Air Force Civil Engineer
Vol. 19
No. 4
2011


# 2011 Almanac

# Air Force Civil Engineer

Vol. 19 No. 4 2011

## AIR STAFF



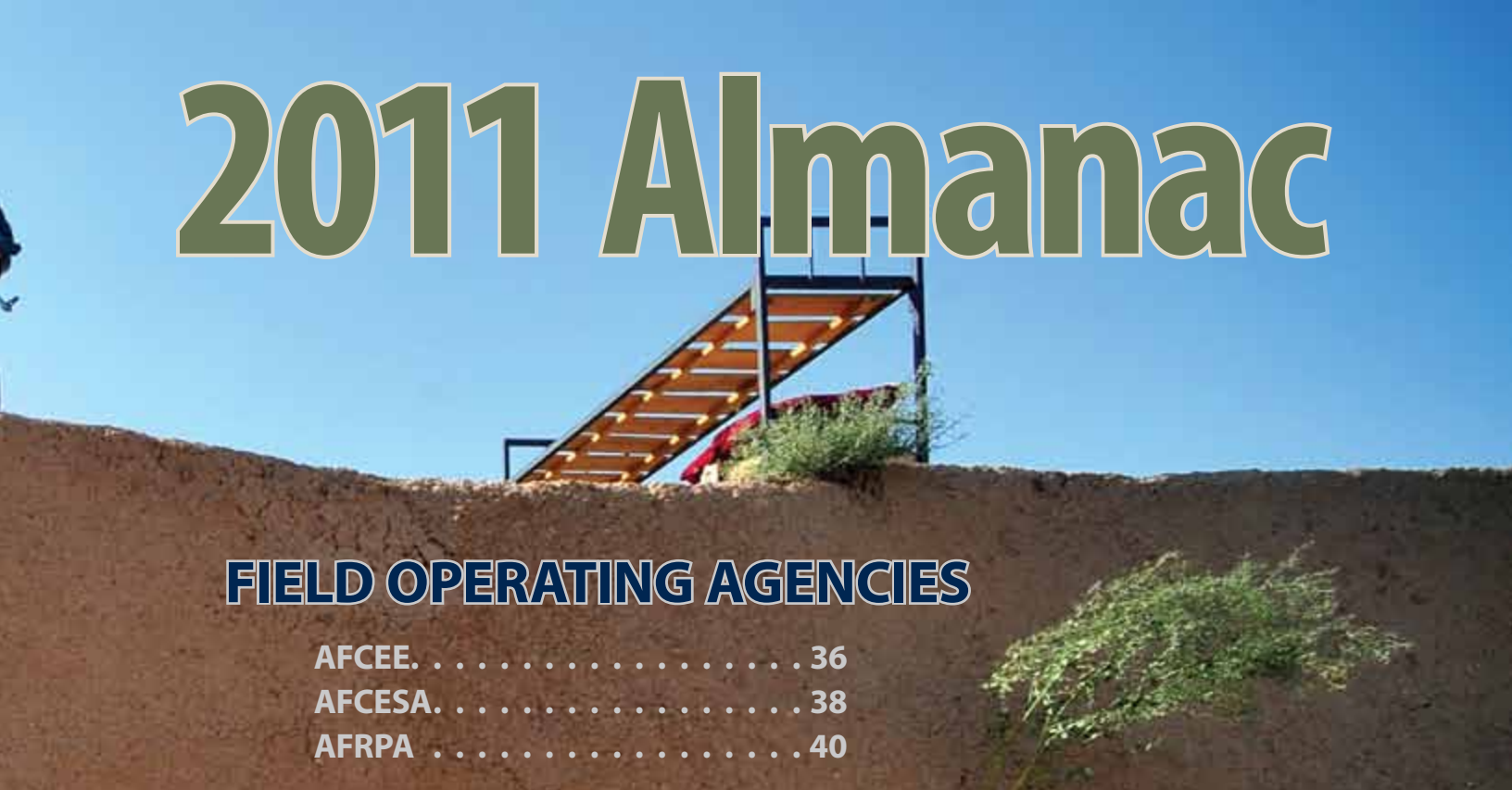
## MAJOR COMMANDS



SSgt Chananyah Stuart takes measurements to begin installing a new dining facility and multiple latrines at the Afghan National Police Headquarters. SSgt Stuart, an RSC-West civil engineer, is currently deployed from Luke AFB, Ariz. (*photo by SrA Tyler Placie*)

Cover photo by Mr. Eddie Green.

# 2011 Almanac



## FIELD OPERATING AGENCIES



## DIRECT REPORTING UNITS



## AFIT



***Unless otherwise noted, facts and figures presented are based on information submitted to the Air Force Civil Engineer magazine office, current as of Sept. 30, 2011.***


**The Civil Engineer**
Maj Gen Timothy A. Byers

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# Building Today to Meet Tomorrow's Challenges

This year, Air Force Civil Engineering had great success in our efforts to Build Ready Engineers, Great Leaders, and Sustainable Installations. Air Force civil engineers, fire protection and emergency management personnel, and explosive ordnance disposal operators continued leading and supporting high impact missions at our home stations. Our expeditionary Civil Engineering, RED HORSE, and Prime BEEF Airmen have also continued to serve proudly throughout the world, including in the U.S. Central Command area of responsibility, where we have been praised as the "recognized installation engineering expert" by the senior theater commanders. Airmen continue to build installations, airfields, and other facilities. Firefighters and emergency management personnel not only help protect our forces, but also mentor Afghan and Iraqi military forces to build their own emergency response capabilities. Finally, explosive ordnance disposal Airmen are defending our joint and coalition partners from improvised explosive devices and unexploded ordnance. Our pledge to reduce our 1:1 high ops tempo has been successful. We have decreased overall engineering taskings by over 1,200 requirements since March 2010, and we expect further reductions in FY12 and FY13. We will continue to rely on the Air National Guard and Air Force Reserve to fill 25 percent of our positions and we've also increased enlisted accessions by 20 percent and hired 2,200 new Civil Engineering Airmen to fill our most critical needs.

In this *Air Force Civil Engineer 2011 Almanac*, you'll find details about our engineering community as well as information on our most enduring accomplishments. We all can take pride in the achievements of our diverse engineering force.

While it's good to take the opportunity to celebrate our successes, it's also critical that we prepare for upcoming challenges and turn them into opportunities.

The Civil Engineering community is faced with a number of challenges, from base level to the Pentagon, which will affect multiple facets of our capabilities to support the mission. We must ensure we are efficiently and effectively planning, acquiring, sustaining, operating, managing, and divesting our installations' infrastructure. We must focus on "rightsizing" our infrastructure to support the future force structure and execute the mission and we must divert valuable resources away from excess, obsolete, and underutilized facilities.

To help navigate through these challenging times, we released the updated Air Force Civil Engineering Strategic Plan in August 2011. This plan builds upon the strong foundation established through Civil Engineering Transformation efforts and reaffirms our commitment to using asset management, strategic sourcing, standardization, and centralization principles across the Civil Engineering community. Now we must accelerate the transformation by working to reduce overhead, realign and rightsize manpower, and minimize support operations, while also continuing our support to installations and contingency missions worldwide.

We will also focus on conducting Civil Engineering operations in a restrained fiscal environment. Our Air Force, the DOD, and the entire nation are currently facing serious long-term financial challenges. Last June, the former Secretary of Defense announced that, in order to sustain funding levels for mission essential activities, the DOD must substantially improve business operations. The Air Force identified and incorporated $33B in efficiencies, and will apply those savings to force structure, modernization, and readiness. Civil engineers will play a major role in the efforts to achieve these efficiencies, assuming $6.4B of the total Air Force bill. In addition, we will see reduced Air Force top line budgets in FY12 and FY13 that will reduce our facilities operations, S/R&M, and MILCON accounts.

We are well prepared to meet our challenges. Since 2007, Civil Engineering has been transforming the way we do business. We'll continue our transformation, leading the way by reducing our overhead, realigning and rightsizing manpower, and finding new and innovative ways to meet the mission and conduct installation support more efficiently. Our asset management approach will play a key role as we build more efficiency into operations while providing quality and affordable standards of support to installations and contingency missions worldwide.

Time after time, the Civil Engineering community has demonstrated its diligence, determination, and dedication in the face of challenging endeavors. As we head into the next year and beyond, our community will continue to meet the challenges in true engineer fashion. Achieving our mission, vision, and goals will take innovation, hard work, and attention to detail, all inherent qualities of Air Force civil engineers. Most importantly, I need each of you to foster the innovative thinking we require while we focus on being brilliant at the basics of our core mission areas. We must have the right attitude: Our "Can do. Will do. Have done!" attitude will serve us well as we move forward. It will take each of you to be responsible and accountable for your budgets and to find ways to do things smarter, faster, better, and cheaper. I have no doubt we will be successful as we Build to Last and Lead the Change.

*Thank you for everything you do, and continue to Lead the Way!*

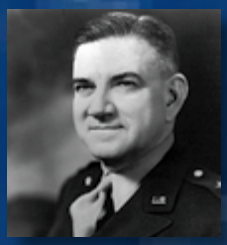
**Timothy A. Byers**
Major General, USAF
The Civil Engineer

# Air Force Civil Engineers

**The duty titles for the individuals pictured reflect their changing responsibilities, the development of the career field, and the transformation of the Air Force since 1944.**

| | |
|---|---|
| 1944-1949 | Director of Air Installations |
| 1949-1954 | Director of Installations |
| 1954-1957 | Assistant Chief of Staff, Installations |
| 1957-1959 | Director of Installations |
| 1959-1975 | Director of Civil Engineering |
| 1975-1991 | Director of Engineering and Services |
| 1991 to present | The Civil Engineer |

Sep 1944 – Jun 1948



Brig Gen Robert Kauch

Jun – Sep 1948,
May – Dec 1950,
Jan – Jun 1952

Maj Gen Colby M. Myers

Sep 1948 – Mar 1949

Maj Gen Grandison Gardner

Mar 1949 – May 1950

Maj Gen James B. Newman

Dec 1950 – Jan 1952

Lt Gen Patrick W. Timberlake

Jun 1952 – Jul 1957

Maj Gen Lee B. Washbourne

Jul 1957 – Jul 1963

Maj Gen Augustus M. Minton

Jul 1963 – May 1968

Maj Gen Robert H. Curtin

May 1968 – Dec 1971

Maj Gen Guy H. Goddard

Jan 1972 – Mar 1974

Maj Gen Maurice R. Reilly

Mar 1974 – Apr 1975

Maj Gen Billy J. McGarvey

Apr 1975 – Jun 1978

Maj Gen Robert C. Thompson

Jul 1978 – Aug 1982

Maj Gen William D. Gilbert

Aug 1982–Feb 1986

Maj Gen Clifton D. Wright, Jr.

Mar 1986–Feb 1989

Maj Gen George E. Ellis

1 Mar 1989–31 Jan 1992

Maj Gen Joseph A. Ahearn

1 Feb 1992–27 Oct 1992

Mr. Gary S. Flora

28 Oct 1992–21 Jul 1995

Maj Gen James E. McCarthy

22 Jul 1995–23 Jul 1999

Maj Gen Eugene A. Lupia

23 Jul 1999–16 May 2003

Maj Gen Earnest O. Robbins II

16 May 2003–23 Jun 2006

Maj Gen L. Dean Fox

23 Jun 2006–5 Jun 2009

Maj Gen Del Eulberg

5 Jun 2009–present

Maj Gen Timothy A. Byers

# Deputy Air Force Civil Engineers

**TITLES:**

**1963-1969**
Associate Deputy Director for Construction

**1969-1975**
Associate Director of Civil Engineering

**1975-1991**
Associate Director of Engineering and Services

**1991-1999**
Associate Air Force Civil Engineer

**1999- Present**
Deputy Air Force Civil Engineer

1963–1969

Mr. John R. Gibbens

1969–1972

Mr. Rufus (Davy) L. Crocket

1973–1985

Mr. Harry P. Rietman

1985–1994

Mr. Gary S. Flora

1994–1997

Dr. Robert D. Wolff

1999–2002

Mr. Michael A. Aimone

2002–2007

Ms. Kathleen I. Ferguson

2007–2010

Mr. Paul A. Parker

Nov 2010–present

Mr. Mark A. Correll

# CE Chiefs for Enlisted Matters

Sep 1989–Jun 1992

CMSgt Larry R. Daniels

Mar 1994–Jul 1995

CMSgt Larry R. Ward

Aug 1995–Jul 1998

CMSgt Kenneth E. Miller

Aug 1998–Jun 2000

CMSgt Richard D. Park

Jun 2000–Jun 2005

CMSgt Michael Doris

Jun 2005–Feb 2008

CMSgt Wayne Quattrone II

Feb 2008–Aug 2011

CMSgt Patrick D. Abbott

Aug 2011–present

CMSgt Jerry W. Lewis

# Civil Engineer LEADERS

**Maj Gen Timothy A. Byers** is the Air Force Civil Engineer, Headquarters U.S. Air Force, Washington, D.C. He is responsible for installation support functions at 166 Air Force bases worldwide with an annual budget of more than $12B, and for organizing, training and equipping the 60,000-person engineering force. His responsibilities also include planning, development, construction, maintenance, utilities and the environmental quality of Air Force bases valued at more than $255B, which includes services for housing, fire protection, aircraft crash and rescue, explosive ordnance disposal, and disaster preparedness. He oversees the Air Force Civil Engineer Support Agency at Tyndall AFB, Fla., and the Air Force Center for Engineering and the Environment at Lackland AFB, Texas.

Maj Gen Byers entered the Air Force in October 1981 as a distinguished graduate of the ROTC program at the University of Kentucky, with a degree in Civil Engineering. He has a Master's degree in civil engineer management from the Air Force Institute of Technology, Wright-Patterson AFB, Ohio. He has served as a design engineer, readiness officer, contract management chief, programmer, and environmental chief, with headquarters tours at both the Air Staff and major command levels, base command positions as a civil engineer squadron and mission support group commander, and a career broadening tour with Air Force ROTC.

**Mr. Mark A. Correll**, a member of the Senior Executive Service, is the Deputy Air Force Civil Engineer, Headquarters U.S. Air Force, Washington, D.C., where he helps organize, train, and equip Air Force civil engineers for the development, construction, operation, maintenance, and environmental quality of Air Force bases worldwide.

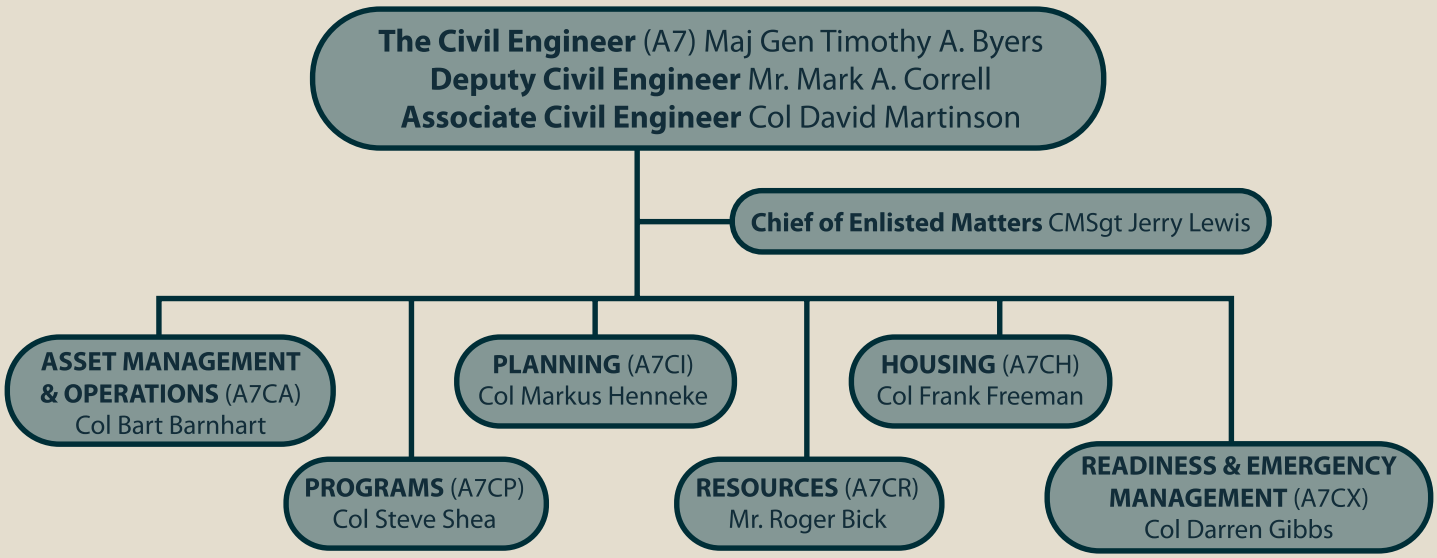
Mr. Correll was commissioned in the Air Force in 1981 after graduation from the Air Force Academy with a degree in Civil Engineering. He has a Master's degree in engineering management from the Air Force Institute of Technology, Wright-Patterson AFB, Ohio. He was previously the Civil Engineer, Air Education and Training Command, Randolph AFB, Texas, where he provided functional leadership, direction, technical guidance, and support to civil engineer units at 13 bases. Mr. Correll commanded two civil engineer squadrons, a mission support group, and an air base wing. Mr. Correll retired from the Air Force as a colonel in 2010 and entered the Senior Executive Service. He is registered as a licensed professional engineer in the state of Texas.

**CMSgt Jerry W. Lewis** is the Chief of Enlisted Matters, Headquarters United States Air Force, Office of The Civil Engineer, Washington, D.C. He advises The Civil Engineer on matters affecting the Civil Engineering workforce with specific emphasis on readiness, morale, retention, training, and workforce utilization. He serves as the functional manager for all Civil Engineering enlisted and wage-grade civilians. He chairs the Air Force Civil Engineer Chiefs' and Airmen's Councils to review issues affecting the workforce, communicate ideas, and develop recommendations for senior leadership consideration.

CMSgt Lewis enlisted in the Air Force in December 1985 as a Carpenter Specialist. He has a diverse military background serving with RED HORSE, Civil Engineering, and major command organizations during assignments that included bases in Massachusetts, Colorado, Florida, and Hawaii, as well as Korea, Okinawa, and Germany. He has deployed in support of Operations Noble Anvil, Enduring Freedom, and Iraqi Freedom. In 1993, he was one of the Air Force's 12 Outstanding Airmen of the Year and in 2007, the winner of the Air Force Maj Gen Joseph A. Ahearn Enlisted Leadership Award.

# Headquarters Air Force A7C Divisions

**The Building Blocks for Ready Engineers, Great Leaders, and Sustainable Installations**




## ASSET MANAGEMENT AND OPERATIONS DIVISION (A7CA)

The Asset Management and Operations Division is the CE Strategic Plan goal champion for "Building Sustainable Installations," directly managing five transformational objectives to improve CE efficiency and effectiveness Air Force-wide.

In 2011 the Installations Management and Asset Optimization Branches combined to form the Asset Accountability and Optimization Branch (A7CAI). Accountability of the Air Force's real property assets is the bedrock in developing facility investment programs such as O&M, MILCON, and Housing. The real property portfolio includes over 140,000 assets (buildings, structures, and linear structures) and nearly 10 million acres of land with a total plant value of more than $255B. The portfolio is currently maintained in the ACES-Real Property module and is one of the first authoritative databases to transition to NexGen IT. This year, the real property team provided quarterly base-level training on the fundamentals of real property accountability and fielded the Real Property Accountability and Inventory Playbook to assist installation real property offices.

A7CAI also developed the first Air Force Comprehensive Asset Management Plan (AFCAMP) to guide A7C-level investment planning by leveraging requirements and priorities established by asset management principles. The AFCAMP was used to support prioritization of FY12 focus fund projects. A restoration and modernization integrated priority list model was developed to guide funds allocation for mission critical/worst-first requirements, further standardizing processes and data transparency. Finally, the 20/20 by 2020 effort to reduce our physical plant size and associated sustainment costs was firmly established as an Air Force goal through VCSAF guidance to the MAJCOMs.

Our Energy Management Branch (A7CAE) produced a facilities energy strategy designed to conserve energy, increase renewable energy development, and manage costs. Part of that strategy, the energy focus fund, will contribute $1.1B in FY11-15 targeting intelligent efficiencies to meet goals and improve mission support. Focus fund projects, executed with centrally funded O&M dollars, include all categories of work to make existing installation systems more efficient. Ideal projects with a threshold amount greater than $100,000 will use less electricity, natural gas, fuels of other types, water, and other utility commodities. Projects must also demonstrate a savings-to-investment ratio greater than 1.0, feature energy reduction (MBTUs saved), and have a simple payback of less than 10 years.

"Maintain compliance, reduce risk, and continuously improve" remains the focus of our Environmental Branch (A7CAN). AFI 32-7001, Environmental Management, was signed in FY11

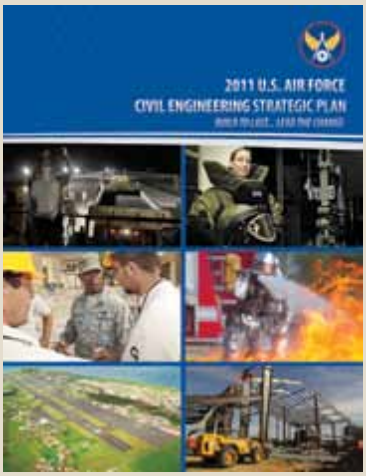
formalizing the environmental management system and AFI 32-7047, Environmental Compliance, Release, and Inspection Reporting, entered the final stages of approval. Each program area began using root cause analysis to reduce enforcement action. The Air Force established the Environmental Planning Center for Excellence at AFCEE to bring the Air Force "back to basics" in its National Environmental Policy Act compliance and the restoration team transitioned to performance based contracts, diligently working to meet accelerated site completion goals and support unconstrained land use on all property turnover.

At Beale AFB, Calif., a solar array powering the base's main gate information marquee began operation with a ceremonial ribbon cutting. (*photo by Mr. John Schwab*)

## PLANNING DIVISION (A7CI)

The Planning Division had a wide range of accomplishments in 2011. The Strategic Initiatives Branch (A7CIS) released the 2011 Air Force Civil Engineering Strategic Plan with input from CE's nine Program Groups and approval from the CE Governance structure. The plan defines The Civil Engineer's vision, mission, and goals for the career field and provides guidance to civil engineers and has the flexibility to address a future dynamic landscape and fiscal environment. The branch continues to build and update CE Process Playbooks, outlining processes for a given program or topic area and centralizing related guidance, forms, policies, and templates in a single, easily accessible, web-based tool that also captures feedback. In tandem, the Strategic Communications team continues to develop the CE Portal and the "CEnterline" (Maj Gen Byers' video messages to the CE community) and launched the A7C Facebook page. The branch held training events throughout 2011 on the CE Portal and playbook functionality and gathered feedback from across the field to ensure CE needs are met by Transformation initiatives.

The Basing Branch (A7CIB) leads Air Force efforts on installation planning, noise analysis, NEPA compliance, and encroachment management. This year they championed the installation complex/mission footprint concept as the basis for developing the Installation Complex Encroachment Management Action Plan, which identifies installation compatibility issues and introduces strategies to ensure operations sustainability. The Air Force benefitted in a threefold increase in Readiness and Environmental Protection Initiative project funding to more than $15.9M, protecting over 2,278 acres at 14 installations and ranges. The branch replaced the Base General Plan with the Installation Develop Plan, placing emphasis on planning, web accessibility, strategy alignment, sustainability indicators, and capacity analysis, while the Air Force issued a parallel "back to basics" policy for environmental impact analyses, promising a quicker decision informing analysis.




2011 was monumental for the Joint Basing team: Phase II installations reached FOC in October 2010 and all 12 joint bases are now in operation per 2005 BRAC law. The team facilitated memorandum of agreement (MOA) updates and numerous common output level standards (COLS) revisions. The branch completed the VCSAF-directed development of Air Force COLS, standardizing delivery of installation support services across 38 Air Force functional areas. Joint bases began reporting cost and performance data using the OSD's web-based Cost Performance Visibility Framework.

The Installation and Mission Support Branch (A7CIP), home of our Installation Support Panel, worked with USAF/A8 program element monitors, agile combat support core function lead integrators, integrated process teams, and MAJCOM representatives to complete the FY12-16 budget request supporting the president's and DOD's priorities. Despite tremendous fiscal constraints levied by executive branch and congressional guidance, the panel successfully advocated multiple warfighter and corporate initiatives enhancing EOD and airfield damage repair mission support requirements.

## HOUSING DIVISION (A7CH)

The Housing Division delivered another year of quality homes and housing support services to families and unaccompanied members, and improved the development and training of housing professionals worldwide.

The Housing Program Management Branch (A7CHM) privatized more than 70% of CONUS housing at 44 locations in FY11. The Air Force and project owners expanded the privatized housing portfolio to more than 39,000 units by averaging an additional 500 housing units each month. One of the year's major accomplishments was the project at JB Elmendorf Richardson, Alaska, awarded to JL Properties (Aurora/Hunt) for 1,240 homes on the former Fort Richardson.

Even as CONUS family housing privatizes, installations continue to benefit from MILCON and S/R&M funding to ensure homes and communities thrive through transition to privatization. In FY11, the family housing MILCON program awarded $73M for projects to upgrade 403 units, and began design on $80M worth of projects for FY12. The Air Force also funded 111 maintenance and repair projects for $43.6M.

Privatized housing at JB Elmendorf-Richardson, Alaska. (*photo by Mr. Jim Hart*)

The Housing Program Development Branch (A7CHD) maintained emphasis on unaccompanied housing (UH) as a top quality of life issue. In FY11, $150.8M in UH MILCON funding was awarded for student and permanent party dorm projects and $100M in O&M invested in 79 dorm focus fund (DFF) projects to improve 116 dormitories. In FY12, $447M in UH MILCON is programmed for Air Force dorms and Army barracks at joint bases and another $100M in O&M DFF investment is planned to improve dorms and serve as a "bridge" to MILCON. These MILCON and DFF investments support the DOD goal of having no more than 10 percent inadequate dorm rooms by FY17.

