

CHAPTER 5
BUILDINGS AND FACILITIES CRITERIA

TABLE OF CONTENTS

1. GENERAL 5-2
 a. Space Allowances..... 5-2
 b. Basis of Space Allowances..... 5-2
 c. Computation of Areas..... 5-3
 d. Smoking Areas..... 5-4
 e. Design Guides..... 5-4
 f. Index of Standard Designs..... 5-4

2. FACILITY TYPES NOT INCLUDED IN APPENDICES..... 5-4
 a. Army Continuing Education System Facilities..... 5-4
 b. Army Reserve Facilities..... 5-5
 c. Band Training Facilities..... 5-5
 d. Banking Offices..... 5-5
 e. Centralized Vehicle Wash Facilities..... 5-6
 f. Commercial and Industrial Activities..... 5-7
 g. Commissaries..... 5-8
 h. Confinement Facilities (Guard Houses)..... 5-8
 i. Central Issue Facilities..... 5-9
 j. Credit Union Facilities..... 5-9
 k. DoD Dependent School Facilities..... 5-11
 m. Exchanges..... 5-13
 n. Fire Stations..... 5-13
 o. General Purpose Warehouses..... 5-14
 p. Hazardous Materials Storage Facilities..... 5-15
 q. Kennel Facilities..... 5-16
 r. U.S. Military Entrance Processing Stations..... 5-17
 s. Military Police Facilities..... 5-17
 t. Post Offices..... 5-17
 u. Service Schools..... 5-19

3. REFERENCES..... 5-19

CHAPTER 5 BUILDINGS AND FACILITIES CRITERIA

1. GENERAL. This chapter and the appendices to this document establish space and other special criteria applicable to Army buildings and facilities.

a. Space Allowances.

(1) Maximums. Space allowances provided in this chapter and the appendices, unless otherwise noted, are maximums within which specific requirements will be met. Engineering-economic studies will include a detailed analysis of the activities to be accommodated to determine the amount of space to be provided in the facility. Facilities will be planned to meet the specific requirements of the particular Army installation rather than arbitrarily planned to the maximum allowances. Similarly, it is not expected that every Army installation will be provided with all of the facilities listed in this chapter, unless specific requirements exist. When Army space criteria are not available, accepted design and experience factors will be used to determine space allocations for the various functions of the facility.

(2) Solar Energy Systems. PL 95-82, Section 607 (reference 5-1) authorizes variations in cost and floor area limitations for the use of solar energy systems. The use of solar energy is encouraged when it is economically feasible and practical. Therefore, increases in the space allowances in this chapter and the appendices are authorized when such increases are required to permit the installation of solar energy systems including cooling and heating, or a combination of both, and when such systems will be installed.

b. Basis of Space Allowances.

(1) Military Strength. Except when otherwise noted, the space allowances shown in this chapter and the appendices are based on the authorized projected military strength assigned to the installation concerned. In some cases, "military population" is used in lieu of "military strength" and is defined as the number of active duty military personnel assigned to an installation plus a percentage of their dependents and others. Individual facility descriptions and footnotes to space allowance tables should be consulted for variations in the methods of calculating the "military strength" or "military population".

(2) Satellite Installations. When other installations in the vicinity are satellited, the military strength or military population of the satellited installation may be added to the military strength or military population of the support installation. However, when a number of installations or concentrations of military personnel are located in proximity to one another, as in a metropolitan area, the facilities provided according to these criteria will be based on the aggregate military strength or military population in the area.

(3) Transients. When an installation serves a substantial number of transients (such as trainees, temporary duty (TDY) students or Reserve and National Guard personnel on active duty training assignments), the average daily transient strength based on a firm projection of the total yearly load of such transients may be added to the number of the permanent party personnel to arrive at a total military strength. When the transient load is clearly periodic rather than continuous year around, the average daily military strength will be based on a projection of the total periodic load for a period of 90 days or more. Otherwise, the average daily military strength will be used or 60 percent of periodic load may be added the number of permanent party personnel, whichever is greater. If the periodic load occurs for a period of less than 30 days, it will not be used in computing the military strength.

(4) OCONUS Areas. In OCONUS areas, when civilian employees and their dependents are authorized full use of certain facilities, such civilian employees and their dependents may be counted in determining the military population for those facilities. Foreign military personnel assigned or tenanted on an installation may be counted when country-to-country agreements stipulate the authorized use of facilities on the installation.

c. Computation of Areas. Gross and net areas of facilities (other than family housing) will be computed according to subparagraphs 1.c.(1) through (5), below. Unless otherwise noted, the gross area allowances in this chapter and the appendices do not include the required mechanical equipment, electrical, or electronic communication room space. These required equipment room spaces will be added, when not otherwise noted in the footnotes to each of the tables provided in this chapter and appendices, to the gross area allowances to ensure that the project DD Form 1391 reflects the total required building gross area. A single gross area figure will be identified on the project DD Form 1391 for all required spaces. Separate central energy plants or utility buildings serving large complexes will be in addition to the gross area allowances provided in this chapter and the appendices, and will be programmed as a separate line item on the project DD Form 1391.

(1) Enclosed Spaces. The gross area includes the total area of all floors, including basements, mezzanines, penthouses, usable attic or sloping spaces used to accommodate mechanical equipment or for storage with an average height of 2100 mm (6 ft 11 inches) measured from the underside of the structural system and with perimeter walls measuring a minimum of 1500 mm (4 ft 11 inches) in height, and other enclosed spaces as determined by the effective outside dimensions of the building.

(2) One-Half Spaces. One-half of the area will be included in the gross area for balconies and porches; exterior covered loading platforms or facilities, either depressed, ground level, or raised; covered but not enclosed passageways or walks; covered and uncovered but open stairs; and covered ramps.

(3) Excluded Spaces. Crawl spaces; exterior uncovered loading platforms or facilities, either depressed, ground level, or raised; exterior insulation applied to existing buildings; open courtyards; open paved terraces; roof overhangs and soffits for weather protection; uncovered ramps; uncovered stoops; and utility tunnels and raceways will be excluded from the gross area.

