted the FORSCOM PARC Office in conducting pre-evaluations at several of the test sites.

This established alliance between TRADOC and FORSCOM has proven to be beneficial to both major commands, and it is anticipated to mature and prosper for years to come. PWD

It's mid-August and energy costs seem to be mirroring the temperature - going up with little relief in sight. For building installation managers and operators, keeping buildings cool and costs down calls for creative thinking.

The innovative GreenGrid™ System, an energy saving roof technology introduced by WESTON® and ABC Supply, allows a building's roof to be transformed from a barren space that is an energy liability into a rooftop oasis of plants and grasses that acts as an extra level of insulation. At the same time, the system also provides an added benefit of controlling stormwater runoff, which is a major source of water pollution.

While many of us may not have ventured onto an office rooftop during the day, it can get exceedingly hot up there. For example, when the outside air temperature reaches 95° F, rooftop surface temperatures can be as high as 175° F-- which impacts not only the temperature within the building, but also the amount of energy necessary to cool the building to the desired temperature. By contrast, a GreenGrid™ roof rarely will get hotter than 77° F. This means cooling costs can be lowered by up to 50 percent.

The idea of using a green roof system is not new-- it has been used in Europe for 30 years. However, unlike the European systems, which are generally both complicated and costly, the GreenGrid™ System developers point out that theirs is a rooftop technology that is simple in design and cost competitive.

The GreenGrid™ system, made of recycled materials, can be installed without the need of specialized equipment and depending on the size of the roof, can be completed in a few days to a few weeks.

A lightweight, modular design, it arrives at the worksite planted and ready for installation.

Widespread use of such a system would bring enormous benefits. According to a recent study by WESTON, greening the rooftops of all city buildings in Chicago would result in annual energy savings of nearly $100 million. This translates into a reduction in peak electricity demand of 720 megawatts, or the equivalent of several coal-fired units. Green roofs also increase the life of a roof membrane, provide usable space for recreation, increase property values and retain significant rainfall, thereby reducing stormwater runoff.

For more information on the GreenGrid™ System, visit http://www.greengridroofs.com/.

Extracted from an article in EarthVision Environmental News. PWD

Recycled Army buildings build new communities

by Ronald Webster

After recent reductions and realignments, the Army now owns 50 million square feet of excess buildings that the Defense Planning Guidance, calling for no net gains in square footage, requires the Army to demolish.

Current standard Army disposal practice, such as demolition and disposal to landfills, can cost $7-9 per square foot, an expensive and environmentally wasteful option. The cost for the disposal of these excess buildings is estimated at $350 to $400 million.

Some of these buildings, however, are still usable, while some contain usable materials, including the structural wood, windows and doors. Many of the older buildings, although now unsuitable for housing, contain wood that is better quality than Americans can buy today.

"The largest available stand of old-growth timber resides in our nation's military building infrastructure," says Robert Falk at the USDA Forest Products Laboratory.

The Office of the Assistant Secretary of the Army for Installations and Environment has initiated discussions with Habitat for Humanity, a non-profit, non-governmental housing provider and other agencies, such as HUD and EPA, to determine the feasibility of either moving houses scheduled for demolition off the installations, or deconstructing to salvage building materials. Either alternative may allow the Army to better support the housing needs of local communities.

World War II - vintage barracks at Fort Chaffee contain now valuable timber.

Building deconstruction and reuse of materials can support Habitat for Humanity's "RE-store" initiative, a program that raises funds through the sale of used construction materials. These funds are then used to continue the programs of Habitat for Humanity.

For example, the Austin, Texas RE-store program alone raised $600,000 in 1999 from gross sales of $1 million. Recently many surplus installation buildings have been renovated with new windows, doors, paneling, insulation and other materials. These materials can support the national reuse initiatives, such as RE-store, or support other community housing needs that have been traditionally underserved.

Reclaimed southern pine can be sold as flooring for $3-11 per board foot.

The Office of the Assistant Secretary of the Army for Installations and Environment is involved in demonstration projects at Redstone Arsenal, Alabama, Fort Hood, Texas, and Fort Chaffee, Arkansas. Redstone Arsenal is relocating 88 excess duplexes into the community and at a lower cost than the traditional costs of disposal.

The Austin Habitat for Humanity RE-store is proposing a pilot project at Fort Hood to evaluate a deconstruction and reuse option, as opposed to landfills, and is partnering to remove over 600 large buildings at Fort Chaffee, Arkansas. Additionally, job-training initiatives for Mississippi delta residents are being investigated as part of the Chaffee deconstruction partnership. Some of the excess duplexes at Redstone and some of the salvaged materials from Chaffee may be used to address housing needs in the delta. The Rosedale, Mississippi Habitat for Humanity chapter is preparing to receive seven of the excess Redstone duplexes.

While there are a number of logistical issues to be resolved in these demonstration projects, they may form a template for a wider program that recycles buildings and building materials from the Army back into the greater community. This is potentially an important opportunity to turn Army waste streams into community resources, and at the same time save the Army demolition and disposal costs.

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Ronald Webster works for the Army Environmental Policy Institute. PWD

ACSIM Plans and Operations Division sets up new office

by Randy Klug

In a move that transferred responsibility for managing all the real property related systems under a single office, ACSIM Plans and Operations Division reorganized and created a new Program Integration Office (PIO) under the leadership of Randy Klug. This office operates under the Director, Plans and Operations Division, COL Porcelli and Stan Shelton, deputy director.