In addition to facility investment, the Housing Operations Branch (A7CHO) worked to enhance policies, processes, and governance; training and education; and communications and marketing. AFIT housing courses and curriculum were expanded to increase and improve opportunities for housing professionals. The division continued to focus on the Building Thriving Housing Communities Strategy's goals. Achievements include fielding an automated housing referral network at every major location and improved policy on dormitory management, operations, and furnishings.

In January 2011, the division launched a Housing website on the CE Portal as a central location for housing program announcements, operational guidance, and helpful resources needed by housing professionals and Airmen to stay informed on what the Air Force is doing to build thriving housing communities. Access the site at https://cs.eis.af.mil/a7cportal/ProgramGroups/Housing.

## PROGRAMS DIVISION (A7CP)

The Programs Division continued to provide MILCON support on multiple fronts throughout 2011. The MILCON Requirements Branch (A7CPP) assisted in the development of a $1.44B MILCON request to the president for FY12, including approximately $347M to modernize air and space inventories, organizations, and training; $509M to develop and care for Airmen and their families; $373M to partner with the joint and coalition team to win today's fight; $77M to continue to strengthen the nuclear enterprise; and $131M in planning/design and unspecified minor MILCON. The final budget submission strikes a balance between these competing interests and focuses support to our most critical missions.

The division again orchestrated professional staff member days to gain critical review and support of the MILCON and Military Family Housing (MFH) construction programs submitted in the FY12 President's Budget. The congressional cell processed over 400 inquiries, provided critical support to senior leaders through 9 hearings, and led the congressional conference reconciliation to ensure positive results with the National Defense Authorization Act and appropriation legislation.

The Policy and Analysis Branch (A7CPA), which includes the MILCON execution team, marshaled 43 FY11 MILCON projects totaling $533.4M through award, including 2 American Recovery and Reinvestment Act projects ($1M) and 1 Contingency Construction Authority project ($5.5M). An additional 26 MILCON projects funded prior to FY11 were also awarded at $569.3M; they include 1 emergency project ($27M) and 18 overseas contingency operations supplemental projects ($436.6M). The division received approval to submit numbered Air Force major and minor construction projects in FY12 worth $217.3M and $2.8M, respectively. Designs for FY12 projects were initiated for a combined project net worth of $1.7B. Finally, the division oversaw construction completion of 39 BRAC MILCON projects for the active duty Air Force valued at $456.3M along with the final closeout of 31 projects valued at $199.6M, and continues to monitor the remaining 42 projects underway valued at $1.2B.

The division consolidated O&M program element monitor advocacy and O&M policy/project approval into the new O&M Programs Branch (A7CPO). This new branch processed 75

O&M facility repair projects, each totaling more than $5M, for approval by the Deputy Assistant Secretary of the Air Force for Installations, with an overall value of approximately $1.2B. Moreover, the branch advocated for nearly $6B in O&M sustainment/restoration/modernization, facilities operation, and command support funding, including $400M for demolition/consolidation and another $100M in airfield focus funds for FY12. Lastly, the division implemented $1.6B in O&M efficiencies while minimizing their impact on installations' missions.

## RESOURCES DIVISION (A7CR)

This year the Resources Division capitalized on 2010 structural changes that more closely aligned our staff with information technology (IT), budget, and manpower — the three critical areas that represent our core mission.

The IT Branch (A7CRT) accomplished a major milestone by selecting TRIRIGA as the software solution for NexGen IT Capability Groups 1 and 2 (real property and work/supply management, energy management, and project management). Initial operating capability is scheduled for July 2012, full operating capability for September 2013. Requirements development continues for Capability Group 3 (Housing/FMO, financial management, contract management). Other major achievements include the implementation of EESOH-MIS at several bases with award of a new five-year maintenance contract; establishment of an automated meter reading program with expected Air Force-wide implementation in FY12; and finalized guidance by the GeoBase team for new geospatial data standards that significantly simplify data management. The Enterprise Information Management team also made CE Portal improvements that enhance usability and accessibility. Their partnership with AFCESA established a new platform IT accreditation process ensuring industrial control systems comply with Air Force guidance. Finally, the Portfolio Management Team worked with the field to improve CE IT investment accountability, which in turn benefited the certification and accreditation process and overall IT portfolio management.

Mr. Michael Miller, 92 CES, Fairchild AFB, Wash., evaluates one of the base's three energy management control systems. (*photo by Mr. Scott King*)

The Budget Branch (A7CRB) executed MFH, MILCON, and O&M programs while emphasizing three strategic themes. First, they refined the MAJCOM analyst concept to support MAJCOM resources advisors (RAs), improving communication on issues while enabling advocacy for requirements at all levels. Second, the branch emphasized RA development, partnering with AFIT and several financial management agencies to conduct a gap analysis identifying training needs, plan an RA worldwide training event, and host forums to meet immediate training demand. Third, they defined NexGen IT capability requirements to provide RAs access to business intelligence needed for decision and financial support.

The Manpower Branch (A7CRM) worked diligently with MAJCOM CE staffs to provide oversight and guidance for over 60,000 CE manpower billets, as well as Air Force organizational policy issues affecting CE units. They provided extensive data analysis support for installation support centralization transformation efforts as well as HQ USAF-directed efficiency studies affecting CE squadrons. The branch liaised with the 1st Manpower Requirements Squadron, ensuring CE capability-based manpower standards (CBMS) remain on track. Current CBMS actions include a MOA for the operations flight study, the Fire Emergency Services study nearing completion, and the Readiness and Emergency Management study in progress. The branch also partnered with the CE enlisted and officer career field managers to advocate for professional continuing education and advanced academic degree requirements, and provided manpower training to 200 plus CE RAs during the 2011 RA worldwide training event.

## READINESS AND EMERGENCY MANAGEMENT DIVISION (A7CX)

The Readiness and Emergency Management Division is leading efforts ranging from proactive management of stressed expeditionary engineer AFSCs, support of the nuclear enterprise, and improvement of emergency response capabilities.
The Expeditionary Engineering Branch (A7CXX) continues to provide comprehensive support to our expeditionary engineers. Through their efforts, the career field is nearing the goal of returning operational forces to a 1:2 dwell, institutional forces to a 1:4 dwell, and Reserve components to a 1:5 dwell consistent with the 2010 Quadrennial Defense Review objectives. The branch is also addressing DOD and Air Force expeditionary energy reduction efforts through advances in BEAR modernization and improvements to existing expeditionary infrastructure, and has successfully codified Prime BEEF and RED HORSE capabilities with Joint Publication 3-34, Joint

Engineer Operations. This keystone document was expanded with an Air Force doctrine document, AFDD 3-34, Engineer Operations.

Concurrent with the division's expeditionary efforts, the Emergency Services Branch (A7CXR) is transforming emergency response, first by working on recommendations from integrated installation protection to reshape the protection enterprise and secondly, by partnering with the Air Force Director of Operations to integrate the Emergency Operation Response community of interest into a larger Air common operating picture solution.

By advocating for future biological point detection, integrated early warning, and individual protection equipment in the DOD chem-bio program objective memorandum, A7CXR ensured strategies are in place to update current capabilities starting in FY15. The branch has also been integral in fielding the Joint Chemical Agent Detector and distribution of 104,000 Joint Service Lightweight Integrated Suit Technology suits to MAJCOMs and installations.

Members of the 380 ECES assemble a California medium shelter system, or CAMSS. (*photo by SSgt Patrick Mitchell*)

Maj Gen Timothy Byers, The Civil Engineer, introduces the Air Force's first P-34 rapid intervention vehicle during a ceremony at the production plant. (*photo by Mr. Eddie Green*)

The division remains engaged in supporting the CSAF's number one priority: reinvigorating the nuclear enterprise. They are a key player on the DOD-led Nuclear Weapons Accident Incident Response Subcommittee, the USAF/A4/7-led Nuclear Logistics Surety Team, and in planning for the 2012 nuclear response exercise (NUWAIX 12) at Minot AFB, N.D.

A7CX has also championed development and fielding of ultra-high pressure technology on the new P-34 Rapid Intervention Vehicle, which makes fighting fires 3.5 times more efficient. The division has made significant strides with three primary EOD goals: produce more capable Airmen, reduce the deployment tempo, and improve overall manning. In May 2011, the inaugural EOD preliminary class began at its new location, Sheppard AFB, Texas. And finally, a newly established senior leader working group with A1 and AETC is leading efforts to improve overall manning.

# ACC

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Director of Installations
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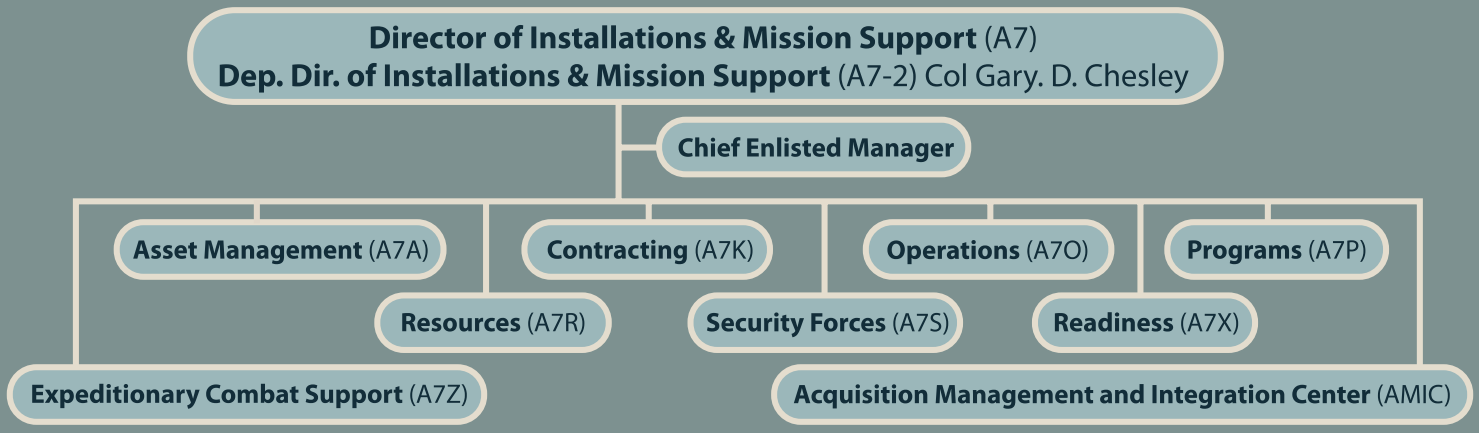
**CMSgt Brian L. Mosier**
Chief Enlisted Manager




## COMMAND MISSION

Air Combat Command is the primary force provider of combat airpower to America's warfighting commands. It's mission is to support global implementation of national security strategy. Air Combat Command operates fighter, reconnaissance, battle-management, and electronic-combat aircraft. It also provides command, control, communications and intelligence systems, and conducts global information operations.

## CE RESPONSIBILITIES

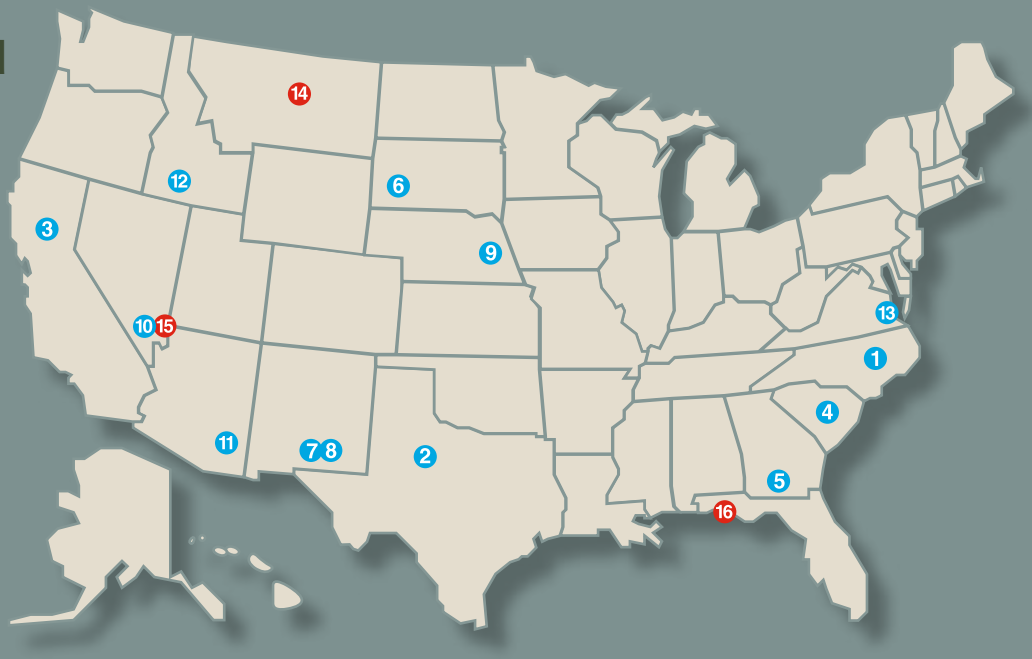
ACC A7 provides civil engineering, security forces, acquisition and contracting support. It establishes policy, provides resources, and executes base development, design, construction, operation, asset management, environmental, dorm, housing, quality-of-life, contingency response, emergency services, base defense, force protection, nuclear security, law enforcement, contracting, and policy oversight at 22 wings, 13 major bases, and 300 worldwide locations. A7 develops and deploys mission-ready, motivated, trained, and resilient RED HORSE, Prime BEEF, EOD, Fire, Security Forces, and Contracting Airmen. The directorate manages the Acquisition Management and Integration Center, responsible for strategic acquisition, integration, and management for ACC and other U.S. government agencies and allies.

## SIGNIFICANT ACCOMPLISHMENTS

- Provided 628 new or renovated privatized homes and awarded more than $9M in housing improvement projects.
- Developed a $297M infrastructure program to support beddown of MC-12, F-35, F-22, F-15 aircraft, remotely piloted aircraft, and air support operations squadrons.
- Southwest Asia Delivery Team programmed $236M in MILCON for AOR bases; $104.25M in President's Budget MILCON for five projects at enduring locations; and three projects in the OCO budget worth $182.10M. These projects will provide capability for current contingencies as well as long-term operations and/or presence.
- Managed more than 6,000 worldwide RED HORSE and Prime BEEF engineer deployments for repair and construction efforts as well as training local nationals, providing humanitarian assistance, and meeting national security/force protection objectives.
- Executed $13.2M airfield damage repair modernization to buy 12 additional pavement sustainment kits; completed development planning to transition remote airfield

## CE Units in Command

1. 4 CES — Seymour Johnson AFB, N.C.
2. 7 CES — Dyess AFB, Texas
3. 9 CES — Beale AFB, Calif.
4. 20 CES — Shaw AFB, S.C.
5. 23 CES — Moody AFB, Ga.
6. 28 CES — Ellsworth AFB, S.D.
7. 49 CES — Holloman AFB, N.M.
8. 49 MMS — Holloman AFB, N.M. BEAR Base
9. 55 CES — Offutt AFB, Neb.
10. 99 CES — Nellis AFB, Nev.
11. 355 CES — Davis-Monthan AFB, Ariz.
12. 366 CES — Mountain Home AFB, Idaho
13. 633 CES — JB Langley-Eustis, Va.
14. 819 RHS — Malmstrom AFB, Mont.
15. 820 RHS — Nellis AFB, Nev.
16. 823 RHS — Hurlburt Field, Fla.



damage assessment system, or RADAS, to engineering and manufacturing development stage in FY12

- Led support to AFCENT urgent operational need requirement to identify an improved low metal/no-metal detector solution for EOD Airmen to prevent battlefield casualties.
- Robert A. McAllister Firefighter Heroism Award (Air Force/DOD recognition): TSgt Raymond Granillo, SSgt Michael J. Byrne, and Army Sgt Megan Payton from JB Balad, Iraq)
- 2011 National Guard Association of the United States Mission Support Trophy (most outstanding mission support unit): 219 RHS, Malmstrom AFB, Mont.
- 2011 Federal Energy Management Program Award: ACC Facility Energy Team
- On target to have 45.7 MW of photovoltaic power generation at Davis-Monthan and Nellis AFBs, providing 84,000 MWh and saving $1.5M annually.
- Awarded $2M to retro-commission 800K sq. ft. of facilities, which is expected to result in an energy reduction of 17,000 MBTUs and cost savings of $430K annually; executed $12.2M to audit 24.5M sq. ft. of facilities for future energy conservation opportunities.
- Reduced mission impact discrepancies by 50% and minor discrepancies by 60% through monthly analysis and feedback, ensuring Airmen deployed with the correct training, equipment, and documentation.
- Implemented ACC/NISH alliance at Offutt AFB, Neb., enabling negotiation of a 1.4M reduction in base custodial contract over a 5-year period with no decrease in contract requirements (similar successes developing at other bases).
- Conducted 5 command-wide infrastructure assessment team visits; identified more than 700 critical projects valued at $508M and used to focus funding on "worst first."
- Improved emergency response compliance by 10% through emergency management metrics and Readiness Management Assessment Team visits.

## Statistics

| | |
|---|---|
| Major Bases | 13 |
| Plant Replacement Value | $32B |
| Buildings | 89.1M sq. ft. |
| Airfield Pavement | 40.3M sq. yd. |
| Housing | 11,036 units (61% privatized) |
| Dorms | 8,920 rooms |

**ACC Personnel**

| | |
|---|---|
| Active Duty & Civilian | 82,700 |
| Reserve & Guard | 50,922 |

**CE Personnel**

| | |
|---|---|
| Active Duty | 4,634 |
| Civilian | 2,003 |
| Contractor | 1,817 |

| | |
|---|---|
| MILCON | 16 projects ($210M) |
| S/R&M-D | 174 projects ($195.5M) |
| O&M Demolition | 6 projects ($205.8K) |

SrA Roxy Shaw, 23 CES EOD apprentice, safeguards an A-10C Thunderbolt II during emergency crisis training at Moody AFB, Ga. (*photo by SrA Stephanie Mancha*)

# AETC

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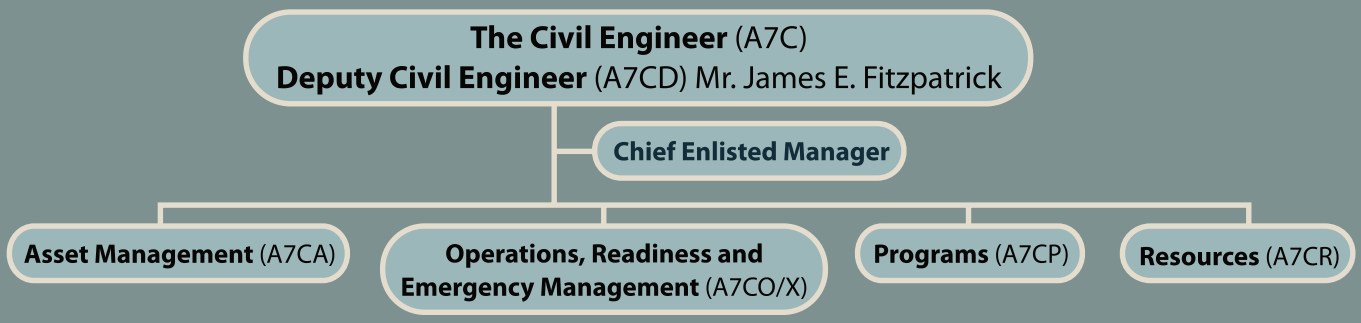
**DSN 487-6326**

**Col David F. DeMartino**
The Civil Engineer

**CMSgt Ronald Kruse**
Chief Enlisted Manager




## COMMAND MISSION

Develop America's Airmen today ... for tomorrow.

## CE RESPONSIBILITIES

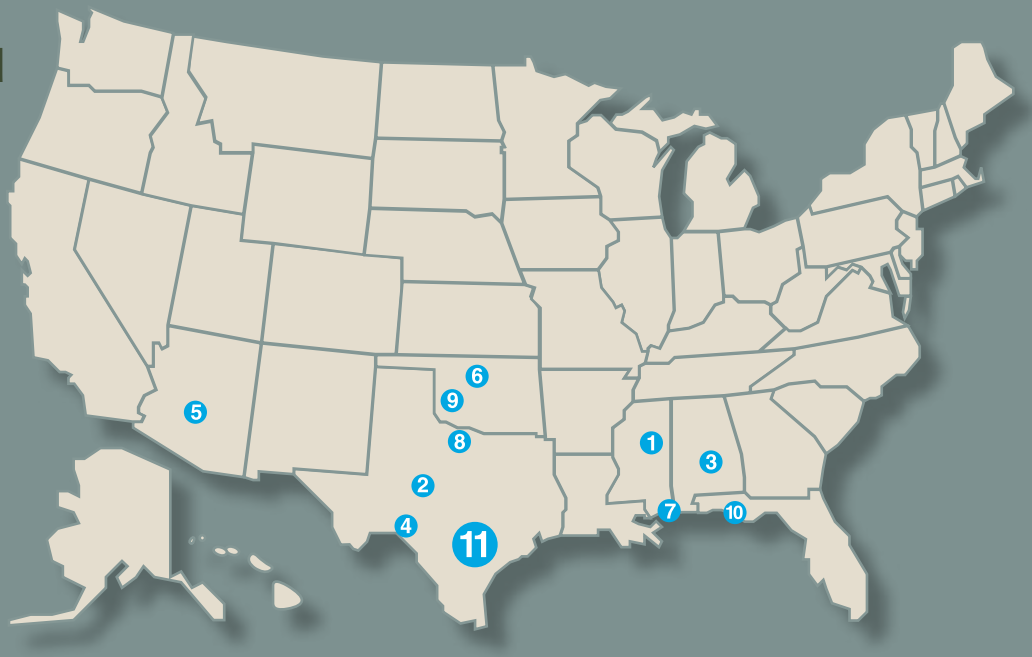
AETC CEs provide comprehensive land-use planning and complete design, construction, and maintenance management for every AETC installation facility. They plan and program MILCON, O&M, and energy projects and manage real property accounting and reporting. HQ AETC/A7C is responsible for the development, preparation, submittal, and maintenance of financial plans, budget estimates, and financial management systems for all 13 AETC installations. AETC/CE provides living quarters for permanent-party and transient military members, students, and contractors. AETC/A7C delivers world-class fire protection and prevention, public education, and other emergency response services and locates, identifies, and renders safe and neutralizes explosive hazards that threaten personnel and resources. AETC/CE trains, equips, and deploys Prime BEEF personnel to support global combat operations and recovery from natural disasters and major accidents.

## SIGNIFICANT ACCOMPLISHMENTS

- Ensured full operational capacity of JB San Antonio (JBSA), Texas, with a growing multi-service migration of missions and personnel along with major mission partners extending beyond 211 organizations and units. JBSA's plant replacement value ($10.5B) is almost half of AETC's total.
- Integrated JBSA as a part of the Medical Support Agreement for the San Antonio Medical Center Memorandum of Agreement, providing full Civil Engineering emergency services, emergency management, and bioenvironmental support to all JBSA facilities and mission partners.
- Closed the Southern Group (30 Sep 11) resulting in AETC having 100% of homes on their installations privatized.
- Created prototype base maintenance contract performance work statement (PWS) for contracts worth $300M+; benchmarked by 3 MAJCOMS.
- Initiated contract modifications at five installations; standardized PWSs and contract line item number structure; and incorporated asset management processes and tools.
- Outlined and developed CE-specific quality assurance evaluator (QAE) training; improved oversight, documentation, and analysis of contractors' performance; and organized first annual CE QAE symposium to capture and share AETC's best practices.
- Achieved Air Force's best CE execution rate for mission readiness training program (MRTP), 98% for all MRTP and advance courses.
- Partnered with AFCESA to create an Air Force-wide CE training CoP; increased CE MAJCOM functional manager collaboration boosting execution by 10%.
- Completed S-File data collection for 47.2M square feet of facility space at more than 2,000 buildings.

## CE Units in Command

| | | |
|---|---|---|
| 1 | 14 CES | Columbus, AFB, Miss. |
| 2 | 17 CES | Goodfellow AFB, Texas |
| 3 | 42 MSG/CE | Maxwell AFB, Ala. |
| 4 | 47 CES | Laughlin AFB, Texas |
| 5 | 56 CES | Luke AFB, Ariz. |
| 6 | 71 LRS/CE | Vance AFB, Okla. |
| 7 | 81 MSG/ID | Keesler AFB, Miss. |
| 8 | 82 CES | Sheppard AFB, Texas |
| 9 | 97 CES | Altus AFB, Okla. |
| 10 | 325 CES | Tyndall AFB, Fla. |
| 11 | | JB San Antonio, Texas |
| 11 | 502 CES | Ft. Sam Houston, Texas |
| 11 | 802 CES | Lackland AFB, Texas |
| 11 | 902 CES | Randolph AFB, Texas |




Mr. Peter Weatherford and A1C Avory Battle, 56 CES HVAC mechanics, check for leaks on a chiller after replacing a compressor at Luke AFB, Ariz. (*photo by SrA Tracie Forte*)

- Completed several asset management optimization initiatives to improve data accuracy in IWIMS and ACES-Real Property, including capitalization gap analysis and real property installed equipment inventory and bar-coding of HVAC components in almost 1,000 buildings.
- Developed the I-File analysis tool, integrating multisource facility data to support investment strategies and business decisions for Air Force assets.
- Finalized cultural resources programmatic agreement for JBSA that establishes process for routine maintenance of more than 1,100 historic buildings and 300 archeological sites on Ft. Sam Houston and Randolph and Lackland AFBs, all in Texas.
- Participated in development of numerous Air Force playbooks — community planning, environmental planning, and S/R&M — to standardize processes across the CE enterprise.
- Completed NEPA actions necessary for basing decision on F-16 relocation.