(4) Net Floor Area. The net floor area includes the total gross area excluding:

- (a) Basements not suited as office, special, mechanical, or storage space .
- (b) Elevator shafts and machinery space.
- (c) Exterior walls.
- (d) Interior partitions.
- (e) Mechanical equipment and water supply equipment space.
- (f) Permanent corridors and hallways.
- (g) Stairs and stair towers.
- (h) Toilet and cleaning equipment space.
- (i) Electrical equipment space.
- (j) Electronic/communications equipment space.

(5) Net Office Area. Net office area for all types of buildings will be as defined in Appendix A.

d. Smoking Areas. In accordance with AR 600-63 (reference 5-2), smoking of tobacco products is prohibited in all DA occupied workplaces, with the exception of recreation facilities discussed below. The workplace includes

any area inside a building or facility over which DA has custody and control of where work is performed by military personnel, civilians, or persons under contract to the Army.

(1) Notices will be displayed at entrances to buildings and facilities over which DA has custody and control which state that smoking is not allowed except in designated outdoor smoking areas. Indoor designated smoking areas are prohibited.

(2) If possible, outdoor designated smoking areas will provide a reasonable measure of protection from the elements. However, the designated areas will be at least 15.25 meters (50 feet) from common points of ingress/egress and will not be located in areas that are commonly used by non-smokers.

(3) Smoking is permitted in individually assigned family and unaccompanied personnel living quarters as long as the quarters do not share a common heating/ventilation/air conditioning (HVAC) system. Smoking will only be allowed in quarters with common HVAC systems if an air quality survey can establish that the indoor air quality protects nonsmokers from environmental tobacco smoke (ETS). The American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE) has established that 9.5 liters per second (20 cubic feet per minute) per person of outside fresh air is required. The carbon dioxide (CO₂) level should not exceed 1000 parts per million.

(4) Smoking is not permitted in common spaces of multiple housing areas such as family housing apartments, unaccompanied personnel housing, transient housing, and Army operated hotels. Common space is defined as any space within a building that is common to occupants and visitors. These areas include, but are not limited to, corridors, laundry rooms, lounges, stairways, elevators, lobbies, storage areas, and restrooms.

(5) Installation commanders will determine whether or not to allow designated smoking areas within recreational areas such as bowling areas, clubs, recreational centers, and so forth. If a commander chooses to designate smoking areas, the policies prescribed will not be more permissive than the smoking policies established by state and local governments for similar commercial/private operated establishments.

e. Design Guides. The design guides referenced in this document contain criteria in the form of a combination of written and graphic material for a specific facility type as well as several example designs. These design guides are available on the USACE Publication Internet Site <http://www.usace.army.mil/inet/usace-docs/design-guides/all.htm>.

f. Index of Standard Designs. The index of standardized design drawings for military construction, including design guides and standard designs developed under the DA Facilities Standardization Program, is available in the CADD Library at the Tri-Service CADD/GIS Technology Center Internet site <http://cadlib.wes.army.mil/>. With the exception of design guides as indicated above, this family of standardized design criteria is downloadable (partially) from the CADD Library, as well as distributed in hard copy by request to the Huntsville Engineering and Support Center, CEHNC-ED-ES-1 (Service Section), P.O. Box 1600, Huntsville, AL 35807-4301, commercial telephone (205) 955-5560, or DSN 645-5560.

2. FACILITY TYPES NOT INCLUDED IN APPENDICES.

a. Army Continuing Education System Facilities. DG 1110-3-112 (reference 5-3) will be used as a guide when designing Army continuing education system facilities.

b. Army Reserve Facilities.

(1) The Center of Standardization for Army Reserve Centers is the Louisville District Engineer Office.

(2) DG 1110-3-107 (reference 5-4) and supplement (reference 5-5) will be used as guide when designing Army reserve facilities. In the event of a conflict between DG 1110-3-107 and this document, this document will take precedence.

(3) Indoor Firing Ranges. The Mandatory Center of Expertise (MCX) for Army Ranges and Training Land Programs is the Huntsville Division Engineer Office (CEHND). In Accordance with AR 210-21 (reference 5-6), the design manual CEHND 1110-1-18 (reference 5-7) will be used when designing U.S. Army Indoor Ranges. Generic standard designs developed by the MCX and from previous projects by the Kansas City District Engineer Office (CEMRK) are available from the MCX.

c. Band Training Facilities. This type of facility provides space for administrative offices, library, main rehearsal room, personal support areas, small and large group practice rooms, storage and supply rooms, and toilet, lockers and shower facilities. ~~26\ DG-1110-3-119 (reference 5-8) will be used as a guide when designing band training facilities~~ **Band Training Facilities criteria is now contained in Appendix N. DG1110-3-119 (reference 5-8) is superceded by Appendix N. /26/**

d. Banking Offices. Banking institutions may be authorized to operate banking offices on Army installations by their regulatory agencies or the Treasury Department with the concurrence of the head of the Department of the Army and according to DoD Directive 1000.11 (reference 5-9) and DoD Instruction 1000.12 (reference 5-10). Normally, there will be but one banking institution at each installation. However, there is no restriction on the number of banking offices that may be authorized for operation by that banking institution.

(1) Adequacy of Space. It is important that the banking office be located in a building that is accessible to the majority of the personnel on an installation and is so located as to permit maximum security. Adequate space will be made available to include space for:

- (a) Burglar alarm system and other security features normally used by banking institutions.
- (b) Counters and teller space.
- (c) Interview space.
- (d) Lobby and reception space.
- (e) Management office space.
- (f) Operation (machine or record, or both) space.
- (g) Record-holding space.
- (h) Safes or a vault, or both.

(2) Space Allowances. Space allowances for banking offices operating in federal buildings, on either a reimbursable or nonreimbursable basis, are shown in table 5-1.