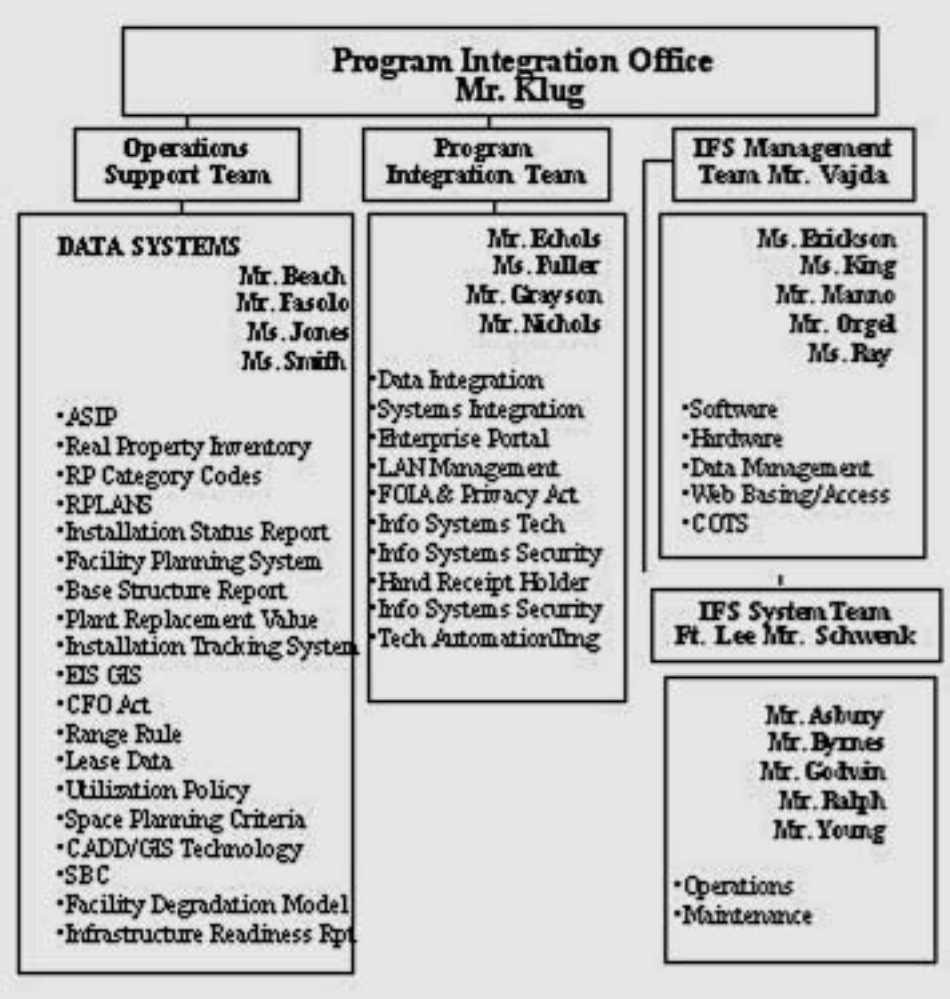
The new office has the responsibility for:

- Integrated Facilities System (IFS)
- Real Property Analysis System (RPLANS)
- Army Stationing and Installation Profile (ASIP)
- Facility Planning System (FPS)
- Army Criteria Tracking System (ACTS)
- Installation Status Report (ISR)
- Executive Information System (EIS)

It is also the overall proponent for installation GIS, to include the GIS Repository project.

The IFS/HQEIS mission and functions transferred from HQUSACE to this new office on July 1, 2001. This move was initiated as a result of an Army Audit Agency review of IFS. The review concluded that transferring the IFS/HQEIS missions and functions should result in the most efficient use of resources. IFS technical and functional system support will still be obtained from Software Engineering Center at Fort Lee (SEC-Lee), Virginia.

Randy Klug



The core of this new office comes from former elements of the DPW Management Division, Center for Public Works, and more recently, HQ's Installation Support Division. This move eliminates the fragmented systems management and retains the technical and functional knowledge within the government. There will be no immediate changes for the newly established Program Integration Office; however, there are ongoing process reviews of the systems, which might effect Program Operations in the future.

The IFS Management Team is located in the Kingman Building at Fort Belvoir. The IFS System's Team remains at their location at Fort Lee. The other teams remain at the Pentagon.

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Randy Klug is the acting chief of the Program Integration Office, Plans and Operations Division, ACSIM. PWD

Chief's Philosophy

- Every USACE soldier and civilian has four individual responsibilities:
  1. *Know your job.*
  2. *Be situationally aware.*
  3. *Be healthy.*
  4. *Treat every individual with dignity and respect.*
- Leaders set the example.
- Think through problems and let me know what **YOU** would do if **YOU** were the CG. **DON'T COMPLAIN!**
- Keep a sense of humor, enjoy your families, and have fun.

Chief's Permission Slip

Ask yourself:

1. *Is it good for my customer?*
2. *Is it legal and ethical?*
3. *Is it something I am willing to be accountable for?*

If so, don't ask for permission. You already have it.

Just do it!

US Army Corps of Engineers®

LTG Robert B. Flowers