## Statistics

| | |
|---|---|
| Major Bases | 13 |
| Plant Replacement Value | $24.8B |
| Buildings | 73.2M sq. ft. |
| Controlled Land | 2.8M acres |
| Airfield Pavement | 25.2M sq. yd. |
| Housing | 6,904 units (100% privatized) |
| Dorms | 16,578 rooms |
| **AETC Personnel** | |
| Active Duty | 33,565* |
| Reserve | 1,474 |
| Guard | 6,480 |
| Civilian | 17,023 |
| Contractor | 11,795 |
| **CE Personnel** | |
| Active Duty | 651 |
| Reserve | 30 |
| Guard | 207 |
| Civilian | 2,411 |
| Contractor | 2,140 |
| MILCON | 13 Projects ($244M) |
| O&M | 167 Projects ($102.7M)** |
| Facilities Operation | $306.1M |

**Does not include students*

***Includes dorm focus funds; life/health/safety; S/R&M/storm; beddowns; energy; and design.*

- Relocated EOD preliminary training from Lackland to Sheppard AFB, Texas.
- Secured $27M (>25% of Air Force funding) for 13 critical dormitory projects in the command.
- Secured additional $8.9M in life/health/safety projects from headquarters focus funds.
- Completed environmental assessments to support multiple beddown/mission realignments, including introduction to fighter fundamentals consolidation and HC/MC-130 aircraft recapitalization.

# AFGSC

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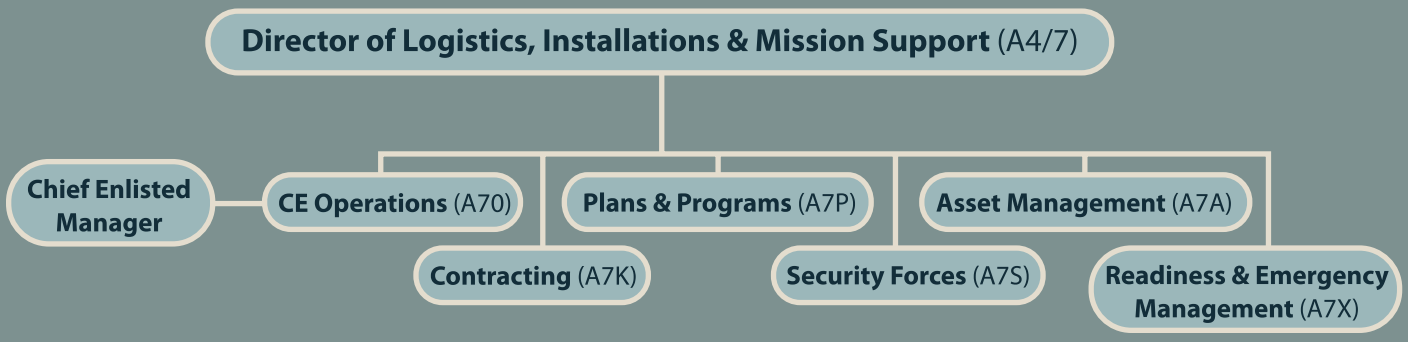
**DSN 781-2608**

**Col Michael R. Hass**
The Civil Engineer and
Chief, Operations Division

**CMSgt Jerry Williams**
Chief Enlisted Manager




## COMMAND MISSION

Develop and provide combat ready forces to conduct nuclear deterrence and global strike operations — safe, secure, and effective — to support the President of the United States and combatant commanders.

## CE RESPONSIBILITIES

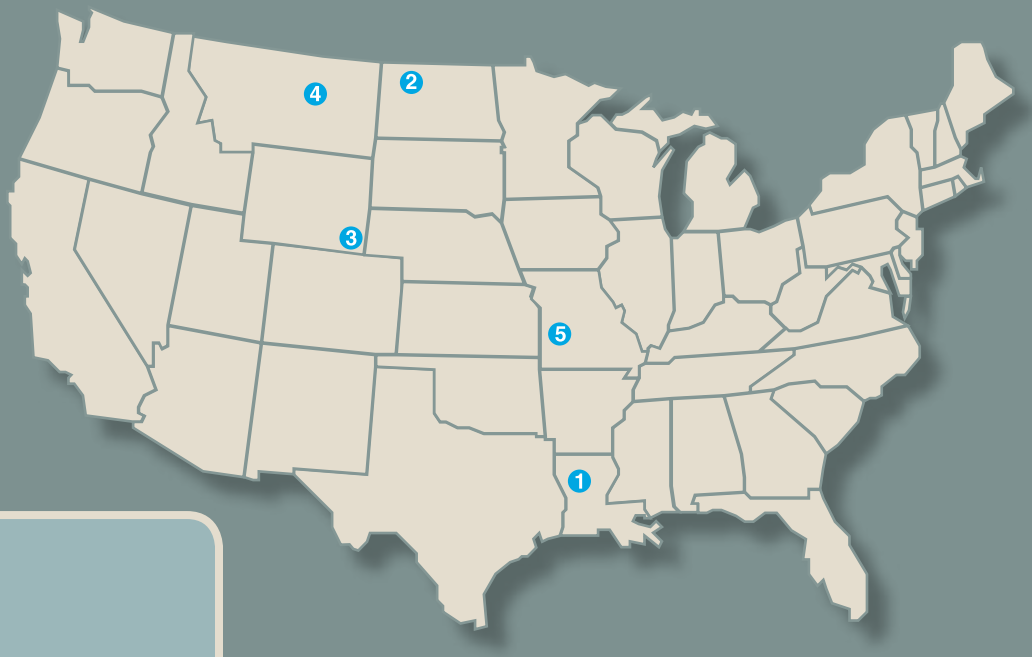
AFGSC engineers oversee planning, programming, policy, and financial oversight for the command's civil engineering programs: fire protection; EOD; emergency management operations; maintenance; repair; MILCON; infrastructure; environmental; housing; energy; manpower and training; technical support; and facilities S/R&M. HQ AFGSC engineers also oversee the training, equipping, and deployment of Prime BEEF engineers to support global contingency and combat operations.

## SIGNIFICANT ACCOMPLISHMENTS

- Implemented the command's first infrastructure assessment playbook, which provides a roadmap to validate maintenance and repair of critical nuclear facility and infrastructure.
- Conducted five nuclear surety staff assistance visits; one CE unit earned an "outstanding" rating and three other CE units earned "excellent" ratings.
- Completed renovation of long-term office space for 425 personnel; initiated Phase 2, housing 825 personnel in long-term office space; awarded beddown renovation projects valued at more than $20M.
- Generated a MAJCOM comprehensive asset management plan, which will provide life-cycle analysis of existing infrastructure combined with long-term sustainability goals to guide AFGSC leadership in spending the command's limited funds where needed the most for the best return on investment.
- Committed $22M in 23 energy projects for FY11; focus areas include replacing outdated HVAC control systems and inefficient light fixtures.
- Conducted large scale table-top response task force exercise a Barksdale AFB. Participants included HQ AFGSC, 2 BW, the local community, the Department of Homeland Security, and the Louisiana National Guard.
- Purchased specialized tools to equip Missile Wing EOD flights with essential lightweight equipment to support unique fly-away missions for silo security to ensure suspect explosive threats are neutralized efficiently.
- Advocated for 4,625 M50s to outfit AFGSC Security Forces with the latest CBRN protective mask and 57 joint chemical agent detectors to equip bomber aircrews with advanced

## CE Units in Command

1. 2 CES — Barksdale AFB, La.
2. 5 CES — Minot AFB, N.D.
3. 90 CES — F.E. Warren AFB, Wyo.
4. 341 CES — Malmstrom AFB, Mont.
5. 509 CES — Whiteman AFB, Mo.

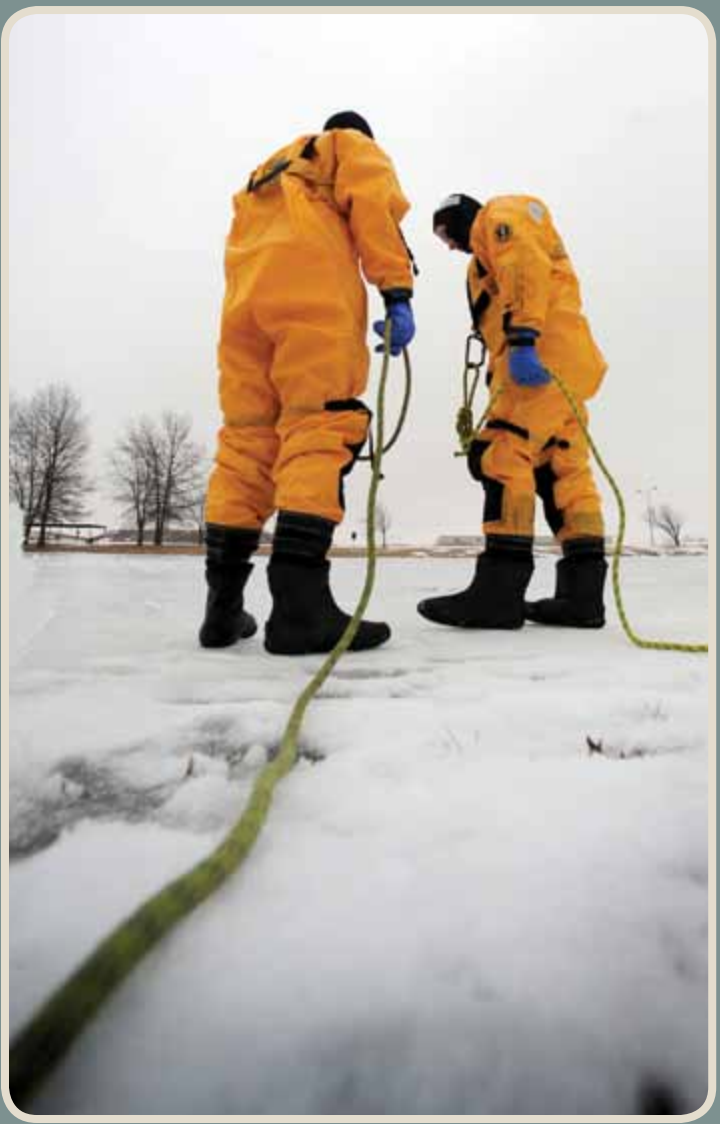



## Statistics

| | |
|---|---|
| Major Bases | 5 |
| Plant Replacement Value | $29.8B |
| Buildings | 37.5M sq. ft. |
| Airfield Pavement | 7.6M sq. yd. |
| Housing | 5,554 units (19.6% privatized) |
| Dorms | 4,296 rooms |
| **AFGSC Personnel** | |
| Active Duty | 19,253 |
| Reserve | 1,352 |
| Guard | 941 |
| Civilian | 2,758 |
| **CE Personnel** | |
| Active Duty | 1,247 |
| Reserve | 169 |
| Guard | 72 |
| Civilian | 640 |
| MILCON | 3 projects ($38.6M) |
| S/R&M | $146.3M |
| Facilities Operation | $60.5M |

chemical detectors, saving the command $1.9M in unfunded requirements.

- Awarded the first AFGSC contract for building a fire hazard analysis and facility certification configuration document at F.E. Warren AFB, Wyo., to provide a baseline documentation of essential facility systems compliance with the new nuclear certification requirements.
- Garnered support for two P-341 MILCON projects including a $1.8M effort to widen a taxiway at Minot AFB, N.D., and a $1.9M military working dog kennel at F.E. Warren.
- Orchestrated Minot storm damage relief, including more than $3.4M in storm damage repair and delayed demolition of dormitories to house displaced personnel.
- Executed more than $139M in S/R&M, P-341, energy/ECIP, housing, dormitory, AT/FP, life health safety, demolition, and beddown projects, including roof failures at F.E. Warren and Whiteman AFB, Mo., and relocation of the missile engineer squadron to F.E. Warren.
- Achieved initial operating capability for the AFGSC GeoBase program creating a single system that will be compliant with the new GeoBase strategic vector and accommodating nuclear-unique features.



Two 509 CES members prepare for ice rescue training at Whiteman AFB, Mo. (*photo by SrA Kenny Holston*)

# AFMC

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937-522-2349
DSN 672-2349

**Mr. Paul A. Parker**
Director of Commuications,
Installations and Mission Support

**CMSgt Daniel B. Jessup**
CE Functional Manager


## COMMAND MISSION

Deliver war-winning technology, acquisition, test, sustainment, and expeditionary capabilities to the warfighter.

## CE RESPONSIBILITIES

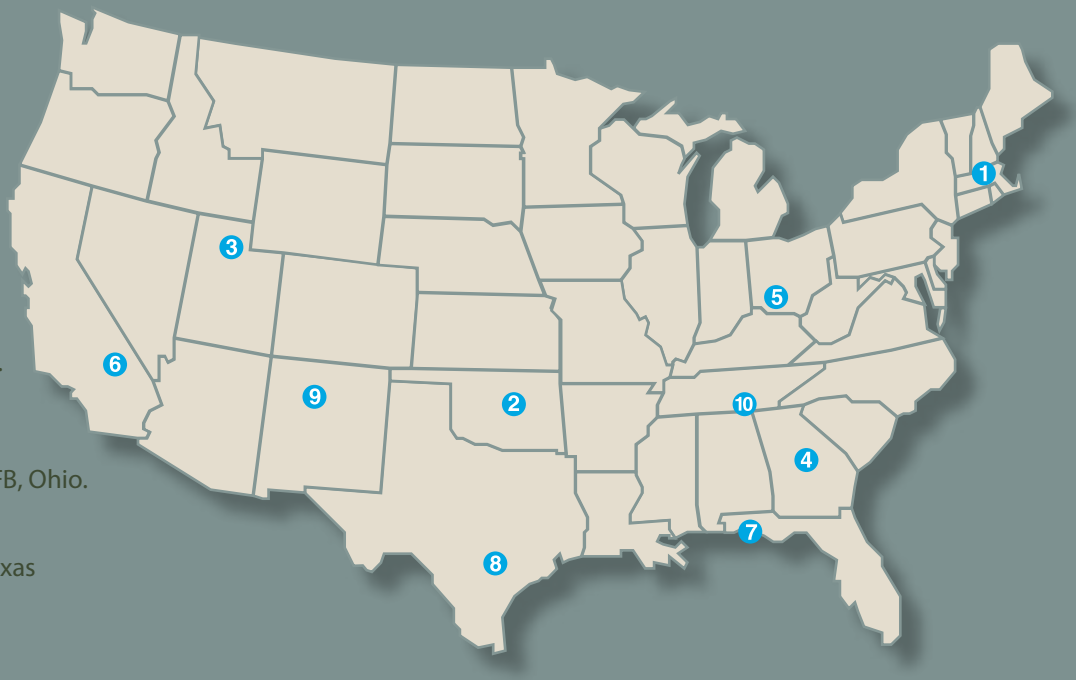
AFMC engineers provide policy, guidance, and technical support for the command's physical plants, property operations, and emergency management services. They deliver on-target and responsive strategic facility, infrastructure, and environmental planning, programming, and execution oversight to sustain and enhance real property assets. They provide advocacy, guidance, capitol asset expertise, and functional oversight of the command's real estate, military family housing, environmental, and foreign military sales programs. AFMC engineers also provide resources to secure the command's operational, acquisition, and sustainment mission capabilities, while handling all aspects of the financial resources and manpower to support command installations.

## SIGNIFICANT ACCOMPLISHMENTS

- Deployed 141 CE personnel to 6 operating locations supporting combat operations.
- Responded to 7,140 fire-related emergencies, including 230 off-base.
- Responded to 56 EOD missions; 7,652 man-hours aiding and protecting the president, vice-president, and other high visible personnel.
- Sanitized 46,240 bombing range acres in support of 454 test/range clearance missions; destroyed 9,403 ordnance items.
- Supported Operation Tomadachi, the military aid operation to support Japan's earthquake recovery.
- Participated in ARDENT SENTRY 11, USNORTHCOM's command and control exercise; directed AFMC Crisis Action Team (CAT) actions and coordinated deployment of the CAT.
- Launched A6/7 Asset Management cross-functional integrated working group to support The Civil Engineer's strategic sustainable installations and Asset Management goals and objectives.
- Indentified $35M in FY11 dorm requirements; executed $4M in dorm focus funds and leveraged $250K energy focus funds to sustain highest overall tier-rated dorms in the Air Force.
- Completed FY09 Dormitory Divestiture Plan; eliminated AFMC's only Tier 1 dorm, 11 Tier 2 dorms, and 2 Tier 3 dorms; decreased inventory by 1,290 rooms.

## CE Units in Command

| | | |
|---|---|---|
| 1 | 66 ABG/CEG | Hanscom AFB, Mass. |
| 2 | 72 ABW/CE | Tinker AFB, Okla. |
| 3 | 75 CEG | Hill AFB, Utah. |
| 4 | 78 CEG | Robins AFB, Ga. |
| 5 | 88 ABW/CE | Wright-Patterson AFB, Ohio. |
| 6 | 95 ABW/CE | Edwards AFB, Calif. |
| 7 | 96 CEG | Eglin AFB, Fla. |
| 8 | 311 ABG/CE | Brooks City-Base, Texas |
| 9 | 377 MSG/CE | Kirtland AFB, N.M. |
| 10 | AEDC/TSDC | Arnold AFB, Tenn. |




Construction of the 711th Human Performance Wing's centrifuge at Wright-Patterson AFB, Ohio. (U.S. Air Force photo)

## Statistics

| | |
|---|---|
| Major Bases | 10 |
| Plant Replacement Value | $49.9B* |
| Buildings | 136.9M sq. ft. |
| Airfield Pavement | 33.9M sq. yd. |
| Housing | 7,500 units (79% privatized) |
| Dorms | 4,722 rooms |
| **AFMC Personnel** | |
| Active Duty | 18,622 |
| Reserve | 651 |
| Civilian | 60,925 |
| Contractor | 21,447 |
| **CE Personnel** | |
| Active Duty | 399 |
| Reserve | 9 |
| Civilian | 3,360 |
| Contractor | 2,805 |
| MILCON | 8 projects; ($52M) |
| S/R&M | 31 projects ($34.4M) |
| Facilities Operation | $349M |

**includes All AFMC installations, GSUs, and Air Force plants.*

- Continued leveraging private sector capital to privatize all of AFMC's military family housing; currently 79% privatized.
- Awarded a $1.37M contract to conduct HQ AFMC S-File data collection analysis, which establishes baseline towards 20/20 by 2020 goal. The 10-month effort involved 150 facilities totaling 8.5M square feet at 9 installations.
- Contributed to Air Force Enhanced Use Lease (EUL) portfolio; 9 active EULs with actual/forecasted value of $28/$231M; 11 potential renewable energy EULs in excess of $1B currently under analysis.
- Won five 2011 Air Force Design Awards: Citation Award for Facility Design (Acquisition Management Facility Renovation, Wright-Patterson AFB); District, Division or Host Nation Agent of the Year-Design (Mobile District, U.S. Army Corps of Engineers); District, Division or Host Nation Agent of the Year-Construction ( Savannah District, Robins AFB Resident Office, U.S. Army Corps of Engineers); District, Division or Host Nation Agent of the Year-Design through Construction (Louisville District, U.S. Army Corps of Engineers); and Civilian Project Manager of the Year-Construction (Mr. Julian Fant, Savannah District, Robins AFB Resident Office, U.S. Army Corps of Engineers.)
- Won three 2011 Secretary of Defense Environmental Awards: Cultural Resources Management Award for Installations (88 ABW/CE, Wright-Patterson AFB); Cultural Resources Management Award for Individuals/Teams (Cultural Resources Management Team, Eglin AFB); and Natural Resources Conservation Award for Large Installations (96 CEG/CEV, Eglin AFB).

# AFRC

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**Col Nicholas L. Desport**
Deputy Director of Installations &
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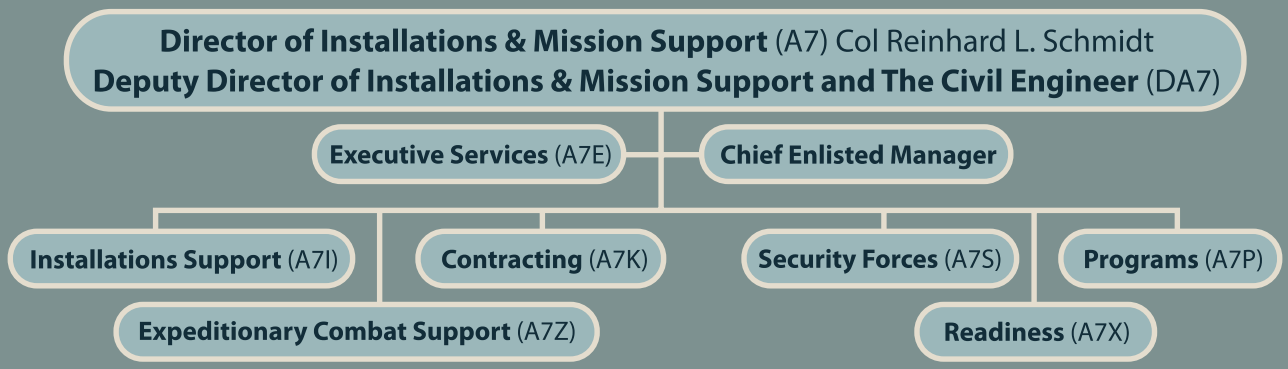
**CMSgt Patrick Ferrell**
Chief Enlisted Manager




## COMMAND MISSION

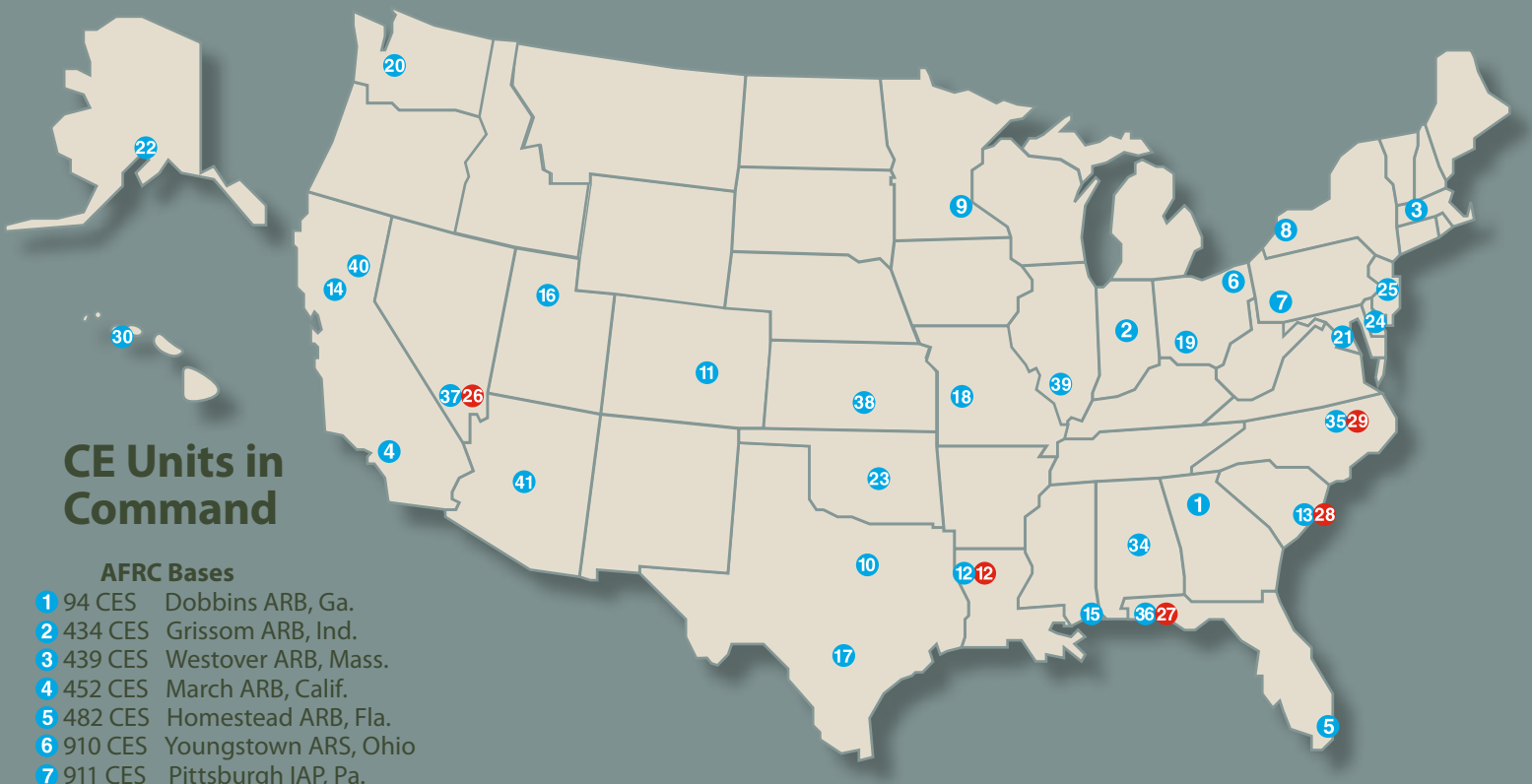
The Air Force Reserve Command's Mission is to Fly, Fight and Win ... in air, space and cyberspace.

## CE RESPONSIBILITIES

Civil engineers of HQ AFRC/A7 provide and direct Command Civil Engineering programs and resources affecting over 71,547 AFRC personnel located at 9 primary and 58 tenant locations with a $7.8B plant replacement value and average annual execution of $56.4M for MILCON and $289M for operations. Civil Engineering also organizes, trains, and equips 5,292 engineers at 42 units for worldwide contingencies.

## SIGNIFICANT ACCOMPLISHMENTS

- Deployed 492 personnel (Prime BEEF, Fire and Emergency Services, Emergency Management, EOD, and IMAs) to Iraq, Kuwait, Afghanistan, Al Dhafra, Al Udeid, Saudi Arabia, Manas, Oman, and Bahrain in support of AEF taskings.
- 665 personnel completed $2.2M in readiness construction training projects at various locations, including Lajes, Portugal (building addition), Riverside, Tenn. (field house repairs, ball field dugouts), Mount Hope, W.V. (2 miles of access roads, three helicopter pads).
- Total Force civil engineers completed Expeditionary Combat Support Training and Certification Center mission essential equipment training courses (808 students) and crane certification (76 students) at the main campus and through the mobile training team.
- Awarded one current mission MILCON project at Patrick AFB, Fla., to construct a $3.4M weapons maintenance facility; continued executing the $94.9M FY10 current mission MILCON program, the largest in AFRC history.
- Programmed and approved 400+ projects ($289M) in facility S/R&M construction requirements, nearly matching last year's record $320M; awarded 530+ projects ($166M) of FY11 facility S/R&M funds.
- Conducted 16 surveys and site activation task forces supporting total force integration and mission realignments that include EOD, security forces, intel, and maintenance, as well as fighter, airlifter, and field training units.
- Completed facility operational capability utilization surveys, or FOCUS, at 8 AFRC operating locations; surveyed 311 facilities (2.9M sq. ft.), validated a deficit of 137K sq. ft., and validated 299 projects and $2M of facility work orders ($3B in facility requirements validated to date).
- Awarded $80M base operating support contract for March ARB, Calif.
- Completed transfer of a 12-acre parcel and approximately 52K sq. ft. of facility space from the Department of the




# CE Units in Command

**AFRC Bases**

1 94 CES Dobbins ARB, Ga.
2 434 CES Grissom ARB, Ind.
3 439 CES Westover ARB, Mass.
4 452 CES March ARB, Calif.
5 482 CES Homestead ARB, Fla.
6 910 CES Youngstown ARS, Ohio
7 911 CES Pittsburgh IAP, Pa.
8 914 CES Niagara Falls ARS, N.Y.
9 934 CES Minneapolis-St. Paul IAP, Minn.