TABLE 5-1 SPACE CRITERIA FOR BANKS		
POPULATION SERVED ¹	GROSS AREA ^{2 & 3}	
	square meters	(square feet)

TABLE 5-1 SPACE CRITERIA FOR BANKS		
POPULATION SERVED ¹	GROSS AREA ^{2 & 3}	
	square meters	(square feet)
Up to 1,000	139	(1,500)
1,001 to 2,000	221	(2,375)
2,001 to 3,000	302	(3,250)
3,001 to 4,000	337	(3,625)
4,001 to 5,000	372	(4,000)
5,001 to 6,000	406	(4,375)
6,001 to 7,000	441	(4,750)
7,001 to 9,000	517	(5,560)
9,001 to 11,000	592	(6,375)
11,001 to 13,000	668	(7,190)
13,001 to 15,000	743	(8,000)
15,001 to 17,000	929	(10,000)
17,001 to 20,000	1,208	(13,000)
For each additional increment of 3,000, or portion thereof, add	93	(1,000)

¹ Population served is defined as active duty military personnel assigned to an installation and stationed within a commuting area not served by another military bank office, plus civilian employees on the installation, and other persons authorized to use the banking office.

² Mechanical equipment room space as required will be added to the gross areas shown when determining a single gross area figure for each facility.

³ Electrical and electronic/communications equipment room space as required will be added to the gross areas shown when determining a single gross area figure for each facility.

(3) Construction from Private Funds. When a banking institution is authorized to construct its own building, at its own expense, on government-owned land, the space allowances specified in table 5-1 do not apply. However, the building will conform to the installation master plan. It will be confined to the needs of the banking institution only and may not house other commercial enterprises or government instrumentalities. Land required for approved construction at the banking institution's expense will be made available at appraised fair market rental by a real estate lease according to DoD Directive 4165.6 (reference 5-11) and DoD Instruction 1000.12, Section B., enclosure 2 (reference 5-10).

e. Centralized Vehicle Wash Facilities. The Technical Center of Expertise (TCX) for Centralized Vehicle Wash

Facilities is the Louisville District Engineer Office.

f. Commercial and Industrial Activities. Establishment of bakeries, laundries, and dry cleaning plants will be subject to the provisions for commercial and industrial activities of DoD Instruction 4100.33 (reference 5-12).

(1) Bakeries, Central or Installation-Type. Gross floor areas for bakeries, based on the number of persons to be served, are shown in table 5-2.

TABLE 5-2 SPACE CRITERIA FOR BREAD AND PASTRY BAKERIES							
NUMBER OF PERSONS SERVED	GROSS BAKERY AREA ^{1 & 2}				RATED CAPACITY OF 8-HOUR OPERATION ³		
	Bread		Pastry		Bread		Pastry Servings
	square meters	(square feet)	square meters	(square feet)	kilograms	(pounds)	
2,500	---	---	167	(1,800)	---	---	5,000
3,000	418	(4,500)	---	---	680	(1,500)	---
5,000	---	---	274	(2,950)	---	---	10,000
8,400	483	(5,200)	---	---	1905	(4,200)	---
10,000	---	---	311	(3,350)	---	---	20,000
16,000	762	8,200	---	---	3810	(8,400)	---
20,000	---	---	451	(4,850)	---	---	40,000
26,900	929	10,000	---	---	6090	(13,425)	---

¹ Mechanical equipment room space as required will be added to the gross areas shown when determining a single gross area figure for each facility.

² Electrical and electronic/communications equipment room space as required will be added to the gross areas shown when determining a single gross area figure.

³ These bakeries will serve double the number of persons shown when operated 16 hours per day.

(2) Laundry and Dry Cleaning Plants. Laundry and dry cleaning operations will normally be combined into one facility. The dry cleaning system should be especially designed to use washer-extractors and recovery tumblers supplied with synthetic dry cleaning solvent. This type of equipment need not be separated from the rest of the plant by a fire wall. However, a separate room is required to ensure solvent recovery from the surrounding air. The design of new laundry and dry cleaning facilities should ensure that the air compressors, after coolers, air handling and exhaust fans serviced by local maintenance personnel are located on the exterior of the laundry building. Space required for these types of equipment is not included in the gross area requirements needed for laundry and dry cleaning operations and must be added to the square footage allowances shown in table 5-3. Gross areas for laundries and dry cleaning plants, exclusive of boiler plants, are shown in table 5-3.

TABLE 5-3 SPACE CRITERIA FOR LAUNDRY AND DRY CLEANING PLANTS		
NUMBER OF PERSONS SERVED ¹	GROSS AREA EXCLUSIVE OF BOILER PLANTS ^{2 & 3}	
	square meters	(square feet)
2,001 to 4,000	790	(8,500)
7,001 to 10,000	1022	(11,000)
15,001 to 30,000	4181	(45,000)

¹ For intermediate numbers, the next smaller plant with a two-shift operation will be used.

² Mechanical equipment room space, including boiler plant space as required, will be added to the gross areas shown when determining a single gross area figure for each facility.

³ Electrical and electronic/communications equipment room space as required will be add to the gross areas shown when determining a single gross area figure for each facility.

g. Commissaries. The criteria for commissaries in CONUS and OCONUS are available from the Defense Commissary Agency (DeCA). Therefore, all previous AEI criteria issued by HQUSACE (CEMP-E) for commissaries facilities (previously in Appendix H) are superseded by criteria issued by DeCA.

h. Confinement Facilities (Guard Houses). The gross area per prisoner will not exceed the allowances shown in table 5-4. These gross areas include facilities for administration, housing, training, and welfare. When facilities are to include space for gainful and productive employment, they will be programmed on the basis of identified equipment requirements, but not to exceed 7 m² (75 ft²) gross area per prisoner.

TABLE 5-4 SPACE CRITERIA FOR PRISONERS		
NUMBER OF PRISONERS ³	GROSS AREA PER PRISONER ^{1 & 2}	
	square meters	(square feet)
Up to 25	51	(550)
26 to 50	41	(440)
51 to 150	33	(350)
151 to 250	31	(330)
251 to 400	28	(300)

¹ Mechanical equipment room space as required will be added to the gross areas shown when determining a single gross area figure for each facility.

² Electrical and electronic/communications equipment room space as required will be added to the gross areas shown when determining a single gross area figure for each facility.

³ Includes administration, housing, training, and welfare. When designs are for capacities not shown, space allowances may be based on the nearest capacity.

I. Central Issue Facilities.

(1) General. A Central Issue Facility (CIF) provides a single point for receipt, storage, issue, exchange, and turn-in of all authorized Organizational Clothing and Individual Equipment (OCIE).

(2) The Center of Standardization (COS) for CIF design and construction is the Seattle District Engineer Office.

