The responsibilities of today’s Air Force civil engineers span nearly every discipline of engineering and beyond. Our engineers frequently are called upon to provide a wide range of expertise to support commanders at the installation, combatant and major command levels. Because every civil engineer cannot be the authority in every area of engineering, the Air Force Civil Engineer Center (AFEC) ensures subject matter experts (SMEs) are available to them.

Each of our civilian SMEs offers the unique blend of experience, education and training to be the Air Force’s authority in an area of expertise. SMEs provide continuity and as well as assurance that our civil engineering “know-how” keeps pace with lessons learned, changing technology, federal guidance and industry standards. The standards and criteria they publish help Air Force civil engineers work more skillfully and efficiently.

Although they might have gone by another name, subject matter experts have served within civil engineering for more than 40 years. Most SMEs have a master’s degree or higher in their functional area, are registered professionals (or the equivalent); and are recognized as an expert by their peers and industry. Many within the Department of Defense and outside the Air Force benefit from civil engineering’s subject matter expertise. They include joint working groups, industry partners and vendors, professional organizations and research programs.

On any given day, AFCEC SMEs can be found resolving issues impacting their area of expertise, developing technical guidance, giving advice to major command or installation engineers, working with national laboratories to advance the art of engineering, developing and advocating for required technical courses or mentoring technical personnel across the Air Force. Collectively, our SMEs represent a vast wealth of engineering knowledge and experience. We hope you use this page to learn about the areas of expertise and take every advantage of this valuable resource.

Contact any SME at NIPR: afcec.rcb@us.af.mil
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**SME Directory as of January 2018**

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   - Air Base Requirements
   - Airfield Criteria, Markings, Aircraft arresting Systems
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   - Fuels Infrastructure, Vertical Transportation Equipment, Natural Gas, Plumbing Geotechnical and Structural Engineering Hazardous Materials, Hazardous Waste and Pollution Prevention Hydrogeology
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   - Real Property and Asset Management Remedial Systems
   - Renewable Energy and Energy Resilience Roofing and Asbestos Abatement Sustainable Design and Development Toxicology and Risk Management Utility Rate Management Water Quality
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   - Web Links

2. **Air Base Requirements**
   - Robert “Ken” Crowe, AFEC/CX

3. **Air Base Recovery and Acquisition**
   - Alessandra Bianchini, Ph.D., PE, AFEC/CX

**Vision**

**Air Base Recovery and Acquisition**

**Air Base Requirements**

**Initiatives and developments**

The recent rebalancing to the Pacific theater is focusing special attention on the few bases directly located in the area and those that have a fundamental strategic role within the newly addressed scenario. Initiatives include:

- Leading working groups in the pavements area to highlight needs and future development for long-term solutions aimed at strengthening infrastructure reliability with respect to operational mission needs.
- Formalizing, within an evolutionary process, current airfield damage repair initiatives dealing with forecasted threat scenarios toward the definition of a program consistently maintaining capabilities and mission.
- Outreach to academia for development efforts supporting civil engineer needs and the small business community for developmental efforts that yield substantive and innovative products for Air Force civil engineers.

**Initiatives and developments**

Industry trends: developing accurate accounting of internal processes (capabilities) and linking to desired outcomes (needs) to optimize and initiate processes for better results.
- Program challenges: institutionalizing the Air Force’s policy change for civil engineering (CE) requirements and acquisition from risk avoidance to a risk management organization supporting JCIDS, the defense acquisition system, the CE strategic plan and defense planning guidance.
- Critical initiatives/developments: developing and producing a capabilities-based assessment founded on current baseline and capability gaps; documenting the CE basing resilience baseline with appropriate capability-based assessments to allow CE integration within the JCIDS systems; and creating computer-based tools (the acquisition decision support system) for the development and documentation of the capabilities-based assessment, providing linkage to defining references and documenting the analysis of capabilities.
**Airfield Criteria, Markings, Aircraft Arresting Systems**

**Barry Mines, Ph.D., PE, AFCEC/CO**

**Vision**
Facilitate safe airfield operations through proper siting criteria for facilities in and around operational airfield surfaces.

**Scope**
The Airfield Criteria, Airfield Markings and Aircraft Arresting Systems (AAS) SME provides technical assistance to Air Force engineers and community planners to facilitate safe operations at Air Force operating locations worldwide. The SME works closely with the Air Force Flight Standards Agency, which procures AAS, and the Air Force Installation and Mission Support Center, which provides program management.

- The SME represents the Air Force on the Tri-Service Aviation Discipline Working Group to develop consolidated DoD engineering standards and criteria for airfields. This program is wide ranging, covering criteria for airfield layout, design, imaginary surfaces and proper siting clearances. The SME interfaces with the Air Force Flight Standards Agency, the other services, the Federal Aviation Administration and NATO to develop common standards.

**Initiatives and developments**
- Working with the Federal Aviation Administration to update Advisory Circular 150-5220-9 Aircraft Arresting Systems on Civil Airports. This document needs to include newer systems in order for those systems to be allowed to be used by Air National Guard units operating at civilian airports.
  - Continued interfacing with the Joint Strike Fighter office on additional aircraft arresting system testing compatibility needed for the F-35 to include spacing of the pendant support discs or retractable support blocks in the BAK-14M system.
  - Continuing to seek funding for development of a technique to install a mobile runway edge sheave on asphalt pavements over a gravity fall course.
  - Developing a protocol to allow replacement of all anchor bolts on an aircraft arresting system fairlead beam as the technical order does not currently have a technique that allows replacement of all anchors if they have corroded or have failed a nondestructive test.
  - Content development for CE DASH, an online reference tool providing references, workspaces and reachback capability for the CE enterprise.

**Antiterrorism, Security and Small Arms Range**

**Jeff Nielsen, PE, AFCEC/CO**

**Vision**
Improve protection for DoD personnel and assets against terrorism and illicit activity using enhanced planning and design standards incorporated into new and existing facilities.

**Scope**
The antiterrorism program provides guidance and criteria to mitigate the risk from terrorist attacks and protect Air Force assets on garrison and expeditionary installations. The SME manages the program, promotes site planning, design and construction compliance; develops design criteria; offers technical consultation; and represents the Air Force on developing DoD engineering standards and criteria for facility mitigation. Security engineering covers a wide range of threats, including explosive devices, direct and indirect fire weapons, airborne hazards, forced entry and surveillance. The SME also manages the Air Force small arms range design criteria and standard facility prototype drawings. The SME works in collaboration with the Air Force Security Forces Center (AFSFC) and the Air Force Medical Support Agency (AFMSA) to review the design of all new and rehabilitated ranges required to maintain safe operations.

**Initiatives and developments**
- Working with industry and academia to develop Certified Blast Protection Professional certification guidelines.
- Working with AFSFC and AFMSA to ensure a safe range training environment for student and instructors.
- Replacement of ETL 11-18 with a tri-service unified Facilities Criteria (UFC) 4-179-02, Small Arms Range Design.
- Major updates and revisions to Antiterrorism UFCs 4-010-01 and 4-020-01.
- Treat vehicle speed control within the installation entry control site.
- Electric vehicle-stopping devices to augment final denial barriers.
- New UFC for forced entry criteria to replace 1993 MIL-HDBK-103/1A.
- Developing new criteria for steel stud construction details to allow standoffs reduction.
- Content development for CE DASH, an online reference tool providing references, workspaces and reachback capability for the CE enterprise.

**Air Resource Management**

**Francisco Castaneda III, PE, AFCEC/CZ**

**Vision**
The SME, through the Air Resource Management program, provides technical assistance to Air Force engineers and community planners to facilitate safe airfield operations while focusing on warfighter operational requirements. Specific support provided by the SME includes air quality excellence advocacy, execution guidance, technical consultation, value engineering corrective actions, impact analysis and general conformity assistance, processes tracking, and training development. The SME provides the expertise, technical support, compliance tools, permitting support, value engineering corrective action resources, specialized guidance, process flow charts, playbooks and training resources to achieve and sustain regulatory compliance with the Clean Air Act (CAA). Additionally, the SME evaluates the effectiveness of the program through compliance tracking and metrics.