**Tenant Units**

10 301 CES NAS JRB Ft. Worth, Texas
11 302 CES Peterson AFB, Colo.
12 307 RHS Barksdale AFB, La.
12 307 CES Barksdale AFB, La.
13 315 CEF Joint Base Charleston, S.C.
14 349 CES Travis AFB, Calif.
15 403 CES Keesler AFB, Miss.
16 419 CES Hill AFB, Utah
17 433 CES Lackland AFB, Texas
18 442 CES Whiteman AFB, Mo.
19 445 CES Wright-Patterson AFB, Ohio
20 446 CES JB Lewis-McChord, Wash.
21 459 CES Andrews AFB, Md.
22 477 CES JB Richardson-Elmendorf, Alaska
23 507 CES Tinker AFB, Okla.
24 512 CES Dover AFB, Del.
25 514 CES JB McGuire-Dix-Lakehurst, N.J.
26 555 RHS Nellis AFB, Nev.
27 556 RHS Hurlburt Field, Fla.
28 560 RHS JB Charleston, S.C.
29 567 RHS Seymour Johnson AFB, N.C.
30 624 CES JB Pearl-Hickam, Hawaii
1 628 CEF Dobbins ARB, Ga.
10 810 CEF NAS JRB Fort Worth, Texas
4 904 CEF March ARB, Calif.
34 908 CES Maxwell AFB, Ala.
35 916 CEF Seymour Johnson AFB, N.C.
36 919 CES Eglin AFB, Fla.
37 926 CEF Nellis AFB, Nev.
38 931 CES McConnell AFB, Kan.
39 932 CES Scott AFB, Ill.
40 940 CES Beale AFB, Calif.
41 944 CES Luke AFB, Ariz.

Army to Westover ARB, Mass., in support of AFRC mission requirements.

- Successfully closed General Billy Mitchell ARS, Wis., enabling AFRPA to transfer the entire base to the Air Port Authority.
- Completed the closure of Buckley Annex, Colo., former home of the Air Reserve Personnel Center; working with the Lowry Redevelopment Authority, AFRPA, and AFCEE, AFRC completed the required environmental site cleanup, enabling AFRPA to do a 'quick turn' transfer to the authority.
- Completed two Tier 3 (External) ESOHCAMPs; provided support to AFRC host installations on five Tier 2 (Internal) ESOHCAMPs.

## Statistics

| | |
|---|---|
| Major Bases | 5 |
| Plant Replacement Value | $7.8B |
| Buildings | 13.12M sq. ft. |
| Airfield Pavement | 9.98M sq. yd. |

**AFRC Personnel**

| | |
|---|---|
| Reserve | 64,266 |
| Civilian | 4,442 |
| Contractor | 1,135 |
| Active Guard Reserve | 2,553 |
| Active Duty | 286 |

**CE Personnel**

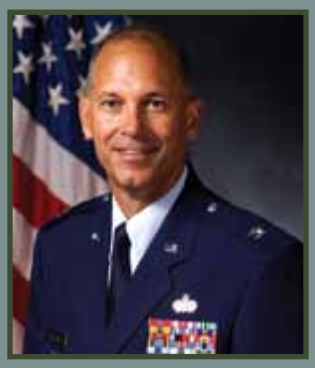
| | |
|---|---|
| Traditional Reserve | 4,612 |
| Individual Mobilization Augmentee | 420 |
| Air Reserve Technician | 156 |
| Civilian | 801 |
| Contractor | 290 |
| Active Guard Reserve | 84 |
| Active Duty | 20 |

| | |
|---|---|
| MILCON | 1 project ($3.42)* |
| S/R&M | 530 projects ($166M) |
| Facilities Operation | $107M |

**Does not include $4.4M for P-341 and planning and design.*

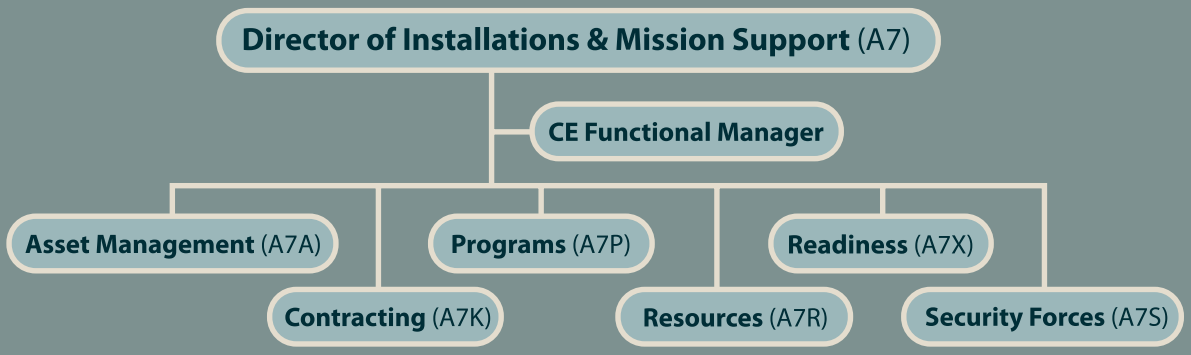
# AFSOC

**Hurlburt Field, Fla**
**AFSOC/A7@HURLBURT.AF.MIL**
**850-884-2260**
**DSN 579-2260/3169**



**Col Van Fuller**
Director of Installations & Mission Support

**CMSgt Michael T. Irons**
CE Functional Manager




## COMMAND MISSION

America's specialized air power ... a step ahead in a changing world, delivering special operations power anytime, anywhere. Air Force Special Operations Command provides Air Force special operations forces (SOF) for worldwide deployment and assignment to geographic combatant commands. The command's SOF are composed of highly trained, rapidly deployable Air Commandos, conducting global special operations missions ranging from precision application of firepower to infiltration, exfiltration, resupply, and refueling of SOF operational elements.

## CE RESPONSIBILITIES

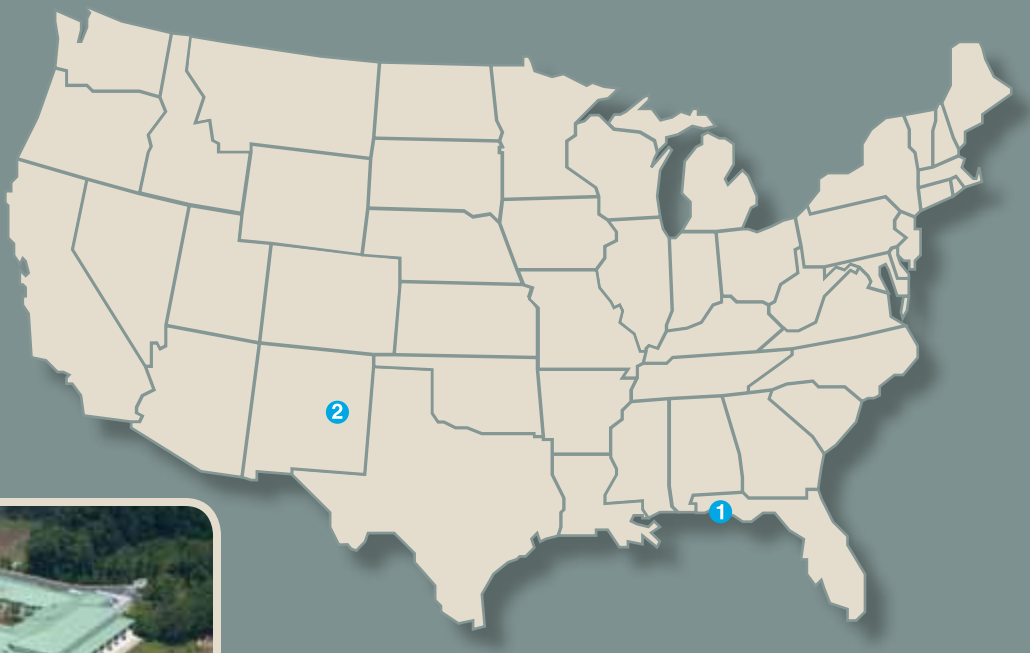
Plans, programs, resources, and manages civil engineer processes and resources enabling the air component of U.S. Special Operations Command (USSOCOM) to execute its mission. Executes $100M in annual appropriations, supports more than 15,000 special operations forces at 35 locations worldwide, and advises the AFSOC commander on base development and sustainment, emergency response, contracting, integrated defense, security, force protection, and expeditionary combat support. Provides specialized agile combat support by employing installation engineering, expeditionary engineering, readiness and emergency management, fire and emergency services, and EOD in garrison and at overseas contingency locations. To further assist USSOCOM achieve its mission, provides expeditionary beddown support capability for deployed personnel in contingency locations for up to 14 days using AFSOC-tailored air rapid response kits, or ARRKs.

## SIGNIFICANT ACCOMPLISHMENTS

- Deployed 147 engineers (25.6K man-days), to 16 locations in Iraq, Afghanistan, Africa, and South America.
- Deployed 14 EOD Airmen in support of worldwide operations including Odyssey Dawn, New Dawn, and Enduring Freedom, who performed over 2,700 combat missions and cleared more than 3,700 acres of live fire, bombing, and gunnery ranges stateside.
- Supported critical AC-130 combat missions in Libya.
- Dedicated the first piece of World Trade Center steel in New Mexico with Cannon AFB's 9/11 memorial honoring fallen heroes.
- Managed $10.6M SOF construction re-procurement action for beddown underway in U.S. Central Command's area of responsibility.
- Completed Hurlburt Field's $10M weather squadron and $7.3M joint ops planning facilities in Florida.
- Began construction of Hurlburt Field's source selection facility, projected to be the Air Force's first net zero energy facility.

## CE Units in Command

1 1 SOCES Hurlburt Field, Fla.
2 27 SOCES Cannon AFB, NM.




Construction of Hurlburt Field's Joint Mission Planning Facility (*foreground*) and the now completed Soundside Club and Visitor's Quarters (*background*)(*photo courtesy of Aero Photo*)

- Executed $177.3M in MILCON for facility construction, $100M in CE O&M budgets ($72M Air Force/$28M SOF) and $17M in family housing.
- Executed $4.3M for addition to special ops school, $11.5M for two additional child development centers serving 250+ dependants, and $7.2M for flight test ops facility, and awarded $15M for base logistics facility, all located at Hurlburt Field.
- Began design process for a $15M, 96-room dormitory, a $10.9M SOF wash rack hangar, a $41.2M SOF AC-RECAP hangar/AMU, a $28.2M squad ops facility, and $49.9M in SOF airfield construction, all at Cannon AFB.
- Began design process for a SOF $3.2M facility and $6.3M simulator at Hurlburt Field and a $5.4M SOF training facility at Pope Army Airfield, N.C.
- Awarded $600M in F-S/R&M and MILCON and continued progress with $1.2B beddown for Cannon AFB.
- Postured FY13-18 SOF/Air Force MILCON program funds of $738M, defining path for Cannon AFB to achieve full SOF operational capability.
- Shaped $246M Cannon AFB airfield MILCON program; doubled aircraft, hangar, and ramp space without impeding operations.
- Programmed 152 O&M projects ($293M) (FY12-17 project priorities support additional 1,500 Airmen and 50 aircraft at Cannon AFB).

## Statistics

| | |
|---|---|
| Major Bases | 2 |
| Plant Replacement Value | $5.1B |
| Buildings | 9.5M sq. ft. |
| Airfield Pavement | 2.4M sq. yd. |
| Housing | 1,793 units (0% privatized) |
| Dorms | 1,686 rooms |
| **AFSOC Personnel** | |
| Active Duty | 12,440 |
| Reserve | 1,500 |
| Guard | 1,490 |
| Civilian | 1,738 |
| Contractor | 1,214 |
| **CE Personnel** | |
| Active Duty | 485 |
| Reserve | 96 |
| Guard | 146 |
| Civilian | 195 |
| Contractor | 111 |
| MILCON | 5 Air Force projects ($62.3M)<br>7 SOF projects ($115M) |
| S/R&M | 95 Air Force projects ($40.9M)<br>29 SOF projects ($24.9M) |
| Facilities Operations | $13.3M |

- Implemented an internet GIS viewer for GeoBase utilizing Adobe Flash technology, improving response time and enhancing web based analytical capabilities.
- Began initial operational testing of AFSOC's leading edge renewable energy project that uses plasma arc technology to turn waste into energy, converting 80% of Hurlburt Field's municipal solid waste to syngas; permitting in process to authorize treatment of hazardous and medical wastes.

# AFSPC

**Peterson AFB, Colo.**
**A4.7.WF@PETERSON.AF.MIL**
**719-554-8178**
**DSN: 692-8178**

**Col Joseph H. Schwarz**
Deputy Director for Installations and Mission Support and Command CE

**CMSgt Michael A. Schreck**
CE Functional Manager

**Director of Logistics, Installations & Mission Support** (A4/7) Mr. Jeffrey C. Allen
**Deputy Director for Installations & Mission Support and Command CE** (DA7)

- **CE Functional Manager**
- **Asset Management** (A7A)
- **Resources** (A4/7R)
- **Contracting** (A7K)
- **Security Forces** (A7S)
- **CE Operations** (A7O)
- **Readiness & Emergency Management** (A7X)
- **Plans/ Programs** (A4/7P)
- **Services Mgmt & Integration Office** (A7Z)

## COMMAND MISSION

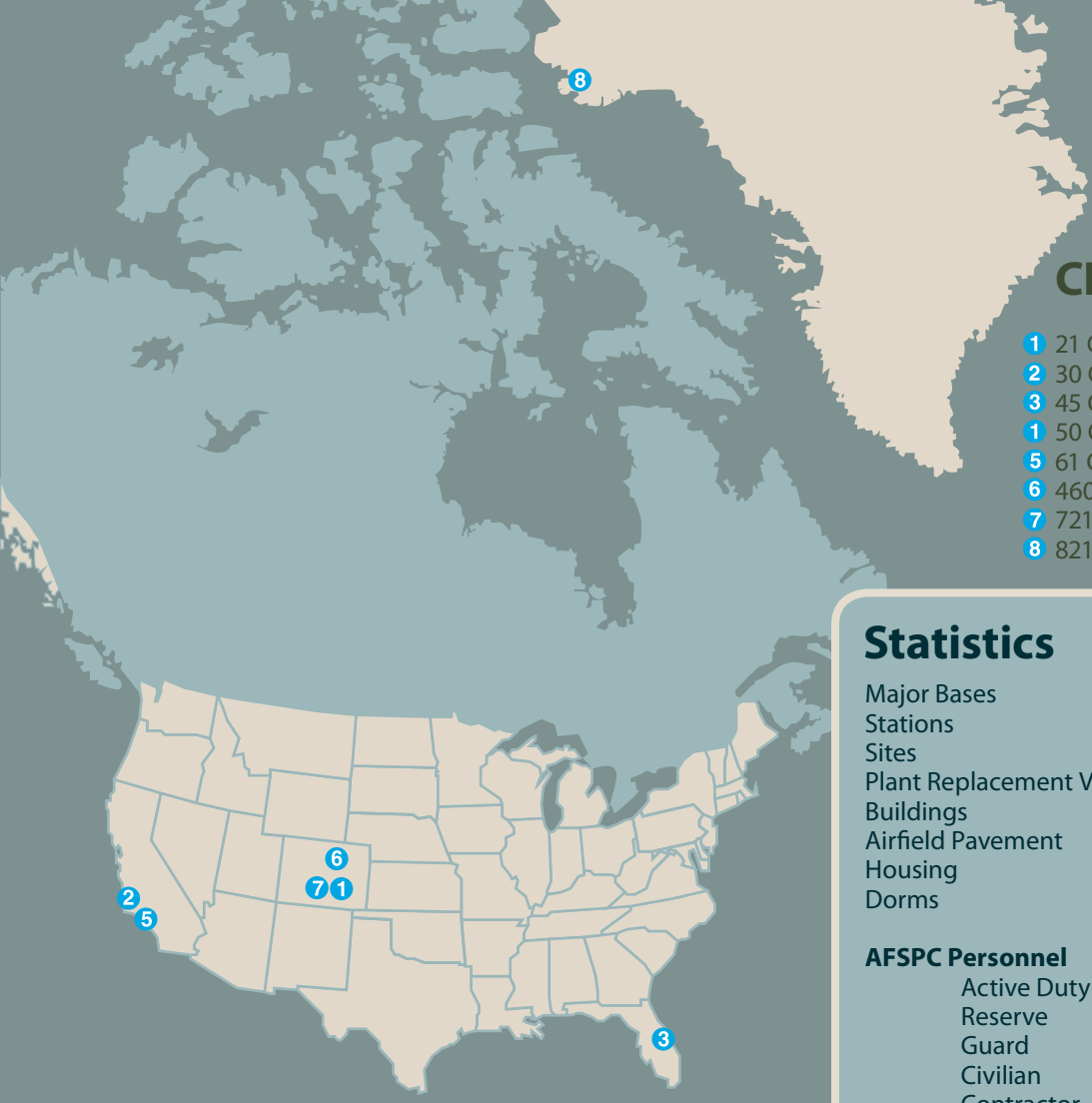
Provide resilient and cost-effective space and cyberspace capabilities for the joint force and the nation

## CE RESPONSIBILITIES

Space Command's A4/7 Directorate provides policy, guidance, resource, and oversight to design, construct, renovate, operate, sustain, and repair facilities and infrastructure to support the command's space and cyberspace missions and capabilities.

## SIGNIFICANT ACCOMPLISHMENTS

- Executed $234M facilities S/R&M-D program, delivering more than 520 projects to reduce facility/infrastructure risks, enable mission, and improve quality of life for Airmen and families.
- Executed $1.2M in readiness and environmental protection initiative funds; combined with matching county funds to preserve 81 acres of off-base critical wildlife habitat to assure mission availability of Cape Canaveral AFS, Fla. property.
- Conducted 68 EOD responses to suspected IEDs, aircraft crashes, and UXO recovery and destruction; invested 2,632+ man-hours conducting range and Secret Service/ State Department missions.
- Conducted 2,214 aircraft, structural, medical, hazardous materials, and mutual aid responses.
- Conducted four emergency operations staff assistance visits; combined exercise for CE, Security Forces, and Bio-Med emergency responders; expanded to include emergency operation center and response to active shooter events.
- Deployed 177 CEs to 25 locations in support of worldwide contingency operations.
- Achieved 80% solid waste diversion rate; diverted 52,804 tons and avoided $2.9M in costs.
- Implemented 16 new green product substitutions; saved $3.2M in energy, procurement, and waste disposal costs.
- Achieved 99.8% hazardous material pharmacy effectiveness rate; only 11,862 lbs of hazmat wasted.
- Drained and cleared UXO and munitions debris from Deer Pond at New Boston AFS, Mass., to return it for recreational use.
- Achieved "installation complete" milestone for the military munitions response program (MMRP) at Clear AFS, Alaska, Cavalier AFS, N.D. and Cape Canaveral AFS and Patrick AFB, Fla.




## CE Units in Command

| | | |
|---|---|---|
| 1 | 21 CES | Peterson AFB, Colo. |
| 2 | 30 CES | Vandenberg AFB, Calif. |
| 3 | 45 CES | Patrick AFB, Fla. |
| 1 | 50 CES | Schriever AFB, Colo. |
| 5 | 61 CELS | Los Angeles AFB, Calif. |
| 6 | 460 CES | Buckley AFB, Colo. |
| 7 | 721 MSG/CE | Cheyenne Mountain, Colo. |
| 8 | 821 SPTS/CE | Thule AB, Greenland |

## Statistics

| | |
|---|---|
| Major Bases | 7 |
| Stations | 10 |
| Sites | 67 |
| Plant Replacement Value | $13B |
| Buildings | 29M sq.ft. |
| Airfield Pavement | 14.1M sq. yd. |
| Housing | 3,392 units (99% privatized) |
| Dorms | 2,808 rooms |
| **AFSPC Personnel** | |
| Active Duty | 13,540 |
| Reserve | 2,021 |
| Guard | 6,598 |
| Civilian | 10,140 |
| Contractor | 10,773 |
| **CE Personnel** | |
| Active Duty | 841 |
| Reserve | 98 |
| Guard | 355 |
| Civilian | 1,345 |
| Contractor | 1,815 |
| MILCON | 11 projects ($110M) |
| S/R&M | 520 projects ($234M) |
| Facilities Operation | $208M |

- Cleared munitions response site at Vandenberg AFB, Calif., returning 707 acres for the federal correction center cattle program.
- Officially "clean closed" 45 compliance sites and completed remediation at 6 installation restoration program (IRP) sites; closed 3 IRP sites and 8 MMRP sites at Vandenberg.
- Implemented Asset Management's activity ownership concept, assigning individual owners responsibilities for all aspects of given systems.
- Invested $6.9M in S/R&M funds in 4 AFSPC dormitories; demolished 2 surplus dorms at Vandenberg AFB.
- Under housing privatization, constructed 174 new units, renovated 53 units, and demolished 202 units at Peterson AFB, Colo. ($47M); constructed community center and 18 new units, renovated 205 units, and demolished 105 units at Vandenberg AFB ($21M); and renovated 63 units at Los Angeles AFB, Calif. ($3M).
- Managed O&M of 450+ emergency generators and monitored 1,500+ maintenance actions on 276 uninterruptible power supply systems valued at $64M, supporting 101 critical missions and maintaining an overall 99.998% mission electrical power availability.
- Reduced command energy consumption by 15% and water use by 31% from baseline year.
- Advocated/invested $27M in energy conservation projects, including 50 NRG and 2 ECIP projects; reduced command energy consumption an estimated 380K MBTUs/year.
- Earned 2011 Federal Energy and Water Management Program Award (Vandenberg AFB) for saving 144,833 MBTU in energy and 336,000 kgal of water.
- Won five 2011 Air Force Design Awards: Honor Award for Concept Design (Integrated Network Space Operations Center, Schriever AFB, Colo.); Merit Award for Concept, Landscape Design (Buckley AFB, Colo.); Merit Award for Landscape Architecture (Base Chapel Landscaping, Buckley AFB); Merit Award for Planning Studies and Design Guides (Triangles District Facilities Excellence Plan – Sustainability Guidelines, Peterson AFB); and Merit Award for Interior Design (Aragon Dining Hall, Peterson AFB).
- Won 2011 Air Force Design Excellence Award (Mr. Bob Griswold, 30 CES, Vandenberg AFB); 2011 Air Force Best Asset Management Flight Award (Vandenberg AFB,); and the 2011 DOE Federal Energy and Water Management Program Award (Vandenberg AFB.)

# AMC

Scott AFB, Ill.
AMC.A7@US.AF.MIL
618-229-0738
DSN 779-0738

**Brig Gen Timothy S. Green**
Director of Installations
and Mission Support

**CMSgt Darryl D. Duffy**
CE Command Functional Manager

**Director of Installations & Mission Support** (A7)
**Deputy Director of Installations and Mission Support** (DA7) Mr. John Bonapart
**Deputy Director of Installations and Mission Support** (DA7-1) Col Richard Stonestreet

- **CE Command Functional Manager**
  - **Asset Management** (A7A)
    - **Contracting** (A7K)
    - **Security Forces** (A7S)
  - **Plans & Programs** (A7P)
    - **Resources** (A7R)
  - **Operations** (A7O)
    - **Expeditionary Combat Support** (A7Z)
  - **Readiness** (A7X)

## COMMAND MISSION

To deliver the right effects, to the right place, at the right time.

## CE RESPONSIBILITIES

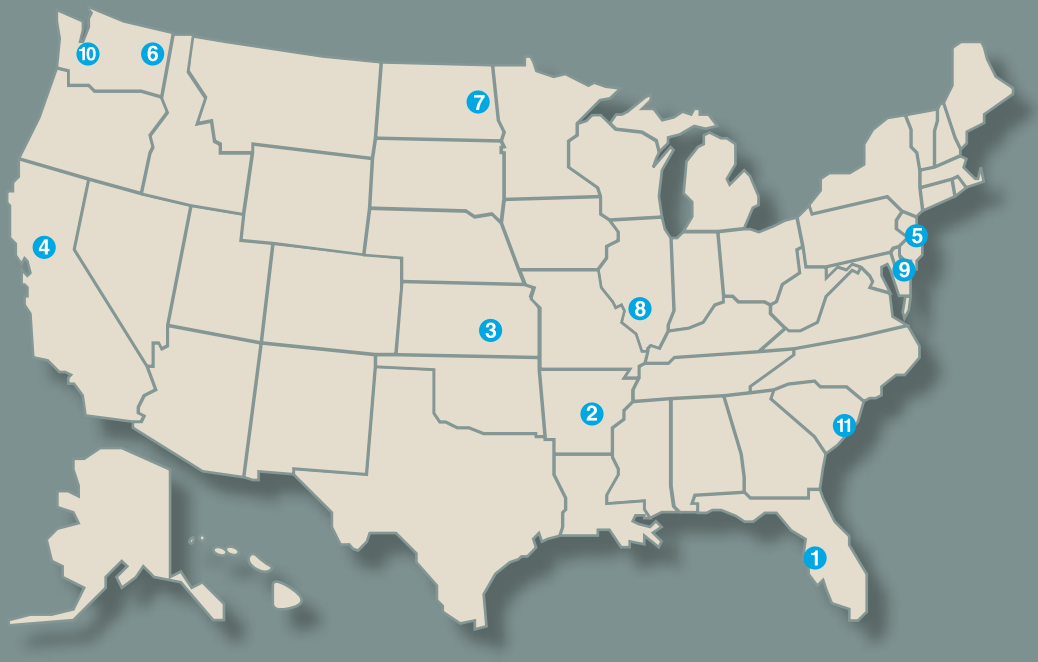
Engineers in AMC's A7 directorate oversee planning, programming, policy, and financial oversight for the command's Civil Engineering programs: fire protection, EOD, emergency management operations, A7 manpower, technical support, maintenance, repair, energy programs, MILCON, environmental programs, housing, infrastructure, asset management, real property, and facilities S/R&M.

