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SECRETARY OF THE AIR FORCE**

**AIR FORCE PAMPHLET 32-1004, VOLUME 1  
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*Civil Engineering*

**WORKING IN THE OPERATIONS FLIGHT  
FUNCTIONS AND ORGANIZATION**

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This volume in this pamphlet series describes the Air Force Engineer's role in activities required to operate, maintain, repair, and construct installation real property using an in-house military and civilian work force and recurring and nonrecurring service contracts. This volume provides an overview of the tasks accomplished in the Operations Flight and detailed guidance for administrative and training tasks common to all flight elements. This pamphlet series supports AFI 32-1001, *Operations Management*, as the AFI which implements AFPD 32-10, *Installations and Facilities*.

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# Chapter 1 Introduction to the Operations Flight

This pamphlet, 32-1004, *Working in the Operations Flight*, is intended for use as a collection of six volumes with additional ready access to AFI 32-1001, *Operations Management* and AFMS 44EO, *Manpower Standard Operations Flight*. The information in this pamphlet is intended for guidance only. Air Force Instructions have minimized mandatory requirements to encourage innovation. To better support the Air Force mission and its people, base Civil Engineer (BCE) managers are given the maximum degree of flexibility to achieve the desired results.

## 1.1 Flight Overview

The Operations Flight is composed of five elements to process requirements in an efficient and timely manner. These elements are Maintenance Engineering, Facility Maintenance Work centers, Material Acquisition, Infrastructure Support, and Heavy Repair.

The **Maintenance Engineering Flight** provides engineering expertise for the Operations Flight, support of infrastructure and facility project review, program management, some drafting, service and utility contract management, recurring work program, and work analysis and method improvement.

The **Facility Maintenance Work centers** mission is to establish all recurring work, minor maintenance and repair, and selected work orders. Because the facility maintenance manager controls the people and resources within the work center, they can work directly with the customer to execute work. The facility maintenance manager meets with facility managers during periodic visits.

The **Material Acquisition Element** accounts for all activities related to vehicle, equipment, and material acquisition, receiving, warehousing, and distribution. This includes operation of the base self-help center.

The **Infrastructure Support Element** provides the operation and maintenance of base utilities. These normally include water and waste, heat plant, exterior electric, power production, liquid fuels, and alarms.

The **Heavy Repair Element** accomplishes the majority of in-house large and multi-craft work orders and all pavements and equipment work; including, facility renovation, alteration projects, all pavements, airfields, roads and sidewalks, sweeping, pest management, and equipment operations and repair.

## 1.2 Origin of the Operations Flight

The Operations Flight is the core of the Civil Engineering organization. Over the past 50 years, Operations Flight has been known, officially, as the Repair and Utilities Division, Maintenance Branch, and Maintenance and Operations Division. Although the configuration has varied somewhat; functionally, the mission has remained the same.

The Office of the Secretary of Defense (OSD) conducted a management study in 1990. The result was The Management Review Study — DMRD that proposed six major initiatives:

- (1) creation of public works centers,
- (2) zonal maintenance,
- (3) multi-skilling of military workforce,
- (4) maintenance engineering,
- (5) reduction of military positions from 28,950 to 7,150, and
- (6) a savings of \$2.4 billion within a six-year period.

As a result of this study, the current configuration of Operations Flight was indirectly created. After an evaluation of DMRD-967, the Air Force concluded that the proposals resulting from the study would severely degrade wartime capability and responsiveness to customer needs.

The initiatives offered by the Air Force as a counter-proposal maintained the intent of OSD without compromising readiness and responsiveness. The Air Force initiatives included:

- (1) reducing the functional layers,
- (2) reducing the number of career fields from 17 to 10,
- (3) reorganizing based on task instead of skill,
- (4) applying total quality management methods,
- (5) increasing productivity of individuals and teams,
- (6) reducing military strength from 28,950 to 22,765,
- (7) saving \$915 million within a six-year period,
- (8) ending product orientation,
- (9) increasing war fighting capability, and
- (10) increasing customer satisfaction.

The Operations Flight realignment of manpower, skills, training, and responsibilities was configured to achieve the efficiencies and customer satisfaction standards inherent in a service organization.

### **1.3 The Objective Squadron**

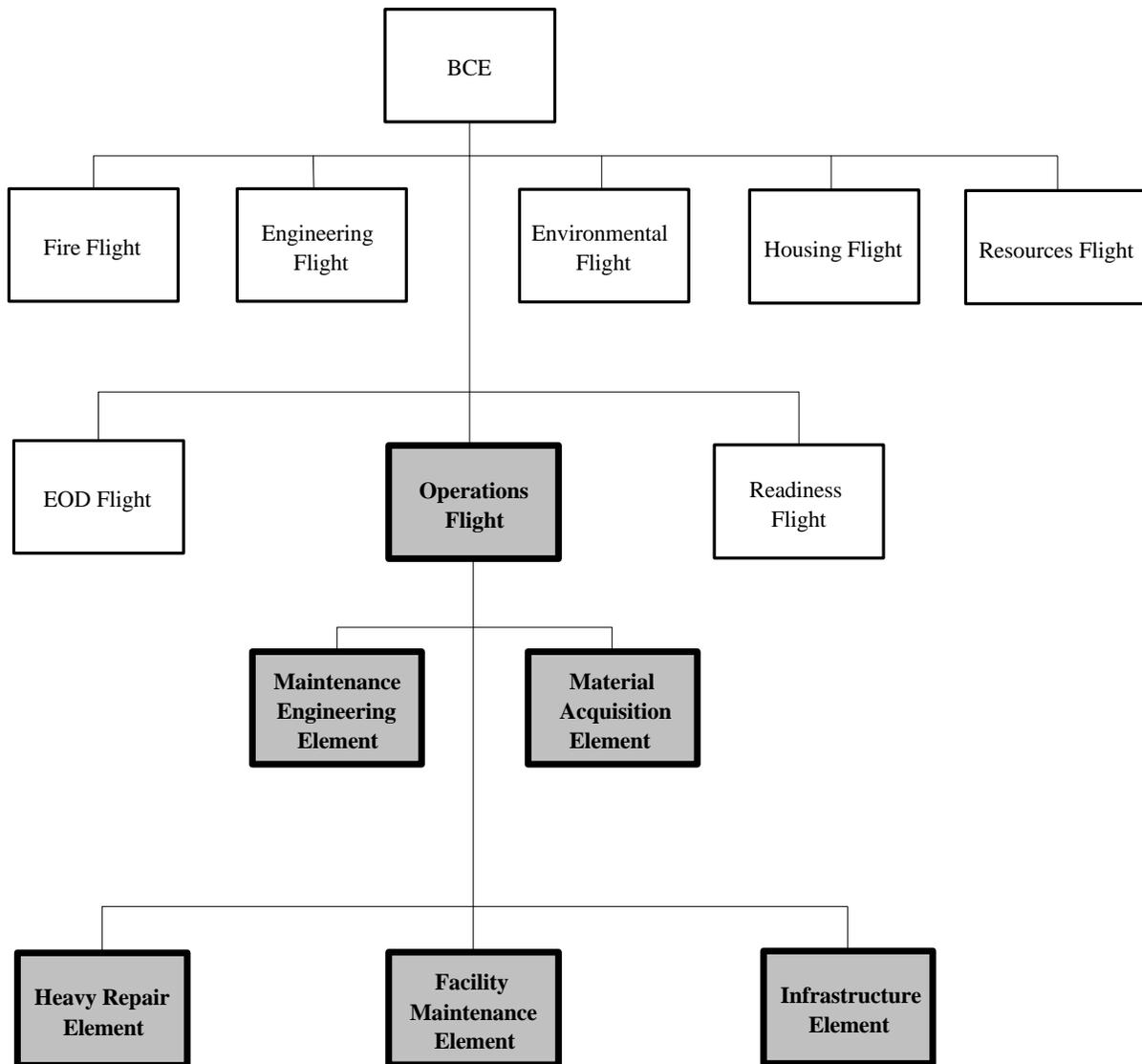
The approval and implementation of the Objective Squadron structure developed a basic and standard capability throughout the Air Force. A major concern at all command levels is the ability to meet mission demands in a timely and efficient manner in an era of diminishing resources. Sophisticated weaponry and new technologies continue to be the tail wind pushing the needs for innovative management techniques under austere funding conditions. Imagination, discipline, and foresight, forged with a can-do attitude, create the environment necessary to achieve desired goals.

The Objective Squadron was formed to improve job accomplishment and centralize the work or the mission. The objective was to reduce unnecessary or redundant supervisory positions, multi-craft and multi-skill the workforce, and implement better business-like practices to the process associated with work accomplishment. The reorganization of CE and the evolution of the five-element Operations Flight marked a major improvement in the CE structure. Previously, the focus of CE on functions resulted in some inefficiencies. To become more efficient and customer-focused, the new structure consolidates functions and crafts by products, such as readiness, environmental, and resources.

#### **The Operations Flight**

The Operations Flight, composed of five elements, processes requirements by integrating the specialized capabilities of the entire workforce. Facility Maintenance, Maintenance Engineering, Material Acquisition, Heavy Repair, and Infrastructure Support Elements perform Civil Engineer facility maintenance, repair, construction, and utility operations.

Figure 1. Five-element Operations Flight



Air Force Instructions AFI 32-1001, *Operations Management*, which implements AFPD 32-10, *Installations and Facilities*, provides the guidance for the overall management of the Operations Flight. The chart in Figure 1, Five-element Operations Flight, shows Operations Flight within the Squadron and the elements composing Operations Flight.

The functions of the Operations Flight include directing and controlling the performance of all work approved and

authorized for accomplishment by the BCE work force. It coordinates operations activities with other BCE functions and base and tenant organizations and provides information for real property operations, maintenance programs, and annual and long-range work plans. Operations Flight also reviews all utility and maintenance data, prepares summaries of effectiveness, and provides direct training and professional development of the work force.

#### 1.4 The Flight Elements

The primary duties and responsibilities of the in-house workforce in the Operations Flight are to:

- (1) operate, maintain, repair, alter, and construct real property facilities and utility systems;
- (2) manage the recurring work program;
- (3) be responsible for service contracts;
- (4) provide logistical support; and
- (5) provide the Civil Engineering Squadron its core capability and recovery of bases for projection of aerospace power.

#### 1.5 Elements' Mission and Objectives

The mission of each of the five elements supports the overall mission of the Operations Flight and Objective Squadron. These mission statements are broadened from those provided in AFI 32-1001. The stated objectives of each Element further explain how the mission is accomplished. Finally, an overview of manpower resources is provided for each element.

##### **NOTE**

The focus of the Working in the Operations Flight publication series is on the family of services and processes typically provided by base civil engineer units. The model elements of Maintenance Engineering, Material Acquisition, Facility Maintenance, Infrastructure, and Heavy Repair, are the core elements defined by AFI 32-1001, Operations Management, and the Operations Flight AFMS. Specific organizational structure and associated terminology varies widely across bases from large CE groups to all civilian MEO's at a small installation. This publication will use the term "work center" as a neutral term to focus on core services and processes regardless of what specific organization and name bases classify craftsmen and supervisors.

## Chapter 2 Maintenance Engineering Element

### 2.1 Mission

“Provides engineering expertise for the operations flight, support of infrastructure and facility project review, program management, some drafting, service and utility contract management, recurring work program, and work analysis and method improvement.” (AFI 32-1001, *Operations Management*)

### 2.2 Objectives

The objectives of the Maintenance Engineering Element include providing engineering expertise, performing project review, infrastructure program management, performing non-design drafting, service and utility contract management, recurring work program (RWP), and work analysis and method improvements.

**Provide engineering expertise:** Support operations with on-call engineering expertise to analyze field problems and identify solutions. Support work order planning when engineering design considerations apply. The engineers should meet regularly and informally with the craftsmen in their discipline to discuss program considerations, work orders in planning and in progress, engineering projects, and work center concerns.

**Perform project review:** The Operations Flight is the focal point for review of the Engineering Flight's operation and maintenance (O&M), non-appropriated funds (NAF), military family housing (MFH), P341, and military construction projects (MILCON). It also reviews all project designs and coordinates project impact with the appropriate work centers and reviews all projects from the standpoint of enhancing the reliability and maintainability of the facility or system.

**Infrastructure program management:** Manage infrastructure systems by assessing the systems technical condition, evaluating the repair priorities, and planning and programming repairs and improvements. The maintenance engineers should develop both short-term and long-range infrastructure programs to support advocacy in the budget process.

**Perform non-design drafting:** Overall as-built drawing management, maintain the base general plan tabs, and pro-

duce non-design drawings and documents. Manage the centralized vault of record drawings to ensure drawing existence and accuracy.

**Service and utility contract management:** Manages all recurring and non-recurring service and utility contracts for the civil engineer. Support includes specification preparation, contract negotiations, quality assurance, and customer interface with the contractors. Service contracts such as ground maintenance, refuse collection, custodial services, and the development of IDIQ service contracts can significantly enhance the BCE's ability to meet customers needs. Service contracts can greatly offset workload, allowing the BCE to concentrate the limited workforce to core work.

**Recurring work program:** The RWP applies to all routine, redundant recurring work involving real property, real property installed equipment (RPIE), or systems and other equipment maintained by CE. Recurring work includes operations, service work, and preventative maintenance for which the scope and level of effort is known without a job site visit each time the work is scheduled. The RWP is an objective shared by all elements in the Operations Flight. Maintenance Engineering's task is to oversee the development of the program and periodic assessment of its elements. This assessment of the RWP includes the periodic review of the requirements and initiating recommendation to improve the infrastructure and manpower usage.

**Work analysis and method improvements:** Analyze the Operations Flight resources and mission requirements and providing recommendations to the flight chief and element superintendents on resource allocation and work execution. These analyses include developing performance standards, economic or cost benefit analyses, developing and measuring productivity and quality force indicators, and review of work center workload manpower balance and skills mix. The ultimate goal of this objective is a workforce who works smarter, not harder.

