



BASE CAMP FACILITIES STANDARDS

For

CONTINGENCY OPERATIONS



This book effective 01 FEB 2004



DEPARTMENT OF THE ARMY
UNITED STATES ARMY, EUROPE, AND SEVENTH ARMY
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MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: United States Army, Europe (USAREUR), Base Camp Facilities Standards

1. This handbook is the standard for all U.S. Forces occupying base camp facilities (for example, main base camps, forward operating bases, outposts) in contingency operations areas where USAREUR has Title 10 authority. The intent of this book is to provide personnel at base camps with adequate living and working facilities while being good stewards of taxpayer dollars.
2. This book outlines standards for facility maintenance, housing, master planning, service-member support, unit facilities, and utilities for all bases. Commanders at all levels must ensure the quality-of-life standards in this book are met, but not exceeded. Commanders will also ensure that all facilities comply with the requirements of this book.
3. Any requests for exceptions to the standards in this book must be sent through the Office of the Deputy Chief of Staff, Engineer, HQ USAREUR/7A, to me for decision.

FOR THE COMMANDER:

A handwritten signature in black ink, appearing to read "Will. E. Ward".

WILLIAM E. WARD
Lieutenant General, USA
Deputy Commanding General/
Chief of Staff

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BASE CAMP FACILITY STANDARDS

Contingency Operations

1. GENERAL. These standards apply to base camp (Main Base Camps, Forward Operating Bases, and Outposts) facilities for all US forces operating in designated US Army, Europe (USAREUR) contingency areas, consistent with the designation of Headquarters (HQs), USAREUR as having Title X responsibility for the combatant commander in the European Command (EUCOM) Area of Responsibility (AOR). When USAREUR is identified as having administrative and support responsibilities per Title X, US Code, the result is Administrative Control authority (ADCON) as outlined in joint doctrine. Definition of ADCON is as follows:

“ADCON (JP 1-02): direction or exercise of authority over subordinate or other organizations in respect to administration and support, including organization of service forces, control of resources and equipment, personnel management, unit logistics, individual and unit training, readiness, mobilization, demobilization, discipline, and other matters not included in the operational missions of the subordinate or other organizations.”

a. This publication provides guidance for the planning and development of contingency base camps that support associated missions IAW with Joint Publication 4-04 (Joint Doctrine for Civil Engineering Support). This handbook also addresses base camp development planning for the orderly and efficient management and development of land, facilities and infrastructure in support of the mission. Master planning provides an integrated strategy for construction and maintenance of required facilities at the best possible cost. The level of detail of the Base Camp Master Plan depends on the maturity of the location, the speed at which the operational need for a base camp develops, and the expected length of stay.

b. The intent of this handbook is to provide personnel with the safe and adequate living and working conditions in the theater of operations. Authorized levels of support are derived from Army Regulations and from years of lessons learned in the field. The goal of this handbook is to take the intent of installation-type Army Regulations and apply them to contingency operations. All suggested changes and additions to authorized facilities should be made to Office of the Deputy Chief of Staff, Engineers (ODCSENG), USAREUR.

c. This handbook is not intended to address all aspects of the base camp planning process.

2. CONSTRUCTION STANDARDS AND BASE CAMPS.

a. Peacetime contingency operations (CONOPS) are politically and time sensitive. They use tailored forces, are usually short in duration, and joint or combined in scope. A basic tenet is to rapidly project military forces consistent with the factors of Mission, Enemy, Terrain, Troops, and Time Available in order to bring the contingency to closure under conditions favorable to the United States.

b. The combatant commander specifies the construction standards for facilities in the theater. The standards are established to ensure that projects support the commander's intent and concept of operations. These standards are intended to minimize the engineer effort expended on any given facility while assuring that the facilities promote sufficient quality for personnel health and safety and mission accomplishment. Protective construction shall be provided for all facilities in accordance with US EUCOM Operations Order 01-01, Antiterrorism/Force Protection. The following construction standards apply to this handbook:

(1) INITIAL. Characterized by austere facilities requiring minimal engineer effort. Intended for immediate operational use by units upon arrival for a limited time ranging up to 6 months. May require replacement by more substantial or durable facilities during the course of operation. The initial standard facility list includes only critical facilities.

(2) TEMPORARY. Characterized by austere facilities requiring additional engineer effort above that required for initial standard facilities. Intended to increase efficiency of operations for use up to 24 months. Provides for sustained operations. Replaces initial standard in some cases where mission requirements dictate. The temporary standard may be used initially if so directed by the combatant commander. Temporary standards provide a wider selection of minimum facilities, thereby increasing the efficiency, safety, durability, morale, and health standards of personnel on operations.

(3) SEMI-PERMANENT. Designed and constructed with finishes, materials, and systems selected for moderate energy efficiency, maintenance, and life cycle cost and with a life expectancy of more than 2 years, but less than 25 years. For the purposes of this book, semi-permanent constructions standards will be considered when length of operations are greater than 2 years and the types of structures to be considered will be dependent upon duration. Semi-permanent standards may be used initially if so directed by the combatant commander.

c. Facilities governed by this publication will be initial, temporary, or semi-permanent unless USAREUR specifically approves permanent construction.

d. Base camps are categorized as: Main Base Camps, Forward Operating Bases, or Outposts. Main Base Camps, occupied by a battalion task force or larger unit, (US population of 500 or more) are continuously operated camps with command, staff, and logistic functions. Forward Operating Bases are normally occupied by company-sized units and operated on a continuous basis. Outposts are normally used for short term, operationally defined missions (examples checkpoints and observation posts), platoon or squad sized, and will have limited services.

e. The Office of the Secretary of Defense (OSD) and EUCOM has developed terms expressing the future basing of forces. The terms will become commonplace and their definitions are based on mission-type rather than camp population size as found in the Red Book. The current terms Main Base Camp, Forward Operating Base, and Outpost will continue to be used in the Red Book because the level and type of facilities and support services are based on camp population size rather than mission.

OSD Terms	EUCOM Terms	Definition
Power Projection Hub		Forward infrastructure to project forces globally or regionally. Permanently stationed U.S. forces. Usually consists of multiple joint and service bases. Example – Ramstein-Kaiserslautern-Landstuhl complex of bases.
Main Operating Base	Main Operating Base	Permanent base with robust infrastructure. Usually single service, but may be joint. Supports training and Security Cooperation. Established command and control. Enduring family support facilities. Example would be Grafenwoehr.
Forward Operating Site (FOS)	Forward Operating Base (FOB)	Rotational use by operational forces. May be a Joint FOS or FOB. Small permanent party. Can be scaled to fit various force structures and can support sustained operations. May contain prepositioned equipment. Example would be Camp Bondsteel, Kosovo.

OSD Terms	EUCOM Terms	Definition
Cooperative Security Location (CSL)	Forward Operation Location (FOL)	Austere infrastructure with no permanent party. May be a Joint CSL or FOL. May contain prepositioned equipment. Relies on contractor and local labor support. Would provide forces with a base to train or rapid onward movement to trouble spots.

3. BASE CAMP DEVELOPMENT PLANNING

a. Master Planning. Master planning provides an integrated long-term strategy for construction and maintenance of facilities. The intent is to provide needed facilities at the best possible cost. The Base Camp Planning Board (BCPB) develops and maintains the master plan and conducts long-range, short-range, and capital investment planning. Master planning produces the requirements USAREUR validates and resources. A detailed discussion on Master Planning is contained in Annex 1 of this handbook.

b. Facilities Standards Development. Army regulation governing military installations may not entirely apply to contingency operations. This handbook takes the intent of those regulations and applies them to contingency operations. This handbook describes the standards for housing, unit facilities, soldier support facilities, and utilities. Supported unit commanders or activity heads will not deviate from these standards without the written approval of the Deputy Commanding General (DCG), USAREUR. Requests to deviate from Red Book standards or to establish a new standard will be submitted to the USAREUR ODCSENG. The DCSENG is responsible for staffing the request and submitting it to the DCG for decision. This process is intended to ensure effective use of resources and equitable standards for all personnel serving throughout the Area of Operation.

c. Resource Management. Resource managers will track base camp projects approved in accordance with master plans separately from repair and maintenance projects. Construction projects contained in the approved master plan will be prioritized and implemented in the order of prioritization. New construction will be tracked using a system reporting the start of construction, a weekly percent of progress, and final date for completion of construction.

(1) Project requests exceeding \$50,000 require USAREUR approval.

(2) All requirements that exceed Red Book standards, regardless of the cost, must be forwarded to USAREUR for approval. The USAREUR Green Book covers this process in detail.

(3) Facilities supporting North Atlantic Treaty Organization (NATO) Operations / Contingents. Whenever mission or support requirements at a US/NATO co-use base camp or headquarters installation require the construction of a US/NATO shared facility, or the upgrade or restoration of existing US/NATO shared facilities (which support NATO units, activities, or personnel contingents), the local US Commander is required by Title X to first pursue eligibility for NATO funding. The US Commander is advised to contact the ODCSENG, G-5/NATO Section for guidance, and the local NATO contingency headquarters Engineer to obtain support for a NATO project submission. The project must then undergo three further NATO approval levels to secure full or partial NATO funding support. If the project receives no NATO support, or only partial NATO support (i.e. to the NATO "Minimum Military Requirement"-level), then US CONOPS funds may be requested/used; but only to the Red Book level based on the current US population at that installation.

(4) Wherever possible, specialized technical requirements for the missions of other services will be accommodated through the existing Joint Acquisition Review Board (JARB) process. In these instances, the proponent activity or service will specify the particular technical requirements to be

addressed as part of the JARB presentation of the proposed project. For example, United States Air Force, Europe is the service proponent for technical specifications dealing with safety-of-flight issues at planned/existing airfields.

4. FACILITIES STANDARDS.

a. The combatant commander specifies the construction standards for facilities in the theater. The standards are established to ensure that facilities support the commander's intent and concept of operations. The standards are intended to minimize the engineer effort expended on any given facility while assuring that the facilities promote sufficient quality for personnel health, safety and mission accomplishment.

b. The intended life span of the facilities and infrastructure of a base camp depend upon mission-driven and economic decisions. For the purpose of this handbook, there are three sets of construction standards that are determined by expected base camp life span. During the life cycle of a base camp, authorized facilities may progress from initial to semi-permanent, or may be immediately established at any level depending on operational requirements. It is understood that meeting these facility standards may be a progressive effort. However, combatant commanders will strive to meet the standards contained in this handbook as quickly as the operational situation permits.

