

National Guard Pamphlet 415-12

Construction

Army National Guard Facilities Allowances

**National Guard Bureau
Arlington, VA 22204
01 June 2011**

UNCLASSIFIED

SUMMARY of CHANGE

NG Pam 415-12
Army National Guard Facilities Allowances
1 June 2011

- o This publication has been extensively revised.

Construction
Army National Guard Facilities Allowances

By Order of the Secretary of the Army:

CRAIG R MCKINLEY
General, USAF
Chief, National Guard Bureau

Official:
MR. FRIEDRICH L. MARTIN
GS-15, DAF
Supervisory Plans and Policy Office

History. This publication supersedes NG Pam 415-12, 30 April 2007. All Common Supporting Items have been included in Chapter 1. This revision also includes technical corrections to the 30 April 2007 version which is hereby superseded.

Summary. This pamphlet establishes allowances and provides guidance to the States for building space and supporting items used for programming the construction of Army National Guard facilities.

Applicability. These standards apply to all federally funded Army National Guard construction.

Proponent and Exception Authority. The proponent of this pamphlet is the Chief of Installations, National Guard Bureau, Army Installations Division (ARNG-ILI). Exceptions to criteria will be reviewed by the ARNG staff proponents for recommendations of concurrence or non-concurrence. The Chief of Installations has the sole authority to approve exceptions to the criteria presented in this document that are consistent with applicable laws and regulations. This authority may not be delegated.

Suggested Improvements. Users of this pamphlet are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) to the National Guard Bureau, Army Installations Division, ARNG-ILI, 111 South George Mason Drive, Arlington, VA 22204-1382.

Distribution. B

Contents

Chapter 1

General

Purpose • 1-1

References • 1-2

Explanation and Abbreviation of Terms • 1-3

Applicability • 1-4

Common Standards • 1-5

General Construction of Buildings • 1-6

Flexibility • 1-7

Restrictions to Support by Federal Funding • 1-8

Common Supporting Items • 1-9

Chapter 2

Readiness Centers

General • 2-1

Non standard Supporting Items • 2-2

Unheated Enclosed or Shed-Type Vehicle Storage Space • 2-3

Weapons of Mass Destruction-Civil Support Team (WMD-CST) and Chemical, Biological, Radiological, Nuclear, and Explosive Team (CBRNE) Facilities • 2-4

Chapter 3

Logistical Facilities

General • 3-1

United States Property and Fiscal Office (USPFO) Administrative Offices, Warehouses, and Central Issue Facilities (CIF) • 3-2

Surface Equipment Maintenance Facilities (SEMF) • 3-3

Unheated Enclosed or Shed-Type Vehicle Storage Space • 3-4

Firefinder Radar (AN/TPQ 36/37/47) Facility • 3-5

Controlled Humidity Preservation (CHP) Shelters • 3-6

Chapter 4

Section I

Aviation Facilities

General • 4-1

Non standard Supporting Items • 4-2

Special Aviation Items • 4-3

Unheated Enclosed or Shed-Type Storage Space • 4-4

Security • 4-5

Section II

ARNG Facilities Allowances for TUAS/UAS Ready Buildings

Operating Facility • 4-6

Training Facilities • 4-7

Design Considerations • 4-8

Chapter 5

Training Center Facilities

General • 5-1

Non standard Supporting Items • 5-2

Training Center Facilities • 5-3

Local Training Areas • 5-4

Chapter 6

Educational Facilities

General • 6-1

Non standard Supporting Items • 6-2

Appendix A

References

Table List

Table 1-1: Military Vehicle Parking

Table 1-2: POV Parking

Table 1-3: Visitor/Customer Parking

Table 1-4:	Service and Access Aprons
Table 1-5:	Flagpoles
Table 1-6:	Fuel Storage and Dispensing Systems
Table 1-7:	Facility Support Space Allowances
Table 1-8:	Interfunctional Circulation
Table 1-9:	Walls
Table 1-10:	Control Waste Handling Facility (CWHF)
Table 2-1:	Schedule I, Readiness Center Space Allowances
Table 2-2:	Schedule II, Unit and Special Space Allowances
Table 2-3:	WMD-CST Facility Allowances
Table 2-4:	CBRNE Facility Allowances
Table 3-1:	USPFO Administrative Office Space Allowances
Table 3-2:	Lifting Devices/Cranes
Table 3-3:	Schedule I, Office, Work, and Personnel Space Allowances in Surface Equipment Maintenance Facilities
Table 3-3:	Schedule II, Work Bay Authorizations for Surface Equipment Maintenance Facilities
Table 3-4:	Warm Up Bays
Table 4-1:	Space Allowances for Hangar Floor Area
Table 4-2:	Space Allowances for Specialized Work Areas
Table 4-3:	Space Allowances for Personnel Support Areas
Table 4-4:	Aviation Space Allowances for Fixed Wing Facilities
Table 4-5:	Unheated Aircraft Storage Allowances
Table 4-6:	Facility Support Space Allowances
Table 5-1:	Type and Number of Unit Transient Training Cantonment Facilities
Table 5-2:	Unit Transient Training Cantonment Facility and Parking Allowances
Table 5-3:	Training Center Billeting Allowances
Table 5-4:	Troop Medical Clinic Allowances
Table 5-5:	Physical Exam Allowances
Table 5-6:	Chapel Allowances
Table 5-7:	Range Facilities Allowances
Table 5-8:	Training Center Headquarters Allowances
Table 5-9:	Range Operations and Maintenance Allowances
Table 5-10:	ID Processing Center Allowances
Table 5-11:	Department of Public Works Allowances
Table 5-12:	Police Station Allowances
Table 5-13:	Fire Station Allowances
Table 5-14:	Recycle Center Allowances
Table 5-15:	Facility Support Space Allowances
Table 6-1:	Educational Facility Allowances
Table 6-2:	Space Allowances for Educational Facility Billeting
Table 6-3:	Facility Support Space Allowances

Glossary

This page intentionally left blank

Chapter 1

General

1-1. Purpose

This pamphlet identifies the allowable space criteria for facilities supported by Federal contributions to the State, either totally or in part. It gives information on general construction standards, materials, space allowances, building circulation, and other requirements directly related to programming military construction projects. As such, it is the major reference in preparing DD Forms 1390/1391.

1-2. References

Required and related publications are listed in Appendix A.

1-3. Explanation of Abbreviations and Terms

Abbreviations and special terms used in this pamphlet are explained in the glossary.

1-4. Applicability

The formats, processes and tables of this pamphlet are designed to cover most circumstances commonly met during preparation of military construction programming documents. However, unusual project circumstances may dictate that the State justify and request an exception to criteria (ETC). Exceptions to criteria are recommended by ARNG proponent and approved by ARNG-ILI.

1-5. Common Standards

States shall incorporate into programming documents the construction standards identified in special DoD publications, such as Unified Facility Criteria (UFC) for antiterrorism/force protection, and all environmental protection and safety measures required by Federal, State, and local codes and regulations.

1-6. General Construction of Buildings

a. Buildings shall be constructed of materials rated as non-combustible. The exterior walls may be brick with concrete masonry unit backup or other suitable systems. In certain instances pre-fabricated metal buildings may be used where economically feasible. In those cases, exterior walls may be veneered with brick when collocated with a readiness center or when justified by environmental and aesthetic considerations of the surrounding facilities and communities.

b. Roof systems, either of low slope or hip/gable type construction, normally consist of lightweight joists, non-combustible decking, and insulation above the decking. If the roof is a low slope type, the final layer shall be built-up bituminous material, a single ply membrane, or standing seam metal. However, if the roof is hip or gable type construction, it shall be a standing seam metal roof, or covered with asphalt, or fiberglass shingles.

c. Walls and partitions may be drywall, CMU block, or other economically suitable material that will provide a durable structure.

d. Floors are normally constructed with concrete.

e. Design shall incorporate the use of space saving, energy-saving, alternative energy options (i.e., Geothermal, Radiant Heat, Solar Electric), as well as other sustainable design features are encouraged wherever justified by Life-Cycle Cost Analysis (LCCA). ARNG MILCON projects are required to achieve, at a minimum, a certification of silver based on the latest edition of US Green Building Council's Leadership in Energy and Environmental Design (LEED) standards.

f. Mechanical ventilation shall be provided for administrative, surface equipment maintenance, aviation maintenance, billeting, latrine, dining, and training facilities in accordance with the American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) Guides and applicable codes.

g. Air conditioning requirements for comfort cooling will be evaluated and approved by the Adjutant General based on local conditions. The Adjutant General's justification (based on Unified Facilities Criteria (UFC) 3-400-02, Design: Engineering Weather Data) shall be enclosed with the DD Forms 1390/1391. As a general rule, and for planning and programming purposes, the tonnage of air conditioning required to cool an authorized space may be estimated by dividing the total floor area of the space by 300.

h. Energy Management Control Systems. Energy Management Control Systems (EMCS) and other energy conservation systems are authorized for the primary facility. For programming purposes, enter a separate line on the DD Form 1391 and compute the requirement at 2% of the cost of the primary facility.

i. Emergency power generator pad and house connection/hook-up:

(1) Readiness centers, surface and aviation maintenance facilities, and USPFO administrative offices are authorized stand-by power generator sets and pertinent functional components, such as, an automatic transfer switch, fuel storage tank, and associated conduit and wiring to electrical power circuits to ensure continuous operation. These are to support environmental, health, and safety equipment requirements essential to Army National Guard (ARNG) missions during a prolonged (four hours duration) power outage. Power generator sets and pertinent functional components can be acquired with funds from the military construction appropriation. The generator may be installed inside the mechanical room or outside with factory design housing. Generator sets are authorized to power up to 35% of the facility's electricity load requirements. Generator sets should be added as a line item in supporting facilities section of 1390/91. The priority for emergency power generator supply shall be as follows in descending orders:

- (a) Fire protection and detection
- (b) Access control
- (c) Communications and Automation (G6) Operations, IT DEMARK Rooms, and Range Control

Operations Building.

- (d) Lighting (up to 20% of the facility lighting)
- (e) Elevators (Maximum of one elevator at each entrance)
- (f) Administrative Offices (office equipment); including Post Headquarters Facilities at the Training

Centers.

- (g) Heating, ventilation and air conditioning (HVAC).