**Initiatives and developments**
- Value engineering is a proactive effort that is a cross between quality assurance and corrective re-engineering. It is pre-emptive in nature, correcting identified noncompliance and re-engineering base-level programs for long-term compliance sustainability. Recent regulatory trends show a significant increase in CAA regulations and related enforcement actions (EAs). The value engineering initiative reduces regulatory risk by identifying and correcting noncompliance issues before they become official EAs. On 14 bases to date, 403 corrective actions and program improvements reduced regulatory recordkeeping and reporting, and removed two unwarranted Title V permits.
- Boiler compliance is a two-phased initiative to update boiler recordkeeping and provide base-specific compliance plans. Recent significant changes to boiler regulations increased regulatory recordkeeping/reporting requirements. Data validation completed on seven installations in fiscal year 2017 identified and corrected old boiler data. Starting in fiscal year 2018, create up-to-date, base-specific and shop-specific boiler compliance plans to provide simplified and succinct compliance procedure at the shop level.

**Architecture**

**Randall L. Lierly, RA, AFCEC/CF**

**Vision**
To facilitate and advance the confluence of architects’, interior design and landscape architects’, skills, knowledge, creativity, commitment, vision and resources to promote and sustain design excellence of Air Force facilities.

**Scope**
The program provides guidance on facility architecture, interior design and landscape architecture, as well as tools, resources, expertise, processes, technical information and techniques to achieve design excellence. The SME is responsible for program guidance, policies, promotion and implementation. The SME develops design criteria for Air Force facilities to replace UFC 4-016-01/02, Small Arms Range Design. The SME works in collaboration with the Joint Strike Fighter office on airfield criteria, markins and aircraft arresting system testing compatibility.

**Initiatives and developments**
- Publication of updated Air Force Corporate Facilities Standards Tool.
- Continued implementation of Installation Facilities Standards Tool across the Air Force.
Scope
The program promotes the acquisition of defensible environmental data by providing guidance on chemistry practices and quality systems, and supplementing with training, consultative expertise and additional technical information to support environmental restoration goals and objectives. The SME is responsible for the advocacy and implementation of environmental data acquisition policies and oversight of environmental quality systems, including project planning, data collection and review, and technical consultation. The SME represents the Air Force on tri-service and interagency workgroups — including the Department of Defense (DoD) Environmental Data Quality Workgroup and the Intergovernmental Environmental Data Quality Workgroup — developing standards for the Air Force and DoD. The SME provides Air Force oversight for the DoD Environmental Laboratory Accreditation Program to ensure analytical testing consistency and compliance with the DoD Quality Systems Manual.

Initiatives and developments
- Development of minimum quality-control criteria for the detection of emerging contaminants, such as 1,4-dioxane and perfluoroalkyl sulfonic acid/perfluorooctanoic acid.
- The use of environmental forensic chemistry techniques, such as isotope analysis, to determine sources of environmental contaminants as well as monitor the performance of our remediation systems.
- Broad application of a performance evaluation sampling program as an additional quality-check of laboratory performance in Air Force performance-based remediation contracts and emerging contaminant sampling efforts.
- Intergovernmental implementation of the optimized Uniform Federal Policy for Quality Assurance Project Plans as a means to document project-specific decision logic, problem definition, data requirements and exit strategies.
- New sampling and analysis techniques such as passive samplers, incremental sampling methodologies and the use of mobile instrumentation for the characterization of hazardous waste sites.

Vision
Promote good chemistry practices and systematic project planning in the acquisition of quality environmental data to support defensible decision-making.

Chemistry
G. Cornell Long, AFEC/CZ

Corrosion Control
Robert J. “Bob” Evans Jr., PE, AFEC/CO

Initiatives and developments
- Development of minimum quality-control criteria for the detection of emerging contaminants, such as 1,4-dioxane and perfluoroalkyl sulfonic acid/perfluorooctanoic acid.
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Cultural Resources Management
James D. Wilde, Ph.D., Registered Professional Archaeologist, Deputy Federal Preservation Officer, AFEC/CZ

Initiatives and developments
- Industrywide developments that improve Air Force CRM include the growing use of small drone aircraft with multi-spectral cameras for analyzing landscapes, 3-D laser scanning of historic buildings as mitigation for proposed changes or demolitions, continual improvements in visualizing software, ever-improving digital cameras and data collection methods, and better use of the geospatial information system.
- Began initiative to digitize, curate and store archaeological and some building data in partnership with Arizona State University’s the Digital Archaeological Record. Air Force CRM has budgeted for annual increases in paper, film and outdated digital data from Air Force installations to be updated and curated in the digital archive.
- Plans, programs, budgets and executes archaeological surveys on ranges to reach the NHPA requirement of 100 percent agency lands inventoried for significant properties.
- Oversees data collection and analyses to find, interpret and communicate information to warfighters about significant cultural, archaeological, historical and heritage data to ensure U.S. forces minimize impacts to these important resources.

Vision
Increase mission capacity on bases and ranges by creative compliance, accurate inventories, expert planning and engagement with stakeholders and commanders.

Electrical: Airfield Lighting/Lightning/Grounding Systems
Joanie Campbell, PE, AFEC/CO

Initiatives and developments
- Working with Mississippi State University to evaluate DoD criteria and NFPA 780 Annex E resistance computation affected by the resistance of power-system grounding electrodes or a similar ground medium that is not isolated from the structure being protected. This effort will analyze the grounding interaction of multiple grounding systems and effects on facilities grounding systems.
- Content development for CE DASH, an online reference tool providing references, workspaces and reachback capability for the CE enterprise.

Vision
Familiarize Air Force personnel with concepts of equivalency and intent, and remove focus from checklists that create unnecessary expense and work.

SME Directory Winter 2017
SME Directory Winter 2017
**Electrical Power and Lighting**

Rexford Belleville, PE, AFCEC/CO

**Vision**
Create, promote and facilitate the technological state of the art that will advance electrical engineering skill, knowledge, creativity and commitment for the development of efficient, effective and resilient construction.

**Scope**
The SME addresses all issues pertaining to electrical power and lighting installations as well as electrical safety concerns. The SME is the current chairman of the DoD Electrical Discipline Working Group to create Unified Facility Criteria and guide specifications that govern construction, operation and maintenance of electrical infrastructure. The SME develops contracts for the evaluation of power distribution systems that include arc flash analysis, short circuit, load flow, harmonic, protective device coordination and system condition and status. The SME works with functional managers to identify training and support for shop personnel, and interfaces with industry experts to evaluate new technologies that produce standards necessary to employ and advance the state of the art in government facilities.

**Initiatives and developments**
- Began incorporating the full control capabilities of solid-state lighting, which uses light-emitting diodes, for indoor and outdoor large high-bay, high-mast area applications to improve light quality, reduce light pollution, minimize energy use, reduce glare and eliminate interference to adjacent mission technologies.
- In the process of improving accountability for backup power requirements to ensure mission capability through standardized documentation, tracking, testing, reporting and replacement using unified information platforms.
- Began verifying and increasing the hardening of supporting infrastructure in order to sustain and maximize mission endurance.
- Started to identify and employ methods and tools for evaluating and determining the reliability of electrical infrastructure on different levels from the facility, lateral and feeder to the main substation and utility supply.
- Began evaluating new technologies for prolonging the life of electrical distribution such as cable rejuvenation and increasing system safety using special fire-rated oil-filled transformers for interior applications.
- Content development for CE DASH, an online reference tool providing references, workspaces and reachback capability for the CE enterprise.

**Energy Conservation**

Dan Gerdes, AFCEC/CN

**Vision**
Provide better tools and methods to more easily identify and capture utility conservation (power, gas, water, steam, etc.) opportunities. Champion conservation efforts that have greater direct and indirect mission benefit than just meeting mandates or goals. Ensure all efforts consider both near-term targets and long-term sustainability resource needs.

**Scope**
Conservation of facility energy in a resource-constrained world is a basic requirement to ensure we can meet our ever-changing mission demands. Capturing our best opportunities through holistic solutions in our facilities and infrastructure is the best foundation of any energy strategy. Every gallon of water, British thermal unit of natural gas or kilowatt-hour of power conserved is one less we need to secure for our energy assurance. Finding cost-effective solutions with quantifiable savings is the basic approach. We must also look at long-term sustainability of our new construction, repairs or even day-to-day maintenance to ensure we’re also looking at the full scope benefits to determine where to invest our next dollar of resources.