Table 4-1 Initial, Temporary, and Semi-Permanent Facilities

FACILITY	INITIAL (<6 Months)	TEMPORARY (6 Months to <24 Months)	SEMI-PERMANENT (2 Years to <25 Years)
Roads	Gravel	Gravel	Primary Roads: Asphalt with concrete turning pads Secondary & Perimeter Patrol Roads: Gravel
Dining Facility (DFAC)	MKT Trailer/Organic Tentage with wooden floors/Tier I Tents/Force Provider (FP)*	Tier III Tents/South East Asia Hut (SEAhuts)/ Fest Tent	SEAhuts – 2-10 Years Masonry/Prefabricated building – 10+ Years
Housing	Organic Tentage with wooden floors/Tier I Tents/FP	Tier III Tents /SEAhuts/Containers	SEAhuts/Containers – 2-10 Years Masonry/Prefabricated Buildings – 10+ Years
Latrines and Septic Systems	Organic equipment, Evaporative ponds, Pit burnout latrines, Lagoons for hospitals/FP	Waterborne from ablution (AB) units or SEAhuts to austere treatment facility	Waterborne to wastewater treatment plant from SEAhuts/AB units – 2-10 Years Masonry/Prefabricated Buildings – 10+ Years
Shower	Organic equipment/FP	AB units/SEAhuts	SEAhuts/AB units – 2-10 Years Masonry/Prefabricated Buildings – 10+ Years

FACILITY	INITIAL (<6 Months)	TEMPORARY (6 Months to <24 Months)	SEMI-PERMANENT (2 Years to <25 Years)
Office	Organic Tentage with wooden floors/ Tier I Tents/FP	Tier III Tents /SEAhuts/Containers	SEAhuts/Containers – 2-10 Years Masonry/Prefabricated Buildings – 10+ Years
Supply Support Activity (SSA)/Warehouse	Organic Tentage with wooden floors/ Tier I Tents/FP	Metal prefabricated building	Metal prefabricated building
Direct Exchange (DX)/Central Issue Facility (CIF)	None	Tier III Tents /SEAhuts/Containers	SEAhuts/Containers – 2-10 Years Masonry/Prefabricated buildings – 10+ Years
Finance and Personnel Support Operations	None	Tier III Tents /SEAhuts/Containers	SEAhuts/Containers – 2-10 Years Masonry/Prefabricated buildings – 10+ Years
Postal Facility	None	Metal prefabricated building	Metal prefabricated building
Laundry Collection/Distribution Point	Organic Tentage with wooden floors/ Tier I Tents/FP	Tier III Tents/ SEAhuts/Containers	SEAhuts/Containers – 2-10 Years Masonry/Prefabricated buildings – 10+ Years
Helipad	Tactical surfacing, including matting	Concrete with aprons	Concrete with aprons
Runway and Taxiway	Tactical surfacing, including aggregate and stabilized earth	Paved	Paved
Aviation Fuel	HMMET tanker	Bladder	Metal tanks/Steel lines
Squadron Operations Building	Organic Tentage with wooden floors/ Tier I Tents/FP	SEAhuts/Metal prefabricated building	SEAhuts/Metal prefabricated buildings – 2-10 Years Masonry/Metal prefabricated buildings – 10+ Years

FACILITY	INITIAL (<6 Months)	TEMPORARY (6 Months to <24 Months)	SEMI-PERMANENT (2 Years to <25 Years)
Aviation Maintenance	Organic Tentage/FP	Aviation Clamshell Tent with sand-filled plywood, asphalt, or concrete floor	Aviation Clamshell Tent with sand-filled plywood, asphalt, or concrete floor
Communications Compound/Network Service Center (NSC)	Organic Tentage with wooden floors/Tier I Tents/FP	Tier III Tents/ SEAhuts/Containers	SEAhuts/Containers – 2-10 Years Masonry/Prefabricated buildings – 10+ Years
Medical (See Medical Section for further guidance)	Organic Tentage with wooden floors/Medical Tents/Tier I Tents	SEAhuts/Medical metal prefabricated buildings	SEAhuts/Medical metal prefabricated buildings – 2-10 Years Masonry/Medical metal prefabricated buildings – 10+ Years
Vehicle Maintenance	Organic Tentage/FP	Metal, two-story prefabricated building on concrete base with concrete aprons	Metal, two-story prefabricated building on concrete base with concrete aprons
Ground Fuel	Organic equipment/Bags/FP	Bladders	Metal tanks with steel lines
Hazardous Waste	Removal from theater	Covered, built on elevated pad with secondary containment (Civilian contract removal)	Covered, built on elevated pad with secondary containment (Civilian contract removal)
Hazardous Materials Warehouse	None	SEAhuts/Metal prefabricated building	SEAhuts/Metal prefabricated buildings – 2-10 Years Masonry/Metal prefabricated buildings – 10+ Years
Parking Lots	Gravel	Gravel with concrete turning pads for track vehicles	Gravel with concrete turning pads for track vehicles
Direct Support (DS) Maintenance	Organic Tentage/FP	Metal, two-story prefabricated building on concrete base with concrete aprons	Metal, two-story prefabricated building on concrete base with concrete aprons
Kennel	Organic Tentage/Tier I Tents	SEAhuts with concrete floor/Container	SEAhuts with concrete floor/Container
Morgue	Refrigerated container	SEAhut/Container	SEAhuts/Containers – 2-10 Years Masonry/Prefabricated buildings – 10+ Years

FACILITY	INITIAL (<6 Months)	TEMPORARY (6 Months to <24 Months)	SEMI-PERMANENT (2 Years to <25 Years)
Defense Reutilization and Marketing Office (DRMO)	None	Metal prefabricated building with concrete or asphalt floor with gravel holding area	Metal prefabricated building with concrete or asphalt floor with gravel holding area
Ammunition Supply Point (ASP)	Containers	Containers to Bunkers	Bunkers
Basic Load Ammunition Holding Areas (BLAHA)/Captured Ammunition Holding Areas (CAHA)	MILVANS with earth berms	Earth covered standard steel reinforced bunkers on concrete pads with berms	Earth covered standard steel reinforced bunkers on concrete pads with berms
Wash Rack	Gravel lot	Gravel lot	Elevated, flat, and container rack with oil/water separator
Fire Protection	Organic equipment/Portable Fire Extinguishers	See Paragraph 5.gg.	See Paragraph 5.ff.
Training Facilities	None	See Paragraph 5.hh.	See Paragraph 5.gg.
Military Police (MP) Station	Organic Tentage with wooden floors/ Tier I Tents/FP	Tier III Tents/ SEAhuts/Containers	SEAhuts/Containers – 2-10 Years Masonry/Prefabricated buildings – 10+ Years
Area Support Group (ASG)	None	Tier III Tents/ SEAhuts/Containers	SEAhuts/Containers – 2-10 Years Masonry/Prefabricated buildings – 10+ Years
Electric	Tactical generators with high and low voltage distribution/Organic equipment/FP	Commercial power with nontactical power with high or low voltage distribution backup	Commercial power with nontactical power with high or low voltage distribution backup
Non-Potable Water	Local source	Local source	Local source
Potable Water	Bottle/Water points, Wells, and/or other potable water production and pressurized water distribution systems/ROWPU/FP	Wells/Treatment plants	Wells/Treatment plants
Cold Storage	Portable refrigeration with freezer units for medical, food, and	Refrigeration installed in temporary structures	Refrigeration installed in semi-permanent structures – may be pre-

FACILITY	INITIAL (<6 Months)	TEMPORARY (6 Months to <24 Months)	SEMI-PERMANENT (2 Years to <25 Years)
	maintenance storage		engineered buildings
Chapel	Organic Tentage with wooden floors/Tier I Tents/Chapel-in-a-Box/FP	SEAhut	Davidson-like wood from building/SEAhuts – 2-10 Years Masonry/Prefabricated buildings – 10+ Years
Education Center	None	Tier III Tents/SEAhuts	SEAhuts – 2-10 Years Masonry/Prefabricated building – 10+ Years
Barber/Beauty Shop	None	Tier III Tents/ SEAhuts/Containers	SEAhuts/Containers – 2-10 Years Masonry/Prefabricated buildings – 10+ Years
Alteration/Pressing Shop	None	Tier III Tents/ SEAhuts/Containers	SEAhuts/Containers – 2-10 Years Masonry/Prefabricated buildings – 10+ Years
Post Exchange (PX)	AAFES Trailer	Davidson-like wood frame building/Metal prefabricated building	Metal prefabricated building
PX Warehouse	AAFES Trailer	Davidson-like wood frame building/Container/Metal prefabricated building	Metal prefabricated building
Fitness Center	None	SEAhuts	SEAhuts – 2-10 Years Masonry/Prefabricated buildings – 10+ Years
Field House/Multipurpose Facility	None	Metal prefabricated building	Metal prefabricated building
Athletic Fields	None	Grassed fields	Grassed fields with lights
Community Activity Center	None	SEAhuts	SEAhuts – 2-10 Years Masonry/Prefabricated buildings – 10+ Years
Multi-Purpose Theater	None	Metal Prefabricated Building	Metal Prefabricated Building
Morale, Welfare and Recreation (MWR) Warehouse/Maintenance Facility	None	Metal prefabricated building	Metal prefabricated building
American Forces Network (AFN) Manned Operations	None	Container/SEAhut	Container/SEAhut/Metal prefabricated building
AFN Unmanned Operations	None	Container/SEAhut	Container/SEAhut/Metal prefabricated building
Solid Waste	Field incinerator	Incinerator/Civilian contract and Recycling when	Incinerator/Civilian contract/Recycling

FACILITY	INITIAL (<6 Months)	TEMPORARY (6 Months to <24 Months)	SEMI-PERMANENT (2 Years to <25 Years)
		possible	program/Composting
Medical Waste	Field incinerator	Incinerator/Civilian contract	Incinerator/Civilian contract
Perimeter Fence	Triple standard	US Army Corps of Engineers (USACE) Standard FE-6 Chain Link fence w/outrigger	USACE Std FE-6 Chain Link fence w/outrigger
Perimeter Lights	Generator sets	Fixed lighting	Fixed lighting

* Force Provider: Each Module Supports 550 personnel (+50 operators) with Climate Controlled Billeting--TEMPER (15 soldiers per tent), Quality Food Service (1800 meals/day "A" rations), Laundry Service (200 lbs hour), Showers & Latrines (one 10 minute shower/day), Morale, Welfare and Recreation Facilities and Equipment, Power, 60 kW TQGs (1.1 MW Continuous), Prime Power Connection Kit, Water Storage & Distribution (80K gals/3 days), Fuel Storage & Distribution (20K gals/3 days), Waste Water Collection (30K gals/day), System Support Packages (30 days spare & repair parts)

5. MAIN BASE CAMP FACILITIES. Main Base Camps are those occupied by a battalion task force or larger unit (US population of 500 or more.) They are continuously operated camps with command, staff, and logistic functions. The standards outlined in this section apply to all Main Base Camps. Since the initial construction standards consist mainly of unit organic equipment or possibly Force Provider, the discussion below concentrates on Temporary construction standards.

a. *Roads*: Primary roads identified by commanders on base camp master plans are authorized for paving with asphalt. Primary roads are considered to be the major camp arteries that support the majority of vehicle traffic through the camp. Concrete turning pads are authorized to prevent damage to asphalt roads. Secondary and perimeter patrol roads are to be surfaced with gravel.

b. *Dining Facilities*: Dining facilities will provide 640 SF of dining room space and 320 total SF of kitchen, admin, and storage space per 750 authorized users. Adequate space for cleaning, latrine, and clothes changing for local national kitchen staff will be provided. Sanitary Wall Board (SWB) or other water-proof material will be used in the kitchen and latrine areas. Loading dock can be concrete, asphalt, or treated lumber. Portable sanitary hand-washing stations will be located at the entrance of the DFAC.

c. *Housing Standards*: Table 5-1 gives the authorized (maximum allowable) square footage for Unaccompanied Personnel Housing (UPH) billeting space for soldiers, civilians and contractors. Table 5-2 gives the authorized (maximum allowable) square footage for UPH billeting space for civilians and contractors who are deployed greater than 6 months. Table 5-3 gives the authorized (maximum allowable) square footage for UPH billeting space for soldiers who are deployed greater than 6 months. Figure 5-1, shows how SEAhuts are organized into company groupings (“clusters”), with a collocated latrine and shower container. A standard SEAhut is 512 SF (equivalent to a GP Medium Tent), with a standard SEAhut cluster (Davidson) having 5 bays and a latrine, for a total of 2,944 SF. SEAhut structures provide a higher level of safety and comfort and will be provided with linoleum flooring. SEAhuts organized in this manner minimize the distance personnel are required to walk to shower and latrine facilities and increases unit cohesion by maintaining company, platoon and squad integrity.

Table 5-1 Housing Standards

Category	Number Per Standard SEAhut/GP Medium Tent (or equivalent) (16' X 32')	Number Per Standard Container (8' X 20')
E1-E5; GS-5 & below, NF 1/2; Civilian WG 1-11 or WL 1-5; Contracted Laborers	6	2
E6-E7; WO1/2; O1/2; GS 6-9, NF 3; civilian WS 1-7; educators Schedule C1-3	4	2
E8, CW-3/4, O3/4; GS 10-12, NF4; Educators Schedule C4 and up, D-F, M-O and teaching principals - schedule L	3	2
E-9, CW5, O5/6; GS 13-15, NF5	2	1
O7; SES; NF6	1	1

(1) Private (containerized or partitioned SEAhut) and Semi-Private billeting space for the housing of long-term (exceeding 6 months) government civilian/ all contractor employees and soldiers will be

considered, but no guaranteed, in camp planning. The USAREUR G4 determines grade equivalencies for contractor employees. The ASG Commander makes any decisions to resolve private room availability for long-term civilian/contractor employees and soldiers at base camps.