## SIGNIFICANT ACCOMPLISHMENTS

- Deployed 385 Prime BEEF, 150 Fire Emergency Services, 50 EOD, and 14 Emergency Management active duty personnel and mobilized 902 AMC-gained ARC personnel in support of overseas contingency operations.
- Managed the command's long-term runway construction program with projects under construction at JB McGuire-Dix-Lakehurst ($54M), Travis ($64M), and Fairchild ($44M); projects ready to award at JB Charleston ($51M) and McConnell ($57M); and projects starting design at Little Rock and Dover AFBs.
- Managed $45M in FY11/12 Transportation Working Capital Fund (TWCF) projects across 16 bases, including $9M supporting 11 global en route system locations worldwide.
- Awarded $305M in projects for S/R&M, TWCF, Dorm, Energy, and Life/Health/Safety Focus Funds.
- Implemented AMC's space optimization initiative, gathering space utilization data for 23M+ sq. ft. (980 buildings); enabled robust FY12 base demolition/consolidation program (1.1M sq. ft.) with projected $42M in demolition/$20M in consolidation.
- Executed $34M in support of AMC environmental restoration program projects.
- Built FY11 MAJCOM comprehensive asset management plan under AMC's cross-functional asset management integrated working group; prioritized 1,285 S/R&M requirements totaling $974M
- Achieved full operational capability on Oct. 1, 2010 at JB Charleston, S.C. (Charleston AFB and Naval Weapons Station Charleston) and JB Lewis-McChord, Wash. (Ft. Lewis and McChord AFB).
- Transferred Pope AFB, N.C., to Pope Army Airfield on March 1,2011 with base operating support provided by Ft. Bragg.
- Responded to EF-2 tornado at Little Rock AFB, Ark. that resulted in more than $30M in damage to 53 facilities and 120+ housing units; team from Scott AFB, Ill. supported response and recovery efforts.

# CE Units in Command

1. 6 CES MacDill AFB, Fla.
2. 19 CES Little Rock AFB, Ark.
3. 22 CES McConnell AFB, Kan.
4. 60 CES Travis AFB, Calif.
5. 87 CES JB McGuire-Dix-Lakehurst, N.J.
6. 92 CES Fairchild AFB, Wash.
7. 319 CES Grand Forks AFB, N.D.
8. 375 CES Scott AFB, Ill.
9. 436 CES Dover AFB, Del.
10. 627 CES JB Lewis-McChord, Wash.
11. 628 CES JB Charleston, S.C.




- Privatized 345 family housing units at JB Charleston; garnered $66.5M in development value for an investment of $6.75M (eliminates all inadequate housing by 2014).
- Partnered with Federal Transit Authority and State of Washington Department of Transportation on the environmental impact statement (EIS) to support the transfer of property at the Mukilteo tank farm to the Port of Everett (projected transfer early FY13).
- Produced an EIS for beddown and flight operations of remotely piloted aircraft (RQ-4 Global Hawks and MQ-1 Predators) at Grand Forks AFB, N.D.
- Created one of the Air Force's first web-based Integrated development plans, combining geospatial computer systems with asset management programs for four installations.
- Secured $210K for procurement of 500 dosimeters to help with personal radiation detection for Operation Tomodachi earthquake/tsunami relief efforts in Japan.
- Provided operational input during Operation Tomodachi; coordinated with PACOM and PACAF to ensure the U.S. mainland did not receive contamination and evacuees were safely processed.
- Published an Emergency Management training guide, standardizing emergency response training across AMC.
- Directed EOD support for 36 Secret Service and State Department missions consisting of 6,200 man-hours; provided EOD response support on 300 occasions to air base and local, state, and federal authorities.
- Responded to 8,745 Fire Emergency Service-related events, including 176 fires, 1,453 medical services calls, and 1,421 aircraft, HAZMAT, wild land, and public service calls.
- Purchased $1.6M in structural firefighting apparatus and $120K in hazardous materials Level-A suits and mobile air compressors.
- Rewrote and recoordinated the AFIT Fire Emergency Services Flight Chief course and AMCI 11-208 Tanker Airlift Operations
- Validated, obtained approval for, and executed $28M in FY11 S/R&M (centralized) energy conservation program funding.

## Statistics

| | |
|---|---|
| Major Bases | 11 |
| Plant Replacement Value | $45.6B |
| Buildings | 72M sq. ft. |
| Airfield Pavement | 28.2 sq. yd. |
| Housing | 9,807 units (81.8% privatized) |
| Dorms | 6,323 rooms |
| **AMC Personnel** | |
| Active Duty | 45,181 |
| Reserve | 43,639 |
| Guard | 35,476 |
| Civilian | 10,049 |
| **CE personnel** | |
| Active Duty | 2,205 |
| Reserve | 2,562 |
| Guard | 3,729 |
| Civilian | 1,885 |
| MILCON | 4 projects ($40M) |
| S/R&M | 52 projects ($218.5M)* |
| Facilities Operation | $227M |

**Includes S/R&M, Demo, Transportation Working Capital Fund, MFH, Energy, and Focus Funds*

- Supported award of first sustainable infrastructure assessments, including audits for energy, space, infrastructure and sustainability, covering 24.5M sq. ft. at JB McGuire-Dix-Lakehurst, JB Charleston, Travis AFB, and Scott AFB.
- Implemented command-wide energy management policy, including actions for base leadership, facility managers, and all Airmen.
- Winner of the DOD Military Fire Officer of the Year.
- Captured the 2011 Air Force Chemical-Biological-Radiological-Nuclear Challenge and received the best emergency management technician and bio-environmental engineer technician awards.

# ANG

**JB Andrews Naval Facility Washington, Md.**
**NGB.A7@ANG.AF.MIL**
**301-836-8060**
**DSN 278-8060**

**Mr. William Albro**
Director of Installations
& Mission Support

**CMSgt Lincoln Stevens**
Chief Enlisted Advisor

**Director of Installations & Mission Support** (NGB/A7)
**Deputy Director of Installations & Mission Support** (NGB/A7) Col Renee Tatro

- **Chief Enlisted Advisor**
- **Operations** (A7O)
- **Asset Management** (A7A)
- **Readiness** (A7X)
- **Security Forces** (A7S)
- **Resources** (A7R)

## COMMAND MISSION

The Air National Guard Readiness Center develops, manages, and directs Air National Guard programs that implement national level policies set by the Department of Defense, the Air Force, and the National Guard Bureau (NGB). It also performs operational and technical functions to ensure combat readiness of ANG units and is a channel of communications between the NGB and the states on ANG operational activities.

## SIGNIFICANT ACCOMPLISHMENTS

- Deployed more than 1,150 engineers for Operations Enduring Freedom, Iraqi Freedom, New Dawn, and more than 2,800 for training in CONUS and OCONUS.
- Received four Air Force Design Awards: two merit awards and two citation awards.
- Established Deployments for Training in Norway, Germany, and Bosnia.

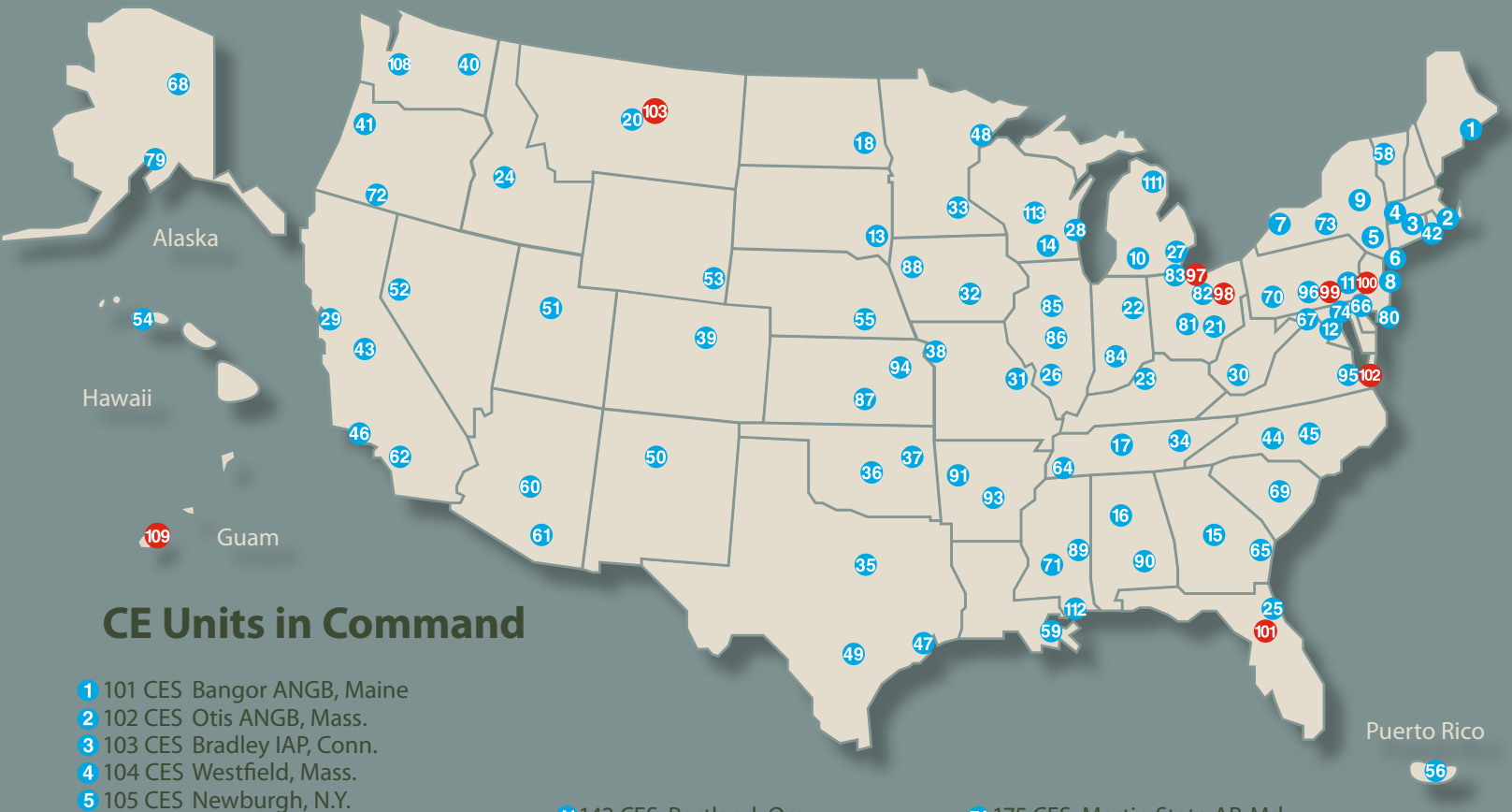
## Statistics

| | |
|---|---|
| Major Bases | 96 |
| Plant Replacement Value | $15.4B |
| Buildings | 49.9M sq. ft. |
| Airfield Pavement | 14.8M sq. yd. |

| | | |
|---|---|---|
| **NGB Personnel** | | |
| | Active Guard Reserve | 14,090 |
| | Drill Status Guard | 95,056* |
| | Technician | 22,600 |
| | Civilian | 1,252 |
| **CE Personnel**** | | |
| | Active Guard Reserve | 382 |
| | Drill Status Guard | 8,516* |
| | Technician | 693 |
| | Civilian | 181 |

| | |
|---|---|
| MILCON | 18 projects ($171M) |
| S/R&M | 215 projects ($341M) |
| Facilities Operation | $275.7M |

**Drill status guard total includes technicians*
***Total numbers include Fire Protection*




# CE Units in Command

1 101 CES Bangor ANGB, Maine
2 102 CES Otis ANGB, Mass.
3 103 CES Bradley IAP, Conn.
4 104 CES Westfield, Mass.
5 105 CES Newburgh, N.Y.
6 106 CES Westhampton Beach, N.Y.
7 107 CES Niagara Falls, N.Y.
8 108 CES JB McGuire-Dix-Lakehurst, N.J.
9 109 CES Schenectady County AP, N.Y.
10 110 CES Battle Creek, Mich.
11 111 CEF Willow Grove, Pa.
12 113 CES JB Andrews Naval Facility Washington, Md.
13 114 CES Joe Foss Field, Sioux Falls, S.D.
14 115 CES Truax Field, Madison, Wis.
15 116 CES Robins AFB, Ga.
16 117 CES Birmingham, Ala.
17 118 CES Nashville, Tenn.
18 119 CES Hector Field, Fargo, N.D.
18 119 RTS Hector Field, Fargo, N.D.
20 120 CES Great Falls, Mont.
21 121 CES Columbus IAP, Ohio
22 122 CES Ft. Wayne IAP, Ind.
23 123 CES Louisville, Ky.
24 124 CES Boise, Idaho
25 125 CES Jacksonville, Fla.
26 126 CES Scott AFB, Ill.
27 127 CES Selfridge ANGB, Mich.
28 128 CES Milwaukee, Wis.
29 129 CES Moffett Federal Air Field, Calif.
30 130 CES Charleston, W.V.
31 131 CES Lambert St. Louis IAP, Mo.
32 132 CES Des Moines, Iowa
33 133 CES St. Paul, Minn.
34 134 CES McGhee/Tyson AP, Knoxville, Tenn.
35 136 CES Ft. Worth, Texas
36 137 CES Oklahoma City, Okla.
37 138 CES Tulsa, Okla.
38 139 CES St. Joseph, Mo.
39 140 CES Aurora, Colo.
40 141 CES Fairchild AFB, Wash.
41 142 CES Portland, Ore.
42 143 CES Quonset State AP, N. Kingstown, R.I.
43 144 CES Fresno, Calif.
44 145 CES Charlotte, N.C.
45 145 RTS Stanley County, N.C.
46 146 CES Channel Islands AGS, Pt. Mugu, Calif.
47 147 CES Houston, Texas
48 148 CES Duluth, Minn.
49 149 CES Lackland AFB, Texas
50 150 CES Albuquerque, N.M.
51 151 CES Salt Lake City, Utah
52 152 CES Reno, Nev.
53 153 CES Cheyenne, Wyo.
54 154 CES Hickam AFB, Hawaii
55 155 CES Lincoln, Neb.
56 156 CES Luis Muñiz Marin IAP, P.R.
31 157 AOG/DE St. Louis, Mo.
58 158 CES South Burlington, Vt.
59 159 CES New Orleans, La.
60 161 CES Sky Harbor IAP, Ariz.
61 162 CES Tucson, Ariz.
62 163 CES March ARB, Calif.
62 163 RTS March ARB, Calif.
64 164 CES Memphis, Tenn.
65 165 CES Garden City, Ga.
66 166 CES New Castle County ANGB, Del.
67 167 CES Martinsburg, W.V.
68 168 CEF Eielson AFB, Alaska
69 169 CES Eastover, S.C.
70 171 CES Pittsburgh IAP, Pa.
71 172 CES Jackson, Miss.
72 173 CEF Klamath Falls, Ore.
73 174 CES Syracuse Hancock IAP, N.Y.
74 175 CES Martin State AP, Md.
79 176 CES Anchorage, Alaska
80 177 CES Atlantic City IAP, N.J.
81 178 CES Springfield-Beckley MAP, Ohio
82 179 CES Mansfield, Ohio
83 180 CES Toledo, Ohio
84 181 CES Terre Haute, Ind.
85 182 CES Peoria, Ill.
86 183 CES Springfield, Ill.
87 184 CES McConnell AFB, Kan.
88 185 CES Sioux City, Iowa
89 186 CES Meridian, Miss.
90 187 CES Montgomery, Ala.
91 188 CES Fort Smith, Ark.
91 188 RTS Fort Smith, Ark.
93 189 CES Little Rock AFB, Ark.
94 190 CES Topeka, Kan.
95 192 CEF Langley AFB, Va.
96 193 CES Harrisburg IAP, Pa.
97 200 RHS Port Clinton, Ohio
98 200 RHS Det 1 Mansfield, Ohio
99 201 RHS Annville, Pa.
100 201 RHS Det 1 Willow Grove, Pa.
101 202 RHS Starke, Fla.
102 203 RHF Virginia Beach, Va.
103 219 RHF Malmstrom AFB, Mont.
31 231 CEF S-Team Lambert St. Louis IAP, Mo.
74 235 CEF S-Team Baltimore, Md.
39 240 CEF S-Team Aurora, Colo.
44 245 CEF S-Team Charlotte, N.C.
108 248 CEF S-Team Camp Murray, Wash.
109 254 RHS Andersen AFB, Guam
65 CRTC GA Garden City, Ga.
111 CRTC MI Alpena, Mich.
112 CRTC MS Gulfport, Miss.
113 CRTC WI Camp Douglas, Wis.
96 REOTS Annville, Pa.

# PACAF

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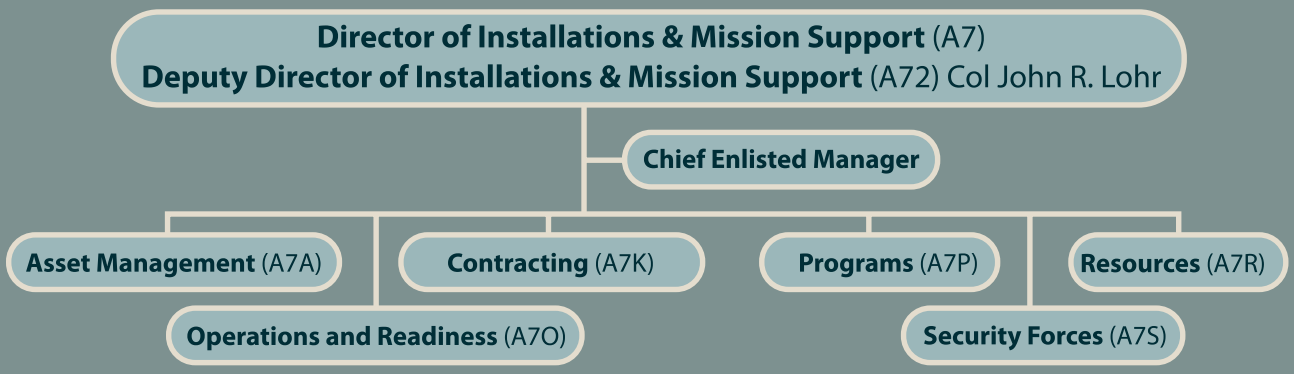
**CMSgt Larry L. Blume**
Chief Enlisted Manager




## COMMAND MISSION

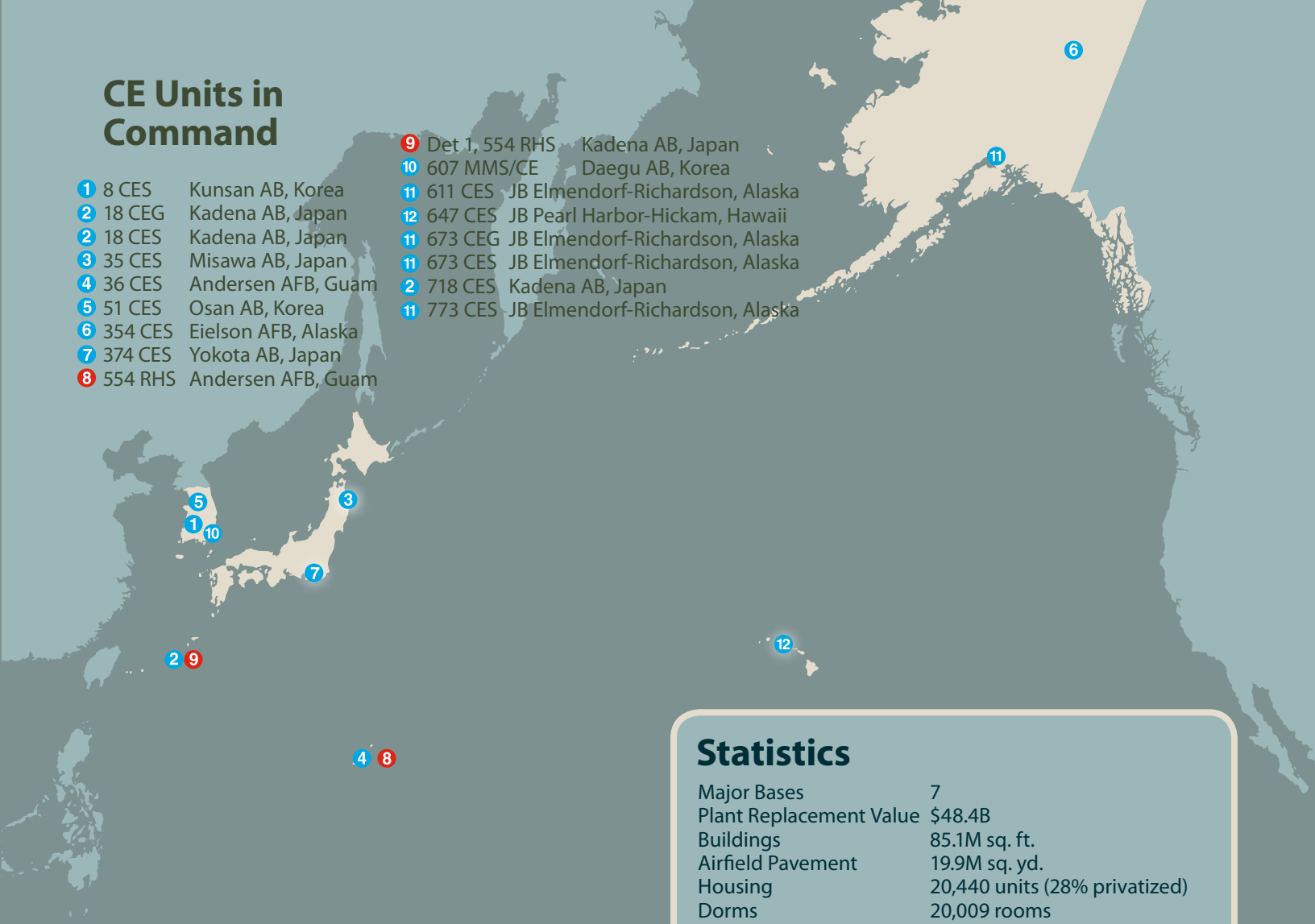
PACAF's primary mission is to provide U.S. Pacific Command integrated expeditionary Air Force capabilities to defend the homeland, promote stability, dissuade/deter aggression, and swiftly defeat enemies. The command's vision is to bring the full power of America's Air Force and the skill of its Airmen to promote peace and stability in the Asia-Pacific region. PACAF's area of responsibility extends from the west coast of the United States to the east coast of Africa and from the Arctic to the Antarctic, covering more than 100 million square miles. The area is home to 50% of the world's population in 36 nations and over one-third of the global economic output. The unique location of the Strategic Triangle (Hawaii-Guam-Alaska) gives our nation persistent presence and options to project U.S. airpower from sovereign territory.

## CE RESPONSIBILITIES

The Installations and Mission Support Directorate (A7) leads Civil Engineer, Contracting, and Security Forces activities supporting 9 installations and 46,000 personnel throughout PACAF. The directorate manages policy, resources, and execution of emergency services, base development, readiness, environmental, force protection, housing, and acquisition programs for $48B in infrastructure and $10B in annual contracts across 7 installations. A7 provides combatant commanders with trained agile combat support forces in support of theater operational plans.

## SIGNIFICANT ACCOMPLISHMENTS

- Deployed 1,036 Prime BEEF and RED HORSE Airmen from 7 installations in support of Iraq, Afghanistan, Philippines, and Horn of Africa operations.
- Monitored 274 common output level standards (COLS) for installation support activities at Navy-led Joint Region Marianas and JB Pearl Harbor-Hickam, Hawaii, and Air Force led JB Elmendorf-Richardson, Alaska; continued monitoring will allow future identification of cost savings and effectiveness of joint basing.
- Advocated for and executed a total of $25.74M in dorm projects, garnering 24% of the Air Force's $100M Dorm Focus Funds (with 20,009 rooms, PACAF hosts the largest Air Force dorm inventory).
- Won 2011 Air Force Design Awards: two Concept Design Honor Awards (F-22 Hangar, Squadron Operations and Aircraft Maintenance Unit at JB Pearl Harbor-Hickam and the Consolidated Deployment Processing Center and Terminal Facility at Osan AB, Japan).



## CE Units in Command

| | | |
|---|---|---|
| 1 | 8 CES | Kunsan AB, Korea |
| 2 | 18 CEG | Kadena AB, Japan |
| 2 | 18 CES | Kadena AB, Japan |
| 3 | 35 CES | Misawa AB, Japan |
| 4 | 36 CES | Andersen AFB, Guam |
| 5 | 51 CES | Osan AB, Korea |
| 6 | 354 CES | Eielson AFB, Alaska |
| 7 | 374 CES | Yokota AB, Japan |
| 8 | 554 RHS | Andersen AFB, Guam |
| 9 | Det 1, 554 RHS | Kadena AB, Japan |
| 10 | 607 MMS/CE | Daegu AB, Korea |
| 11 | 611 CES | JB Elmendorf-Richardson, Alaska |
| 12 | 647 CES | JB Pearl Harbor-Hickam, Hawaii |
| 11 | 673 CEG | JB Elmendorf-Richardson, Alaska |
| 11 | 673 CES | JB Elmendorf-Richardson, Alaska |
| 2 | 718 CES | Kadena AB, Japan |
| 11 | 773 CES | JB Elmendorf-Richardson, Alaska |

## Statistics

| | |
|---|---|
| Major Bases | 7 |
| Plant Replacement Value | $48.4B |
| Buildings | 85.1M sq. ft. |
| Airfield Pavement | 19.9M sq. yd. |
| Housing | 20,440 units (28% privatized) |
| Dorms | 20,009 rooms |
| **PACAF Personnel** | |
| Active Duty | 30,487 |
| Reserve | 1,293 |
| Guard | 4,366 |
| Civilian | 9,990 |
| Contractor | 4,228 |
| **CE Personnel** | |
| Active Duty | 2,609 |
| Guard/Reserve | 717 |
| Civilian | 3,110 |
| Contractor | 1,779 |
| MILCON | 12 projects ($197.6M) |
| S/R&M | 281 projects ($123.7M) |
| Facilities Operation | $160M |

- Completed FY12 MAJCOM comprehensive asset management plan; Air Staff recognized three of the five PACAF issues as action items for senior leadership focus and attention.
- Accomplished $45M in vital real-property-by-maintenance-contract housing projects; captured 69% of the total Air Force inventory, funding approximately 19K housing units.
- Funded 20 projects ($190.4K) to demolish 200K sq. ft. of footprint towards the 20/20 by 2020 goal.
- Completed 8 inter-service joint base actions to transfer $893M and 887K sq. ft. of real property to the Air Force; 3 Air Force geographically separated locations, $9.8B in real property, and 5M sq. ft. were transferred to the Navy.
- Awarded $14.9M Korean peninsula-wide storage tank project to repair, remove, or replace POL storage tanks out of compliance with spill and pollution prevention practice.
- Led Air Force in implementing combined facility energy, condition, and optimization assessments; completed two installation plans and funded combined assessments for all remaining PACAF installations.
- Successfully garnered and executed $30.6M energy/water conservation projects with estimated annual savings of $5.9M in utility bills.
- Completed 20 subject matter exchanges, engineering capability programs, and exercises to build new and existing partnership capacity with 14 countries throughout the Pacific.