**Initiatives and developments**
- Installing advanced meter infrastructure at all covered buildings and mission-critical facilities to better manage energy usage and ensure we provide the mission owner the health status of his energy-use portfolio.
- Oversee the resource efficiency manager effort and target turnaround times for all executable projects that directly save the Air Force funding and optimize energy demand to increase the overall resilience of our installations.
- Develop an installation energy health system through an energy and mission assurance cell. The cell will collect and analyze advanced meter data and other industrial control system data streams to provide the installations over-the-shoulder assistance in predictive maintenance, sustainment management system data population and asset management plan condition validation; and support mission commanders with missions matrixed across multiple bases and provide them with an integrated snapshot of the health of critical infrastructure systems.

**Energy Savings Performance Contracts/Utility Energy Service Contracts**

Michael Giniger, PE, CEM, AFCEC/CX

**Vision**
Energy Conservation

Dan Gerdes, AFCEC/CN

**Vision**
Leverage third-party financing as a budget-neutral funding stream through Energy Savings Performance Contracts (ESPC) and Utility Energy Service Contracts (UESC) focused on Air Force and national energy security. The SME ensures ESPC/UESC maximize mission resilience through energy assurance using energy conservation measures, renewable energy, power generation and deployment of emerging energy technologies.

**Scope**
The Air Force is the DoD’s largest energy consumer and has an obligation to reduce facility energy and water use. ESPC/UESC maximize mission resilience through energy assurance using energy conservation measures, renewable energy, power generation and deployment of emerging energy technologies.

**Initiatives and developments**
- Improve and update ESPC and UESC playbooks located on the CE portal that have superseded engineering technical letters.
- Maintain contact with installations to provide guidance and explain the use of ESPC/UESC contracts; make recommendations at critical contract points for go/no-go direction; determine whether energy resilience levels are adequate to commit the Air Force to long-term financial commitments.
- Stay abreast of cybersecurity issues and technical positions that impact energy conservation measures within ESPC/UESC contracts.
- Improve synergy among AFCEC Energy Directorate’s development division, Office of Energy Assurance and functional experts; minimizing overlap.
- Coordinate with Air Force research and development groups to place the latest technology developments into ESPC/UESC contracts.
- Continue to cooperate with Federal Energy Management Program and energy service contractors to refine ESPC/UESC templates and standards.

**Initiatives and developments**
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- Maintain contact with installations to provide guidance and explain the use of ESPC/UESC contracts; make recommendations at critical contract points for go/no-go direction; determine whether energy resilience levels are adequate to commit the Air Force to long-term financial commitments.
- Stay abreast of cybersecurity issues and technical positions that impact energy conservation measures within ESPC/UESC contracts.
- Improve synergy among AFCEC Energy Directorate’s development division, Office of Energy Assurance and functional experts; minimizing overlap.
- Coordinate with Air Force research and development groups to place the latest technology developments into ESPC/UESC contracts.
- Continue to cooperate with Federal Energy Management Program and energy service contractors to refine ESPC/UESC templates and standards.
Energy Surety, Security and Resiliency
Tarone Watley, PE, MBA, Security +, AFCEC/CO

Vision
Advocate for and establish enterprise-wide resiliency criteria and performance standards that assure Air Force missions through viable, reliable and affordable energy systems and technologies. These systems and technologies increase resiliency on Air Force installations independent of local, regional or national resources.

Scope
The SME concentrates on effectively planning, standardizing, adopting and sustaining next-generation 21st century energy resources that are affordable and reliable, and maximize the use of clean technologies. The Energy Surety SME is a member of the DoD Renewable Energy Generation Discipline Working Group, which hosts several Unified Facilities Criteria on utility and facility-scale renewable energy generation system and energy resiliency planning. The SME develops resiliency criteria and performance requirements for existing or new and Air Force-owned or privatized energy systems and infrastructure, including but not limited to on-base electrical distribution systems, microgrids and distributed energy resources. The SME interfaces with industry leaders to evaluate technologies that produce and advance state-of-the-art government facilities and infrastructure.

Initiatives and developments
- Develop utility system resiliency and performance metrics that can empirically demonstrate improvements in the system’s availability, reliability, sustainability and total cost of ownership.
- Develop and codify practical planning activities, including use of various technical tools, such as the Massachusetts Institute of Technology Lincoln Lab Resiliency Tool, and financial tools, including the Environmental Security Technology Certification Program, Energy Resiliency and Conservation Investment Program and Energy Savings Performance Contracts, for executing resiliency projects on Air Force installations.
- Establish a Utility System Outage Report Tracker tool that standardizes and trends outage data across the enterprise for operationally monitoring and evaluating the health and longevity of Air Force utility systems; serve as key data input for the DoD Annual Energy Management and Resiliency Report and, as needed, supplement Operational Reporting-3 reporting for commander-critical information reports.
- Evaluate new technologies and approaches such as adoption of smart microgrids, energy storage system applications and clean or renewable energy resources for improving resiliency on Air Force installations.

Environmental Impact Analysis
Michael Ackerman, AFCEC/CZ

Vision
Ensure timely support of Air Force mission requirements and better, more informed, decision-making through focused and disciplined execution of the environmental impact analysis process (EIAP).

Scope
The SME, through the environmental impact assessment (EIA) program, provides enterprise-wide guidance, tools and execution support to ensure adequate consideration of environmental impacts during the federal decision-making process. The SME is the Air Force’s authority on EIA for Air Force actions in the U.S. and abroad. The SME serves as the senior consultant on issues related to the execution of EIAP. The SME conducts policy reviews, prepares technical articles and presentations, develops training and provides guidance to Air Force personnel and organizations for critical projects.

Initiatives and developments
Working in a number of areas to improve the execution of environmental planning across the Air Force. Initiatives include:
- The Air Force EIA manual to ensure consistent execution guidance for EIAP across the Air Force.
- Templated product lines for effective National Environmental Policy Act (NEPA) execution.
- Development of programmatic approaches for efficient and cost-effective planning.
- Early stakeholder engagement approaches to identify key issues early in the planning process.
- Development of Air Force NEPA training and staff development tools.
- Leading integration with basing, airspace, facilities and mission planners to ensure NEPA compliance and better decision-making.

Expeditionary Engineering
Gregory A. Cummings, AFCEC/CX

Vision
Directly supports the civil engineer enterprise vision of “agile, innovative Airmen engineers enhancing air, space and cyber-space operations across the globe” by providing the best tools and practices to organize, train and equip innovative Airmen engineers, allowing them to accomplish missions in support of our warfighters.

Scope
Executes and implements policy on the use and management of assigned civil engineer forces supporting the total force posture (Air National Guard, Air Force Reserve and active duty). Participates in broad and extensive studies in the management, administration and technical and professional direction of all functions, which includes worldwide readiness training; readiness program policy implementation and guidance; military mobile force structure, contingency and wartime operations planning; civil engineer wartime acquirement; civilian and contractor-owned systems and infrastructure, contingency deployment support and readiness-related asset management principles. Applies Air Force and joint military combat support experience to plan, organize and determine the necessary policies, regulations, directives, programs, doctrines and procedures for the establishment and maintenance of assigned major Air Force programs, e.g., Prime Base Engineer Emergency Force (BEEF).

Expeditionary Engineering develops DoD and industry EOD and unexploded explosive ordnance (UXO) standards.

Initiatives and developments
- Core member of Agile Combat Support Base Resiliency Collaboration Team, nearing production of a $45 million UXO defeat laser acquisition program and guiding development of a remote mass mechanical clearance capability to rapidly remove UXO from airfield operating surfaces.
- As adviser to DoD Explosive Safety Board, assisted in the revision of DoD Manual 6055.09, DoD Ammunition and Explosives Safety Standards. As a member of DoD Interagency Unexploded Ordnance Working Group, the SME’s actions led to release of the new Air Force Manual 91-201, Air Force Explosive Safety Standards.
- Championed Eastern National Robot Rodeo and Capabilities Exercise, partnering with the Combating Terrorism Technology Office and the United Kingdom’s Defence Science and Technology Laboratory. Military EOD teams and civilian bomb squads used emerging robot systems provided by industry.
- Directed operational tests of a new remote weapon system to engage high-risk munitions on Air Force test ranges.