(3) The DA Standard Design Package for CIF, DEF 441-11-01/442-18-01 (reference 5-13) will be used as the basis of design for all Army CIF projects. Copies of the standard design package are available from the Huntsville Division Engineer Office (CEHND- ED-ES-1), P.O. Box 1600, Huntsville, AL 35807-4301.

(4) There are three basic CIF sizes shown in the standard design package (reference 5-13); small, medium and large as indicated in table 5-5. However, a CIF can be integrated with a standard general purpose warehouse as a shared facility when programmed or designed as one project. Space allowances for a CIF project will be based on the military population as military population as shown in table 5-5.

TABLE 5-5 SPACE CRITERIA FOR CENTRAL ISSUE FACILITIES		
MILITARY POPULATION ¹	GROSS AREA	
	square meters	(square feet)
Up to 2,000	Note ²	Note ²
2,001 to 7,000 (Small Standard Design)	3490	(37,535)
7,001 to 15,000 (Medium Standard Design)	4708	(50,649)
15,001 to 22,000 (Large Standard Design)	5814	(62,553)
22,001 to 25,000 ³	6694	(72,021)
25,001 to 29,000 ³	7295	(78,489)
29,001 to 32,500 ³	7896	(84,957)
32,501 to 36,000 ³	8498	(91,425)
36,001 to 40,000 ³	9099	(97,893)

¹ Military population is defined as the active duty military personnel assigned to the installation.

² This requirement should be accommodated in another facility.

³ The large standard design will be expanded to accommodate the gross area authorized for this military population level.

j. Credit Union Facilities. Although credit unions are private organizations that are not under the direct control of the Department of the Army, a properly chartered credit union may be established on any installation to serve military personnel and their dependents, and other personnel as permitted in the approved bylaws of the credit union. If the credit union on an installation fails or refuses to permit unrestricted membership of installation personnel, it may be denied free use of installation facilities. In such instances, another credit union that meets Army requirements may be established on the installation, and thus be qualified for authorized logistics support. Normally, credit unions will be a part of the community shopping center. Where space in the community shopping center is not available, space will be provided in a nearby convenient area. DoD Instruction 1000.10 (reference 5-14) establishes the policy governing the functioning of credit unions on military installations.

(1) Complete Credit Union Facilities. Complete credit union facilities will include space for:

- (a) Conference and meeting rooms.
- (b) Employees lounge space.
- (c) Interview space.
- (d) Lobby and reception space.
- (e) Management office space.
- (f) Operation (machine or manual, or both) space.
- (g) Record-holding space.
- (h) Teller space.
- (i) Vault (fire and security space).

(2) Space Allowances. Space allowances for credit unions operating in federal buildings are shown in table 5-6. The total factor is the sum of the factors determined by the size of the credit union's membership, the number of transactions handled per day, and the number of persons employed, as shown in table 5-7. Data used to determine these factors will relate solely to the installation providing space and will not be an aggregate of the total membership, transactions, and employees of a credit union that functions at another site not located on the installation or that has abroad membership located away from the geographical area generally served by that installation. A credit union may be authorized to operate at more than one location on an installation. However, when this is done, the space allowance authorized under tables 5-6 and 5-7 applies in aggregate (see DoD Instruction 1000.10, enclosure 3, paragraph E.8. (reference 5-14)). The area allowances may be increased by 10 percent to allow for future business expansion.

(3) Construction from Private Funds. When a credit union is authorized to construct its own building, at its own expense, on government-owned land, tables 5-6 and 5-7 do not apply. Land required for approved construction at credit union expense will be made available at appraised fair market rental by a real estate lease according to DoD Directive 4165.6 (reference 5-11) and DoD Instruction 1000.10, enclosure 3, paragraph E.8. The building will conform to the installation master plan. It will be confined to the needs of the credit union, and it will not be used to house other activities.

TABLE 5-6 SPACE CRITERIA FOR CREDIT UNIONS			
TOTAL	GROSS AREA ^{1&2}	TOTAL	GROSS AREA ^{1&2}

	square meters	(square feet)		square meters	square feet
Minimum	74	(800)	18	576	(6,200)
5	93	(1,000)	19	669	(7,200)
6	121	(1,300)	20	762	(8,200)
7	158	(1,700)	21	855	(9,200)
8	204	(2,200)	22	948	(10,200)
10	260	(2,800)	23	1040	(11,200)
12	325	(3,500)	24	1133	(12,200)
14	399	(4,300)	25	1226	(13,200)
16	483	(5,200)	For each additional factor, add	93	(1,000)

- 1 Mechanical equipment room space as required will be added to the gross areas shown when determining a single gross area figure for each facility.
- 2 Electrical and electronic/communications equipment room space as required will be added to the gross areas shown when determining a single gross area figure for each facility.

TABLE 5-7 FACTORS FOR SPACE ALLOWANCES FOR CREDIT UNIONS					
MEMBERS	FACTOR S	EMPLOYEES	FACTOR S	TRANSACTION S PER DAY	FACTOR S
Up to 1,000	2	2 to 5	1	Up to 99	1
1,001 to 2,500	4	6 to 9	2	100 to 299	2
2,501 to 7,500	6	10 to 13	3	300 to 499	3
7,501 to 12,000	8	14 to 17	4	500 to 749	4
12,001 to 20,000	10	18 to 21	5	750 to 999	5
For each additional 10,000, or portion thereof, add	2	For each additional 3, add	1	For each additional 500, add	1

k. DoD Dependent School Facilities.

(1) Planning. The planning of dependent school facilities will be based on a justified need for the facility to meet the needs of the projected enrollment and will be directly related to the educational specifications stipulating

the program to be carried out. Appropriate educational specifications will be developed before starting the design of a new facility, or an addition to or major renovation of an existing building. These specifications will reflect the requirements of the program and the required space to meet the program needs.

(2) Design. Designs will incorporate flexibility in order that facilities can be adapted to a changing educational program with a minimum requirement for additional capital investment. When appropriate within the educational program, general purpose classrooms should be configured to permit multiple level, cooperative, individualized, and team teaching by using acoustically appropriate movable walls in lieu of fixed partitions.

