Air Force Civil Engineer
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WORK PRIORITIES:
Back to Basics

Air Force **Civil Engineer**
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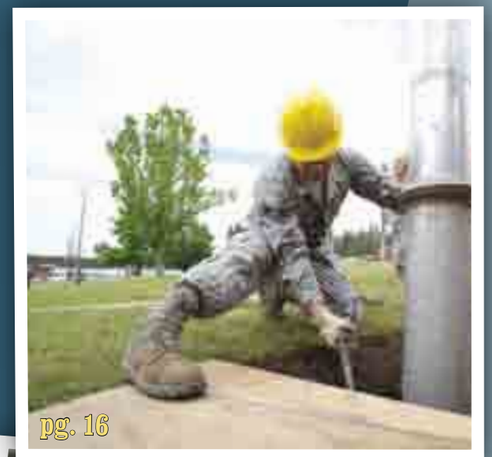
Features


pg. 16


pg. 36

Sections

On the Cover

A technician tests an HVAC system at Eglin AFB, Fla. (U.S. Air Force photo by Eddie Green)

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Seize The Day

One of my all-time favorite movie scenes is from "The Dead Poets Society." In front of a display case which holds trophies and photos of previous students, teacher John Keating (Robin Williams) talks with his students:

"You've walked past them many times, don't think you've really looked at them … eyes full of hope. They whisper their legacy to you. Listen, do you hear it? Carpe Diem, seize the day boys, make your lives extraordinary."

I think about that scene every morning when I walk into the office and pass photographs of the 23 officers who've preceded me as the Air Force Civil Engineer. From our first director of air installations, Brig. Gen. Robert Kauch to Maj. Gens. Guy Goddard, Bud Ahearn and Tim Byers, I try to imagine the challenges our career field and our Air Force faced when they began their tenure. Were we engaged in an active conflict overseas or fighting the cold war around the globe? Was the Air Force dealing with reorganization, budget cuts and manning challenges? Some days I can almost hear them say in unison as our staff walks by, "Seize the day!"

Other questions I ask myself include, "Were they as humbled and honored as I feel today to lead our civil engineer team?" and "What were the special strengths they brought into the job?" For eight of the past 13 years I've been fortunate to serve as a squadron, group and two-time wing commander. That base-level perspective gives me a special appreciation for the challenges our squadrons face every day and provides my focus. I am committed to ensuring our teams on the Air Staff and at the Air Force Civil Engineer Center never forget that we are here to serve and support our squadrons. In this issue, you'll find updates about how our transformation efforts are going at the base level and what tools we'll field to help our engineers support the Air Force mission. As Maj. Gen. Dean Fox noted in his first From The Top, "I challenge us all to look at everything we do across the very broad spectrum of engineering tasks and ensure what we're doing is delivering first-class support to the people and missions at base level."

You're all aware of the fiscal crisis facing our nation and our Air Force. The impacts of sequestration and furloughs on our ability to support the mission are unfolding as I write this note. Maj. Gen. Del Eulberg noted in his inaugural From The Top, "… fewer resources do not mean fewer requirements. We cannot ask our people to 'do more with less.' It is incumbent upon our leaders at every level to come up with ways to do their jobs more effectively and efficiently."

Today more than ever we must adopt an asset management mindset. We must understand our priorities and where we should spend that next dollar and next man-hour to drive down the life cycle cost to operate and sustain our installations. William Ward said, "Adversity causes some men to break; others, to break records." Are we facing adversity today? Absolutely. But I know our civil engineers will not break. We're at our best in times like this, solving difficult problems and leading the way for our Air Force. If you have a good idea, don't hesitate to share that with your supervisors and commanders. It's often the people who are closest to the problem who know best how to solve it. I know that with your help we will come through this challenging time even stronger than ever.

We can and should be exceptionally proud of our heritage and our traditions as civil engineers. But we should also never forget that we are part of a larger team, our United States Air Force, and we must adapt and change as our Air Force evolves to meet future threats. Let me ask you a question. There's a box on federal income tax returns titled "Your Occupation." How do you answer that question? Since 1985 I've answered it as "Air Force

Staff members in the Office of the Air Force Civil Engineer have a pre-meeting discussion under the scrutiny of the 24 past and present Civil Engineers whose photos fill the wall in the office at the Pentagon. (U.S. Air Force photo by Staff Sgt. David Salanitri)

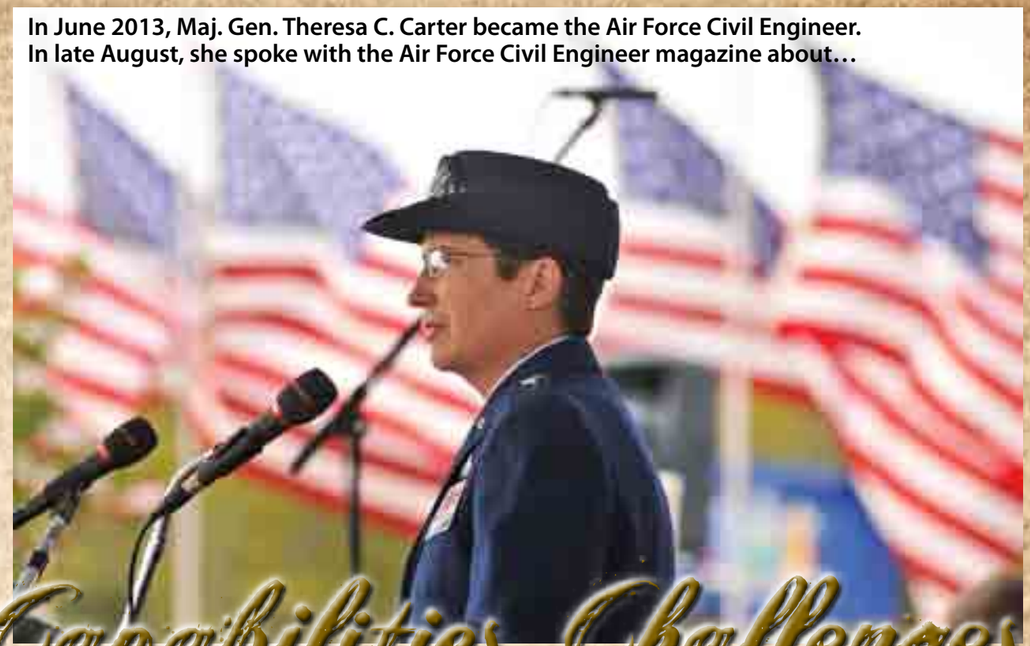
Officer." In 1999, as he took over as our Air Force Civil Engineer, Brig. Gen. Earnie Robbins, said, "Remember that in civil engineering we don't operate for our own sake. We exist to serve the Air Force mission. So don't get trapped thinking small or concentrating only on 'what's best for me.' Our profession is not 'civil engineer'— our profession is 'Air Force officer, NCO, airman or civilian.'" I don't know what may unfold over the next three years, but I do know that we will remain focused on providing the civil engineering expertise and support our Air Force needs, both at home and in deployed locations around the world.

Finally, I want you to know I am committed to continuing the effort to grow and develop ready engineers and great leaders emphasized most recently by Maj. Gen. Byers. The strength of our career field rests in the great officers, enlisted leaders and civilian professionals who've gone before us and those beginning their service today that depend on us to show them the way. We can never lose focus on our contingency engineering capabilities and must ensure we provide ready and resilient engineers able to meet the challenges of today and tomorrow.

At my recent promotion ceremony, I asked retired Chief Master Sgts. Ed Lubbers and Karl Deutsch to pin the second star on my flight cap. I did so to emphasize the vital role mentors play in our growth and development. These two chiefs taught me volumes about leadership and caring for people. They embody my belief that the best leaders bring out the best in others. I look forward to the opportunity to lead our civil engineer team and am dedicated to doing all that I can to ensure Civil Engineers lead the way!

Theresa C. Carter
Major General, USAF
The Civil Engineer

In June 2013, Maj. Gen. Theresa C. Carter became the Air Force Civil Engineer. In late August, she spoke with the Air Force Civil Engineer magazine about…



Capabilities, Challenges, Communication

CE Magazine: General Carter, what goals have you set for yourself and for Civil Engineering?

Maj Gen Carter: I've served eight of the past thirteen years in command positions at the installation level where I've been a consumer of the policies and guidance developed here at the Pentagon. I also wasn't exclusively thinking about civil engineering issues as I focused on running some very large and complex organizations and installations. So I wanted to dedicate the first 60 days on the job to doing a deep dive into our civil engineering programs and ensure I understood where we were in order to decide where we need to focus in the near and long term.

The first focus area is readiness. We need to make sure that we take all the lessons learned, certainly the ones we've gathered over the last 10 to 12 years of war in Iraq and Afghanistan, and use them to help us prepare for the future. As our defense strategy and our nation shifts the focus to the Pacific, in some ways the future may be a "blast from the past," back to things such as force beddown, base recovery after attack, or passive defense. To make sure we have trained and ready civil engineers, I think it's going to be a blend of both capitalizing on lessons learned over the past decade, as well as getting back to some of the basics that have long been a staple of what civil engineers do in a contingency environment.

A second area where I'm focused on developing both a long-term strategy and short-term goals is driving down the life cycle cost to operate and sustain our installations. It's continuing the asset management journey, continuing to recognize that our budgets are strained and will become more so — certainly in the near term. How do we develop a way of thinking and problem solving that always has that asset management viewpoint front and center, so that every time we spend a dollar, we have a mechanism to make sure we know the best place to spend it.

I think the third thing is continuing to look at – again, perhaps rethink – how we deliver a capability, and what different or innovative tools we may need to provide installation support for the greater Air Force team. What is the requirement from a quality of life standpoint or a mission standpoint, and how do we best satisfy that requirement? For example, do we have to provide a service organically?

(Above) Then Brig. Gen. Theresa Carter speaks at a Veteran's Day event at the Fort Sam Houston National Cemetery, Joint Base San Antonio-Ft. Sam Houston, Texas. (U.S. Air Force photo)

Could we privatize the activity or rely on the local Veterans community using public-private or public-public partnerships?

CE Magazine: Your leadership comes during a time of significant financial challenges for the military and the government as a whole. How will these challenges affect the Air Force CE mission?

Maj Gen Carter: I think the fiscal challenges are naturally going to force us to do a couple of things. One is, again, to think differently about how we approach and solve problems, changing how we think about a situation or maybe questioning the assumptions we've made about it.

Another is getting back to the things that are core and central to the role we play in the greater Air Force mission. What has to be done no matter what? How do you prioritize all activities such that we're making sure that we have the time, the dollars and the people to do things that are absolutely critical? Implicit in that kind of analysis are a whole series of value judgments that I'm not sure that we can make in isolation. If we haven't taken the time to ask commanders or customers for whom we're providing that service or that capability how much they value it, we may be missing a target. We may be providing an "A+" product that they either don't need or can accept it with a "C" level of investment.

CE Magazine: You're the first person to come to this job directly from a base-level "customer" position in more than 50 years. What perspective do you bring as a leader from an installation rather than a major command?

Maj Gen Carter: I think it helps provide a better sense of the complete picture, the end-to-end spectrum, from the development of strategy and guidance here at the Pentagon all the way down to the squadron or installation level, where they have to implement whatever we develop. It has helped highlight the impact that this distance between the idea generation and the idea implementation and execution can have.

Then Brig. Gen. Theresa C. Carter speaks in her office in Texas as Joint Base San Antonio and 502nd Air Base Wing commander, a position she held from July 2011 to May 2013. (U.S. Air Force photo by Mike O'Rear)

We may develop a policy or put guidance into place and think we understand the effect when it gets to the field. But sometimes it takes a lot more people or time, or by the time the squadron actually implements, it doesn't have the intended effect. In some ways, I think we need to better bridge the gap between policy and strategy development and execution. I recently read an interesting article about closing the chasm between strategy and execution and the argument was that you need a blend of people doing both. The person developing the strategy always needs to consider, "Can this really be executed?" And the person executing really needs to understand the why — "Why was this put in place and how do I fit into that equation?"

CE Magazine: Speaking of the base-level mission, the CE community often bears the brunt of budget cuts with reductions in spending on Air Force infrastructure. Do you have a message or words of encouragement to the CE members in the field who are faced with doing less with less for the foreseeable future?

Maj Gen Carter: I think there's clearly a recognition by senior leaders here on the Air Staff that the reductions made in the CE "pots" of money over the last few years are not sustainable, that at some point we have to look at other sources to help pay bills. There's also recognition that our engineers are doing phenomenal work with limited resources, taking care of our infrastructure and doing it as best they can.

Where we can help is, again, in making some of those value judgments and decisions about where our priorities are, so that we clearly know what are our most critical facilities and what parts of those facilities are the most important. I have found that it's often the folks closest to where the work is being accomplished who sometimes have the best ideas about how to save money or do things smarter. We need to keep encouraging them to look for ways to do that. I think it's continuing to stay positive, and in some ways not focus on the problem of not enough resources, but what does that constrained environment give me an opportunity to do or to stop doing?

CE Magazine: What insight did you gain from your experience as commander of the Department of Defense's largest joint base, Joint Base San Antonio? Do you see more joint basing in the future?

Maj Gen Carter: It was certainly an invaluable experience to be part of a complex organization and to command an installation where there was often a new challenge every day. When I spoke at the superintendent's course at AFIT, I told them I could probably distill joint basing down to a couple of words — ownership and trust. A mission or wing commander doesn't necessarily have to own the installation support, he or she just needs to know and trust that they will get the support they need, when they need it, where they need it and in the quality and quantity required for them to successfully accomplish their mission.

Maj. Gen. Theresa Carter, the Civil Engineer, and Chief Master Sgt. Jerry Lewis, the Civil Engineer Chief of Enlisted Matters, look on as Airman 1st Class Corbin Mixon demonstrates the capabilities of the X-Ray Toolkit on an M905 U.S. Bomb Fuse during their visit to the 5th CES at Minot AFB, N.D. The XTK program, along with the XRS-150 (X-Ray Source) is part of a lightweight "flyaway" kit that is unique to AFGSC and allows for a helicopter insertion of an EOD rapid response team to any of the 165 offbase missile facilities. (U.S. Air Force photo by SrA Kristoffer Kaubisch)

Joint basing is all about balancing resources and requirements. As you said, Joint Base San Antonio was the largest in DOD: We supported a population of over 380,000 service members, family members, retirees, dependents, and veterans in the greater San Antonio community and had more than 200 different mission partners from all four services, the Coast Guard and multiple DOD agencies. So clearly not every mission partner can have their number one priority satisfied. In fact, we can only work one number priority at a time, whether that's our top facility priority, quality of life priority, etc.. It's all about ensuring all mission partners had insight and visibility into the processes we used to prioritize requirements.

I don't know if in the future you'll see more joint bases like the twelve created by the 2005 BRAC language and the Office of the Secretary of Defense's implementing guidance. But I certainly see, as we look at rightsizing our installations, that you could have more missions from other services performed on a classic Air Force or Army installation.

CE Magazine: CEs have experienced a high ops tempo during operations in Southwest Asia for more than a decade now. How do you think this experience has changed CE's contingency mission?