## Chapter 3 Facility Maintenance Element

### 3.1 Mission

The mission of the Facility Maintenance Element is to establish all recurring work, minor maintenance and repair, and selected work orders. Since the facility maintenance manager controls the people and resources within the work center, they can work directly with the customer to execute work. The facility maintenance manager meets with facility managers during periodic visits and records minor maintenance and repair requirements on AF Form 1219, BCE Multi-Craft Job Order, or direct schedule work order. Forward work beyond work centers capability or approval level to the next approval level. Large work order requirements normally meet a work order review panel which determines the priority of execution and method of accomplishment.

### 3.2 Objectives

The Facility Maintenance Element objectives are to provide single-point customer service, facility reviews, maintenance, repair, and modification to real property, recurring work program, training, and inspection.

**Provide single-point customer service:** The work center customer service unit is the primary interface between the CE and the base customers. The facility maintenance managers control the resources within their work centers.

Therefore, the manager can schedule and execute work requirements based upon verbal or written guidance directly from the customer. It is essential for facility maintenance managers to establish a working relationship with the facility managers and meet with them frequently.

**Provide facility reviews:** The facility maintenance manager should schedule facility visits based on 30- to 90-day schedule or as required and accomplish all recurring work, minor maintenance and repair, and selected work orders. Facility reviews performed by the building manager and the CE personnel foster a sense of ownership and stewardship. This reinforces the Flight's commitment to providing customer service.

**Maintenance, repair, and modifications to real property:** The facility maintenance manager meets with the facility managers during periodic visits and records minor maintenance, repairs, or alterations requirements on an Air

Force Form 1219, BCE multi-craft job orders, or direct scheduled work order. Minor modifications can be accomplished within the element based on available manpower, man-hours, and skill level capability on a direct scheduled work order. The engineers and the customers share the responsibilities associated with good stewardship and maximizing resources.

**Perform recurring work program:** The recurring work program is managed by the facility maintenance manager. It is used to ensure work is accomplished by reserving hours for this work before routine requirements are scheduled. The RWP should be developed so the majority of the requirements are scheduled and accomplished during the facility-cycled visits. This results in the most efficient use of available resources and time management.

## Chapter 4 Material Acquisition Element

### 4.1 Mission

"Accounts for all activities related to vehicle, equipment, and material acquisition, receiving, warehousing, and distribution. This includes operation of the base Self-Help Center." (AFI 32-1001, *Operations Management*)

### 4.2 Objectives

The objectives of the Material Acquisition Element include providing logistics support, managing the vehicle fleet, and managing the appliance program.

**Providing logistic support:** The Material Acquisition Element supports the BCE in the processing of requisitions, receipt of materials, and management of the holding area. Major duties includes management of the government operated Civil Engineering Supply Store (GOCESS), tracking material acquisitions, monitoring work center stock and coordinating adjusted levels, and maintaining the Civil Engineer Material Acquisition System (CEMAS) data base. Operate the self-help store to ensure material in the self-help center is effectively managed and accounts are accurate. Work closely with Base Contracting, Accounting and Finance, Base Supply, and other agency personnel to ensure maximum logistics support. Additionally, the Element manages actions pertaining to hazardous materials acquisition control, processing, storage, and disposition. Coordinate all procedures with the base Bioenvironmental Engineer, who approves all aspects of the Hazardous Material Program.

**Manages vehicle fleet:** The Element is tasked with management of the BCE vehicle fleet. Process and submit all vehicle requests from the organization. Make vehicle assignments. Monitor the status of all assigned vehicles, prepare reports, and investigate vehicle incidents. Oversee and monitor the BCE vehicle operators' training program.

## Chapter 5    Infrastructure Support Element

### 5.1    Mission

“Provides the operation and maintenance of base utilities. These normally include water and waste, heat plant, exterior electric, power production, liquid fuels, and alarms.”  
(AFI 32-1001, *Operations Management*)

### 5.2    Objectives

Infrastructure Support Element objectives include performing operations work; performing real property maintenance, repair, and modification; and the RWP.

**Perform operations work:** The Infrastructure work centers perform and operate the various base utility systems and utility plants, including the aircraft arresting systems. Operate and train base personnel on emergency electrical generators. The water distribution operation includes taking samples, testing, and performing chemical treatment on the water supply. Operate wastewater collection system; including, oil separators and pretreatment facilities. Operate heating plants and heat distribution systems.

**Performs real property maintenance, repair, and modification:** The Infrastructure work centers are responsible for the general maintenance repair and modifications to the various utility systems and plants. Capability includes the maintenance, repair, and modifications to utility plants, exterior electrical systems, airfield lighting, aircraft arresting systems, emergency generators, liquid fuels, grounding and lighting protection, alarms, sewage, water and gas distribution, deluge fire protection, and cathodic protection systems. Manage large, multi-craft work orders for all Infrastructure activities and systems.

**Recurring work program:** A major task for the Infrastructure Element is the accomplishment of the RWP for the base utility plants and systems. The recurring work program’s unique value is in the savings that can be achieved by periodic, scheduled maintenance of equipment and utility systems. Its major purpose is to maximize the life expectancy of these systems, minimize failures, and maximize operating effectiveness and reliability. Recurring work is accomplished by the utilities work centers and work centers with technical assistance from the Maintenance Engineering Element.

## Chapter 6 Heavy Repair Element

### 6.1 Mission

“Accomplishes the majority of in-house large and multi-craft work orders and all pavements and equipment work, including facility renovation, alteration projects, all pavements, airfields, roads and sidewalks, sweeping, pest management, and equipment operations and repair.” AFI 32-1001, *Operations Management*)

### 6.2 Objectives

Heavy Repair Element objectives include managing large multi-craft work orders; performing real property maintenance, repair, alteration, and construction (MRA&C); performing pavement work; performing equipment operations; providing pest management; and training personnel.

Manages large multi-craft work orders: Serves as the Flight focal point for management and control of the majority of in-house large and multi-crafted work orders. Large multi-craft work orders consists of jobs requiring advance planning and acquisition of some materials not currently stored or not stored in sufficient quantities. The vertical section was created to perform large work orders without the need to coordinate efforts between individual craft work centers. Additionally, it makes it possible to define for the customers the Element’s capability to perform large-scale work orders on a month-by-month basis.

**Performs real property maintenance, repair, alteration, and construction:** The vertical section is responsible for the general maintenance, repair, and alteration of both interior facility utility systems and facility structural components. Capability includes the MRA&C for facility components such as: fire protection, low voltage electrical, gas, compressed air and water distribution, HVAC, roofing, and plumbing systems. Structural capability includes the maintenance and repair of building components such as masonry, concrete, stucco, plaster, ceramic and quarry tile, metal work, and floor and ceiling finishes. The vertical section maintains the ability to perform basewide locksmith services and the maintenance of real property installed security vaults and safes. The horizontal section is tasked with the MRA&C of all airfield pavements, roads, sidewalks, parking areas, storm drainage, and ground maintenance.

**Perform pavement work:** Inspects and maintains the airfield pavement systems to insure flight operations can be conducted in a safe and reliable manner. Flight facilities such as runways, taxiways, parking aprons, shoulders, and associated drainage systems are inspected, maintained, and repaired within the highest priority. Flight line sweeping, grounds, pest control, and snow removal operations are scheduled and accomplished on a priority basis within the RWP. Other pavements are maintained in accordance with both short-term and long-term pavement improvement programs.

**Perform equipment operations:** Manage and operate the various types of heavy equipment and vehicles assigned to the BCE and perform operator maintenance as needed. Special heavy equipment includes cranes, dozers, graders, backhoes, snow removal equipment, and hi-reach lift trucks. These are used in support of work accomplished by others in the Flight or in direct support of pavement maintenance and repair. Equipment operation is organized as a separate section, allowing for flexible scheduling and control of these unique assets.

**Provide pest management:** Responsible for the inspection and performance of pest and weed or vegetation control for all facilities and grounds including military family housing (MFH) quarters. Perform inventory control and applies herbicides, pesticides, and other hazardous materials used in structural, non-structural, and grounds pest control.

## Chapter 7 Operations Flight Chief

Some of the basic duties and responsibilities of the Flight's Chief follow.

The Chief provides maintenance, repair, and alteration of real property facilities, pavement and grounds, and operations of all utility systems.

The identification, planning, and accomplishment of all work selected for the operations, services, and recurring work programs is under the direction and control of the Chief.

The Chief reviews work orders and work requests and approves or disapproves them depending upon cost and approval authority.

Activities to identify, receive, approve, authorize, direct, and control work accomplished in-service through subordinates are managed by the Chief.

The Chief guides and directs the customer service, planning, and material control functions by:

- (1) advising schedulers on comparative priorities of work orders and assisting in resolving job stoppages;
- (2) reviewing and approving weekly and monthly schedules;
- (3) scheduling reports and annual work plans;
- (4) planning, organizing, and controlling the recurring work program; and
- (5) inspecting bench stock and other materials, tools, and equipment to ensure they are adequate to support the Operation's mission.

The annual review of the recurring work program submittals, safety, vehicle operator, fraud, waste, abuse, affirmative actions, and self-inspections through subordinate supervisors are conducted by the Chief.

Procedures and actions required for compliance are implemented.

Through Element supervisors, the accomplishment of minor construction and other maintenance and repair projects

requiring special materials, equipment, planning, and specialized or larger work forces are under the Chief's direction.

The Chief initiates and coordinates action to augment the capability of the Operations Flight by obtaining support by contract services or other avenues.

The Chief assures work is accomplished in accordance with the most modern and acceptable engineering and trade practices and work and various skills are properly interfaced.

The maintenance, repair, alteration, and operation of highly technical and complex structures, plants, and systems are performed through the application of the Chief's broad knowledge of basic engineering principles and physical sciences.

The Chief determines requirements, direction, and operation of the Contract Services function; reviews and approves all work/projects for accomplishment by service contract; and reviews and approves Performance Work Statements (PWS) for work accomplishment by annual service contracts (e.g., grounds maintenance, custodial service, and refuse collection) and emergency contracts.

The Chief directs and develops budget inputs to the financial manager for in-service work, equipment repair/replacement (both contract and in-service), and service contracts (the major portion of the largest operation and maintenance organizational budget on base);

The Chief is responsible for all manpower and personnel actions in the Operations Flight, including:

- (1) the application of manpower standards for work centers, manpower change requests, organizational changes, and realignments and
- (2) the coordination of all efforts with the base manpower office; serving as an advisor to the Base Civil Engineer on all matters concerning manpower and personnel actions in the Civil Engineering organization.

Engineering plans of new or proposed modifications to existing facilities are reviewed to determine whether existing

capabilities are sufficient to accommodate the intended operation of service in an economical or efficient manner;

The design of construction by the Engineering Flight and/or the Army or Navy design and construction agencies are subject to the Chief's recommended changes after consulting and discussing with engineering on reliability, maintainability, and operations characteristics during the design of new and alteration of existing facilities;

The Chief coordinates the activities of the Operations Flight with other Base Civil Engineer organizational Elements by:

- (1) Preparing for, conducting, and attending meetings, briefings, or conferences with using agencies, supply personnel, manpower, procurement, or other agencies to resolve problems in the repair, maintenance, alteration, and operation of facilities utility systems.
- (2) Actively participating in matters concerning labor relations and maintaining an awareness of the current union contracts).
- (3) Resolving most labor-related problems concerning subordinate personnel (i.e., grievances, arbitrations, and employee relations).

Plans, policies, and procedures to implement or comply with programs and policies of higher authority are formulated by the Chief.

The Chief reviews and evaluates management procedures, work performance plans and methods, and flow of work as they involve or affect immediate office, subordinate staff offices, or subordinate work center operations, economy or operation, or to affect compatibility with other administrative or control techniques.

Management of the Flight is achieved by directly supervising the five subordinate-level elements and the overall supervision of the operations personnel engaged in a variety of crafts trades and professional services. These trades and services can include:

- (1) construction equipment operators;
- (2) pavement maintenance specialists;
- (3) structural specialists;
- (4) heating, ventilation, and air conditioning (HVAC) systems specialists;

- (5) liquid fuels specialists;
- (6) waste technicians;
- (7) pest management specialists;
- (8) electrical specialists;
- (9) utility plant operators/technicians;
- (10) material control specialists; and
- (11) professional engineers and technicians.

The Chief directs personnel management functions of the Flight by recommending personnel actions and assists in resolving complaints and/or personnel problems. Additionally, the Chief evaluates and rates the performance of subordinate supervisors and periodically reviews work accomplished to ensure quality standards are met.

## Chapter 8 Manpower

### 8.1 Manning the Flight

The single most critical factor affecting Operations Flight capability is manpower resources. Air Force Manpower Standard (AFMS) 44EO quantifies the manpower required to accomplish the tasks described in the process oriented description for varying levels of workload (See Attachment 2, Core Requirements — All Flight Elements).

The BCE, with MAJCOM's approval, has the authority to determine the distribution of the total core manpower requirement among the elements. This provides a guide for distribution of earned manpower and grades among the five Elements.

The AFMS defines the manpower allowed to support an Objective Flight (Objective Wing Operations Flight). It applies only to peacetime operations. The Objective Flight includes the following initiatives:

- (1) zonal maintenance,
- (2) multi-skilled military work force,
- (3) cradle-to-grave design and construction project management,
- (4) streamlined production-oriented organization,
- (5) maintenance engineering,
- (6) a Government Operated Civil Engineer Supply Store (GOCESS) (i.e., operated by in-house resources),
- (7) Work Information Management System (WIMS) and Civil Engineer Material Acquisition System (CEMAS) implemented to control documentation, and
- (8) an active Simplified Acquisition Base Engineering Requirements (SABER) program.