Table 5-2 Housing Standards for long-term Civilian and Contractor Employees (>6 Months)

Category	SEAhut/GP Medium Tent (or equivalent) (16' X 32')	Number Per Standard Container (8' X 20')
GS 8 & Below; NF 1/2; Civilian WG 1-11 or WL 1-5	2 Personnel/Room (16' X 16') with 2 Rooms/SEAhut	1
GS 9-12; NF 3; Civilian WS 1-7; Educators Schedule C1-3	1 Personnel/Room (8' X 16') with 4 Rooms/SEAhut	1
GS 13 & Above; NF4; Educators Schedule C4 & Above; D-F, M-O and Teaching Principals – Schedule L	1 Personnel/Room (16' X 16') with 2 Rooms/SEAhut	1
SES, NF6	1 Personnel/Room (16' X 32') with 1 Room/SEAhut	1

Table 5-3 Housing Standards for long-term Soldiers (>6 Months)

Category	SEAhut/GP Medium Tent (or equivalent) (16' X 32')	Number Per Standard Container (8' X 20')
E1-E6	2 Personnel/Room (16' X 16') with 2 Rooms/SEAhut	1
E7-E8, WO1/2, CW3/4, O1-O4	1 Personnel/Room (8' X 16') with 4 Rooms/SEAhut	1
E-9, CW5, O5-O6	1 Personnel/Room (16' X 16') with 2 Rooms/SEAhut	1
O7 & Above	1 Personnel/Room (16' X 32') with 1 Room/SEAhut	1

(2) All 230 and 120 Volt Electric outlets in the entire SEAhut will be protected by not more than 30 mAmp Ground Fault Circuit Interrupter (GFCI) or other similar performing device. Highest protection level

will be selected to protect against electric shock hazard. Where practical, housing should be configured into company clusters with ablution units collocated within the clusters. Standard walkways of a minimum of 5 feet wide will be constructed for each side of the SEAhuts to allow personnel to walk under cover to ablution unit. Sufficient space will be maintained between structures to allow fire trucks and other safety vehicles driving space. Carpet is not authorized in living or office areas.

(3) Furniture authorized for deployed soldiers and civilians:

- one bed, bunk/single
- one mattress single foam rubber with non-plastic shell
- one-foot locker
- nail boards on walls of living areas
- locally built shelves made of plywood

(Note: Units presently exceeding this standard are authorized to keep the excess furnishings on hand.)

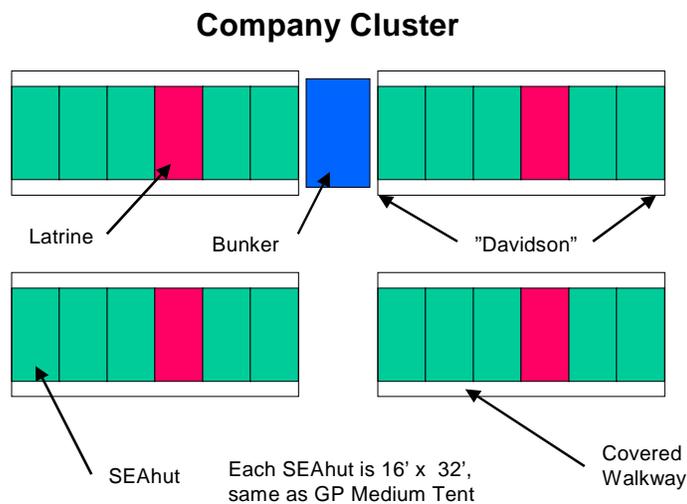


Figure 5-1

d. *Surge Housing:* All base camps will maintain the ability at all times to house 10% of total population as transients and surges. During surge periods that exceed 10%, Tier II tents (maximum) will be used for housing. Tier level for tents is as follows:

(1) Tier I consists of a GP Medium Field Tent or equivalent (Temper)(16' x 32') with plywood floor panels.

(2) Tier II consists of a GP Medium Field Tent or equivalent (Temper) with plywood floor panels, two electric light outlets, two electrical outlets and space heaters.

(3) Tier III consists of a GP Medium Field Tent or equivalent (Temper), full wooden frame for tent, plywood panel sidewalls, raised insulated flooring, four electric light outlets, eight electrical outlets and Environmental Control Units (ECUs).

e. *VIP/Guest Quarters:* Each TF headquarters is authorized 2,944 SF (1 Davison SEAhut) for VIP and guest quarters. All other main Base Camps are authorized 512 SF of VIP/ guest quarters.

f. *Toilets and Shower Facilities:*

(1) Toilet and shower facilities will be lighted, heated and equipped with hot and cold water. SWB is the preferred wall covering for latrines. Sheetrock, if used, must be waterproof, with a waterproof finish for cleaning.

(2) A shower head/population ratio of 1:10 is the goal for all base camps.

(3) A Toilet/population ratio of 1:10 is the goal for all base camps.

g. *Unit Facilities:* Table 5-4 gives the standards for office size.

Table 5-4 Utilization Guidelines for Office Space

PERSONNEL	MAXIMUM NSF/PERSON
Private Offices	
Brigadier and Major Generals	300
Colonel, O5 Commanders, GS-15, TF CSM	200
LTC, O4 Commanders, GS-13/14, Bde/Bn CSM	150
MAJ, O3 Commanders, GS-12, SGM, 1SG	100
Utilization Guidelines for Open Offices	
GS-9/11, E8, WO, O1-O3	110
GS-7, E7	90
Stenographic and Clerical Positions	60

NOTE: Applies ONLY to military units/organizations and personnel. Admin space for MWR and commercial functions are discussed separately.

To calculate total building size, add an additional 40% for central files, hallways, storage, copier, mail, and conference rooms.

h. *Task Force HQ:* The size of the HQ is situation dependent, based on the standards in Table 5-4. USAREUR headquarters has approval authority over the final design. The HQ should include, but is not limited to:

- (1) USACE Standard FE-6 Chain Link fence w/outrigger
- (2) Gravel parking lots.
- (3) Exterior security lighting that can be turned off using a single emergency switch that is available to the security forces.
- (4) Secure Compartmentalized Information Facility (SCIF)
- (5) A facility to house the TOC operation.
- (6) CG building.
- (7) SEAhut style buildings for primary staff offices.
- (8) Communications platforms and shelters.

(9) Command bunkers.

(10) Guard shacks.

i. *Supply Support Activity/Warehouse*: Each task force is authorized a SSA facility. The size of the SSA is dependent upon equipment density, troop strength, and classes of supply to be supported. Warehouses are for long-term storage. Military Vans (containers) (MILVANS) are for transportation only. MILVANS will be unloaded promptly, less than 7 working days, and returned to the transportation system. Leased MILVANS will never be held for storage or modified; holes cut or parts welded on. Warehouses will not be used for long-term housing of excess government property. Each Bde is authorized a 10,000 SF warehouse in addition to the Task Force SSA.

j. *Direct Exchange/Central Issue Facility*: Each task force is authorized a DX/CIF with a gravel holding yard with chain link fence. The DX/CIF facility space is authorized at a rate of 1,000 SF/1,000 personnel supported.

k. *Finance and Personnel Support* : Each Task Force is authorized a Finance Center and Personnel Support operations. Each Finance and Personnel Support Detachment is authorized 2,944 SF each. Authorized space can be divided among various camps based on the needs of the task force. For the Finance Detachment, this will include space for a 5'x 8' pay cage, 8'x 9' walk-in vault that should be pre-positioned and customer service area.

l. *Postal Facility*: The square footage of this building will not exceed the standard as outlined in DOD 4525.6M, Vol.1, Section 13. The facility will service Task Force mail for all branches of services. Facility must be 20 meters from any other structure.

m. *Laundry Collection/Distribution Point*: 512 SF of space per 500 authorized users is authorized for a Laundry Collection/Distribution Point.

n. *Brigade Facilities*: A maximum of 5,376 SF of space is authorized for the brigade headquarters.

o. *Battalion Facilities*: A maximum of 3,840 SF of space, is authorized for housing the HQ elements of each battalion size unit. This space is intended to house the battalion's Command Group, S2/S3 sections, Tactical Operations Center, Administrative/Logistics Operations Center, Battalion Communication shop, mailroom, chaplain, S1/S4 sections and the Battalion Maintenance Officer administration space.

p. *Company Facilities*: Each company-sized unit is authorized a maximum of 1,536 SF of space for the administrative office, orderly rooms, Nuclear, Biological, and Chemical (NBC) rooms, arms rooms, and supply room. Arms storage rooms will be constructed in accordance with Appendix G, AR 190-11 and will be equipped to support Joint Services Imagery Digitizing System (JSIDS) and control inside temperature and humidity. HQDA approved portable arms storage rooms may also be used. NBC rooms will have utilities to maintain stored equipment above freezing temperatures and below 76 degrees Fahrenheit.

q. *Aviation Facilities*:

(1) *Helicopter Pads*: Helicopter landing and parking pads will initially be M2 matting surfaced to prevent Foreign Object Damage (FOD). Helicopter landing and parking pads will be concrete, with asphalt aprons. The pads will have adequate grounding rods and tie-downs. All soil in the immediate area of the pads will be planted in grass or gravel large enough not to become FOD. Hot pads will have Hesco bastions or similar material to minimize damage from accidental weapons discharge.

(2) *Vehicle Parking Area*: An 11,000 square feet vehicle graveled parking area is authorized for helicopter pads. This area is intended for the parking of service and maintenance vehicles associated with helicopter operations.

(3) *Lighted Landing Pad*: One helicopter-landing pad on each base camp will be outfitted with nighttime landing lights. This will facilitate landings of helicopters for emergency operations.

(4) *Forward Area Refuel Point*: If pipe is used it will be double walled stainless steel with return line. Aviation quality fuel filters will be used. Pads will be concrete, as will any area where fuel spills are likely. Blast protection will be installed around the fueling pads.

(5) *Control Tower*: Control tower will be of sufficient size and height for unobscured vision of the entire airfield. The tower can be either wood or metal, grounded, with adequate priming and painting to prevent weather damage, and minimize slip hazard in bad weather.

(6) *Squadron Operations*: 10,000 SF of space is authorized for Squadron Operations.

(7) *Aviation maintenance*: Total number of aviation clamshell tents is based on mission requirements. Tow ways will be paved from the helipads to the clamshell tents.

(8) Aviation ground vehicle maintenance considered separately under Maintenance Facilities.

(Note: Aircraft parking and maintenance areas will be surrounded by a perimeter fence and separated from other areas of the base camp.)

(9) *Helicopter and Aviation Wash Racks*: Wash racks for helicopter and aircraft are authorized. The wash racks will have a storage tank and concrete pad with a drainage system equipped with an oil water separator.

r. *Communications Compound/Network Service Center*: Each Task Force is authorized a Communications Compound/NSC. The facility size requirement is dependent upon the task organization of the Task Force. The space authorization is as follows: Up to 1,500 Main Base Camp occupants – 2,944 SF; 1,500 to 3,000 occupants – 4,736 SF; 3,000 to 5,000 occupants – 6,208 SF; greater than 5,000 occupants – 9,152 SF.

s. *Medical Facilities*: All plans for health clinics, dental clinics, and hospitals will be developed in coordination with the Health Facility Planning Europe, European Regional Medical Command (ERMC) or through the Health Facility Planning Agency, Office of The Surgeon General (OTSG). These offices will assist in all aspects of design and construction management and are available to support the medical mission of the warfighter in all categories of operations worldwide. Please contact: The Health Facility Planning Europe (HFPE), ERMC, Office of the Command Surgeon, USAREUR: Located in Heidelberg Germany, at DSN 371-2113. The USAREUR, OSURG will approve all plans for medical facilities. The following guidance is provided as a “rule of thumb” for basic planning of base camp medical/dental facilities requirements. The actual requirement is directly related to the medical and dental mission and care expectations of the operational command, which should be coordinated with HFPE.