(2) For all other facilities, only an emergency power generator pad and house connections/hook-up are authorized. This requirement is limited to a 6-inch thick concrete mounting pad with a house connection/hook-up outlet necessary to provide temporary mission but essential electricity during emergency operation of the facility. The emergency generator itself is considered portable equipment and must be obtained with funds other than from the military construction appropriation.

1-7. Flexibility

The space allowance for any functional area (except the readiness center assembly hall, maintenance training work bays, indoor rifle range, training device/simulations center, general purpose and special purpose maintenance work bays, unheated storage, and hangar floor) may be increased by up to 15 percent, provided that the total allowable functional net area is not increased as a result. In order to provide the necessary off-setting reduction for these space increases, any functional space (except a work bay, indoor rifle range, training device/simulations center, unheated unit storage area, or hangar floor) may be reduced by a maximum of 15 percent. Functional areas may be completely removed from a facility if they are not needed. However, in that case, the total allowable net space must be reduced by a like amount.

1-8. Restrictions to Support by Federal Funding

a. Real estate. Sites for the construction of ARNG facilities shall generally be owned or leased by the State and procured without federal reimbursement. This does not, however, preclude the construction of new ARNG facilities or the rehabilitation of existing buildings on federally owned land licensed to the State for ARNG facility use.

b. Prewired work stations. Prewired workstations are not authorized to be funded through the military construction appropriation. They are not to be classified as installed building equipment and are to be included in the programming documents as equipment associated with the project that will be provided from other appropriations.

1-9. Common Supporting Items, Features, and Allowances for All ARNG Facilities

In planning the functional arrangement of facilities, the State shall give appropriate consideration to the existing site conditions, layout, and materials of construction in order to achieve maximum operating efficiency, cost effectiveness, and flexibility. The support items include:

a. Site preparation. The work of clearing, grubbing, stripping, and stockpiling topsoil, excavating embankment, and rough grading required to develop the project site to subgrade levels and elevations for proper sitting and drainage of facilities (including culverts, head walls, retaining walls, retention ponds etc.). The State must use its own funds for the special handling/remediation/disposal of contaminated soil excavated from a non-federally owned or leased project site.

(1) Rock excavation and correction of unsatisfactory soil conditions is authorized only if the state has submitted adequate supporting documentation such as an economic or master planning analysis that demonstrates that the positive impacts on readiness strongly outweigh the increased construction costs at that site.

(2) Culverts, retaining walls (installed in lieu of sloping the ground to achieve grade differentials), drainage systems, or other similar construction required for controlling surface water runoff will be approved on an individual site basis if the State justifies these items. The State, however, must consider the cost of these items during the site selection process and submit an exception to criteria for approval.

(3) A storm water pollution prevention plan must be implemented during construction to prevent soil erosion. The plan must be written and implemented in accordance with federal, state, and local regulations.

b. Fine grading and seeding.

(1) The state may program for fine grading and seeding to provide proper site drainage and control of erosion on those parts of the project site where the previously existing surface cover has been destroyed or buried beneath redistributed soil.

(2) Sodding or sprigging is authorized for critical areas subject to erosion.

(3) Importing topsoil is authorized if the natural topsoil on the site, stockpiled at the beginning of construction, is inadequate to provide a finished depth of approximately four inches.

c. Landscaping. This shall be included as an integral part of the planning of the project to produce an aesthetically pleasing final site that consists of natural (native) species or non-native varieties which are non invasive to the surrounding landscape.

(1) The state may program up to three percent of the basic building cost for planting trees, shrubs, and vines (exclusive of grading and seeding or sprigging and sodding for erosion control). In those locations that are considered to have an arid climate, the state may program up to four percent of the basic building cost and may use xeriscaping.

(2) Additional planting for energy conserving landscaping may be authorized if the state justifies it on a life cycle cost basis.

(3) An installed watering system (sprinkler) is authorized. The sprinkler must be designed in accordance with Federal Water Efficiency Requirements. Refer to ARNG DG 415-5 dated 01 June 2011 Chapter 3, 3-2.2 - Water Efficiency, and Chapter 6, Section 2 - Exterior Improvements for guidance on Irrigation Systems.

d. Parking: All parking areas must be designed in accordance with the requirements of UFC 4-010-01 Minimum Antiterrorism Standards for Buildings.

(1) Military Vehicle Parking (MVP). Rigid concrete or gravel is authorized for paving those areas designated for the parking of military vehicles. For programming purposes the concrete shall be eight inches in depth. Actual depth should be determined during design based on soil conditions and loading requirements.

(i) Parking is authorized for all vehicles, trailers, equipment, etc (including GSA and other Non-Tactical Vehicles (NTV)), that are permanently stationed at each facility type. This includes equipment hand receipted from units exclusively for facility operating requirements.

(ii) Parking is also authorized at a Combined Support Maintenance Shop (CSMS), Maneuver Area Training Equipment Site (MATES), Unit Training and Equipment Site (UTES), and Field Maintenance Shop (FMS) for 10 percent of the vehicles, trailers, equipment, etc., authorized to receive maintenance at that facility but not permanently stationed at the facility and for prepositioned equipment at Training Centers.

(iii) See Military Vehicle Parking allowances shown in Table 1-1

Type of Equipment	Per Vehicle Allowance
Wheeled Vehicles <30' in length	50 SY
Trailers/Other Wheeled/Towed Equipment <30' in length	50 SY
Equipment > 30' in length, including PLS Trailer	75 SY
Tracked Vehicles, Engineer Vehicles	75 SY
Fuel Trucks	175 SY
HETs	275 SY

(iv) For other unique equipment that must be stored within the military vehicle parking area, such as skid-mounted generators, snowmobiles, and transportable containers organic to the assigned units, the State may program an appropriate amount of space as an exception to criteria. Documentation to support this request must be provided along with the project programming documents.

(v) The parking area is to be reduced by the size of the building when enclosed or shed-type parking is provided. (Refer to paragraph 3-4.)

(2) POV Parking.

(i) This area includes an allowance for circulation lanes within the parking area in addition to any required access roads. For programming purposes, flexible pavement or concrete (if supported by an Economic Analysis) shall consist of six inches of bituminous material placed over an installed, appropriate aggregate base. Rigid concrete or flexible pavement curbs may be installed along pavement edges to comply with the site's approved storm water management plan or to preclude soil erosion.

(ii) See POV Parking allowances shown in Table 1-2:

Facility Type	Allowance
Readiness Center	35 SY times 90% of the authorized strength of the assigned units required to train simultaneously. The 90% ratio of authorized strength depends on the adequacy of public transportation serving the site (TBD by Design).
Logistics Facility	35 SY per required full-time staff of the facility, including contract personnel.
Aviation Facility	35 SY times the required full-time staff of the facility, including contract personnel, or, if larger, 35 square yards times 90% of the authorized strength of the non co-located units required to train simultaneously.
Training Facility	35 SY times the sum of the full-time staff (including permanently assigned Federally reimbursed State employees) and 50 percent of the billeting capacity of the training center.
Educational Facility	35 SY times the sum of the ARNG-TR validated maximum student load and the full-time staff (including instructors).

(3) Visitor/Customer Parking

(i) Visitor/customer parking spaces are authorized as indicated in Table 1-3- Visitor/Customer Parking based on the number of required full time employees including permanently assigned federally reimbursed State employees. The allowance includes circulation lanes, required access roads are an additional allowance.

(ii) In addition to the number of spaces shown below, for every 50 (or fraction thereof) authorized spaces, an additional 60 square yards is authorized for a handicapped parking space.

(iii) For programming purposes, flexible pavement or concrete (if supported by an Economic Analysis) shall consist of eight inches of bituminous material placed over an installed, appropriate aggregate base. Rigid concrete, granite or flexible pavement curbs may be installed around pavement edges if required to control storm water per the site's approved storm water management plan.

Facility Type	Allowance	# of Employees	# of Parking Spaces
Readiness Center	35 SY	N/A	To be designed by the A-E for specific location and approved by ARNG-ILI
Logistics Facility	35 SY	5-15 16-25 26 & over	4 7 9 (plus one additional parking space for every 10 employees or major fraction thereof > 26)
Aviation Facility	35 SY	N/A	12
TABLE 1-3. Visitor/Customer Parking Cont.			
Facility Type	Allowance	# of Employees	# of Parking Spaces
Training Center Facility	35 SY	5-15 16-25 26 & over	4 7 9 (plus one additional parking space for every 10 employees or major fraction thereof > 26)
Educational Facility	35 SY	5-15 16-25 26 & over	4 7 9 (plus one additional parking space for every 10

			employees or major fraction thereof > 26)
--	--	--	---

(4) Fuel Truck Containment Area. In addition to the parking allowances above, a minimum of 75 square yards of rigid concrete is authorized to construct a containment area for each fuel truck or trailer that stores POL on board. In accordance with applicable environmental, safety and fire protection regulations, each containment area is to be designed and sized so that it is capable of capturing and retaining 100% of the POL volume stored in or on the fuel storage truck/trailer/tank positioned within that area along with sufficient freeboard to contain precipitation. A roof type cover will be provided, and designed in accordance with UFC 3-110-03 if required by local code or local climatic conditions (e.g., excessive heat or snow), to prevent overheating of fuel and/or to preclude the introduction of storm water runoff into the sump of the containment area. The local climatic condition can be determined by contacting the National Climatic Data Center, or from historical data presented in US Army_TM 5-785 Facility Design and Planning, Engineering Weather Data.

e. Loading Dock. For facilities that receive/ship products in large bulk (e.g. USPFO warehouse, CIF, etc.), a four foot high, covered loading dock fitted with a dock leveler for each truck docking space shall be provided in the receiving and shipping areas. A basic length of 22 feet to accommodate one truck plus 10 feet for each additional truck space is authorized. Thus, a loading dock to accommodate three trucks would be 42 feet in length. Docks should be 15 feet in width from face of building to edge of loading dock. The dock shall also have an access ramp 10 feet wide (not to exceed a 12 degree incline) to provide forklift access.

(1) Logistics facilities, including Basic Issue Item (BII) warehouses located at MATES/UTES, are authorized loading docks that accommodate a maximum of three trucks simultaneously.

(2) Aviation facilities are authorized loading docks that accommodate a minimum of two trucks simultaneously.

(3) Any other loading dock requirements will be addressed as exceptions to criteria.