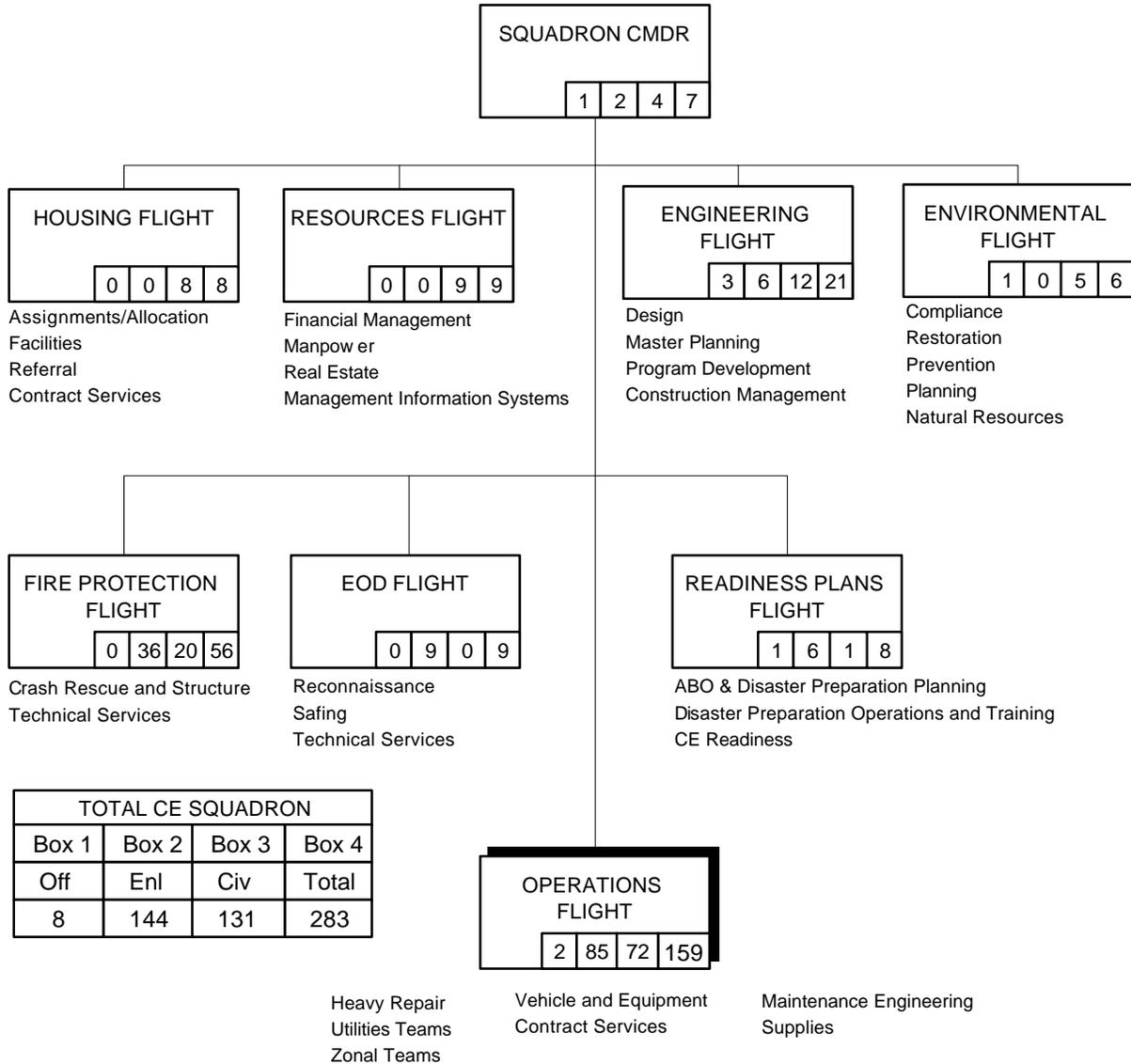
Authorizations are adjusted according to the following workload factors:

- (1) weighted total square feet of floor space,
- (2) the number of facilities,
- (3) the number of military family housing units, and
- (4) the number of general officer quarters.

The Operations Chief (and the chiefs of the Operations Flight Elements) should meet with the Resources Flight

manpower office of primary responsibility (OPR) to review the manpower standards used to earn authorizations.

**Figure 2. Personnel Authorization in Core Objective Squadron by Organization and Totals**



Personnel authorization in a core Objective Squadron for the five flights is shown. A breakdown of officer, enlisted, and civilian positions are shown in the scoreboard boxes for each flight is shown in Figure 2, Personnel Authorization in Core Objective Squadron by Organization and Totals. The 159 positions in the Operations Flight (over 56 percent of the total authorized positions) attest to the experience and expertise in the Operations Flight of the Base Civil Engineering Organization.

- 8.2 Element Manpower Issues** The Objective Squadron prioritized the flight and element responsibilities and tasks; thereby, establishing core requirements and non-core requirements. Authorizations are earned by accomplishing the core tasks. Limited manpower resources encourage operations personnel to find alternative methods for those other non-core tasks.
- 8.3 Variances** Variances are a process where increased manpower, military and civilian, are determined necessary to meet increased or mission needs and changes. Variances may be submitted to request approval to perform work that does not appear to be part of the core responsibilities.
- 8.4 Contracting** Contracting is, and will continue to be, a major force multiplier to perform base maintenance, repair, alteration, and construction requirements. Coordination with Maintenance Engineering, Resources and the other flights can provide a wealth of information on how to establish the right contracts needed to support Operations Flight requirements. One alternative to accomplishing work that is necessary, but no longer part of the CE core task, is service contracts. These contracts can be utilized to group like types of work together that are necessary, but not critical, to the mission. Service contracts are currently being used to support the RWP program in areas such as heating, ventilation, and air conditioning (HVAC) filter replacements, some water and sewer valve maintenance, and air balancing on air conditioning systems.
- 8.5 Multi-craft/Multi-skilling Initiative** The multi-crafting and multi-skilling initiatives were established as part of the DMRD 967. The purpose was to enhance the organization by gaining efficiency and productivity while the workforce was going through manpower reductions.
- 8.5.1 Multi-craft** Multi-craft is defined as: (1) Limited: Journeyman specialists assist other journeyman specialists in a separate technical field. Example: A plumber assists an electrician to install a lighting system. (2) Extended: Journeyman specialists have and use rudimentary skills in a separate technical skill. Example: A plumber replaces a wall-mounted water cooler, reconnects the electrical power, and refinishes the wall.
- The intent of multi-crafting was to create teams of skilled craftsmen with the purpose of quickly completing work as-

signments. This factor is increasingly more important to the overall success of the zonal maintenance concept.

### **8.5.2 Multi-skilling**

Multi-skilling is defined as: Craftsman has journeyman skills in two or more trades. Example: An HVAC mechanic has journeyman skills in both heating and air conditioning and apprentice-type skills in controls. Multi-skilling created teams of professionals who shared common expertise, with the intent of taking full advantage of each professional's skills and, at the same time, enhancing the experiences of each. Both multi-skilling and multi-crafting make use of military and civilian personnel.

### **8.6 Overhires**

Overhires are non-permanent employees hired to fulfill a specific purpose (e.g., snow removal); they do not fill an authorized position on the unit manning document and may be paid with O&M funds. All CE squadrons have a work year ceiling which limits their number of man-years. Every overhire funded reduces the number of man-years, which in turn reduces the number of funded or authorized positions that may be filled.

### **8.7 Matrixing**

Productivity gains are achieved through matrixing. Matrixing is the movement of personnel within an element to support an identified shortage in a skill level, Air Force specialty (AFS), or specialized work task. Inspection of specialized service contracts is one example where craftsmen are used to augment quality assurance evaluators (QAEs) in the Maintenance Engineering Element.

AFP 32-1004, *Working in the Operations Flight* is primarily a source of processes for accomplishment of the Flight's mission. This pamphlet lists processes for accomplishing the mission of the Operations Flight elements, including how they relate to other flights and to each other.

## Chapter 9 Training

Manning levels and authorizations are based upon fully qualified personnel. The appropriate training prior to assignment is essential for acceptable work performance.

### 9.1 Enlisted Workforce

The requirement for having a military workforce is to meet the wartime contingency taskings. Each MAJCOM has a military strength, which is distributed to each installation. There is some flexibility in the overall military-to-civilian mix based on the core AFS requirements (Attachment 2). Coordination with the MAJCOM and Resources Flight manpower person can assist in determining the right mix and numbers required to meet specific base needs. The Readiness Flight is responsible for management and execution of the readiness training program.

### 9.2 Civilian Workforce

The Operations Flight is comprised of a civilian work force, which augments the military forces to accomplish operations, maintenance and repair, recurring work, and modifications to real property. This civilian work force:

- (1) provides a higher level of career field knowledge to supplement the senior enlisted force;
- (2) provides continuity and stability at the installation during contingency exercises and deployments of military personnel;
- (3) has specific duties and responsibilities during base exercises, military deployments, and natural disasters/emergencies; and
- (4) provides training to enlisted and other civilian personnel.

The local Consolidated Personnel Center and Labor Management Agreement can give specific criteria for each of these instances. Most civilians hired are at the Journeyman level; however; in the future they may be hired as apprentices and intermediate level employees.

### 9.3 Training Objectives and Organization

It is the responsibility of each organization to develop and tailor a training program to meet their needs and requirements, as well as base and contingency requirements. This training program must provide a level of training consistent with prescribed reporting and documentation requirements. The following methodology was extracted from *Procedural*

*Guide for Civil Engineer Training* (March '96). This document, in its entirety, is available through HQ AFCESA, Operations Directorate, Training Division.

- (1) The Career Development Section (CDS) is an established work center with a minimum of five CE technicians assigned from HVAC, electrical, structural, utilities, and pavements and equipment. These personnel should be selected based on their motivation, subject matter knowledge, and, most importantly, their positive attitude toward training. The unit training manager is the advisor and ensures CDS personnel follow established guidelines, meeting objectives and goals.
- (2) The team should work together for a minimum of four months to meet the objectives. Technicians do not perform work center-related duties or standby during the time they are assigned except for emergencies (e.g., base power outage). Once the squadron training days are established, technicians may return to their work centers. Then, they meet once or twice a month to coordinate the training days and resolve problems that have occurred.
- (3) The team develops training plans for core tasks listed on the career field education and training plans (CFETP) for each Air Force specialty.
- (4) Keep current in national, state, and local agencies' environmental laws. State certified plant operators must maintain currency in their field as prescribed by the appropriate agency or dictated by other regulatory directives. The plant operators should prominently post written operating procedures for ready reference.
- (5) The team develops lesson plans and instructs training sessions using both the lecture and demonstration/performance methods. They assist the unit training manager in identifying certification and testing (CerTest) videos to enhance the on-the-job training program. They develop career development course pretest examinations to validate study habits and enhance knowledge levels; assist in the development of training plans for specific contingency-required tasks, especially those requiring multi-skills. The team establishes rotation schedules for transition trainees to ensure certification on all core tasks and conducts task evaluations on technicians

in both formal upgrade training and transition training (multi-skill).

### ***9.3.1 Enlisted Training***

The training program for enlisted personnel is based on establishing a strategic plan by identifying specific goals and achieving the desired results.

The training goals are to ensure everyone in a multi-skilled specialty completes the standard core taskings in their area by January 1998 and all others are trained and qualified on their core tasks. The purpose of the plan is to identify responsibilities and requirements for training. The plan defines points of contact, objectives for training, and metrics.

The specialty function manager (SFM) is the senior ranking enlisted person in the specialty (electrical function manager, HVAC/R functional manager). The commander delegates the responsibility and authority to these members to ensure training is available and scheduled. The SFM oversees the training process. The supervisors and flight chiefs must ensure individuals complete the training. Multi-skilled specialties (shown on Table 2, Personnel Responsible for Training) are indicated with an asterisk.

The specialties function manager uses the CFETP to plan, conduct, and evaluate training. The SFM also:

- (1) maintains a list of all personnel in the specialty E-1 through E-6 in upgrade training (UGT) and qualification training, and oversees their training;
- (2) identifies in which core tasks each individual must train;
- (3) identifies which tasks each work center can train on-the-job using actual equipment or training aids when the equipment is not available (training support that could be provided by the other work centers or base units should be considered);
- (4) consolidates training requirements of all work centers; and
- (5) identifies training limitations due to equipment non-availability.

If the team needs to go to nearby bases or commercial sources, they should provide the commander, through the unit training manager, estimated costs of doing so.

**Table 1. Personnel Responsible for Training**

Specialty	AFS	Specialty Functional Manager
Electrical*	3E0X1	**
Electrical Power Pro	3E0X2	**
HVAC/R*	3E1X1	**
Pavements & Construction Equip	3E2X1	**
Structural*	3E3X1	**
Utilities Systems*	3E4X1	**
Liquid Fuels Maintenance	3E4X2	**
Environmental	3E4X3	**
Engineering Assistant	3E5X1	**
Operations	3E6X1	**
Fire Protection	3E7X1	**
EOD	3E8X1	**
Readiness	3E9X1	**
Personnel	3S0X1	**
*Multi-skilled specialty		
**The specialty function manager (SFM) is the senior ranking enlisted person in the specialty (electrical functional manager, HVAC/R functional manager)		

Each SFM will develop a master task list (MTL) for the specialty, where the specialties are assigned to more than one work center. Work centers where training can be done should be documented and 5- and 7-level core tasks required for UGT and qualification training identified.

Each work center develops an MTL for each assigned specialty; the work center/individuals perform including one-deep positions. Items included on the MTL are core tasks; normal, day-to-day taskings; wartime/contingency tasks; special certifications and recurring requirements; and local taskings (e.g., additional duties).

The SFM will plan and schedule training and distribute the information to flight chiefs. This should be done in advance to allow flight chiefs to plan and schedule their workload. Flight chiefs should also notify the SFM when unique training opportunities are available (tasks usually not performed).

Requirements for computer upgrades also need to be identified. A computer in the work center (with limited access for a controlled environment) should be designated as the computer for training applications. This will be used for the

7-level course read-ahead materials, other training programs, and future computer-based qualification training and CDCs.