(1) The Battalion Aid Station mission is strictly Echelon I medical care (no dental), and is oriented to provide basic medical assessment, treatment, and stabilizing for evacuation to higher echelons of medical care. No radiology, laboratory, or holding capabilities are intended. On average, it is meant for a single sized element (battalion) of roughly 1,000 soldiers with immediate transfer to higher echelons of medical care as required. A rule of thumb for these facilities is to provide one examination room (100 Net Square Feet (NSF)) per provider (or three exams per two providers), 100 NSF for storage, 130 NSF for admin/entry/waiting, and toilet facilities as needed. This set of criteria is designated for one Aid Stations per 750 soldiers.

(2) Clinic: For base camps that require increased medical and dental support over that of a TOE battalion/aid station configuration. To meet this end, clinics are configured and staffed to support each base camp established, based on population, medical staffing, and contingency mission. The base camp clinic should be planned to support both medical and emergency dental care to the soldiers and authorized civilians. More routine care for dental may also be accommodated without a major impact on additional space needs. To support this expectation, plan for basic radiology, radiology development, and laboratory functions within the clinics. The dental and medical may be collocated in the same structure to reduce redundancy of radiology and laboratory functions. Table 5-5 illustrates basic square footage requirements to meet the medical and dental care mission. Additional space is required to meet holding capacity as dictated by the mission's emergency contingency plan. A minimum of two single toilets is recommended to be included in the clinic; however, additional toilets are authorized based on the clinic location and overall size.

Table 5-5 Medical Clinic Authorizations

Space	NSF	Notes
Medical	1,660	Based on the organic medical TOE staffing of a typical armor or infantry battalion (Add 100 NSF per doctor/exam room) includes the functions listed above in "clinic requirements".
Dental	500	Minimal requirement for a single dentist and one hygeinist (Add 115 NSF per dentist or DTR) two DTR's per dentist may be provided depending on workload.
Holding	340	Minimal requirement for three cot holding capacity. (Add 80 NSF per additional holding bed required)

NOTE: These are net square footages only. A factor of 10% should be added for a gross estimate. In addition, a smooth transition for litters (ramping if necessary) should be added for entry into the main building with a direct access into to the trauma room. A double door 6' entryway into the facility and into the trauma room should also be considered.

Table 5-6 Grossing Factors

<i>If a separate mechanical space is used:</i>	<i>11% of NSF</i>
<i>Circulation:</i>	<i>35% of NSF</i>
<i>Walls and partitions</i>	<i>12% of NSF</i>
<i>Half Areas:</i>	<i>1.5% of NSF</i>
<i>Total Gross Square Footage</i>	<i>159.5% of NSF</i>

(3) For final planning the exact number of physicians and dentists should be obtained from the command. For "rule of thumb" planning: Table 5-5 is based on an average of 1,200 total soldiers and/or authorized civilians per base camp. Add one physician for every additional 750 soldiers and/or authorized civilians, and add one dentist for every additional 800 soldiers and/or authorized civilians. The basic base camp clinic will contain the following spaces: Waiting, Command/Control, Receiving, Pharmaceutical Storage, Class VIII (Medical) Storage, Exam Rooms, Trauma/Treatment Room, Radiology (for medical and dental), X-ray developing, Shared Administrative, Dental Treatment Room (DTR), Dental Sterilization/Storage, minimum of two toilet rooms, Soiled Utility, and Laboratory. If allowable, a small separate countertop area for Dental Lab could increase the scope of care from emergent to routine in the future. Additional space to consider is patient holding expectations at the clinic, and others as dictated by mission requirements. See Utilities Section for Heating, Ventilation, and Air Conditioning requirements.

(4) **Special Requirements:** The following spaces will include a sink with running hot and cold water: Exam Rooms, Trauma/Treatment Rooms, Laboratory, DTR, and Dental Sterilization. Radiology rooms will require lead shielding appropriate to the type of radiology equipment utilized. This includes all four walls and servicing door (lead shielded). The minimum thickness level and specifications for installation may be determined through consultation with the supporting Health Facilities Planning Office or Preventive Medicine Office. Specific consideration should be given to ensure ventilation from the x-ray development, dental sterilization, and laboratory spaces. Finish materials should support infection control measures by incorporating smooth washable surfaces with limited seams throughout. All interior partitions shall be constructed from the floor to the underside of the ceiling and will not be undercut or left open at the top. Lighting and electrical requirements for each space will be coordinated with HFPE in consideration of existing and planned medical equipment.

(5) **Clinic Location:** Locate the clinic on the base camp in such a way to support the command's mission requirements. Consideration should be given to daily sick call operations and the relative proximity to the troop population and emergency medical operations (evacuation operations both into and out of the clinic by ground and air). The standard base camp clinic will be sized to meet the medical and dental care expectations of the population stipulated in the Operations Order and supported by the medical staff. The standard or typical level of care expected exceeds the basic Battalion Aid Station (Echelon I medical care) model of FM 8-10-4. The peace stabilization base camp model is based on Echelon I (plus) to Echelon II levels of medical care.

(6). **Hospitals:** All planning for hospitals in theater of operations including alteration or modification will be deferred to the Health Facility Planning Agency, OTSG, Falls Church, Virginia, or to the HFPE.

t. Motor Pool Facilities:

(1) **Maintenance Facilities:** Task Force should consolidate maintenance activities as much as possible. A facility size at a rate of 1,840 SF/Bn supported by the facility is authorized. If a company-sized facility is required, then a 1,200 SF maintenance facility is authorized. These facilities will be equipped with inside and outside lights, as well as exhaust fans and compressed air.

(2) **Maintenance Administration:** 320 SF of office space is authorized for each company-sized element. Each battalion-sized unit is authorized 640 SF.

(3) **Maintenance Pads:** Each company-sized element is authorized a parking area of a sufficient size to accommodate outside maintenance of unit vehicles. Pads should be large enough to accommodate the largest vehicle in the unit plus a recovery vehicle. Battalion maintenance pads for tracked and wheeled vehicles will be constructed from concrete. Maintenance pads will be located near the unit maintenance bay, usually as aprons to a consolidated maintenance facility.

u. Fuel Storage: Above ground fuel tanks are authorized for the storage of bulk fuels. Fuel storage bladders will be phased out as the above ground storage tanks become available. Tanks will be constructed IAW existing environmental regulations and installed per manufacturer recommendations. Where it is necessary to use fuel bladders, they will be sited IAW environmental guidelines and will be surrounded by a constructed containment structure large enough to contain the maximum amount of fuel in the bladder to contain any spillage. Fuel Truck Parking will have secondary containment pads equipped with a catchment sump and grounding rods.

v. Hazardous Waste Collection Points. Each company-sized element will have a covered hazardous waste collection point, built on an elevated pad, to be out of contact with ground surface, and have secondary containment. A concrete pad is authorized for Battalion size motor pool but is not required. Base camp commanders may authorize additional collection points on each camp as required.

w. Hazardous Material Warehouse: Each TF is authorized a hazardous materials warehouse at a size rate of 1,000 SF/1,000 Main Base Camp occupants.

x. *Parking Lots*: Parking lots should be constructed using well graded rock and compacted, with engineered slope and drainage to minimize weather effects and increase safety. Loose rocks greater than 30-40 mm should be avoided. The purpose is to minimize damage to gravel parking lots and to prevent damage to vehicles from flying rocks. Wooden parking lot stripes are not authorized. Concrete turning pads are authorized for parking of tracked vehicles. Chain link fences around motor pools are not authorized unless they are part of the perimeter fence.

y. *Direct Support Maintenance*: DS Maintenance (Task force) is authorized 2,050 SF/1,000 Main Base Camp personnel supported, admin space included. Each Main Base Camp is also authorized an Allied Trades workshop at the same design rate as the DS facility.

z. *Kennels*: Military working dogs are authorized a lighted, climate controlled kennel, and an exercise yard. Kennels will have individual stalls (dog run) for each animal, and a sealed concrete floor for health reasons and ease of cleaning. Kennel floor drains should be connected to a sewer system. The kennel-planning factor is 145 SF per dog, which includes kitchen, tack room, and interior dog run, (36 SF per dog). Exterior dog runs should be 48 SF per dog, with a connecting guillotine-type door to the interior dog run.

aa. *Morgue*: Each morgue is authorized 512 SF of workspace and a refrigeration van. Privacy screen is authorized around the entire facility.

bb. *Defense Reutilization and Marketing Office*: One recycling facility per task force is authorized at a size of 1 square foot per Main Base Camp employee (e.g. soldier, civilian, Host Country National). Should have concrete or asphalt floor capable of handling forklifts. Gravel holding yard of 2 SF per employee is authorized.

1) cc. *Ammunition Supply Point*: The ASP, if applicable to the base camp, will utilize bunker storage when available. If Bunker storage is not available, Ammunition will be stored in Containers located in bermed "Cells". Ammunition must be stored in "Ammunition Certified" containers. Preferred storage is for certified DoD owned containers. Commercial Leased containers can be utilized for storage, until certified DoD Containers can be brought in to replace them. The ASP will be constructed with bunkers, or bermed cells and space allocations (safety requirements) to meet the Net Explosive Weight (NEW) of the ammunition planned and projected to be stored within. USAREUR Regulation 385-64 and Army Regulation 385-64 are applicable regulations governing the storage of Ammunition.

dd. *Basic Load Ammunition Holding Areas and Captured Ammunition Holding Areas*: Ammunition holding areas will be constructed in accordance with AR 385-64 and DA PAM 385-64. Ammunition holding areas will have containment berms, a fenced and lighted perimeter, graveled access roads and lightning protection for the entire area. Ammunition will be stored in protective structures (MILVANs) that are out of contact with the ground (on wooden sleepers or on concrete foundations).

ee. *Wash Rack*: Each Main Base Camp will have as a minimum one 45' long elevated vehicle wash rack, one 100' flat wash rack, and 1 container wash rack equipped with oil/water separators. Wash racks shall be designed to fit the largest and heaviest vehicles in the fleet.

ff. *Fire Protection*: Provide Fire and Emergency Response services in accordance with AR 420-90 and the following standards:

(1) Fire Departments are authorized at base camps with a population of 1,000 or more US personnel (permanent residents), or where US Air Force flight operations, and/or Army rotary-wing flight operations activity is more than 40 military movements (average) per day (arrivals and/or departures).

(2) Base camps that do not meet the criteria above, will use appropriate portable fire extinguishers. Fire and emergency personnel will be properly trained on the use of extinguishers.

The AOR Fire Chief, in coordination with the Director of Public Works (DPW), will determine the type and number of fire extinguishers required.

(3) For Base camps with fire departments:

(a) The number and type of fire apparatus for structural and Aircraft Rescue and Fire Fighting (ARFF) response, as well as the number and type of personnel staffing for fire protection, fire prevention, and fire control center will be in accordance with AR 420-90.

(b) Fire and emergency services will be available 24 hours a day seven days a week. Base camp commanders have the authority to reduce levels of aircraft rescue and fire fighting capabilities during periods when the flight control tower is not operational due to non-flying, and combined with no aircraft ground servicing or maintenance. Staffing will not be reduced below the level required to meet regulatory requirements for structural fire fighting and hazardous materials incidents. This includes ensuring sufficient staffing is on hand to respond to the minimum required aircraft rescue and fire fighting (ARFF) vehicles to initiate fire suppression actions and provide fire fighting agent and water re-supply.