(4) Final design plans will dictate the actual loading dock length.

f. Military Vehicle Loading Ramps. Military vehicle loading ramps may be constructed to assist in loading and off-loading military vehicles (wheel and track) from equipment transporters that do not have loading ramps as an integral part of the vehicle trailer. A multi-level loading ramp not to exceed a footprint of 160 SY is authorized. The maximum ramp incline will not exceed 12 degrees. Sufficient area should be allocated to accommodate the vehicle turning radius for loading/off loading equipment.

g. Turn Pads. For facilities supporting tracked vehicles, rigid concrete turn pads are authorized where frequent turning of tracked vehicles is required on flexible pavement. The facility design shall limit the number of pads to the minimum required to preclude damaging flexible pavement. Pads should each be 30 feet by 30 feet (100 square yards). Three hundred square yards of concrete (three turn pads) shall be used for programming purposes. However, the exact number of turn pads will be determined during the design review based on an economical and practical facility site layout.

h. Service and Access Aprons of rigid concrete paving may be provided for access to each dumpster, controlled waste handling facility, and any other facility requiring outside access by forklifts or large, heavy vehicles. Allowances for service and access aprons are indicated by an "X", N/A means aprons are not authorized for that function – See Service and Access Apron allowances shown in Table 1-4:

Apron/Access	Allowance	Readiness Center	Logistics Facility	Aviation Facility	Training Facility	Educational Facility
Firefinder Radar	150 SY	X	X	N/A	N/A	N/A
Dumpster	150 SY	X	X	X	X	X
Controlled Waste	150 SY	X	X	X	X	X
Loading Dock	150 SY	X	X	X	X	NA
Military Veh Loading Ramp	250 SY	X	X	X	X	X
Fuel Storage & Dispensing System	250 SY	X	X	X	X	X
Wash Platform	250 SY	X	X	X	X	N/A
Maintenance & Training Bay Doors	60' deep 1/	X	X	X	N/A	N/A
USPFO Warehouse	60' deep x	N/A	X	N/A	N/A	N/A

Service Apron	loading dock length					
Aviation Hangars	100' Deep (120' for CH47) x hanger door width	N/A	N/A	X	N/A	N/A

Note:

1/ A 60 foot deep, as measured from the maintenance bay doors, concrete apron may be installed to provide a paved access to general, special purpose, and maintenance training work bays. Where work bays are adjacent to each other, the aprons should be contiguous.

i. Access road and entrance throat. The primary entrances and access roads are authorized a width of 24 feet. More than one entrance may be authorized based on a demonstrated requirement to separate military and civilian vehicle traffic and to satisfy access requirements for fire and emergency vehicles. For programming purposes, the access road shall consist of 5000 square yards of flexible or rigid pavement, unless a greater amount is justified by a detailed site plan. However, the exact amount and type of pavement will be determined at the concept/preliminary design review based on an economical and practical site facility layout and code considerations.

j. Curbs. Rigid concrete, cut stone, or flexible pavement may be used for curbing along the edges of the roads and parking areas to comply with code, to control traffic, or to control storm water per the site's approved storm water management plan.

k. Security Fencing. Security fencing shall be constructed IAW guidance in Field Manual (FM) 19-30. For planning purposes, a fence consisting of a six foot high chain-link-type metal fabric, with a barbed wire top guard facing upward and outward at a 45 degree angle extending the fence height by at least one foot, shall enclose the military vehicle parking, service and access areas, and ancillary facilities. Fencing shall include vehicle and personnel gates, which may be electronically controlled. The fencing shall be located IAW Army security regulations and AT/FP requirements. The area between the edge of pavement and the fence may be seeded with grass, or a well-designed non vegetative cover (not to exceed four inches of rigid pavement) may be substituted. For aviation facilities, the following applies:

(1) Additional fencing may be authorized at stand-alone facilities when approved as an exception by Army Aviation and Safety Division (ARNG-AV).

(2) The fence shall be located so as to enclose the aircraft parking area and shall be equipped with gates of sufficient width to permit ingress/egress from the area to existing runways, taxiways, etc., at the airport. Air safety must be considered in the design of both fencing and security lighting.

(3) Where feasible the fence shall connect to the existing airport boundary security fence, if the boundary fence meets NGB requirements.

l. Site Anti-Terrorism/Force Protection Measures. A separate fence, wall, passive vehicle barrier, landform, or line of vegetation shall be applied along the exterior perimeter of the site to create a protective standoff and obscure vision, hinder personnel access, and hinder or prevent unauthorized vehicle access. In addition, a guard house/access control facility not to exceed 550 square feet is authorized when determined to be appropriate following completion of an AR 190-51 security risk assessment. Such a facility may be equipped with an environmental control system, electric service, latrine, and voice, video, and data communication links. The requirements of Unified Facilities Criteria (UFC) 4-010-01 must be met.

m. Sidewalks. For programming purposes, sidewalks shall be 15% of the building footprint. However, the exact amount of sidewalk area will be determined at the concept design review based on an economical and practical site layout of the facilities.

n. Flagpoles: ARNG facilities are authorized flagpoles per Table 1-5.

Facility Type	Allowance
Readiness Center	Two ground-set flagpoles (three for general officer commands) with illumination.
Logistics Facilities	Two ground-set flagpoles with illumination, unless the facility is collocated with a readiness center or another ARNG facility with flagpoles or is on a military installation that already has or will have flagpoles
Aviation Facilities	
Training Center Facilities	
Educational Facilities	The educational complex is authorized two ground-set flagpoles with illumination, but

	only if the installation on which it is located does not already have one.
--	--

o. Exterior Fire Protection. Consideration shall be given to the size of the structure, the type of construction, and the exposure to fire hazard that it creates for or receives from nearby buildings. Except in cases of conflict with state requirements, exterior fire protection should be in conformance with National Fire Protection Association requirements. Extension of water mains for fire protection is limited to that needed to ensure that an adequate number of fire hydrants can be located between 50 and 400 feet of any building. No more than 300 linear feet of pipe per water line required by code may be outside the property line.

p. Detached Facilities Sign/Static Display. In addition to the authorized building-mounted facilities sign, a free-standing sign is authorized identifying the facility name and type, street name, the State, and Army National Guard/Joint Facility Identity. Lighting to illuminate the sign continuously during hours of darkness may be provided. Provisions may also be made at this facility for a static display, including a concrete slab or mounting pedestal.

q. Outside Security Lighting. Security lighting of military vehicle/equipment storage and other outside area lighting should be in keeping with minimum needs for personnel safety and security or as required by physical security regulations. Lighting of fuel islands is authorized. A security lighting system is authorized that permits ample lighting to conduct safe after hour training and is designed to illuminate continuously during the hours of darkness or equipped with sensors which when activated by movement within the designated area will cause the lights to illuminate. After discontinuance of movement within the designated area, the lights should remain lit for a time determined to be appropriate for the specific situation by the security manager. Vandal resistant lenses should be provided where appropriate. Wherever possible, security lighting shall be provided from building-mounted fixtures. Pole-mounted fixtures may be used to supplement the building-mounted fixtures and where building-mounted fixtures are inadequate.

r. Interior Space Lighting. Along with day lighting techniques, the use of innovative, energy conserving interior lighting concepts, such as low-voltage; high lumen output fixtures, LED lamps and high bay; fluorescent illumination is encouraged whenever a cost-benefit analysis indicates that it is prudent based upon a comparison of the savings derived when the estimated installation cost plus the cost of maintenance over the expected life-span of the product are compared with like costs for a more conventional lighting technique.

s. Fuel Storage and Dispensing Systems are authorized provided that:

(1) The State’s surface vehicle fuel management plan justifies the use of a fuel storage and dispensing system at this location because of a lack of nearby military facilities, an agreement with other state facilities, or local private sources (using credit/debit cards),

(2) The facility is not located within a mile of a surface maintenance facility with fuel storage and dispensing capability,

(3) There are at least 15 vehicles using each type of fuel assigned to the facility,

(4) The storage facilities shall be built to nationally recognized environmental standards and IAW local ordinances,

(5) A roof type cover will be provided, and designed in accordance with UFC 3-110-03 if required by local code or local climatic conditions (e.g., excessive heat or snow), to prevent overheating of fuel and/or to preclude the introduction of storm water runoff into the sump of the containment area. Local climatic condition can be determined by contacting the National Climatic Data Center, or from historical data presented in US Army TM 5-785 - Facility Design and Planning, Engineering Weather Data.

(6) For Readiness Centers, Logistics Facilities, and Educational Facilities, the system capacity shall not exceed the following:

(7) Aviation Facilities: Aircraft fuel storage and dispensing system is authorized in accordance with UFC 3-460-01 16 August 2010, with direct fuel truck access to the aircraft parking apron.

(8) Training Sites: Fuel storage and dispensing systems are authorized at an amount not to exceed a 15 day supply based on the largest 15 day requirement during the training year.

No. of Vehicles Using Type of Fuel	Capacity Per Type of Fuel
0 - 14	N/A
15 – 39	3,000 Gallons
40 – 69	5,000 Gallons
70 – 100	7,000 Gallons

101 – 250	10,000 Gallons
Over 250	20,000 Gallons

t. Wash Platforms for all facilities are authorized as follows:

(1) Unless otherwise noted below, one concrete wash platform, not to exceed 115 SY, is authorized when 10 or more motor vehicles are authorized to be physically located at the facility and if the facility will not be located within a mile of a surface equipment maintenance facility with vehicle washing capability.

(2) A roof type cover will be provided if required by local code to prevent storm water from draining into the sanitary or storm water sewer system.

(3) An exterior wash platform may be enclosed by a heated shed-type structure and a heated aviation wash-rack may be constructed when the heating design temperature, as designated in UFC 3-400-02, is minus (-) 10 degrees Fahrenheit or lower, or the annual snowfall exceeds 30 inches.

(4) SEMF:

(i) One wash platform, not to exceed 115 SY, is authorized at each SEMF.

(ii) Additional wash platforms are authorized for each 100 vehicles, or major fraction thereof, in excess of the initial 100 vehicles authorized to receive maintenance at the facility.

(iii) An interior wash bay as authorized in Table 3-4 shall count as one wash platform.

(iv) When it can be justified, a centralized wash facility (birdbath type) may be authorized as an exception to criteria at a UTES or MATES. The use of a closed-loop water circulation system with replenishment to make-up any water lost through evaporation is preferred as environmentally prudent.

(5) Aviation Facility:

(i) In addition to the vehicle wash platform authorized above, one aircraft wash area (washing apron), category code 11370, is authorized at each aviation facility to be constructed of rigid concrete according to UFC 3-260-1.

