BY ORDER OF THE
SECRETARY OF THE AIR FORCE

AIR FORCE INSTRUCTION 32-1001

1 AUGUST 1999

Civil Engineering

OPERATIONS MANAGEMENT

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

OPR: HQ AFCESA/CEOM
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Supersedes AFI 32-1031, 1 July 1997

Pages: 10
Distribution: F

This instruction implements AFPD 32-10, Installations and Facilities. It provides the directive requirements for the operations management of civil engineering. It establishes a civil engineer worldwide baseline set of definitions, operations process descriptions, and organizational guidance which applies to the objective operations flight organization for both groups and squadrons (civil engineer groups should use the appropriate organizational equivalent to flight used in this AFI). Paragraph 2 does not apply when operations management functions are cost compared under OMB Circular A-76 (if cost compared, operations management functions will be spelled out in a Performance Requirements Document). Additionally, major commands (MAJCOM) may elect to further restrict applicability of this AFI based on competitive sourcing initiatives and to accommodate MAJCOM unique requirements and desired flexibility. The AFI provides a good basis for defining operations management regardless of the actual organizational means used to execute. This AFI does not apply to Air National Guard units.

SUMMARY OF REVISIONS

This document is substantially revised and must be completely reviewed.

This revision clarifies organizational guidance and flexibility for the Operations Flight, provides guidance for operations management functions defined in an A-76 cost comparison, defines maintenance engineering responsibility for as-built drawings, and identifies the need for a facility manager and self-help programs.

Section A—Objectives

1. Main Objectives. Our main objectives are to ensure Air Force installations can support the mission, maintain real property facilities, and develop and implement programs to improve the livability of our base communities. Operations management accomplishes the following functions using either in-house or contract resources:

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

1.2. Provides trained personnel and technical expertise to support Air Force operations worldwide.

1.3. Maintains capability to respond to and eliminate any emergency condition 24 hours a day.

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

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

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

1.7. Establishes quality standards and feedback mechanisms to assess performance in meeting mission requirements and customers' needs.

1.8. Establishes a system to provide customers the capability to accomplish work requirements using their own resources.

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

1.10. Effectively allocates in-service resources, including people, facilities, equipment, and vehicles to meet mission and customers' needs.

1.11. Provides customers with the costs of work or services performed on their facilities.

1.12. Maintains a time and material accounting system to collect and report the cost of doing business.

1.13. Provides effective logistics support.

1.14. Provides an effective facility manager program.

Section B—Civil Engineering Management Concepts and Controls

2. The Operations Flight within the Objective Squadron. AFI 38-101, Air Force Organization, prescribes the Civil Engineer Objective Squadron down to the flight level: Housing, Engineering, Operations, Environmental, Explosive Ordnance Disposal, Fire Protection, Resources, and Readiness. Below flight level, Air Force organizational policy allows flexibility to establish new organizational elements, move tasks/functions between elements, and move manpower authorizations between elements. The model Operations Flight is composed of five elements to process requirements in an efficient and timely manner. These elements are Facility Maintenance, Maintenance Engineering, Infrastructure Support, Heavy Repair, and Material Acquisition**.** The model elements are recommended but not required. For example, below flight level there is flexibility to perform the facility maintenance function in a multi-Air Force Specialty (AFS), single AFS, or hybrid configuration; establish the appropriate number of zones, establish new elements, such as planning or production control; or move the vehicle function from Material Acquisition to Heavy Repair.

2.1. Operations Flight Commander (or Equivalent): Responsible for management of the operations function to include planning, budgeting, executing, equipping, and training to ensure the most effec-

tive and efficient organization. The operations flight commander will ensure all personnel receive training sufficient to meet core peacetime and wartime requirements and to promote maximum career development.

2.1.1. Facility Maintenance: Provides single-point customer support and inspection, maintenance, repair, and modification of real property. Establishes and maintains an effective facility manager program to include training customers on interfacing with civil engineering (CE) for their facility maintenance requirements.

2.1.2. Maintenance Engineering: Provides engineering expertise for the operations flight; project review to ensure maintainability and reliability; infrastructure program management; non-design drafting; service, maintenance, and utility contract management (requirements definition, contract document preparation, and management), recurring work program review, and work analysis and method improvement.

