



# CURTIS E. LEMAY CENTER

FOR DOCTRINE DEVELOPMENT AND EDUCATION



## ANNEX 3-34 ENGINEER OPERATIONS

### INSTALLATIONS SUPPORT

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#### **Engineer Function of Installations Support**

Installations support is the ability to provide installation assets and services necessary to support military forces. This includes activities necessary for effective real property life-cycle management and installation services, the two elements of installations support. Installations support focuses on managing real property facilities and infrastructure in the US and at bases in other geographic combatant commanders' areas of responsibility while providing protection, safety, security, and sustainability for personnel and mission-critical built and natural assets. Installations support activities may take place before, after, or concurrent with general engineering activities. During contingencies, engineers can expect to perform [general engineering](#), [geospatial engineering](#), and installations support activities, depending on the type of base required and whether existing facilities are already in place to support the mission, population, and expected mission duration. These actions apply across the range of military operations.

#### **Real Property Life-Cycle Management**

Real property life-cycle management is defined as the ability to plan and provide for the acquisition, operation, sustainment, recapitalization, realignment, and disposal of real property assets to meet the requirements of the force. Each area is covered in the following paragraphs:

- ✦ **Planning and Programming.** Comprehensive base planning identifies mission priorities and the most pressing needs for Air Force or joint installations. **Base development is accomplished through a process of planning, programming, project development, design, and construction.** Planning is focused on base layout, environmental factors, infrastructure, and necessary subsystems, ensuring all requirements meet theater construction standards and comply with [unified facilities criteria](#) (UFC). Planning provides a logical progression of facilities development that fit together (functionally, environmentally, and architecturally) with provisions for long-range growth or mission realignment and issues such as flexibility, redundancy, and survivability. Civil engineers translate plans into base infrastructure through a combination of real estate, basing, and facility options. Planning includes research, development, and funding needed to provide mission-capable facilities. Planning should take into consideration force protection concerns wherever bases are to be developed. To be effective planners, engineers should understand requirements

created by high technology weapons systems and new operational concepts, including cybersecurity concerns. Project programming translates validated requirements into specific projects and fund sources. Design, construction, and commissioning form the final steps.

- ★ **Acquisition.** Engineers translate base plans into infrastructure through a range of real estate, basing, and facility options. Engineers work with contracting and legal functions to purchase, lease, program for construction, or gain installation assets. [Acquisition](#) can include land; natural resources; buildings; structures; portable facilities; airfields and roads; installed equipment; and all "interests" in the property such as easements, oil and mineral rights, or water and airspace.
- ★ **Operation.** Engineers operate and maintain infrastructure necessary to support air, space, and cyberspace missions. The requirement is to balance mission effectiveness versus efficient performance of infrastructure supporting base activities, e.g., operations, services, medical, security, and housing. Civil engineers have the ability to provide functional real property installation assets with utilities such as energy, water, and disposal of waste water, as well as contract and real property management, pollution prevention, and other essential services.
- ★ **Sustainment.** Engineers sustain installations (including natural and cultural resources) by effective assessment, maintenance, and repair of current assets and planning for future missions. Regular surveys of base layout, facilities, and equipment are conducted to enhance force protection and strengthen the combat capability of the base. Environmental and energy conservation and reduction plans should be developed to protect the health of the population, preserve the environment, and reduce waste. Maintenance requirements are prioritized, taking into account limited resources, cost, timing, energy efficiency, operational need, reliability, maintainability, environmental impacts, safety, and quality of life.
- ★ **Recapitalization.** Recapitalization efforts focus on restoration, modernization, and replacement of installation assets to meet mission requirements and comply with construction standards, UFCs, and statutory and regulatory requirements.
- ★ **Realignment.** [Realignment](#) includes any action that both reduces and relocates functions and civilian personnel positions, but does not include a reduction in force resulting from workload adjustments, reduced personnel or funding levels, or skill imbalances. Realignment actions usually involve a great deal of planning. New facilities may need to be designed and constructed, and others demolished in an effort to achieve the overall purpose of the realignment.
- ★ **Disposal of Installation Assets.** Disposal of assets involves removing assets from the inventory by any means, with consideration of the impact to local communities. Disposal actions may become necessary when facilities and infrastructure deteriorate beyond the point of economical repair, become a safety hazard, interfere with new construction, and are no longer capable of meeting mission requirements and

disposal will not create a deficiency.

- ★ **Economic Adjustment Activities.** Economic adjustment activities focus on assisting communities impacted by base [beddown](#), realignment, expansion, closure, or other significant military operations. This includes assessing hardships, evaluating alternatives for local recovery, identifying resource requirements, creating action plans, and implementing mitigation measures approved by the appropriate authority. Civil engineers in an expeditionary environment work with the Department of State (DOS) to assist communities to mitigate negative impacts of military operations, promote local cooperation, and further US-host nation relations. At enduring bases, measurable reduction or expansion of operations requires the civil engineer to coordinate actions with the US Office of Economic Adjustment (continental US [CONUS] locations) or the DOS (outside CONUS locations).
- ★ **Installation Services.** Installation services are defined as the ability to deliver selected services not related to real property (or personnel services) to meet the requirements of the installation population and mission.
- ★ **Emergency Services.** Air Force civil engineers provide installation emergency services to protect, respond to, and recover personnel and resources from enemy attack, major incidents, hazards involving explosives, environmental hazards, and natural disasters. They focus on preparing for incidents, responding to and mitigating the effect of attacks or disasters, and performing recovery operations to restore installations after an attack or natural disaster. Civil engineers assist civil and international authorities when authorized by the Department of Defense.
- ★ **Installation Safety.** Civil engineers work closely with safety officials to prevent incidents, manage/mitigate risk, rapidly respond to incidents/accidents that do occur, and provide emergency services needed to recover and sustain the mission.

### **Engineer Function of Logistics Services**

In joint and Air Force operations, logistics service is divided into water and ice service, contingency base services, and hygiene services (also see Appendix A).

- ★ **Water and Ice Service** is defined as capabilities to produce, test, store, and distribute bulk, packaged, and frozen water in a contingency environment. Associated engineering tasks include drilling new water wells, tying into municipal water systems, or erecting expeditionary water purification devices for water consumption; providing bladders and/or elevated water tanks for storage; installing water distribution pipes, pumps, valves, and meters.
- ★ **Contingency Base Services** provide shelter, billeting, waste management, and common user life support management in a contingency environment. Engineers provide initial and temporary construction of facilities to support contingency base services using available materials or deployable kits. Engineers also maintain and repair these facilities as required.

✦ **Hygiene Services** provide laundry, shower, sink, human waste collection and processing, and textile and fabric repair support. Engineers provide expedient field facilities in the early stages of deployments.

When Air Force forces are deployed in support of major operations where Air Force beddown and sustainment support is unavailable, the supported command, Service, or agency provides logistical sustainment requirements.

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