Maj Gen Carter: I don't know if I would entirely say it's changed. It has changed, but not in the sense that we're now going to completely refocus what we do in a contingency environment. Rather, I think we've demonstrated that we have a capacity and a capability to do a variety of missions. The question going forward is what of that do we need to retain to be prepared to fight conflicts having some of those same characteristics we saw in Southwest Asia? And then how do we adjust our home-station training to add those requirements.

I know, without exception, that every commander in the deployed setting that's had an engineer helping them get the mission done would say that Air Force engineers bring a phenomenal capability to the table. We can be very flexible in our thinking, we're good at understanding what the commander requires to meet the mission and then we always figure out a way to get the job done. Sometimes it's with the same skills that we've been demonstrating for the past several decades, and sometimes it's figuring out very quickly a new concept, a new technique, or a new procedure. Air Force engineers have demonstrated that nobody does the installations business in a deployed setting better than we do.

CE Magazine: What mechanisms do you foresee for capturing the lessons learned or the skills and knowledge that civil engineers have gained in the past decade?

Maj Gen Carter: Well, I think certainly capturing through the Air Force formal lessons learned process that we have used and should continue to use. EOD in particular was very good, with their CoBRA training, at taking almost near real-time feedback from teams deployed in Southwest Asia and feeding that information back to the folks getting ready to deploy to prepare them for the evolving threat.

Brig. Gen. Theresa Carter (left), JBSA and 502 ABW commander, poses with Medal of Honor recipient Specialist Leroy Petry (center) and the former 502 ABW command chief, Chief Master Sgt. Juan Lewis, during SFC Petry's visit to the Warrior and Family Support Center at JBSA-Fort Sam Houston (courtesy photo).

I think it's important that we continue capturing some of the things our engineers did in terms of how to work in a joint environment, understanding the different services' organizational constructs and how they program and deliver projects, through interviews and lessons learned with teams as they return from deployment. We also need to evaluate our training programs, such as Silver Flag, to make sure we incorporate this important information, and make sure we have the core requirements that we had for many decades.

CE Magazine: General Carter, somewhere out there's a young cadet or second lieutenant that's starting out in civil engineering who, like you, will one day lead civil engineering. If you could meet him or her, what advice would you give?

Maj Gen Carter: Thinking back on some of the valuable pieces of advice I received as a young lieutenant, one was certainly to find a good senior NCO, give him or her your hand receipt and listen and learn as much as you can. I have learned more from a handful of senior NCOs throughout my career than I think I ever taught them. It's also being open to learning, recognizing that you're never going to know everything. Even in the position I'm in right now, I need to be willing to listen and to learn so that ultimately I can make the best decision possible.

A second thing I would say is that whatever the Air Force asks you to do, do it to the absolute best of your ability. The way you demonstrate your ability to handle bigger jobs, serve at a higher rank, is just that — it's your job performance. You can't always have the best job or the best boss in the world. Take care of the things that you can control, and the rest of your career and where you go will take care of themselves.

And finally, I think as a group, we engineers tend to say, "I majored in engineering or math because I didn't like English, I didn't like to write." In the Air Force – and I think the same is true in engineering in the private sector – you have to be able to communicate and be very comfortable with it up and down the chain of command and with your peers. We shouldn't undersell the importance of our ability to write, our ability to think, and our ability to communicate. Anything that a young cadet or a brand new lieutenant could do to get practice is those areas is certainly worth doing.

CE Magazine: Is there anything else that you would like to add?

Maj Gen Carter: I'm incredibly humbled by the opportunity I have to serve as the Air Force Civil Engineer and I look forward to meeting our engineers in the field as I visit our installations. I'm proud of the work our team is doing each and every day and I know that no matter how difficult the challenge we will find a way to make a difference and accomplish the mission.

Brig. Gen. Theresa C. Carter, Joint Base San Antonio and 502nd Air Base Wing commander, speaks at the 2012 JBSA Awards ceremony, the first joint annual awards ceremony where all services – Army, Marines, Navy, Air Force and Coast Guard – were represented in the 10 overall categories. (U.S. Air Force photo)

Transformation *in Action*

Lt. Col. Chris Meeker
HQ AFCEC/CPAD

Airman Sharp, in the HVAC shop at Fighter AFB, had a busy day. He conducted preventive maintenance on four facilities and responded to an outage at a critical facility, Hangar 1. All of Airman Sharp's actions were captured in the TRIRIGA system so that the Operations Engineering Element can see updated condition, future PM requirements and even replacement years for each HVAC system. Of note, the workforce managers realize that the chiller at Hangar 1 has crossed a negative threshold. With its mean-time-between-failures now down to 90 days, the system will fail four years before expected and needs replacement within the three- to seven-year focus period for the HVAC Sub-AMP Working Group.

Meanwhile, at the Pentagon … Colonel Calculator has been asked to look three to seven years into the future and answer a basic question: How much money is needed to operate and maintain the Air Force's installations? Fortunately, Airman Sharp and Airmen everywhere are feeding him information. He can answer this question! His proposal is going well until one leader states, "We can't afford this entire budget — what's the risk to your mission if we cut this by 25 percent?" Colonel Calculator explains the risk isn't to "his" mission and defers to mission owners in the room. General Raptor references his Combat Air Forces risk portfolio, "A 25 percent cut means I'll lose $300 million, including $135 million in airfield pavements, my runway at Warthog AFB and a renovation at my most important facility at Fighter AFB — Hangar 1. I'm not sure I can accept that risk." An informed debate ensues….

It's an exciting time to be an Air Force Civil Engineer. On October 1, CE squadrons across the globe reached final operating capability with respect to Program Action Directive 12-03 and the next step in CE Transformation … Accelerated. This article is a look at how all of the CET-A moving pieces — changes to policy, organizational structure, training, tools and technology — will come together to drive the transformed CE enterprise toward our shared goals.

The Case for CET-A

Although current fiscal realities are driving our transformation to accelerate, PAD 12-03 and the accompanying Programming Plan weren't solely a reaction to this environment, nor did they undo steps previously taken in CE Transformation. This change was expected and a positive opportunity to grow from the lessons we've learned in implementing asset management.

"Even as we re-organized in 2007, I knew and truly hoped we would continue to change," said retired Maj. Gen. Del Eulberg, the Civil Engineer from 2006 to 2010. "All successful organizations must continually learn, grow and adapt. I'm excited that this new PAD has captured the lessons from the last seven years and is another step forward for the Air Force and our engineers."

Designing the Future

The base-level components of the PAD were developed by a global base support team with representatives from all walks of CE life. They reviewed lessons learned since the last reorganization, identified best practices and ultimately set the strategic vision for how base-level CEs will organize, train and equip for the future. Three primary themes emerged:

Operations Flights are the key. Ops flights were largely uninvolved with asset management under the Transformation launched in 2007. The unintended result was that the craftsmen most knowledgeable about the condition of our assets were not involved in the process to identify our greatest risks. The transformed CE squadron is built on Sub-Activity Management Plan teams focused in an operations engineering element that blends engineer and craftsmen skills, leading to a future state in which every CE executes Asset Management every day to target risk and save money.

By the bases, for the bases. The processes laid out in the P-Plan are tried and tested best practices that have produced results at the base-level. This will continue as installations will serve as pilot bases for transformation initiatives and business rules to drive progress.

Trust our commanders and engineers in the field. The P-Plan was not built on the assumption that its language must overcome resistance to change, but rather that leaders at base level are ready to execute transformation.

What Does It All Mean?

CE Transformation is about Asset Management, variously called a "journey," a "culture," and a "philosophy." Base-level final operating capability marks the point where philosophy ends and execution begins. Squadron reorganization is just the start. Engineer units at the base were reorganized to enable transformation initiatives in many forms. Over the next few years NexGen IT or TRIRIGA (see sidebar, page 12), asset visibility, sustainment management systems (e.g., BUILDER), new work prioritization models, preventative maintenance standards, linear segmentation, playbooks and more will be fielded at our installations. Viewing these initiatives in context of the problems that Asset Management seeks to solve is really the only way to make sense of all the moving pieces.

Defining the Problems

Considering our Installations as weapon systems allows us to create a simple, operational framework to define the four basic problems we're trying to solve (see figure).

Problem 1: *How do we optimally fuel and configure the installation to achieve the mission?*
Realizing in the mid-2000s that jet fuel consumption made us the world's largest consumer of energy, the Air Force questioned long-standing practices. For example, answering the question "Is it necessary to use afterburners on takeoff to achieve mission success?" the Air Force successfully changed standards and processes, saving almost $8.6 billion per year. We must apply the same principles to the services we provide to fuel the Air Force's installations, such as working lights, custodial services and environmental permits. We must look for ways to change standards, improve processes and reduce resource demand to spend only what we must for mission success and not a penny more.

The P-Plan created the need for Sub-AMP managers and working groups for service contracts, leases, environmental programs and other areas. They will be tasked to identify optimal resourcing requirements across the long-term budget planning cycle and tie those requirements to levels of service. Asset Visibility Teams from the Air Force Civil Engineer Center will, among other things, help bases identify opportunities to reduce demand in utility bills and save real money that can apply to other Air Force capabilities. In the long-term, to align supply with demand, TRIRIGA will provide constant visibility on asset utilization.

Problem 2: *How do we maintain an installation to maximize operational effectiveness and the life of every system?*
If a CEO of a major company looked at our in-house workforce, they would see $1.5 billion per year in spending power. This staggering assessment truly means that the decisions that commanders, foremen and technicians make every day in every shop about how to invest man-hours represents at least three times the buying power of our centralized project accounts. For this reason, AFCEC's Operations Directorate has published new standard work priorities (see article, p. 16) including stringent new preventative maintenance standards that must become a focus of daily operations.

We must be able to communicate the resourcing levels required to maintain these optimal standards. The Air Force aircraft maintenance community works to exacting standards in maintaining their weapons systems. They can predict resources to such a level that if funding is reduced, they can quantify the resulting reduction in capability (sorties). Today, installations sustainment funding is based solely on percentage points in a model that doesn't convey the mission or financial impacts of deferring maintenance. What's the impact if we decrease an installation's work order supply budget? We really don't have an objective answer. This is the key reason that installations will be asked to inventory and assess infrastructure assets to more

exacting detail using the sustainment management system tool BUILDER as well as the linear segmentation effort using other tools like PAVER SMS and IGIS.

All of these SMS tools will ultimately interface with TRIRIGA, with Airmen using it daily to automatically populate asset visibility data. Once this process is fully established, asset visibility will simultaneously help base craftsmen manage maintenance demand while helping budget builders in the Pentagon show the impact of resource reduction in real mission risks from real systems that won't get maintained. In an effort to assist the bases and kick-start this initiative, the Air Staff has funded sustainable infrastructure assessments to conduct initial data gathering at the base, and AFCEC's Asset Visibility Team will rotate through all bases on a four-year timeline. But, engineers at the base will own this process, be responsible for the infrastructure and ultimately gain the most benefit from this effort.

Problem 3: *How do we renew the installation's fleet at a rate that prevents mission failure?*
In the aircraft maintenance world, this is gospel, with flight-hour thresholds for depot maintenance based on degradation curves showing the optimal time for lifecycle component renewal or replacement. We have the same degradation curves for roofs, chillers and pipes.

Our AMPs must mature into a system that utilizes the same methodology to define lifecycle requirements within a deliberate risk-based approach to articulating budget alternatives. Sub-AMP managers at the base, largely in ops engineering, will be tasked to understand what assets they have, document when these assets will require replacement and define the mission impact of each asset. In fiscal year 2015, bases will use SMS tools to the greatest extent possible to begin detailed documentation of our seven-year budget requirements within the AMP process.

Problem 4: *If we can't afford the cumulative answer to the first three questions (total cost of ownership), where do we take risk in installations?*
We can and will answer the first three questions to define the true, complete cost of providing installations supporting the Air Force mission. The objective analysis will prove what engineers already know — the bill will be huge. The Air Force will have to make hard choices. We will have to either divest of capabilities or accept the risk that those capabilities won't be fully ready when needed most. To make sure these hard decisions are well-informed, the transformed CE squadrons must all share a common tongue to articulate costs and mission risk. AFCEC's Planning and Integration Directorate will publish business rules in January of 2014 to baseline the new asset management risk framework that will enable consistent, risk-based communication to investment decision makers across the enterprise. Engineers at every level must unite in this common effort and language to reach our shared goals.

Lt Col Meeker is the Chief of Comprehensive Program Development in the Planning and Integration Directorate, Air Force Civil Engineer Center, JB San Antonio-Lackland, Texas. He has been involved in CE Transformation since 2007 beginning at Air Staff level, then at base-level as an Operations Flight Chief, and now from AFCEC.

Why NexGen IT?

A7CIS Staff

CE Transformation is a fundamental shift from a decentralized management approach to a centralized process. The whole business model for Air Force Civil Engineering is changing and so is the IT system needed to support it. NexGen IT will replace the legacy IT systems currently used to allow engineers to make better decisions based on real-time data to minimize risk to the mission and Airmen.

NexGen IT will improve information flow between civil engineers at all levels – installations, major commands and headquarters. At the squadron level, NexGen IT will facilitate real-time data analysis between the flights to increase day-to-day productivity. It will also reduce the number of manual data calls and reports to headquarters since the data is readily available and visible at all levels of command.

NexGen IT will be implemented by defined Capability Groups. CGs 1 and 2 cover Real Property, Operations (Work and Supply Management), Project Management, Energy Management and Cost Accounting. The software platform chosen for NextGen CGs 1 and 2 is TRIRIGA, a commercial-off-the-shelf system. TRIRIGA brings with it a wealth of business practices new to the Air Force but mature within the commercial facility maintenance industry. As a result of the new business processes, CE Playbooks will help standardize how to perform daily tasks at the base level.

Training plans for CG 1 and 2 are under development and will include robust web-based training for all users as well as instructor-led training for "Power Users," key base-level individuals identified to support the preparation for and deployment of TRIRIGA. Training will ramp up about six months prior to the scheduled TRIRIGA deployment at bases by major commands. Instructor- led training will occur about two weeks before the actual deployment day. The web based training will be available via the CE Virtual Learning Center and will include software simulation and exercises providing users an enhanced training experience.

For more information on NexGen IT, please visit the NexGen IT Page on the CE Portal, https://app.eis.af.mil/a7cportal/it_initiatives/nexgen_it/Pages/HomePage.aspx, or contact the NexGen IT Workflow Team at usaf.pentagon.af-a4-7.mbx.a7c-nexgen-it-workflow@mail.mil

CE Operations Transformation: THE BIG PICTURE

Lt. Col. Patrick Obruba
AFCEC/COO

As a civil engineer, by now you should be aware that the Air Force Civil Engineer community has begun to transform the way in which we maintain facilities and infrastructure at our installations. You may have actually participated in a real property installed equipment validation survey at your base or prepared a DD Form 1354, Transfer and Acceptance of DoD Real Property, for your commander's signature. You could have been assigned to the operations engineering element in an operations flight. You might have seen the new work order prioritization that elevates preventive maintenance (think Recurring Work Program or RWP) to the level just below emergency or unplanned work (see article, p. 16). Each of these efforts, among many others, is tied into the bigger picture of our Civil Engineer Transformation and the "Operations Flight of the Future."