2.1.3. Infrastructure Support: Provides the operation and maintenance of base utilities. These normally include aircraft arresting systems, generators, alarms, electrical systems (distribution, airfield lighting, grounding and cathodic protection), and utility systems (sewage collection, water distribution, natural gas distribution, liquid fuels).

2.1.4. Heavy Repair: Accomplishes the majority of large in-house and multicraft work orders, normally including facility renovation, alteration, and demolition projects. Accomplishes all equipment operations and pavements work (airfields, roads, and sidewalks), sweeping, and pest management.

2.1.5. Material Acquisition: Provides logistics support to acquire and manage the CE supplies, tools, equipment, and vehicles. Includes all activities related to material acquisition, warehousing management, and the operation of the CE Supply Store and the base Self-Help Center.

3. Work Control. Use information management systems to manage, control, plan, schedule, and program work requirements in the most efficient means. The model automation systems are the Interim Work Information Management System (IWIMS) and the Automated Civil Engineer System (ACES). The capability of transmitting data to higher headquarters is mandatory.

3.1. Work Control Forms. Bases may use approved forms or commercially available software/forms to control work requirements. The approved work control forms include the following. Document work orders on AF Form 327, **Base Civil Engineering Work Order**. Scheduling will utilize AF Form 561, **Base Civil Engineering Weekly Work Schedule**. Document direct scheduled work on AF Form 1879, **BCE Job Order Record**, and assign numbers using an AF Form 637, **BCE Job Order Log**. Use the AF Form 919, **BCE In-Service Work Plan Sheet**, for all actual time accounting cost centers. Log the number assigned on AF Form 1081, **BCE Work Request/Work Order Register**. Perform periodic visits with facility managers and note minor maintenance and repair requirements on AF Form 1219, **BCE Multi-Craft Job Order**. Document work quality on AF Form 1255, **Quality Control Evaluation**. Record labor reporting on AF Form 1734, **BCE Daily Work Schedule**. Record Recurring Work Program (RWP) tasks on AF Form 1841, **Maintenance Action Sheet**. Document the different phases of work and material requirements on DD Form 2167, **Job Phase Calculation Sheet**, and AF Form 1445, **Materials and Equipment List**.

3.2. Accounting System. Use a time accounting system to record hours and costs to work orders and account codes. The system should provide the necessary data to assist with managing and analyzing

the work force effectiveness. Perform periodic reviews (i.e., work analysis, productivity, workload and manpower balancing) to eliminate or minimize potential performance problems.

3.3. Collection Work Order Numbers (CWON). Use these numbers to accumulate costs of repetitious-type work. The recurring work plan and utility operations are repetitious-type work. See attachment 2 for reserved CWONs.

4. How-To-Pamphlets. "How-To" pamphlets provide civil engineers with clear, straightforward text on how to effectively accomplish the mission better, faster, and cheaper. The pamphlets contain information on flight organization, duties and responsibilities, and "how-to" procedures for implementing the "model" Operations Flight (reference AFPAM 32-1004, Volumes 1-6).

Section C—Work Requirements

5. Customer Requirements. Work requests are either verbal or written (AF Form 332, **Base Civil Engineer Work Request**). Customer service personnel will determine the necessary documentation and establish the appropriate type of work order (planned work or direct scheduled work).

6. Coordination Requirements. The request must be coordinated with appropriate agencies on work that requires civil engineer support. Civil engineers may opt to perform this coordination.

6.1. Coordinate fire hazards through the fire protection flight for assignment of a Fire Safety Deficiency (FSD) code. 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.

6.2. Coordinate health or environmental hazards through the base bioenvironmental engineer (usually assigned to the base hospital) for assignment of a Risk Assessment Code (RAC).

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

6.4. Coordinate requests through the environmental flight to assess the environmental impact.

6.5. Coordinate requests with Base Communications to assess impact of facility renovations and major repairs.

6.6. Work Clearance. Establish local procedure for use of AF Form 103, **Base Civil Engineering Work Clearance Request**. Work with other organizations such as contracting, security forces, communications, and utilities (e.g., gas, cable) to ensure a tracking system is in place to cover liability for disruption of service and subsequent repairs. The AF Form 103 is normally required for any work that may disrupt aircraft or vehicular flow, base utilities services, protection by fire or intrusion alarm systems, or other routine installation activities.