- Continued support to transition new Air Force-wide airfield damage repair capabilities by introducing new tactics, techniques, and procedures at Silver Flag training sites and fielding new airfield sustainment kits.
- Provided sustained Air Force Forces support for humanitarian and disaster relief efforts during Japan earthquake and tsunami; enabled decontamination of 187 aircraft; restored electrical power generation; and facilitated evacuation of 1,000 family members.

# USAFE

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**CMSgt Nathan Adams**
Chief Enlisted Manager

**Director of Logistics, Installations & Mission Support** (A4/7) Brig Gen Warren D. Berry
**Deputy Director of Logistics, Installations & Mission Support and the USAFE Civil Engineer** (A4/7D)

- **Chief Enlisted Manager**
- **Contracting** (A7K)
- **Programs** (A7P)
- **Asset Management** (A7A)
- **Security Forces** (A7S)
- **Readiness** (A7X)

## COMMAND MISSION

Executes the EUCOM and AFRICOM missions with forward-based air power to provide forces for global operations, ensure strategic access, assure allies, deter aggression, and build partnerships.

## CE RESPONSIBILITIES

Provide Civil Engineering programs expertise for senior USAFE leaders, and oversight, policy, and guidance to USAFE civil engineers at 7 major installations and 114 geographically separated units in 12 countries. Provide Civil Engineering expertise with oversight, policy, and guidance in managing natural and built assets and their associated performance, risk, and expenditures over the life cycle to a level of service to support missions and organizational goals.

## SIGNIFICANT ACCOMPLISHMENTS

- Drove joint engineer response to JTF and NATO operations in Libya (Operations Odyssey Dawn, Unified Protector, etc.); in Italy, renovated dorms in 21 days at Aviano AB to house 400+ people and constructed a tent city in less than 30 days on NAS Sigonella to house 550 Coalition force members.
- Supported operational planning efforts in South Africa, Somalia, and throughout Europe; supported joint plans and exercises in Israel, Poland, Romania, and Lithuania.
- Deployed 350 engineers in 13 specialties supporting U.S. European Command (EUCOM) and overseas contingency operations; revamped the response task force to support EUCOM nuclear mission; expanded response capacity for foreign consequence management taskings.
- Championed 234 S/R&M-D projects ($174M); funded command-wide upgrades, including $106M for mission critical infrastructure and facilities, $7.0M for energy, $14M for quality of life, $40M for airfield, and $7.0M for demolition consolidation.
- Completed construction of USAFE Headquarters renovation, phase I and awarded phase II; with investment of $47.4M, consolidated 3 major functions from 17 facilities into 8; reduced legacy square footage demand by more than 25%, introducing energy efficient systems and meeting LEED certification.
- With AFCEE support, began executing $56M in FY11 MILCON with direct impact on Air Force missions in Europe and adjacent theaters (two air support operations

## CE Units in Command

1 31 CES Aviano AB, Italy
2 39 CES Incirlik AB, Turkey
3 48 CES RAF Lakenheath, UK
4 52 CES Spangdahlem AB, Germany
5 65 CES Lajes Field, Azores
6 86 CEG Ramstein AB, Germany
7 100 CES RAF Mildenhall, UK
8 420 ABS RAF Fairford, UK
9 421 CES RAF Menwith Hill, UK
10 422 CES RAF Croughton, UK
11 423 CES RAF Alconbury/Molesworth, UK
12 425 ABS Izmir AB, Turkey
6 435 CTS Ramstein AB, Germany
14 496 ABS Morón AB, Spain


## Statistics

| | |
|---|---|
| Major Bases | 7 |
| Plant Replacement Value | $21.2B |
| Buildings | 58M sq. ft. |
| Airfield pavement | 12M sq. yd. |
| Housing | 30,000* (0% privatized units) |
| Dorms | 5,604 rooms |
| **USAFE Personnel** | |
| Active Duty | 25,669 |
| Civilian (U.S.) | 2,484 |
| Civilian (Local) | 5,819 |
| Contractor | 1,975 |
| **CE Personnel** | |
| Active Duty | 1,734 |
| Civilian (U.S.) | 181 |
| Civilian (Local) | 2,613 |
| Contractor | 1,200 |
| MILCON | 10 projects ($98.2M) |
| S/R&M | 234 projects ($174M) |
| Facilities Operation | $222.5M |

**includes 23,000 off-base*

Capt Rachel Hamlyn, deployed to Afghanistan from HQ USAFE, Ramstein AB, Germany as PRT Nangarhar senior engineer, takes a moment to meet with local school children during a inspection of several construction projects in Surkh Rod District. (*U.S. Air Force photo*)

squadron complexes, a flight simulator facility, a SATCOM relay complex, and a taxiway extension).

- Expanded efforts to reduce command energy consumption with the largest facility energy project program to date: executed 23 projects ($9.5M+) at 8 locations; received $15M+ in funding for 25 energy projects at 7 European installations; forwarded 93 projects ($40M+) for design/construction consideration (projected energy use reduction >6%).
- Initiated transfer of planning, engineering, construction management, and contracting workload from U.K. Defence Infrastructure Organisation to Air Force, transitioning after 50 years of integrated partnership.
- Began first-ever hiring of U.K. national direct hire firefighters by local fire chiefs, ending U.K. Defence Fire Risk Management Organisation hiring.
- Implemented DOD and Air Force policy to eliminate as many housing leases as possible (relying on communities first to support requirements) with a phased drawdown of 1,581 build-to-lease units between FY10 and FY18 (to date, 731 units terminated with estimated savings of $17M).
- Recouped approximately $4.59M in residual value for 50 MILCON housing units at Chelveston and 40 "Tobacco" houses at Molesworth-Brington, U.K.
- Closed 125 contaminated sites, increasing USAFE overall site closure rate to 81%; implemented action to meet goal of closing all sites by the end of CY16.
- Led the initial effort to close the Yumurtalik Sea Terminal in Turkey by implementing a professional and risk-based environmental baseline survey.

# AFCEE

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Director

**Col David Funk**
Deputy Director

**Director** (CL)
**Deputy Director** (DD)
**Civilian Deputy Director** (DC) Mr. Harry Finke

- **Chief Financial Office** (CFO)
- **Staff Judge Advocate** (JA)
- **Capital Investment Execution** (EX)
- **Operations Support** (OS)
- **Contingency Construction** (CX)
- **Housing Privatization** (HP)
- **Technical Support** (TD)
- **Capital Investment Management** (CM)
- **Environmental Restoration** (ER)
- **Regional Environmental Offices** (REOs)

## AGENCY MISSION

Provide integrated engineering and environmental products, services, and advocacy that optimize Air Force and joint capabilities through sustainable installations.

The agency comprises 25 military, 437 civilians, and 137 contract personnel.

## SIGNIFICANT ACCOMPLISHMENTS

- Managed a $1.7B environmental restoration program at active bases, which includes 8,100 cleanup sites at 184 installations and remote locations.
- Achieved initial operating capability of the Air Force NEPA (National Environmental Policy Act) Center, which is the one-stop source for technical reach-back, consulting, and oversight.
- Launched performance-based contracting in adherence with SAF/IE policy to offer a merged-base strategy that is expected to accelerate cleanup actions from 379 to 880 sites through FY15.
- Executed 75 MILCON projects valued at $1.4B, awarding 91% of the CONUS President's Budget FY11 MILCON program.
- Substantially completed BRAC 2005 Medical Educational Training Campus project ($600M) at Fort Sam Houston and Camp Bullis in San Antonio, Texas, which consists of 11 projects, such as training facilities, dormitories, fitness center, and dining facility.
- Managed over 170 task orders valued at $750M for S/R&M; MILCON; and military family housing programs, providing planning, design and construction execution agent services to installations worldwide.
- Executed more than 150 task orders and managed $310M in task orders for non-Air Force-funded customers such as Defense Logistics Agency, Army and Air Force Exchange Service, and NASA.
- Delivered National Capital Region Relocation Administrative Facility at JB Andrews, a five-story building that supports 2,350 people, using the latest green building innovations.

- Launched design, build, and renovation project for military housing at Eielson AFB, Alaska, which includes the demolition of 440 units, construction of 424 units, and renovation of 99 units.
- Continued execution support in Europe, where AFCEE is managing 96 task orders valued at $117M, including construction projects in England, Germany, and the Azores and $33M of environmental work in seven European countries.
- Achieved 100% Leadership in Energy and Environmental Design, or LEED, Silver certification for eligible construction projects.
- Standardized Air Force fire station and security forces operations facility request for proposal design packages, providing efficient quick-turn projects for base-level users and incorporating lessons learned to save design and construction dollars.
- Executed $3.5B contingency construction in warfighting areas with a focus on Air Forces Central Command and Afghan National Security Forces requirements; key projects included the Afghan National Security University (Afghanistan's "West Point"), Ministry of Defense Headquarters (the Afghan "Pentagon"), Shindand Air Base (Afghan pilot training); and airfield work at Camp Bastion.
- Executed 2 housing privatization projects encompassing 5 installations and 3,425 end-state housing units.
- Completed housing construction at 12 bases and accepted delivery of 2,209 new and 1,786 renovated privatized housing units; to date, housing privatization has leveraged $445.9M in Air Force funding to gain $6.7B of private sector funding.
- Conducted 24 assistance team visits that provided on-site help from technical experts who addressed planning and design issues and provided recommended solutions.
- Released two environmental management system support tools: the Accessible kNowledge for Sustainable Resources, or ANSR, which provides the authoritative source for environmental information and the eDASH, which hosts installation and MAJCOM environmental pages for streamlining information flow.
- Implemented environmental public affairs reach-back capability to provide PA offices worldwide with communications support.
- Coordinated joint comments to the New Mexico Bureau of Land Management on training routes and developed alternative routes to mitigate potential impact to installations and ranges.
- Implemented and led the Texas Mission Sustainment Working Group, whose purpose is to work with all Texas DOD installations to address potential impacts of alternative energy projects and other encroachment issues.
- Developed the Hydrazine-Waste Management Guide and the Air Force Commander's Guide to Encroachment Management to support western region customers.
- Took lead role in Western Regional Partnership as co-chair of the Energy Committee.

A worker uses an industrial magnet to remove munitions debris from a mine shaft at Kirtland AFB, N.M., as part of the military munitions response program. (*courtesy photo*)

A construction team builds the National Defense University in Afghanistan, one of many projects managed by the AFCEE Contingency Construction Division. (*courtesy photo*)

Workers plant vegetation on the rooftop of the new BRAC/ National Capital Region Relocation Administrative Facility at JB Andrews, Md. (*photo by Ms.Summer Allen*)

# AFCESA

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Commander

CMSgt Michael C. Garrou
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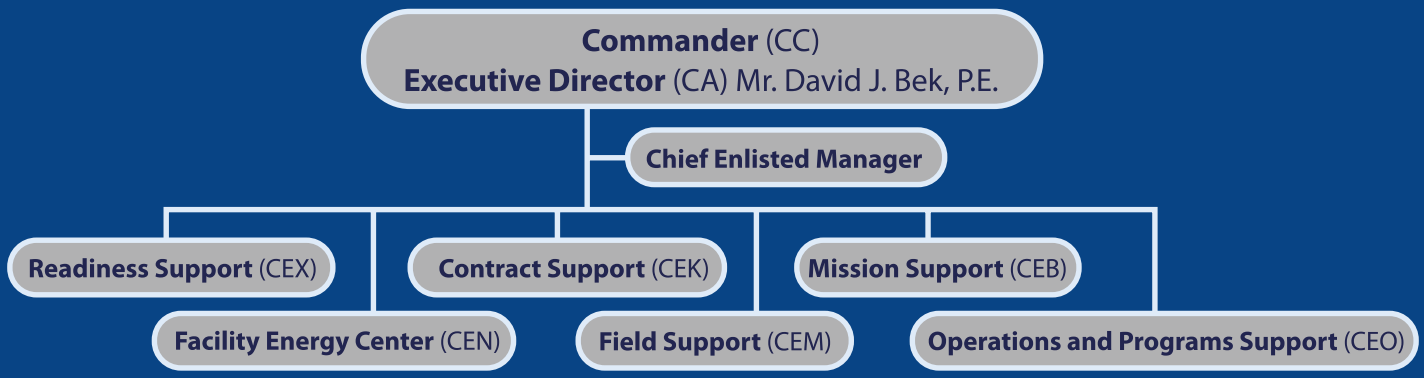


## AGENCY MISSION

Provide professional readiness, energy, and operations support, tools and practices to maximize Air Force engineering agile combat support worldwide.

The agency comprises 94 active duty and Reserve military, 163 civilian employees, and 162 contractor personnel. These professionals provide expertise in three core competencies: readiness, operations, and energy.

## SIGNIFICANT ACCOMPLISHMENTS

### Readiness

- The Fire Emergency Services (FES) community initiated the use of ultra-high pressure (UHP) technology for fire-fighting, which is 3 to 3.5 times more efficient than standard applications. The new P-34 rapid intervention vehicle holds 500 gallons (effectively 1,350 gallons under pressure).
- FES reduced hazardous standbys 60% and false alarms 25% (halfway toward goal of 50%). Large fires were significantly absent on installations (education programs, inspections, and code enforcement activities reduced fire frequency and firefighters extinguished fires in their early stages).
- The Expeditionary Engineering Branch provided ongoing management support to Prime BEEF and RED HORSE programs. AFCESA continued its direct responsibility and control for CEs attending pre-deployment combat skills training (now at Fort Bliss, Texas) and for scheduling at all CONUS Silver Flag (attendance now >85%).
- Virtual attendance at bimonthly Prime BEEF DCO sessions increased to 50-75; expanded DCOs now include a weekend sessions for Guard and Reserve. More than 170 CEs completed Prime BEEF and unit deployment manager training in CONUS, USAFE, and PACAF.
- Joint Publication 3-34, Joint Engineer Operations, was signed on June 30 (https://jdeis.js.mil/jdeis/index.jsp?pindex=2). AFDD 3-34, Engineer Operations, will be on the Air Force Publications portal by CY11's end. The Reach-back Center and CE OIL (observations, innovations, and lessons) fielded 3,851 information requests.
- The Explosive Ordnance Disposal (EOD) Branch began an asset visibility program to establish full accountability of all EOD equipment in CONUS and deployed and forward operating locations.
- The EOD Branch published a revised version of AFI 32-3001 that aligns policy and guidance with current DOD and Air Force missions and operations. Partnering with DOD, Air Force Northern Command, and MAJCOMS, the branch established a position for assigning, coordinating, and assisting EOD supporting the U.S. Secret Service.

- The Emergency Management (EM) Branch co-hosted the 3rd Annual CBRN Challenge with the Bioenvironmental Engineer community and worked with the International Association of Emergency Managers on a conference for 585 attendees.
- EM identified $13.7M in cost savings in the $52M equipment modernization/sustainment programs and executed a new joint strategic testing process for the $1.6M-per-year Air Force shelf-life program.
- EM developed 25 qualification training packages; launched the Air Force Be Ready campaign; and published an education and training strategic plan, recruitment video, 34 information posters, 3 AFMANs, Air Force visual aids; and guides for senior leaders, course standards, and emergency preparedness.

## Operations

- Subject Matter Experts (SMEs) in the Engineer Support Branch guided 24 technical research and criteria development projects (>$10M) executed by AFRL and the Army in airfield damage repair (ADR), pavements, wastewater, and aviation fuel systems.
- AFCESA established the nucleus of a new CE industrial control system certification and accreditation team to address cyber security threats to more than 1,800 systems and validated the requirement for a new energy commissioning team in FY12.
- SMEs led development of the FY11 Transportation and Utilities Air Force Comprehensive Asset Management Plans; executed 41 pavement condition index surveys; awarded contracts ($7M+) for another 22 surveys in FY12; completed 29 youth facility certification reports; and produced 16 ETLs, 1 new AFI, and 6 UFCs (with the Army and Navy).
- The CE Strategic Sourcing Program awarded its first acquisition for airfield LED taxiway fixtures, resulting in a $3M annual cost savings and efficiency.
- The Force Development Branch (CEOM) delivered a supplemental course matrix to MAJCOM functional managers to provide the right training at the right time; completed a two-year transition of the material acquisition function from 3S2X1 to 3E6X1; and leveraged vendor training for 1,900 Airmen through strategic sourcing of design and survey software.
- CEOM worked closely with AFCESA/CEXX and the BEAR Weapons System Office to modernize BEAR with a new hygiene kit (shower, latrine); coordinated a field test on the Army's kit; and partnered with the CE Training and Certification Center at Dobbins ARB, Ga., to build the Reserve Operations Management Center of Excellence.
- CEOM conducted a satellite broadcast to 67 bases (1,100 personnel) on electrical safety standards and proper wear of arc-flash safety gear; executed $820K contract for arc-flash PPE to outfit CE UTC requirements in AFI 10-210; provided 105 bases/4.1K Airmen with PPE for contingency deployments; in response to a CSAF concern, created new technical guidance for $766M of equipment based on generator reliability data.
- The Airfield Pavement Evaluation Branch accomplished 60 structural, friction, and aircraft anchor evaluations at airfields around the globe, including contingency locations in Afghanistan, Korea, and Puerto Rico; certified 49 Air Force and Marine Corps personnel for contingency airfield evaluations.
- The S/R&M execution support branch awarded approximately 150 new base-level projects valued at over $204M, including approximately $60M in airfield pavement repairs and $52M in energy projects, and awarded 193 contract modifications totalling $22M in support of on-going projects.
- AFCAP continued support to overseas contingency operations, and just-in-time support to National Command Authority missions. The AFCAP team completed 300 contract actions for almost 4,000 contractor full-time-equivalents and $400M in contingency contracts, including humanitarian support for Haiti's cholera outbreak.
- The Civil Engineer Maintenance, Inspection and Repair Teams (CEMIRT) at Travis and Tyndall completed $5.7M in work requests (414 total): aircraft arresting system and MEP-12 overhauls; generator overhauls, maintenance, and installations; high voltage infrared scans; substation breaker maintenance; relay calibrations; HVAC assessment, commissioning, and balancing; and ICS design and installation. CEMIRT also provided power support to recover Yokota and Misawa ABs.

## Energy

- The Air Force Facility Energy Center's (AFFEC's) Conservation and Awareness Branch (CENE) established a centralized project management office (PMO) for energy savings performance contracts and utility energy service contracts; generated a policy letter and ETL, which were used to create the most comprehensive annual report to congress to date; and improved the FEMP awards nomination process, helping the Air Force earn a record 7 awards.
- The Capital Investment Branch (CENI) continued management of a $2.2B funding strategy through FY15 for renewable energy (RE) and energy and water conservation and managed a $29.1M program (investment grade audits at 26 bases; $14M for conservation projects; $2M for RE projects). CENI supported 253 energy focus fund projects ($153M), prepared for a FY12 $150M energy program, and gained approval for $33.4M in Energy Conservation Investment Program projects.
- The Energy Rates and Renewables Branch (CENR) supported development of several Air Force RE projects: 3 solar photovoltaic (PV) power purchase agreements (34.5MW); a 6.4MW landfill gas project; a 0.8MW solar PV; and two 1.5MW wind turbines. CENR's Utility Rate Management Team supported the Air Force's Utility Law Field Support Center with rate negotiations and interventions in 14 states.
- The Utilities Privatization (UP) project management office (PMO) evaluated 38 utility systems for privatization, made award decisions for 30 of the systems, and privatized five systems valued at $289.4M, creating a cost avoidance of $53.6M.

# AFRPA

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**Mr. Robert M. Moore**
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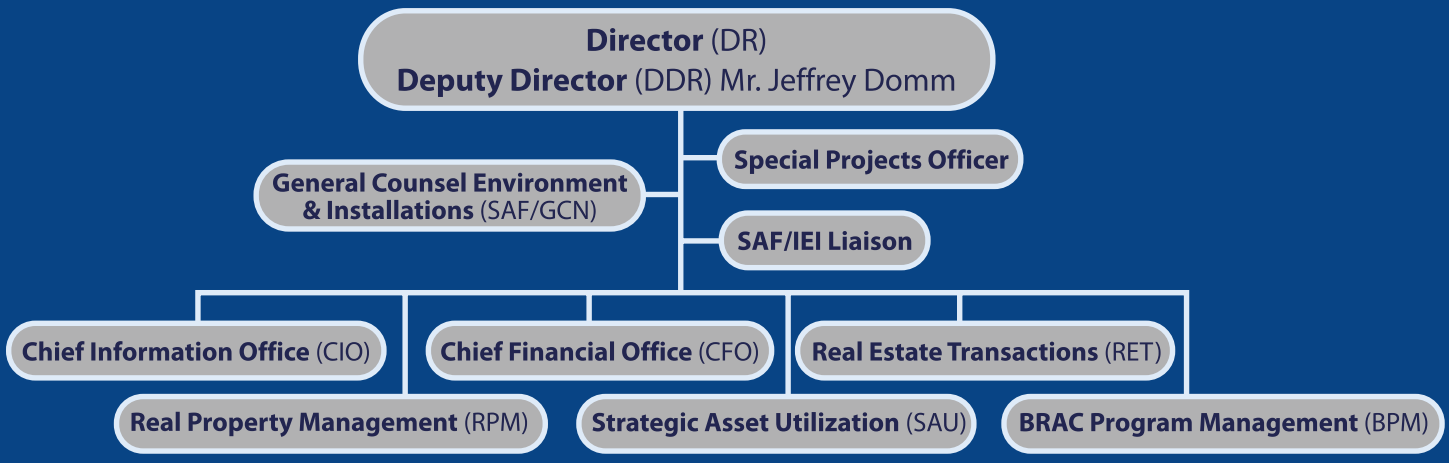
**Mr. Jeffrey P. Domm**
Deputy Director




## AGENCY MISSION

The mission of the Air Force Real Property Agency (AFRPA) is to acquire, manage, and dispose of all Air Force–controlled real property worldwide. AFRPA has restructured to integrate new concepts in asset management, enhanced use leasing, environmental restoration, active duty real property transactions, and secretariat real property legal advisors, who are embedded within AFRPA, providing world-class legal expertise. AFRPA is the leading provider of full spectrum real property portfolio management and transactional services to enable sound decision making by Air Force leadership.

The agency comprises 194 civilian personnel and contractors, including real property, asset management, environmental cleanup, financial management, public affairs, environmental and real estate law, and information system specialists.

## SIGNIFICANT ACCOMPLISHMENTS

- The Real Estate Transactions (RET) Division processed more than 300 transactions in FY11, including real property gifts; real estate easements, leases and licenses valued in the millions of dollars; property acquisition disposals; federal-to-federal property transfers; and BRAC transactions. The division executed the first advanced realty course, providing instruction on realty authorities, process guidance, and transaction approval authorities. RET also partnered with AFIT's Civil Engineer School to provide the Real Property Management Course via satellite. The division executed more than $10M in purchase agreements for FY11 readiness and environmental protection initiative easements at seven installations.

- The Real Property Management (RPM) Division provided oversight of the enhanced use lease (EUL) between Nellis AFB, Nev., and the City of North Las Vegas. The city constructed a $257M water reclamation facility on the 41-acre leased parcel and the in-kind consideration resulted in a $21.2M fitness center project at Nellis. In October 2011, JB San Antonio-Fort Sam Houston EULs transitioned from Army to Air Force; the Air Force is expected to receive $47.1M of consideration over the lease term. The RPM division ensures appropriate closeout strategies for Air Force 801 housing leases and to date, has negotiated a total return of $61M, including $58M from the Andrews AFB, Md., Summerfield 801 housing. In FY11, Housing

Management posted a program cost of $3M. Total savings to the Air Force are projected to be $106M through continued development of negotiation strategies and on communication with internal and external stakeholders.

- The Strategic Asset Utilization (SAU) Division continues to manage the EUL program and, in collaboration with MAJCOMs and installations, has identified EUL projects having a potential value exceeding $400M. Based on feedback from "think tank" sessions and meetings with private industry leaders, SAU began evaluating CONUS installations using a desktop analysis process that pairs them with respective "hot markets." So far, this effort has identified almost 30 potential projects, including solar energy projects at Edwards and Travis AFBs in California, and a waste-to-energy project at Hill AFB, Utah.

- The BRAC Program Management (BPM) Division is responsible for remediation and property transfer at 40 former Air Force installations (32 Legacy BRAC and 8 BRAC 05). Since the first BRAC round in 1988, the agency has transferred more than 88% (116 square miles) of land back to communities for public use (includes 24 legacy installations) and is scheduled to complete the last BRAC disposal by 2014. In 2011, AFRPA/BPM formalized and implemented a multi-base strategy (endorsed by SAF/IE) to achieve the Air Force's new restoration goals; BPM performed a comprehensive review of its portfolio of installations and environmental sites, and should achieve 75% site completion by the end of 2012 and 95% by 2015.