The success of our transformation builds upon each of these smaller but important efforts — if we fail in one we impact the whole effort. The simplified diagram *(see figure)* may help tie all of the components together.

In some respects the model for our new way of doing business is remarkably similar to the way we have always maintained our airfield pavements. We traditionally keep a airfield layout map-of-record, broken up into component parts. The installation RPIE inventory and its associated, mission-based priorities serve the same purpose for the rest of the base infrastructure. The Airfield Pavement Evaluation team regularly visits every airfield and performs an in-depth analysis. New Asset Visibility Teams will do the same for the rest of our facilities.

When an emergency happens on the airfield, we know it is linked to the mission and usually drop everything to fix it. Our new work order priorities will help us do the same for everything else. We regularly perform high-priority preventive maintenance on our airfield. Standardized PM task lists based on industry standards will allow us to do the same for the rest of the infrastructure. We track the condition of our airfield pavements in the PAVER program. The BUILDER Sustainment Management System will do the same for our vertical facilities.

Finally, we use all of that information to create a five-year plan of project-level airfield sustainment and restoration requirements. The system-specific Activity Management Plans and supporting sub-AMP data identify requirements across programs that CE is responsible for, including facilities. These AMPs will ultimately feed into the Air Force Comprehensive Asset Management Plan, or AFCAMP, where leadership can prioritize where the limited funding allocated to infrastructure — built and natural — should go.

If we have been doing this all along with airfield pavements why haven't we embraced this method for our other facilities? One reason is that while this analysis could have been done manually, it would have been unbelievably time consuming to gather this data at the installation level, let alone at the MAJCOM or Air Force, and furthermore we never had a tool to tie it all together in that manner.

If you want to know more about CE Operations transformation, the AFCEC Operations Maintenance Division has begun to compile tools and information for you. Visit the Work Management webpage at https://www.my.af.mil/gcss-af/USAF/content/g7v8Q, download the manuals, read the policy letters, and provide us feedback on what additional tools you'd like to see there. And feel free to spread the word!

Lt. Col. Obruba is the Chief, Operations Maintenance Division, Air Force Civil Engineer Center, Tyndall AFB, Fla.

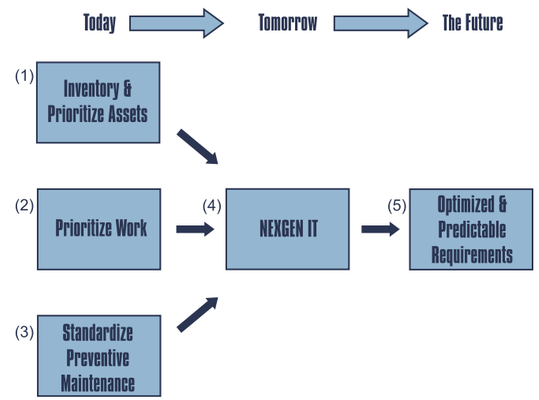


Figure. The components of CE operations transformation are tied together in a logical flow.

Standardizing Preventive Maintenance

Maj. Thang Nguyen & Capt. Gregory Ward
HQ ACC/A7OO
Lt. Col. Michael Johnson
49 CES/CC
Capt. Brian Wernle
49 CES/CEOE

As the Air Force Civil Engineer career field continues to implement the transformation laid out in Program Action Directive 12-3, special focus is placed on preventive maintenance, particularly optimizing asset life while balancing risk to the mission under constrained resources. Knowing the right PM at installations allows a definition of cost associated with that PM — the first step for capturing defendable PM costs to develop program objective memoranda.

What will it take to meet this vision? To begin to answer this question the Operations Division at Air Combat Command, Joint Base Langley-Eustis, Va., hosted a rapid improvement event in August 2012. The RIE group, with representation from Headquarters Air Force, the Air Force Civil Engineer Center, eight major commands and numerous bases, mapped out the PM process and determined two critical components.

The first is accurate Real Property Installed Equipment inventories. Existing data in the Interim Work Information Management System, or IWIMS, will not migrate into TRIRIGA. At the enterprise level, inventories will start with visits by centrally funded sustainable infrastructure assessment teams and in-house facility inspection teams, with data uploaded to BUILDER™. Using BUILDER Remote Entry Database, local squadron engineers will keep data current and capture additional assets. If TRIRIGA implementation predates a base's SIA visit, inventories will be done locally using an RSMEANS Costworks database. RPIE data captured using either of these methods will be migrated to TRIRIGA to provide the basis for the PM program.

The second is standardized PM actions. A CostWorks platform within TRIRIGA will provide rightsized, industry standard maintenance task lists for a wide range of assets. CEs at Kadena Air Base, Japan, used CostWorks for the HVAC PM program, and Pacific Air Forces' Operations Division presented RSMeans' standard RPIE naming convention at a CE PM Working Group in April 2012.

During the August 2012 event, the 49th Civil Engineer Squadron at Holloman Air Force Base, N.M., volunteered to field test a PM program within their HVAC shop. Over the next five months they completed their inventory and loaded an entirely new RWP utilizing CostWorks task lists loaded as IWIMS Maintenance Action Sheets. In February 2013, the field test began with plans to run for one year. The implementation provided vast insight into what the changes entail and the particular shortcomings and resulting impacts.

Before the field test, the HVAC shop tracked 400 key equipment components in their RWP; after the inventory, they were tracking 1,700. Using the CostWorks-provided industry standard task lists, Holloman revamped their PM program, taking care to synchronize the PM schedules in two ways: 1) all work is done on buildings in the same vicinity, and 2) monthly, quarterly, semi-annual and annual tasks for all a building's components align for the same day or week. Both initiatives save time and money. Implementing industry standards reduced annual PM hour requirements from 17,000 to 13,000 man-hours. Although PM tasks increased by 18 percent, the PM man-hour requirements dropped by 23 percent, showing that even with increased size of inventories, it is possible to do all necessary PM using industry standards and synchronized scheduling. The field test also highlights the criticality of having a complete RPIE inventory to identify PM requirements and to match data elements to those used in RSMeans CostWorks.

With the field test underway, the ACC Operations Division began to analyze CostWorks for other shops. While PM Task Lists, or PMTLs, (i.e., legacy Maintenance Actions Sheets) covered nearly all HVAC and fire alarms assets, other shops had large gaps where industry standards were unavailable for many assets (as high as 85 percent in some).

ACC engineers found a solution. First, using existing RWP data in IWIMS they pulled a list of common PM actions for each ACC shop and compared them to CostWorks PMTLs to tie as many as possible to industry standards. For those without equivalent standards, subject matter expert teams developed new standardized PMTLs, incorporating best practices of existing Maintenance Actions Sheets, Unified Facility Criteria, Engineering Technical Letters and Air Force Instructions. Benchmarking CostWorks' format, ACC developed PMTLs that specify tasks, frequencies and man-hours required for each PM action. This gap solution can be tested at ACC installations, and was provided to AFCEC for possible enterprise-wide consideration.

CE Transformation and the PM program revamp are critical to our success. So far, the results of the field test at Holloman are proving that if we work smarter and not harder, we can do more than we think.

Maj. Nguyen is the Operations Flight manager and Capt. Ward is a staff officer in the Operations Engineering Branch, Air Combat Command, JB Langley-Eustis, Va.; Lt. Col. Johnson is the commander and Capt. Wernle is the Operations Engineering Element chief, 49 CES, Holloman AFB, N.M.

Operations Engineering and Asset Management Education

AFIT's Civil Engineer School plays a vital, relevant and connected role in CE Transformation

Capt. Bert Liddell
AFIT/CEM

As "CE-Transformation" introduces new functional responsibilities for civil engineers, the Civil Engineer School at the Air Force Institute of Technology, Wright-Patterson Air Force Base, Ohio, is keeping pace in providing professional development opportunities focused on transformational changes.

Among these opportunities are courses assisting in the implementation of operations engineering into CE Operations units and the expansion of asset management responsibilities through Activity Management Plans and Comprehensive Asset Management Plans, known as AMPs and CAMPs, respectively. The school's Operations Engineering (MGT 436) and Asset Management Optimization (MGT 417) courses are 30-hour instructor-led programs with three continuing education credits awarded upon completion of curriculum requirements.

These courses are delivered in residence and through on-site platforms, satellite transmissions, video teleconferencing and internet streaming. For example, this past April, more than 20 members of the 436th Civil Engineer Squadron, Dover AFB, Del., attended the Asset Management Optimization course through a hybrid of distance learning and on-site instruction. They gathered in a VTC-enabled conference room at Dover for three hours per day over a five-day period to participate in lessons delivered by AFIT through distance learning. The following week, instructors from the Civil Engineer School arrived on site for a three-day forum where attendees completed curriculum requirements in class through hands-on exercises in asset management execution.

Asset Management Optimization Course

This course explores practices outlined in the Programming Plan for Implementation of Program Action Directive 12-03 such as asset management exploration and its relation to the development of AMPs and CAMPs, managing AMP and CAMP issues, and discussions with major command and Air Force-level AMP and CAMP managers. Other practices covered include sustainable infrastructure assessments; infrastructure risk management modeling; facility space management and planning; data analysis strategies for identifying abnormalities in asset performance; conducting root cause analysis and benchmarking practices for identifying infrastructure requirements; modeling asset life-cycle costs and capturing return on investments; and forming a business case analysis.

Operations Engineering Course

This course focuses on the Operations Engineering, or CEOE, responsibilities outlined in the P-Plan beginning with an orientation and overview for the three primary functions referred to as material control, service contracts, and requirements and optimization. The course includes discussion and practice of infrastructure asset management and the concept of AMPs and their relation to CEOE; financial and risk management practices; validation of requirements; work classification; asset prioritization; in-service work plan development; facility condition assessments, warranty management; real property capitalization; engineering and operations collaboration through design reviews; industrial control systems augmentation; and labor scheduling practices.

CE-Transformation is upon us. The Civil Engineer School provides a pathway for CEs to take on its implementation. To find out more about AFIT's MGT 436 and MGT 417 courses, go on the AFIT web site at http://www.afit.edu/cess/Course_List.cfm?tab=2#ENG.

Capt. Liddell is an instructor at the Civil Engineer School, Air Force Institute of Technology, Wright-Patterson AFB, Ohio.

The author, Capt. Bert Liddell, teaches a portion of the MGT 417 course through video teleconferencing. AFIT's Civil Engineer School uses video teleconferencing as well as on-site platforms, satellite transmission and internet streaming to reach distance-learning students. (courtesy photo)

CEs NEW WORK PRIORITIES

Maj. William Pringle
AFCEC/COO

In June 2013, Civil Engineering published new sustainment work priorities. The old work classifications — "Emergency, Urgent, and Routine"— worked for us for over 40 years, so why change them now?

These original work classifications supported a pre-computer, paper-based service call. The concept of service requests sorted by really hot (emergency), warm (urgent) and cold (routine) requirements is still common in the maintenance community. Technology, especially the use of a computerized maintenance management system, has exponentially improved our ability to gather and track better data and allow that data to proactively guide and inform maintenance activities.

CE's new CMMS is TRIRIGA, and we will use its capability for multi-tier work classification, which is one of the commercial standards we're adopting. Work requests will either be scheduled or unscheduled and we'll use TRIRIGA to split the scheduled work requests into proactive efforts like preventative maintenance and plant operations; corrective maintenance; and enhancement work.

CE's number one priority will always be emergencies (classification 1, unscheduled maintenance) that affect the mission or reduce operational effectiveness. Once mitigated, the remaining work can be reduced in priority and converted to scheduled maintenance work. To put our emergency response in context, in fiscal 2012 CE operations flights expended less than one percent of their total direct time on emergency work.

The new second priority (scheduled maintenance) has two classifications: 2A, Preventive Maintenance and Plant Operations and 2B, Contingency Construction Projects. Formerly known as the recurring work program, PM and plant operations work are second only to emergencies in terms of assigning available operations flight time in the in-service work plan. Applying this priority is paramount for remaining proactive and ensuring our current infrastructure remains operational. The goal is to keep our good assets good and drive a reduction in unscheduled maintenance and corrective maintenance. PM is manpower intensive, so if resources are drastically reduced, CE units should still be able to accomplish priorities 1 and 2A.

Contingency Construction Projects (2B) are large-scale, multi-craft home station facility projects (i.e., work orders) critical to the readiness of our Airmen. Operations Iraqi Freedom and Enduring Freedom taught us that building and maintaining facilities, not just Harvest BEAR assets, should remain an Air Force Civil Engineer core competency. Contingency Construction Projects are rated high to emphasize their importance in training ready engineers and to ensure man-hours are reserved to meet this critical Status of Resources and Training System, or SORTS, requirement (directed by AFI 10-210). The 2B classification may also be used by bases to assign a higher than normal priority to a large corrective maintenance or even enhancement work project and still get great training.

Priority 3, Scheduled Sustainment/Corrective Maintenance, work is broken up into three categories: 3A High, 3B Medium and 3C Low. Priority 3A High can be translated as the legacy "urgent" classification, scheduled sustainment work that will have great mission impact risk if not completed. Risk Assessment Code, or RAC, categories I through III and Fire Safety Deficiency codes 1 and 2 and projects with a high return on investment would also be considered in this category. In another example of taking a cue from industry, we are eliminating the fixed time frame expectations to complete work (i.e., no automatic generation of a fixed required completion date). Instead, the operations flight will be able to work with each customer individually to set an agreed completion date. While standard norms may be developed by each base for response times, we will no longer use the legacy timeframes as a metric. Completion rates — compliance with the agreed timeframes — will become the new enterprise-wide common metric. Ultimately, the scheduling skills of CE should be honed and effectively managed by the new Operations Engineering element.

Priority 3B Medium is sustainment/corrective work that has moderate mission impact, and may have the potential to escalate to 3A High. Emergency work that has been mitigated may be reprioritized as 3B Medium work. After the threat of mission failure is eliminated, completing restoration or repairing may still need to be expedited. RAC 4 and 5 work may also fall into this category. Priority 3B Medium may be viewed as a bucket for scheduling on an expedited basis to cover a variety of customer needs, for example a time-sensitive completion date.

Priority 3C Low work is similar to what we used to consider "Routine" work. Priority 3C work has low mission impact and equipment sustainment risk. As with 3A High work, the time constraint for 3C Low work was removed. Work in this class should be the first sustainment or corrective maintenance to be deferred or even dropped (which assumes cessation of all enhancement work).

The final priority is scheduled Enhancement work. The nature of this work is often "special interest" and while not directly supporting our priorities of mission and sustainment, it becomes priority at the bidding of base leadership. Priority 4A is work that, while not supporting mission, is prioritized by the base for execution with local labor. Priority 4B, while also "nice-to-have" work, could be funded for execution by other units. Priorities 4A and 4B should be the first things an operations flight ceases to perform in the event resources are no longer available. Naturally engineers will not escape all enhancement work (e.g., air shows, changes of command, etc.), but they should begin to mitigate or reduce the man-hours expended on enhancement work by clearly articulating its relative priority in comparison to mission and sustainment. By tracking all these requirements across the four categories, we can present a strategic picture of the resources required to support each type of work over time and make better decisions on how to apply limited man-hours and funding.