7. Approval of Base Civil Engineer Work Request. The decision to approve or disapprove should be made promptly. 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 32-1022, *Planning and Programming of NAF Facility Construction Projects*, for work classification and project approval authority levels.

8. Work Definitions. Operations management work will generally fall into one of two categories based on scope and complexity of the requirement (a man-hour threshold may be used to separate work categories). MAJCOMs are the ultimate owners of these definitions for purposes of uniform standards and reporting metrics and may modify these definitions to meet their unique requirements and desiredflexibility.

8.1. Planned Work. Planned work, to include minor construction and direct scheduled work, requires detailed planning or capitalization of the real property records. The planner determines the scope, method, and type of resources and estimates the quantity of resources. For example, Engineered Performance Standards (EPS) provide a tool to produce reliable standard-hour estimates. The followingpriorities are used for the planned work orders.

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

8.1.2. 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.

8.1.3. Priority 3. Support. Work that supports the mission or prevents a breakdown of essentialoperating or housekeeping functions.

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

8.2. Direct Scheduled Work. Work that generally does not require detailed planning. The following work classifications are used for direct scheduled work.

8.2.1. Emergency. Work required to eliminate an emergency condition within 24 hours of notification that is detrimental to the mission or reduces operational effectiveness.

8.2.2. Urgent. Work that is not an emergency, but must be responded to and completed, or materials ordered, within 7 calendar days of receipt. If materials are ordered, completion shall be within 7 calendar days after receipt of materials.

8.2.3. Routine. Work that does not qualify as emergency or urgent work, but must be accomplished within 30 calendar days after identifying the requirement or receipt of material. Material requirements must be processed within 14 calendar days of receipt. When practical, group routine requirements into work packages and accomplish as a single undertaking.

9. Change/Cancellation of Work Orders.

9.1. Change orders are required when:

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

9.1.2. 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 additional work not requested or approved on the original approval document.

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

9.2. Do not use change orders solely to eliminate variances between the estimated and approval lists.

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

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

10. Recurring Work Program (RWP). Recurring work applies to real property, RPIE, or systems and equipment maintained by Base Civil Engineering. Recurring work consists of operations, recurring maintenance, service work, and other recurring work for which the scope and level of effort are 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. The RWP is managed by reserving hours in the schedule. Under the model Operations Flight, Maintenance Engineering is responsible for the annual assessment of the recurring work program.

11. Work Order Closeout. Work order closeout should be completed as promptly as possible. This includes but is not limited to the following:

11.1. Drawings Update. Under the model operations flight, maintenance engineering will update as-built drawings for all work that creates changes to facilities or utility systems.

11.2. 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 provides the total EPS hours multiplied by the predominant shop rate of the work being performed. Specific capitalization instructions are contained in AFI 32-9005, *Real Property Accountability and Reporting.*

Section D—Special Considerations

12. Real Property Similar Equipment (RPSE). RPSE is non-RPIE structures and equipment deployed or permanently assigned to an installation as facility substitutes that support a MAJCOM mission. RPSE is not considered real property, as accountability will be strictly in the control of the user. Examples include (but are not limited to) hush houses, Survivable Collective Protective Systems (SCPS-2 & SCPS-M), uninterruptible power supplies, KMU-450 Chemical Protective Systems, Tactical Shelter Systems, and Chemically Hardened Air Transportable Hospitals. Civil engineering support for RPSE should be provided 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.

13. Appliances.

13.1. Each MAJCOM will ensure the BCE develops an effective appliance program. The BCE shall ensure adequate management controls and safeguards are established to preserve appliance warranties and execute prudent appliance maintenance and replacement decisions.

13.2. Management of government-owned domestic appliances is the responsibility of the Housing Flight as outlined in AFI 32-6004, Furnishings Management. Government-owned domestic appliances are defined as appropriated funded refrigerators, stoves, washing machines, clothes dryers, freezers, portable dishwashers, microwave ovens, and ice machines.

13.3. Management of commercial equipment is the responsibility of the owning organization. Government-owned commercial appliances include commercial food service equipment in appropriated funded facilities such as dining facilities and flight kitchens. Budgeting and funding to replace commercial food service equipment in appropriated funded facilities is the responsibility of the using organization.