(ii) Maximum allowance is 118 feet by 74 feet (140 feet by 110 feet for CH-47s).

(6) Training Facilities:

(i) The number of wash platforms authorized at a training center is in addition to those authorized for a MATES located on the training center but does not include any wash platforms at other DoD component facilities on the training center that are available for ARNG use.

(ii) Size and design of wash facilities shall be IAW TM 5-814-9.

(iii) Other environmental measures required by federal, state and local codes shall be included. Central birdbath wash facilities must be justified on a case-by-case basis.

(iv) An exterior wash rack may be enclosed by a heated shed-type structure when the heating design temperature, as designated in UFC 3-400-02, is minus (-) 10 degrees Fahrenheit or lower, or the annual snowfall exceeds 30 inches.

u. Utilities: All building utility service connections shall be underground. The length of service for each utility is limited to the distance of the shortest run from the building to the property line adjacent to the public right-of-way providing ingress and egress for the site plus up to an additional 300 linear feet for connection to the existing utility system. Direct-burial of cable for telephone, data, and electric service connections is authorized. This includes conduit where the service connection(s) must pass under a paved area.

(1) Construction of an on-site water well, a cistern with a chlorination system, a sanitary waste water treatment system, or tanks for the storage of heating fuels, such as liquid petroleum gas or number two oil, as well as delivery piping is authorized if like public services are not available. Such systems must conform to the requirements of the local approval authority and all applicable federal, state, and local environmental laws and regulations.

(2) The installation of an alternative energy system, either active or passive, to provide supplemental space heating or electric service is authorized when it can be demonstrated that the projected conventional energy cost savings will equal or exceed the installation costs during the projected service life of the alternative energy system.

(3) Energy Policy Act 2005 (EPA 2005): Section 103 of EPA 2005 requires that “all Federal buildings shall, for the purposes of efficient use of energy and reduction in the cost of electricity used in such buildings be metered to the maximum extent practicable.” Therefore, the installation and use of individual meters or advanced metering devices and smart metering that provide data at least daily and that measure at least hourly consumption of electricity should be examined or evaluated.

v. Storm Water Retention Ponds: The State may program up to three percent of the basic building cost for retention ponds as part of a storm water pollution prevention program. The storm water pollution prevention program and retention ponds must be implemented and constructed in accordance with federal, state, and local

regulations. These ponds may include bio-retention capabilities if required by local codes and/or best management practices.

w. Facility Support Space. All facilities are authorized support space allowances as shown in Table 1-7:

Facility Maintenance and Storage Space(s)	3% of the Total Net Area
Mechanical/Electrical Room (s)	5% of the Total Net Area <u>1/</u> <u>2/</u> <u>3/</u>
Telecommunications/Information Technology	1% of the Total Net Area <u>1/</u>

Notes:

1/ Mechanical/Electrical and Telecommunications/Information Technology rooms may be increased or decreased based on actual design requirements or to provide sufficient space for required secure information technology systems.

2/ Mechanical space includes pipe and duct shafts and perimeter heating units. Additional mechanical equipment space is authorized for multiple story facilities to accommodate vertical duct requirements. This space is understood to include space for computerized controls and equipment for all facility related systems. The percentage indicated is intended as a planning guide. Final determination will be approved during the design review process.

3/ Exclusive of facility maintenance and storage space allocation

x. Interfunctional Circulation Space. Facilities are authorized space for interfunctional circulation as shown in Table 1-8:

Facility Type	Allowance
Readiness Center	15 % (22 % for multiple-story facilities) of the total net floor area (excluding unheated unit storage, unless it is incorporated within the readiness center) <u>1/</u>
Logistics Facility USPFO Admin Offices USPFO Warehouse Office/Shop Areas in SEMF Unheated Vehicle. Storage BII Warehouse Firefinder Radar Facility Controlled Humidity Preservation (CHP)	15% (22% for multiple-story facilities) <u>1/</u> None (already included in base allocation) 15% (22% for multiple-story facilities) <u>1/</u> <u>2/</u> None None Based on A-E design and ARNG-ILI/ILS Approval. None
Aviation Facility	15% (22% for multiple-story facilities) of the total net floor area (excluding unheated unit storage, unless it is incorporated within aviation facility) <u>1/</u> <u>3/</u>
Training Center Facility	15% (22% for multiple-story facilities) of the total net floor area (excluding unheated unit storage, unless it is incorporated within heated buildings) <u>1/</u> <u>4/</u>
Educational Facility	22% (29% for multiple-story facilities) of the total net floor area (excluding unheated unit storage, unless it is incorporated within heated buildings) <u>1/</u> <u>4/</u> <u>5/</u>

Notes:

1/ This allowance includes corridors, staircases, entrances, and a lobby. This percentage is a planning figure, and final determination will be approved during the design review process based upon what is required for a well planned functional layout.

2/ This allowance does not include egress for maintenance bay areas (see paragraph 3-3.d.(5)).

3/ Interfunctional circulation for unheated aircraft storage hangars does not fall under this authorization. The total floor area may be increased by 15% for unheated aircraft storage hangars to provide for egress, interior aisles, hangar doors, walls and interior partition walls

(if required). The 15% figure is intended as a planning guide. Final determination will be made during the design review process.

4/ Circulation is 22% (27% for multiple story buildings) for billeting facilities.

5/ Circulation is 29% (36% for multiple story buildings) for billeting facilities.

y. Walls. Facility allowances for wall space are as shown in Table 1-9:

Table 1-9. Walls	
Walls	10 percent of total net floor area, including circulation <u>1/</u> <u>2/</u> <u>3/</u>

Notes:

1/ The total floor area may be increased by 10 percent to provide for interior and exterior walls and partitions. The 10 percent figure is intended as a planning guide. Final determination will be approved during the design review process.

2/ For Aviation Facilities, the total floor area may be increased by 10 percent (15 percent for stand-alone fixed wing facilities) to provide for interior and exterior walls and partitions. The 10 percent (15 percent for stand-alone fixed wing facilities) is intended as a planning guide. Final determination will be made during the design review process.

3/ For Aviation Facilities, the total floor area may be increased by 15 percent for unheated aircraft storage hangars to provide for egress, interior aisles, hangar doors, walls and interior partition walls (if required). The 15 percent figure is intended as a planning guide. Final determination will be made during the design review process.

z. Controlled Waste Handling Facility (CWHF).

1. A prefabricated metal or concrete masonry building with a concrete floor or building of equivalent or less cost of a size shown in Table 1-10 below is authorized for all facilities. The basic allowance is the gross area including intracirculation. Intercirculation space has to be justified as an exception to criteria.

2. The building shall be designed to allow wastes to be conveniently stored inside each cell in drums, metal boxes, on pallets, and easily loaded/unloaded using a forklift or manual means. Partitioning of individual storage cells shall be designed to provide secondary spill containment within each cell.

3. 150 square yards of rigid concrete access paving may be provided for access.

All Facilities are authorized space for a CWHF as shown in Table 1-10:

Table 1-10. CWHF		
Facility	barrels stored	Basic Allowance <u>1/</u>
Readiness Centers <u>1/</u> USPFO <u>2/</u> SEMF <u>2/</u>	1-40	300
Aviation Facilities <u>3/</u> Training Center Facilities Educational Facilities	41 & over	500

Notes:

1/ At its option the State may include this authorized space within the readiness center or another adjacent facility.

2/ At its option the State may include this authorized space within the logistics facility or another adjacent facility. It is additive to any allowances authorized for Surface Equipment Maintenance Facilities (SEMF).

3/ At its option the State may include this authorized space within the aviation facility or another adjacent facility.

Chapter 2

Readiness Centers

2-1. General

a. Standards. This chapter establishes the space allowances for Readiness Centers (Armories), Civil Support Team/Weapons of Mass Destruction (CST-WMD)-Ready Buildings, and joint-use Armed Forces Reserve Centers (AFRC) construction projects, including Joint Force Headquarters (JFHQ).

(1) A JFHQ is stationed in a readiness center constructed as a joint-use facility for federal elements and associated state elements as allowed by state statute.

(2) An AFRC is a readiness center constructed as a joint-use facility with another reserve

component element (including the Air National Guard). An AFRC must provide space for at least 20 members from each of one or more reserve component units in addition to the ARNG.

b. Space allowances.

- (1) Refer to Table 2-1 for standard space allowances.
- (2) Refer to Table 2-2 for unit specific space allowances.
- (3) Refer to Table 2-3 for allowances for Weapons of Mass Destruction-Civil Support Team facilities.
- (4) Refer to Table 2-4 for Chemical, Biological, Radiological, Nuclear, and Explosive Team facility

allowances.

- (5) Refer to Table 1-5 for allowances for Flagpoles
- (6) Refer to Table 1-7 for Facility Support Space allowances.
- (7) Refer to Table 1-8 for Circulation allowances.
- (8) Refer to Table 1-9 for Walls allowance.
- (9) Refer to Table 1-10 for Space allowances for Controlled Waste Handling Facilities (CWHF)

(11) All other space requirements not specifically indicated in the referenced tables will be treated as exceptions to criteria. The State must fully justify such requests and the NGB proponent must concur with them before ARNG-ILI approves for programming the documents and the final design of the project.

2-2. Non standard Supporting Items

a. In planning the functional arrangement of facilities, the State shall give appropriate consideration to the existing site conditions, layout, and materials of construction in order to achieve maximum operating efficiency, cost effectiveness, and flexibility. The following exterior items are authorized Federal reimbursement for readiness center projects:

b. Parking pad for mobile conduct of fire trainer (MCOFT) and similar simulators: Federal support is authorized for construction of a 60 x 60 square feet rigid concrete parking pad, with electrical power and telephone service, at each National Guard Bureau (NGB) approved MCOFT or similar simulation device site. A roof type cover may be provided if required by local climatic conditions (e.g., excessive heat, snow, rain).

c. Helipad. Federal support is authorized for construction of a helipad at the Joint Force Headquarters (JFHQ) readiness center or at a readiness center that has Colonel or higher level command. Constructed of reinforced concrete, the limited use pad shall be 100 x 100 square feet with 25 foot wide shoulders of flexible pavement. Lighting and markings shall conform to the requirements of TM 5-811-5.