These revised sustainment work priorities will ensure resources are applied systematically to address local mission risk, resource constraints and readiness training requirements. They will eliminate the artificiality of pre-determined timelines associated with legacy "Urgent" and "Routine" jobs. Most importantly, with the support of TRIRIGA, the new work priorities will change our way of thinking, allowing us to sustain bases more proactively and efficiently with 21st Century technology and business practices.

With available resources decreasing, we have to prioritize our work better, abandon the concept of "worst first," and focus on what is absolutely necessary to keep our bases' missions moving forward.

Col. Andrew Lambert, who leads the Operations Directorate at the Air Force Civil Engineer Center's detachment at Tyndall AFB, Fla, stated it best: "If you consider asset management as 'how to apply the next dollar' the new CE Ops work priorities can be thought of as how to apply the next available man-hour."

Maj. Pringle is the Operations Maintenance Support Chief in the Operations Directorate, Air Force Civil Engineer Center Detachment, Tyndall AFB, Fla.

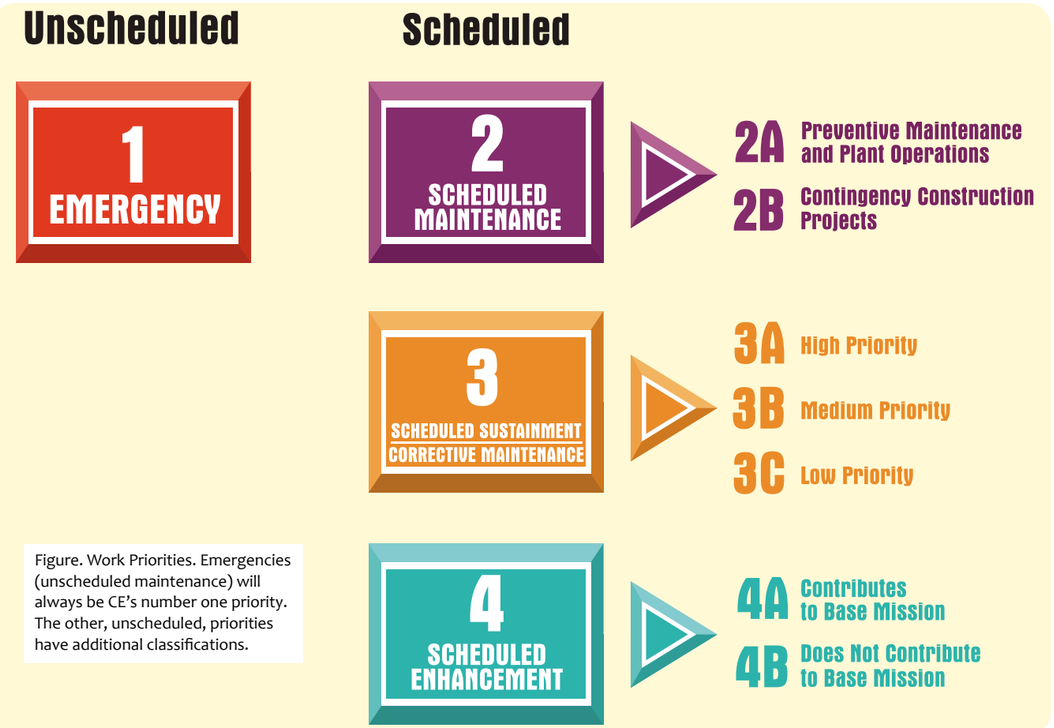


Figure. Work Priorities. Emergencies (unscheduled maintenance) will always be CE's number one priority. The other, unscheduled, priorities have additional classifications.

Partnerships, Communication Are Key to Installation Support Teams' Success

Eric M. Grill
AFCEC/PA

With current fiscal and manpower constraints, base and major command civil engineers have a new way to help navigate the environmental regulatory process.

Less than eight months after their implementation, installation support teams from the Air Force Civil Engineer Center, Joint Base San Antonio-Lackland, Texas, have started programming, managing and executing all installation environmental compliance and environmental restoration accounts, or ERA, activities. The 18 ISTs are organized geographically and are composed of Air Force engineers, scientists and program managers.

According to Suzanne Bilbrey, who heads the Operations Division within AFCEC's Environmental Directorate, the teams are responsible for a base's technical reach forward and for the environmental permits and plans.

"More importantly, they are there to support the installation's environmental mission," she said.

The 18 teams are assigned to one of three regions within the continental United States — East, Mid-West and West — or to two overseas "storefronts," the U. S. Air Forces in Europe and Pacific Air Forces (see Figure). The IST at Joint Base Elmendorf-Richardson, Alaska, is assigned to PACAF's storefront.

While not every team is the same, ISTs generally comprise environmental experts in air quality, water quality, hazardous waste, natural resources and cultural resources.

"If the assigned IST doesn't have a skill set an individual base needs, they can go to another IST to get that capability," Bilbrey said.

As part of CE transformation, in 2010 the Air Force started restructuring how base environmental programs are run and ultimately centralized the programs' management within AFCEC's Environmental Directorate in 2012, according to Eldon Hix, the directorate's chief.

"With the restructure, manpower was downsized and shifted; some of the MAJCOM and base positions came here to AFCEC and others went away," said Hix. "In a world where we have to balance personnel challenges with fiscal reality, the ISTs allow us to leverage the capabilities we have to meet the Air Force's environmental mission. They give installations and regulators the basis for a single point of contact no matter what the environmental issue is."

In the eight months since the ISTs' establishment, the Air Force's number of enforcement actions has gone down. According to Bilbrey, this success means the Air Force and AFCEC has now been able to apply the resources, manpower and money to achieve the synergy needed to get to environmental compliance.

One of the biggest challenges the ISTs face is communication.

"Within the ISTs, we are assuming the roles of the base and the major command civil engineer in keeping their respective commanders informed," said Richard Trevino, the deputy chief of the Environmental Directorate's Operations Division at AFCEC. "Because of requirements such as plans and permits, we are also assuming a role that wing commanders used to have. We have to maintain that constant flow of communication and reassure all involved that we're going to be there to help them."

Another issue affecting the comfort level of MAJCOMs and installations is the loss of assets, said Bilbrey.

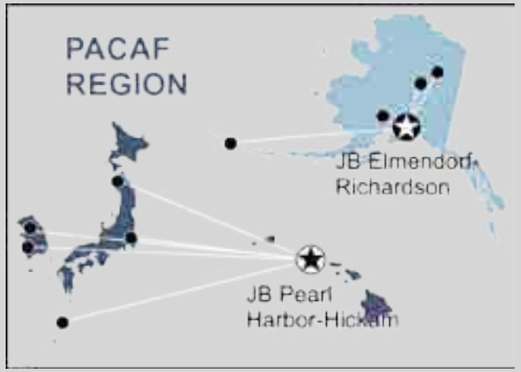
Both Bilbrey and Trevino are CEs who recently joined the AFCEC team after many years at base and major commands, including positions as base civil engineers, deputy BCEs and mission support group deputies.

"Nobody wants to lose control of their assets," said Bilbrey. "We can empathize with them; we've both been there. We know what it takes to get base level requirements done. Getting buy-in to the IST concept from the MAJCOM, wing and CE commanders is a huge, no-kidding concern for us. We know the only way to do that is to constantly communicate and show them we bring value."

For Patty Ogorzaly, the East Region Support Team lead, ISTs' success is based on "trust, both with the bases themselves as well as the regulatory agencies," she said. "In the environmental career field, networking is paramount for correcting issues in the best possible way for the base and the Air Force. It takes time to build relationships and we'll continue to do that to be successful."

According to Ogorzaly, before moving to AFCEC from Air Combat Command, she had built those relationships. But, because RSTs and ISTs are assigned by location rather than MAJCOM, IST members have had to rebuild some relationships with regulators, bases and commands.

"Bottomline, we're the support to the wing commander to make sure the mission is not impeded," said Bilbrey. "Our goal — utopian as it is — may be having zero reports for actions or zero spills, but our primary function is ensuring environmental compliance is not an impediment to getting the mission done. The only way we're going to get it done is through communication and collaboration."

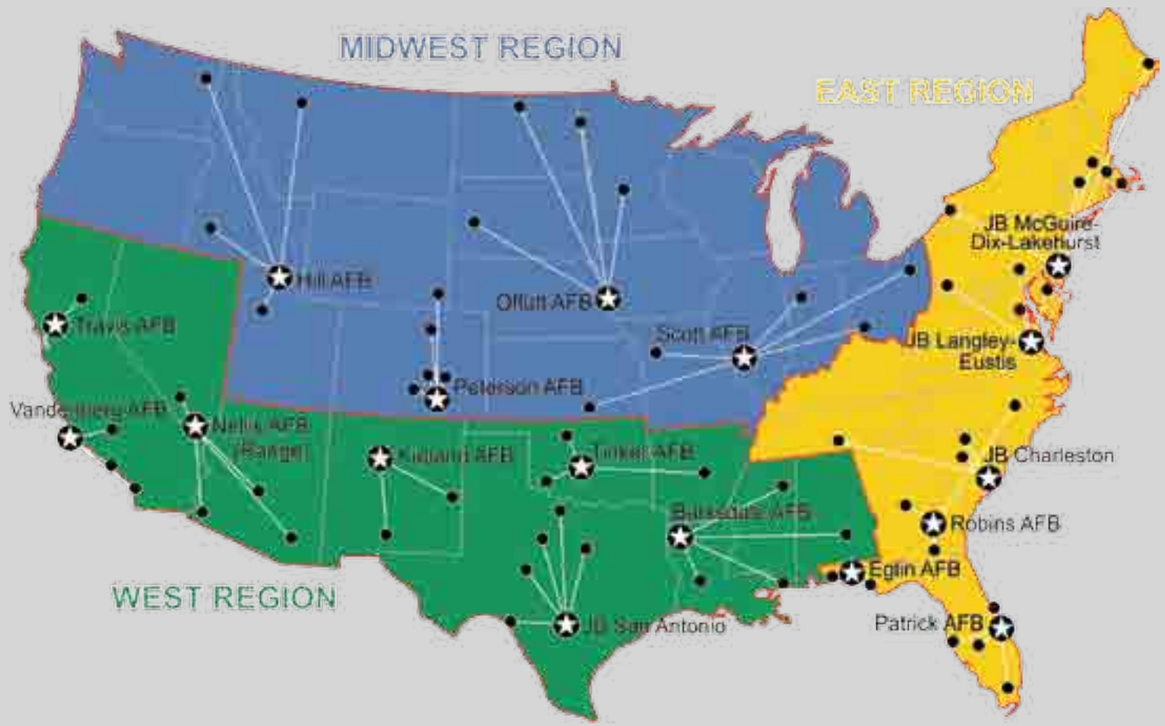


As for the IST members themselves, they're all personally committed to making the process work.

"For those on AFCEC's Installation Support Teams, it's always a matter of pride in what they do." said Trevino.

Figure. 18 Installation Support Teams and 2 Storefronts are assigned to 5 regions.

- **Teams/Storefronts**
- **Installations**



As The Active Duty Curtin Award Winner...

Desert Bulls Lead The Charge

Lt. Col. Donald Ohlemacher
HQ USAF/A7C

The 49th Civil Engineer Squadron at Holloman Air Force Base, N.M., received the 2012 Society of American Military Engineers' Robert H. Curtin Award as the most outstanding large Civil Engineer unit in the U.S. Air Force. The award capped a year of outstanding achievements for the unit, which included executing a more than $200 million design and construction program fueled by mission realignments; innovative asset management solutions to reduce lifecycle operating costs; and forging solid relationships across first responders to deliver excellent emergency response and incident management capabilities.

Excellent performance across all mission areas proved that the Holloman "Desert Bulls" were worthy of the distinction of being named "best" in the Air Force. At the heart of their success are dedicated and well-led military, civilian and contractor professionals working selflessly to execute a challenging mission in difficult and uncertain times.

As part of Air Combat Command, Holloman is home to an operational F-22 Raptor squadron, a remotely piloted aircraft formal training unit for MQ-1 and MQ-9 pilots and sensor operators, and a near 1,000-strong German air force Tornado FTU. An Air Force Reserve fighter group also flies adjacent to active duty units through a successful total force integration relationship.

Holloman is home to a diverse array of tenant units, including the 49th Material Maintenance Group that provides expeditionary support for BEAR assets, the 96th Test Group and a space control squadron. Holloman abuts the White Sands Missile Range and is responsible for the management of an extensive built and natural environment. Its large infrastructure system and overall total manpower authorizations make the 49 CES the third largest unit in ACC.

Holloman's expansive real property footprint includes sustainment of three active runways; a 105-mile waterline that taps a mountain lake plus well fields that extend over 30 miles south of base; and primary power distribution lines along a remote 10-mile, high-speed test track.

In addition to current mission requirements, 49 CES led the way in transitioning Holloman's operational F-22 squadron to Tyndall AFB, Fla., and making final preparations to beddown an FTU of 50 F-16s from Luke AFB, Ariz., as it continues to adjust facilities and infrastructure support for the rapidly changing RPA enterprise. Tackling these issues inside the 49 CES took years, built on sound partnerships with site activation task forces from ACC and Air Education and Training Command and effective program development that directly supports new mission workload and continues base development of current mission support.

A large number of military construction and sustainment, restoration, modernization and demolition projects helped the 49 CES top the charts in ACC for program development as engineers managed over $200 million in on-going construction. Through a period of downsizing base-level resources to centralize activities under CE-Transformation, the 49 CES built effective partnerships across the squadron to ensure mission success, including the award of $56 million in construction in the last two months of the fiscal year.

These amazing accomplishments drove significant mission impacts that helped the Desert Bulls stand out against others, but it would take more demonstrated successes to win.

The 49th CES worked to realign its organizational structure to the operations engineering construct. The operations flight stood up a strong requirements and optimization function as part of the Air Force pilot-unit for HVAC standardized preventive maintenance program. The unit was already effectively prioritizing work tasks and managing leadership expectations to focus diminishing work order supply dollars toward the base's highest mission requirements. But, with an asset management focus, the 49 CES pulled craftsmen from the shops to stand up "facility inspection teams" to inventory and assess the condition of the base infrastructure. The FITs looked at buildings as a "system of systems" and developed basic criteria to grade and document the condition of each component within facilities. Using an Excel database (as a precursor to BUILDER), they tracked the data and built tools to improve resource decision-making.

Using the Prioritized Asset List methodology of "tiering" facilities based on mission dependency, they were able to visualize the overall condition of the base in each asset class and show wing leadership which deficiencies presented the greatest risk to the mission. They realized the outcome of FIT inspections would ensure a better-informed and higher-quality base comprehensive asset management plan. Achieving full asset visibility in this manner allowed 49 CES to improve command and control of its resources and focus on the base's sustainment needs. The unit shared lessons learned with ACC and the Air Force Civil Engineer Center for consideration as an enterprise-wide solution for the "Operations Flight of the Future."