Explosive Ordnance Disposal
John Olive, Ph.D., AFCEC/CX

Vision
Enable global combat support and explosive ordnance disposal (EOD) response across the full spectrum of military operations to neutralize and dispose of all explosive hazards, foster innovative technology and employing highly trained warriors supporting combatant commanders in the projection of global air, space and cyber power. Promote and advocate for future organizational, training, equipment and modernization initiatives for the EOD program.

Scope
The SME advises senior leaders on the development, sustainment and strategic direction of the EOD program, while providing mentorship to Airmen across the enterprise. Provides executive management, planning, engineering and technical expertise in all areas of EOD readiness, support to civil authorities, homeland defense and combat operations, force protection, range activities, and research, development, test and evaluation efforts. The SME is responsible for oversight and development of EOD tactics, techniques and procedures, and is the final authority for technical issue resolution. The SME represents the Air Force as an adviser to the U.S. Homestead Explosive Working Group, DoD Operational Environmental Executive Steering Committee on Munitions, DoD Explosive Safety Board and other joint and national level committees.
Vision
Develop the culture needed for Air Force civil engineers to deliver cybersecurity control systems for secure infrastructure that supports the Air Force mission. Changing our culture to achieve this vision is possible with guidance, technical support and advocacy for resources in support of adopting cybersecurity in the Air Force civil engineer community.

Scope
The SME provides technical support to the civil engineer facilities community for securing control systems that automate facilities infrastructure. The SME provides guidance to Air Force leadership to implement cybersecurity for facility-related control systems; supports the DoD Unified Facility Criteria (UFC) Discipline Working Group that governs construction, operation and maintenance of secure control systems; provides technical support to incorporate facility-related cybersecurity requirements into the products of AFCEC directorates; and informs AFCEC and Air Force civil engineer squadrons of industry best practices and the state of current industry efforts to secure control systems. The SME also supports initiatives and efforts to secure funding and policy guidance for an enterprise strategy that brings cybersecurity and its culture into The Air Force civil engineer control system community of interest.

Initiatives and developments
- Implementing secure design concepts in the design reviews of facility control systems delivered to the Air Force. These systems are part of real property acquisition projects that include military construction, Energy Savings Performance Contracts and technology demonstrations.
- Improving the language of contract specifications to deliver documentation needed for civil engineer squads to document the cybersecurity features of control systems in support of the Air Force Risk Management Program. This documentation includes architecture diagrams, hardware and software lists, data flow diagrams and system security and recovery plans.
- Supporting the efforts of Air Force leadership to resource the efforts to identify, prioritize and secure civil engineering control systems located at Air Force installations worldwide that support critical mission infrastructure.

Facility Design and Construction Standards
David M. Duncan, RA, LEED AP, AFCEC/CF

Vision
To facilitate and advance the Air Force standard design program, increase design and construction criteria knowledge, establish better means of identifying, assessing and evaluating criteria, and properly apply criteria to Air Force design and construction.

Scope
The program encompasses technical criteria development, implementation and problem resolution for programming, design and construction of Air Force facilities. The SME serves as the Air Force’s technical advisor for matters relating to construction criteria. These criteria include government and agency policies, laws and regulations; Unified Facility Criteria (UFC) and international codes. The SME represents the Air Force on numerous committees and working groups, including various tri-service UFC Discipline Working Groups. The SME is responsible for technical matters concerning overall building construction, and works in close coordination with other Air Force SMEs. The standard design program consists of providing optimized, consistent and functional facility requirements, standards, designs, increase planning and programming accuracy, manage customer expectations and reduce customer changes during construction.

Initiatives and developments
- Currently maintaining a library of Air Force standard designs as part of the Whole Building Design Guide, Transitioning the Standard Design Library from the Whole Building Design Guide to CE DASH.
- Working to reform and update existing standard designs into a common, straightforward format.
- Categorizing standard designs into three types: static, modular and harvested.
- Using the Future Years Defense Program, determining candidate facilities for standardization.
- Harvesting standard designs from recently completed Air Force construction projects as needed for replication at other installations.
- Establishing a post-construction feedback system to determine effectiveness of standard designs.
- Serves as Air Force member of Aviation and Unified Facilities Guide Specifications Discipline Working Groups.

Fire Protection Engineering
Vacant

Vision
Air Force will lead the nation in criteria for fire alarm systems, hangar fire suppression systems and firefighter training facilities.

Scope
The SME recommends policy, provides guidance and coordinates the exchange of information on all matters related to fire protection engineering management across the Air Force. The SME ensures effective programs to support mission continuity and provides operational and maintenance guidance. The SME represents the Air Force on the Department of Defense Fire Protection Engineering Working Group to develop consolidated technical criteria and on the Technical Support Working Group subgroup for fire protection features. The SME works closely with contract support activities to ensure that contract templates adequately address installation needs and with career field managers to support expediency and force protection initiatives. The SME is a principal member of the national consensus code- and standard-writing committees that develop National Fire Protection Association standards. The SME directs the DoD fire and training certification program and the Air Force fire vehicle modernization program, and coordinates with the career field managers on recruiting, training, educating and retaining personnel.

Initiatives and developments
- Working with Navy Research Labs to test infrared detectors for compatibility with hangar fire protection systems in order to reduce false activations: Detectors must be able to detect a flame; detectors must not send signals to activate when exposed to the typical radar frequencies associated with the full range of radar used by Air Force; when testing is complete, the detectors passing the test criteria will be listed as an approved source of supply on the qualified products list (QPL); we anticipate testing to be complete and QPL posted by March 2018.
- Working with U.S. Army Corps of Engineers to replace all eight carbon chain (C-8) fire suppression concentrate with six carbon chain (C-6) concentrate. The $40 million+ enterprise-wide project to replace the C-8 concentrate is expected to be completed by September 2019.
- Content development for CE DASH, an online reference tool providing references, workspaces and reachback capability for the CE enterprise.
Fuels Infrastructure, Vertical Transportation Equipment, Natural Gas, Plumbing

Stephen M. Day, PE, AFCEC/CO

Vision
Support the construction, repair and maintenance of fuel, vertical transportation equipment, natural gas and plumbing infrastructure by providing clear U.S. and NATO criteria, standard designs, Air Force instructions and technical support.

Scope
The SME provides guidance throughout the Air Force on fuel, vertical transportation equipment, natural gas and plumbing infrastructure. The SME provides technical consultation, provides structural engineering and structural design expertise, offers technical support and technical assistance on industry, DoD and other federal panels, chairs the Air Force Petroleum Office and Defense Logistics Agency in support of the Air Force fuels maintenance community. Specifically, the SME supports the force development manager on personnel training, development concerns that range from formal training to how to improve on-the-job training for Airmen in the career field. The SME is involved with the development of new technology supporting the water and fuels systems maintenance shop, including a new Water and Fuels Expedition Repair System (WaFERS) to replace rapid utility repair kits and the development of a new facility assessment tool for planning studies and internal assessments.

Initiatives and developments
- The Fuels Facility Engineering Panel (FFEP) approved the use of FlexSteel in Department of Defense fuel systems. The guidance is being updated and should be completed by summer 2018.
- WaFERS was tested and commissioned in summer 2017. It passed the tests and will be a very useful capability if needed.
- The update to Unified Facilities Criteria 3-460-03 Petroleum Fuel Systems Maintenance, in development by the FFEP for five years, has been published.
- Content development for CE DASH, an online reference tool providing references, workspaces and reachback capability for the CE enterprise.

Geotechnical and Structural Engineering

Robert Dinan, PhD, PE, AFCEC/CO

Vision
Represent the Air Force in all aspects of structural and geotechnical engineering to promote and sustain design excellence of all facilities.

Scope
The SME provides guidance throughout the Air Force on facility geotechnical and structural design. The SME provides design criteria for Air Force facilities, offers geotechnical and structural engineering technical consultation, provides structural engineering experience and represents the Air Force on tri-service Geotechnical and Structural Discipline Working Groups to develop consolidated Department of Defense engineering standards and criteria. The geotechnical and structural engineering programs are wide-ranging, covering conventional facility design, seismic engineering and structural hardening. The SME serves as the Air Force seismic safety coordinator and assists with bridge and dam inspection programs. The SME is a member of the American Concrete Institute and the Interagency Committee on Seismic Safety in Construction.