13.4. In the CONUS, the Operations Flight is responsible for contract maintenance of domestic and commercial appliances unless good business practices determine the responsibility should be elsewhere. This includes providing the QAE and technical assistance. Overseas, the Operations Flight is responsible for the maintenance, repair, and replacement of domestic and commercial appliances.

13.5. The BCE shall always seek to competitively source the appliance maintenance function. For squadrons that have been cost compared, management responsibility shall be placed with the service provider.

13.6. Maintenance and repair of unit-owned appliances will be at the discretion of the Operations-Flight.

14. Forms Prescribed: DD Form 2167, **Job Phase Calculation Sheet;** AF Form 327, **Base Civil Engineer Work Order;** AF Form 332, **Base Civil Engineer Work Request;** AF Form 561, **Base Civil Engineer Weekly Work Schedule;** AF Form 637, **BCE Job Order Log;** AF Form 919, **BCE In-Service Work Plan Work Sheet;** AF Form 1081, **BCE Work Request/Work Order Register;** AF Form 1219, **BCE Multi-Craft Job Order;** AF Form 1255, **Quality Control Evaluation;** AF Form 1734, **BCE Daily Work Schedule;** AF Form 1841, **Maintenance Action Sheet;** AF Form 1879, **BCE Job Order Record.**

JOHN W. HANDY, Lt General, USAF
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Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

Air Force Publications

AFI 32-1022, *Planning and Programming of NAF Facility Construction Projects*

AFI 32-1032, *Planning and Programming Real Property Maintenance Projects Using Appropriated Funds*

AFI 32-6004, *Furnishings Management*

AFI 32-9005, *Real Property Accountability and Reporting*

AFI 38-101, *Air Force Organization*

AFPAM 32-*1004V1, Working in the Operations Flight - Functions and Organization*

AFPAM 32-*1004V2, Working in the Operations Flight - Maintenance Engineering*

AFPAM 32-1004V3, *Working in the Operations Flight - Facility Maintenance*

AFPAM 32-1004V4, *Working in the Operations Flight - Material Acquisition*

AFPAM 32-1004V5, *Working in the Operations Flight - Infrastructure Support*

AFPAM 32-1004V6, *Working in the Operations Flight - Heavy Repair*

Other

Office of Management and Budget Circular A-76, Performance of Commercial Activities, August 4, 1983

Abbreviations and Acronyms

ACES—Automated Civil Engineer System

AFS—Air Force specialty

ATA—Actual Time Accounting

BEEF—Base Engineering Emergency Force

CE—civil engineering

CEMAS—Civil Engineering Material Acquisition System

CWON—collection work order numbers

EAID—equipment authorization inventory data

EOD—explosive ordnance disposal

EPS—Engineering Performance Standards

FSD—fire safety deficiency

IWIMS—Interim Work Information Management System

MAJCOM—major command

MFH—military family housing

RAC—risk assessment code

RPIE—real property installed equipment

RPSE—real property similar equipment

RWP—Recurring Work Program

SCPS—Survivable Collective Protective Systems

Attachment 2

RESERVED COLLECTION WORK ORDER NUMBERS

A2.1. Work Order 00001: Bench or shop stock issues.

A2.2. Work Order 00002: Base service store issues.

A2.3. Work Order 00003: Bulk delivery items such as sand, gravel, and lumber by actual time accounting (ATA) work centers.

A2.4. Work Order 00004: Issues from base supply individual equipment unit.

A2.5. Work Order 00005: Mobility kits and other Prime Base Engineer Emergency Force (BEEF), Explosive Ordnance Disposal (EOD), and Readiness supplies not charged to specific mobility deployment.

A2.6. Work Order 00006: Common-use tools maintained in a tool issue center.

A2.7. Work Order 00007: Tool kits obtained from base supply.

A2.8. Work Order 00008: Individual tools issued from base supply.

A2.9. Work Order 00009: Equipment authorization inventory data (EAID) and shop equipment.

A2.10. Work Order 00010: Residual materials (except in Civil Engineering Material Acquisition System [CEMAS]).

A2.11. Work Orders 00011 through 00020: For use by CEMAS in IWIMS/ACES.