2-3. Unheated Enclosed or Shed-Type Vehicle Storage Space

a. Federal support for enclosed or shed-type storage is authorized in accordance with NGR 415-10.

b. Vehicle storage space shall be unheated and shall not exceed 66% of the normally authorized open-air military parking area. When enclosed or shed-type storage is provided, the amount of uncovered paved area authorized for parking of military vehicles at the site shall be reduced by the area of the covered space. The remaining paved area is to be used for additional surface parking circulation and access to and from the covered/enclosed storage structure.

c. Vehicle doors at approximately 25 feet on centers are authorized for fully enclosed structures at the rate of one for each 1800 square feet of covered ground space to provide for the mass parking of vehicles without the need for internal circulation lanes.

d. A 60 foot long concrete apron is authorized the length of each side of the facility with vehicle entrances.

2-4. Civil Support Team and Weapons of Mass Destruction-Team (CST-WMD) and Chemical, Biological, Radiological, Nuclear, and Explosive Team (CBRNE) Facilities

These facilities are classified as ready buildings and the allowances are authorized for Schedule I and Schedule II space; as shown in Tables 2-3 and 2-4. Critical to both are the operations center/crew room and vehicle storage/ready bays for the loading and pre-staging of sensitive equipment on the unit's primary vehicles.

**Table 2-1. Schedule I, Readiness Center Space Allowances
(Allowance in net square feet, exclusive of interior and exterior walls)**

Functional Areas 2/		Allowances Based on Readiness Center Capacity (Required Strength) 1/					
		55-99	100-175	176-350	351-650	651-950	951-1,200
1	Assembly Hall	5,400	5,800	6,300	7,500	9,000	9,990
2	Classrooms 3/	800	1,000	1,500	2,400	2,700	3,000
3	Library/Classroom	250	250	300	300	350	350
4	Learning Center	250	250	300	300	350	350
5	Distance Learning Center	4/	4/	4/	4/	4/	4/
6	Indoor Firing Range	5/	5/	5/	5/	5/	5/
7	Training Device/Simulation Center	6/	6/	6/	6/	6/	6/
8	Training Aid Storage	80	120	140	180	200	200
9	Kitchen 7/	1,300	1,300	1,300	1,875	1,875	1,875
10	Break Room (Area)	8/	8/	8/	8/	8/	8/
11	Vending Area	75	75	100	100	150	150
12	Toilets/Shower 9/	1,220	1,300	1,400	1,620	1,860	2,060
13	Flam Mats. Storage	100	100	150	250	350	400
14	Family Readiness Office	250	250	250	400	400	400
15	RAPIDS Office 10/ Recruiting/ Retention	150	150	150	150	150	150
16	Office	250	250	250	400	400	400
17	Audio/Visual Storage	80	100	150	200	300	350
18	Table/Chair Storage	300	375	550	850	1,150	1,400
19	Physical Fitness 11/	600	700	800	1,000	1,225	1,600
20	Controlled Waste Handling Facility (CWHF)	12/	12/	12/	12/	12/	12/

Notes:

1/ The required strength of a Readiness Center is the sum of the authorized strengths of all assigned units. Units with Required strength(s) of fewer than 55 are not authorized a separate facility and must be programmed as part of a multiple-unit readiness center, unless approved as an exception to criteria. Exclusive use space for such units will be according to NG Pam 415-12.

2/ All functional areas listed in Table 2-1 are for the common use of all the units assigned to the Readiness Center.

3/ Classroom space is authorized using the formula 10 square feet per person based on the combined required strengths of the assigned unit(s) (including units with a strength less than 55) that are required to train simultaneously, plus the basic space from the table. An auditorium with inclined floor and installed seats is authorized for battalion or higher level headquarters. Auditorium space is subtracted from the authorized classroom space.

4/ Space is authorized if validated and approved by the Army Training Division (ARNG-TR). This space is in addition to any classroom space otherwise authorized.

5/ Indoor Small Arms Firing Ranges are not standard items and are approved only rarely as an exception to criteria. They are only authorized when supported by an Army National Guard Indoor Range Requirements Checklist and validated and approved by ARNG-TR. In addition, the State must provide ARNG-ILI a Life-Cycle Cost Analysis (LCCA) to demonstrate the State's awareness of the maintenance and operations costs that it will incur operating the range. Construction must comply with current Federal and State occupational safety and health standards, including a review and a signoff of the range design by Army National Guard Industrial Hygiene (ARNG-CSC-P), and follow

the design criteria established by the United States Army Corps of Engineers “Design Guide for Indoor Firing Ranges,” Jul 23, 2003 .

6/ Readiness centers housing less than a battalion are authorized a 10 lane (1225 square feet) engagement skills trainer (EST). A readiness center housing a battalion or higher is authorized a 15 lane (1840 square feet) EST.

7/ Authorized contractor furnished and installed, orgovernment furnished kitchen equipment is listed in Army National Guard 415-1, Chapter 3, titled as ‘Army National Guard Kitchen Layout’ and ‘Army National Guard Kitchen Equipment Schedules’..

8/ Basic authorizations are 200 square feet for up to 4 full-time support personnel and 400 square feet for up to 8 full-time support personnel, with an additional 20 square feet per individual for 9 to 20 full-time support personnel, 12 square feet per individual for 21 to 40 full-time support personnel, and 8 square feet per individual for full-time support personnel exceeding 40.

9/ In addition to the basic toilet area, shower space is also authorized. Shower area shall be determined using the largest number of soldiers required to train simultaneously at the readiness center. This number shall be divided by 15 and the result multiplied by 40 square feet. This figure should then be added to the basic allowance in Table 2-1. The toilet/shower allowance is to be split into appropriate facilities to support both males and females. The split should account for both minimum code requirements and anticipated building usage. The basic allowance may be increased by ten percent (10%), if the facility has two or more floors, in order to allow a toilet area to be installed on each floor. If there is no toilet located near the indoor rifle range/simulation center, 25 square feet of the toilet/shower authorization may be used to provide a toilet for personnel using the range/simulation center.

10/ Space authorized only if Real-Time Automated Personnel Identification System (RAPIDS) office assigned to the readiness center.

11/ All equipment must be obtained with other than Federal construction funds.

12/ See Table 1-10 - CWHF.

Table 2-2. Schedule II, Unit and Special Space Allowances 1/
(Allowance in net square feet, exclusive of interior and exterior walls)

Functional Area	Allowance
1. Administrative Office Space: 2/	
a. Basic Space:	
Unit with strength of less than 75	400
Unit with a strength over 75	800
b. General Space	3/
c. Special Administrative Allowances: 4/	
(1) Division Headquarters	5,850
(2) Armored Cavalry Regiment Headquarters	3,300
(3) Brigade and Division Artillery Headquarters	2,850
(4) Corps Artillery, Combat Support Command & Armored Cavalry Squadron (each)	2,100
(5) Group Headquarters	1,950
(6) Battalion Headquarters and Headquarters Company (HHC or HHD)	1,500
(7) Rear Area Operations Center (RAOC)	2,800
(8) Division Support Command	3,890
(9) Supply and Transport Battalion (Division)	2,860
(10) Support JFHQ (Separate Brigade)	3,460
(11) State Headquarters (Army National Guard)	5/
Under 4,000 Strength	2,970
4,000 to 7,500 Strength	3,570
7,500 to 10,000 Strength	4,020
10,000 to 15,000 Strength	4,470
15,000 to 20,000 Strength	4,920
Over 20,000 Strength	5,670
(12) Troop Command	
54 or Less Strength	1,950
55 to 99	2,850
100 and Over	3,300

(13) Army Advisor's office for advisors (officers and enlisted authorized to specific units):				130 each
(14) Personnel Services Companies/Sections				<u>6/</u>
(15) State Headquarters military record archives				<u>7/</u>
(16) Training Support Brigade (TSB) personnel authorized to specific units				130 each
2. Unit Storage Space (including Arms Vault)				<u>8/</u>
a. Battalion Headquarters with Organic Subunits (per Table of Organization and equipment (TOE)) <u>9/</u>				1,000
b. Supply and Transportation Battalion (Division) <u>9/</u>				1,000
c. Support Battalion (Separate Brigade) <u>9/</u>				1,000
3. Locker Room Space <u>10/</u>				
a. Basic Space (one per readiness center)				200
b. Space per each individual authorized in the readiness center				18
4. Special Functions:				
a. JFHQ Joint Operations Center (JOC)				1,200
b. JFHQ Secure Video Conference Center				500
c. Ready Bay for JFHQ Secure Communications Vehicle				1,500
d. Public Affairs Detachment (Specialized functions are allowed space for workroom, recording studio, edit studio, broadcasting studio, finishing room, print room, negative room (dark room), etc.)				1,020
e. JFHQ Photographic Studio <u>11/</u>				500
f. JFHQ Media Room				820 <u>12/</u>
g. Medical Section within a Headquarters unit		400		
h. Physical Exam/Flight Surgeon Space for 10-160 Exams per Year <u>13/</u>				500
i. Physical Exam/Flight Surgeon Space: <u>14/</u>				
		<u>Exams per Year</u>		
		161-320	321-640	641-1280 <u>15/</u>
Reception, Waiting and Form Writing	210 square feet	280 square feet	350 square feet	
Doctor's Office (80 sq. ft each)	80 square feet	80 square feet	160 square feet	
Exam Room (110 sq. ft each) <u>16/</u>	220 square feet	330 square feet	550 square feet	
History Station	70 square feet	70 square feet	105 square feet	
Height & Weight Station	70 square feet	70 square feet	70 square feet	
Blood Pressure and Pulse Station	70 square feet	70 square feet	70 square feet	
Electronic Consult System (ECS) and Tonometry Station	in exam room	110 square feet	110 square feet	
Lab	70 square feet	70 square feet	70 square feet	
Blood Specimen Collection	70 square feet	70 square feet	70 square feet	
Specimen Toilet	36 square feet	36 square feet	60 square feet	
Vision Test	70 square feet <u>17/</u>	70 square feet <u>17/</u>	70 square feet <u>17/</u>	
Hearing Test	90 square feet	150 square feet	210 square feet	
Dental Check (100 sq. ft each)	100 square feet	100 square feet	200 square feet	
Circulation	345 square feet <u>17/</u>	485 square feet <u>17/</u>	675 square feet <u>17/</u>	
Total	1501 square feet	1921 square feet	2770 square feet	
j. Communications Security (COMSEC) Material Direct Support Activities (CMDSA)				<u>18/</u>
k. Information Technology (IT) Support Activities				<u>18/</u>
l. General Purpose Training Bay (GPTB)				<u>19/</u>
m. Air/Army National Guard Weather Flight <u>20/</u>				1,500
n. Band <u>21/</u>				
Main Rehearsal Studio <u>22/</u>				1,700
Large Group Rehearsal Studio <u>23/</u>				700
Small Rehearsal Studio <u>24/</u>				350

Music Library	500
Individual Instrument Storage <u>25/</u>	520
Recording Studio <u>26/</u>	250
Bulky Instrument Storage/Instrument Cleaning and Repair <u>27/</u>	1,200
Individual Practice Rooms <u>28/,29/</u>	870
Total	7,115

Notes:

1/ The appropriate space for each unit is to be selected from below and subtotaled by unit per each function. Space for headquarters, special units, or other elements having special requirements not specifically established in this schedule may be submitted to ARNG-ILI for approval as an exception to criteria if supported by a clearly stated justification that is backed up by actual data (if appropriate). The word unit, when not further modified, is intended to represent MTOE units, Table of Distribution and Allowances (TDA) units, split units, and detachments.