Initiatives and developments
- Combined United Facilities Criteria (UFC) 3-301-01, Structural Engineering, and UFC 3-310-04, Seismic Design for Buildings, into a single UFC, with Risk Category V facilities covered in a separate UFC document.
- Updated wind design speeds and tsunami inundation mapping for overseas installations consistent with design methodology in ASCE 7-16.
- Revised UFC 4-023-03, Design of Buildings to Resist Progressive Collapse, to coordinate with the release of ASCE Standard and Guide for Disproportionate Collapse.
- Content development for CE DASH, an online reference tool providing references, workspaces and reachback capability for the CE enterprise.

Hydrogeology

John L. Gillespie, AFCEC/CO

Vision
Ensure installations have an effective, efficient and reliable resource to provide critical geological and hydrological consultation for an installation’s natural infrastructure and provide products to solve current and emerging challenges to support defendable decision-making.

Scope
The program integrates installations’ geological and hydrological natural resources for sustainable mission support. The SME serves as technical authority for investigation, which includes providing expertise, processes, technical information and technical capability to assist the remedial project manager with making informed decisions to achieve remediation goals. The SME is responsible for overall program guidance, policies, promotion and implementation, and supports Air Force and DoD leaders and stakeholders on geological and hydrology matters. The SME also manages the conceptual site model (CSM) program and provides leadership for site characterization and development of the initial site characterization strategy. The SME provides guidance on field activities for traditional and emerging contaminants, provides services for fate and transport, and sustainable water supply. The SME mentors, trains and guides Air Force project managers and operational environmental professionals.

Initiatives and developments
- The CSM program is developing natural infrastructure blueprints for Air Force installations and joint bases. This program has about one-third of installations covered and completes four additional per year. CSM blueprints have proved invaluable in addressing emerging contaminants in groundwater, such as 1,4-dioxane and perfluorooctane sulfonic acid/perfluorooctanoic acid, and in litigation.
- Use environmental and geo statistics and quantum geo-spatial information systems to reduce costs in long-term monitoring programs and accelerate cost savings and program goals.
- Use the Complex Site Optimization Initiative to address sites that have a high cost-to-complete level or an over-30-year-to-cleanup timeframe to achieve response complete. Many of these sites would qualify for a technical impact/certainty waiver with proper foundational work. The goal of this initiative is to establish high resolution techniques to increase certainty for a waiver.
- Sustainable water supplies for installations to include quality and quantity of water, and supporting water rights litigation through the Air Force portfolio.

Hazardous Materials, Hazardous Waste and Pollution Prevention

Kevin G. Gabos, CIH, AFCEC/CZ

Vision
Air Force Hazardous Material Management, Hazardous Waste and Pollution Prevention programs mitigate warfighter environmental and health risks through the identification, authorization, tracking, minimization and final disposition related to the use of chemical substances supporting Air Force mission activities.

Scope
The Hazardous Material (HM), Hazardous Waste and Pollution Prevention programs provide the capability to identify, authorize and track the life cycle of hazardous chemicals to meet regulatory reporting and environmental risk reduction. The HM program identifies, authorizes and tracks hazardous chemicals to meet Clean Air Act, Resource Conservation and Recovery Act (RCRA) and executive order requirements for the Emergency Planning and Community Right-to-Know Act and pollution prevention. The SME guides the HM program, promotes efficient management, develops implementing criteria and guidance, offers technical consultation, and tracks compliance and trends necessary to increase efficiencies and enhance mission capability. The SME represents the Air Force on industry, DoD and other federal panels, chairs the Air Force Hazardous Material and Hazardous Waste Panel and advocates for research and development projects and regulatory and industry partnerships.

Initiatives and developments
- Provide field-level support optimizing installation programs to ensure data quality for reporting purposes.
- Sustain data requirements for support sustainability.
- Environmental Safety and Occupational Health (ESOOH) Management Information System (MIS) Hazardous Materials and Waste modules to meet regulatory compliance and manage environmental aspects and impacts.
- Develop technical, legal and policy analyses of RCRA compliance requirements while sustaining the Air Force mission.
- Promote cost-effective compliance to legislative and rule-making actions through the DoD RCRA Services Steering Committee.
- Develop a hazardous materials management strategy to support compliance on newly promulgated rules, working in collaboration with DoD staff and contractors.
- Improve identification and assessment of the most significant chemical substance impacts through trend analyses and tie-in to Environmental Management Systems across the Air Force.
- Leverage ESOOH-MIS data to assess mission impact of new regulations under the Toxic Substance Control Act.

Initiatives and developments
**Installation Planning**  
Amy Vandeveer, AICP, AFCEC/CP

**Vision**  
To provide an agile and adaptable framework for Air Force installation planning by adopting contemporary planning principles in sustainable development, form-based planning and resource conservation to achieve the Air Force’s vision for sustainable, right-sized installations. To leverage the planning process as a decision support tool to ensure mission sustainment today and in the future.

**Scope**  
The Installation Planning program comprises Air Force policy, guidance and technical assistance for installation development. The program provides tools, expertise, technical information, techniques and procedures to achieve sustainable installations to perform assigned missions with the right balance of new development, essential services, environmental protection and innovative change. The planning SME provides technical services to DoD, Air Staff, major command and installation-level planners to ensure installation planning program. The SME represents the Air Force before DoD services, public agencies, industry and installation planning stakeholders. The SME coordinates with the career field manager for mentoring, training, education, recruitment, retention and professional certification opportunities for Air Force community planners. The SME supports Air Force civil engineer transformation initiatives for comprehensive planning, activity management and the integration of strategic and installation planning.

**Initiatives and developments**  
- Implementation of enterprise planning and the translation of Air Force strategic guidance into actionable direction at the operational installation level.
- Digitize and synchronize installation-level planning in a web-based planning tool to utilize data for real-time decision-making.
- Utilize the principles of form-based code to develop an agile and responsive planning framework to ensure sustainable planning principles are incorporated into known and future planning actions.
- Integrate activity management into the process of identifying requirements and honing investment strategies for future installation development. Identify requirements early in the process to ensure a proper timeframe for planning.
- Leverage the data and information inherent in the installation planning process to support planning across installations in processes such as strategic basing and new weapon system beddown.
- Increase opportunities for professional development and certification for facility planners.

**Life-Cycle Cost Engineering**  
Scott Ward, PE, CCE, AFCEC/CO

**Vision**  
Facilitate cost-engineering skill, knowledge, creativity and commitment to promote and leverage current technologies for facility design and sustainment excellence.

**Scope**  
The SME delivers guidance on detailed cost estimating, economic analysis, life-cycle costing, plant replacement value, area cost factors, requirement and management plans, and cost modeling. The program is wide-ranging, covering aspects from military construction project programming and design and construction cost estimating to facility sustainment, restoration and modernization forecasting. The SME researches requirements and develops tools for infrastructure and facility system initiatives in development of non-Air Force (e.g., DoD, commercial) criteria with potential impacts to cost-engineering programs; and reviews existing programs for adequate Air Force direction. Additional responsibilities include mission support and reviews of new regulatory requirements as well as the latest technological developments. The SME represents the Air Force on and is the Chairman of the Tri-Service Automated Cost-Engineering System (TRACES), developing area cost factors and unit cost guidance.

**Initiatives and developments**  
- The SME is launching the recently Civil Engineer Board-approved Cost Estimating Improvement Program, (CEIP), which has new requirements for training and certification in the use of cost estimating tools.
- Development of the TRACES Portal and new cost engineering tools such as “TRACES Parametric.”
- Major updates and revisions to Unified Facilities Criteria: 3-701-01 and 3-710-01.
- Content development for CE DASH, an online reference tool providing references, workspaces and reachback capability for the CE enterprise.
- Developing refreshers cost-estimating classes in conjunction with the Air Force Institute of Technology

**Life Health Safety Engineering**  
Raymond N. Hansen, PE, AFCEC/CO

**Vision**  
The Air Force will lead the nation in criteria in life, health and safety for facilities and personnel.

**Scope**  
The SME serves as the lead consultant for engineering issues and associated guidance, policy, provides guidance and coordinates the exchange of information on all matters related to life, health and safety engineering management throughout the Air Force. The SME ensures effective programs to support mission continuity and provides operational and maintenance guidance in the areas of fire protection and facilities, implementation of public laws, child and youth facilities certification and accreditation, and specialized protection and facility systems, including nuclear weapons storage areas, water mist fire suppression systems, electronic fire protection, simulators and training systems, fire protection for special electrical systems and storage batteries, personnel housing, construction safety, facility zone planners to ensure success of the installation development.