For the identified specialties, the SFM will report metrics to management on a monthly schedule. The design of the metrics will be compatible with reporting procedures established by the Air Force Civil Engineer Support Agency (AFCESA).

## Chapter 10 Safety

Safety is an important factor in executing and performing the BCE work requirements. A good safety program requires dedicated individuals continually monitoring and checking work being accomplished in the work centers, and the field. Weekly safety programs with videos, presentations, and visual displays help reduce the number of safety violations and hazards that may occur in an area. Sharing safety information with the Installation Ground Safety Office may lead to a structured safety program designed to eliminate safety hazards before they occur. OSHA and other agencies are more than willing to assist in meeting needs and requirements to support and promote safety within an organization.

Identification of potential problem areas is the first step in a good safety program. This identification process requires a complete walk through existing work centers and evaluating current working conditions. This evaluation identifies hazards and aids in establishing a formal training program.

While conducting an investigation, any permanently and temporarily installed electric, pressure, and mechanical type equipment used within the inspected area should be identified. How they operate and what types of material may be used with the equipment should be reviewed. Safe clearances around that equipment should be determined, using OSHA standards. The names of formally-trained operators who are to operate the equipment should be posted.

Emergency cut-off switches attached to the equipment, in case of an accident, and any manufacturer safety components must be identified on the equipment and in working order. The use of equipment by unauthorized personnel, and without the required safety equipment, is not allowed.

Other hazards may be noted during the safety identification process. Many CE work centers use, store, and handle some type of hazardous material. These materials include paints, thinners, cleaning solvents, and oils. Coordination with the Environmental Flight will ensure the proper handling, storage, and disposal of all hazardous material. Continuous emphasis on these issues provides for a safe and hazard-free environment.

These are just a few hazards that exist within a typical CE squadron. A formal training program develops, implements and, continually, observes and briefs all employees on the use of equipment and hazardous material with which they may come in contact. In addition, hazardous situations may occur while performing work. The proper use of methods and tools of the trade should be a major concern. Continuous emphasis should be placed on monitoring and inspecting job sites to reduce and eliminate accidents and hazards before they become injuries.

## Chapter 11 Meeting Customer Requirements

The focus of the Flight is on customer service. Excellence means genuine concern for customers' needs and satisfaction. Customer service must pervade every aspect of the Operations Flight. If the customers are not satisfied, the job is not being done.

No other base organization directly affects the living environment of every person on a base as does the Operations Flight. It is essential that BCE personnel know the importance of each customer contact in terms of BCE response and personnel behavior. It is not possible to satisfy every request, but it is possible to explain constraints and seek alternatives in a courteous and helpful manner. Management must carefully select personnel to operate customer service units (CSU), work center customer service units, service call functions, and other functions and elements where there is heavy exposure to customers.

Commitments to customers should be carefully made and every reasonable effort made to meet them. If a commitment is not met, the customer should be told the reason and given a new commitment. The building managers should be part of the BCE management team. Keeping managers informed on BCE programs, constraints, and the status of projects is important. Cooperative planning, budget, contracting, supply, and transportation help the BCE organization meet its commitments. Publicity in bulletins and newspapers is useful, but motivated BCE people in personal contact with customers are most important to a positive, results-oriented organization.

### 11.1 Providing Customer Service

Providing customer service initializes the coordination effort in providing information or work requirements. There are two primary methods. First, the most efficient method is for the customer to call or come into their respective work center (a central point) and talk to someone they know to get what information they need. This familiarizes the customer with the person to see if problems arise or if they need some other type of service; such as, materials for a self-help project. Second, the establishment of a scheduled facility visit program increases the commitment. This will ultimately reduce the number of walk-ins and telephone

calls for routine work. The customer knows who to expect and when and why. The objective is to get as close to this customer-friendly environment as possible.

Communication between the customer and the civil engineer representative is the key ingredient to a successful relationship to meeting the customer's needs. Understanding exactly what the customer wants in service requirements and being able to provide that service to the customer have been a continuing concern of Operations Flight Chiefs.

Meeting regularly, both formally and informally, with Element Chiefs, building managers, and commanders to discuss program considerations builds customer good will. Once some type of regular and consistent agenda is established, customers develop a sense of trust and know that the civil engineer shares the same level of concern towards the facilities as they do.

Establishing some type of structured approach to work acceptance and prioritization demonstrates to customers that CE is working their concerns and mission priorities.

The Facility Maintenance Element is responsible for the building managers program. Building managers are the primary contact between the BCE and executing all work requirements. Building managers should have at least 18 months retainability at the time of appointment. In multipurpose facilities, the major user should be assigned as the primary building manager. Any other organization using a portion of a multipurpose may be allowed to appoint an alternate building manager for its area. Alternates can process actions with the BCE or work center, but should coordinate with the primary building manager. The primary building manager will then be able to track all work planned or accomplished in the facility.

Self-help is an excellent way to accomplish important "people projects;" such as, facility enhancements, landscaping projects, and general improvements. Self-help, usually work that cannot be accomplished due to higher priority work, is requested and accomplished by personnel from that facility or squadron. A successful self-help program improves facilities and fosters a feeling of pride and ownership. It is the responsibility of everyone in CE to promote and foster this program.

WILLIAM P. HALLIN, Lt General, USAF  
DCS/Installations and Logistics

## Attachment 1 Glossary of References and Supporting Information

### References

AFI 32-1001 *Operations Management* (replaces AFI 32-1001)  
 AFPD 32-10 *Installations and Facilities*  
 AFMS 44EO *Manpower Standard Operations Flight Procedural Guide for Civil Engineer Training* (March '96)

### Abbreviations and Acronyms

3E5X1	the engineering AFS
A/C	air conditioning
A-76 Action	Process, under OMB Circular A-76, under which core responsibilities are contracted
AAFES	Army and Air Force Exchange Service
A&E	architect and Engineer - most commonly referring to the contract firms
ABO	air base operability
ACES	Automated Civil Engineer System
ADD	agreed delivery data
AF/CE	Air Force/Civil Engineer
AFCESA	Air Force Civil Engineer Support Agency, Tyndall AFB FL
AFFF	Aqueous film forming foam - the fire-fighting agent often used in hanger systems
AFI	Air Force Instruction
AFIT	Air Force Institute of Technology, Wright Patterson AFB OH
AFMAN	Air Force Manuals
AFMS	Air Force Manpower Standard
AFO	Accounting & Finance Office
AFP	Air Force Pamphlets
AFS	Air Force specialty (formally called AFSC - AFS Code)
AKA	also known as
BBE or BEE	Base Bio-Environmental Engineer
BCAS	Base Contracting Acquisition System
BCE	Base Civil Engineer
BCP	Base Comprehensive Plan (replaced by the Base General Plan)
BEAMS	Base Engineer Automated Management System - an older CE database system
BPA	blanket purchase agreement
BTU	British thermal units - a measurement of energy
BUR	built-up roofing system
CA/CRL	custodial account/custody receipt listing
CADD	computer aided design and drafting, a computer-based program that organizes drafting and design functions to produce high-quality facility drawings.
CALT	contracting administrative lead-time
CAS	Condition Assessment Survey, a DoD program to objectively assess and evaluate DoD facilities for developing CAS
CATV	cable television
CBA	cost/benefit analysis

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CDR	contract deficiency report, a report of substandard contract performance
CDS	career development center
CE	Civil Engineer
CEC	office symbol for the CE Engineering Flight
CEMAS	Civil Engineer Material Acquisition System
CFA	Commanders' Facility Assessment (replaced by Facility Investment Metric)
CFETP	career field education and training plans
CIAPS	Customer Integrated Automated Procurement System
CMSgt	chief master sergeant
COCESS	Contractor Operated Civil Engineer Supply Store
CSL	CEMAS Stock List Number
CSU	customer service unit
CWM	cost work order materials
CWON	Collection Work Order Number
DC	direct current
DDC	direct digital control
DIFM	due in from maintenance
DIN	do it now
DIRK	direct input reject key
DoD	Department of Defense
DOLI	date of last inventory
DOLT	date of last transaction
DPMIAC	Defense Pest Management Information Analysis Center
DRMO	Defense Reutilization Marketing Office
DSWO	Direct Scheduled Work Order
DVEP	Disease Vector Ecology Bulletins
ECIP	Energy Conservation Investment Program
EDD	estimated delivery date
EEIC	Element Of Expense/Investment Code
EMCS	Energy Management Control System
EMIS	Environmental Management Information System
EOD	end of day
EPS	Engineering Performance Standards
ESPC	Energy Savings Performance Contract
FAD	force activity designator
FAR	federal acquisition regulations
FCA	fund cite authorization
FEDLOG	Federal Logistics Data
FEMP	Federal Energy Management Program
FIM	Facility Investment Metric
FOB	found on base
FSC	Federal Supply Class
FSDC	Fire Safety Deficiency Code
GIS	graphic information system, a linking of database data with CADD drawings
GOCESS	Government Operated Civil Engineer Supply Store
GOQ	general office quarters

GSA	General Services Administration
HM	hazardous material
HMP	Hazardous Material Pharmacy
HVAC	heating, ventilation, and air conditioning
ICS	Infrastructure condition standard
IDIQ	indefinite delivery/indefinite quantity, a type of contract
IEC	Issue Exception Code
IEU	individual equipment unit
IL	identification list
IMPAC	International Merchant Purchase Authorization Card
IPM	integrated pest management
IWT	industrial water treatment
LP	local purchase
M&R	maintenance and repair
MADJ	Adjective File
MADT	Adjective Type File
MAJCOM	Major Command
MC	minor construction
MCP	see MILCON
MCPAM	man-hour ceiling/priority analysis method to prioritize RWP work items
MCRL	master cross reference list
MDF	material documentation folder
MFH	military family housing
MILCON	Military Construction Program (previously known as MCP)
ML-C	management data listing
MNAD	Noun Additional Description File
MNON	Noun File
MRA&C	maintenance, repair, alteration, and condition
MRL	material requirements list
MRTSUD	Rejected Transaction Suspense Program
MSDS	material safety data sheet
MSYN	Noun Synonym File
MTL	master task list
NAF	non-appropriated funds
NIIN	National Item Identification Number
NIST	not-in-stock ticket
NPI	non pre-priced
NPL	non-price listed
NSN	National Stock Number
O&M	operations and maintenance
ODBC	open database connectivity, a structure enabling communications between databases
OPR	office of primary responsibility
OSD	Office of the Secretary of Defense
PCB	polychlorinated biphenyl, a hazardous additive to some oils used as coolants in transformers

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PCN	Product Control Number
PD	pier delivery
PDO	Publishing Distribution Office
PFMR	Project Funds Management Record
PHM	potentially hazardous material
PIIN	Purchase Information Identification Number
PM	preventative maintenance
PMD	property movement document
PO	purchase order
POC	point of contact
POF	Purchase Order File
POL	petroleum, oil and lubricants, AF term for organizations and systems that manage any fuel or oil-based materials
PWS	performance work statement
QAE	quality assurance evaluators, QAEs monitor service contracts.
QASP	quality assurance surveillance plan
QUP	quantity unit pack
RAC	risk assessment criteria
RC	responsibility center/cost center
RCCC	Responsibility Cost Center Code
RDD	required delivery date
RFQ	request for quote
RHA	residue holding area
RIEI	Roofing Industry Educational Institute
RIF	reduction in force
RMS	recurring maintenance schedule
RPIE	real property installed equipment, equipment CE physically installs and maintains as part of a facility
RVP	reverse post
RWP	recurring work program
SABER	simplified acquisition of base engineering requirements, IDIQ contract that performs minor construction and repair.
SBSS	Standard Base Supply System
SFM	specialty function manager
SHC	self-help center
SMART	structural maintenance and repair team
SMSgt	senior master sergeant
SOQ	senior officer quarters
SOW	statement of work
SQL	structured query language, a method for communicating between databases
SSAN	Social Security Account Number
TA	Tables of Allowances
TIB	Technical information bulletins
TIN	turn-in
TLQ	temporary lodging quarter
TO	technical order

UGT	upgrade training
UJC	Urgency Justification Code
UND	urgency of need designator
URMT	utility rates management team, an AFCESA team to support base utility engineers
WIMS	Work Information Management System, the current CE database management system
WO	work order
WRRB	Work Request Review Board (also known as WORB, Work Order Review Board)

## Terms

<b>1219 visit --</b>	The periodic facility visit performed by a work center to identify routine work requirements and schedule a follow-on repair visit by the work center crafts. Known as the 1219 visit due to the use of the AF Form 1219, Base Civil Engineer (BCE) Multi-Craft Job Order.
<b>acquired land --</b>	Land obtained from any private or public source other than land withdrawn from the public domain.
<b>acquisition --</b>	Obtain, use, or control real property or an interest in real property by purchase, condemnation, donation, exchange, leasing, revestment, or recapture.
<b>Air Force proponents --</b>	Air Force major command, installation, other component or other agent designated to act on behalf of the Air Force, responsible for initiating or carrying out the proposed real property acquisition.
<b>annexation --</b>	A procedure by which a municipality; such as a city, town, or village, incorporates Air Force land within the corporate limits of the municipality. Procedures vary depending on state law.
<b>as-builts --</b>	Original facility design drawings (or replacement master drawings or the master computer aided design and drafting (CADD) drawing file). Civil Engineer units use these drawings to document all as-built conditions of a facility and modifications as they occur over the years.
<b>Base Civil Engineer --</b>	Senior-ranking base engineer in the Civil Engineer unit.
<b>blanket purchase agreement (BPA) --</b>	A simplified method of filling anticipated repetitive needs for small quantities of supplies. This agreement is designed to reduce administrative cost in making small purchases by eliminating the need for issuing individual purchase documents. The government is obligated only when a call is placed against it.
<b>blue-line drawings --</b>	Copies of the original as-built or design drawings used for daily work.

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<b>BPA call --</b>	An action initiated by a Civil Engineer Material Acquisition System (CEMAS) buyer or an authorized individual to order supplies from firms that have been awarded a blanket purchase agreement.
<b>CEMAS store work order --</b>	A special collection work order (usually work order 00011) with shop code, cost center, cost account code, and EEIC agreed upon to be used to collect the cost of material purchased and maintained in the store.
<b>CEMAS monitor --</b>	The chief of Material Acquisition or designated representative who will interface between Base Contracting, Base Supply, and Accounting and Finance.
<b>CEMAS stocked items --</b>	Items identified or approved by the chief of Material Acquisition to be stocked for recurring demands. Approval is based on demand history, funding availability, and storage limitation.
<b>CEMAS stock list (CSL) --</b>	A unique number assigned to individual items listed in the noun dictionary.
<b>certificate of necessity --</b>	A written statement, signed by Deputy Assistant Secretary of the Air Force for Installation (SAF/MII), which certifies it is necessary (for reasons vital to the national security) for the Air Force to exceed the statutory cost limits established in AFI 32-9001 relative to annual rent or alterations, improvements, and repairs to leased buildings.
<b>cession --</b>	Ceding or yielding by a state of its legislative jurisdiction over government-controlled real property to the federal government.
<b>clearance easement --</b>	The right to remove or prevent obstructions rising into the airspace. Examples are easements over areas beyond the ends of an airfield runway (approach or departure clearance zones). Also, easements adjacent to the sides of the runway (transition zones), clearance for approach lighting sites, communication sites, etc. A clearance easement, specifically, does not include the right of aircraft passage over the land, so the landowner may separately recover for loss of value to his or her land due to low and frequent flights of aircraft.
<b>commercial facilities (industrial-type) --</b>	Air Force-owned and -operated facilities housing a function that could be done by private industry, such as motor repair shops, laundries, bakeries, ice cream manufacturing plants. (Exceptions are base exchanges, commissaries, and other non-appropriated fund activities.)

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<b>condemnation --</b>	A judicial proceeding started by the government through the Department of Justice for the purpose of exercising its right of eminent domain. Condemnation results in passage of title and land to the government with or without the consent of the landowner, but with just compensation paid to him or her.
<b>consideration --</b>	Compensation or an equivalent (such as money, material, or services) that is given for something acquired or promised. This may be the appraised fair market value of the real property or may include protection of the real property against loss by fire, water, or other causes, or any mutually agreeable arrangement that does not conflict with governing statutory limitations.
<b>core requirements --</b>	Process oriented descriptions which describe the tasks needed to support Maintenance Engineering.
<b>declaration of taking --</b>	A pleading filed with a federal court of law in a real property condemnation proceeding whereby, on filing the pleading, together with deposit of estimated "just compensation" in the court, the real estate interest is vested in the government.
<b>declaration of excess --</b>	A narrative description of real property that is no longer required for foreseeable Air Force missions. The declaration contains an identification of the land, type of governmental real estate interest, facility inventory information, recommended disposal dates, re-use rights, and services, obligations, and outgrants outstanding (see AFI 32-9004).
<b>direct scheduled work order --</b>	Emergency or essential work generally not requiring detailed planning, also known as job orders.
<b>direct digital control --</b>	Any control system (HVAC, alarms, lighting, or otherwise) using entirely solid-state (digital) components.
<b>District Engineer --</b>	One of the several Division Engineers, US Army Corps of Engineers, who supervise the activities of certain District Engineers and are the intervening management level between the Chief of Engineers and District Engineers (e.g., US Army Engineer Division, North Atlantic, CENAD).

<b>easement --</b>	The right to use the land of another for a specified purpose. Usually, the owners of the land continue in possession and may use it as long as such use does not interfere with the purpose for which the easement was granted. An easement may be acquired for a specific term or in perpetuity. An easement differs from a license because: the privilege granted usually cannot be withdrawn during its term and it is considered to be a permanent interest in the property if the term exceeds one year.
<b>emergency work --</b>	Work that must be accomplished immediately.
<b>eminent domain --</b>	The right of the government to take private property for public use upon payment of just compensation.
<b>Energy Conservation Investment Program (ECIP) --</b>	A Military Construction (MILCON)-funded program primarily intended for accomplishing energy conservation retrofits of existing buildings. It includes construction of new, high-efficiency energy systems and modernization of existing systems. ECIP is an OSD centrally-managed program.
<b>Energy Savings Performance Contract (ESPC) --</b>	Contracting with a private sector company for completion of energy audits and installation of energy conservation projects. This provides a method to acquire energy conservation projects with no AF resources and without payment if savings do not result.
<b>Energy Management Control System (EMCS) --</b>	The civil engineer energy control system that historically manages heating, ventilation, and air conditioning (HVAC) systems. It differs from direct digital control in that it includes both solid state systems and the older pneumatic systems.
<b>engineers --</b>	Any engineer in Civil Engineer units to include the Base Civil Engineer, the Maintenance Engineer, program engineers, and project engineers.
<b>environmental assessment --</b>	A document, occurring early in the planning process, for evaluating the potential environmental impact of a proposed action. An assessment covers the same topical areas as an environmental impact statement (EIS), but with less detail. An assessment results in a decision that an EIS is necessary, or that the proposed action will have no significant effect, therefore, a finding of no significant impact (FONSI) can be made (AFI 32-7004).

<b>environmental impact statement --</b>	A detailed full-disclosure report which, pursuant to the National Environmental Policy Act (NEPA) of 1969, (42 U.S.C. 4321-4347), identifies and analyzes the anticipated environmental impact of a proposed Air Force action and discusses how the adverse effects of the proposal will be mitigated. It is prepared in two stages: a draft statement which is filed with the Environmental Protection Agency (EPA) and made available to the public for comment and a final statement which is revised to reflect comments made on the draft EIS (AFI 32-7004).
<b>essential work --</b>	Work that cannot wait for the next 1219 visit.
<b>expanded clear zone easement --</b>	The right to prohibit all uses of land, within 3,000 feet of the runway threshold and extending 1,000 to 1,500 feet on each side of the runway center line extended, that are incompatible with or could impede, aircraft operations. For additional guidance see AFI 32-7003.
<b>facility investment metric (FIM) --</b>	An Air Force facilities requirements identification program to assess facilities based on mission priority; used to develop funding priorities.
<b>Federal Energy Management Program (FEMP) --</b>	An OSD, centrally-managed program for projects less than \$300K. Projects accomplish energy conservation retrofits of existing buildings or new construction plus energy audits, designs and metering programs. It includes construction of new, high-efficiency energy systems and modernization of existing systems.
<b>fee ownership --</b>	Title to real property belonging to a person or the government where full and unconditional ownership exists. Such ownership does not necessarily include mineral rights.
<b>floodplain --</b>	The 100-year floodplain is the lowland area adjoining inland and coastal waters, including flood prone areas of offshore islands that would be inundated by the base flood. The critical actions (or 500-year) floodplain is the area that would be inundated by a 500-year flood. (See AFI 32-7003.)
<b>functional squadron --</b>	Pre-1992 squadron structure, functionally oriented, it collocated like-functions and distribution portions of the missions and objectives to these functional shops.

<b>general purpose space --</b>	Space in buildings and associated land under the assignment authority of the General Services Administration (GSA) which GSA has found to be suitable for use by federal agencies, generally. The following categories of space are excluded: space in any building in a foreign country; space in any building on the grounds of a military or Coast Guard installation; space in airports; and special purpose space, as defined in GSA Federal Property Management Regulations (41 CFR 101, subpart 101-18.104-1).
<b>grantee --</b>	One to whom a grant is made.
<b>grantor --</b>	The person by whom a grant is made; a transferor of property.
<b>GSA reimbursables --</b>	These are special services, beyond the standard levels of service normally provided by GSA, for which the Air Force must reimburse GSA.
<b>GSA rent --</b>	Formerly called "standard level user charge (SLUC)," a rate charged by GSA for assigned space in government-owned or -leased property for which GSA has the assignment responsibility. The user charge approximates commercial charges for comparable space and services.
<b>GSA space --</b>	Space in buildings owned or leased by GSA and assigned to an Air Force or other federal government activity. This space includes land incidental to the use of the space.
<b>hazardous substance --</b>	This term is defined in CERCLA, 42 U.S.C. 9601 (14). For the purposes of this handbook it includes petroleum, petroleum products, oil, and lubricants (POL).
<b>holding area --</b>	A storage area for work order materials awaiting scheduling.
<b>industrial facility --</b>	Any Air Force -owned, -leased, or -controlled real property facility which is used by a contractor for the purpose of fulfilling government research, development, test, evaluation, production, maintenance, or modification contracts or for the storage of production machinery and equipment in support of such activity.
<b>infiltration and inflow (I/I) --</b>	Amount of water that seeps into a sanitary or storm sewer system, increasing the load on the fixed capacity pipes and treatment systems downstream.

<b>ingrants --</b>	Documents such as licenses, leases, permits, temporary easements, foreign base rights agreements, and treaties, under which the Department of the Air Force acquires an interest in, or control of, real property in less than fee ownership.
<b>jurisdiction --</b>	See legislative jurisdiction.
<b>lease --</b>	A conveyance of exclusive possessory interest in real property for a specified term in return for payment of rent or other consideration to the owner.
<b>legislative jurisdiction--</b>	This term, as used in this instruction in connection with a land area, means the power and authority of the federal government to legislate and to exercise executive and judicial powers within the area.
<b>lessee --</b>	One who possesses the right to occupy real property under a lease.
<b>lessor --</b>	One who holds title to, and conveys the right to use and occupy, a property under a lease.
<b>license --</b>	A privilege that can be withdrawn at will, to use or pass over a licensor's real property for a specific purpose (e.g., right-of-entry for survey and exploration, right-of-entry for construction, tree topping). Licenses merely confer a privilege to occupy real property at the sufferance of the owner. Licenses granted to other federal agencies are called permits.
<b>life-cycle cost --</b>	Primary criteria to be used for design (mandated by the Department of Defense); criteria of analyzing the cost over the life span of a component or system to ensure all costs are used (purchase prices, construction costs, maintainability, efficiency, reliability, etc.).
<b>long-range plan --</b>	Multi-year plan for projects to support a specific infrastructure element, originally termed "5-year Plan," many bases and commands have converted to "6-year Plans" to match the two-year programming cycle.
<b>maintainability --</b>	Characteristic of a system describing the ease or frequency of maintenance, highly maintainable systems cost less to maintain.
<b>maintenance engineer --</b>	Chief of Maintenance Engineering.
<b>MicroPaver --</b>	Automated system used to inventory and analyze pavements.
<b>mobilization --</b>	The process by which the Armed Forces or part of them are brought to a state of readiness for war or other national emergency. This includes activating all or part of the Reserve Components as well as assembling and organizing personnel, supplies, and material.

<b>National Capital Region (NCR) --</b>	For purposes of this instruction only, a region encompassing the District of Columbia; Montgomery and Prince George's Counties in Maryland; Arlington and Fairfax, counties in Virginia; and the cities of Alexandria, Fairfax, and Falls Church in Virginia.
<b>nonindustrial facility --</b>	A unit of real property (other than DoD real property), including improvements. Nonindustrial facilities include hotels, motels, resort facilities, educational institutions, hospitals, office buildings, and other real property that can be used for military purposes. These type of facilities are not used or suitable for production or maintenance of materials, munitions, equipment, supplies, goods, and other products for military or civilian use ocean terminals.
<b>non-MRL items --</b>	Items not included in an established material requirements list (MRL). Most Contractor Operated Civil Engineer Supply Store (COCESS) contracts require the item be added to the MRL before the contractor provides the item.
<b>non-pre-priced items (NPI) --</b>	An item obtained for Air Force use by a COCESS contractor for which there was no prior solicited and agreed costs.
<b>noun dictionary --</b>	An item record list which includes item description, pricing history, demand data, and inventory data for each item loaded in CEMAS.
<b>offer of gift (donation) --</b>	Voluntary offer to transfer or convey to the government an interest in real property without payment or consideration of any kind by the government (AFI 51-601).
<b>objective squadron --</b>	Post-1992 squadron structure, objective-oriented, it purposes to collocate all functions necessary to support a mission or objective.
<b>operations specialists --</b>	The Air Force specialty created to support the scheduling and controlling of the Civil Engineer work forces; also known as work force manager, controller, triple-nickel, production controller, and scheduler.
<b>option to purchase --</b>	A contract whereby the owner of the real property gives the government the right to acquire an interest in the property at a stated price during a specified period of time. An offer to sell property, unsupported by any consideration, is not considered an option, and it may be withdrawn at anytime (10 U.S.C. 2677).

<b>outgrants --</b>	Documents such as leases, licenses, easements, joint-use agreements, and other agreements (including use agreements) under which the government's interest in, or control of, real property, as exercised through the Department of the Air Force, is modified by conferring rights therein to another government agency, nonfederal entity (such as a state or local government), or a private party (for such use as grazing livestock). (See AFI 32-9003.)
<b>overhires --</b>	Non-permanent employees hired to fulfill a specific purpose who does not fill an authorized position on the unit manning document, but is paid from civilian pay accounts and counts against the unit work-year ceiling
<b>palace acquires--</b>	Apprentice engineers hired by Air Force Personnel Center and managed on a central manning document; Major Commands and bases commit to a three-year training program and final job placement within the command
<b>permit --</b>	A nonpossessory right of exclusive or nonexclusive use of real property. When granted to a party other than a federal agency, it generally covers a one-time use and is called a "license." However, the term also is used to describe an authorization to use property under the jurisdiction of one government agency by another for a definite period. These two uses of the term must not be confused.
<b>pre-priced items --</b>	These are commonly used items where prices have been previously determined. This is basically what the COCESS contracts have been awarded on. The contractor agrees to provide particular items at a specified price.
<b>pre-priced blanket purchase agreement --</b>	Pre-negotiated BPAs established with vendors that identify specific items to be purchased at specific prices for a specific period of time. These are primarily used to reduce administrative cost and buyer time for purchasing high usage items such as CEMAS store stock.
<b>preventative maintenance --</b>	Recurring work performed to safeguard and/or extend the efficient and effective lifespan of real property, RPIE, or other equipment items.
<b>program engineers --</b>	Engineers of Maintenance Engineering, so termed because they manage infrastructure programs.
<b>project engineers --</b>	Engineers of the Engineering Flight, so termed because they manage projects (design and construction).

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<b>project --</b>	As related to real estate acquisition activities, a project is a real property acquisition action, or related actions, at an Air Force installation to fulfill a known requirement. Related real property actions that constitute a complete project are processed simultaneously. (For example: The acquisition of land for an ammunition storage project usually involves the acquisition of fee ownership for the land area used to construct storage facilities and restrictive easements over an adjacent safety area.)
<b>public domain --</b>	Land originally acquired by the United States from foreign governments and which has never left United States ownership. It is administered by the Department of the Interior.
<b>public lands --</b>	Any land and interest in land owned by the United States within the states and administered by the Secretary of the Interior through the Bureau of Land Management without regard as to how the United States acquired ownership. The term excludes lands located on the outer Continental Shelf and lands held for the benefit of Indians, Aleuts, and Eskimos (43 U.S.C. 1702 (e) (see withdrawn land).
<b>purchase request abstract --</b>	CEMAS-generated LP requisition document used to request purchase of BCE items by the buyers.
<b>purchase order --</b>	A document authorizing a vendor to deliver BCE materials.
<b>real property --</b>	Lands, buildings, structures, utilities systems, improvements and appurtenances thereto. Includes equipment attached to and made part of buildings and structures (such as heating systems), but not movable equipment (such as plant equipment).
<b>real estate directive --</b>	A request to another federal agency (e.g., Office of the Chief of Engineers, US Army Corps of Engineers, Department of the Army or Naval Facilities Engineering Command, Department of the Navy or Bureau of Land Management, US Department of the Interior) to act on a real estate matter on behalf of the Air Force.
<b>real estate --</b>	See real property.
<b>recurring work --</b>	Routine, redundant, recurring work involving real property, real property installed equipment (RPIE), or systems and other equipment maintained by CE; scope and frequency is well known, locations are well established, materials are available or not required.

<b>red-line drawings --</b>	Marked-up drawings (typically blue-lines) indicating changes to facilities and as-built conditions, used to update as-built drawings.
<b>release --</b>	See CERCLA, 42 U.S.C. 9601 (22).
<b>reliability --</b>	Characteristic of a system that describes its anticipated lifespan and performance.
<b>rent, nominal --</b>	A rental consideration of a token amount in money or services. Generally, it involves a rental payment of \$1.00 per year. Nominal rental also means a consideration completely unrelated to the actual or fair market value of the leased property.
<b>request and authority to cite funds --</b>	Base Contracting is provided a quarterly dollar target against which Base Civil Engineer local purchase items are obligated. The availability is certified by Accounting and Finance and the target amount is administered by Base Contracting. The Civil Engineer Funds Management Section should provide a complete AF Form 616, Fund Cite Authorization, to Base Contracting no later than the first working day of the quarter.
<b>residue holding account --</b>	An account for maintaining accountability of excess material after completing a work order.
<b>restrictive safety easement --</b>	The right to restrict the erection of habitable buildings, the congregation of people, or other activities within a specified safety clearance distance of munitions storage areas, armed aircraft and explosives-related facilities (see AFI 91-409).
<b>retrocession --</b>	The act of giving back to a state all or part of the federal legislative jurisdiction formerly enjoyed by the government.
<b>right-of-way easement --</b>	The right to pass over the land of another for a specific purpose. Such use could be for constructing a road, installing pipelines, pole lines, or telephone cables, etc.
<b>right of entry --</b>	The temporary right to enter on real property for a specified purpose without acquiring any estate or interest in it.
<b>service contract --</b>	A contract for nonpersonal services, executed under the Armed Services Procurement Act of 1947, where the contracting party agrees to perform some service for the Air Force and the Air Force agrees to pay for such service. In performing the service, the contractor may use real property in which he or she has an interest, even to the extent of permitting the Air Force to go on the property in a nonexclusive manner.
<b>SLUC --</b>	Standard Level Users Charge (see GSA rent).

<b>stay-in-schools --</b>	Temporarily hired employees who work a portion of the work week and attend school the rest of the week; are overhires and do not count against a manning document, pay comes from paid civilian pay and hours count against the unit work-year ceiling
<b>space, special purpose --</b>	Space in buildings not under assignment responsibility of the General Services Administration, including land incidental to the use thereof, that is fully or predominantly used for the special purposes of an agency having custody of such space and generally not suitable for use by other agencies. Examples of such space include computer centers, hospitals, laboratories, mints, penal institutions.
<b>space, general purpose --</b>	Space in buildings under assignment responsibility of the General Services Administration, including land incidental to the use thereof, that the GSA has determined to be suitable for use by federal agencies generally, <b>except:</b> space in buildings on installations of the Department of Defense or the Department of Transportation (US Coast Guard facilities) and any space designated by the GSA as special purpose space in 41 CFR 101, subchapter D, subpart 101-18.104-1.
<b>stock record account number (SRAN) --</b>	An accountable stock record account established for the Civil Engineer Material Acquisition Systems (CEMAS).
<b>storage --</b>	The holding of hazardous substances for a temporary period prior to the hazardous substances being either used, treated, transported, or disposed.
<b>subordination agreement --</b>	An agreement whereby the owner of a real estate interest (including subsurface oil, gas and mineral rights) agrees to suspend or limit the exercise of all or part of his or her ownership rights under specified terms and conditions (usually to avoid interference with governmental use of the surface or operations).
<b>suspension agreement --</b>	Suspension by lease of an individual's grazing or mineral rights in public land or state-owned lands.
<b>urban centers --</b>	These are the cities and standard metropolitan statistical areas (SMSA). General Services Administration is the sole leasing authority for obtaining general purpose space in these areas.

- value (current, fair, and estimated) --** As used in this regulation, these terms mean current fair market value or current fair market rental value, as appropriate. Fair market value is the amount in cash, or on terms reasonably equivalent to cash, for which the property would be sold by an owner, willing but not obliged to sell, to a purchaser who desires, but is not obliged, to buy. Fair market rental value of a property is the amount that, in a competitive market, a well-informed and willing lessee would pay and that a well-informed lessor would accept for the use and occupancy of the property for a particular term.
- vault --** Storage location of base as-built and Base Comprehensive Plan drawings, so termed because many bases originally stored these drawings in a vault for physical security.
- wetlands --** Areas that are inundated by surface or ground water with a frequency sufficient to support, and under normal circumstances do or would support, a prevalence of vegetative or aquatic life that requires saturated or seasonally-saturated soil conditions for growth and reproduction. Wetlands generally include swamps, marshes, bogs and similar areas such as mud flats, natural ponds, potholes, river overflows, sloughs, and wet meadows. Wetlands may be, but are not necessarily, located in floodplains (AFI 32-7005).
- withdrawn land --** Public land that has been set aside or designated for a specific public purpose, such as a national park, wildlife refuge, or national defense use. Withdrawal of public lands generally has the effect of segregating such land from lease, sale, settlement, or other dispositions under the public land laws.
- work center(s) --** Civil Engineering Operations maintenance teams organized to maintain and repair base facilities and infrastructure systems. Depending on the installation, these Centers can be classified as either shops, zones or a combination of both.
- work orders --** Work requiring detailed planning or capitalization of the real property records.

**Attachment 2 Core Requirements — All Flight Elements****(AFMS 44EO Attachment 1, Appendix C, 9 May 1997)****PROCESS ORIENTED DESCRIPTION  
MAINTENANCE ENGINEERING****A1C.1. RECEIVES TRAINING:**

A1C.1.1. RECEIVES CONTINGENCY TRAINING:

A1C.1.1.1. RECEIVES CATEGORY 1, CLASSROOM TRAINING.

A1C.1.1.2. RECEIVES CATEGORY 2, HANDS-ON TRAINING.

**A1C.2. MANAGES REAL PROPERTY MAINTENANCE:**

A1C.2.1. MANAGES INFRASTRUCTURE MAINTENANCE AND REPAIR PROGRAM:

A1C.2.1.1. MANAGES PAVEMENTS PROGRAM.

A1C.2.1.2. MANAGES ROOFING PROGRAM.

A1C.2.1.3. MANAGES WATER AND WASTEWATER PROGRAM.

A1C.2.1.4. MANAGES INDUSTRIAL WATER TREATMENT PROGRAM.

A1C.2.1.5. MANAGES ELECTRICAL DISTRIBUTION PROGRAM.

A1C.2.1.6. MANAGES AIRFIELD LIGHTING PROGRAM.

A1C.2.1.7. MANAGES CORROSION CONTROL PROGRAM.

A1C.2.1.8. MANAGES TRAFFIC PROGRAM.

A1C.2.1.9. MANAGES ENERGY PROGRAM.

A1C.2.1.10. MANAGES SHELTER PROGRAM.

A1C.2.1.11. MANAGES HVAC PROGRAM.

A1C.2.1.12. MANAGES WARRANTY PROGRAM.

A1C.2.2. REVIEWS DESIGN PROJECT:

A1C.2.2.1. REVIEWS IN-HOUSE DESIGNED PROJECT.

A1C.2.2.2. REVIEWS ARCHITECTURAL-ENGINEERING DESIGNED PROJECT.

A1C.2.2.3. REVIEWS MILITARY CONSTRUCTION DESIGNED PROJECT.

A1C.2.3. PERFORMS WORK ANALYSIS:

A1C.2.3.1. DEVELOPS PERFORMANCE STANDARD.

A1C.2.3.2. DEVELOPS AND MEASURES PRODUCTIVITY INDICATOR.

A1C.2.3.3. REVIEWS WORK CENTER WORKLOAD, MANPOWER BALANCE, AND SKILLS MIX.

A1C.2.3.4. PERFORMS ECONOMIC ANALYSIS.

A1C.2.3.5. PERFORMS OPERATIONS STAFF WORK.

A1C.2.4. MANAGES CONTRACT:

A1C.2.4.1. MANAGES RECURRING SERVICE CONTRACT:

A1C.2.4.1.1. DEVELOPS AND MODIFIES CONTRACT PACKAGE.

A1C.2.4.1.2. NEGOTIATES CONTRACT.

A1C.2.4.1.3. INSPECTS CONTRACT.

A1C.2.4.1.4. PREPARES REPORT.

A1C.2.4.2. MANAGES NON-RECURRING SERVICE CONTRACT:

A1C.2.4.2.1. DEVELOPS AND MODIFIES CONTRACT PACKAGE.

A1C.2.4.2.2. NEGOTIATES CONTRACT.

- A1C.2.4.2.3. INSPECTS CONTRACT.
- A1C.2.4.2.4. PREPARES REPORT.
- A1C.2.4.3. MANAGES UTILITY CONTRACT:
  - A1C.2.4.3.1. DEVELOPS AND MODIFIES CONTRACT PACKAGE.
  - A1C.2.4.3.2. NEGOTIATES CONTRACT AND MODIFIED PACKAGE.
  - A1C.2.4.3.3. MAINTAINS BROCHURE.
  - A1C.2.4.3.4. MANAGES UTILITY RESALE AGREEMENT.
  - A1C.2.4.3.5. CONDUCTS BASE UTILITY SERVICE MEETING.
- A1C.2.5. PROVIDES NON-DESIGN DRAFTING SUPPORT:
  - A1C.2.5.1. UPDATES AS-BUILT DRAWING.
  - A1C.2.5.2. MAINTAINS TABS FOR BASE COMPREHENSIVE PLAN (BCP).
  - A1C.2.5.3. PERFORMS NON-DESIGN REPRODUCTION.
  - A1C.2.5.4. REPAIRS AND MAINTAINS DRAWING.

## **PROCESS ORIENTED DESCRIPTION**

### **FACILITY MAINTENANCE**

#### **A1D.1. RECEIVES TRAINING:**

- A1D.1.1. RECEIVES CONTINGENCY TRAINING:
  - A1D.1.1.1. RECEIVES CATEGORY 1, CLASSROOM TRAINING.
  - A1D.1.1.2. RECEIVES CATEGORY 2, HANDS-ON TRAINING.
- A1D.1.2. RECEIVES CERTIFICATION TRAINING.

#### **A1D.2. PROVIDES LOGISTIC SUPPORT:**

- A1D.2.1. PROVIDES CUSTOMER SUPPORT:
  - A1D.2.1.1. RECEIVES AND PROCESSES WORK REQUEST.
  - A1D.2.1.2. PROVIDES JOB STATUS.
  - A1D.2.1.3. TRAINS FACILITY MANAGER.
- A1D.2.2. OPERATES FORWARD SUPPLY STORE.

**A1D.3. PERFORMS SYSTEM OPERATION:** Performs unmanned heat plant surveillance.

**A1D.4. PERFORMS REAL PROPERTY MAINTENANCE:** Performs scheduled maintenance (maintains HVAC system, electrical system, plumbing system, and structural system).

#### **A1D.5. PERFORMS REAL PROPERTY REPAIR:**

- A1D.5.1. PERFORMS EMERGENCY REPAIR:
  - A1D.5.1.1. REPAIRS HVAC SYSTEM.
  - A1D.5.1.2. REPAIRS ELECTRICAL SYSTEM.
  - A1D.5.1.3. REPAIRS PLUMBING SYSTEM.
  - A1D.5.1.4. REPAIRS STRUCTURAL SYSTEM.
  - A1D.5.1.5. PERFORMS EMERGENCY ASBESTOS REMOVAL AND CONTAINMENT.
- A1D.5.2. PERFORMS ROUTINE REPAIR:
  - A1D.5.2.1. REPAIRS HVAC SYSTEM.
  - A1D.5.2.2. REPAIRS ELECTRICAL SYSTEM.
  - A1D.5.2.3. REPAIRS PLUMBING SYSTEM.
  - A1D.5.2.4. REPAIRS STRUCTURAL SYSTEM.