I. Education Centers. The space allowances shown in table 5-8 for education centers are intended to provide facilities for the advancing of the academic, technical, and vocational education of military personnel of all grades and ranks in order to enhance their potential to the Army. These allowances are based on the total functional requirements of centers for various size installations.

(1) Joint Usage Facilities. Education centers will make joint use of existing classrooms or other suitable facilities on an installation to the maximum extent practicable. In some cases when such joint use is impracticable and a separate education center is required, requests for such facilities will be accomplished by a detailed supporting justification for the need.

(2) New Construction. All newly constructed education centers should provide, in addition to the gross areas indicated in table 5-8, office space for the personnel who manage the installation level functions of the On-the-Job-Training (OJT) Activity, Career Advisory and Counseling (CAC) Section, and the Classification and Testing Function. When justified by installation requirements, provisions should be made to accommodate a branch library according to the criteria contained in Appendix D.

(3) Space Allowances. The following space allowances will not be exceeded for complete and separate education centers and will be reduced appropriately for lesser requirements.

TABLE 5-8 SPACE CRITERIA FOR EDUCATION CENTERS						
MILITARY STRENGTH ¹	GROSS AREA ^{2&3}					
	Education Center		OJT ⁴		CAC ⁵	
	square meters	(square feet)	square meters	(square feet)	square meters	(square feet)
Up to 250	Note ⁶	Note ⁶	None	None	None	None
251 to 1,000	383	(4,125)	28	(300)	46	(500)
1,001 to 3,000	808	(8,700)	46	(500)	46	(500)
3,001 to 5,000	1254	(13,500)	65	(700)	46	(500)
5,001 to 7,000	1496	(16,100)	84	(900)	46	(500)
7,001 to 10,000	1839	(19,800)	111	(1,200)	46	(500)
10,001 to 15,000	2443	(26,300)	158	(1,700)	46	(500)
15,001 to 20,000	2954	(31,800)	204	(2,200)	46	(500)

TABLE 5-8 SPACE CRITERIA FOR EDUCATION CENTERS						
MILITARY STRENGTH ¹	GROSS AREA ^{2&3}					
	Education Center		OJT ⁴		CAC ⁵	
	square meters	(square feet)	square meters	(square feet)	square meters	(square feet)
20,001 to 25,000	3372	(36,300)	251	(2,700)	46	(500)
25,001 to 30,000	3762	(40,500)	297	(3,200)	46	(500)
30,001 to 40,000	4459	(48,000)	344	(3,700)	46	(500)
40,001 to 50,000	5110	(55,000)	390	(4,200)	46	(500)
50,001 to 60,000	5574	(60,000)	437	(4,700)	46	(500)

- ¹ Military strength is defined as active duty military personnel assigned to an installation.
- ² Mechanical equipment room space as required will be added to the gross areas shown when determining a single gross area figure for each facility.
- ³ Electrical and electronic/communications equipment room space as required will be added to the gross areas shown when determining a single gross area figure for each facility.
- ⁴ Added space permitted only for new construction.
- ⁵ Added space permitted only for new construction. If more than one counselor is required, 7.4 m² (80 ft²) gross area will be added per counselor.
- ⁶ This requirement should be accommodated in other facilities.

m. Exchanges. Criteria for exchange facilities are available from the Army and Air Force Exchange Service (AAFES), Dallas, TX. All previous AEI criteria for exchange facilities (previously in Appendix I) are superseded by AAFES criteria. However, when an exchange facility is designed and constructed by a USACE design agency, a special AEI may be issued to supplement AAFES criteria.

n. Fire Stations.

(1) Standardization. The Center of Standardization (COS) for fire stations is the [26, Huntsville Division Engineer Office US Army Engineering and Support Center, Huntsville, 26/](#)

(2) Design Criteria. DEF-730-10-01, DA Standard Design Package for Fire Stations (reference 5-15), prepared by the COS will be used as a basis of design for all fire station projects. DG 1110-3-145 (reference 5-16) is superseded by the DA Standard Design Package for Fire Stations but may be used as a guide when designing fire stations. However, in the event of conflicts between the criteria in the standard design and the design guide, the standard design will govern.

(3) Space Allowances. The space allowances shown below will apply to fire stations with structural and

brush fire missions and will be used as guidance when planning fire stations for air crash rescue missions.

(a) One-Company Satellite Fire Stations. One-company satellite fire stations will provide two drive-thru stalls for two or more pieces of fire fighting equipment; male and female shower and toilet facilities; and dormitory rooms for one fire company. The facility will also provide a combination dayroom and training area; dining area; fire inspector's office; hose dryer space; kitchen; emergency medical services (EMS)/decontamination area; medical supply/storage area; janitor's closet; physical training room; shift leader's office; watch/alarm room; breathing apparatus recharging/maintenance, wet and dry fire extinguisher area; and storage space required for these functional areas. The gross area, including mechanical, electrical, and electronic/communications equipment space, for these functions will not exceed ~~261,640 m² (6,900 ft²)~~ 261,646 m² (6,960 ft²), except as outlined in subparagraph (e) below.

(b) One-Company Headquarters Fire Stations. One-company headquarters fire stations will provide all of the functions for the one-company satellite fire station listed above, plus a bedroom, office, and shower and toilet facilities for the fire chief. The gross area, including mechanical, electrical, and electronic/communications equipment space, for these functions will not exceed ~~261,690 m² (7,400 ft²)~~ 261,693 m² (7,460 ft²), except as outlined in subparagraph (e) below.

(c) Two-Company Satellite Fire Stations. Two-company satellite fire stations will provide three drive-thru stalls for three or more pieces of fire fighting equipment; male and female shower and toilet facilities; and dormitory rooms for two fire companies. The facility will also provide a dayroom; dining area; fire inspector's office; hose dryer space; kitchen; emergency medical services (EMS)/decontamination area; medical supply storage area; physical training room; shift leader's office; training room; watch/alarm room; breathing apparatus recharging/maintenance, wet and dry fire extinguisher area; janitor's closet; and storage space required for these functional areas. The gross area, including mechanical, electrical, and electronic/communications equipment space, for these functions will not exceed ~~261,954 m² (10,300 ft²)~~ 261,963 m² (10,370 ft²), except as outlined in subparagraph (e) below.