**Initiatives and developments**  
- Major updates and revisions to Unified Facilities Criteria 3-600-01, 3-601-02, 4-021-01 and 4-740-14.
- Replacement of replacement guidance for fire detection and alarm system (FAS) for electronic fire protection with new Air Force manual (AFMAN).
- Replacement of ETL for halon fire suppression systems with new AFMAN.
- Development of new AFMAN for facilities controlling remotely piloted aircraft.
- Replacement for ETL for nuclear weapons-capable maintenance and storage facilities with new FC 4-420-07F.
- Development of low-cost modification to convert hangar to high-expansion foam systems that will prevent cockpit damage in case of inadvertent activation.
- Content development for CE DASH, an online reference tool providing references, workspaces and reachback capability for the CE enterprise.

**Mechanical Engineering/HVAC**  
Thomas A. Adams, PE, CCE, AFCEC/CO

**Vision**  
Provide design guidance and standardize Air Force mechanical HVAC systems. Provide tools and expertise to the CE and ensure life-cycle, cost-effective facility mechanical systems are installed in all new facilities and during major renovations.

**Scope**  
The SME is the Air Force point of contact for all technical issues related to facility mechanical systems including air conditioning, heating, pumping, compressed air, and ventilation systems and equipment. The SME crafts and interprets primary design guidance documents such as the Unified Facilities Criteria and provides draft language for Air Force instructions and other service publications. The SME also performs engineering analyses of system performance and uses results to adopt applicable design provisions from industry guidance documents such as those published by the American Society of Heating, Refrigeration and Air Conditioning Engineers and the American National Standards Institute. In addition, the SME builds software analysis tools to assist mechanical engineers in the field and notifies higher headquarters of potential mission impacts due to new or revised regulatory burdens and finds alternatives to mitigate negative effects. Furthermore, the SME provides technical guidance to the field via AFCEC’s Reachback Center, or through articles in AFCEC publications and performs life-cycle cost analyses on new system configurations and products. Finally, the SME responds to audits of Air Force mechanical systems and recommends modifications to applicable guidance documents.

**Initiatives and developments**  
- Conducted ASHRAE 90.1 life cycle cost effectiveness study.
- Published an optimum insulation tool for facility envelope design based on the ASHRAE 90.1 life cycle cost-effectiveness study.
- Funded a variable refrigerant flow cost study to examine capital and maintenance costs of existing DoD systems and produce a peer-reviewed article.
- Published combustion efficiency calculator to assist boiler tuning.
- Established baseline energy consumption at 76 Air Force installations to validate HVAC temperature set-point and setback scheduling savings.
- Content development for CE DASH, an online reference tool providing references, workspaces and reachback capability for the CE enterprise.
**Natural Resources Management**

**Kevin Porteck, Natural Resources Specialist, AFCEC/CZ**

**Vision**

Air Force installations lands support a resilient natural infrastructure that sustains operational capability with no net loss in the capacity of Air Force installations to support the military mission now and in the future.

**Scope**

The natural resources program develops integrated Natural Resources Management Plans (NRMP) in consultation with other federal and state regulatory agencies. Plan implementation focuses on sustaining an installation landscape well suited for military testing and training activities while ensuring compliance with all environmental protection laws. The SME supports planning, programming, budgeting and execution of natural resources requirements, to include wildlife management, forestry, wetland conservation, agricultural leasing, wildland fire management and projects to resolve issues related to threatened and endangered species conservation and the protection of other sensitive natural resources. The SME represents the Air Force on a variety of DoD and federal agency working groups and chairs the Air Force Natural Resources Panel.

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**Initiatives and developments**

- AFCCEC oversees revenue-generating conservation programs, which include agriculture leases, timber sales and permits for hunting and fishing. Proceeds are distributed back to installations to support implementation of NRMP.
- AFCCEC collaborated with Florida agencies to develop a strategic plan for the conservation of species protected by the Endangered Species Act (ESA). This joint effort focuses attention on species conservation outside installation boundaries so that installations do not carry the majority of the conservation responsibility. The plan identifies where public and private resources can be targeted toward species protection on nonmilitary lands.
- Several bat species are protected by the ESA, and federal agencies must confirm that protected bats are not affected by construction and demolition activities. To address this requirement, acoustic bat monitors were placed at several installations. Since each bat species emits sounds at unique frequencies, the monitoring devices are able to detect when protected bat species are present.

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**Operations Maintenance**

**Bryan Muller, AFCEC/CO**

**Vision**

Enable operations flight maintenance management effectiveness through standardized work requests, work execution, material support and contract service delivery throughout the enterprise. Develop standard process management metrics leading to an enterprise operations management dashboard. Improve in-house operations work scheduling to effectively leading to an enterprise operations management dashboard.

**Scope**

The natural resources program develops integrated Natural Resources Management Plans (NRMP) in consultation with other federal and state regulatory agencies. Plan implementation focuses on sustaining an installation landscape well suited for military testing and training activities while ensuring compliance with all environmental protection laws. The SME supports planning, programming, budgeting and execution of natural resources requirements, to include wildlife management, forestry, wetland conservation, agricultural leasing, wildland fire management and projects to resolve issues related to threatened and endangered species conservation and the protection of other sensitive natural resources. The SME represents the Air Force on a variety of DoD and federal agency working groups and chairs the Air Force Natural Resources Panel.

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**Pavements**

**Craig Rutland, Ph.D., PE, AFCEC/CO**

**Vision**

Facilitate and advance pavement siting, design, construction, evaluation, repair and management knowledge, tools and capability to cost-effectively sustain Air Force mission requirements.

**Scope**

Delivers guidance on design, construction, evaluation, operation, maintenance, repair and management of pavements. Provides design and management aids; consultation on and research of pavement performance issues; training on airfield pavement design; and project quality control and assurance. Optimizes research among numerous labs to develop materials, equipment and methods. Guides the research, development, testing and evaluation of airfield damage repair solutions; promotes training opportunities; and develops standards, criteria and specifications. Works closely with the other services, Federal Aviation Administration, Federal Highway Administration (FHWA), industry representatives and NATO to develop common standards. Chair the Tri-Serv Pavements Design Working Group and NATO Airfield Pavement Team and is a member of the Transportation Research Board. Assists the Transportation Network Activity Management Plan and sub-AMP champions with integrated priority list requirements.

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**Initiatives and developments**

- FHWA Manual of Uniform Traffic Control Devices requires implementation assessment, and management systems ensure vehicle traffic signs comply with, and are maintained at new, retro-reflectivity standards.
- State departments of transportation are using more warmmix asphalt in construction and more recycled materials in pavements.
- Some European countries are designing pavement sub-base and base courses for 75-year lifespans with surfaces designed for 50-year lifespans. Asphalt surfaces are milled and overlaid every 15 to 20 years.
- States and municipalities are increasing the use of asset-activity management techniques to manage the transportation network, mandated by Moving Ahead for Progress in the 21st Century legislation.
- Pavement preservation techniques and practices are becoming prevalent.
- Surface treatments under NV-22 Osprey nacelles are required to mitigate damage from heat and petroleum, oil and lubricants.
- Content development for CE DASH, an online reference tool providing references, workspaces and reachback capability for the CE enterprise.
**Pest Management**

Donald A. Tieg, AFCEC/CO

**Vision**
Provides superior pest and disease vector management for the Air Force to meet global mission requirements. Ensures forward deployed pest management personnel are trained and equipped to manage insects, weeds and wildlife that pose a safety or disease/nonbattle injury risk to Airmen.