2/ The State uses the sum of total of all administrative space authorized for the units and lays out the work areas according to accepted guidelines.

3/ In addition to the basic space, all units, detachments, and split units are authorized additional space by the formula: 130 square feet times the sum of the number of administrative positions in the Modified Table of Organization and Equipment (MTOE)/TDA and of Federally-reimbursed State employees not on the MTOE/TDA who serve in administrative positions. Include a copy of each MTOE/TDA with each administrative position annotated, plus a list of all Federally-reimbursed State administrative positions for which space is being requested. Eligible positions include all commanders; leaders; chiefs of units, platoons, sections, and staffs; band group leaders; clerks; and all other clearly identifiable positions with a major administrative function. Included are platoon leaders and platoon sergeants, but not squad leaders. Also included are unit supply and arms room positions. The sizing formula does not mean persons get only 130 square feet of work area.

4/ Special administrative allowances include a secure planning/briefing room, conference/meeting rooms, operations center, files/supplies storage, etc.

5/ The allowance shown in the table for JFHQ space already includes the following: 100 square feet for COMSEC supplies/equipment; 120 square feet for a terminal room for the Worldwide Military Command and Control System (WWMCCS) ; and 200 square feet for the terminal room for on-line secure interactive system support.

6/ For a records storage area, you are authorized in square feet the total required strength for all assigned units divided by 20.

7/ For military records archives storage area, you are authorized in square feet the total required strength for all assigned units in the State divided by 4.

8/ Unit storage space shall be computed based on authorized strength of, and cubage of the equipment (excluding vehicles/equipment provided space under military equipment parking, other items normally stored outside and provided space elsewhere, and individual clothing and equipment) authorized to the unit(s) assigned to the facility.

a. Each unit or detachment with a required strength of 55 or more is authorized:

(1) Heated storage space. A net area of 2,700 square feet within the readiness center facility is authorized for an equipment cubage of 0 to 4,000 cubic feet. This allowance includes space for a vault (600 square feet) and, if desired, a climate controlled area (maximum of 500 square feet).

(2) Unheated storage space. If total equipment cubage exceeds 4,000 cubic feet, a detached building or an equivalent area incorporated within the readiness center facility is authorized based on one of the following applicable categories:

Total Cubage In Cubic Feet	Net Square Feet (NSF) Authorized
4,001 to 8,000	$NSF = 0.6 \times (\text{Total Cubage} \text{ minus } 4,000)$
Exceeds 8,000	$NSF = 2,400 + [0.2 \times (\text{Total Cubage} \text{ minus } 8,000)]$

b. Each unit or detachment with a required strength of less than 55 but greater than 10 is authorized:

(1) Heated storage space. A net area (minimum of 1,300 square feet) within the readiness center facility for an equipment cubage of 0 to 4,000 cubic feet as determined by the formula listed below. The resultant allowance includes space for a vault (maximum 600 square feet) and, if desired, a climate controlled area (maximum of 500 square feet).

$\text{Heated Storage} = 0.6 \times \text{Total Cubage}$

(2) Unheated storage space. If total cubage exceeds 4,000 cubic feet, use the appropriate applicable category referenced above in Note 8a (2).

9/ This 1,000 square feet authorized for the battalion supply area is intended for a temporary storage area of supplies in transit to and from organic subunits. Shelving for this area is authorized. Vaults or improved office space are not authorized. However, a wire cage partition may be erected to give security to more sensitive supplies. For the Supply and Transport Battalion (Divisional) and the Support Battalion (Separate Brigade) this 1,000 square feet is only authorized for units that have a fulltime functioning supply support activity (SSA) and is intended for a temporary storage area of supplies in transit to and from organic units within the Division or Separate Brigade.

10/ Space may be divided, provided that the total of the separate space allocated to men and women is within the total space authorized. Also, a part or the total area may be used as unit storage space.

11/ A photographic studio (20' x 25' with an approximate 10 foot ceiling height) is authorized in JFHQ readiness centers that do not have a collocated Public Affairs Detachment with a video mission.

12/ In addition to the basic allowance, an additional 60 square feet is authorized for each Statewide media outlet in excess of 12. In addition, the JFHQ assembly hall is authorized additional electrical, phone, and data outlets, air conditioning, and special acoustical treatment to make it conducive for use as a media room in case a briefing exceeds the size of the regular media room.

13/ Not more than one examination facility shall be authorized in a single readiness center.

14/ These facilities shall not be authorized unless establishment of examination facilities has been approved by the Office of the Chief Surgeon (ARNG-CSG). (See AR 40-61, para 4-14, and Supply Bulletin 8-75-27.) Not more than one examination facility shall be authorized in a single readiness center. Sizes are based on operation of the facility at least 15 days per year.

15/ For over 1280 exams/year use space data for 641-1280 and increase the number of days per year the facility is operated.

16/ One room may be used for consulting, review of completed physical examination paperwork, weight control counseling or similar purposes.

17/ An additional 140 square feet is authorized to accommodate eye examinations if the facility is authorized to conduct flight physical examinations. The circulation space should then be increased by 20 square feet because of the additional 140 square feet for the eye examinations.

18/ This item refers to communications security and other information technology items (e.g., computer hardware) unique to specific units. Size to be determined in coordination with State J-6 and the Army National Guard Information Technology Plans, Policy, and Resource Division, Governance and Policy Branch (ARNG-IMG-G) prior to the submission of programming documents. Joint Force Headquarters are authorized 175 square feet for a vault to store cryptographic, encryption, tape backups, and other secure J-6 materials. Joint Force Headquarters also require sufficient space to run the communications hub for the State, a help desk for the State, and to do IT repair. For planning purposes this will probably be at least 7,000 square feet, but the exact amount must be coordinated between the State J-6 and ARNG-IMG-G prior to the completion of the DD Forms 1390/1391 during the charrette process.

19/ Readiness Centers are authorized one General Purpose Training Bay (GPTB). If an assigned or attached maintenance MTOE Unit or section (FSC, FMC, SMC, CRC) will be stationed at the Readiness Center, one additional GPTB (total of two GPTBs) is authorized. Each GPTB is configured the same as a SEMF General Purpose Work Bay (GPWB) plus egress aisles. Paragraph 3-3.d. describes a GPWB. Paragraph 3-3.d. (5) describes egress aisles.

The GPTB at Readiness Centers supporting units with a MTOE maintenance section/Unit or personnel is authorized the following if validated and approved by ARNG-ILI:

- Compressed air delivery system
- Vehicle exhausts evacuation system
- electrical and IT Ports
- a trench/floor drain connected to an oil-water separator
- Waste oil/hazardous materials storage as required but not to exceed 100 sf.
- Required safety and/or hygiene equipment (i.e. emergency eyewash stations, hand wash facility, etc.)
- A 15-ton traveling bridge crane may be authorized based on unit mission.

In addition, each unit with a MTOE maintenance section or maintenance personnel stationed at the Readiness Center is authorized:

- Supervisor's office: 100 square feet.
- Inspections and library: 110 square feet.
- Tool room: 300 square feet.

- Supply room: 300 square feet.
- Any other areas required by the unit's mission must be justified as exceptions to criteria.
- 20/ Add 200 square feet for: a Representative Weather Observation Station (RWOS). See UFC 3-260-01.
- 21/ All spaces are required in the dimensions shown. If any spaces are omitted, corresponding adjustments to other spaces will be required to accommodate personnel and equipment required for mission capability.
- 22/ Average ceiling height of 20 feet to 30 feet is recommended, with 18 feet as a minimum. Minimum wall length is 30 feet.
- 23/ Average ceiling height of 18 feet recommended, with 15 feet as a minimum. Room should not be square.
- 24/ Minimum wall length is 15 feet, to allow for work space and storage.
- 25/ Requires 65 feet of lineal storage for: instrument lockers. If this space is omitted, main rehearsal studio must be increased in size by 520 net square feet.
- 26/ Minimum width is 10 feet. The recording studio must have visual contact by means of soundproof glass or video camera with the main rehearsal studio. Visual contact with the large group rehearsal studio is highly desired.
- 27/ This area may be combined with individual instrument storage.
- 28/ In combination of large (80-125 net square feet) and small (55-65 net square feet) individual soundproofed rooms.
- 29/ Commercially available soundproofed prefabricated modules may be used, particularly in cases of renovation/renewals.

Table 2-3 Civil Support Team and Weapons of Mass Destruction-Team (CST-WMD) Team Facility Allowances (Allowance in net square feet, exclusive of interior and exterior walls)
--

Functional Area	Allowance
1. Classrooms	800
2. Break Room (Area)	662
3. Vending Area	75
4. Toilets/Shower <u>1/</u>	600
5. Ready Bays	4,500
6. Ops Center	680
7. Admin Space General	400
8. Admin Space Special	650
9. COMSEC and IT	420
10. Storage	1,000
11. Lockers	596

Notes:

1/ The toilet/shower allowance is to be split into appropriate facilities to support both males and females. The split should account for both minimum code requirements and anticipated building usage. The basic allowance may be increased by ten percent (10%), if the facility has two or more floors, in order to allow a toilet area to be installed on each floor.

2/ All equipment, furniture and pre-wired workstations must be obtained with other than Federal construction funds.

Table 2-4 Chemical, Biological, Radiological, Nuclear, and Explosive Team Facility Allowances Allowance in net square feet, exclusive of interior and exterior walls

Functional Area	Allowance/sq.ft
1. Classrooms	1000
2. Break Room (Area)	1400
3. Vending Area	75
4. Toilets/Shower <u>1/</u>	1620
5. Physical Fitness <u>2/</u>	700
6. Ready Bays	9000

7. Ops Center	1360
8. Admin Space General	800
9. Admin Space Special	1300
10. COMSEC and IT	420
11. Storage	2700
12. Lockers	2180

Notes:

1/ The toilet/shower allowance shall be split into appropriate facilities to support both males and females. The split should account for both minimum code requirements and anticipated building usage. The basic allowance may be increased by ten percent (10%), if the facility has two or more floors, in order to allow a toilet area to be installed on each floor.

2/ All equipment, furniture and pre-wired workstations must be obtained with other than Federal construction funds.

Chapter 3 Logistical Facilities

3-1. General

a. Standards. This chapter establishes the space allowances for all ARNG Logistical Facilities construction projects, including United States Property and Fiscal Office (USPFO).

b. Space allowances.

(1) Logistical Facilities space allowances are based on the authorized strength(s), the numbers, occupational specialties, and job descriptions of full-time personnel, the numbers and types of equipment authorized, and special requirements of the supported units.

(2) Refer to Table 3-1 for USPFO Administrative Space Allowances

(3) Refer to Table 3-2 for Lifting Devices/Cranes

(4) Refer to Table 3-3 for Schedule I, Office, Work, and Personnel Space allowances in Surface Equipment Maintenance Facility (SEMF)

(5) Refer to Table 3-4 for Schedule II, Work Bay Space allowances in Surface Equipment Maintenance Facilities (SEMF)

(6) Refer to Table 3-5 for Warm Up Bay allowances

(7) Refer to Table 1-5 for allowances for Flagpoles

(8) Refer to Table 1-7 for Facility Support Space allowances.

(9) Refer to Table 1-8 for Circulation allowances.

(10) Refer to Table 1-9 for Walls allowance.

(11) Refer to Table 1-10 for Space allowances for Controlled Waste Handling Facilities (CWHF)

(12) All other space requirements not specifically indicated in the referenced tables will be treated as exceptions to criteria. The State must fully justify such requests and the NGB proponent must concur with them before ARNG-ILI will approve including them in the programming documents and the final design of the project.

3-2. USPFO Administrative Offices, Warehouses, and Central Issue Facilities (CIF)

a. A United States Property and Fiscal Officer (USPFO) is assigned to each State and Territory for which a federally recognized National Guard has been established. Each USPFO requires a support staff and certain facilities in order to perform his/her primary mission of being responsible for all federal funds and property. These include administrative and office space, warehouse space, a CIF, areas for the temporary storage of military vehicles and equipment prior to issue or turn-in, and parking for employee and visitor POVs.

b. Administrative Area.

(1) The criteria for determining the area(s) authorized to support administrative staff activities for the USPFO is predicated upon a presumption that these areas will be located within the same structure that provides administrative space for the Joint Force Headquarters (JFHQ). This may be accomplished by incorporating the USPFO administrative staffing requirements, as delineated in the JFHQ Table of Distribution and Allowances into the construction plans for the new JFHQ complex or addition to the existing JFHQ structure. However, when the

number of full-time administrative employees required by the USPFO exceeds 25 and the operational complexities within a particular State make collocation impractical or impossible to achieve, the State may seek authorization to construct a separate, freestanding USPFO administrative structure. In such a case, the CFMO shall provide substantive documentation to ARNG-ILI in order to validate why collocation is not feasible.

(2) The allowance for the USPFO administrative area is based upon the number of full-time administrative employees, other than those whose duties are directly related to Information Technology (IT) or the receipt, storage, transportation and warehousing of military vehicles, clothing and equipment. Job titles such as IT Specialist, IT Equipment Operator, Supply Technician, Motor Vehicle Operator or Materials Handler exemplify those that would not be classified as administrative. Table 3-1 indicates how this space is to be calculated.

(3) Federally reimbursed state employees and/or contractors who are hired to fill required full-time administrative positions within the USPFO are considered to be de facto federal technicians. Thus, they are neither added to nor subtracted from the number of full-time administrative positions required by the particular USPFO staffing document.

(4) Administrative space includes all functional areas needed for the performance of administrative functions and those areas required to support the personnel performing those activities. These spaces include administrative offices, record storage areas, a single classroom and briefing area, a conference room, an employee break room, latrine/shower/locker rooms, mechanical/electrical/telephone/IT spaces, custodial storage, and intra-office circulation.

(5) Wherever possible, construction of private offices and areas enclosed by walls should be kept to a minimum consistent with operational needs for privacy of communication and/or security. The use of individual and collective work spaces is to be maximized.

Staffing Level	Basic Allowance	PLUS Additional Space (SF) of:			
1-25	5,000 SF	N/A	N/A	N/A	N/A
26-60	5,000 SF	200/person>25	N/A	N/A	N/A
61-100	5,000 SF	7,000	175/person>60	N/A	N/A
101-200	5,000 SF	7,000	7,000	165/person>100	N/A
201-300	5,000 SF	7,000	7,000	16,500	155/person>200

c. Information Technology and Secure Telecommunications Areas. An area of no more than 2,000 square feet is authorized to support IT activities directly related to USPFO operations. This space includes:

- (1) A 150 SF office for the IT manager,
- (2) A 150 SF server room,
- (3) A 150 SF SIPRNET room, and
- (4) One or more storage rooms or areas not to exceed 150 SF total.
- (5) Other IT personnel working area.

d. Warehouse and Loading Dock. Every effort shall be made to incorporate the USPFO warehouse into the same structure as that providing the USPFO administrative space. If this cannot be accomplished, the two shall be placed at minimum practical distance from each other and connected by an enclosed passageway where feasible.

(1) The allowance for net warehousing space for the USPFO, exclusive of the CIF, is a basic allowance of 5,500 square feet for authorized troop strength of 1,000 or less. For an authorized troop strength exceeding 1,000, the basic allowance is 5,500 SF plus 5 square feet for each ARNG Soldier exceeding 1,000 to the State or Territory for the federal fiscal year projected to be the year of construction.

(2) Although the space authorized for the storage of flammable material is included in the overall allowance for USPFO warehouse space, it may not exceed four percent of the total net warehouse space calculated.

(3) The allocation of space for vaults, latrine/shower/locker rooms, a warehouse manager’s office, and an employee break room shall be determined based upon Table 3-3. This space, if utilized, shall be deducted from the total net area calculated for the USPFO warehouse.

e. Class VII Storage Areas. An area not to exceed 90,000 square feet (10,000 square yards) and enclosed by a security fence may be set aside for the temporary storage of vehicles and equipment prior to its disposal or pick-up by the unit to which it is being issued. This area may be paved according to climate force structure, or environmental considerations

(1) This space is in addition to any other areas of pavement authorized for the parking of POV, commercial-type USPFO transport and/or delivery vehicles, etc.

(2) Where a need for additional secure storage area can be documented, such space may be authorized as an exception to criteria.

f. Physical Fitness Room. If the administrative area for the USPFO is not within the same structure or collocated as the JFHQ, additional space is authorized to provide an enclosed and properly ventilated area for the placement of physical fitness equipment for use by all members of the full-time USPFO staff. When there are five or more full-time technicians authorized on the TDA for the USPFO section, a net area of 600 square feet is authorized. For each additional approved full-time technician, that space may be increased by 30 square feet, up to a maximum of 1650 square feet for the entire room. However, when the USPFO offices are collocated within the same structure as the JFHQ, the number of USPFO staff members should be included in the total number of personnel used to determine the size of the physical fitness room within that structure.

g. Central Issue Facility (CIF). The CIF and the USPFO Warehouse should be located within the same structure whenever feasible in order to facilitate the use of a single loading dock. In this case, the CIF shall be constructed as a separate section of the USPFO warehouse separated by CMU blocks or other permanent wall but must have its own entrance. Or, the CIF may be constructed as a separate or stand-alone building.

(1) Additional space for a CIF is authorized on the basis of 2.2 SF times the number of Soldiers on the ARNG force structure document for the state or territory/DC for the federal fiscal year that is projected to be the year of construction.

(2) A designated clear space, not to exceed 1000 square feet, may be set aside within the CIF for use as a Unit-level show down and layout area. This space comes out of the net area authorized for the CIF.

(3) An area, not to exceed 100 square feet, is authorized to accommodate up to five private dressing rooms of 20 square feet each. Each dressing room shall be provided with lighting but heating, cooling and mechanical ventilation beyond that provided to the general CIF space is not required. This space comes out of the net area authorized for the CIF.

(4) An area of 150 square feet may be set aside for the construction of an office for the CIF manager. This space may be increased to a total of 250 square feet if it will be occupied by two individuals. This space comes out of the net area authorized for the CIF.

3-3. Surface Equipment Maintenance Facilities (SEMF)

a. The criteria presented in this paragraph are applicable to new construction and major renovation to existing structures intended to function as SEMF.

(1) Refer to Table 3-3 for office, work, and personnel allowances (Schedule I items).

(2) See Table 3-4 for work bay authorizations (Schedule II items).

b. Tables 3-3 and 3-4 differentiate between field maintenance and sustainment maintenance facilities.

(1) Field maintenance refers to work that is generally performed at a Field Maintenance Shop (FMS), a Unit Training and Equipment Site (UTES), and a Maneuver Area Training Equipment Site (MATES) without Support.

(2) Sustainment maintenance refers to work that is generally only performed at a Combined Support Maintenance Shop (CSMS) or MATES with Support.

(3) Normally, Special Purpose Work Bays (SPWB) will only be incorporated into the design of sustainment maintenance facilities. However, in order to better distribute workload/workforce, a State may elect to tailor an FMS to perform sustainment level maintenance functions. One or more special purpose work bays/areas may be incorporated into the design. The State shall provide the Maintenance Support Plan, manning document, and equipment densities to ARNG-ILS, through ARNG-ILI, during the DD Forms 1390/1391 review process to substantiate that those functions will not duplicate similar work performed at an existing or planned sustainment maintenance facility.

c. Office, Personnel, and Work Areas.

(1) The net area in square feet allowed for each functional area is listed in Table 3-3, Schedule I, in the columns under each type of maintenance facility. The office and personnel areas are defined as the CORE area.

(2) If the function is designated NA, that area is not authorized for the facility unless approved as an exception to criteria.

(3) Some area sizes are the sum of the amount in the basic allowance plus the amount listed under the specific facility type or footnote from the appropriate table.