Protecting real property assets is just as important as managing them. The 49 CES expanded the Emergency Communications Center operations by bringing Security Forces and Medical functions into the main fire station for consolidated dispatch enabled by Monaco and e911 systems. The unit exercised the ECC capability to perfection in day-to-day operations and married up with emergency operations center, or EOC, operations in numerous wing exercises and real world contingencies. Coupled with its seamless Emergency Management program and 10-2 plan, the 49 CES protected the wing's mission through synergistic effects from EOD, EM, Fire and the entire Disaster Response Force. When inspected by ACC, evaluators noted the entire approach was top-notch and state-of-the-art.

Winning the Curtin Award was truly a proud accomplishment for the 49 CES and everyone in the organization can claim a piece of the prize.

As their commander during this period, I never got tired of adding the words "instrumental in winning the 2012 Curtin Award as 'best' in the Air Force" to the decorations, evaluations or awards of the more than 540 proud professionals who simply did the best they could with what they had to execute the mission. They lean on each other and together they earned the right to call themselves "the best."

Lt. Col. Ohlemacher was the commander of the 49th CES, Holloman AFB, N.M., when the unit won the 2012 Curtin Award. He now works as Chief, Strategic Planning Branch in the Office of the Civil Engineer, Washington, D.C.

Members of the 49 CES, Holloman AFB, N.M., pose for a photo on Jan. 16, 2012, to commemorate the squadron's recognition as the 2012 winners of the Curtin Award for best large civil engineer squadron in the Air Force. (U.S. Air Force photo by Senior Airman DeAndre Curtiss)

In Winning The 2012 Curtin Award, The 27 SOCES Lives Up To Its Motto....

"IT CAN BE DONE!"

Lt. Col. Anthony S. Figiera
27 SOCES/CC

The 27 SOCES is a small squadron executing big things.

A $1.29 billion beddown — the largest military construction program in the Air Force — is transforming Cannon Air Force Base in New Mexico into the "Western Home of America's Air Commandos." Within the next two years, Cannon's 27th Special Operations Wing will become the largest wing in Air Force Special Operations Command and the fourth largest wing in the Air Force.

Leading the expansion charge are the Commando Engineers of the 27th Special Operations Civil Engineer Squadron. For their efforts, the 27 SOCES was named the 2012 Major General Curtin award winner as the Best Small Civil Engineer Squadron in the Air Force.

With their motto, "It can be done!" and a total of less than 400 assigned personnel, the squadron consistently finds ways to stretch a meager budget and modest human capital to support the 27 SOW beddown and the ever-changing missions of Special Operations Forces across the globe.

MILCON

For visitors to Cannon AFB, evidence of the largest military construction program in the Air Force is clear. The skyline is littered with cranes and the streets clogged with construction vehicles. The 27 SOCES is currently executing 23 active MILCON projects worth $336 million, with an additional seven projects worth $133 million in design or solicitation.

The construction pace is as amazing as the size of the program. At peak production, the two on-base batch plants can produce one truck of concrete every 45 seconds. During construction of the new 1.2-million-square-foot parking apron for MC-130J Commando II aircraft in the fall of 2012, concrete placement valued at more than $500,000 occurred each day. Within the next year, the 27 SOCES will deliver two new 96-person dormitories, a remotely piloted aircraft operations center, a consolidated communications facility, three special operations squadron operations facilities, two 66,000-foot hangars and an additional one million square feet of airfield ramp.

Commando Construction

It's not just the contracted projects that set Cannon apart. Military and civilian craftsmen in the 27 SOCES Operations Flight fill the gaps and seams left by the MILCON program. During the past year, Cannon executed 18 large, multi-craft work orders worth about $831,000. Using in-house labor saved the government an estimated $885,000 over contract costs and provided valuable on-the-job training for young craftsmen.

Commando CEs constructed and renovated nine restroom facilities and partnered with the Force Support Squadron to build a new lounge at the Landing Zone Consolidated Club using non-appropriated funds. "Dagger Alley" has drawn new customers and increased club sales by more than $9,000 in the past six months. Xeriscaping of six acres of land by the squadron reduced annual irrigation by 900 thousand gallons, lessening demand on the local aquifer.

Several of the in-house projects were mission critical. One was also historical: Dirt Boyz from the 27 SOCES constructed the Air Force's first ever low-dust tilt rotor landing zone at the nearby Melrose Air Force Range (see article p. 28). Completed in May, 2013, the project provides the 20th Special Operations Squadron's CV-22 Osprey fleet effective training while reducing engine maintenance by $1.6 million a year. Capitalizing on innovative soil stabilization technologies, CEs from the 27 SOCES built the pad for less than five percent of the cost required for a paved landing zone. The project was so successful that the squadron is working to expand the first pad and build two additional pads by the end of the calendar year.

Tech. Sgt. Shaun Lyle, 27th Special Operations Civil Engineer Squadron and another member of the Specialized Maintenance Team work on floor plans for the reconstruction of a lounge at the consolidated club at Cannon Air Force Base, N.M., on Sept. 7, 2012. (U.S. Air Force photo by Airman 1st Class Alexxis Pons Abascal)

Contingency Support

In addition to their impressive in-garrison efforts, the 27 SOCES remains ready at all times to support SOF contingencies worldwide. AFSOC's unique Air Rapid Response Kit, or ARRK, provides bed down and command and control capability for up to 300 Air Commandos. The 27 SOCES engineers are poised to deploy within 24 hours to establish initial operational capability, and once on the ground, can have the ARRK up and running within five hours

Supporting the Combined Joint Special Operations Air Component, from December 2012 through April 2013, 27 SOCES engineers expanded the mission at Bagram Airfield, Afghanistan, by driving the beddown of 300 additional SOF personnel. With less than two weeks notice, 27 SOCES forward deployed eight craftsmen to support the vast effort. The four-month construction effort included installing brand new latrine and laundry facilities, expanding electrical capacity, improving force protection bunkers and renovating aircraft maintenance hangars. The Commando engineers partnered with their joint Navy SEABEE teammates to procure equipment and materials, keeping costs minimal and construction timely.

During the past year, 27 SOCES Airmen deployed to three remote bases in the U.S. Africa Command area of responsibility, providing unconventional mission support in austere environments. For example, Commando CEs designed and constructed a 3.2 km fence to secure an airfield from wild hippopotami. The 27 SOCES was also handpicked by U.S. Special Operations Command to support a civil-military affairs effort in South America.

It Can Be Done!

From the high plains of eastern New Mexico, to the deserts of Afghanistan and Africa to the jungles of South America, the "Quiet Professionals" of the 27 SOCES build, maintain and protect SOF assets and provide agile combat support wherever and whenever needed. The secret to the 27 SOCES's ability to execute the highest quality products at such a rapid pace is in its people – both military and civilian. Their commitment to excellence and belief that it "can be done" continues to drive the small squadron to bigger things, including the transformation of Cannon from a small F-16 base to the world's premier Special Operations platform.

Lt. Col. Figiera is the commander of the 27th Special Operations Civil Engineer Squadron, Cannon AFB, N.M.

Members of the 27 SOCES pose for a group photo after being presented with the Air Force's Outstanding Civil Small Engineer Unit Award at Cannon Air Force Base, N.M., Feb. 11, 2013. (U.S. Air Force photo by Senior Airman James Bell)

The commander of the Guard's 2012 Curtin Award Winner discusses…

Winning in the New Normal

Lt. Col. Gregory Walters
145 CES/CC

The 145th Civil Engineer Squadron, a North Carolina Air National Guard Unit in Charlotte, N.C., received the 2012 Maj. Gen. Robert Curtin Award, recognizing them as the year's outstanding CE unit for the Air Reserve Component. We're honored to be singled out as special among so many Guard units that accomplish so much despite the challenges we all face.

It would be difficult to understand life within a typical ANG civil engineer squadron today without first understanding the transformation that has taken place since I left active duty and joined the NCANG in 1997.

Before Sept. 11, 2001, most Guard CE units comprised citizen-soldiers who daily worked as licensed engineers, contractors or tradesmen. There was a steady tempo of monthly weekend unit training assemblies and one two-week annual training period, with the occasional state emergency response for floods, hurricanes or ice storms. The two-week AT was usually a deployment for training or it may have included a week at Silver Flag. No matter the training, even those who didn't have a trade as their full-time career could easily follow the lead of the professional craftsman.

The reductions in force have resulted in a lot of our professionally licensed skill-sets leaving to focus on the more competitive civilian sector construction market. The increase in deployments since 9/11 has also prompted an exit of tradesmen. Most have struggled through at least one deployment while trying to keep a small business afloat or hoping their company had a new construction contract waiting for them. Although programs such as Yellow Ribbin and Employer Support of the Guard and Reserve have helped, many in the Guard and Reserve remain fearful they won't have a job upon returning home. The more casual Guard-employer relationship of the 1990s now requires emphasis and communication to ensure the bottomline of the employer and the Guard's mission needs are mutually beneficial.

Previously, we could count on deploying as a team and relied on our mix of talents to carry the day. Now, with individual deployment taskings, the focus must be on the qualification of the individual. At the same time, the average age of traditional Guard members continues to decline. Much like active duty, we are seeing younger people with little trade background or work experience joining as a way to pay for an education.

How does this translate to daily life in an Guard CE unit? I would say we struggle with many of the same issues active duty and Reserve CE units wrestle with: How to get young Airmen — enlisted and officer— trained when there sometimes just isn't enough time. The 39 days we have to complete the same training requirements also includes Total Force Awareness Training, preparation for inspections and audits, recognition, commander's calls, medical appointments and other wing functions.

For North Carolina, today's required focus on training has proven to be a good thing. Now our traditional guardsmen hone their skills on a wide range of mutually supportive tasks, including completing recurring maintenance to support a short-staffed state civilian work force; digging into checklist requirements to support a compliance inspection; and working community service projects.

What I have always found is, as engineers – active duty, Reserve or Guard — when the boots hit the ground we always work together to get the mission accomplished. We are all here to build "battle-ready" engineers.

What makes the 145 CES special? Fiscal 2012 was a busy year for us. Our squadron has 109 military and 16 full-time technicians and active guard reserve members, as well as 52 contractors who are state fire and maintenance personnel. We are responsible for 212 facilities (555,884 square feet) and a total of 217 acres at two sites (one a regional training site).

We executed approximately $10 million in military and minor construction and sustainment, restoration, and modernization projects, adding two LEED Silver facilities to our installations. The squadron's three-person engineer team designed and awarded 31 projects worth $1.25 million. Our CEs completed $780,000 in energy-saving photovoltaic solar and smart meter projects and in 2012, the 145th Airlift Wing achieved a 23-percent reduction in energy use since 2009.

The 145th CES Fire Emergency Services, which is fully integrated with the Charlotte city fire departments, completed 239 ARFF, 976 structural, 274 vehicle and 152 medical responses. The FES also served as the lead planner for a major accident response exercise involving three operational and 11 support agencies and 142 responders.

With the mission essential equipment training tempo up 215 percent from Fiscal 2011, we trained 279 active duty, Guard and Reserve in 21 classes. We had an 87-percent RTS use rate, with 6,539 man-days of training over 294 training days, encompassing 1,547 student and 211 units. We deployed 48 short tons of disaster relief beddown systems to Patriot Exercise 2012 at Volk Field, Wis., and two of our personnel trained 55 CEs on DRBS set-up, operation and redeployment.

What makes the Guard special? We are not special, although we do have a few advantages over the active component. First, most of our members remain in a unit for their career. Staying around that long gives us an opportunity to know each other's strengths and weaknesses, and adjust accordingly. Our two-week AT does allow us to get away from the main base demands and focus on training. The Regional Training Sites, combined with the DFT program, helps units focus on training and maximize their opportunities. In general, I believe the Guard has significantly more flexibility to manage their training needs.

To take optimal advantage of this flexibility, as well as the wealth of personal knowledge and experience of our seasoned non-commissioned officers, we created an Executive Council. Composed of senior master sergeants and above, the council has been a valuable tool in bridging the needs of the mission with the training and development needs of the squadron. Everything we do can be tied back to one of the council's three main focus points: Core Values, Core Competencies and Key Relationships. Our typical UTA includes not only skills training, but briefings on topics such as professional development, educational and job opportunities and community support efforts. To help build relationships and improve resiliency, our unit chaplin is included in our UTAs. This focus and support by other organizations has allowed the squadron leadership, including the chiefs and first sergeant, more time to accomplish strategic planning.

Am I anything special? No, I am just an old, crusty engineer who has had the opportunity to learn from active, Guard and Reserve commanders before me, some good, some great. I would encourage three pieces of advice engrained by previous leaders: Make training your business, empower the enlisted force and get involved. When we train, we grow. When we grow, people see opportunities. If we place these things in the hands of our experienced NCOs, we can expect it to get done right. When we get involved, with families, community or charitable organizations, we are planting seeds that will reap future rewards.

Lt. Col. Walters is the commander of the 145 CES, an Air National Guard unit in Charlotte, N.C.

The author, Lt. Col. Gregory Walters (second row, right) poses with military and civilian members of the 145th Civil Engineering Squadron, on May 16, 2013, at the Air National Guard base in Charlotte, N.C., after they were presented with the Curtin Award by Col. Peter Sartori (first row, right) and Chief Master Sgt. Dan Eakman (first row, left), the ANG Civil Engineer and Career Field Manager, respectively. (U.S. Air Force photo by Tech. Sgt. Patricia Findley)

9 Seconds To Act

Design and Location of Active Vehicle Barriers

Jeffrey Nielsen, P.E.
AFCEC/COSC
Tracy Coughlin, P.E.
AFCEC/COAT

Active vehicle barriers are one of the quickest and most effective deterrents available to help security forces maintain secure perimeters for Air Force installations. In our article in the previous issue of CE Magazine (Vol. 21, No. 2, pp. 16-17), we discussed guidelines and minimum features for safe operation of AVBs. This article continues the discussion, focusing on AVB location and design.

Minimum standards for AVB location has been developed using guidance from the American Association of State Highway and Transportation Officials and the Manual on Uniform Traffic Control Devices. These documents provide response times and formulas for calculating velocities, distances, and warning devices.

The minimum response, or reaction time, used by the Air Force is a total of 9 seconds and includes

- 3 seconds for guard response to threat
- 3 seconds yellow +1 second transition from red = 4 seconds for driver reaction time to signals (yellow/red lights)
- 2 seconds for barrier activation time

To determine where an AVB must be placed is a relatively simple calculation based on the above reaction times, the roadway geometry and threat vehicle travel distance.

When designing the placement of an AVB, follow the guidance provided in Unified Facilities Criteria 4-022-01, the Army's Surface Deployment and Distribution Command Transportation Engineering Agency Pamphlet 55-15 and applicable Unified Facilities Guide Specifications. If in doubt while attempting to determine the optimal location for barrier placement, for guidance consult your major command or a design professional.

To help explain how the factors that determine the location of AVBs, consider the following examples.

Example 1: High Speed Attack with Straight Approach

Vehicles enter the installation from a right- or left-hand turn that limits the speed of incoming vehicles to a maximum of 20 mph (29 fps). The approach zone is 250-feet long, flat and straight. Security personnel are provided automatic warning of speeding vehicles 100 feet prior to the checkpoint and the speed limit is 20 mph in the ECP. The over-speed detection is set at 35 mph (51 fps), with the first loop 100 feet from the start of the approach zone and the second loop 50 feet from the first. A threat assessment indicates high performance vehicles (acceleration rate of 11.3 ft/s^2) should be used in an attack. Again, there is a minimum 9-second activation sequence from the time the threat is identified.

The initial velocity when the vehicle enters the approach zone is 20 mph. The acceleration rate is taken as 11.3 ft/s^2. Determine the vehicle speed at the time the over-speed detector alarm is sounded:

$V_f^2 = V_i^2 + 2aS = (29\ fps)^2 + (2)(11.3\ ft/s^2)(150\ ft) \rightarrow V_f = 65$ fps (44 mph) where V_f = final velocity, V_i = initial velocity, a=acceleration, and S=distance traveled.

Reaction time and 9-second sequence begins after the over-speed alarms sounds.

How far can the threat vehicle travel in 9 seconds?
$S = \frac{1}{2}at^2 + V_i t = \frac{1}{2}(11.3\ ft/s^2)(9s)^2 + (65 ft/s)(9s) = 1043$ feet where S= distance and t = time, in seconds

The AVB should be placed 1,043 feet beyond the over-speed detectors, or 943 feet beyond the ECP ID checkpoint

Checking the final vehicle velocity at the barrier V_b
$V_b^2 = V_f^2 + 2aS = (65\ fps)\ 2 + (2)(11.3\ ft/s^2)(1043\ ft) \rightarrow V_b = 167\ fps = 114$ mph

Notice in this example, the threat vehicle has traveled 1,043 feet and obtained a velocity of 114 mph in only 9 seconds! Many of the ECPs in the Air Force have similar geometries but do not have over-speed detection which would allow for greater travel distances and velocities at the ECP approach.

Example 2: High Speed Attack with Serpentine Approach

Most installations are not configured to allow barrier placement 943 feet from the ECP and designers must seek alternate solutions to AVB locations. Some ECPs use bollards or chicanes to slow traffic allowing AVBs to be located closer to the ECP. Refer to Figure 2 and consider the same example above, but using three chicanes to reduce the speed and distance traveled for the threat vehicle.

The desired maximum speed trough the serpentine configuration is 25 mph (37 fps)

50-foot spacing is required for serpentine barriers in a 30-foot wide roadway to reduce the maximum speed to 25 mph (ref. UFC 4-022-02 table 6-7)

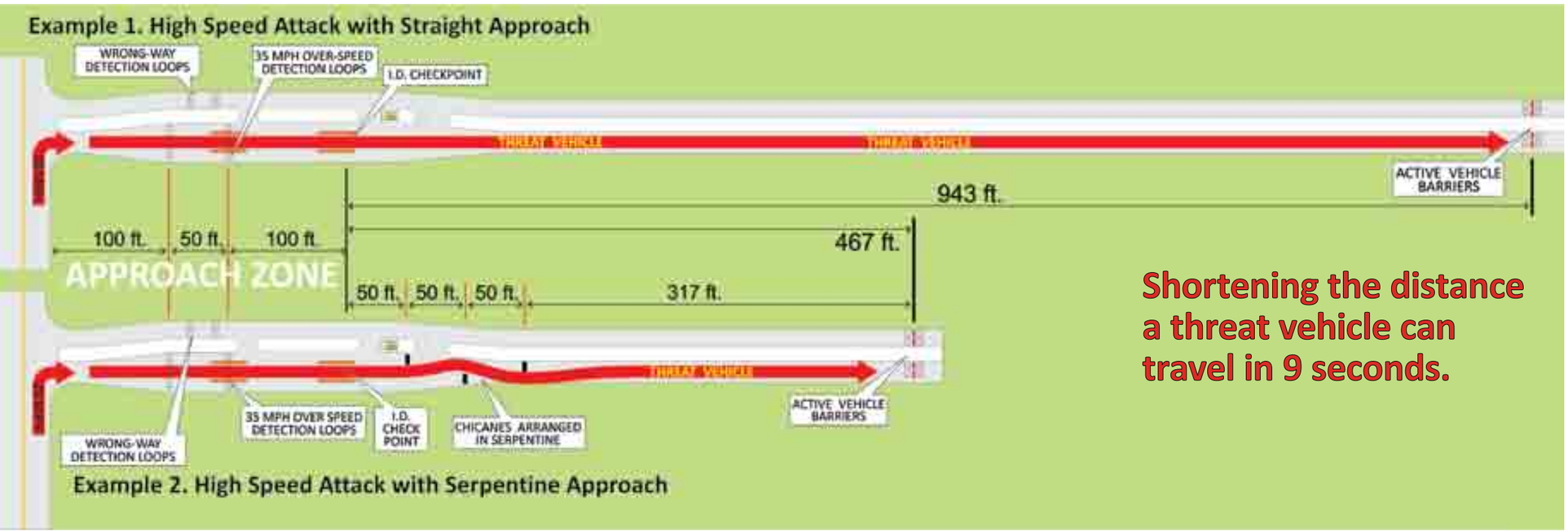
$t = 150\ ft/37\ fps = 4.1$ sec (the time to get through the serpentine area)
Remaining t = 9 sec – 4.1 sec = 4.9 sec
$S = \frac{1}{2}(11.3)(4.9)^2 + (37)(4.9) \rightarrow S = 317$ feet
Total distance to barriers 150 feet + 317 feet = 467 feet

The addition of serpentine has allowed the barriers to be placed in less than half the distance (943 feet vs. 467 feet) to the ECP than the previous example. Many installations will find that they have the necessary space to meet the minimum 9-second requirement just by using serpentine or other calming geometry at their ECPs.

Other measures include chicanes or roadway curvature before and after the ECP to slow vehicles and reduce AVB placement distances. It is important to note that speed bumps are not allowed for safety reasons and that speed tables are only effective in controlling the innocent drivers. Therefore speed tables are not effective in reducing the speed of the threat vehicle and are not considered in the AVB distance calculation. We are currently working with the Army's Surface Deployment and Distribution Command Transportation Engineering Agency and Protective Design Center and with the University of Nebraska to develop and or quantify traffic calming benefits of other typical pavement surfaces and geometry.

Authors' note: For more information/guidance see http://www.wbdg.org/ccb/DOD/UFC/ufc_4_022_02.pdf & http://www.tea.army.mil/pubs/nr/dod/pmd/PAM_55-15_2009.pdf

Mr. Nielsen is the Antiterrorism-Force Protection Subject Matter Expert, Engineering Division, and Mr. Coughlin is a general engineer in the transportation branch at the Air Force Civil Engineer Center's detachment, Tyndall AFB, Fla.



Shortening the distance a threat vehicle can travel in 9 seconds.

Special Ops CEs Engineer a Unique Low Dust LZ

1st Lt. Matthew Buscemi
27 SOCES/CEO

Finding ways to reduce aircraft maintenance costs is a critical step in saving money and time.

This is especially true for the CV-22 Osprey, whose primary mission is the infiltration and exfiltration of special operations forces and cargo in austere locations. These locations frequently come with a lot of dust, which can cause a huge aircraft maintenance problem for the Osprey.

Because of its resemblance to Afghanistan, Melrose Air Force Range, located 20 miles west of Cannon Air Force Base, N.M., provides some of the most realistic training available to special operations forces. But the dust conditions there reduce engine flight hours to 140 to 250 as opposed to the designed 500 in normal conditions. Once the limit is reached both engines are removed from the aircraft and rebuilt — a maintenance cost of approximately $1.6 million a year.

Due to these high costs, Air Force Special Operations Command tasked the 27th Special Operations Civil Engineer Squadron to engineer a solution — a low-dust landing pad — that could extend the lifecycle of the CV-22's engines while maintaining realistic training on MAFR.

Design

While there are many commercial methods for dust control, none are capable of withstanding the intense heat of the CV-22 engine's exhaust. Options considered for the problem included a full-depth concrete pad, large river rock and a liquid polymer or synthetic fluid soil treatment. The soil treatment method was ultimately selected as the most cost-effective and expedient.

Having never constructed such a project, 27 SOCES engineers consulted experts from the U.S. Marine Corps as well as the U.S. Army Dust Control Field Handbook. Marine Wing Support Squadron 374 has used the soil treatment method in constructing several helicopter landing zones and a short field runway for heavy aircraft. There was major concern about the limited amount of data on the durability of the chosen technique.

Choosing the right commercially available dust control product was crucial. There are two main types of products on the market: synthetic fluids and liquid polymers. Synthetic fluids are oil-based and control dust by binding soil particles together. However, this can cause large chunks of soil to stick to aircraft landing gear, a safety issue that immediately excluded synthetic fluids from consideration. This left liquid polymers, which are water-based and control dust by gluing particles together. Once dry, the liquid polymer doesn't stick to aircraft tires.

Our application needed a product with polymer content greater than the 20 to 30 percent in most commercial products. The MWSS 374 recommended the SoilWORKS product called SoilTAC, with a polymer content of 50 to 60 percent that allows for greater strength while reducing the amount of product required. Using data from the U.S. Army Dust Control Field Handbook and information provided by the MWSS 374, 27 SOCES engineers developed a mixture using SoilTAC, Portland cement, recycled asphalt and water.

To meet training requirements, the landing pad is a 340-foot diameter circle with an inner 240-foot-diameter landing area and an outer 100-foot-diameter dust control zone (*see figure*). The landing area consists of six inches of recycled asphalt, Portland cement, SoilTAC and water. The dust control zone was created by applying a SoilTAC and water mix to the graded surface, in quantities determined by following the recommendations of both MWSS 374 and SoilWORKS engineers.

Construction

The landing pad construction area was an existing unimproved heavy landing zone. The heavy equipment shop spent three weeks excavating and hauling soil from a borrow pit, and then backfilling to bring the site up to grade. Recycled asphalt (840 cubic yards) was used to further improve the soil. With the site prepped, the final mixture of SoilTAC, water, recycled asphalt and Portland cement was placed and mixed in under two days.

The manufacturer recommended an asphalt reclaimer or tractor with disk plows to mix the materials, but such unique equipment was unavailable in the local area and sourcing from a larger metropolis wasn't cost effective. So, the 27 SOCES improvised and used a grader for mixing.

With the pad complete in less than a month it was time to test it. The initial assumption of the 20th Special Operations Squadron at Cannon was that the pad wouldn't be able to withstand the loading of a CV-22. An Air Force CV-22 completed nine test landings, including several low hovers a few feet over the pad. The pad showed no sign of structural or heat damage.

Five months and more than 100 landings later, the pad is holding strong with no signs of damage. Leadership from AFSOC and the 27th Special Operations Wing was so impressed that the 27 SOCES was tasked to construct three additional pads before the end of the calendar year.

1Lt Buscemi was the officer-in-charge, Operations Engineering, 27 SOCES, Cannon AFB, N.M. He is now the Energy Manager, 8 CES, Kunsan AB, Republic of Korea.

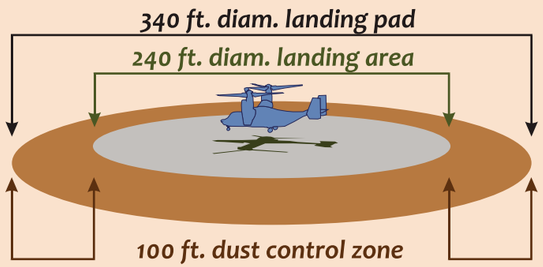
Building a Better Landing Pad

(1.) Grading the recycled asphalt after it was placed on the site.

(2.) Placing portland cement before the SoilTAC and water was applied.

(3.) A grader mixes the SoilTAC, water, Portland cement, and recycled asphalt together. At the same time a water truck sprays the SoilTAC and water onto the center of the pad.

(4.) The Steel Wheel roller compacts the pad. (U.S. Air Force photos by 1st Lt. Matthew Buscemi)



(figure) Design dimensions for landing pad.

A CV-22 Osprey makes a test landing on the low dust landing pad constructed by the 27th Special Operations Civil Engineer Squadron. (U.S. Air Force photo by Senior Airman Ericka Engblom)

The Way We Were:

The Air Force's First Air Installation Squadron

Dr. Ronald Hartzer
AFCEC

An article in this issue (p. 10) discusses the latest iteration of the base civil engineer squadron's standard organizational structure and why those latest changes have been made. But how did it look 66 years ago when the Air Force was first established in 1947? What has changed and what has remained the same?

In the years prior to 1947, what is today the civil engineering function began under the Quartermaster Corps. The Post Utilities Officer had responsibility for the construction and maintenance of Army Air Forces installations, and reported to the Post Quartermaster who, in turn, reported to the Corps Area Quartermaster. Although the Post Utilities Officer's primary function was operation of base utilities, he was also responsible for minor alterations and repairs of barrack and quarters and the maintenance of grounds, roads and runways. Modification of technical buildings was done by the using technical service. At many locations, it was not unusual for the number of Air Corps personnel performing maintenance functions to exceed the Quartermaster personnel.

As the number of Army Air Forces installations grew dramatically in 1940 and 1941, the work outstripped the Quartermaster Corps capabilities. On Dec. 1, 1941, it was transferred to the Army Corps of Engineers with a primary focus on construction rather than facility maintenance. The person who served as the Post Utilities Officer served two masters — the installation commander for administrative issues and the District Engineer with respect to technical matters. The District Engineer told him what to do, how to do it and when it was to be done.

In 1942, the title of Post Utilities Officer changed to Post Engineer, and oversight moved from the District Engineer to the Service Command Engineer for technical supervision of all Post Engineer activities. Two years later, the Air Force was given responsibility for installation maintenance, but the technical supervision remained under the Chief of Engineers.

Finally in 1946, technical supervision of maintenance activities transferred to the Army Air Forces and for the first time, installation maintenance became a command function. The title of Post Engineer changed to Air Installation Officer, or AIO. The base-level AIO now worked for just one boss, the installation commander, and received technical direction from their respective Air Command Directors of Installations.

In 1947, the Air Force became a separate service and wanted to standardize the AIO organizations at bases, which based on a survey, had many variations. Air Force Regulation 20-42, Air Installation Officer, sought to provide uniformity and standardize essential elements required at each installation for AIO responsibilities (see chart).

The regulation spelled out the AIO's duties and responsibilities: "The AIO will, as a staff officer of the installation commander, supervise, direct, and coordinate real estate management; fire protection and aircraft crash-rescue activities; air installation facilities rehabilitations, alterations, extensions or additions, deletions, relocations, and restoration of damage caused by disasters; and repair, maintenance, or operation of buildings, structures, grounds facilities, utilities, or other real property improvements, including new construction under the jurisdiction of the installation commander at any Air Force installations…."

The AIO also exercised functional and technical direction over the Air Installation squadron through a separate squadron commander. In 1949, this changed and the senior air installation officer on base was designated as the squadron commander.