**Scope**
The SME recommends policy, provides guidance and coordinates the exchange of information on all matters related to pest and grounds management throughout the Air Force. The SME ensures environmentally sound and effective programs are present to prevent pests and disease vectors from adversely affecting operations and that grounds maintenance contract templates and pest management operations meet Air Force standards. The SME also interacts with the bird/wildlife aircraft strike hazard office on questions related to vegetation, insect and vertebrate pest management on airfields. The SME represents the Air Force on the Armed Forces Pest Management Board.

**Initiatives and developments**
- Developed long-range aircraft dissection policies and training for the DoD Foreign Clearance Guide to prevent introduction of disease vectors and invasive species.
- Revised Air Force policies and procedures to identify and manage emerging disease threats such as Zika virus.
- Establishing a new integrated Pest Management Dashboard on CE DASH to track pesticide certification and installation pest management plans as well as providing a central platform for policy guidance.
- Obtained National Stock Numbers for new pest management utility vehicles and spray equipment for installation and contingency pest management operations.
- Partnered with U.S. Department of Agriculture and university experts to develop chemicals, pheromones and biological control methods to manage invasive species such as Brazilian pepper trees and paper wasps.
- Updated pest management career field training and certification to address sound integrated pest management practices for bedbugs and other common installation pests.

**Project Management**
Carlton H. Hendrix, PE, PMP, AFCEC/CF

**Vision**
Optimize project management through continuous evaluation and improvement of practices and adequate training of Air Force project managers.

**Scope**
The SME advances Air Force project management through development of improved policies and procedures to optimize and standardize project management practices across the enterprise. The SME works to continually improve Air Force project management by incorporating emerging and industry-standard practices. The SME is responsible for standardizing work practices; establishing performance metrics; evaluating and implementing, as appropriate, DoD and industry best practices; developing and executing a project management training program; and maintaining the AFCEC Project Management Guide for Infrastructure and Facilities. The SME develops, maintains and serves as manager of an Air Force project management certification program and partners with the Air Force civil engineer career program to provide advice on the recruitment and development of project managers.

**Initiatives and developments**
- Capturing and organizing an Air Force project management corporate knowledge base and making it accessible through CE DASH.
- Providing objective and standardized tools to improve performance across all phases of the project management life cycle.
- Developing a robust Air Force project management training program.
- Partnering with the Air Force Institute of Technology and other research entities to advance the practice of project management across the enterprise.

**Real Property and Asset Management**
H. LaKenya Sartin, AFCEC/CI

**Vision**
Maintain real property mission support to acquire, maintain and dispose of Air Force real property and interest while enhancing real property guidance, training and policies to improve the accountability and sustainment of real property assets across the enterprise. The Air Force Civil Engineer Center’s Installations Directorate provides front-door access for all real property-related matters by providing direct installation support for both real property transactions and accountability.

**Initiatives and developments**
- Create an organizationwide training program to minimize data loss during NexGen IT rollout.
- Continual review of standardized Air Force real estate templates (RET), delegations of authority and RET Playbook.
- Freeze Air Force footprint: Minimize acquiring General Services Administration leases; dispose of Air Force real property and real property interests that are no longer required to support current or projected missions.
- DoD financial audit: providing analysis, recommendations and information concerning Air Force real property audit activities; provides audit assertion liaison touchpoints; ensures installations continue monthly corrective action plans to meet audit compliance; and reports and provides audit assurance guidance and training.
- Creating an enterprise-wide training program to minimize data loss during NexGen IT rollout.
- Continual review of standardized Air Force real estate templates (RET), delegations of authority and RET Playbook.
- Increasing real estate training opportunities by creating Air Force Institute of Technology-based basic real property training; updating and improving AFIT 424 Real Property Management and Advanced Realty courses; and providing virtual Real Property training sessions.

**Ranges**
Jon Haliscak, AFCEC/CZ

**Vision**
Facilitate and advance sustainability of all Air Force ranges, supporting warfighter testing and training requirements through supporting land withdrawal renewals for ranges and making former ranges safe for future use.

**Scope**
The program has two main focus areas: Operational range sustainment and the Military Munitions Response program. Both of these areas are multifaceted. Responsibilities include providing tools, resources, expertise, processes, technical information and techniques to achieve the diverse goals of both programs. The SME is responsible for reviewing and commenting on policies and guidance from offices of the secretary of defense (OSD) and secretary of the Air Force, and for providing technical support to air staff, major commands and installations as required. The SME represents the Air Force on OSD working groups. The SME oversees much of the operational range sustainment initiative, including the annual data call from OSD and Operational Range Assessment program and provides input to the Air Force Restoration Program Management Office concerning the munitions response program.

**Initiatives and developments**

**Ranges**
H. Lakenya Sartin, AFCEC/CI

**Vision**
Sustain real property mission support to acquire, maintain and dispose of Air Force real property and interest while enhancing real property guidance, training and policies to improve the accountability and sustainment of real property assets across the enterprise. The Air Force Civil Engineer Center’s Installations Directorate provides front-door access for all real property-related matters by providing direct installation support for both real property transactions and accountability.

**Initiatives and developments**
- Freeze Air Force footprint: Minimize acquiring General Services Administration leases; dispose of Air Force real property and real property interests that are no longer required to support current or projected missions.
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**Real Property Transactions**
R. Wes Jones, AFCEC/CI

**Vision**

**Initiatives and developments**
Remedial Systems  

Kent C. Glover, Ph.D., AFCEC/CZ

Vision
Minimize the financial liabilities and environmental footprint of the Air Force environmental restoration program through competent technical leadership and guidance.

Scope
The SME serves as the Air Force lead technical authority on remedial systems issues. The SME’s expertise, knowledge and technical advice are focused on remedy selection, implementation, performance evaluation and optimization within the environmental restoration program (ERP). In addition to providing consultant and technology-transfer services to the ERP, the SME develops or recommends criteria, standards and directives to Air Staff, major commands, installations and contractors. The SME also identifies the technology demonstration, validation and development needs of the Air Force civil engineering community as they relate to environmental remedial systems. The SME represents the Air Force with regard to remedial systems issues on committees and technical forums with all DoD services, other federal and state agencies, and industry.

Initiatives and developments
- Critical Process Analysis (CPA) provides detailed analysis of remedy performance at sites with high costs, risks and complexity.

Renewable Energy and Energy Resilience  

Mike Rits, PE, CEM, AFCEC/CN

Vision
Enable the Air Force to meet its critical mission requirements with cost-effective and resilient energy systems.

Scope
As the Air Force moves to strengthen its facility energy assurance posture, renewable energy investment opportunities can be a force multiplier in structuring the means to provide additional resilience to the critical mission utility infrastructure. Installation energy master plans should identify single-point vulnerabilities as well as opportunities to enhance energy resilience in support of the mission. Microgrids, alternative redundant energy production and storage often can be enhanced with renewables, especially ones that reliably produce power when needed. In coordination with the Office of Energy Assurance, the Energy Surety and Electrical SMEs, the Air Force is developing a comprehensive approach to bolstering energy assurance to meet mission needs across the enterprise.

Initiatives and developments
- Encouraging bases to conduct emergency management utility outage exercises to test systems and processes that support the mission and development learned.
- Developing a template for community partnerships that enhances base and community resilience to a long-term electric grid outage.
- Assisting bases to assess energy resilience requirements or gaps to support critical missions.
- Supporting initiatives of the Office of Energy Assurance.

Sustainable Design and Development  

Paula S. Shaw, PE, LEED AP, AFCEC/CF

Vision
Lower the total ownership cost of Air Force facilities by designing and constructing buildings to reduce the resources they consume, reduce the waste they generate and maximize what traditionally has been expected. Evaluate new technologies for timely corrective actions, enhance performance and provide for cost savings through extended service or energy savings.

Scope
The SME is the Air Force lead in defining programs and projects to advance state-of-the-art sustainable technologies and methodologies. The SME provides professional consulting services on siting, designing, constructing, maintaining, operating, reusing in situ and demolishing facilities in a sustainable manner. These services include coordination with engineers and architects during all phases of the project delivery process to ensure compliance with federal, DoD and Air Force sustainability mandates, policies and goals. Reviewing and commenting on new regulatory requirements allows the SME to have an active role in refreshing, shaping and implementing policy, initiatives and guidance. Additionally, the SME provides gap analyses to guide investment and participation in demonstration, validation and technology transfer of emerging sustainability solutions to ensure current and future mission needs are met.