- The former McClellan AFB, Calif., is the site of the first successful privatized cleanup of a Superfund U.S. EPA national priority listed site. AFRPA/BPM cooperated with local, state, and federal regulators to implement the second phase of privatization at McClellan and plan a third phase to transfer 515 acres and accelerate completion of 131 sites.

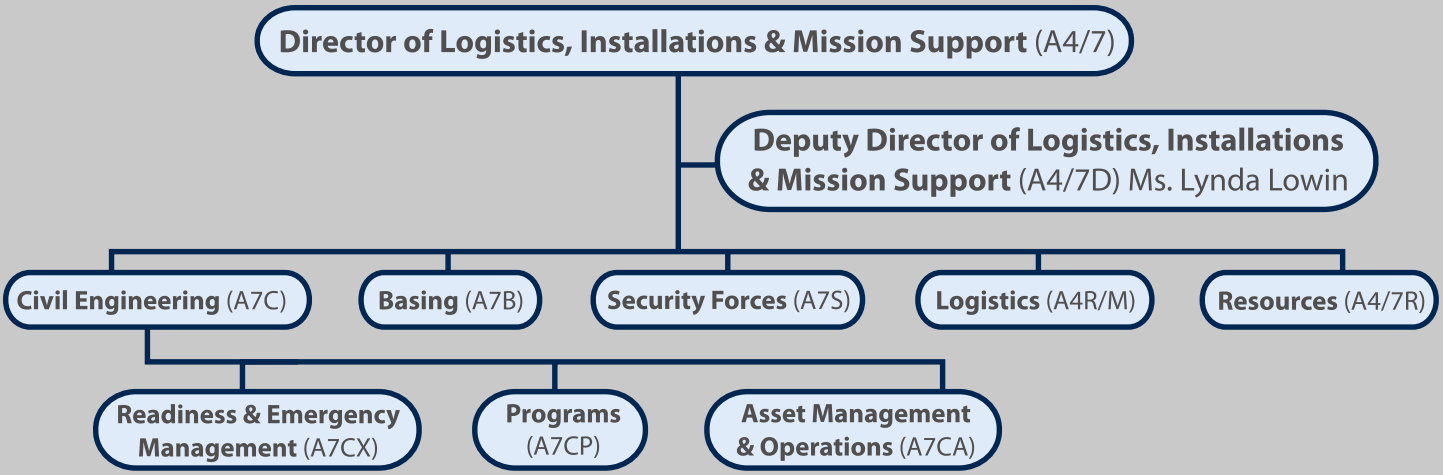
- The BRAC program awarded $140M in performance-based remediation contracts across 15 BRAC installations and 340 sites that reduce the BRAC costs to close by $32M. Total proposed site completions by 2020 are 196 of 340 sites (58%); previously, only 33 (10%) site completions were planned. Post-contract annual reoccurring costs have been reduced from $4.9M to $1.0M (80% savings) and the 30 -year life cycle cost has been reduced by almost $28M for BRAC, compared to FY10 estimates. On June 30, the Air Force awarded a performance-based remediation (PBR) contract to complete environmental clean-up at the 1,187-acre former Kelly AFB in San Antonio, Texas, which was transferred to the Port San Antonio on Sept. 30, 2010. This PBR contract will result in accelerated site closeout with an anticipated reduction in annual out-year costs by 69%, with 31% savings in cost-to-complete expenses over the next 30 years.

Redevelopment projects at the former Myrtle Beach AFB, S.C., include the Market Common, an upscale urban village offering shopping, dining and residences. Officially closed since 1993 under BRAC 1991, the 3,937-acre former base has since been transferred to the Myrtle Beach AFB Redevelopment Authority, Horry County, and several other organizations. (*U.S. Air Force photo*)

# AFDW

**JB Andrews-Naval Air Facility Washington, Md.**
**AFDW.A7@AFNCR.AF.MIL**
**240-857-1666**
**DSN 857-1666**
Note: phone numbers will change during FY12.

**Col Peter A. Sartori**
Director, Logistics, Installations, and Mission Support




## COMMAND MISSION

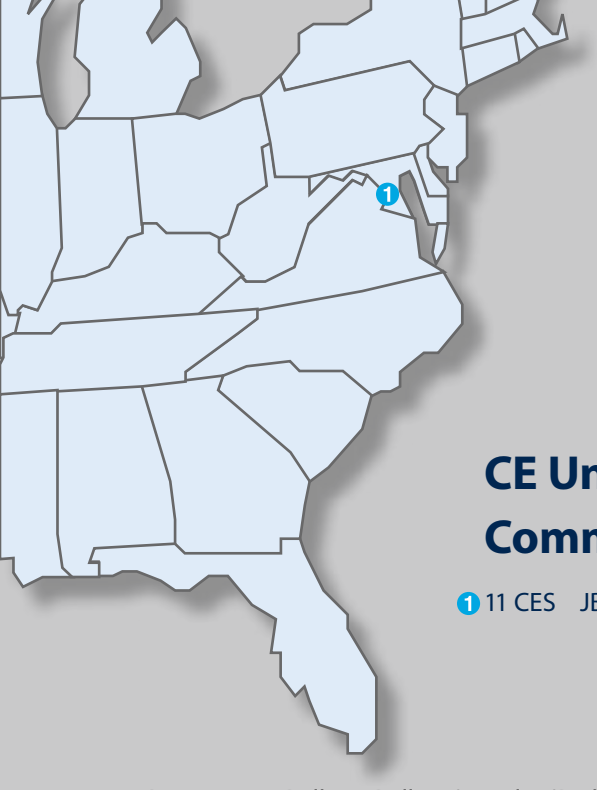
The Air Force District of Washington, located on JB Andrews, brings air, space and cyberspace capabilities to the joint team protecting the nation's capital, and supports local personnel and those serving worldwide. As a direct reporting unit with major command responsibilities, AFDW provides headquarters support to the United States Air Force Band and Honor Guard, located on JB Anacostia-Bolling, Washington, D.C., and to the 11th Wing, 320th Air Expeditionary Wing, 844th Communications Group, and 79th Medical Wing on JB Andrews, Md.

## CE RESPONSIBILITIES

AFDW engineers perform major command functions as well as provide regional warfighting support to the Joint Task Force-National Capital Region. They direct planning, programming, and oversight for installation construction, maintenance, and operations projects. They are responsible for implementing CE-specific policies and directives. AFDW CEs maintain high-visibility areas such as the Air Force Memorial, and provide support to the Air Force Band and the Air Force Honor Guard missions. They support Headquarters Air Force continuity of operations as well as the facilities and infrastructure required for Air Force One and other distinguished visitor aerial transportation. They are responsible for locating and neutralizing explosive hazards that threaten personnel, resources, and local, regional, and national interests, and support the VIP protection activity. They also train, equip, and deploy Prime BEEF CEs to support global combat operations and recovery from natural disasters and major accidents.

## SIGNIFICANT ACCOMPLISHMENTS

- Partnered with AFRPA to sublease the Summerfield 801 family housing project (1,241 units) to Hunt Companies. The property is being incrementally transferred to Hunt over a two-year period.
- JB Andrews AMC East housing privatization
  - Renovated Belle Chance, a general officer home eligible for the Historic Register
  - Renovated 70 enlisted and 42 officer units and demolished 42 units
  - Opened a temporary charter school building and began construction of a permanent charter school facility.




## CE Units in Command

1 11 CES JB Andrews, Md.

## Statistics

| | |
|---|---|
| Major Bases | 1 |
| Plant Replacement Value | $4.4B |
| Buildings | 6.5M sq. ft. |
| Airfield Pavement | 2.5M sq. yd. |
| Housing | 2,224 units (100 % privatized)* |
| Dorms | 827 rooms |
| **AFDW Personnel** | |
| Active Duty | 4,567 |
| Reserve | 119 |
| Civilian | 1,171 |
| **CE Personnel** | |
| Active Duty | 289 |
| Civilian | 421 |
| MILCON | 20 projects ($673M) |
| S/R&M | 200 projects ($110.5M) |
| Facilities Operations | $30M |

**includes housing units at both JB Andrews and JB Anacostia-Bolling*

- JB Anacostia-Bolling, Bolling/Langley/Barksdale (BLB) housing privatization:
  - Constructed 41 general officer homes, including 5 special command position homes
  - Constructed 78 officer homes, a splash park and a welcome center with lighted tennis courts and playground.
- Conducted fourth annual chemical, biological, radiological, nuclear and high-yield explosive (CBRNE) capstone exercise; this 2-week cross-functional event allowed 50 responders from JBs Andrews and Anacostia-Bolling to focus on CBRNE response, in a realistic off-site environment using live chemical agents and toxic precursors.
- Established procedures, issued policies, and provided programming guidance for a $110.5M S/R&M program and $40M straddle bid program.
- Advocated for and supported the $88M replacement of JB Andrews' west runway.
- Provided design and construction management oversight for 18 traditional MILCON and two medical MILCON projects worth $673M, including the William A. Jones Building (BRAC NCR relocation administrative facility), Jacob E. Smart Building (strategic planning and development facility), temporary lodging facility, munitions storage area, dental clinic, and ambulatory care center.

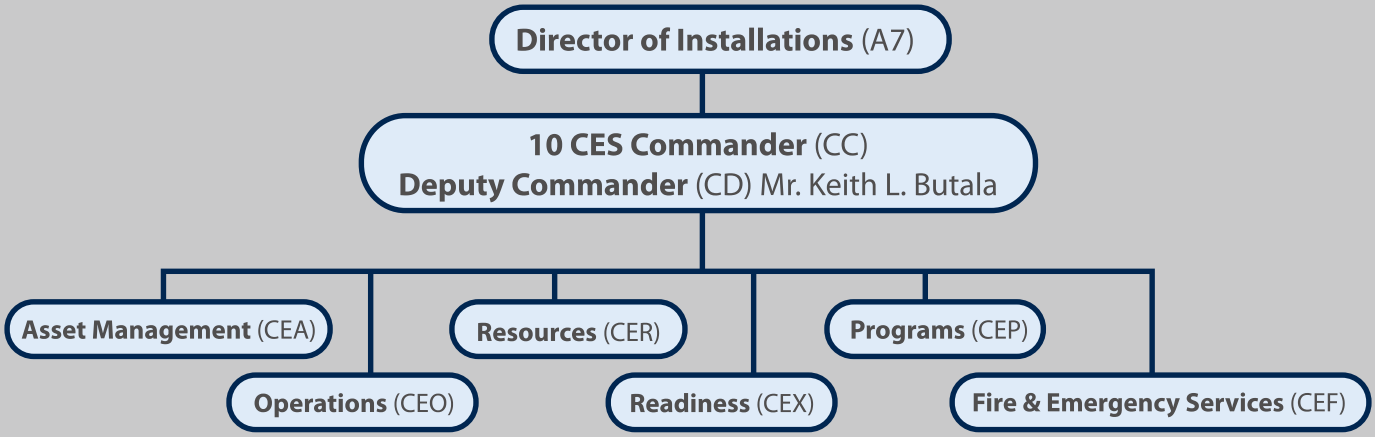
Amn Daniel Bowers, 11 CES firefighter, acts as belay for a rappelling team during a high-angle auto extrication at the Center for National Response training facility in Gallagher, W.V. (*photo by SrA Melissa V. Brownstein*)

# USAFA

**Colorado Springs, Colo.**
**USAFA_A7.ORG@USAFA.EDU**
**719-333-8718 DSN 333-8718**
**10CES.TASKERS@USAFA.AF.MIL**
**719-333-2660 DSN 333-2660**

**Mr. Carlos R. Cruz-Gonzalez**
Director of Installations

**Lt Col Mark A. Russo**
Base Civil Engineer and 10 CES Commander




## MISSION

The United States Air Force Academy (USAFA) offers a four-year program of instruction and experience designed to educate, train, and inspire young men and women to become leaders of character for the Air Force and the nation. The Academy is recognized nationally as the premier educational institution in the Department of Defense.

## CE RESPONSIBILITIES

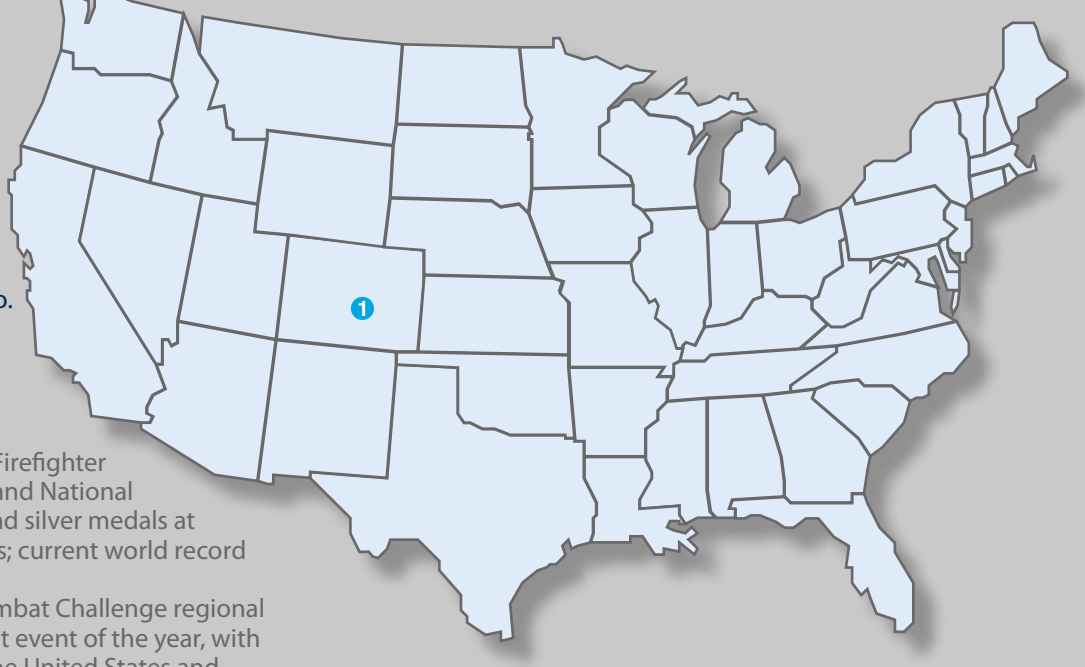
Civil engineers at USAFA provide the physical foundation necessary to produce our future leaders. They advise the leadership on civil engineer facility matters for active and proposed mission requirements. The USAFA/A7 coordinates with Air Staff and other agencies at the strategic level on programming, funding, and project execution. The base civil engineer directs, guides, and provides tactical execution over real estate, environmental/natural resources, housing, readiness, engineering, construction, and daily support operations including structures; provision of custodial, sanitation, and entomological services; fire and emergency services/rescue; and base recovery from damage to facilities.

## SIGNIFICANT ACCOMPLISHMENTS

- Executed $3.2M fire upgrade; youth center, dorms and wing headquarters now 100% complete.
- Completed major facility and infrastructure enhancements, including the following repair projects:
  - Mitchell Hall (cadet dining hall) phase 5 ($6M)
  - Vandenberg Hall (cadet dormitory) phases 5 and 6 ($55M total)
  - Sail plane landing Area ($4M)
  - Northgate, Southgate, and Deadman's Bridges ($7M)
  - Kettle Creek Dry Dam ($2M)
  - Combined Education and Training Facility ($7M) — roof, biohazard exhaust, offices and laboratories
  - Quarter-mile track and field ($4M).
- Began MILCON construction to expand the cadet gym and design for the large vehicle inspection station.
- Completed the $16M indoor training facility, the Holaday Athletic Center, with 100% donor funding (named after the primary donors, Mr. and Mrs. Bart Holaday).
- Fire and Emergency Services Flight was the first in DOD to attain/maintain fire service accreditation three times.

# CE Units in Command

1 10 CES U.S. Air Force Academy, Colo.




- USAFA firefighters dominated the Firefighter Combat Challenge, earning the Grand National Championship, and earned gold and silver medals at National and World Championships; current world record holders in three categories.
- Hosted third annual Firefighter Combat Challenge regional competition, the challenge's largest event of the year, with more than 180 competitors from the United States and Canada.
- Civil Engineering garnered several awards and honors:
  - Air Force General Thomas D. White Environmental Sustainability Award.
  - Air Force Ralph E. Sanborn Award (best medium size fire department).
  - Air Force General Archie S. Mayes Award runner-up (best programs flight).
  - USAFA Safety Team of the Year Award for the Fire and Emergency Services Flight.
  - Colorado Environmental Leadership Program Gold Award for the Environmental Flight.
  - Arbor Day Foundation Tree City USA Community.
- CE personnel received several awards:
  - Mr. Russell Hume was named the Air Force Outstanding Civil Engineer Manager of the Year
  - Mr. Eric Riffle won the 2010 USAFA Civilian of the Year Award.
  - SSgt Norm Henderson was honored with African American History Month Recognition for 2011.
  - Chief Ernst Piercy was awarded the National Defense Industrial Association Patriot Award.
  - Mr. Larry Duran won the 2010 NISH South Central Region Ability One Champion Award.

## Statistics

| | |
|---|---|
| Major Bases | 1 |
| Plant replacement value | $3B |
| Buildings | 6.6M sq. ft. |
| | |
| Airfield Pavement | 532K sq. yd. |
| Housing | 673 units (100% privatized) |
| Dorms | 2,560 rooms |
| | |
| **Command Personnel** | |
| Active duty | 1,792 |
| Civilian | 1,582 |
| Cadet | 4,000 |
| Prep School | 182 |
| Contractor | 1,582 |
| **CE personnel** | |
| HQ USAFA/A7 | |
| Active duty | 1 |
| Civilian | 3 |
| 10 CES | |
| Active Duty | 28 |
| Civilian | 100 |
| Contractor | 550 |
| | |
| MILCON | 4 projects ($69M) |
| S/R&M | 97 projects ($96M) |
| Facilities Operation | $42.2M |

During the Firefighter Combat Challenge, SrA Jessica Morehouse drags the "dummy" to the finish line with her teammates encouragement. (*U.S. Air Force photo*)

# AFIT

## The Civil Engineer School

*At The Air Force Institute of Technology*

**Wright-Patterson AFB, Ohio**
**CESS@AFIT.EDU**
**937 255-5654**
**DSN 785-5654**

**Col Rodger Schuld**
Dean

**Dr. Jared Astin**
Associate Dean

### THE CIVIL ENGINEER SCHOOL MISSION

Providing vital, relevant and connected education that enables Airmen to be ready engineers and great leaders who know how to build sustainable installations to last while leading the change for the Civil Engineering career field.

The school's faculty and staff include 20 military personnel, 22 civilians, and 3 contractors.

### SIGNIFICANT ACCOMPLISHMENTS

The Civil Engineer School taught over 7,000 civil and environmental engineers in residence, at on-sites, on-line, by DVD, by satellite, and at symposiums in FY11. Below are some of the highlights:

BUILDING READY ENGINEERS
- Paired WENG 481 Simplified Design with WMGT 101 CE Basic courses so our newly badged CEs are ready to meet combatant command's engineering design needs.
- Graduated 91 new CE officers, many of whom have already deployed.
- Facilitated the Joint Engineer Operations Course, prepping our officers for joint jobs.

BUILDING GREAT LEADERS
- Emphasized mentoring and building relationships in all in-residence courses; WMGT 101 added specific mentoring lessons and mentoring lunches with senior leaders.
- Taught WMGT 400 Squadron Command students using a new seminar style format; acting squadron commanders served as seminar leaders along with a senior O-6 mentor to bring valuable insights to the new commanders.
- Piloted a new CE Superintendent's course, turning craftsmen into leaders,

BUILDING SUSTAINABLE INSTALLATIONS
- Seven faculty members earned their Professional Engineer accreditation.
- Brought WENG 561 Heating, Ventilation, and Air Conditioning Analysis and Design to the Web — the first of more Web courses in the future.
- The Engineering Management Department held a pilot offering of WMGT 417 Asset Optimization to give students the tools and techniques used in the optimization of installation natural and built infrastructure.

LEADING THE CHANGE
- Connected faculty members with each of the A7C Program Groups by area of responsibility so that the latest changes in CE career field policies and structures are immediately introduced to students in the classroom.
- Instituted new start to classes: CE Portal and discussion of new topics.
- Changed lessons to incorporate CE Playbooks.
- Worked with Air Staff to co-author CE Leadership Playbook.

(*above*) CMSgt Michael Garrou, the CE Enlisted Career Field Manager, teaches during a recent CE Superintendent's Course at AFIT. (*below*) Students in 101, Civil Engineer Basic complete the officer field education portion of the class at Silver Flag Training Site, Tyndall AFB, Fla. (*photo by Ms. Teresa Hood*)

INSTITUTE OF TECHNOLOGY

# AFIT

## Graduate School of Engineering & Management

**Wright-Patterson AFB, Ohio**
**WILLIAM.SITZABEE@AFIT.EDU**
**937-255-3636 ext 7395**
**DSN 785-3636, ext 7395**

## GEM PROGRAM DESCRIPTION

The Graduate Engineering Management (GEM) program provides graduate level education granting Masters of Science degrees in engineering management supporting the Civil Engineering career field. GEM students complete graduate-level course work and conduct defense focused independent research (thesis) on leadership, infrastructure management, construction management, and crisis management. Students develop leadership and project management skills by collaborating with Air Force agencies to identify and execute critical long-term research needs. Students and professors publish findings in national peer-reviewed journals.

The faculty leads all aspects of (GEM) course design and execution, curriculum development, and student evaluation. They translate senior Air Force leaders' vision into degree requirements, program execution, and teach advanced courses in civil engineering. The faculty also conducts independent research; directs graduate student research; publishes findings in national peer-reviewed journals; and collaborates with Air Force agencies to identify critical long-term research needs. Finally, the faculty provides DOD and Air Force consulting as subject matter experts in the field of civil engineering.

## SIGNIFICANT ACCOMPLISHMENTS

GEM 11

- 9 graduates total (7 USAF captains, 1 USA captain, and 1 USAF MSgt); 4 of 5 (80%) taking P.E. exam before graduation passed; 1 LEED certification.
- 3 papers presented at peer-reviewed conferences and published in proceedings.
- 3 peer-reviewed journal papers submitted (1 accepted, 2 in review).
- 2 external grants (~$145K) supported.

**Lt Col William E. Sitzabee, PhD**
Program Director

**GEM Faculty:**
Lt Col William E. Sitzabee, Ph.D.
Lt Col Tay W. Johannes, Ph.D.
Lt Col Peter P. Feng Ph.D. (deployed)
Al Thal, Ph.D

GEM 12

- 27 current students (22 are 32Es)
- Supporting research sponsored by external grants valued at~$743K

Recent Peer-reviewed Journal Articles


- Mull D & Sitzabee W. Paint Pavement Marking Performance Prediction Model. Journal of Transportation Engineering. (Accepted Aug 2011)
- Sitzabee W & Taylor R. Professional Licensure: Is it an Air Force Ethical Requirement? Journal of Professional Issues in Engineering Education and Practice. (Accepted May 2011)
- Feng P, Kinsel W, Thal A, & Bleckmann C. JP-8 vs Alternative Jet Fuels: A Life-Cycle Perspective. Air and Space Power Journal. 2011;25(2):47-55.
- Thal AE Jr., Cook JJ &White ED III. Estimation of Cost Contingency for Air Force Construction Projects. Journal of Construction Engineering and Management. 2010;136:1181-8.
- Sitzabee W, Hummer J, & Rasdorf W. Pavement Marking Degradation Modeling and Analysis. Journal of Infrastructure Systems. 2009;15(3):190-9.
- Sitzabee W, Rasdorf W, Hummer J, & Devine H. Pavement Marking Data Model: A Case for Asset Management. Journal of Computing in Civil Engineering. 2009;23(5):288-98.
- Rosner JW, Thal AE, Jr., & West CJ. An Analysis of the Design-Build Delivery Method in Air Force Military Construction. Journal of Construction Engineering and Management. 2009;135(8):710-7.
- Rasdorf W, Hummer J, Harris E, & Sitzabee, W. IT Issues for the Management of High Quantity, Low Cost Assets. Journal of Computing in Civil Engineering. 2009;23(2):91-9.


On Sept. 11, AFIT faculty and students held a retreat ceremony to commemorate the date and honor the sacrifices of those who gave their lives. (*U.S. Air Force photos*)

# Air Force Civil Engineering History
# Significant Events Timeline

**4 June 1940** — The 21st Engineer (Aviation) Regiment was activated at Ft. Benning, Georgia.

**18 Sep 1947** — The Air Force became a separate service, responsible for operation and maintenance of its installations and airfields. The Army was designated the construction agent for the Air Force and the agent for acquisition and disposal of real estate.

**Oct 1947** — The Air Installations School was created at the Air Force Institute of Technology at Wright Field, Ohio.

**10 Oct 1947** — The Air Force established the Directorate of Air Installations under the DCS Materiel.

**11 July 1950** — Company A of the 802nd Engineer Aviation Battalion became the first Aviation Engineer unit to land in Korea, where they began work on a 500-foot extension to the runway at Pohang AB.

**4 Jun 1954** — The Air Force Academy Construction Agency was established to oversee work for the new institution.

**28 Feb 1959** — The Installations Engineering Occupational Field title was changed to Civil Engineering.

**7 Mar 1959** — The Directorate of Installations was redesignated the Directorate of Civil Engineering, DCS Operations. At base level, Air Installation Officers became Base Civil Engineers.

**1 Jan 1963** — The Air Force Real Estate Agency was established as an AFOCE Field Extension office.

**1 Oct 1964** — The Prime BEEF program was officially implemented.

**1 May 1965** — The first Prime BEEF unit deployed to San Isidro AB, Dominican Republic, from Myrtle Beach AFB, S.C.

**10 May 1965** — The Secretary of Defense sent a short note to the Secretary of the Air Force that resulted in the creation of RED HORSE.

**6 Aug 1965** — The first Prime BEEF teams deployed to Bien Hoa, Tan Son Nhut, and Da Nang Air Bases, Vietnam, to construct revetments.

**Feb 1966** — The first two RED HORSE units, the 554th and 555th Civil Engineering Squadrons (Heavy Repair), deployed to Vietnam.

**1 Apr 1966** — The Civil Engineer Construction Operations Group, the forerunner of AFCESA, was created at Wright-Patterson AFB, Ohio.