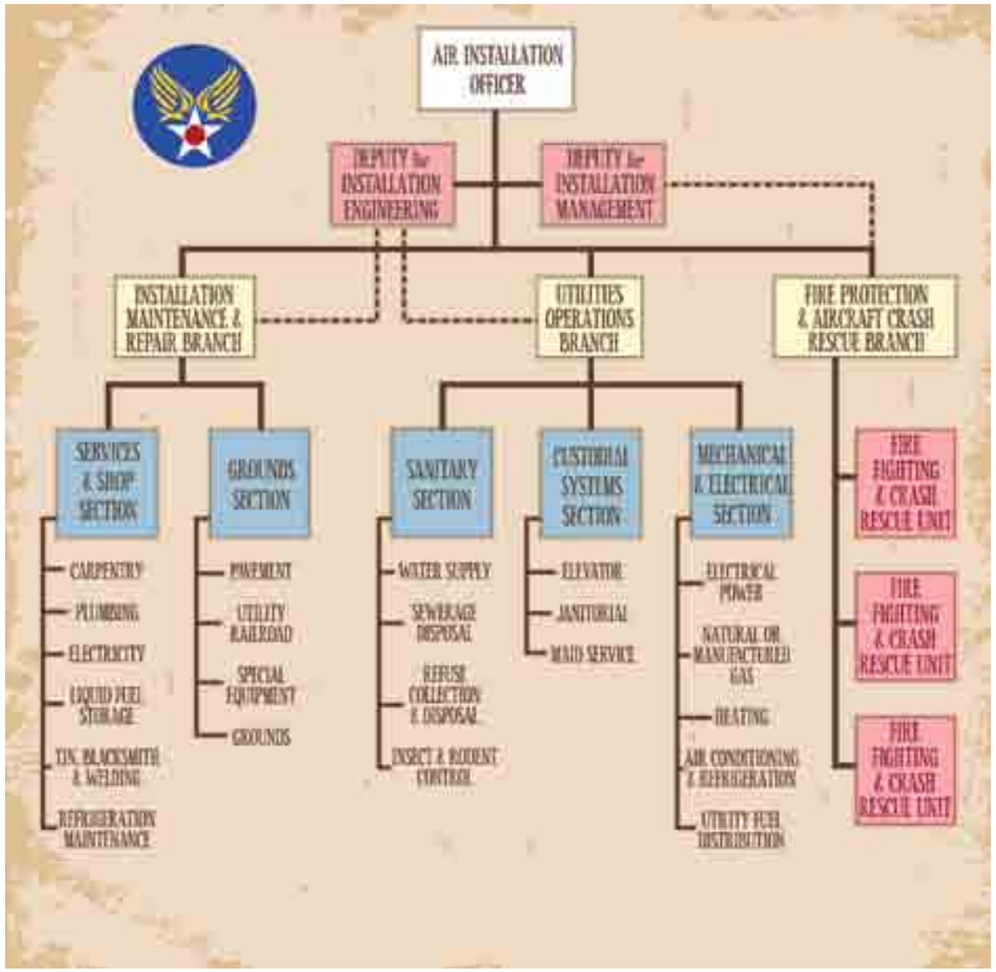
The AIO had two deputies — Installation Engineering and Installation Management. The deputy for Installation Engineering was responsible for issuing work orders; processing work projects; supervising construction, repairs, maintenance and utilities activities; executing master, development and design planning; and conducting inspections.

The Installation Engineering deputy also provided staff supervision for the Installation Maintenance and Repair Branch and the Utilities Operation Branch. The Installation Maintenance and Repair Branch was responsible for the construction and repair of buildings, structures, grounds, utility system and field lighting systems; maintenance of buildings, structures, utility shop equipment and special vehicles and equipment; and operation of utility shops and special vehicles and equipment. The branch had two sections, Services and Shop Section and a Grounds Section.

The Utilities Operation Branch was responsible for the operation and first echelon maintenance of all utilities systems and the supply of utilities services (water, electricity, gas, heating, refuse disposal and custodial services). It had three sections: Custodial Services (included elevator operation); Mechanical and Electrical; and Sanitary (included insect and rodent control).

The Deputy for Installation Management provided administration of real estate and office space; housing management; cost and fiscal control and reports; preparation of requisitions; inventory control; logistics review; mail; personnel management; and staff supervision and direction over fire protection and aircraft crash rescue activities. Before 1947, fire protection had been divided into two sections — structural firefighting, under the post engineer and aircraft crash rescue, under the aircraft maintenance officer. When they combined in 1947 both functions were put under the AIO.

Today's Civil Engineer squadron has changed names and organizational framework several times since 1947 but the basic look was set in those early years. Organizational and technical oversight issues involving the operation and maintenance of Air Force bases were addressed and a basic overall organizational structure established. AIOs in the late 1940s were busy providing facilities to enable the Air Force to carry out its mission—just like BCEs today.



In 1947 the Air Force became a separate service and responsibilities for installation work was organized under an Air Installation Officer, the forerunner to today's Base Civil Engineers.

PROUD HERITAGE

3E4X3
Pest Management

It's what you don't see that lets you know that these Airmen are doing their jobs. Pest Managers keep at bay a large assortment of pests, which uncontrolled, could hinder the Air Force mission or affect human health. Pests can range from animal to insects to plants; for example, bears, birds, rats, spiders, bees, snakes and plants such as poison ivy or oak or plants that feed or harbor insects and wildlife all fit into this category. One of the most important responsibilities of Pest Managers is ensuring that airfields are clear of certain plants and insects that provide food and shelter for birds — a major risk to aircraft during takeoff or landing.

To get into the PM schoolhouse at Sheppard Air Force Base, Texas, Airmen have to be pretty much fearless, with no record of entomophobia (fear of insects, spiders, etc.), ophiciophobia (fear of snakes), zoophobia (fear of animals), claustrophobia (fear of confined spaces), or acrophobia (fear of heights). Once in training, 3E4X3 Airmen learn to identify, survey and control pests. They're experts in integrated pest management, or IPM, using more than one method to eliminate or control pest populations.

Pest Management Airmen also work closely with health professionals to control disease-carrying pests in many public and private locations, while at the same time ensuring safe selection, application and disposal of materials. Their job is especially important in deployed locations where pest problems can have significant mission impact.

A1C Shana Neal
3-level Apprentice

Pest Management Apprentice
2 CES, Barksdale, La.

Neal entered the Air Force on Halloween in 2012, an apt first day for someone whose career field responsibilities include keeping Airmen and installations safe from "creepy crawlers" and other pests.

"We maintain the base from all pests, basically stopping disease vectors and unwanted critters, such as mosquitoes, ticks, mice, or snakes or rats in our dining facilities." said Neal. "People may not notice us doing our job, but it's important. They would definitely notice if we weren't there."

Neal comes from a long line of military members and her father was an Air Force aircraft mechanic.

"It's why I chose the Air Force and, as the oldest, I'm pushing my little brother to do the same," she said. He got a 100 on the mechanics part of his ASVAB, so he probably would be doing something related to that."

According to Neal, she put down pest management when she first signed up, then wanted to change to emergency management, but already had the PM job. One CE career field or another, she's glad to be in the Air Force.

"I love the hours and I get paid well," she said. "I'm working on my career development courses and I enjoy the job. I want to retire in the Air Force."

What doesn't she like about her job?

"I don't like snakes but I'm fascinated by them. I don't like mice, but I have a job to do, so I do it. It's like my father always said, 'we all have a mission.' It's true."

A1C Michael Graves
5-level Journeyman

Pest Management Journeyman
633 CES, JB Langley-Eustis, Va.

When Graves joined the Air Force in February of 2011, Pest Management was not his first choice for a career field.

"I wanted to work on the flightline," he said. "But for as much as I didn't want the job, I absolutely love it. I think Pest Management is the best kept secret in the Air Force."

According to Graves, Langley is his first duty station and he's continuing on his CDCs and hands-on training while working in the PM Flight.

"I also really want to get some deployments under my belt," he said. "I went to Silver Flag in Florida in February and I want to go back and be an instructor there. I can put in for it next year, when I'm a senior airman.

Graves said dealing with snakes is his favorite part of PM.

"Where I grew up in Texas there were a lot of snakes, so I'm pretty comfortable with them. Although there's no record of a poisonous snake siting at Langley, the state of Virginia does have them."

According to Graves, he wants to stay in the Air Force and entomology is probably something he's going to be doing the rest of his life.

"If my recruiter could have given me a description and not just the title, Pest Management would have been my first choice right away. The Air Force always was. My great-grandfather was a lieutenant colonel in the Air Force and he inspired me. But, one of the main reasons I joined was to be around people who want to do their job well."

SSgt Zachariah Bingham
7-level Craftsman

Pest Management Craftsman
633 CES, JB Langley-Eustis, Va.

Bingham has been in the Air Force for nine years and has deployed three times to the Southwest Asia area of operations. Civil Engineering was his first choice when he joined the Air Force, but Pest Management was the last of his five choices within CE.

"I wouldn't take anything back, though," said Bingham. "I've got to see and do some pretty amazing things compared to other CE jobs, and I get to work outside pretty much the whole time. I also enjoy the day-to-day difference — you never know what's going to come off that printer. But mainly it's gratifying to go out and take care of a pest for someone — it's a good feeling."

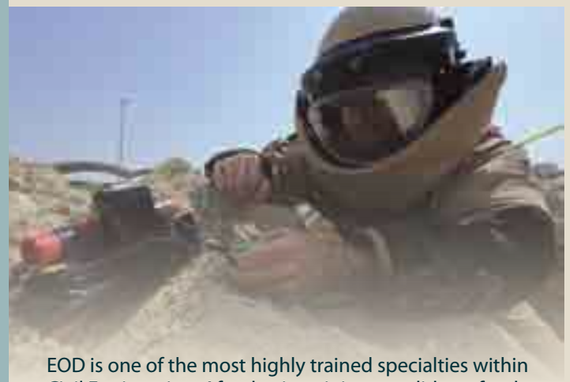
Bingham said he is two classes away from finishing his degree in environmental management and will be going into the Air National Guard in the not-to-distant future.

"I hope to do pest management with the RED HORSE unit in Virginia Beach, Va.," said Bingham. "It won't be a full-time position, so I'll have a job on the outside and work with the Guard, one weekend a month, two weeks a year. With my degree, I'll probably move more towards the environmental side on the outside."

When asked to pick his favorite thing about Pest Management, Bingham chose herbiciding.

"When you do herbiciding it has to be perfect weather and nothing beats being on a tractor out there on the flightline getting to watch the Air Force flying the planes and knowing that you're doing your part."

3E8X1
Explosive Ordnance Disposal



EOD is one of the most highly trained specialties within Civil Engineering. After basic training, candidates for the 3E8X1 career field must attend the physically demanding EOD Preliminary course at Sheppard Air Force Base, Texas.

Making it through the EOD prelim earns them the opportunity to attend about nine more months of challenging training at Naval School EOD, the DOD joint service training facility at Eglin AFB, Fla. The training is demanding, but so is the job.

Explosive Ordnance Disposal technicians do just that – they dispose of explosive ordnance, wherever and in whatever form it's found – whether as unexploded ordnance on U.S. practice ranges or downed aircraft, as improvised explosive devices hidden along routes in Afghanistan, or as weapons of mass destruction targeting public spaces.

They are skilled in using x-ray equipment, robotics systems, and remotely controlled tools and techniques to neutralize threats from explosive devices and meticulously gather intelligence to defeat the enemy network and enhance joint EOD knowledge and training. They are often first responders and in a contingency, among the first on the ground to clear UXO and other explosive hazards from operating locations. They give support to the U.S. Secret Service in protecting the president and other special dignitaries.

The EOD career field's mission could be described as, "to render safe to keep safe" and they have paid a price. Since 2001, 20 Air Force EOD Airman have been killed in action.

A1C Michael John Bodner, Jr. — 3-level Apprentice

EOD Apprentice
96 CES, Eglin AFB, Fla.

Bodner was a civilian firefighter and small business owner before he joined the Air Force in May of 2012.

"I wanted to do something more, something not only to serve my country, but help the guys overseas," said Bodner. Bodner sees similarities between his new career and his former civilian job.

"For me it's the sense of worth," said Bodner. "I like helping. I like doing things. I'd like to make a career of this. EOD is a great career field, everything that I've wanted and more. If I can do this for 20 years, I'll be a happy guy."

The site of the EOD schoolhouse, Eglin also has one of – if not the — biggest EOD flights in the Air Force, Bodner said.

"The transition from the school to the flight was great," said Bodner. "I graduated on Friday and started work on Monday. Getting out of school you think, 'I'm ready to do this,' but then you get here and realize how much you don't know. I'm ready to learn and I'm getting a lot of good training. The best thing is I get to work with some of the best people in the world. I've only been here three months, but they've taken me in and treated me like family."

To Bodner, it's a family where he fits.

"In terms of the EOD career field, everybody seems to be that type-A personality, and I don't mean just blowing stuff up, but wants to give back," he said. "Me personally, I play into that. And, I think that if you don't then maybe this isn't the career field for you."

SrA David James Smith, Jr. — 5-level Journeyman

EOD Journeyman
325 CES, Tyndall AFB, Fla.

Originally from Alamogordo, N.M., Smith has been in the Air Force for three years, and is only a few months back from his first deployment.

"I was gone for six months, stationed first at a base where our main concern was destroying 'amnesty' or surrendered ordnance. I also forward-deployed to Afghanistan, where I was on an EOD team doing route clearances. It helped both my team-building skills and my patience."

By the time Smith returned to Tyndall — his first duty station — he found both the 325th EOD Flight and the base had changed, moving from Air Education and Training Command to Air Combat Command.

"There were differences in the flight, a lot more checklists and inspections had been added," he said. "But the job itself didn't change and the high level of training didn't either. I just became a 5-level, so I can do more tasks on my own and will become more involved in training the 3-levels."

Smith plans to stay in the Air Force and in EOD.

"I want to get my 7-level and go on more deployments," he said. "It's a great job – I get to blow stuff up and get paid to do it! A loud boom makes my day.

"Actually it's more the tight-knit EOD community," Smith said. "When we deploy or meet new people, we tend to stick with them for life, because there's not too many of us worldwide. It's great to know and have those comrades with you."

TSgt Joseph Vollmer — 7-level Craftsman

EOD Craftsman
1 SOCES, Hurlburt Field, Fla.

Vollmer is the non-commissioned officer in charge of EOD Equipment for the 1st Special Operations Civil Engineer Squadron. He joined the Air Force in 2004 and worked on an air crew before cross-training to EOD.

At Hurlburt, Vollmer is responsible for keeping all of the EOD-specific equipment, including the robots, up to code.

"I'm also the 7-level team chief, so every rotation that comes up or every time we get a rotation to do standby, I'm the lead for that. I'm also responsible for SORTS — the status of readiness and training system. Here at home station our typical response is for aircraft, taking care of the airfield and minor support to local authorities when needed. And, because we're AFSOC, we have an additional UTC to support."

Vollmer has deployed multiple times, and though he admits they can be stressful, he also thinks everyone in the EOD career field looks forward to them.

"Deployed is an entirely different ballgame, where we're stepping out of comfort zone a little bit, doing more roles that aren't traditionally thought of as Air Force," he said.