(c) Construction of one fire station per base camp to house fire fighting personnel and fire trucks is authorized.

i. Fire fighting facilities will be co-located and fire fighting personnel should live at the fire station to reduce response time, unless otherwise appropriate and approved in coordination with the DPW.

ii. One classroom/library is required for firefighting training, fire prevention safety inspection training, and to maintain regulations, NFPA Codes, International Fire Service Training Association Training Materials, etc.

iii. Records holding area is required of training, inspections, and fire response activities.

iv. One fire control center per base camp is authorized.

(d) Construction of additional fire stations should be considered if response times exceed requirements in AR 420-90.

(e) Construction of a live-fire training facility is authorized.

(f) For fire fighting purposes, Base Camps are authorized one 5,000-gallon tanker for water storage. The tanker will be capable of tapping into the potable water storage. Centrally located standpipes for filling the tankers should be added to the potable water system to fill the tanker.

(g) Base Camp Fire Chiefs will report all fires to HQUSAREUR, ODCSENG, with copy furnished to IMA-EURO Region Fire Protection Specialist.

(h) All living units and other areas determined to be high hazard or mission critical will be equipped with fire extinguishers and hard-wired smoke detectors and evacuation horns that transmit to the fire station. Pull stations should be located strategically near exits to allow for manual notification of the fire department and evacuation of the structure. For additional fire protection, the SEAhts will be constructed using 5/8" (or equivalent) sheet rock for the interior walls.

(i) SCIF Facilities will use a battery operated fire alarm and detection system.

(j) Storage of fuels and other flammables within the Life Support Area (LSA) is not recommended.

(k) LSA will be arranged so fire lanes are left between groups of structures to serve as firebreaks and fire lanes for fire fighting equipment.

(l) Base Camp Fire Chiefs should conduct regular fire risk assessments at each base camp to appraise the Base Commander of potential risks. AOR Fire Chief, in coordination with the DPW, will conduct yearly Fire and Emergency Services Operational Readiness Inspections.

gg. Training facilities authorized for Main Base Camps:

(1) One Deployed Training Support Center: At a minimum the facility will be (40' X 50').

(2) One Deployed Distance Learning Center: The facility will be a minimum size of (40' X 50' X 10').

(3) Two Small Arms Virtual Trainers: The training system can be set up and operated in any room that is 25' X 30' X 8' high or larger. The room should have provision to block out all sunlight. If room lights are necessary, they must be fluorescent. Incandescent light or sunlight in the room will cause the system to register false laser hits. Authorized when semi-permanent construction standards are established. Line of sight for satellite signals and air conditioning for automated data processing (ADP) equipment is required.

(4) One Indirect Fire Trainer: The training system can be set up and operated in any room 25' X 30' X 8' high or larger. The room should have provisions to block out all sunlight. If room lights are necessary, they must be fluorescent. Incandescent light or sunlight in the room will cause the system to register false laser hits.

(5) A 25-meter range is authorized to sustain soldier's weapon proficiency from 9mm to 7.62 mm, and to sustain newly assigned personnel on their weapons. The facilities are also available in order to re-confirm weapon zeros. A ten-lane range must have a backstop berm 4.4 meters high, left and right berms 4.6 meters high.

(6) Training and Audiovisual Support Center (TASC): Each Main Base Camp will have a TASC, which is 1,024 SF.

hh. *Military Police Station*: Each Main Base Camp is authorized an MP Station at 3,968 SF/MP Company. The MP Station will contain space for mail room, conference room, platoon rooms, company headquarters elements, supply room, holding cell with latrine, latrine, arms room, waiting area, evidence holding room, communications room, administration, and desk sergeant space.

ii. *ASG Facilities*: If and when an ASG or Area Support Team is deployed in support of a Main Base Camp, the ASG will be provided 2,048 SF/1,000 Main Base Camp personnel supported. This space also includes Director of Logistics (DOL) and DPW operations.

jj. *Force Protection and Safety*: Minimum Force Protection Design Standards – Anti-terrorism force protection and physical security in the expeditionary environment presents unique challenges to planners, engineers, and security forces. As is the case for fixed facilities, the type and severity of the threat along with the desired level of protection will be the primary considerations in the selection of the anti-terrorism force protection and physical security measures. These considerations will affect decisions on various issues such as the types of vulnerability reduction measures and the physical layout of facilities, facility groups, and infrastructure. Important factors in planning security measures in the expeditionary environment include the availability of existing facilities, the type of structures in which people live and work, existing natural or man-made features, type and quantity of indigenous construction materials, available real estate and layout of utilities and other base infrastructure. For pre-existing buildings, the standards for existing buildings are to be used.

(1) Facility Access.

(a) Select sites away from public roads or other uncontrolled areas.

(b) Maximize use of natural or man-made features to obscure vision from potential threat vantage points.

(c) Limit vehicle approach speeds.

(d) Minimize vehicle access points.

(e) Provide an entry control point with a well defined holding area for unauthorized vehicles and vehicles being searched. The holding area should be outside of prescribed minimum standoff distance.

(f) Separate functional areas requiring frequent vehicle access (e.g., kitchens, industrial areas, retail areas, refuse collection points) from billeting areas.

(2) Site Characteristics.

(a) Maintain good housekeeping by keeping areas within 30 feet of shelters or structures free of items other than those items that are part of the infrastructure.

(b) When possible, position exterior doors so they cannot be easily targeted from the installation perimeter or uncontrolled vantage points.

(3) Facility Standoff / Separation.

(a) Maintain a minimum standoff distance of 60 feet from inhabited transportable structures to installation perimeter.

(b) Clearly delineate the installation perimeter. Options include, but are not limited to, fencing, concertina wire, barricades, counter-mobility barriers, ditches, police tape, or warning signs.

(c) Maintain a minimum separation of 60 feet between billeting groups.

(d) Maintain a minimum separation of 11 feet between billets in a row.

(e) Maintain a minimum separation of 30 feet between rows of billets.

(f) Limit unprotected glazing to 5% or less of the wall area.

(g) Locate mail and supply handling areas at least 60 feet from inhabited transportable structures.

(4) Threat Specific Standards. In addition to the minimum standards described above, the DoD Security Engineering Manual provides guidance for incorporating additional measures to mitigate specific threats. That guidance includes design strategies for mitigating the effects of specific aggressor tactics to defined levels of protection and the effect on building cost of applying those measures.

(5) Power Generation and Distribution: Wood or chain link fence will be installed around all generator, transformer and consolidated generator station locations. Enclosing generators in wooden buildings is not authorized.

(6) Perimeter: Fences, either chain link or concertina, are authorized around the camp perimeter. Berms and sniper screens are authorized to block vision. Perimeter lights are authorized. A gravel perimeter road is authorized inside the berm. Culverts underneath the perimeter fence will be caged to prevent persons from crawling through.

(7) Gates: Covered inspection areas on the main gates are authorized as required by weather conditions. Gates will have lighted, heated, guard sheds. Tilt bar and swing gates are authorized. Locate clearing barrels inside the gates.

(8) Clearing Barrels: Clearing barrels will be installed at all access control points and outside the entrances to arms and ammunition storage areas, medical, and dining facilities."

(9) Walkways and decks: Pressure treated, rot-resistant lumber is the standard. If not available, or cost prohibitive, consider using composite decking material for constructing walkways and decks. Untreated wood can be used if primed and painted. Paint any wooden walkways with sand paint or other non-slip materials to reduce the chance of slipping, particularly in climates with snow and ice or extended rainy periods. Provide lighting wherever steps cannot be seen at night.

(10) Buried utilities: The DPW will maintain a database of all buried utilities. No job will be closed out until new underground utilities have been properly documented. No work will commence on a project until a dig permit has been obtained. Digging permits should also be coordinated for communication line clearance. Buried utilities will have caution tape at least one foot above the utility lines. Buried electrical lines will have signs posted at every turn in the line and wherever else needed by the terrain.

(11) Bunkers: Only bunker designs approved by the Corps of Engineers, Engineer Research and Development Center will be constructed. Sand bag bunkers will have the sand bags protected from solar radiation and the wooden core protected from rot. Design factor is 110% of camp population for bunkers and fighting positions. Normal planning factor is that 50% of the population will be on the perimeter, with 50 % in bunkers.

(12) Guard Towers: Guard towers will be placed so every tower is visible to the immediate towers on the right and left so there is no dead space on the perimeter. Towers will have heat and light. Towers will be hardened against small arms and mortar fire.

(13) Constructed fighting positions: Overhead cover design on fighting positions must be approved by the task force engineer. Fighting positions must be inspected regularly for deterioration. A digging permit must be coordinated before any construction begins.

(14) Theaters and similar multipurpose facilities: These facilities will have a barrier to minimize a car bomb threat. Barrier can be a berm, Hesco bastions, Jersey barriers, or other method capable of stopping a car or truck. Air induction units and other vents will be screened or fenced to reduce terrorist threat of gas introduced into the duct systems.

(15) Water Plant. Water plants, wells, storage tanks, and bladders will be fenced.

4. UTILITIES. Design and installation of utilities systems will be in accordance with current applicable Military Handbooks, technical manuals, guidance and recognized industry standards, codes, and practices. Engineering calculations will be used to size the system. All utility designs will be approved by DCSENG, USAREUR before installation begins.

a. Electric Power:

(1) Where economically supportable and practicable, base camp power grids will be connected to commercial power. Smaller or remote base camps that cannot be economically connected to the commercial power grid are authorized to construct central power plants capable to support 125% of camp maximum demand load, or use distributed generators of sufficient capacity to support maximum demand loads. An economic analysis shall be completed to determine the most cost effective power plant/generator solution. In all cases, critical facilities will be identified in the master plan by the ASG Commander and have back-up generator power. Non-Critical facilities that have stand alone distributed generators will not have any back-up generator power. However, a maximum of 10% of total generators (one minimum) serving non-critical facilities are authorized as reserve generators that can be placed in service quickly in case a generator serving a non-critical facility has a major failure. Determination of appropriate size for generators is not a simple task, as many generators are typically over-sized for loads served. Sizing of generators shall include an evaluation of actual and expected loads considering appropriate demand and load diversity factors, along with a review of any historical demand load data for similar base camps. Engine-generator sets may need de-rating to account for use of JP-8 fuel (rather than diesel), altitude, temperature, and starting requirements for any large load specialized equipment (e.g., hospital X-ray machines). In many cases, load banks have been used to ensure adequate performance of under loaded engine-generator sets. Under loaded engine-generators may operate unsatisfactorily, fail prematurely, and require more frequent maintenance and overhauls due to excessive formation of carbon deposits in the engine. The use of load banks and premature engine overhauls can be avoided if engine-generators are "right-sized" for the load. A complete and thorough analysis of the affected electrical system must be accomplished to ensure power plant requirements are properly defined. Leasing of generators for periods greater than six months is generally not cost effective. Where stand-alone distributed generators are the main power source, they will be sized so no generator set is loaded less than 50%.

(2) Electrical power systems for the Main Base Camps and Forward Operating Bases can be composed of subtransmission lines to main substations; distribution lines to distribution substations; utilization lines to distribution transformers; and generators to provide emergency, stand-by, and/or prime power for mission base camp facilities. Application of new so-called Distributed Generation (DG) Technology rather than familiar Internal Combustion (IC) Genset (diesel engines) technology, may be considered if economically feasible, environmental impacts and emissions are of utmost concern, and any alternative fuels that may be required for DG applications are available. DG and IC Gensets allows cogeneration (combined heat and power) "waste" heat from power generation to be recovered and used to offset costs. Today, the capital cost of an IC Genset is 200-350 \$/Kilowatt (KW) for diesel and 400-1000 \$/KW for Natural Gas. Operations and Maintenance (O&M) costs for both types, excluding fuel, are 0.01\$/kWh/yr.