(d) Two-Company Headquarters Fire Stations. Two-company headquarters fire stations will provide all of the functions for a two-company satellite fire station listed above, plus a bedroom, office, and shower and toilet facilities for the fire chief. The gross area, including mechanical, electrical, and electronic/communications equipment space, for these functions will not exceed ~~261,992 m² (10,700 ft²)~~ 261,992 m² (10,770 ft²), except as outlined in subparagraph (e) below.

(e) Space allowances for fire stations may be increased with-out a waiver to:

1/ provide additional apparatus bay space if additional vehicles for the fire station are authorized on the installation's TDA, the functional and operational relationships shown on the standard designs (reference 5-15) are maintained, and the increase in space is approved by the MACOM. 261. As shown below, there are 3 options for increasing bay space. Option c. may not be combined with option a. or option b. without a waiver.

a. Increase the length of the apparatus bays as required to accommodate the authorized equipment, up to a maximum of 3600 mm (12'-0"). To determine the allowable increase in gross building area, multiply the additional length by 13 000 mm (42'-8") for a One-Company Fire Station (which contains 2 apparatus bays) or by 19 000 mm (62'-4") for a Two-Company Fire Station (which contains 3 apparatus bays).

b. Provide an additional bay or bays. The additional gross area per bay is 90 m² (966 ft²). Added bays are considered "interior" bays, and are 5400 mm (17'-8") wide by 16 600 mm (54'-8") long, to include exterior wall thickness. Additional bays may not be provided solely to reduce the number of vehicles per bay to 1.

c. Increase the length of the existing bays shown in the standard design by 7600 mm (25'-0") to enable 2 pumper trucks to be parked end to end. This will increase the length of the bays from 16 600 mm (54'-8") long to 24 200 (79'-8") long. This results in a gross area increase of 99 m² (1066 ft²) in the One-Company Fire Stations (which contains 2 apparatus bays), and an increase of 145 m² (1561 ft²) in the Two-Company Fire Stations (which contains 3 apparatus bays)./261

2/ provide double the square area for EMS/decontamination, an additional 24 m² (258 ft²), if the installation has both a HAZMAT and an EMS mission.

3/ provide a larger mechanical equipment space based on the actual mechanical system and equipment.

26\ 4/ provide for thicker exterior wall construction than the 200 mm (8") wall thickness shown in the standard. A maximum increase of 2% of the total gross area may be provided if the exterior wall construction will exceed 200 mm (8"). Examples of wall construction which will exceed this dimension include brick on CMU./26/

o. General Purpose Warehouses.

(1) Standardization. The Center of Standardization (COS) for general purpose warehouse (GPW) facilities is the Seattle District Engineer Office.

(2) Design Criteria. The DA Standard Design Package for GPW, DEF 441-10-01/442-20-01 (reference 5-17) will be used as the basis for design of all GPW type projects. The GPW standard design package is available from the Huntsville Division Engineer Office, CEHND-ED-ES-1, P.O. Box 1600, Huntsville, AL 35807-4301.

(3) Space Allowances. There are no standard sizes for GPW facilities. The standard design package is flexible to permit adaption to all GPW construction projects. The basic GPW shown in the standard design package is a 11 148.4 m² (120,000 ft²) building with a clear height of 7.3 m (24 ft). Development of GPW facilities utilize a standard grid size of 10 m (33 ft) by 20 m (66 ft). The area and height of the GPW may be adjusted to accommodate site specific conditions and requirements.

p. Hazardous Materials Storage Facilities.

(1) General. Many commodities, as a group broadly described as hazardous materials (HM), requires specialized care in storing and handling mandated by public law and regulations. The Hazardous Materials Storage Facilities designs are developed to provide storage space for HM on a temporary basis until the materials are supplied to a customer. Because of the inherent risks to personnel and facilities posed by the storage of HM, a number of protective features, e.g., alarms, climate control, fire protection and suppression, heat/smoke and explosion venting, emergency eyewash, spill control and containment, etc, must be considered in designing and allocating HM storage space. The various types of HM that can be stored in this facility includes: Corrosives, Oxidizers, Flammable and combustible liquids, Organic Peroxides, Water Reactives, Poisons/Toxins, and Low Hazard materials. This facility is not designed to store Radioactive and Explosive materials, or to process any HM. In addition, this facility shall not be used to store hazardous wastes (HW), as defined under Resource Conversation and Recovery Act (RCRA) of 1976. HW is to be stored in the "Conforming Storage Facilities" and ultimate disposal of HW is to be arranged through the Defense Reutilization and Marketing Service (DRMS).

(2) Standardization. The Center of Standardization (COS) for the HM Storage Facilities is the Huntsville Engineering and Support Center.

(3) Design Criteria. The DA Standard Design Package for HM Storage Facilities, DEF 442-28-01(reference 5-18) will be used as the basis for design of all HM Storage Facilities projects. Since each installation will have its own unique mix and quantity of HM, the size and types of storage area will vary from one installation to another. Therefore, it is not possible to develop one or two "standard" layouts. This package is unique in that it does not provide specific facility designs, instead it addresses the various component of the

building (or modules) that, when combined, form a HM Storage facility. The installations, that are planning on programming a HM Storage Facility, should contact Director, AMC Packaging, Storage and Containerization Center, ATTN: AMXLS-TD, Tobyhanna, Pa 18466-5097, to obtain assistance in determining the sizing requirements and layout of the proposed facility. The standard design package is developed using metric system of measurement and is available from the US Army Engineering & Support Center, Huntsville, CEHNC-ED-ES, P.O. Box 1600, Huntsville, AL 35807-4301.

(4) Space Allowance. There are no standard sizes for the HM Storage Facilities. The design is based on a modular concept that provides flexibility to sizing HM Storage Facilities to meet specific mission requirements. This design package illustrates how various modules may be combined, in virtually any configuration, to form a HM storage facility.

(5) Functional Areas. HM Storage facilities will normally consist of 4 major components: Storage Module, Support Module, Mechanical space including Material Handling Equipment (MHE) Charging Room, and detached Compressed Gas Cylinder Storage Shed. Storage Module is the primary component of any HM storage facility. To accommodate various quantities and non-compatible mix of HM, a total of 10 different sized storage modules are utilized in this design. This facility is to be constructed at dock height and is comprised of a number of potentially different sized Storage module arranged along a main corridor. This corridor connects the Storage Modules with the centralized Support Module which contains the docks, shipping/receiving area, and administrative area. At one end of the facility is the Mechanical and Electrical rooms and the MHE Charging Room, which provides battery chargers for the material handling equipments. A covered shed for the storage of compressed gas cylinders and drummed Petroleum, Oils and Lubricants (POL) is provided at a distance of at least 15.3 meters (50 feet) from the HM Storage facility. The number and size of the sheds is also flexible to accommodate the needs of the installation.

q. Kennel Facilities.

(1) General. In accordance with AR 190-12 (reference 5-19), standards for the construction and operation of kennel facilities for Military Working Dogs (MWD) will be in accordance with DA Pamphlet 190-12, chapter 7 (reference 5-20). These standards are based on the minimum standards established under Title 9, Code of Federal Regulations (reference 5-21), which were developed in accordance with the Animal Welfare Act (reference 5-22), commonly known as the Laboratory Animal Welfare Act of 1966, as amended by the Animal Welfare Act of 1970 (reference 5-23) and the Animal Welfare Act Amendments of 1976 (reference 5-24).

(2) Functional Areas. Kennel facilities will normally consist of four major components as follows:

(a) Kennel. The "kennel" is an area in which dogs are quartered and secured. The actual kennel area, or housing area, provides a dog with a private area or run, 2.4 m (8 ft) by 1.7 m (5 ft 6 inches), with a bucket holder for food and water, and a pallet to sleep on.

(b) Kennel Support Building. The "kennel support building" provides an area for the administrative, logistical, and operational support functions of the kennel, the dogs, and the handlers.

1/ Kennel support buildings exist to support the operation of the kennel, the daily training of the MWD teams, and the operational missions involving the MWD teams.

2/ The kennel support building will provide areas for food preparation and storage; miscellaneous storage; office for the kennel master; one large multi-purpose room adequate for assembly of all of the dog handler personnel (this room may be used for briefings, emergency examinations and treatment, inspections, mission preparation or ready room, and training); tack room for storage of authorized equipment; toilet facilities including a shower stall; mechanical equipment room; and electrical equipment room.

(c) Training Area. The "training area" provides a safe and secure area for confidence, obedience, and proficiency training of the dogs. The training area will provide all of the necessary equipment to train the dogs, such as barrels or tunnels, jumps, ladders, steps, and window obstacles.

(d) Exercise Area. The "exercise area" provides a safe and secure area for individual dogs to be exercised by themselves when the dog's handler is not available.

(3) Authorized Sizes. Kennel facility designs will provide only the minimum necessary space to perform the required functions.

(a) "Kennel" facilities will be designed to accommodate at least four MWD.

(b) To avoid unnecessary costs, the size of "kennel support buildings" will be limited to the criteria contained in DA Pamphlet 190-12, chapter 7 (reference 5-20).

(4) Design. The design of kennel facilities will be directed towards achieving the goals of austerity, economy of construction, and simplicity consistent with minimum acceptable health and animal welfare standards. Concrete sealer, epoxy glaze, and plastic laminates will be used in lieu of high cost materials such as ceramic tile, quarry tile, and stainless steel.

r. U.S. Military Entrance Processing Stations.

(1) General. The U.S. Military Entrance Processing Stations (MEPS) are used to process new recruits into all branches of the Armed Forces. The proponent for this facility is the DoD Military Entrance Processing Command (MEPCOM).

(2) Standardization. The Center of Standardization (COS) for the U.S. Military Entrance Processing Stations (MEPS) is the Savannah District Engineer Office.

(3) Design Criteria. The DA Standard Design Package for MEPS, DEF 141-25-01 (reference 5-25) will be used as the basis for design of all MEPS projects. The MEPS standard design has been developed using dual system of measurement with inch-pound measurement as the primary design module. The drawing package is available from the US Army Engineering and Support Center, Huntsville, CEHND-ED-ES, P.O. Box 1600, Huntsville, AL 35807-4301.

(4) Space Allowances. The Standard Design Package presents three different sized MEPS facilities: large, 3039.40 m² (32,717 ft²), medium, 2490.83 m² (26,812 ft²), and small, 1969.94 m² (21,205 ft²). The standard floor plans presented as a guide to show the size and general arrangement of the spaces. Actual size of MEPS facility and arrangement of space shall be approved by the MEPCOM on a project-by-project basis.

(5) Functional Areas. The standard design offers an efficient layout by placing five major elements of the building, namely Headquarters, Testing, Liaison/Counselor, Operations, and Medical, around a central Reception and Control area. The modular layout of the facilities allow easy modification of each of the modules without losing the design integrity to meet a particular MEPS project needs.

s. Military Police Facilities. DG 1110-3-146 (reference 5-26) will be used as a guide when planning and designing facilities to accommodate military police and provost marshal activities.

t. Post Offices.

(1) Central Post Offices. Space allowances for central post offices are shown in table 5-9. These figures represent the basic central post office square footage and are provided for general guidance. Additional space

may be provided if a central post office serves specialized functions located on an installation, such as:

- (a) Activities generating a high volume of accountable mail that requires overnight vault storage.
- (b) Carrier delivery to military family housing units.
- (c) Major and subordinate headquarters, commands, personnel centers, service schools, hospitals, air material areas, and supply depots.
- (d) Nonresident schools.
- (e) Post directory.
- (f) Self-service postal units installed within the lobby of the facility.

(2) Postal Service Coordination. Determinations of specific total requirements and space provisions for specialized functions, as listed above, will be coordinated with the U.S. Postal Service Regional Postmaster General. This should be done during the initial planning stage to arrive at a mutually agreeable gross area. The coordination with the U.S. Postal Service Regional Postmaster General should be annotated on the project DD Form 1391.

(3) Branch Post Offices. Branch post offices, each not exceeding 139.4 m² (1,500 ft²) gross area, may be provided as required at large installations to serve concentrations of personnel located at such a distance from the central post office that service through the latter is impracticable.