"We're out on the ground working with the Army, all IEDs and different ordnance than we're used to. But, that's what we're here for and it's a gratifying feeling, doing some good.

"I plan to do my 20 years," said Vollmer, "but my goals now are to be a good team chief and get the younger Airmen spun up, to keep everybody safe. It's so important to keep instilling training and passing on the knowledge you have."

Rubber Removal at Manas:
An Asset Management Case Study

Capt. Joe DiRosario, 376 ECES/CEN
Capt. Suzanne Jumper, AFCENT/A7
Capt. Laura Mead, AFCENT/A7

When aircraft land they leave traces of rubber on an airfield surface. For safe operations, monitoring and rubber removal are essential, but like all maintenance requirements, they take money.

Constructed in the early 1970s, Manas International Airport, in Kyrgyzstan, has a single runway more than 13,000 feet in length. The only major repair project occurred in 2012, a replacement of the full depth of the runway's first 3,000 feet. MIA is home to the 376th Air Expeditionary Wing and the Transit Center at Manas, as well as a significant refueling mission. TCM is the major hub for U.S military personnel and cargo in the Southwest Asia theater of operations. The airfield supports more than 20,000 landing per year, primarily by "heavies," the main rubber deposit culprits, so moderate to heavy buildup is expected on an annual basis.

Because of the remote location and scarcity of technically acceptable local contractors, MIA's rubber removal work is normally contracted out to third-party companies. These contracts involve equipment rentals and an extensive mobilization/demobilization plan that tend to come with a large price tag — nearly $1 million each year.

To determine the airfield's true rubber removal requirement, TCM officials requested assistance from the Air Forces Central Command's Airfield Pavements Evaluation team. This small expeditionary team travels throughout AFCENT to conduct contingency evaluations of airfields' structural capacities, geometric suitability and surface conditions, including friction characteristics.

AFCENT's APE team completed testing on the entire length of MIA's runway and did both a visual inspection of the existing rubber deposits and technical testing of the surface friction.

On visual inspection, it did not appear that the rubber deposit levels were significant enough to warrant spending money for removal — the first hint that $1 million might be saved. To determine the full spectrum of runway friction characteristics, the team used two testing methods. The first was the NAC Dynamic Friction Tester, a tow-behind vehicle with a wheel calibrated to measure coefficients of friction when pulled down the runway. It basically studies the pavement's ability to grip an aircraft tire under worst case conditions (i.e., water or ice). The second method used a Hydrotimer, a water-based outflow meter that simulates a tire on the pavement. It measures the surface's ability to drain water away from the face of the tire and indicates a pavement's hydroplaning potential.

Based on collected data, the team found the runway did have low friction levels, but not as a result of rubber buildup. Tests conducted equally on rubberized and non-rubberized areas showed low surface friction levels on both. Based on these findings, immediate rubber removal was not required. Instead, recommendations were to create a plan to correct the surface friction conditions and to continue monitoring rubber build-up through periodic testing.

TCM officials took action, working a plan for future rubber removal requirements that did not include the typical $1 million contract. Base leadership elected to use in-house forces to periodically monitor the runway's frictional characteristics, requesting assistance from the 1st Expeditionary Civil Engineering Group rubber removal team. Although there will still be costs involved to purchase materials, TCM could potentially see a savings of $800K-900K. Given current Department of Defense financial limitations, engineers across the AOR must continually validate requirements and look for the most effective means of their execution. As the Manas case study proves, large-scale savings can be found with the right analysis and resources.

Capt. DiRosario is the Airfield Project Manager for the 376th Expeditionary Civil Engineer Squadron. Capt. Jumper is the Chief of Operations Support and Capt. Mead is the chief of the Pavement Evaluation Team for the Installations Directorate, Air Forces Central Command.

(top) a hydrotimer (U.S. Air Force photo) **(bottom)** a NAC Dynamic Friction Tester (courtesy of Neubert Aero Corp & NAC Dynamics, LLC)

SCPDs Save Time

Using standard core personnel documents can significantly speed up the CE civilian hiring process

David Dentino
AFCEC/CPA

The Air Force Personnel Center and Civil Engineering are 18 months into a joint effort to increase the number of standard core personnel documents used for civilian positions across our enterprise.

What is an SCPD? It is like a normal civilian "core doc" or position description, but different in that it has already been classified and approved by AFPC. The biggest advantage to using them is that AFPC will review and approve the use of an SCPD much more quickly than a non-standard position description. Classification time for non-standard position descriptions averages 50 days while PDs based on SCPDs take less than 20 days. Although the classifier must still review your organization and ensure a particular SCPD is appropriate, the SCPD spends much less time in classification, which means a faster fill action. At the installation level, SCPDs also save time by cutting out the writing/reviewing process within CE Squadrons and the lengthy review by local civilian personnel offices.

AFPC sees so many benefits to SCPDs that it is making their use mandatory if they exist for a position. Civil Engineering is making a full-court press to comply. As of July 2013 we have 5,934 civil engineer personnel (more than 51 percent) on SCPDs. Our goal is 90 percent. SCPDs fit well with one of CE Transformation's goals: Making processes at all levels — from within a flight to across the Air Force — more consistent and repeatable.

The biggest complaint I hear about SCPDs is from supervisors who think their position is "special," and who believe they can rewrite the position description to make the job sound harder and hopefully get a higher grade. Unless you are truly at a base that has an extraordinarily complex mission, this tactic does not work, especially with the centralization of classification at AFPC. I have been in a squadron of 200 CE personnel at a single-mission base and in a squadron of 700 CE personnel at a base containing seven wings and 10 headquarters agencies. At each of these locations, programming was still programming, the environmental compliance issues weren't significantly different and the ops flight still fixed the same types of HVAC units and power issues. The bottom line is that civil engineers basically perform the same mission at every base making the use of SCPDs within our career field ideal.

Title 5, Government Organization and Employees, requires positions to be classified based on the duties and responsibilities assigned and performed. Classification does not consider volume of work (an employee is still required to perform 80 hours of work a pay period and overtime or compensatory time is available for high work volumes); salary comparability (you get locality pay); difficulty in recruiting (AFPC allows recruitment bonuses); and duties performed in the absence of others (a temporary promotion is a better solution). I believe we do not have very many "special" positions in CE but we do have "special" people. If you have an exemplary employee you want to reward you can give performance awards, civilian medals and periodic step increases as incentives. Trying to rewrite their position description is the wrong approach.

There are also benefits for converting existing positions over to SCPDs. Standard position descriptions across the career field benefit employees by creating promotion opportunities that result from consistent duties for all grades within a series for similar positions.

The CE Career Field Team has developed a series of spreadsheets broken out by various organizational levels that can help narrow your search for the right SCPD. You can locate the spreadsheet, which has hot links to the SCPD Library by going to the CECFT website at

https://cs3.eis.af.mil/sites/OO-MS-AF-25/default.aspx and clicking on "CE SCPDs" and then opening the "SCPD Org Chart Map..." file.

If you can't find the SCPD you need, please let the CE Career Field Management Team know. They can insert any new SCPDs into the classification queue. If you have a vacancy or want to convert some of your existing positions to SCPDs, we encourage you to visit the SCPD library at https://gum-crm.csd.disa.mil/app/answers/detail/a_id/21602/kw/scpd and use one of our already existing documents.

Mr. Dentino is the Chief, Planning and Integration Directorate, Air Force Civil Engineer Center, JB San Antonio-Lackland, Texas. He is a member of the CE Functional Advisory Committee (FAC).

Combined Expeditionary Engineering Airpower:

Exercise Talisman Saber

1st Lt. Ronda Underwood
36 CRG/CCE

The 36th Contingency Response Group recently forward deployed from Andersen Air Force Base, Guam, to Australia to participate in Combined-Joint Force Exercise Talisman Sabre from July 14 to Aug. 1, 2013.

The 36 CRG arrived via a Royal Australian Air Force C-130 to Williamson Airfield, located in Queensland's Shoal Water Bay Training Area, or SWBTA. The group's concept of operations focused on initial airbase opening following seizure of the airfield by airborne forces.

Our CRG engineering team consisted of one RED HORSE engineering officer (me), one engineering assistant, one power production airman and one aerospace ground equipment airman. Upon arrival we linked up with our RAAF engineering counterparts in the airfield engineering, or AFENG, team and began integrating into the camp and bedding down the 36 CRG forces.

The AFENG team of 15 RAAF airmen was led by Engineer Flight Lieutenant Michael Yeomans (equivalent of a U.S. Air Force captain). The RAAF's Number 1 Airfield Operations Support Squadron had forward deployed their AFENG team to the field three weeks before our arrival to simultaneously provide support for a C-130J mission rehearsal (Exercise Precision Red) and prepare the SWBTA for Talisman Sabre.

I also had the opportunity to convoy with the AFENG team to a makeshift Australian airbase to oversee the deconstruction — one day ahead of schedule — of a deployable aircraft maintenance and logistics support hangar, used to maintain and support helicopter units, including U.S. Navy units.

Since the AFENG team operates in a manner similar to U.S. Air Force engineers, there was outstanding partnership and workflow, resulting in zero mission interruptions. For example, we quickly worked side-by-side on remediation after a helicopter spilled oil on a critical runway section. Before a full contingency response team arrived, we also assessed damage on the main landing strip of the Sam Hill Assault Landing Zone for Australian and U.S. aircraft.

In between air operations and airfield pavement assessments, the U.S. Air Force and RAAF teams worked together on engineering projects throughout the SWBTA, including construction of defensive fighting positions. We were excited at the opportunity to help guide our RAAF counterparts on road and base construction projects and quarry operations.

We came home with the knowledge that much more can be gained through further partnership activities with our two countries, working on core engineer activities. In fact, it would be highly beneficial to see the partnership grow to an exchange CE officer assignment between RAAF Airfield Engineers and U.S. Air Force Civil Engineers.

1st Lt. Underwood is the executive officer for the 36th Contingency Response Group, Andersen AFB, Guam.

Members of the AFENG and 36 CRG teams pose for a photo. Shown left to right, back to front are CPL G. Tait, FLGOFF C. Barry, LAC B. Slatter, LAC P. McMahon, LAC C. Ryan, LAC R. Griffiths, LAC J. O'Brien, LAC N. Bulmer, LAC C. Filla, LAC M. Preston, LAC R. Huntley, LAC J. Vinton, FLTLT M. Yeomans, Tech. Sgt. G. Schonehals, Master Sgt. J. Neighbors, LAC C. Whitehead, SGT P. Pike, 1st Lt. R. Underwood, CPL D. Taylor, and Master Sgt. C. Median. (courtesy photo)

AMC's Geo Integration Office Supports Presidential Visit

Andree Swanson
AMC A7/A7ZD

Air Mobility Command's global air mission means that at a moment's notice, aircraft and crew can be called to anywhere in the world.

It's that necessity that had the AMC Geo Integration Office staff supporting 18th Air Force planners recently. To prepare for a presidential visit to Africa, AMC's GIO provided aircraft parking plans for Ascension Island in the South Atlantic Ocean as a possible mission hub. These types of maps are regularly used by the Air Force to assist in determining the ramp space on an airfield, thus allowing planners to get a geospatial picture of possible aircraft parking arrangements.

The GIO's primary tool for creating parking plans is GeoExPT, short for Geospatial Expeditionary Planning Tool. In addition to aircraft beddown, users can create tent city plans, plot airfield damage, or determine the minimum operating strip. Aircraft parking plans might be created for real-world events like the humanitarian airlift support after the earthquake and nuclear incident in Japan, flooding in Grand Forks, N.D., or earthquake or hurricane relief support in the Caribbean, as well as for military exercises to keep skills sharp.

While only a small part of the logistics in moving the president around the world, parking plans can play a part in preparing for large movements of aircraft, like the one at Ascension Island. Using aircraft silhouettes with accurate dimensions in GeoExPT, a geographic information system planner lines up the silhouettes as desired by the requester, taking into account the limitations of the airfield and established aircraft parking standards and Air Force Instruction guidelines. With mobility aircraft, which includes large aircraft like the KC-10 Extender and the C-17 Globemaster III, limitations might include ramp weight limits and wingspan. Once the map is completed, it's provided to the requester, who then uses the imagery for decision-making and planning.

The demand for the mission planning aspect of AMC's map system is growing within the command, often outpacing traditional civil engineering needs.

"Too many times we, the integrated geospatial service providers, don't sufficiently question or fully understand the power we have to impact the Air Force mission with the capabilities we provide every day," said Dr. Rick Marshall, part of the AMC GIO team. "By simply sharing geospatial data and capabilities beyond the civil engineering community we can have far-reaching impacts that pay great dividends to the mission and, in turn, demonstrate value and the relevance of the geospatial integration services we provide."

In the case of a small island off the coast of West Africa, it was the creation of a mobility aircraft hub for President Barack Obama's visit to Africa this summer. The arrival of the first four C-17s mid-June from Travis Air Force Base, Calif., Joint Base McGuire-Dix-Lakehurst, N.J., and Joint Base Lewis-McChord, Wash., was the first of nearly 100 C-17 and KC-10 aircraft that used the airfield over the next month.

From a generic request for parking plan information, AMC GIO's support ended up leading to several milestones at the small island. The amount of cargo, passengers and aircraft traveling through Ascension Island made the operation the largest movement of military equipment and personnel through Ascension Island since the Falklands War in 1982.

Author's note: Capt. David Bredesen, 621st Contingency Response Wing, contributed to this article.

Ms. Swanson is a strategic communication manager in Air Mobility Command's Geo Integration Office, Scott AFB, Ill.

This aircraft parking plan map of an airfield on Iwo Jima, created by Air Mobility Command's Geo Integration Office, is similar to the map they created for Ascension Island, and illustrates the GIO's capabilities. (U.S. Air Force graphic)

CE WORLD

U.S. Air Force
Civil Engineer

CE Portal New Web Address Update

The CE Portal has migrated to the SharePoint 2010 platform to allow for enhanced features that improve users' experience.

Please update your CE Portal bookmark to https://app.eis.af.mil/a7cportal/.

As the one-stop shop for all things Civil Engineering, the CE Portal should be in every CE's list of bookmarks or "favorites."

The CE Portal is a great centralized site for information — your source for leadership messaging, career development, CE Playbooks, CE Transformation guidance and many other resources.

The upgrade to SharePoint 2010 brings with it enhanced features, including:

- Tighter integration with Microsoft Office.
- The ability to collaboratively edit SharePoint-hosted documents and richer content management tools such as support for large document libraries.
- The CE Portal now allows users to print an entire Playbook, providing mission essential printing capabilities for those working in the field without convenient web access or with poor network connectivity.

Although users entering the old Web address are currently redirected to the new CE Portal site, please update to the new address moving forward. Any links to the old CE Portal on external websites should also be updated to the new address as well. This includes links to Program Group and Governance pages and to Playbooks. Also remember to update any documents listing the old CE Portal Web address or links to items housed on the old portal , such as Fact Sheets and Talking Points.

Please contact the CE Portal team with any questions at usaf.pentagon.af-a4-7.mbx.a7c-ce-portal@mail.mil

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