(3) Electric power supply transformers will be in accordance with the voltage and frequency characteristics of the host nation. Frequency converters, 50 Hertz (Hz) to 60 Hz rotating or static (preferred), should be used in lieu of 60 Hz generators. Applicable electrical industry codes, standards, or publications to equipment, materials, and installation will be used. The latest edition of National Fire Protection Association (NFPA) –70 (National Electrical Code) and American National Standards Institute C2 (National Electrical Safety Code) provide minimum requirements for safeguarding of persons and property from hazards arising from the use of electricity and will be met.

(4) All facilities that are used for or containing housing, office space, or other areas that require the use of electric devices and/or equipment will be supplied with sufficient fixed electrical outlets. SEAhuts used for housing will have eight fixed duplex electrical outlets. All facilities that require

illumination to perform tasks or in order to provide a safe living, working, or recreational environment will be equipped with sufficient electric lights.

b. *Heating, Ventilation & Air Conditioning (HVAC)*. All facilities where personnel live, work or recreate will be, at a minimum, provided with heating. When possible, install ECUs that provide heating and cooling capabilities. Large facilities (e.g. DFACs, Medical Clinics) should be provided with central HVAC systems. Camps will utilize installed central heating/cooling systems where already existing or as economically feasible. Storage areas will only be provided heating/cooling services as needed to address specific storage requirements cited in sub-paragraphs on designated facilities types. When temporary and semi-permanent facilities such as SEAhuts utilize ECUs, they will be sized to ensure delivery of heating/cooling as follows: standards for maximum indoor temperatures in winter are 68°F and minimum indoor temperature in summer is 78°F. Temperature strips are installed in administrative areas and living spaces wherever ECUs are utilized. Where central heating/cooling systems are pre-existing or have been installed and/or for all other facilities (e.g. Hangars, Recreation Centers, Gyms, DFACs, Medical Facilities), the ASG will monitor installed thermostatic controls to maintain establish temperature standards.

c. *Water*. For Main Base Camps the order of preference for potable water is:

(1) Joint Contracting Center (JCC) will contract to tie into local municipalities if it is economically feasible and meets Army health and force protection standards. The installation of a water purifying station such as a UV-60, Transportable Water Purification and Disinfection System should be considered in the start up cost.

(2) Installation of wells for potable water is authorized. Site planning should consider installing water storage distribution systems if economically feasible. A minimum of 2 wells per camp, one primary and one for back up are authorized. The expense of mobilization for drilling equipment represents a major cost of providing a well. Therefore, local contractors should be hired to perform well drilling. Additional wells may be drilled based on the capability of the first 2 wells to supply the required amount of water. Wells should be within camp boundaries.

(3) The least desirable option trucking potable water and/or bottle water to the base camp. The cost of purchasing and maintaining the trucks along with drivers and the reoccurring cost of bottle water to include purchase, transport, storage, and waste disposal needs to be included in the initial cost estimate.

d. *Wastewater Treatment Plant*. The initial assessment for a base camp should have a design for the installation of a wastewater plant based on projected population size of the camp to include allied forces and local nationals. Coordination with JCC should be utilized to determine if connection to a municipal wastewater treatment plant is economically feasible and environmentally sound. Upgrades to existing sewage treatment plants are authorized to allow for effective treatment of waste being generated on that facility. Connection to local waste treatment facilities is authorized. Upgrades will be limited to the expansion of the plant's current capabilities to handle the increased daily flows.

5. SOLDIER AND AUTHORIZED PERSONNEL SUPPORT. Soldier and authorized personnel facility support for Main Base Camps are intended to improve the quality of life of assigned personnel. On Main Base Camps where commanders have made the decision to split-base soldier and authorized personnel support, MWR or Army, Air Force Exchange Service (AAFES) services or concessions according to the geographic location of the LSAs, the sum of the space allocated for each activity split-based will not exceed the total square footage for that category of facility as determined below.

a. *Chapels:* Each base camp is authorized a chapel at a rate 1,624 SF of space per 1,000 authorized user. The structure will have linoleum flooring installed. Design will be nondenominational. Office space will be provided for the execution of chaplain functions supporting privileged communications with parishioners.

b. *Education Centers, Defense Logistics Agency (DLA) & Military Occupational Specialty (MOS) Library:* A combination education center, DLA and MOS Library of 1,280 SF are authorized for each 750 authorized user assigned to a Main Base Camp.

c. *AAFES:*

(1) *Barber/Beauty/Alteration/Pressing Facilities:* A barber/beauty shop and alteration/pressing facility are authorized for Main Base Camps. Barber and Beauty shops can be collocated in the same facility. Barber and beauty shops are authorized 320 SF per 1,500 authorized users. Alteration and pressing facilities can be collocated in the same facility, if contractor requirements can be met. Alteration and pressing services are authorized 320 SF per 2,000 authorized users.

(2) *Post Exchange:* All Main Base Camps are authorized a PX with authorized space of 2,100 SF per 750 authorized users. Sufficient electrical connections are authorized to ensure sufficient, safe electrical power is available for displays and other requirements.

(3) Each PX Warehouse is authorized 1,000 SF per 750 authorized users.

(4) Each PX administrative space is authorized 250 SF per 750 authorized users.

(5) Loadings docks and gravel parking lots for delivery trucks are authorized.

(6) *Food /Service Concessions Stands:* The commander will determine what food concessions will be on his post. Each food concession is authorized 480 SF per 750 authorized user. Authorized dining/seating space is 375 SF per 750 authorized users. One refrigerated cooler, three freezers and one dry storage container are authorized per food court. When requested by the local Command, a specialty food concept is authorized 512 SF, which includes seating. Amusement areas adjacent to the food concession are authorized 150 SF per concession for equipment setup. The Army is responsible for providing basic facilities for these concessions, to include utility hookups and ventilation O&M. AAFES is responsible for the installation and maintenance of all "AAFES peculiar" items (e.g. cash registers, display shelves and coolers, stoves, specialty lights).

d. *Morale, Welfare and Recreation:*

(1) *Fitness facilities:* Each Main Base Camp is authorized a fitness facility at 3 SF per authorized user. The facility will have rubber floor tiles and male/female latrines.

(2) *Field House/Multipurpose Facility:* All Main Base Camps are authorized a facility to conduct indoor sports, shows, or large meetings. The facility will have a wooden floor lined for basketball, volleyball, and other sports activities. If possible, the facility should be able to have an enclosed full size basketball court of 50'X 94' with eighteen foot (18') floor to ceiling clearance and a minimum five foot (5') safety/walking lane surrounding the playing area. Field houses should have fluorescent lighting and climate control male/female latrines. The field house should have double entry/exit doors.

(3) Athletic Fields: Each Main Base Camp is authorized two sand volley ball courts, two horseshoe pits, a paved outdoor basket ball (1/2 court) court and one outdoor pavilion. Base camps over 2000 are authorized a second set.

(a) Where adequate space exists, multi-purpose athletic field with outdoor lighting suitable for flag football, softball, soccer and track activities may be constructed.

(b) Running trail with workout stations: Each Main Base Camp is authorized a lighted outdoor running trail up to two miles in length with up to eight uncovered fitness stations.

e. *Community Activity Center*: Each Main Base Camp is authorized a Community Activity Center. The facility is authorized 4,608 SF per 2,000 authorized users. The facility should have double entry/exit doors, latrines and running water. The community activity center and theater will be located in opposite areas of camp for force protection issues. The structure will house the communication (cyber cafe) center with phone center, common area, library, equipment room, TV room, Movie room and VTC room.

f. *Multi-Purpose Theater*: Each Main Base Camp with over 1,000 US personnel is authorized one multi-purpose theater, with a 35' wide x 25' deep stage, with steps on both sides and a securable storage area under the stage, two dressing rooms on both sides, with climate control, mirrors and shelves to the sides. Main Base Camps under 1,000 personnel are not authorized a stage. Facility will be hard wired with two each 380 volt, 32 amp and 64 amp, 220V power. The theater will be housed in a structure designed to seat 25% of the base population, or 500 persons, maximum. The theater should have double entry/exit doors. Seating will be folding metal or plastic chairs, that can be quickly removed and the floor space used for formations or Transfer Of Authority movements.

g. *MWR Warehouse/maintenance facility*: Each task force is authorized one MWR warehouse/maintenance facility at 1 SF per personnel supported. Facility is to be used for repair of MWR equipment and for short-term storage of remote site equipment and seasonal equipment not in use. It is not authorized for long-term storage of excess MWR equipment.

h. *American Forces Network Service*: Each main base camp will establish facilities for broadcast transmission of AFN services. The standard AFN broadcasting pad is a minimum of 300' X 150' and located on the highest point of the perimeter or in the center of the base camp. It includes a housed power generation / fuel source. Variations for manned/unmanned operations areas follows:

(1) Manned Operations. The AFN pad will include a facility to house a manned affiliate operation – consisting of studios, offices and other administrative space up to a maximum of 56' x 75' or 4,200 SF.

(2) Unmanned Operations. One climate-controlled equipment shelter the size of a standard SEAhut (512 SF) is required.

6. FORWARD OPERATING BASES. A Forward Operating Bases (FOB) is defined as a site normally occupied by company-sized units and operated on a continuous basis. The standards found in the previous sections apply to FOBs, except in the following circumstances. Annex 2 contains a table for easier reference on authorized facilities at Main Base Camps, Forward Operating Bases, and Outposts.

a. *Roads:* Each FOB is authorized gravel on primary and secondary roads.

b. *Dining Facilities:* Dining facilities are authorized 1,024 SF of dining room space and 512 SF for kitchen, admin, and storage space per 100 authorized users. Adequate space for cleaning, latrine, and clothes changing for local national kitchen staff will be provided. Loading dock, if present, can be concrete, asphalt, or treated lumber.

c. *Laundry Collection/Distribution Point:* A total of 256 SF is authorized for a laundry collection/distribution point.

d. *Aviation Facilities:* Helicopter landing and parking pads will be concrete. Bean Bag Lighting Kit will be available and operational for nighttime flight operations.

e. *Communications Compound/Network Service Center:* Each FOB is authorized 512 SF to house the base's communications support operations.

f. *Aid Stations:* Aid stations are authorized a maximum of 512 SF.

g. *Motor Pool Facilities:*

(1) *Maintenance Facilities:* A maintenance facility of 1,200 SF erected on concrete or asphalt pads is authorized for each company-sized element. The maintenance facility will be equipped to provide heating, electric lights, and compressed air.

(2) *Maintenance Administration:* A maximum of 320 SF for office space is authorized for each company-sized element.

h. *Fire Protection:* Portable fire extinguishers will be available in all buildings and places where flammable materials are used. The AOR Fire Chief, in coordination with the DPW, will determine the number of fire extinguishers for each facility. The FOB Commander will ensure the occupants are properly trained in their use.

i. *Utilities:*

(1) *Water:* Reference water guidelines located in the Utilities Section of Main Base Camp standards.

(2) *Electric Power:* Generator power will continue to be the primary source of remote site power if commercial power is not available.

(3) *Sewage collection tanks* are authorized. However, the initial assessment for a FOB should consider installation of a wastewater treatment system. Sewage can be trucked to a suitable wastewater treatment plant.

j. *Soldier and Authorized Personnel Support:*

(1) *Community Activity/Education Center:* Each FOB is authorized a Community Activity/Education Center at a rate of 1,024 SF per 150 authorized user, with a minimum size of 1,024 SF.

(2) A fitness center is authorized at a rate of 1,024 SF per 150 authorized users with a minimum size of 1,024 SF.

k. *Barber/Beauty Shop*: A barber/beauty shop is authorized for FOBs. Barber and Beauty shops can be collocated in the same facility. Barber and beauty shops are authorized 256 SF per 150 authorized users with a minimum size of 256 SF.

l. *Post Exchange*: All FOBs are authorized a PX with authorized space of 512 SF per 150 authorized users with a minimum size of 512 SF. Sufficient electrical connections are authorized to ensure sufficient, safe electrical power is available for displays and other requirements.

m. *Athletic Fields*: Each FOB is authorized one sand volley ball court, one horseshoe pit, a paved outdoor basket ball (1/2 court) court and one outdoor pavilion.

(1) Where adequate space exists, multi-purpose athletic field suitable for flag football, softball, soccer and track activities may be constructed.

(2) Each FOB is authorized a running trail.

n. *Non-Authorized Facilities*: The following facilities are not authorized at a FOB:

- SSA
- DX/CIF
- Postal Facility
- Hazardous Materials Warehouse
- DS Maintenance Facility
- Morgue
- DRMO
- ASP
- BLAHA/CAHA
- Wash Rack
- Training Facilities
- MP Station
- ASG Facilities
- Chapel
- Alteration/Pressing Shop
- Multi-Purpose Theater
- MWR Warehouse/Maintenance Facility
- AFN Manned Operations

7. OUTPOSTS. Outposts are normally used for short term, operationally defined missions (e.g. checkpoints and observation posts) for platoon or squad sized elements, and will not have the level of services the Main Base Camps and FOBs are authorized. Outposts will be authorized the following primary services.

a. Portable latrines, or ablution units if they can be serviced. Ablution units are preferred over small unit showers if the site will be occupied over the winter.

b. Portable generators to provide power.

c. Heated Tier II tents (16' x 32') for living and working space, or Corimec style containers (8' x 20'). If containers are used, one container for admin space is authorized. Living space is the same as base camps.

d. One Tier II tent to serve as a recreation room and break room. Gutting and connecting Corimec style containers is not authorized for this purpose.

e. One Tier II tent for a fitness facility.

f. Soldier support will be relayed by higher headquarters. No semi-permanent facilities are authorized.

g. Construct the perimeter fence with concertina wire and other approved force protection materials.

h. Preferred blast protection is Texas Barriers (interlocking concrete wall 10' high, 15" thick, or berms).

i. Gravel parking and walking paths should be constructed from well graded gravel and compacted. These areas should be free of loose rocks greater than 40 mm in diameter to decrease probable damage to vehicles and personnel injury.

8. OPERATIONS & MAINTENANCE. The purpose of this portion of the Red Book is to provide guidance for the amount of maintenance required on facilities constructed for contingency operations. The goal is to maximize the life expectancy of temporary facilities with minimum cost to the government. Contracts given to contractors should follow these guidelines.

a. *Painting:* Buildings shall be painted to prevent weather damage to the buildings. Painting for appearance sake is not authorized. Paint will have a durability rating of at least five years.

(1) All wooden structures should be primed before being painted. Building shall be painted whenever there are significant repairs that leave exposed wood, when there is surface damage, or whenever the cost of painting can be justified as a cost effective prevention strategy.

(2) Treated lumber is the standard for wooden walkways, decks and wherever wood comes in contact with the soil. If treated lumber is not available, all bare wood will have a primer and then two coats of paint to include the underside of decks, deck stringers, and pilings. All decks will be sand painted or some other method to prevent slipping. A best business practice would include considering the use of composite decking material for constructing walkways and decks. Provide lighting wherever steps cannot be seen at night.

(3) Painting warning signs, trips hazards, and other standard safety procedures is authorized.

(4) Painting of interior walls is authorized every 3rd rotation, (18 Months).

b. *Signs:* Signs will generic in nature. The intent is to have signs that will function through several rotations. Signs can be either metal or wood.

(1) One foot square division patch signs can be added to generic signs by use of hooks. This is so that when divisions change, the generic sign will remain, and the only cost involved will be changing division patches.

(2) Commander and senior Noncommissioned Officer names can be attached to generic signs.

(3) Standard European traffic signs will be used.

(4) Use of contractors for battalion crests and other distinctive unit signs is not authorized.

c. *Road Repair/Dust Abatement:* The intent is to maintain maximum maneuverability for the commander, minimize damage to government equipment, and provide a safe transportation system for the soldiers.

(1) The DPW will decide the frequency of grading based on the local conditions. Generally grading is done often enough to minimize potholes and wash-boarding. Compacting high use areas may be cost effective. Every effort needs to be made to reduce loose rocks greater than 40 mm in diameter on roads and parking lots.

(2) The DPW will decide the frequency of dust abatement based on the local conditions. Generally dust abatement is done often enough to prevent dust damage to engines and electronic components and to protect the health of soldiers and civilians.

(3) Dust abatement and grading costs should be closely monitored. Paving should be considered on gravel roads if the payback period is 2 years or less.

(4) The DPW will decide the frequency of mud removal from paved roads. Safety should be the prime consideration.

(5) Use of lumber for parking lot stripes on gravel parking lots is not authorized.

d. *Erosion Control*: Erosion control measures are authorized to minimize damage to government facilities and in vector control. Erosion control measures are authorized and will be implemented around fence perimeters to prevent washouts underneath fence lines. Landscaping for appearance sake is not authorized.

(1) Ditches: Ditches with over a 3% slope, or when serious erosion is observed, should have geotextile and rip-rap installed. Culverts should have headwalls with a 5-year design life. The use of dry-mix cement and sand in sandbags for various erosion and headwall construction projects is preferred over using sand filled bags.

(2) Grass: Planting grass is authorized for erosion control. Grass should be local species or other varieties known to do well in the local area with minimum maintenance. A mixture of seed to include at least 30% grass species that grow through the winter should be used. Fertilization and other soil amendments to encourage adequate erosion protection are authorized. Grass cutting should be done under the guidance of the environmental officer based on the local conditions. Grass cutting for appearance sake is not authorized with the exception of the following:

(a) Within 50 feet of buildings, the maximum height will be 8 inches and a minimum of 4 inches. Mowing will not be more often than once every two weeks.

(b) Authorized MWR fields can be planted, fertilized, watered, and cut for the needs of the sport they are designed to support. Chalk markings are authorized.

(c) The commander may designate certain high visibility areas where uncut grass may reflect negatively on the command. These areas will be individually specified in a grass-cutting contract.

(3) Leaf Raking: The contractor is authorized to rake and collect leaves three times annually, between October and January, or as directed by the DPW.

(4) Vector control: Filling in of and grass planting on minor depressions, wheel ruts, and construction damage is authorized to prevent mosquitoes and insect borne diseases. The environmental officer must assess any area of standing water greater than 1/10 acre (4,356 SF) for environmental impact.

(5) Storm damage: Use of contractors to trim and remove storm-damaged trees is authorized. Intent is to minimize effects of tree damage to utilities and transportation.

e. *Pavement Repair*: All contractor asphalt projects should come with a two-year guarantee. Repairs to existing paved roads should be as follows:

(1) Asphalt: Potholes and utility cuts should be repaired as soon as possible to prevent accidents, vehicle damage, and further road damage. Base course should be prepared to prevent slumping.

(2) Stone: Repair of existing paving stones for safety and equipment concerns is authorized. Repairs for appearance sake are not authorized.

(3) Concrete: Repairs to concrete roads, bridges, and airfields will be coordinated and approved by the task force engineer on an individual basis.

(4) Guardrails: Guardrails to keep vehicles off areas are authorized. Barriers should be constructed from treated lumber, concrete, or metal. If no guardrail previously existed it must be treated as new work.

f. *New Work*: Construction of new roads, sidewalks, buildings, or other facilities where none previously existed is new work and cannot be accomplished under O&M. Major modifications to existing

structures such as porches, closing in porches, decks, new walls, additional latrines, additional electrical service, moving doors and windows, counter tops, shelves, and bulletin boards are all considered to be new work.

g. *Preventive Maintenance*: Use of contractors for preventative maintenance inspection of facilities is authorized. Inspection should be conducted every 60 days, but can be modified by the commander for more or less frequent inspections on an individual basis. The purpose of these inspections is for safety and to save the government money by identifying deficiencies while they are still small and easy to fix. A contract can be just for an inspection or for inspect and fix. Inspection should include but is not limited to the following:

(1) Electrical: Check for damage or tampering with switches, outlets, junction boxes, control panels, circuit breakers, fuses, grounding rods, and overloading.

(2) Plumbing: Check for leaks, drips, corrosion in shower heads, shower curtains, water pressure (40 psi), hot water temperature, and evidence of water damage to floors and walls.

(3) Exterior: Check roof for leaks, deterioration, lost shingles, bubbles, and animal damage. Check walls for holes and chipping paint. Check windows for broken glass and ease of operation. Check doors for squeaks, ease of movement, and working locks.

(4) Interior: Check linoleum for cracks and tears. Check doors for squeaks, ease of movement, and working locks. Check walls for cracks, holes, and chipping paint. Check ceiling for evidence of leaks.

Annex 1
MASTER PLANNING

1. Master Planning.

a. Purpose. Master planning is a comprehensive process bringing together a variety of players and their requirements. It addresses the need to comprehensively plan facilities for the future to satisfy various and competing interests in support of the mission. Contingency Operations ASGs establish Base Camp Planning Boards (BCPB) at each of the base camps, provides guidance on conducting planning boards, addresses commander's guidance, and coordinate the Master Planning Components.

b. Definition. A Master Plan is the ASG Commander's comprehensive plan for the orderly and efficient management and development of land, facilities and infrastructure in support of the mission.

c. Base camp applicability. All main base camps will have a BCPB and will develop a Base Camp Master Plan (BCMP). Forward operating bases and outposts fall under the command structure of the main operations base of their headquarters.

2. References.

- a. AR 210-20 Master Planning for Army Installations.
- b. Architectural and Engineering Instructions, Design Criteria, 15 Jul 94.
- c. USAREUR Space and Planning Criteria Manual.
- d. Master Planning Instructions, 9 July 1993.

3. Discussion. The base camp master plan is a tool enhancing force protection, operational readiness, personnel safety conditions, efficient use of limited resources, living conditions, and quality of life. Proper zoning and improvements to the condition of the facilities and utilities, with the efficient investment of resources, will increase the quality of life for all soldiers while enhancing force protection.

a. An organized site plan is a crucial part of a master plan. A well-designed site layout will minimize many detrimental characteristics; biological (physical health), social (coordination and cooperation), psychological (improving attitudes), and financial (reduce operational and renovation cost).

b. The BCPB provides the forum for the camp program managers and experts to make comprehensive, balanced decisions for the future layout of the camp facilities and infrastructure. The board will meet periodically to review and refine plans based on changing mission priorities with the consistent goal of providing the soldiers a quality living and working environment while incorporating best business practices.

4. Responsibilities.

a. The ASG commander is responsible for all master plans developed within the task force. The ASG Commander will:

- (1) Review and approve all BCMPs and updates.
- (2) Return to base camps, through the DPW, unapproved BCMPs, or unapproved portions thereof, for reconsideration and resubmission before final approval.
- (3) Forward Joint Acquisition Review Board (JARB) requests and other documents to HQ, USAREUR for approval as appropriate.

b. Directorate of Public Works (DPW) will:

- (1) Be the Commander's designated representative for the overall implementation of base camp master plans.
- (2) Facilitate and assist base camp commanders, and assure consistency in conduct of BCPBs.
- (3) Prepare guidance, assist, and educate the BCPB on the planning process.
- (4) Attend, as advisor and non-voting member of each base camp BCPB.
- (5) Will maintain in a central repository all BCMPs and BCPB minutes of meetings and maintain consistency of BCMPs through rotations of units, commanders, and camp mayors.
- (6) Advise and recommend to ASG Commander approval/disapproval of BCMPs.
- (7) At direction of ASG Commander, return disapproved portions of BCMPs to camps for further action.
- (8) Advise the ASG Commander concerning any controversial issues surfaced in any of the BCPBs.
- (9) Advise the JARB board of projects that are inconsistent with the approved BCMPs.
- (10) Transmit commander's guidance and standards to the BCPBs for use in preparation of BCMPs and coordinate with higher headquarters for technical expertise not organic to the ASG.

c. BSB / AST Commanders (or ASG designate) will:

- (1) Chair the BCPB.
- (2) Be responsible for formulation of the BCMP and any changes to it, assure submission of the plan and changes/updates through the appropriate brigade commanders, and the DPW to the ASG commander for approval.
- (3) Approve/sign the BCPB minutes and assure timely submission the ASG Commander.

d. Base Camp ASTs / Installation Coordinators will:

- (1) Conduct BCPBs periodically as required in this Annex and as directed by the base camp or Task Force Commander.
- (2) Serve as executive secretary for BCPBs and submit minutes of BCPB meetings through the DPW to the ASG commander for approval.
- (3) Chair the BCPB upon direction from the commander.
- (4) Ensure all projects submitted to the JARB process are consistent with the BCMP.

e. Commanders of major assigned units, tenants, and supported activities at the camps will:

- (1) Identify and develop facility requirements to support their missions, and ensure these requirements are incorporated into the camp's approved Master Plan.
- (2) Provide a voting member to the BCPB.

f. Members of the Base Camp Planning Board (BCPB) will:

(1) Monitor development of the BCMP and make recommendations to the AST/BSB Commander for ASG commander approval.