TABLE 5-9 SPACE CRITERIA FOR CENTRAL POST OFFICES ¹						
INSTALLATION POPULATION ²	CENTRAL POST OFFICE GROSS AREA ^{3 & 4}		POSTAL SERVICE CENTER PER MAILBOX AREA ¹			
			CONUS ⁵		OCONUS ⁶	
	square meters	(square feet)	square meters	(square feet)	square meters	(square feet)
Up to 500	37	(400)	.06	(.60)	.06	(.60)
501 to 1,000	56	(600)	.06	(.60)	.06	(.60)
1,001 to 2,500	163	(1,755)	.06	(.60)	.05	(.50)
2,501 to 4,500	272	(2,925)	.06	(.60)	.05	(.50)
4,501 to 7,500	418	(4,500)	.06	(.60)	.045	(.45)
7,501 to 11,500	588	(6,325)	.06	(.60)	.04	(.40)
11,501 to 16,500	766	(8,250)	.06	(.60)	.04	(.40)
16,501 to 22,500	941	(10,125)	.06	(.60)	.04	(.40)

TABLE 5-9 SPACE CRITERIA FOR CENTRAL POST OFFICES ¹						
INSTALLATION POPULATION ²	CENTRAL POST OFFICE GROSS AREA ^{3&4}		POSTAL SERVICE CENTER PER MAILBOX AREA ¹			
			CONUS ⁵		OCONUS ⁶	
	square meters	(square feet)	square meters	(square feet)	square meters	(square feet)
22,501 to 28,500	1164	(12,525)	.06	(.60)	.04	(.40)
28,501 to 34,500	1387	(14,925)	.06	(.60)	.04	(.40)
34,501 to 40,500	1609	(17,325)	.06	(.60)	.04	(.40)
40,501 to 46,500	1832	(19,725)	.06	(.60)	.04	(.40)
46,501 to 52,500	2055	(22,125)	.06	(.60)	.04	(.40)
52,501 to 58,500	2278	(24,525)	.06	(.60)	.04	(.40)

- ¹ When justified by specific requirements, a postal service center may be provided at which mail may be picked up by individual post office mailbox holders, as opposed to bulk distribution of mail to the various elements on an installation. A postal service center may be combined with, or separate from, a central or branch post office. The number of mailboxes will not exceed the number of unmarried and unaccompanied married military and civilian personnel assigned to an installation, plus 25 percent to accommodate the official needs of specific key military and civilian personnel, and to compensate for the vacancy period required by the U.S. Postal Service before reassignment of a mailbox.
- ² Installation population is defined as active duty military personnel assigned to an installation in CONUS and active duty military personnel and civilian employees assigned to an installation in OCONUS areas.
- ³ Mechanical equipment room space and loading platforms as required will be added to the gross areas shown when determining a single gross area
- ⁴ Electrical and electronic/communications equipment room space as required will be added to the gross areas shown when determining a single gross area figure for each facility.
- ⁵ CONUS includes the 50 states and all other geographical areas in which the U.S. Postal Service operates.
- ⁶ Use 0.06 m² (0.60 ft²) gross area per mailbox when the postal service center is geographically separated from the central post office.
- u. Service Schools. DG 1110-3-106 (reference 5-27) will be used as a guide when designing U.S. Army

service schools.

3. REFERENCES.

5-1 Public Law 95-82, Section 607, Military Construction Authorization Act of 1978

5-2 AR 600-63, Army Health Promotion, Change 1, effective 28 May 1996

5-3 DG 1110-3-112, Design Guide, Army Continuing Education System Centers, May 1979

5-4 DG 1110-3-107, Design Guide for U.S. Army Reserve Facilities, September 1984

5-5 Supplement to DG 1110-3-107, Furniture Design Guide for U.S. Army Reserve Centers, October 1987, prepared by Omaha District Engineer Office

5-6 AR 210-21, Army Ranges and Training Land Program, November 7, 1990

5-7 CEHND 1110-1-18, USACE Design Manual for Indoor Firing Ranges, June 1990

~~26/ 5-8 — DG 1110-3-119, Design Guide for Band Training Facilities, March 1983 /26/~~

5-9 DoD Directive 1000.11, Banking Offices on DoD Installations, September 27, 1982

5-10 DoD Directive 1000.12, Procedures Governing Banking Offices on DoD Installations, September 27, 1982

5-11 DoD Directive 4165.6, Real Property Acquisition, Management and Disposal, December 22, 1976

5-12 DoD Instruction 4100.33, Operation of Commercial and Industrial-Type Activities, September 9, 1985

5-13 DEF-441-11-01/442-18-01, DA Standard Design Package for Central Issue Facility, prepared by the Seattle District Engineer Office

5-14 DoD Directive 1000.10, Credit Unions Serving DoD Personnel, December 23, 1981

5-15 DEF-730-10-01, DA Standard Design Package for Fire Stations, prepared by the Huntsville Engineering and Support Center, November 1994

5-16 DG 1110-3-145, Design Guide for Fire Stations, March 1986

5-17 DEF-441-10-01/442-20-01, DA Standard Design Package for General Purpose Warehouse, prepared by the Seattle District Engineer Office

5-18 DEF 442-28-01, DA Standard Design Package for Hazardous Materials Storage Facilities, 24 August 1994

5-19 AR 190-12, Military Working Dogs, 15 December 1984

5-20 DA Pamphlet 190-12, Military Working Dogs, 15 December 1984, Chapter 7, Kennel Facilities

5-21 Title 9, Code of Federal Regulations, Chapter 1, Subchapter A - Animal Welfare, Part 3 - Standards, Subpart A - Specifications for the Humane Handling, Care, Treatment, and Transportation of Dogs and Cats

- 5-22 Public Law 89-544, Animal Welfare Act, August 24, 1966, (Laboratory Animal Welfare Act)
- 5-23 Public Law 91-579, Animal Welfare Act of 1970, December 24, 1970
- 5-24 Public Law 94-279, Animal Welfare Act Amendments of 1976, April 22, 1976
- 5-25 DEF 141-25-01, DA Standard Design Package for US Military Entrance Processing Facilities, 27 June 1994
- 5-26 DG 1110-3-146, Military Police Facilities, December 1979
- 5-27 DG 1110-3-106, U.S. Army Service Schools, March 1991