**15 Nov 1966** — Tuy Hoa AB, Vietnam, the only Vietnam-era base built by the Air Force, became operational.

**3 Apr 1967** — CMSgt Paul W. Airey, a civil engineer first sergeant at the 4756th Civil Engineering Squadron at Tyndall AFB, became the first Chief Master Sergeant of the Air Force.

**Aug 1975** — The HQ USAF Directorate of Engineering and Services was created with the merger of the two functional areas.

**30 Jun 1978** — The Air Force Engineering and Services Center (AFESC) was activated at Tyndall AFB.

**Jan 1988** — RED HORSE opened to women.

**Sep 1989** — CMSgt Larry R. Daniels became the first Chief of Enlisted Affairs for Engineering and Services.

**Aug 1990** — Air Force civil engineers began deploying in support of Operation Desert Shield.

**Dec 1990** — OSD released DMRD 967 which called for regionalizing base engineering services and zonal maintenance. The Air Force proposed its own initiative that resulted in a major restructuring of the base CE squadron under the Objective Squadron structure.

**1991** — AFESC was redesignated as the Air Force Civil Engineering Support Agency. The Air Force Center for Environmental Excellence was established as a new field operating agency.

**5 Feb 1991** — HQ USAF Directorate of Engineering and Services was realigned under the Chief of Staff and redesignated The Civil Engineer, an assistant chief of staff. Services separated and was integrated into Morale, Welfare, and Recreation.

**1 Oct 1991** — The four Air Force Regional Civil Engineer offices were inactivated.

**3 Oct 1991** — The Vice Chief of Staff aligned Airbase Operability, Disaster Preparedness, and Explosive Ordnance Disposal under Civil Engineering.

**19 Dec 1997** — AFCAP issued its first funded task order for recovery efforts from Super Typhoon Paka at Andersen AFB.

**11 Sep 2001** — In the aftermath of the World Trade Center and Pentagon bombings on 11 September 2001, Air Force civil engineers provided a wide range of support to the recovery efforts and homeland defense initiatives.

**Sep 2001** — Operation Enduring Freedom Prime BEEF teams conducted beddown operations at bases in Southwest and Central Asia. 823 RHS undertook construction projects, including major MILCON projects.

**10 Oct 2001** — An Air Force civil engineer became the first fatality of Operation Enduring Freedom. MSgt Evander E. Andrews, assigned to the 366 CES at Mountain Home AFB, Idaho, died in a heavy equipment accident at Al Udeid AB, Qatar.

**19 Mar 2003** — Operation Iraqi Freedom began as Air Force engineers opened new bases, expanded additional bases, and recovered captured Iraqi bases.

**1 Oct 2003** — HQ Air Mobility Command established an A7 Installations and Mission Support organization. Brig Gen Del Eulberg, the AMC Director of Civil Engineering, became the first A7 director.

**1 Feb 2006** — HQ USAF/ILE was redesignated A7C as part of the HAF transition to the A-Staff structure.

**19 Oct 2006** — Gen John Corley, AF/CV, signed a memo approving Civil Engineering's five transformation proposals: centralizing capital construction execution at AFCEE; reengineering fire emergency operations based on risk assessment; reengineering three AFMC CE Groups to smaller units; realigning military positions into EOD and RED HORSE; and restructuring CE units at all organizational levels.

**1 Jun 2007** — The Air Force Center for Environmental Excellence was renamed the Air Force Center for Engineering and the Environment.

**30 June 2009** — CMSgt James A. Roy became the 16th Chief Master Sergeant of the Air Force. Chief Roy began his career in Civil Engineering as a heavy equipment operator.

**Sep 2009** — The first-ever Expeditionary Prime BEEF group and squadrons were activated in Afghanistan.

**20 Aug 2010** — The RED HORSE presence in Iraq ended when elements of the 557 Expeditionary RED HORSE squadron departed the country. The first RED HORSE teams deployed to Iraq in March 2003.

**3E0X1**
**ELECTRIC**

**3E3X1**
**STRUCTURAL**

**3E0X2**
**POWER PRODUCTION**

**3E4X1**
**WATER & FUEL SYSTEMS MAINTENANCE**

**3E1X1**
**HVAC & REFRIGERATION**

**3E4X3**
**PEST MANAGEMENT**

**3E2X1**
**PAVEMENTS & EQUIPMENT**

**3E5X1**
**ENGINEERING**

# CE CAREER FIELD UPDATE

The HQ AFCESA Force Development Branch is responsible for Civil Engineer enlisted training for 35,000 active duty, Guard, and Reserve personnel in 12 Air Force specialty codes (AFSCs). Within the branch, experts in each of AFSCs work with career field representatives at the Air Force Personnel Center to provide guidance and civil engineer classification. They develop education plans and manage over 240 Web-based courses on the Advanced Distributed Learning Service (ADLS) site and the Civil Engineer virtual learning center, while ensuring that specialty training remains responsive to installation and deployed site requirements. The goal of the Force Development Team is to provide the right training, to the right Airmen at the right time in their careers. This guarantees we build "Ready Engineers" to meet both home station and deployed missions. AFCESA's career field managers also maintain a community of practice, or CoP, which contains the most up-to-date information and guidance for their respective AFSCs.

The following pages provide specific information regarding the current status of each of the enlisted CE AFSCs. Points of contact are listed for each AFSC, and they can be reached through AFCESA's Reach-back Center (1-888-AFCESA1 or DSN 523-6995; afcesar@tyndall.af.mil). Individual AFSC CoPs can be located from the main Civil Engineer CoPs page on the Air Force Knowledge Now, or AFKN, site. Please take advantage of these valuable resources.

CMSgt Michael Garrou
Air Force Civil Engineer
Career Field Manager
HQ AFCESA/CEOM

CMSgt Trevor Shattuck
IMA to the Air Force Civil Engineer
Career Field Manager
HQ AFCESA/CEOM

**3E6X1**
**OPERATIONS MANAGEMENT**

**3E7X1**
**FIRE EMERGENCY SERVICES**

**3E8X1**
**EXPLOSIVE ORDNANCE DISPOSAL**

**3E9X1**
**EMERGENCY MANAGEMENT**

TSgt Phillip Wilson (left) and SSgt Austin Hollingshead, 375 CES, Scott AFB, Ill., repair a power pole at Little Rock AFB, Ark., after a tornado struck the base in April. (*Courtesy photo*)

## 3E0X1
## ELECTRIC

In FY11, we continued to see a large number of wiring discrepancies throughout the Southwest Asia AOR, directing more attention to our training programs and application processes. To mitigate future mishaps, the Air Force implemented long-term guidance focused on using the National Electrical Code (NEC) as the principal AOR electrical wiring guide, rather than European safety standards. The career development training program and formal training were also top priorities to educate 3E0X1 on the importance of following standard applications.
--
There were many questions on UFC 3-560-01 and the need for craftsmen to wear 100% cotton clothing and undergarments when performing electrical tasks in front of equipment or apparatuses that utilize 50 VAC or higher. Per the UFC's Section 4-4, as long as the clothing is 100% natural cotton, craftsmen are authorized to wear the garments; at no time does the UFC state that the clothing must be the Airman Battle Uniform. Additionally, craftsmen must wear the appropriate Arc Flash PPE for the equipment they will be working on. With AFRL, AFCESA is in the process of testing the new ABSG and OEF camouflage pattern (a.k.a. OCP or MultiCam) uniforms for their arc thermal protection value rating.

**POC: SMSgt Alexander Thomson**

## 3E0X2
## POWER PRODUCTION

FY11 introduced additional focus on contingency training with the design and field testing of the BEAR Power Unit (BPU) and the development of new emergency power generation systems inspection and maintenance criteria.

The BPU is next generation of equipment for deployed Power Pro technicians. Cummins Power Generation was contracted to provide an 800kW, 4,160 VAC, air-transportable replacement generator for the MEP-12. As usual, along with any new technology and equipment comes additional training requirements. Initially, 45 personnel will attend the two-week factory-taught course and provide feedback toward the development of multimedia training to replace the MEP-12 CBT on the CE virtual learning center. Next, all training sites (Sheppard AFB, Holloman AFB, Silver Flags, ANG-RTS, AFR-TCC) will receive the BPUs off the production line before employment in the AOR, to begin training all 3E0X2 technicians. Initial fielding of the BPU should occur in FY13.

ETL 11-21 addresses new generator inspections and maintenance criteria. The ETL offers significant changes to the Power Production AFSC, including semimonthly inspection on real property-installed equipment, options to defer oil service interval by 12 months, and changing the equipment authorized inventory data generator load test from a monthly to a quarterly requirement. Along with the ETL, we introduced a new Form 487, to better capture inspection parameters.

**POC: MSgt Gary Szekely**

SSgt Brian Seabolt, 380 ECES, tightens a bolt on a mobile aircraft arresting system during a two-week maintenance overhaul of the system. (*photo by TSgt. Patrick Mitchell*)

A1C Mohamed Cassim, 28 CES HVAC journeyman, wraps a heating vent on a duct at Ellsworth AFB, S.D.. The Air Force saved more than $75,000 by having the 28 CES rather than contractors install the new HVAC system. (*photo by SrA Anthony Sanchelli*)

## 3E1X1
## HVAC & REFRIGERATION

In FY11, the new Advanced Air Conditioning and Refrigeration Systems course consolidated the Direct and the Indirect Expansion courses into one and reduced it to seven days. The HVAC Controls course increased five days to capture direct digital controls and variable air volume controllers. The 130K BTU Heater Course was added to the CE virtual learning center website as mandatory training. The Refrigerator Management Handbook has been revised with an expected release date in FY12.

Great strides occurred to incorporate new HVAC contingency equipment in the field. The field deployable environmental control unit and water heater-400 made its way into the Air Force inventory for contingency operations and training for both was implemented at Silver Flag sites. Over the next few years the new TriCon refrigerated container system will gradually replace the advanced design refrigerator-300 in the Air Force inventory.

**POC: MSgt Alvin Dyer**

## 3E2X1
## PAVEMENTS & EQUIPMENT

In FY11, the Pavements and Equipment career field saw a few updates and changes, with the primary change being the improvement and standardization of the crane training process. Designated crane training locations are Det 1 554 RHS, Kadena AB, Japan; AFRC ECS-TCC, Dobbins ARB, Ga., ANG REOTS/RTS, Fort Indiantown Gap, Pa., 611 CES, Elmendorf AFB, Alaska, and 435 CTS, Ramstein AB, Germany and the 819 RHS, Malmstrom AFB, Mont. for the heavy lift UTC. These six sites are certifying both SORTs reportable and non-SORTS reportable crane operators.

Mr. Kyle Russell is the new 3E2X1 training manager at Sheppard AFB, Texas. Fort Leonard Wood (FLW), Mo. graduated 510 trainees in FY11 and is expected to graduate 559 in FY12. FLW conducted 4 mobile training teams (MTTs), training 51 3E2X1s; in FY12, 6 MTTs are scheduled and they anticipate training 80 3E2X1 Airmen in Civil Engineer Pavement's Maintenance Inspection and Repair course. The Air Force-unique portion of the course has been updated, the most extensive update since 2004, and post-validation corrections are online. Tech school trainees at FLW completed 5 self-help projects for the base, including placing 20 cubic yards of concrete and building a strip drain for storm water runoff. These projects completed all training objectives while simultaneously gaining real world experience for the trainees.

**POC: SMSgt Mike Rose**

The compact track loader, or CTL, with redesigned wheel saw attachment for thick pavement is part of the new crater repair capability that will enter the Air Force inventory in the near future. (*photo by Mr. Tim Patrick*)

Airmen attend tech school on the way to becoming 3E3X1 Structures Craftsmens. (*photo by SMSgt Jason Frigon*)

## 3E3X1
## STRUCTURAL

The Structures career field has seen some changes in the past year that support our members deploying down range. Based on extensive feedback from the field requesting more welding training, the Metal Fabrication and Welding Course in Gulfport is now more advanced, with increased requirements for task performance and knowledge levels. Feedback on the ongoing welding refresher training at the Silver Flag sites continues to be positive. The 2011 Occupational Analysis Survey was distributed across the career field. This information will be used by the 2012 Specialty Training Requirements Team to make sure our training standards, career development courses (CDCs) and supplemental courses are meeting the needs of our Structures Airmen.

In the near future, the electronic versions of the CDCs are going to be followed by end of volume and course assessment on the CE virtual learning center. This new way of doing business not only launches us into the 21st century, it also streamlines upgrade training. The current CDC is undergoing a minor rewrite and you should expect to see many updated sections by the end of 2011.

**POC: SMSgt Jason Frigon**

## 3E4X1
## WATER & FUEL SYSTEMS MAINTENANCE

Over the past year, 28 changes were made to the 3E4X1 Career Field Education Training Plan (CFETP) to reduce inefficiencies and redundancies. The 1,500-GPH reverse osmosis water purification unit (ROWPU) was implemented and we added programmable logic controls and network communication training to the 1500 ROWPU mission essential equipment training (MEET) course. The apprentice course was reduced by 8 hours and the Bare Base Water Distribution course was discontinued. The new Fuel System Maintenance Technician course was approved by AETC for a January 2012 start date.

More than 70 3E4X1 members validated the operation and maintenance of the Army's Force Provider (deployable base camp system) shower and latrine hygiene units over a 3-month period. A truly remarkable achievement, for the first time maintainers were able to provide feedback and recommendation for new contingency equipment.

Utility Privatization (UP) is on the brink of taking exterior water and wastewater distribution away from the 3E4X1 work center. In the coming years some CONUS units will lose nearly 40% of their workload. Therefore, upgrade and proficiency training tasks became part of the UP contract. The UP system owner and work center will coordinate training on a needed basis to maintain upgrade and proficiency training with the core tasks listed in the CFETP.

**POC: SMSgt Mark Garvin**

SSgt Justin England, 509 CES, flushes a repaired water main at Whiteman AFB, Mo. (*photo by SrA Kenny Holston*)

A1C Elizabeth McCasland, 52 CES Pest Management Flight, Spangdahlem AB, Germany, sprays pesticide on an underground wasp next. (*photo by SSgt. Nathanael Callon*)

## 3E4X3
## PEST MANAGEMENT

The Pest Management career field continues to evolve to ensure 3E4X3 personnel in the field have the best tools to accomplish the job in a safe and efficient manner.

At the Pest Management schoolhouse, MSgt Christopher Woolington is the new CDC writer and MSgt Jim Cummings is the instructor supervisor. The documents serving as principal guidance for Air Force pest managers are AFI 32-1053, Integrated Pest Management, AFI 32-1074, Aerial Application of Pesticides, and DODI 4150.07 on the DOD Pest Management Program.

The Operational Entomology course, required for all Pest Managers to receive their 7-level, has moved from Brooks City-Base to Corpus Christi, Texas and is now taught over 5 days instead of 10. The new Pest Management QAE CBT is available for personnel handling pest management contracts. The CBT is recommended for all senior airmen and above. The Pest Management recertification course hands-on equipment section is changing to a knowledge base section. The Army Pest Management recertification course is still unavailable to Air Force military and civilian personnel.

**POC: MSgt Chris Beach**

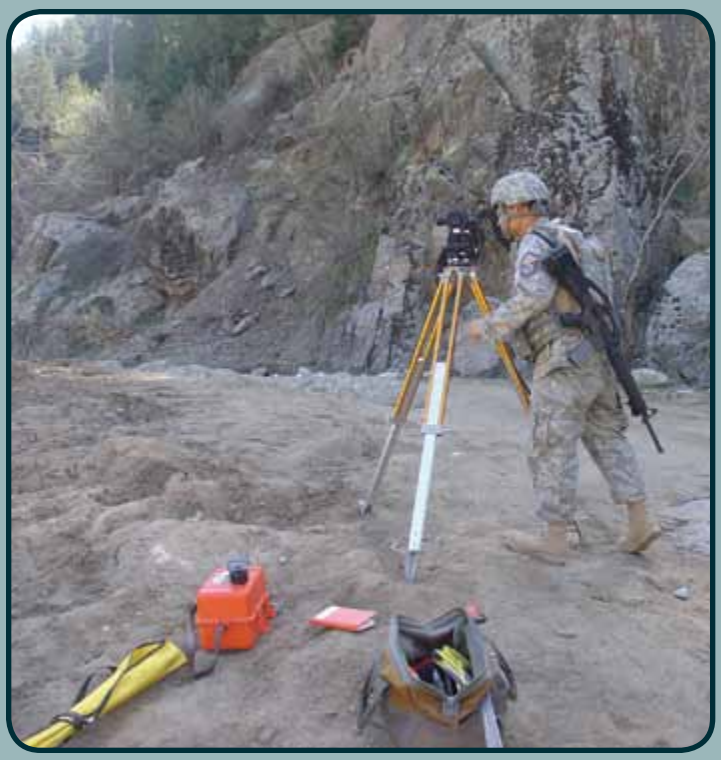
## 3E5X1
## ENGINEERING

The Engineering career field has benefited from strategic sourcing initiatives. We completed a single software platform for all data creation and maintenance, which saved 30% overall and will make our business processes more repeatable and reduce retraining downtimes for MAJCOM- or base-specific software. Autodesk products are the only authorized software platforms for 3E5s performing their critical core tasks. Through a centralized purchase and portfolio management system the following applications were purchased: AutoCad, AutoCad Civil 3D, AutoCad MEP 3D, and AutoDesk Map 3D.

We are in the process of following suit with surveying equipment. If funded, equipment at home station will mirror that used in the AOR (centrally purchased for UTCs in 2009) and technical and contingency training venues. This funding request would provide centralized purchase of both optical and global navigation satellite systems (a.k.a. GPS) with cost savings similar to the Autodesk purchase.

Silver Flag training and advanced courses continue to develop 3E5X1 into a robust expeditionary team responsive to in-theater challenges. Lessons have been added to sharpen the 3E5 sword in construction management and surveying. 3E5 utilization remains a critical focus – every Engineering Airman must master core competencies through work at home station. Recent deployments demonstrate the continued need for mastery in drafting, mapping, materials testing, construction surveying, and construction management.

**POC: SMSgt David Sosa**



An Engineering Craftsman performs a reconnaisance survey for a road in the SWA area of responsibility. (*U.S. Air Force photo*)

SrA Jerod Christian works in the material acquisitions warehouse at Al UdeidAB, Qatar while deployed from the 18 CES, Kadena AB, Japan. (*U.S. Air Force photo*)

## 3E6X1
## OPERATIONS MANAGEMENT

The 3E6X1 career field continues to wrap up transitional tasks from the last U&TW including completion of the new 3E6X1 CFETP and 3E651 Edit Code 04 CDCs and the addition of new Class IV material acquisition responsibilities. New schoolhouse training, as well as trained civil engineers within the material acquisition sections, will help bridge the gap that CE always had with Supply Management (2S0X1) frequently transitioning in and out of CE and having to be trained on the use of our automated systems.

The TRIRIGA platform, chosen as CE's NexGen IT solution to replace legacy systems, will streamline business processes for real property, work/supply, energy, and project management. It is scheduled for initial operating capability at JB Andrews, Md., in July 2012. Both the Air Force CE and 3E6X1 career field managers will work with USAF AF/A7CRT and the 366 TRS to ensure that training platforms are updated as needed and adequate training is provided during the transition. Revision of AFI 32-1001 and other instructions are also part of the transition process.

Training improvements continue with updates to Silver Flag instruction as well as the inception of mission essential specialty training (MEST) at Dobbins ARB, Ga. "Total Force" development teams began meeting at Dobbins' ECS-TCC to develop MEST instruction and lesson plans. The improved training at the Silver Flag sites and at Dobbins will enhance the 3E6X1 Total Force training venues and accessibility.

**POC: MSgt Edward Quinn**

## 3E7X1
## FIRE EMERGENCY SERVICES

Fire Emergency Services received delivery of the first fire-fighting vehicle to incorporate the new ultra-high pressure (UHP) firefighting technology. The P-34 Rapid Intervention Vehicle holds 500 gallons and allows discharge of a water and foam mixture at 1,350 psi, making it 3 to 3.5 times more effective than conventional vehicles. It is smaller and more agile and costs significantly less to operate than older vehicles now in the Air Force inventory. With effective firefighting capability of 1,500 to 1,750-gallon vehicles, the P-34 can remain on scene longer without being resupplied and the high pressure allows penetration of a hidden fire or a 3-D running fuel fire without impacting firefighter safety.

The new Firefighter Certification System Procedural and Policy Guide was released in July. The guide explains the entire certification process, including enrollment process, training venues, and package submission requirements. The Cardiopulmonary Resuscitation and Emergency Medical Responder courses were updated to meet both the American Heart Association and Department of Transportation 2010 changes to the standards. The Joint Firefighter Integrated Response Ensemble (JFIRE) modernization process, which started in 2009, continues to progress. Feedback from the human subject testing at Tyndall AFB, Fla. and operational testing at Kunsan AB, Korea, was phenomenal. The final JFIRE suit design will undergo developmental testing prior to developing a procurement/fielding and sustainment strategy.

**POC: CMSgt Kevin Matlock**
**3E7X1 Career Field Manager**

Firefighters from the 19 CES extinguish flames on a mock C-130 during a training burn at Little Rock AFB, Ark. (*photo by A1C Rusty Frank*)


TSgt Jeffrey Barnett, deployed from the 96 CES EOD Flight, Eglin AFB, Fla., runs a command wire after placing an explosive charge next to a rocket-propelled grenade found in a ditch near a school in Afghanistan. (*photo by SSgt Brian Ferguson*)

## 3E8X1
## EXPLOSIVE ORDNANCE DISPOSAL

The EOD Branch (CEXD) at AFCESA partnered with Air Force Northern Command and MAJCOMs and the DOD Very Important Person Protective Support Activity to establish a position in AFCESA/CEXD with responsibility for assigning Air Force EOD teams in support of the U.S. Secret Service to protect the president, vice president, and notable government dignitaries. This position eliminates what was a complex process by effectively streamlining the assignment of tasks and provides a single point of contact for EOD at MAJCOMs and EOD teams to obtain mission specific details.

In October, the career field manager hosted the 2nd EOD CFM Teleconference via the DOD's Direct Connect Online, communicating directly with the EOD career field in order to highlight current initiatives and address their personal concerns.

The inaugural EOD Preliminary class began at its new location on Sheppard AFB, Texas, with the 366th Training Squadron, and charted a new path for the EOD pipeline. The academic days changed from 6 to 20 with a major focus on team building, physical fitness, and a basic understanding of EOD and the skills necessary to succeed in the Basic EOD Course at NAVSCOLEOD.

**POC: CMSgt James Brewster,**
**3E8X1 Career Field Manager**

## 3E9X1
## EMERGENCY MANAGEMENT

In 2011, 300 Airmen became trained and certified as Emergency Managers through the EM Apprentice course. EM Airmen are the only personnel in the DOD that are certified as HAZMAT Technicians when they complete initial skills training.
We recently released a public website, www.BeReady.af.mil, which supports the Air Force Information Program and the new Air Force's "Be Ready" campaign, designed to raise awareness and guide the public's behavior to prepare for, respond to, and recover from hazards.

All Air Force Emergency Managers are eligible for, and encouraged to participate in, the Air Force Certified Emergency Management program, with certification levels that align with our career field upgrade/professional development chart. Qualified EM Airmen in the appropriate rank can apply for the following Air Force certifications: AB through SSgt for All Hazards Responder (Level 1); SSgt through TSgt for Associate Emergency Manager (Level II), and MSgt through CMSgt for Emergency Manager (Level III).

At the schoolhouse, EM instructors provided 1 Readiness Flight Officer, 14 Advanced EM, and 7 MTT courses and saved $215,000 in TDY costs with conscientious scheduling. The apprentice course added the DOD HAZMAT Awareness CBT, preparing students to attend the CBRN Responder course. Craftsman, Advanced, and Emergency Management Flight Officer courses are currently under review.

**POC: CMSgt Claudette Watler-Hall**
**3E9X1 Career Field Manager**

SMSgt Cornell Jolley, 512 CES emergency manager, right, discusses options with Col Gretchen M. Wiltse, 512 MSG (and EOC) commander during a simulated chemical attack at Dover AFB, Del. (*photo by Capt Marnee A.C. Losurdo*)

# OUTSTANDING!
# AIRMEN OF THE YEAR

In 2011, two civil engineers were among the 12 Outstanding Airmen of the Year recognized by the Air Force Association for their superior leadership, job performance, community involvement, and personal achievements. The 12 Outstanding Airmen are awarded the Outstanding Airman ribbon with the bronze service star device and wear the Outstanding Airman badge for one year. They also serve on the Air Force Enlisted Council for one year.

### TSgt Jordan S. Bishopp
### 377 CES, Kirtland AFB, N.M.

TSgt Jordan S. Bishopp demonstrated outstanding leadership while deployed in support of Operation Enduring Freedom and during his home-station duties at Kirtland AFB, N.M. As an Explosive Ordnance Disposal Craftsman, he successfully completed 125 counter improvised explosive device missions. During these combat missions, TSgt Bishopp neutralized 46 improvised explosive devices, conducted 12 post blast investigations, and collected 500 pieces of evidence. His courageous actions prevented over 100 coalition casualties, led to the capture of 3 enemy bomb emplacers, and the safe clearance of over 5,000 miles of critical convoy routes. While at home station, he was also able to safely dispose of 600 unexploded ordnance items and 12,000 pounds of explosive hazardous waste, saving the Air Force and its tenant units $475 thousand in disposal and Environmental Protection Agency fines. TSgt Bishopp is currently deployed in the Southwest Asia area of responsibility.

### SMSgt Patrick D. Jones
### 375 CES at Scott AFB, Ill.

As the Operations Superintendent for the 375 CES at Scott AFB, Ill., SMSgt Patrick D. Jones provided exemplary leadership, guidance and management for 250 multi-skilled, multi-craft military and civilian engineers. Under his direction, the installation sustained 40,000 Airmen, including 48 general officers and Senior Executive Service members. The CEs under his supervision supported several high level organizations including U. S. Transportation Command, Air Mobility Command, 18th Air Force, and other associate units. He managed the maintenance of 57 miles of roadway on 3,600 acres of land worth $3B. SMSgt Jones also led a 50-year, $250M privatized water program including a 24-mile pipeline repair program. SMSgt Jones is currently stationed with the 8 CES at Kunsan, AB, Korea.

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