Initiatives and developments
- Development of DoD versions of U.S. Green Building Council (USGBC) and Green Building Initiative (GBI), UFC-based third-party guiding principles (GP) certification systems for new buildings and renovations of existing buildings.
- Discontinued use of Leadership in Energy and Environmental Design as the third-party certification system for Air Force new buildings and renovations of existing buildings; Air Force projects will now use the DoD version of either the USGBC GP Assessment or the GBI GP Certification System.
- Revamping of the Air Force Institute of Technology Technology Certification Program’s demonstration and validation of energy and water technologies on DoD installations.
**Vision**

Developed thermal treatment process to remove pesticides from soil, saving project waste-management costs and standardized methodology for application across the Air Force.

Collaborated with U.S. Geological Survey Biological Group and U.S. Fish and Wildlife Service to create studies determining lead exposure to wildlife on small arm’s ranges.

Developed site remediation evaluation tools to assess remediation progress and determine next-phase contract requirements for 200 of the most difficult Air Force remedial sites.

Led development of the Long Term Management of Complex Sites chapter in the Interstate Technology and Regulatory Council (ITRC) Remediation Management of Complex Sites Guidance, which was released Nov. 1, 2017.

Developed national web-based training by ITRC on Remediation Management of Complex Sites.

Stewardship of performance metrics and individual professional development.

**Initiatives and developments**

- Developed functional utility contract acquisition for electric, natural gas, water and wastewater utilities.
- Developed national policy and guidance and implementation of new technological applications.
- Assisted as mentor and subject matter expert in new contracts with WAPA to buy additional hydrogen power.
- Published a quarterly monitoring and on-the-job training newsletter, summarizing regulatory issues impacting the Air Force, national and regional policies, and market trends and indicators.
- Assisted two new and renewing utility contracts and reviewing rate increases (contract modifications).
- Developing a web-based training utility company partnerships that enhance base and community resilience to long-term electric grid outage.
- Assisting bases to assess their energy resilience requirements or gaps to support their critical missions.
- Optimizing the technical aspects of utility contracts, providing inputs and recommendations to installation decision-makers.
- Troubleshooting regulatory hurdles.

**Vision**

The Water Quality Program supports Air Force engineers and environmental professionals to accomplish Air Force missions and fully comply with all Clean Water Act (CWA) and the Safe Drinking Water Act (SDWA) requirements.

The program provides capabilities to reduce environmental risk for drinking-water and wastewater programs across the Air Force. The SME guides compliance with the CWA including stormwater, wastewater and pretreatment permitting issues, as well as fuel tank compliance. For SDWA compliance, the SME tracks and provides guidance for compliance of Air Force drinking water systems. The Water Quality SME participates in DoD panels including the CWA Services Steering Committee and the SDWA Services Steering Committee. The SME co-chairs the Air Force Water Program Panel to lead integrated solutions and strategic planning for Air Force water programs in conjunction with other DoD organizations and stakeholders.

Collaborates with U.S. Geological Survey Biological Group and U.S. Fish and Wildlife Service to create studies determining lead exposure to wildlife on small arm’s ranges.

Serves as AFCEC’s technical authority for toxicology and risk assessment practitioners; supports the environmental restoration program review of risk assessments and emerging contaminants; supports Air Force and DoD leaders on toxicology and risk assessment matters; coordinates with the career field managers on recruiting, mentoring, training and retaining staff; provides professional registration opportunities; and represents the Air Force on tri-service and interagency workgroups.

**Initiatives and developments**

- Developed national web-based training by ITRC on Remediation Management of Complex Sites.
- Stewardship of performance metrics and individual professional development.
- Published a quarterly monitoring and on-the-job training newsletter, summarizing regulatory issues impacting the Air Force, national and regional policies, and market trends and indicators.
- Assisted two new and renewing utility contracts and reviewing rate increases (contract modifications).
- Developing a web-based training utility company partnerships that enhance base and community resilience to long-term electric grid outage.
- Assisting bases to assess their energy resilience requirements or gaps to support their critical missions.
- Optimizing the technical aspects of utility contracts, providing inputs and recommendations to installation decision-makers.
- Troubleshooting regulatory hurdles.

**Vision**

Ensures water and wastewater systems are maintained across the Air Force enterprise. Provides expertise to meet industry standards to support mission requirements. Evaluates new technologies that would enhance Air Force capabilities while maintaining mission integrity. Supports the Air Force enterprise through collaboration with other DoD proponents to standardize means and methods to reduce redundancy and increase efficiency.

The program provides capabilities to reduce environmental risk for drinking-water and wastewater programs across the Air Force. The SME guides compliance with the CWA including stormwater, wastewater and pretreatment permitting issues, as well as fuel tank compliance. For SDWA compliance, the SME tracks and provides guidance for compliance of Air Force drinking water systems. The Water Quality SME participates in DoD panels including the CWA Services Steering Committee and the SDWA Services Steering Committee. The SME co-chairs the Air Force Water Program Panel to lead integrated solutions and strategic planning for Air Force water programs in conjunction with other DoD organizations and stakeholders.

Collaborates with U.S. Geological Survey Biological Group and U.S. Fish and Wildlife Service to create studies determining lead exposure to wildlife on small arm’s ranges.

Serves as AFCEC’s technical authority for toxicology and risk assessment practitioners; supports the environmental restoration program review of risk assessments and emerging contaminants; supports Air Force and DoD leaders on toxicology and risk assessment matters; coordinates with the career field managers on recruiting, mentoring, training and retaining staff; provides professional registration opportunities; and represents the Air Force on tri-service and interagency workgroups.

**Initiatives and developments**

- Developed national web-based training by ITRC on Remediation Management of Complex Sites.
- Stewardship of performance metrics and individual professional development.
- Published a quarterly monitoring and on-the-job training newsletter, summarizing regulatory issues impacting the Air Force, national and regional policies, and market trends and indicators.
- Assisted two new and renewing utility contracts and reviewing rate increases (contract modifications).
- Developing a web-based training utility company partnerships that enhance base and community resilience to long-term electric grid outage.
- Assisting bases to assess their energy resilience requirements or gaps to support their critical missions.
- Optimizing the technical aspects of utility contracts, providing inputs and recommendations to installation decision-makers.
- Troubleshooting regulatory hurdles.

**Vision**

The Water Quality Program supports Air Force engineers and environmental professionals to accomplish Air Force missions and fully comply with all Clean Water Act (CWA) and the Safe Drinking Water Act (SDWA) requirements.

The program provides capabilities to reduce environmental risk for drinking-water and wastewater programs across the Air Force. The SME guides compliance with the CWA including stormwater, wastewater and pretreatment permitting issues, as well as fuel tank compliance. For SDWA compliance, the SME tracks and provides guidance for compliance of Air Force drinking water systems. The Water Quality SME participates in DoD panels including the CWA Services Steering Committee and the SDWA Services Steering Committee. The SME co-chairs the Air Force Water Program Panel to lead integrated solutions and strategic planning for Air Force water programs in conjunction with other DoD organizations and stakeholders.

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SME Directory

Web Links

Whole Building Design Guide:
http://www.wbdg.org

Unified Facilities Criteria:
http://www.wbdg.org/ffd/dod

Facility Design:
http://www.wbdg.org/design/design-recommendations

Air Force Corporate Facilities Standards:

Prototypes and Standard Designs located at WBDG:
http://www.wbdg.org/ffc/af-afcec/bim

Design resources related to historic buildings:
http://www.wbdg.org/resources/historic-preservation-additional-resources

Acquisition

Defense Acquisition System:
https://dap.dau.mil/aphome/das/Pages/Default.aspx

Defense Federal Acquisition Regulation Supplement and Procedures, Guidance and Information:

Defense Acquisition Guide Book:
https://dag.dau.mil/Pages/Default.aspx

CE DASH
https://cs2.els.af.mil/sites/10159/

eDASH areas

Air Quality Resources:

Cultural Program:

Air Force Hazardous Material:

Air Force Hazardous Waste:

Air Force Pollution Prevention:

Air Force natural resources policy:

Natural Resources Program management support and other guidance:

Air Force Overseas Environmental:

Water Quality Programs: