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OPERATIONS MANAGEMENT

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This instruction implements AFPD 32-10, *Installations and Facilities.* It provides the directive requirements for the operations management of civil engineering. Although the principal focus is the operations flight, this publication applies to all civil engineering personnel. It does not apply to Air National Guard Units.

(AFRC) This supplement implements and extends the guidance of Air Force Instruction (AFI) 32-1031, 1 July 1997. The AFI is printed word-for-word without editorial review. Air Force Reserve Command supplementary material is indicated by "(AFRC)" in boldface type. This supplement describes Air Force Reserve Command procedures to be used in conjunction with the basic instruction. It provides directives and requirements specific to the base operating support (BOS) function of base civil engineering at AFRC installations. Within this command all items of compliance in the basic instruction remain valid unless specifically exempted. Upon receipt of this integrated supplement discard the Air Force basic.

SUMMARY OF REVISIONS

This first revision incorporates a table of life expectancies for appliances (paragraph 17.1.4). A | indicates revisions from the previous edition.

(AFRC) This revision deletes AFRES Forms 51 and 67, which are obsolete. A **|** indicates revisions from previous edition.

Section A—Objectives

1. Main Objectives. Our main concern is ensuring Air Force installations can support the mission, maintaining real property facilities, and developing and implementing programs to improve the livability of our base communities. The Base Civil Engineer (BCE) does the following:

1.1. Operates, maintains, repairs, and constructs Air Force real property and real property installed equipment (RPIE) to accomplish the mission most economically, considering both the total life cycle costs and the impact of facilities on the quality of life.

1.2. Provides trained engineering personnel to support Air Force operations worldwide.

1.3. Maintains capability to correct any emergency condition 24 hours a day.

1.4. Conducts all activities in compliance with environmental, fire and safety laws and directives.

1.5. Provides reliable utilities to meet readiness requirements, maintain quality of life, and satisfy installation needs.

1.6. Provides base support services (i.e., pest control, grounds maintenance, snow removal, etc.).

1.7. Accomplishes work requirements quickly and establishes standards to address quality, customers' needs, and mission requirements.

1.8. Establishes a system to provide customers to accomplish work requirements using their own resources such as labor, materials, equipment, or funds.

1.9. Establishes a systems to provide customers with the costs of work performed or services provided to their facilities.

1.10. Develops and annually updates future plans for major work requirements (roofing, pavements, protective coating, etc.).

1.11. Develops work plans to effectively allocate in-service resources, including people, facilities, equipment, and vehicles, to meet mission and customer needs.

1.12. Periodically compares hours used to accomplish the work with estimated hours to eliminate or minimize performance problems.

1.13. Provides an accounting system to distribute cost and hours to work plans and work orders.

1.14. Establishes a process to measure and continuously improve their support of base missions and customers.

1.15. Establishes and maintains holding areas for special ordered materials.

1.16. Provides an adequate level of backup appliances.

1.17. Establishes a system to minimize the accumulation and maximize the use of residual material.

Section B—Work Requirements

2. Computer Support. Bases will use the Work Information Management System (WIMS) in their operation or utilize locally developed systems until WIMS is available. WIMS improves the ability of civil engineering to process data and access information about work requirements.

3. Customer Requirements. Customer requirements are either verbal or written. Customer service personnel will determine the necessary documentation and establish the appropriate type of work order (Direct Scheduled work or Planned Work).

3.1. Direct Scheduled Work. Work that generally does not require detailed planning; previously referred to as job orders.

3.1.1. Emergency. Work required to correct an emergency condition that is detrimental to the mission or reduces operational effectiveness and completed within 24 hours of notification.

3.1.1. (AFRC) Time of completion for emergency work is according to your specific Performance Work Statement (PWS).

3.1.2. Urgent. Work that is not any emergency, but must be responded to and completed within 5 workdays of receipt or within 5 workdays after receipt of materials.

3.1.2. (AFRC) Time of completion for urgent work is according to your specific PWS.

3.1.3. Routine. Work that does not qualify as emergency or urgent work, but must be accomplished within 30 calendar days after identifying the requirement of receipt of material. When practical, group routine requirements into work packages and accomplish as a single undertaking.

3.1.3. (AFRC) Time of completion for routine work is according to your specific PWS.

3.2. Planned Work. Work that require detailed planning or capitalization of the real property records. Planner determines the scope, method, and type of resources; estimating determines the quantity of resources. Engineered Performance Standards (EPS) provide a tool to produce reliable standard-hour estimates.

3.2. (AFRC) AFRC installations use Means rather than EPS.

4. Coordination Requirements. The requester must coordinate with appropriate agencies on work that requires BCE action to eliminate or correct hazards. Local civil engineers (CE) may opt to perform this coordination.

4.1. Coordinate fire hazards through the fire protection flight for assignment of a FSDC. Fire protection must coordinate on all requested work when either life or safety of personnel are involved. This includes rating of materials, fire protection access to an area or facility, or fire protection criteria affected by the proposed work such as personnel emergency egress, fire alarms or suppression systems.

4.2. Coordinate health or environmental hazards through the base Bioenvironmental engineer (usually assigned to the base hospital) for assignment of a RAC.

4.3. Coordinate safety hazards through the base safety office for RAC assignment.

4.4. The requested work may have an environmental impact. Consult the environmental management flight to determine if work qualifies for a categorical exclusion (CATEX) from environmental analysis. An AF Form 813, **Request for Environmental Impact Analysis**, will accompany the AF Form 332, **Base Civil Engineer Work Request**, and be forwarded to the environmental flight if work cannot be CATEX'ed.

5. Approval of AF Form 332. The decision to approve or disapprove should be promptly made. Review and process the request only to the extent necessary to support the decision. The approval authority assigns the applicable priority. Refer to AFI 32-1032, *Planning and Programming Real Property Maintenance Projects Using Appropriated Funds*, and AFI 31-1022, *Planning and Programming of NAF Facility Construction Projects*, for work classification and project approval authority levels.

6. Priorities. The following priorities are used for the planned work orders.

6.1. Priority 1 - Mission. Work in direct support of the overall base mission that, if not done, would reduce operational objectiveness.

6.2. Priority 2. Safeguard Life and Property. Work needed to give adequate security to areas subject to compromise; to eliminate health, fire, or safety hazards; or to protect valuable property or equipment.

6.3. Priority 3. Support. Work that supports the mission or prevents a breakdown of essential operating or housekeeping functions.

6.4. Priority 4. Necessary. Not qualifying for higher priority.

7. Change Orders. Number change orders consecutively starting with the number 1. Do not use change orders solely to eliminate variances between the estimated and approval lists. Change orders are required when:

7.1. The work is likely to exceed the approval authority of the individual who originally approved the work requirement.

7.2. The scope of work changes from that described on the original work order resulting in a funded cost increase of 25 percent or more. A change of scope of work is any new additional work not requested or approved on the original approval document.

7.3. There is an additional requirement to install, remove, or replace RPIE or other equipment that changes real property records.

8. Capitalization. Send work orders that change real property records to the resources flight once the job is finished. The planner clearly documents the identity of changes to real and installed property. For self-help work that requires capitalization, the planner proves the total EPS hours multiplied by the predominant shop rate of the work being performed. Capitalize the following:

8. (AFRC) AFRC installations use Means rather than EPS.

8.1. New construction including installed equipment which extends the useful life 2 or more years and costs $15,000 or more.

8.2. A conversion, extension, addition, expansion or alteration, including installed equipment, which extends the useful life 2 or more years and cost $15,000 or more.

8.3. Permanently attached installed equipment (addition or removal).

8.4. Increases or decreases to the previous capacity, utility service, and unit of measure quantities.

8.5. Other work which increase the value of the facility.

9. Cancellation:

9.1. Cancel work orders only by the same level of authority, or higher, that approved the original document.

9.2. Canceled minor construction work orders must be forwarded through real property for adjustment to the construction-in-progress account.

10. Drawings Update. Forward all completed work orders that change facility layout to maintenance engineering to update as-built drawings.

Section C—Management Concepts and Controls

11. Objective Squadron. Configure bases in the objective squadron structure. This structure establishes standard capabilities throughout the Air Force. The executability of requirements is a major concern. The operations flight is composed of five elements to process requirements in an efficient and timely manner. These elements are Facility Maintenance Zones, Maintenance Engineering, Infrastructure Support, Heavy Repair, and Material Acquisition.

11. (AFRC) Due to the physical size of our installations (100-2,500 acres) and our BOS functions manning (6-45 people), we do not organize for zonal maintenance unless the commander believes it more economical than the present whole base concept. As our engineering staff is also typically smaller than an active duty organization, our implementation of the objective squadron places the Maintenance Engineer under the Engineering Flight. Although our organizational structure differs from the standard objective squadron, the Maintenance Engineer's sole function remains to support the Operations Flight.

11.1. Facility Maintenance Zones. The mission of the zone is to establish all recurring work, minor maintenance and repair, and selected work orders. Since the zone manager controls the people and resources within the zone, they can work directly with the customer to execute work. The zone 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 zone 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.

11.1. (AFRC) Establish a program manager to perform the requirements of the zone manager under the zonal concept.

11.2. Maintenance Engineering. 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.

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

11.4. Heavy Repair. 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.

11.5. Material Acquisition. Accounts for all activities related to vehicle, equipment, and material acquisition, receiving, warehousing, and distribution. This includes operation of the base Self-Help Center.

12. Accounting Procedures. Use time accounting to distribute hours and costs to work orders and account codes. The WIMS software incorporates the necessary account codes, labor utilization codes (LUC), and other data to assist with managing time accounting. The hours charged against LUCs are used for analysis.

12.1. Collection of Work Order Numbers (CWON). Establish these numbers to accumulate hours and financial data for repetitious type work. The recurring work plan and utility operations are repetitious type work. See attachment 1 for reserved CWONs.

13. Non-Automated Work Control. Installations that do not have the WIMS are still required to manage, control, plan, schedule, and program work requirements in the most efficient means, The following information will ensure Non-WIMS bases are provided similar avenues to manage and control work requirements: Document work orders on AF Form 327, **Base Civil Engineering Work** Order. Log the number assigned on AF Form 1081, **BCE Work Request/Work Order Register**. Document direct scheduled work on AF Form 1879, BCE Job Order Record, and assign numbers using an AF Form 637, **BCE Job Order Record**. Record labor reporting on AF Form 1734, **BCE Daily Work Sheet**. Scheduling will utilize AF Form 561, **Base Civil Engineering Weekly Work Schedule**. The planner determines the different phases of work and material requirements which are documented on AF Form 2167, **Job Phase Calculation Sheet**, and AF Form 1445, **Materials and Equipment List**. The In-Service Work Plan show BCE resources are used to do work. The programmer uses AF Form 919, **BCE In-Service Work Plan Work Sheet**, for all actual time accounting cost centers. Recurring Work Programs tasks are listed on AF Form 1841, **Maintenance Action Sheet**.

Section D—Special Considerations

14. Precautionary Measures. Use AF Form 103, **Base Civil Engineering Work Clearance Request**, for any work that may disrupt aircraft or vehicular traffic flow, base utility services, protection provided by fire or intrusion alarm systems, or routine activities of the installation. Process the AF Form 103 just prior to the start of work. If delays are encountered or the conditions at the job site change, the form must be revalidated and reapproved.

15. Real Property Similar Equipment (RPSE). Real property similar equipment is non-RPIE structures and equipment deployed or permanently assigned to an installation as facility substitutes that support major command (MAJCOM) mission. RPSE is not considered real property as accountability will be strictly in the control of the user. Examples are (but not limited to): hush houses, Survivable Collective Protective System (SCPS-2 & SCPS-M), uninterruptible power supply, KMU-450 Chemical Protective System, Tactical Shelter System, and Chemically Hardened Air Transportable Hospitals. Civil engineering support for RPSE should be according to a memorandum of understanding with the owning organization, reimbursable, and subject to man-hour availability. Recurring requirements should be addressed and negotiated for contractual support.

16. Recurring Work Program (RWP). Recurring work applies to real property, RPIE, or systems and other requipment maintained by BCE. Recurring work consists of operations, recurring maintenance, ser-

vice work, and other recurring work for which the scope and level of effort is known without an earlier visit to the job site each time the work is scheduled. It includes all recurring work needed to prevent breakdown of critical facilities, equipment, or utilities. The recurring work program encompasses all work of a normally recurring nature except utility operations and contracted services. It is managed by the zone or shop supervisor, and used to ensure recurring work is accomplished fort (immediately after emergency and urgent work requirements) by reserving hours for this work before other routine requirements are scheduled. Maintenance Engineering is responsible for the overall development and annual assessment of the recurring work program. First-line supervisors monitor daily completion of RWP.

17. Appliances. The BCE maintains, repairs, and replaces government-owned appliances and maintains and repairs food service equipment in appropriate fund facilities, except when repair is included in food service contracts. Replacement of food service equipment in appropriated fund facilities is the responsibility of the using organization's equipment custodian. Government-owned appliances installed in family housing are RPIE. Appliances installed in dormitories and EAID and normally on the dormitory manager's Custodian Authorization/Receipt Listing (CA/CRL). Establish local procedures to manage appliance repairs or food service equipment repairs when the work is being accomplished by contract.

17.1. MAJCOM Responsibilities. Each MAJCOM will ensure the BCE develops an effective appliance management program appropriate for that installation. As a minimum, the following areas must be addressed in developing and implementing the appliance management program:

17.1.1. Internal control procedures for tracking appliances, maintaining positive accountability, and providing a means to project future maintenance and procurement requirements.

17.1.2. Procurement sources base on factors such as quality, timelines, and cost.

17.1.3. Customer satisfaction by providing timely response and minimum down time.

17.1.4. Deciding factors in determining repairs versus replacement of appliances (table 1).

17.1.5. Back-up stock based on availability, contract support, and locality.

Table 1. Life Expectancies for Major Appliances.

Appliance	Average Life Expectancy in Years
Range	12.5
Clothes Dryer	13.5
Washing Machine	*11
Dishwasher	11
Refrigerator	15
Freezer	20
Microwave Oven	10

18. Forms Prescribed:

18.1. AF Form 103, **Base Civil Engineering Work Clearance Request**.

18.2. AF Form 327, **Base Civil Engineer Work Order**.

18.3. AF Form 332, **Base Civil Engineer Work Request**.

18.4. AF Form 561, **Base Civil Engineer Weekly Work Schedule**.

18.5. AF Form 637, **BCE Job Order Log**.

18.6. AF Form 919, **BCE In-Service Work Plan Work Sheet**.

18.7. AF Form 1081, **BCE Work Request/Work Order Register**.

18.8. AF Form 1219, **BCE Multi-Craft Job Order**.

18.9. AF Form 1255, **Quality Control Evaluation**.

18.10. AF Form 1445, **Material and Equipment List**.

18.11. AF Form 1734, **BCE Daily Work Schedule**.

18.11. (AFRC) AF Form 1734 is not required at AFRC installations.

18.12. AF Form 1841, **Maintenance Action Sheet**.

18.13. AF Form 1879, **BCE Job Order Record**.

18.14. DD Form 2167, **Job Phase Calculation Sheet**.

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*Ruffin, M., and K. Tippet, "Service-life expectancy of household appliances: New estimates from the USA." Home Economic Research Journal 3:159-170 (1975).

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

Attachment 1

RESERVED COLLECTION WORK ORDER NUMBERS

A1.1. Work Order 00001. Bench or shop stock issues.

A1.2. Work Order 00002. Base service store issues.

A1.3. Work Order 00003. Bulk delivery items such as sand, gravel, and lumber by actual time accounting (ATA) work centers.

A1.4. Work Order 00004. Issues from base supply individual equipment unit.

A1.5. Work Order 00005. Mobility kits and other Prime Base Engineer Emergency Force (BEEF), Explosive Ordnance Disposal (EOD), and Disaster Preparedness (DP) supplies not charged to specific mobility deployment.

A1.6. Work Order 00006. Common-use tools maintained in a tool issue center.

A1.7. Work Order 00007. Tool kits obtained from base supply.

A1.8. Work Order 00008. Individual tools issued from base supply.

A1.9. Work Order 00009. Equipment authorization inventory data (EAID) and shop equipment.

A1.10. Work Order 00010. Residual materials (except in Civil Engineering Material Acquisition System [CEMAS])

A1.11. Work Orders 00011 through 00020. For use by CEMAS in WIMS.