**A1D.6. PERFORMS REAL PROPERTY MODIFICATION AND ALTERATION:**

A1D.6.1. ACCOMPLISHES MINOR PROJECT.

A1D.6.2. SUPPORTS SELF-HELP PROJECT.

**PROCESS ORIENTED DESCRIPTION****MATERIAL ACQUISITION****A1B.1. RECEIVES TRAINING:**

A1B.1.1. RECEIVES CONTINGENCY TRAINING:

A1B.1.1.1. RECEIVES CATEGORY 1, CLASSROOM TRAINING.

A1B.1.1.2. RECEIVES CATEGORY 2, HANDS-ON TRAINING.

A1B.1.2. RECEIVES CERTIFICATION TRAINING:

A1B.1.2.1. RECEIVES TRAINING ON HAZARDOUS MATERIAL HANDLING (CAT 1).

A1B.1.2.2. RECEIVES TRAINING ON SUPPLY (CAT 1).

**A1B.2. PERFORMS LOGISTIC SUPPORT:**

A1B.2.1. PERFORMS MATERIAL ACQUISITION:

A1B.2.1.1. PROCESSES REQUISITION.

A1B.2.1.2. RECEIVES MATERIAL.

A1B.2.1.3. MANAGES HOLDING AREA.

A1B.2.1.4. MANAGES GOVERNMENT-OPERATED CIVIL ENGINEERING SUPPLY STORE (GOCESS).

A1B.2.1.5. MANAGES RESIDUAL STORAGE.

A1B.2.1.6. PICKS UP PROPERTY FROM VENDOR.

A1B.2.1.7. TRACKS MATERIAL.

A1B.2.1.8. CLOSES OUT WORK ORDER.

A1B.2.1.9. MANAGES HAZARDOUS MATERIAL PROGRAM.

A1B.2.1.10. MAINTAINS CIVIL ENGINEERING MATERIAL ACQUISITION SYSTEM (CEMAS) DATA BASE.

A1B.2.1.11. ACCOMPLISHES POST-POST TRANSACTION.

A1B.2.1.12. MANAGES DUE-IN-FOR MAINTENANCE (DIFM) ITEMS.

A1B.2.1.13. MONITORS WORK CENTER STOCK.

A1B.2.1.14. COORDINATES ADJUSTED LEVELS.

A1B.2.1.15. PROVIDES CUSTOMER TRAINING.

A1B.2.1.16. ACCOMPLISHES END-OF-YEAR CLOSEOUT.

A1B.2.1.17. ASSISTS COST CENTER EQUIPMENT CUSTODIANS.

A1B.2.1.18. MANAGES BASE SERVICE STORE AUTHORIZED USER LIST.

A1B.2.2. MANAGES VEHICLE FLEET:

A1B.2.2.1. SUBMITS VEHICLE REQUEST.

A1B.2.2.2. MAKES VEHICLE ASSIGNMENT.

A1B.2.2.3. COORDINATES CREDIT CARD.

A1B.2.2.4. COORDINATES AND PICKS UP NEW OR REPLACEMENT GSA VEHICLE.

A1B.2.2.5. MONITORS VEHICLE STATUS.

A1B.2.2.6. REPORTS AND INVESTIGATES INCIDENT.

A1B.2.2.7. ATTENDS VEHICLE MEETINGS.

A1B.2.2.8. MONITORS VEHICLE TRAINING PROGRAM.

- A1B.2.3. PERFORMS APPLIANCE MANAGEMENT:
  - A1B.2.3.1. ORDERS AND TURNS-IN APPLIANCE.
  - A1B.2.3.2. RECEIPTS FOR AND STORES APPLIANCE.
  - A1B.2.3.3. MAKES APPLIANCE EXCHANGE.
  - A1B.2.3.4. MAINTAINS BACKUP STOCK.
  - A1B.2.3.5. MANAGES WARRANTY PROGRAM.
- A1B.2.4. MANAGES SELF-HELP STORE.

## **PROCESS ORIENTED DESCRIPTION INFRASTRUCTURE SUPPORT**

### **A1E.1. RECEIVES TRAINING:**

- A1E.1.1. RECEIVES CONTINGENCY TRAINING:
  - A1E.1.1.1. RECEIVES CATEGORY 1, CLASSROOM TRAINING.
  - A1E.1.1.2. RECEIVES CATEGORY 2, HANDS-ON TRAINING.
- A1E.1.2. RECEIVES CERTIFICATION TRAINING.

### **A1E.2. PROVIDES LOGISTIC SUPPORT:**

- A1E.2.1. DETERMINES REQUIREMENT AND REQUESTS MATERIAL.
- A1E.2.2. MAINTAINS WORK CENTER STOCK.
- A1E.2.3. MANAGES WORK CENTER EQUIPMENT.

### **A1E.3. PERFORMS SYSTEM OPERATION:**

- A1E.3.1. OPERATES AIRCRAFT ARRESTING SYSTEM:
  - A1E.3.1.1. PERFORMS MA-1A POST-ENGAGEMENT OPERATION.
  - A1E.3.1.2. PERFORMS MA-1A ACTIVATION OR DEACTIVATION.
  - A1E.3.1.3. PERFORMS BAK-12 POST-ENGAGEMENT OPERATION.
  - A1E.3.1.4. PERFORMS BAK-12 ACTIVATION OR DEACTIVATION.
  - A1E.3.1.5. PROVIDES OPERATOR TRAINING.
- A1E.3.2. OPERATES DIESEL OR GAS GENERATOR:
  - A1E.3.2.1. OPERATES EMERGENCY GENERATOR.
  - A1E.3.2.2. TRAINS BASE PERSONNEL ON GENERATOR.
  - A1E.3.2.3. REFUELS EMERGENCY GENERATOR.
- A1E.3.3. OPERATES WATER DISTRIBUTION SYSTEM:
  - A1E.3.3.1. TAKES SAMPLE AND TESTS WATER.
  - A1E.3.3.2. PERFORMS CHEMICAL TREATMENT ON WATER SUPPLY.
  - A1E.3.3.3. OPERATES FIRE HYDRANT.
- A1E.3.4. OPERATES WASTEWATER COLLECTION SYSTEM:
  - A1E.3.4.1. OPERATES OIL SEPARATOR VALVE.
  - A1E.3.4.2. PRETREATS WASTEWATER.

### **A1E.4. PERFORMS REAL PROPERTY MAINTENANCE:**

- A1E.4.1. PERFORMS MAINTENANCE ON EXTERIOR ELECTRICAL SYSTEM:
  - A1E.4.1.1. MAINTAINS OVERHEAD DISTRIBUTION SYSTEM.
  - A1E.4.1.2. MAINTAINS UNDERGROUND DISTRIBUTION SYSTEM.
  - A1E.4.1.3. MAINTAINS SUBSTATION.
  - A1E.4.1.4. MAINTAINS SWITCHING STATION.

- A1E.4.1.5. MAINTAINS ELECTRICAL VAULT.
- A1E.4.1.6. MAINTAINS CRITICAL EXTERIOR LIGHT.
- A1E.4.1.7. MAINTAINS NON-CRITICAL EXTERIOR LIGHT.
- A1E.4.1.8. MAINTAINS TRAFFIC LIGHT.
- A1E.4.1.9. MAINTAINS ROTATING BEACON.
- A1E.4.1.10. MAINTAINS OTHER EXTERNAL ELECTRICAL SYSTEMS.
- A1E.4.2. PERFORMS MAINTENANCE ON AIRFIELD LIGHTING SYSTEM.
- A1E.4.3. PERFORMS MAINTENANCE ON AIRCRAFT ARRESTING SYSTEM:
  - A1E.4.3.1. MAINTAINS MA-1A.
  - A1E.4.3.2. MAINTAINS BAK-12.
- A1E.4.4. MAINTAINS GENERATOR:
  - A1E.4.4.1. MAINTAINS DIESEL GENERATOR.
  - A1E.4.4.2. MAINTAINS GAS GENERATOR.
  - A1E.4.4.3. MAINTAINS AUTOMATIC TRANSFER PANEL.
- A1E.4.5. PERFORMS MAINTENANCE ON LIQUID FUEL SYSTEM:
  - A1E.4.5.1. MAINTAINS TANK.
  - A1E.4.5.2. MAINTAINS VALVE.
  - A1E.4.5.3. MAINTAINS PUMP.
  - A1E.4.5.4. MAINTAINS PIPELINE.
  - A1E.4.5.5. MAINTAINS OTHER COMPONENT.
- A1E.4.6. PERFORMS MAINTENANCE ON GROUNDING AND LIGHTNING PROTECTION SYSTEM.
- A1E.4.7. PERFORMS MAINTENANCE ON ALARM SYSTEM:
  - A1E.4.7.1. MAINTAINS FIRE ALARM AND DETECTION SYSTEM.
  - A1E.4.7.2. MAINTAINS INTRUSION ALARM SYSTEM.
  - A1E.4.7.3. MAINTAINS ENVIRONMENTAL ALARM SYSTEM.
- A1E.4.8. PERFORMS MAINTENANCE ON SEWAGE SYSTEM:
  - A1E.4.8.1. CHECKS LIFT STATION AND MAIN CONNECTION.
  - A1E.4.8.2. LUBRICATES EQUIPMENT IN LIFT STATION.
- A1E.4.9. PERFORMS MAINTENANCE ON WATER DISTRIBUTION SYSTEM:
  - A1E.4.9.1. PERFORMS RECURRING WORK PROGRAM (RWP) FOR PUMP STATION.
  - A1E.4.9.2. PERFORMS RWP FOR WATER TREATMENT EQUIPMENT.
  - A1E.4.9.3. PERFORMS RWP FOR WATER STORAGE.
  - A1E.4.9.4. PERFORMS RWP FOR SWIMMING POOL.
- A1E.4.10. PERFORMS MAINTENANCE ON DELUGE SYSTEM:
  - A1E.4.10.1. CHECKS AND STARTS ENGINE.
  - A1E.4.10.2. CHANGES OIL AND LUBRICATES.
- A1E.4.11. PERFORMS MAINTENANCE ON CATHODIC PROTECTION SYSTEM.
- A1E.4.12. MAINTAINS FUEL GAS DISTRIBUTION SYSTEM:
  - A1E.4.12.1. PERFORMS RWP FOR NATURAL GAS SYSTEM.
  - A1E.4.12.2. PERFORMS RWP ON LIQUID PETROLEUM SYSTEM.

**A1E.5. PERFORMS REAL PROPERTY REPAIR:**

- A1E.5.1. REPAIRS EXTERIOR ELECTRICAL SYSTEM:
  - A1E.5.1.1. REPAIRS OVERHEAD DISTRIBUTION SYSTEM.
  - A1E.5.1.2. REPAIRS UNDERGROUND DISTRIBUTION SYSTEM.
  - A1E.5.1.3. REPAIRS SUBSTATION.

- A1E.5.1.4. REPAIRS SWITCHING STATION.
- A1E.5.1.5. REPAIRS ELECTRICAL VAULT.
- A1E.5.1.6. REPAIRS CRITICAL EXTERIOR LIGHT.
- A1E.5.1.7. REPAIRS NON-CRITICAL EXTERIOR LIGHT.
- A1E.5.1.8. REPAIRS TRAFFIC LIGHT.
- A1E.5.1.9. REPAIRS ROTATING BEACON.
- A1E.5.2. REPAIRS AIRFIELD LIGHTING SYSTEM.
- A1E.5.3. REPAIRS AIRCRAFT ARRESTING SYSTEM:
  - A1E.5.3.1. REPAIRS MA-1A.
  - A1E.5.3.2. REPAIRS BAK-12.
- A1E.5.4. REPAIRS GENERATOR:
  - A1E.5.4.1. REPAIRS DIESEL GENERATOR.
  - A1E.5.4.2. REPAIRS GAS GENERATOR.
  - A1E.5.4.3. REPAIRS AUTOMATIC TRANSFER PANEL.
- A1E.5.5. REPAIRS FUEL GAS DISTRIBUTION SYSTEM:
  - A1E.5.5.1. REPAIRS NATURAL GAS SYSTEM.
  - A1E.5.5.2. REPAIRS LP GAS SYSTEM.
- A1E.5.6. REPAIRS LIQUID FUEL SYSTEM:
  - A1E.5.6.1. REPAIRS TANK.
  - A1E.5.6.2. REPAIRS VALVE.
  - A1E.5.6.3. REPAIRS PUMP.
  - A1E.5.6.4. REPAIRS PIPELINE.
  - A1E.5.6.5. REPAIRS OTHER COMPONENT.
- A1E.5.7. REPAIRS ALARM SYSTEM:
  - A1E.5.7.1. REPAIRS FIRE ALARM AND DETECTION SYSTEM.
  - A1E.5.7.2. REPAIRS INTRUSION ALARM SYSTEM.
  - A1E.5.7.3. REPAIRS ENVIRONMENTAL ALARM SYSTEM.
- A1E.5.8. REPAIRS SEWAGE COLLECTION SYSTEM:
  - A1E.5.8.1. REPAIRS LIFT STATION.
  - A1E.5.8.2. REPAIRS SEWAGE LINE.
  - A1E.5.8.3. REPAIRS OIL SEPARATOR.
  - A1E.5.8.4. REPAIRS PRETREATMENT EQUIPMENT.
- A1E.5.9. REPAIRS WATER DISTRIBUTION SYSTEM:
  - A1E.5.9.1. REPAIRS PUMP STATION.
  - A1E.5.9.2. REPAIRS WATER TREATMENT EQUIPMENT.
  - A1E.5.9.3. REPAIRS WATER STORAGE.
  - A1E.5.9.4. REPAIRS INSTALLATION WATER LINE.
  - A1E.5.9.5. REPAIRS WATER VALVES.
  - A1E.5.9.6. REPAIRS SWIMMING POOL.
  - A1E.5.9.7. PERFORMS LIMITED ASBESTOS REMOVAL AND CONTAINMENT WORK.

**A1E.6. PERFORMS REAL PROPERTY MODIFICATION:**

- A1E.6.1. MODIFIES ALARM SYSTEM:
  - A1E.6.1.1. MODIFIES FIRE ALARM AND DETECTION SYSTEM.
  - A1E.6.1.2. MODIFIES INTRUSION ALARM SYSTEM.
  - A1E.6.1.3. MODIFIES ENVIRONMENTAL ALARM SYSTEM.
- A1E.6.2. MODIFIES EXTERIOR ELECTRICAL SYSTEM:

- A1E.6.2.1. MODIFIES OVERHEAD DISTRIBUTION SYSTEM.
- A1E.6.2.2. MODIFIES UNDERGROUND DISTRIBUTION SYSTEM.
- A1E.6.2.3. MODIFIES SUBSTATION.
- A1E.6.2.4. MODIFIES SWITCHING STATION.
- A1E.6.2.5. MODIFIES ELECTRICAL VAULT.
- A1E.6.2.6. MODIFIES EXTERIOR AREA LIGHT.
- A1E.6.2.7. MODIFIES TRAFFIC LIGHT.
- A1E.6.2.8. MODIFIES ROTATING BEACON.
- A1E.6.3. MODIFIES GENERATOR:
  - A1E.6.3.1. MODIFIES DIESEL GENERATOR.
  - A1E.6.3.2. MODIFIES GAS GENERATOR.
  - A1E.6.3.3. MODIFIES AUTOMATIC TRANSFER PANEL.
- A1E.6.4. MODIFIES SEWAGE COLLECTION SYSTEM.
- A1E.6.5. MODIFIES WATER DISTRIBUTION SYSTEM.
- A1E.6.6. MODIFIES LIQUID FUELS SYSTEM:
  - A1E.6.6.1. MODIFIES TANK.
  - A1E.6.6.2. MODIFIES VALVE.
  - A1E.6.6.3. MODIFIES PUMP.
  - A1E.6.6.4. MODIFIES PIPELINE.
  - A1E.6.6.5. MODIFIES OTHER COMPONENT.
- A1E.6.7. MODIFIES GROUNDING AND LIGHTNING PROTECTION SYSTEM.
- A1E.6.8. MODIFIES CATHODIC PROTECTION SYSTEM.
- A1E.6.9. MODIFIES/INSTALLS GAS FUEL DISTRIBUTION SYSTEM:
  - A1E.6.9.1. MODIFIES/INSTALLS NATURAL GAS DISTRIBUTION SYSTEM.
  - A1E.6.9.2. MODIFIES/INSTALLS LP SYSTEM.

## **PROCESS ORIENTED DESCRIPTION**

### **HEAVY REPAIR**

#### **A1F.1. RECEIVES TRAINING:**

- A1F.1.1. RECEIVES CATEGORY 1, CLASSROOM TRAINING.
- A1F.1.2. RECEIVES CATEGORY 2, HANDS-ON TRAINING.

#### **A1F.2. PROVIDES LOGISTIC SUPPORT:**

- A1F.2.1. MANAGES PEST CONTROL INVENTORY.
- A1F.2.2. MANAGES HAZARDOUS MATERIAL.
- A1F.2.3. MANAGES BASE RECOVERY MATERIAL.

#### **A1F.3. PERFORMS SYSTEM OPERATION:**

- A1F.3.1. SWEEPS AIRFIELD.
- A1F.3.2. SWEEPS STREET.
- A1F.3.3. SWEEPS PARKING LOT.
- A1F.3.4. SWEEPS OPEN STORAGE AREA.

#### **A1F.4. PERFORMS REAL PROPERTY MAINTENANCE:**

- A1F.4.1. MAINTAINS AIRFIELD:
  - A1F.4.1.1. INSPECTS AIRFIELD.

A1F.4.1.2. MAINTAINS AIRFIELD PAVEMENT.  
A1F.4.1.3. PERFORMS FLIGHTLINE GROUNDS PEST CONTROL.  
A1F.4.1.4. MAINTAINS FLIGHTLINE DITCH AND CULVERT.  
A1F.4.2. OPERATES EQUIPMENT TO SUPPORT BASE ACTIVITY.  
A1F.4.3. PERFORMS OPERATOR MAINTENANCE ON EQUIPMENT OR VEHICLES.  
A1F.4.4. MAINTAINS ROAD:  
A1F.4.4.1. MAINTAINS ROAD SURFACE.  
A1F.4.4.2. MAINTAINS GUARD RAIL.  
A1F.4.4.3. INSPECTS ROAD, CURB, GUTTER, DITCH, AND CULVERT FOR SHORT-TERM MAINTENANCE.  
A1F.4.4.4. MAINTAINS CURB AND GUTTER.  
A1F.4.4.5. MAINTAINS DITCH AND CULVERT.  
A1F.4.4.6. MAINTAINS POST-MOUNTED TRAFFIC DEVICE.  
A1F.4.5. PERFORMS PEST MANAGEMENT:  
A1F.4.5.1. PERFORMS STRUCTURAL PEST CONTROL.  
A1F.4.5.2. INSPECTS FOR PEST AND HERBICIDE CONTROL.  
A1F.4.5.3. PERFORMS NON-STRUCTURAL PEST CONTROL.  
A1F.4.5.4. PERFORMS OTHER BASE GROUNDS PEST CONTROL.  
A1F.4.5.5. PERFORMS MILITARY FAMILY HOUSING (MFH) PEST CONTROL.  
A1F.4.6. PROVIDES LOCKSMITH SERVICES:  
A1F.4.6.1. PERFORMS LOCKSMITH SERVICE.  
A1F.4.6.2. MAINTAINS REAL PROPERTY INSTALLED VAULT AND SAFE.  
A1F.4.7. MAINTAINS STORM DRAINAGE:  
A1F.4.7.1. CLEANS STORM DRAIN.  
A1F.4.7.2. INSPECTS STORM DRAIN FOR SHORT-TERM MAINTENANCE.  
A1F.4.8. MAINTAINS DRIVEWAY, PARKING LOT, STORAGE AREA:  
A1F.4.8.1. INSPECTS FOR SHORT-TERM MAINTENANCE.  
A1F.4.8.2. PERFORMS MAINTENANCE ON DRIVEWAY, PARKING LOT, AND STORAGE AREA.  
A1F.4.9. MAINTAINS SIDEWALK, BIKE AND JOGGING SURFACE:  
A1F.4.9.1. INSPECTS FOR MAINTENANCE REQUIREMENT.  
A1F.4.9.2. PERFORMS MAINTENANCE ON SIDEWALK, BIKE, AND JOGGING SURFACE.

**A1F.5. PERFORMS REAL PROPERTY REPAIR:**

A1F.5.1. REPAIRS AIRFIELD.  
A1F.5.2. REPAIRS INTERIOR FACILITY:  
A1F.5.2.1. REPAIRS FIRE PROTECTION SYSTEM.  
A1F.5.2.2. REPAIRS LOW VOLTAGE ELECTRICAL SYSTEM.  
A1F.5.2.3. REPAIRS GAS DISTRIBUTION SYSTEM.  
A1F.5.2.4. REPAIRS CONCRETE FACILITY.  
A1F.5.2.5. REPAIRS MASONRY FACILITY.  
A1F.5.2.6. REPAIRS INTERIOR WATER DISTRIBUTION SYSTEM.  
A1F.5.2.7. REPAIRS PLUMBING FIXTURE.  
A1F.5.2.8. REPAIRS HVAC SYSTEM.  
A1F.5.2.9. PERFORMS STRUCTURAL REPAIR.  
A1F.5.2.10. REPAIRS STUCCO OR PLASTER FACILITY.

- A1F.5.2.11. REPAIRS CERAMIC OR QUARRY TILE.
- A1F.5.2.12. PERFORMS METAL WORK.
- A1F.5.2.13. REPAIRS INTERIOR DRAIN, VENT, AND COLLECTION SYSTEM.
- A1F.5.2.14. REPAIRS FLOOR COVERING.
- A1F.5.2.15. PERFORMS MINOR PAINTING.
- A1F.5.3. REPAIRS BUILDING UTILITY SYSTEM:
  - A1F.5.3.1. REPAIRS FIRE PROTECTION SYSTEM.
  - A1F.5.3.2. REPAIRS LOW VOLTAGE ELECTRICAL SYSTEM.
  - A1F.5.3.3. REPAIRS GAS DISTRIBUTION SYSTEM.
  - A1F.5.3.4. REPAIRS HVAC SYSTEM.
  - A1F.5.3.5. REPAIRS MEDICAL PIPING SYSTEM.
  - A1F.5.3.6. REPAIRS ELECTRICAL APPLIANCE OR EQUIPMENT.
  - A1F.5.3.7. PERFORMS METAL WORK.
  - A1F.5.3.8. REPAIRS COMPRESSED AIR DISTRIBUTION SYSTEM.
- A1F.5.4. OPERATES EQUIPMENT TO SUPPORT BASE ACTIVITY.
- A1F.5.5. REPAIRS ROAD:
  - A1F.5.5.1. REPAIRS ROAD SURFACE.
  - A1F.5.5.2. REPAIRS CURB AND GUTTER.
  - A1F.5.5.3. REPAIRS DITCH AND CULVERT.
- A1F.5.6. REPAIRS EXTERIOR FACILITY:
  - A1F.5.6.1. REPAIRS PLUMBING FIXTURE.
  - A1F.5.6.2. REPAIRS LOW VOLTAGE ELECTRICAL SYSTEM.
  - A1F.5.6.3. REPAIRS CROSS-CONNECTION CONTROL AND BACKFLOW.
  - A1F.5.6.4. PERFORMS STRUCTURAL REPAIR.
  - A1F.5.6.5. REPAIRS CONCRETE FACILITY.
  - A1F.5.6.6. REPAIRS MASONRY FACILITY.
  - A1F.5.6.7. REPAIRS STUCCO OR PLASTER FACILITY.
  - A1F.5.6.8. REPAIRS CERAMIC OR QUARRY TILE.
  - A1F.5.6.9. PERFORMS METAL WORK.
- A1F.5.7. REPAIRS STORM DRAIN.
- A1F.5.8. REPAIRS FENCE.
- A1F.5.9. REPAIRS DRIVEWAY, PARKING LOT, AND STORAGE AREA.
- A1F.5.10. REPAIRS SIDEWALK, BIKE, AND JOGGING SURFACE.

**A1F.6. PERFORMS REAL PROPERTY ALTERATION:**

- A1F.6.1. ALTERS BUILDING UTILITY SYSTEM:
  - A1F.6.1.1. ALTERS FIRE PROTECTION SYSTEM.
  - A1F.6.1.2. ALTERS LOW VOLTAGE ELECTRICAL SYSTEM.
  - A1F.6.1.3. PERFORMS METAL WORK.
  - A1F.6.1.4. ALTERS HVAC SYSTEM.
  - A1F.6.1.5. ALTERS ELECTRICAL APPLIANCE OR EQUIPMENT.
- A1F.6.2. ALTERS INTERIOR FACILITY:
  - A1F.6.2.1. ALTERS STRUCTURE.
  - A1F.6.2.2. ALTERS CONCRETE FACILITY.
  - A1F.6.2.3. ALTERS MASONRY FACILITY.
  - A1F.6.2.4. ALTERS STUCCO OR PLASTER FACILITY.
  - A1F.6.2.5. ALTERS CERAMIC OR QUARRY TILE.

A1F.6.2.6. ALTERS LOW VOLTAGE ELECTRICAL SYSTEM.

A1F.6.2.7. PERFORMS METAL WORK.

A1F.6.2.8. ALTERS HVAC SYSTEM.

A1F.6.3. ALTERS EXTERIOR FACILITY:

A1F.6.3.1. PERFORMS STRUCTURAL ALTERATION.

A1F.6.3.2. ALTERS CONCRETE FACILITY.

A1F.6.3.3. ALTERS MASONRY FACILITY.

A1F.6.3.4. ALTERS STUCCO OR PLASTER FACILITY.

A1F.6.3.5. ALTERS CERAMIC OR QUARRY TILE.

A1F.6.3.6. ALTERS PLUMBING FIXTURE.

A1F.6.3.7. ALTERS LOW VOLTAGE ELECTRICAL SYSTEM.

A1F.6.3.8. PERFORMS METAL WORK.

A1F.6.3.9. ALTERS CROSS-CONNECTION, CONTROL, AND BACKFLOW.

A1F.6.3.10. PERFORMS MINOR PAINTING.

A1F.6.3.11. ALTERS IRRIGATION SPRINKLER SYSTEM.

**A1F.7. PERFORMS REAL PROPERTY CONSTRUCTION:**

A1F.7.1. OPERATES EQUIPMENT TO SUPPORT COMMUNICATION SCHEMES.

A1F.7.2. PERFORMS STRUCTURAL CONSTRUCTION:

A1F.7.2.1. CONSTRUCTS FACILITIES.

A1F.7.2.2. INSTALLS UTILITY SYSTEMS.

A1F.7.2.3. OPERATES EQUIPMENT.

A1F.7.3. CONSTRUCTS ROAD.

A1F.7.4. CONSTRUCTS FENCE.

A1F.7.5. CONSTRUCTS DITCH, CULVERT, STORM DRAIN, AND SUB-SURFACE DRAIN.

A1F.7.6. CONSTRUCTS CURB OR GUTTER.

A1F.7.7. CONSTRUCTS DRIVEWAY, PARKING LOT, OR STORAGE AREA.

A1F.7.8. CONSTRUCTS SIDEWALK, BIKE, OR JOGGING SURFACE.