(2) Ensure the BCMP addresses all facility requirements for all activities on the camp and supported sites.

(3) Ensure the BCMP incorporates anticipated growth or reductions in units and activities based on current and proposed mission(s).

(4) Ensure camp changes are in accordance with BCMP-approved zoning, aesthetic, and traffic considerations.

(5) Make recommendations to the camp commander concerning requirements to update base camp master plans.

(6) Advise the camp commander on priorities for large projects with significant impact on the camp.

(7) Consider the environmental effects of all decisions relating to the BCMP.

5. The ODCSENG will coordinate the assistance of technical experts (e.g., 412th ENCOM, USACE, or IMA-EURO).

6. Commander's Master Planning Goals and Objectives.

a. Commander's Master Planning Goals:

(1) Enhance Force Protection.

(2) Improve Quality of Life.

(3) Improve Condition of Facilities.

(4) Promote efficient Investment of Resources.

b. Commander's Master Planning Objectives:

(1) Establish a vision and future direction for attaining the correct balance of facilities/real estate to effectively support the mission.

(2) Enhance power projection capability in a contingency environment.

(3) Maintain living conditions and quality of life to enhance soldier readiness.

(4) Establish the framework for managing limited resources.

(5) Identify deficiencies and costs.

(6) Minimize detrimental environmental impacts.

7. Master Plan Components.

a. Long Range Component. The Long Range Component is an assessment of what the camp should look like five years in the future. It illustrates infrastructure, transportation flow, zoning, aesthetics and

signage. The following items make up the Long Range Component (items with “**” are owned/updated by the BCPB chairman and executive secretary for the BCPB):

- (1) Long Range Analysis. *
- (2) Environmental Baseline Analysis (DPW Environmental ICW Camp ECO).
- (3) Utilities Assessment (DPW).
- (4) Transportation Assessment. *
- (5) Land Use Analysis/Zoning Plan. *
- (6) Physical Security Plan (Overlay). *
- (7) Fire Protection Plan (Overlay). *
- (8) Installation Design Guide (DPW provided).
- (9) Capacity Expansion Analysis. *
- (10) Supporting Graphics/Overlays. *
- (11) AHA Explosive Quantity Distance Site Plan

(* - Critical items are the responsibility of the BCPB chairman and BCPB executive secretary.)

b. Capital Investment Strategy. The Capital Investment Strategy analyzes shortfalls and excesses in facilities through a Tabulation of Existing and Required Facilities, and identifies preferred action plans to solve the imbalance. The recommendations (solutions) must be consistent with the Long Range Component.

c. Short Range Component. The Short Range Component of the Master Plan is the immediate or temporary solution to facility imbalances, until a permanent solution is found. Temporary solutions can include relocations or temporary diversions in uses of facilities, and temporary construction until a more permanent solution is reached. The Short Range Component includes site-specific graphics with locations of projects. The following pieces make up the Short Range Component:

- (1) Overview of Requirements - An assessment of how to “get well”, analysis of alternatives, evaluation and selection of preferred alternatives, and narrative justification for the selected Course of Action (COA).
- (2) Assets/Facilities Investment Plan.
- (3) Environmental Documentation (DPW provided).
- (4) Assets Disposal List.
- (5) Supporting Graphics.

8. The Base Camp Planning Board (BCPB).

a. Functions of the Base Camp Planning Boards (BCPB) are:

- (1) Act as the camp's “Board of Directors” to ensure the orderly development and management of the camp's facilities (and supported forward operations bases and outposts) in support of the mission.
- (2) Guide the development and maintenance of all components of the BCMP.
- (3) Coordinate camp planning with the following:
 - (a) Adjacent or nearby camps.
 - (b) Affected host nation agencies (DPW acts as lead coordinating agency).
- (4) Ensure the BCMP:

- (a) Addresses facility requirements for all activities of the camp and supported areas.
- (b) Projects for growth or reduction in units and activities assigned to the camp based on changes in mission.
- (c) Determine installation design guidelines and adhere to standards.
- (d) Review funding projections and advise the camp commander of priorities and COAs.
- (e) Ensure maximum efficient use of existing facilities.
- (f) Project plans and projects consistent with good environmental stewardship.
- (g) Make recommendations on and space utilization.

b. Composition of BCPB. Minimum composition of the BCPB in each of the camps shall be the following:

(1) Chairman. The Camp Commander is Chairman. The Camp Commander may appoint a subordinate to serve as Chairman.

(2) Voting members. Voting members shall consist of the following:

(a) AST/BSB Commander: Provides staff support and administrative assistance in conduct of the BCPB

(b) The chief of each principal and staff section (proponency) on the camp. Proponency representatives, at a minimum, should include the following:

- i. Personnel/MWR
- ii. Operations/Intelligence
- iii. Logistics
- iv. Security and/or PMO
- v. Safety
- vi. Information Management
- vii. Signal
- viii. Force Protection

(3) Associate non-voting members (optional/as applicable, except DPW, which is mandatory):

- (a) DPW serves as advisor/facilitator to the boards.
- (b) CSM.
- (c) Associated Camp(s) representative, as applicable.
- (d) Contractor's Base Camp Manager.
- (e) AAFES Manager or representative.

c. Meetings.

(1) The BCPB will meet at least quarterly.

(2) The Executive Secretary will record the minutes during BCPB sessions. The Executive Secretary will prepare the meeting agenda, read-ahead packets, and other administrative requirements. The minutes will record those voting members in attendance and those absent, associate (non-voter) attendance; and topics discussed, to include issues, points of discussion, and board recommendations with vote tally.

d. The board is required to recommend formal approval for:

(1) Components of the BCMP.

(2) Installation architectural/design themes.

(3) Major projects (projects > \$50,000) in prioritized order to be submitted to JARB and higher HQ for funding and approval.

(4) Other items within the purview of the board's charter, as designated by the base camp commander.

**ANNEX 2
AUTHORIZED FACILITIES LIST**

FACILITY	MAIN BASE CAMP	FORWARD OPERATING BASE	OUTPOST
Roads	YES	YES (only gravel)	YES (only gravel)
DFAC	YES	YES	NO
Housing	YES	YES	YES (Tents Only)
Latrines and Septic Systems	YES	YES	YES (portable)
Shower	YES	YES	YES
Office	YES	YES	YES (Tents Only)
SSA/Warehouse	YES	NO	NO
DX/CIF	YES	NO	NO
Finance and Personnel Support Operations	YES	Operationally Defined	NO
Postal Facility	YES	NO	NO
Laundry Collection/Distribution Point	YES	YES	NO
Helipad	YES	YES	Operationally Defined
Runway and Taxiway	YES	NO	NO
Aviation Fuel	YES	Operationally Defined	NO
Squadron Operations Building	YES	NO	NO
Aviation Maintenance	YES	Operationally Defined	NO
Communications Compound/NSC	YES	Operationally Defined	NO
Medical	YES	YES (Aid Stations)	MEDICS

FACILITY	MAIN BASE CAMP	FORWARD OPERATING BASE	OUTPOST
Vehicle Maintenance	YES	YES	NO
Ground Fuel	YES	YES	NO
Hazardous Waste Collection Point	YES	YES	NO
Hazardous Materials Warehouse	YES	NO	NO
Parking Lots	YES	YES	Operationally Defined
DS Maintenance	YES	NO	NO
Kennel	YES	Operationally Defined	Operationally Defined
Morgue	YES	NO	NO
DRMO	YES	NO	NO
ASP	YES	NO	NO
BLAHA/CAHA	YES	NO	NO
Wash Rack	YES	NO	NO
Fire Protection	YES	YES (but different level)	YES (but different level)
Training Facilities	YES	NO	NO
MP Station	YES	Operationally Defined	NO
ASG	YES	NO	NO
Cold Storage	YES	Operationally Defined	NO
Chapel	YES	NO	NO
Education Center	YES	YES (combined with Community Activities)	NO
Barber/Beauty Shop	YES	YES	NO

FACILITY	MAIN BASE CAMP	FORWARD OPERATING BASE	OUTPOST
Alteration/Pressing Shop	YES	NO	NO
PX	YES	YES	AAFES Trailer
PX Warehouse	YES	NO	NO
Fitness Center	YES	YES	YES (Tents Only)
Field House/Multipurpose Facility	YES	YES	NO
Athletic Fields	YES	YES (limited)	NO
Community Activity Center	YES	YES (combined with Education Center)	YES (Tent Only for Recreation/Break Room)
Multi-Purpose Theater	YES	NO	NO
MWR Warehouse/Maintenance Facility	YES	NO	NO
AFN Manned Operations	YES	NO	NO
AFN Unmanned Operations	YES	YES	NO

GLOSSARY

AAFES	Army & Air Force Exchange Service
AFN	American Forces Network
AOR	Area of Responsibility
ASG	Area Support Group
ASP	Ammunition Supply Point
AST	Area Support Team
BCCA	Base Camp Coordinating Agency
BCMP	Base Camp Master Plan(s)
BCPB	Base Camp Planning Board
CAHA	Captured Ammunition Holding Area
CIF	Central Issue Facility
COA	Course of Action
CONOPS	Contingency Operations
CSL	Cooperative Security Location
DCG	Deputy Commanding General
DCSENG	Deputy Chief of Staff Engineer
DFAC	Dining Facility
DG	Distributed Generation
DLA	Defense Logistics Agency
DoD	Department of Defense
DOL	Directorate of Logistics
DPW	Directorate of Public Works
DRMO	Defense Reutilization and Marketing Office
DS	Direct Support
DTR	Dental Treatment Room
DX	Direct Exchange
FOB	Forward Operating Base
FOD	Foreign Object Damage
FOL	Forward Operating Location
FOS	Forward Operating Site
FP	Force Provider
GFCI	Ground Fault Circuit Interrupter
HFPE	Health Facility Planning Europe
HVAC	Heating, Ventilation, and Air Conditioning
Hz	Hertz
IC	Internal Combustion
ICW	In Coordination With
IMA-EURO	Installation Management Agency - Europe
JARB	Joint Acquisition Review Board
JCC	Joint Contracting Center
JSIDS	Joint Services Imagery Digitizing System
LSA	Life Support Area
MILVAN	Military Van (Container)
MOB	Main Operating Base
MOS	Military Occupational Specialty
MP	Military Police
MWR	Morale, Welfare and Recreation
NATO	North Atlantic Treaty Organization
NBC	Nuclear, Biological, and Chemical
NFPA	National Fire Protection Association
NSC	Network Service Center
NSF	Net Square Feet

O&M	Operations and Maintenance
OSD	Office of the Secretary of Defense
OTSG	Office of the Surgeon General
PMO	Program Management Office
PX	Post Exchange
SCIF	Secure Compartmentalized Information Facility
SF	Square Feet
SSA	Supply Support Activity
SWB	Sanitary Wall Board
TASC	Training and Audiovisual Support Center
TF	Task Force
TOC	Tactical Operations Center
TOE	Table of Organization and Equipment
USACE	United States Army Corps of Engineers
USAFE	US Air Force, Europe
USAREUR	US Army, Europe