(4) The sizes of some areas are determined by an amount of square feet times a factor, such as the number of general purpose work bays authorized for the shop, federal technicians/Soldiers/employees required to perform the function at the shop, total troop strength supported by the shop, or the number of combat vehicles authorized at the shop.

d. Work Bays.

(1) SEMF work bays are either general purpose or special purpose.

(a) General Purpose Work Bays (GPWB) are those in which mechanics repair, replace, or adjust the operational mechanisms of military vehicles and equipment.

(b) Special Purpose Work Bays (SPWB) (see Table 3-4) are those that support a specialized functional areas, such as, welding, painting, etc, not general vehicular maintenance.

(2) All work bays at a facility shall be the same size to facilitate design and construction while minimizing construction costs. The bay size shall be 32 feet wide by 64 feet long. This does not include routes of egress. Egress walkways shall not bisect the longitudinal axis of work bays.

(3) The authorized number of GPWB is determined by the number of mechanics authorized or required for the site, whichever is greater. Mechanics are defined as non-supervisory personnel who work primarily in GPWB. The personnel who work in special purpose work areas are not to be used in determining the number of GPWB. The number of authorized GPWB will be determined on the basis of one work bay for every six field or sustainment level maintenance mechanics required. Any fraction of a work bay authorizes an additional bay.

(4) No SEMF shall be constructed unless the number of required mechanics justifies two GPWBs. Construction of a SEMF requires at least seven mechanics, that is one GPWB per six mechanics plus a fraction of a GPWB (approximated to be one GPWB).

(5) A safety walkway (route of egress) shall be provided along the perimeter of each set of two work bays. It shall be four feet wide, except at the interface of the administrative core area and the first work bay adjacent to that core area, where the walkway shall be eight feet wide. Each safety walkway running parallel to the major axis of the work bays shall have a personnel door at either end to provide exit out of the building. The safety walkways that are perpendicular to the major axis of the work bays shall be free of any obstruction caused by a structural member or equipment support column. As detailed in Figure 3-1, safety walkways shall not bisect work bays. This space is not a component of the allowance authorized for circulation, as presented in Table 1-8, and shall not be construed as such.

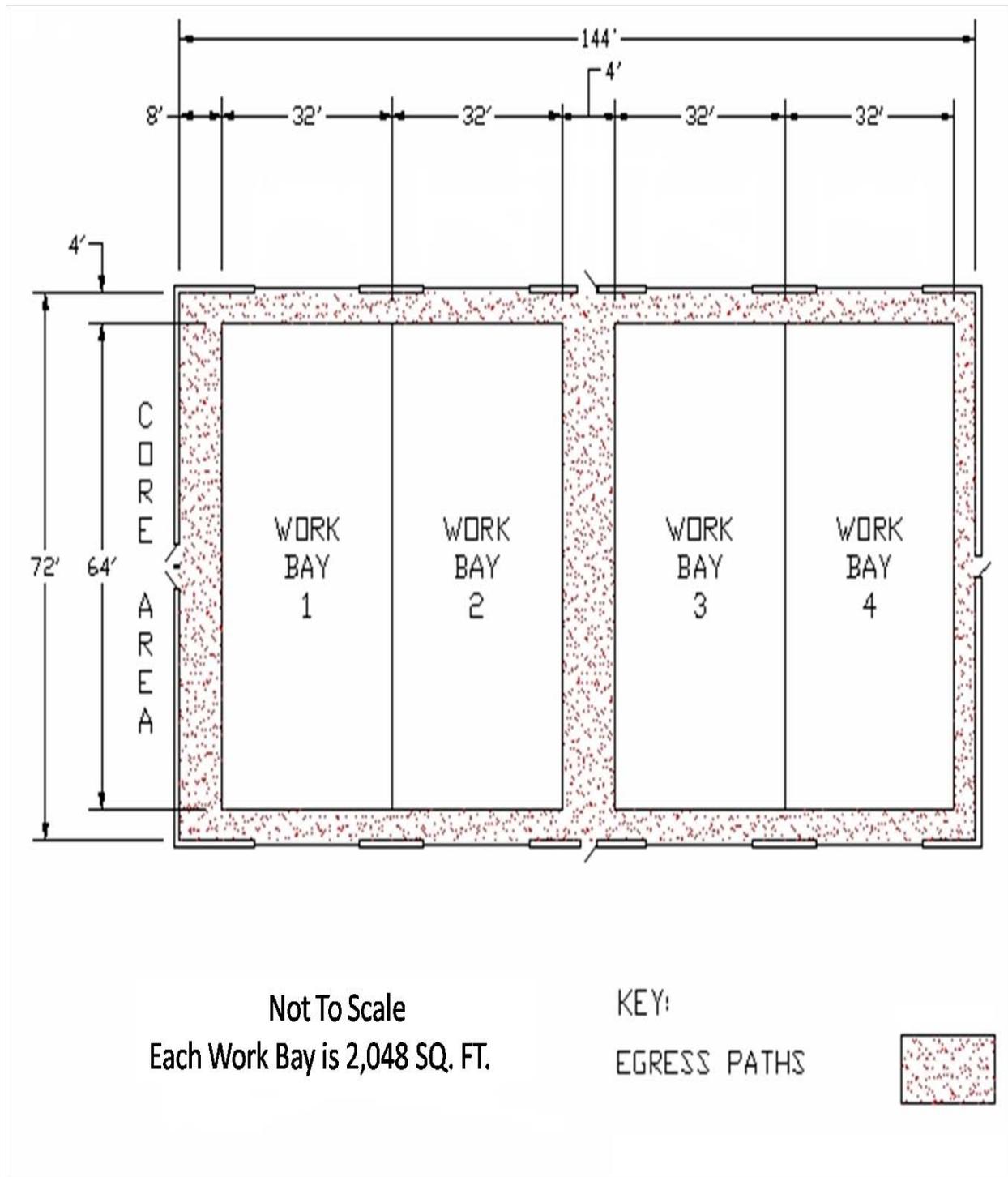


Figure 3-1. Egress & Work Bay Dimensions 1

e. Lifting Devices. When the operation performed in a general purpose or special purpose work bay requires the extraction or lifting of equipment or materials exceeding 50 pounds in weight, appropriate lifting devices are authorized as installed building equipment in the following areas:

Work Area	Min. Crane Capacity	Min. Hook Height	Qty	Remarks
GPWB	15 Ton	17 feet	1	Per each 5 work bays or fraction thereof (e.g. 4 work bays are authorized 1 crane, 6 work bays are authorized 2 cranes, etc.). Lifting device(s) should be installed to service 100% of all authorized GPWB areas.
Armament Bay <u>1/</u>	15 Ton 30 Ton for m-1 only	21 feet, 6 in.	1	Per SEMF supporting vehicles/equipment requiring higher hook height (e.g. M2/M3 or M1 series; Bradley Fighting Vehicle, STRYKER, etc.). Authorized one work bay (preferably an end bay). Should traverse the bay's length to perform maintenance on these vehicles)
Welding Bay <u>1/</u>	7.5 Ton	17 feet	1	
Body Bay <u>1/</u>	7.5 Ton	17 feet	1	If design places Welding and Body Bays adjacent to each other, the state should make every attempt to employ the same device to support both functional areas.
Engine Test Cell <u>1/</u>	5 Ton	14 feet	1	
Transmission Test Cell <u>1/</u>	3.5 Ton	14 feet	1	
Machine Shop <u>1/</u>	1 Ton	10 feet	1	
Radiator Test & Repair <u>1/</u>	0.5 Ton	10 feet	1	
Fuel & Ignition Repair <u>1/</u>	0.5 Ton	10 feet	1	
Canvas Shop <u>1/</u>	0.5 Ton	14 feet	1	

Lifting Devices Note:

1/ If shop/area is authorized

f. Other Installed Equipment. NG Pam 415-5, Chapter 4, contains a comprehensive, but not all inclusive listing of equipment by type that may be installed or built into SEMF. States should contact Army Environmental Programs Division (ARNG-ILE) if considering permanently installed pollution prevention equipment.

g. Outside Support Items. Supporting items or specialty areas that may be provided at SEMF are as follows:

(1) Cannibalization Area. An area of rigid pavement equal to the greater of 1,000 square yards or 10% of the area authorized for military vehicle parking and enclosed with a security fence and illuminated by security lights is authorized at CSMS and MATES with Support. If this enclosure is not adjacent to other paved areas, a 20 foot wide rigid paved access road is authorized. For programming purposes, rigid pavement shall be eight inches of concrete. Actual design will be determined by structural calculations.

(2) Vehicle Issue/Turn-in Area. A vehicle issue/turn-in area equivalent to 10% of authorized collocated military vehicle parking is authorized at an UTES or MATES. Area should be level-graded and have an aggregate surface. This area should have suitable security lighting and fencing.

3-4. Unheated Enclosed or Shed-Type Vehicle Storage Space

a. Federal support for enclosed or shed-type storage is authorized IAW NGR 415-10. This vehicle storage space may be constructed as a 'pole barn-type' structure with a shed roof and open sides or it may be constructed with enclosed sides and fitted with vehicle access doors.

b. Vehicle storage space shall be unheated and shall not exceed 66% of the normally authorized open-air military parking area. When enclosed or shed-type storage is provided, the amount of open air paved area authorized for parking of military vehicles at the site shall be reduced by the area of the covered/enclosed space. The remaining paved area is to be used for circulation and access to and from the covered or enclosed storage structure and parking remaining vehicles.

(1) For example, if a SEMF is authorized 100,000 SY for open air military vehicle parking and the NGR 415-10 requirements are met for enclosed or shed-type vehicle storage, then up to 66,667 SY could be used for enclosed parking. The remaining 33,333 SY would then be authorized for the circulation and access to and from the parking structure and parking remaining vehicles.

(2) Vehicle spacing must be tightly controlled. Vehicles should be parked nose to tail with only the minimum space required for personnel to maneuver between the vehicles to access operator or driver access doors on the vehicles. There would not be any ‘drive-through’ vehicle lanes.

(3) Overhead or rollup doors at approximately 25 feet on centers are authorized on two sides of enclosed structures at the rate of one for each 1800 square feet of floor area to provide for mass parking of vehicles without the need for internal circulation lanes.

d. A 60 foot deep concrete apron is authorized for each side of the facility with vehicle entrances.

3-5. Firefinder Radar (AN/TPQ36, AN/TPQ37, and AN/TPQ47) Facility

a. Space criteria. Each set is authorized a 20 foot by 40 foot net floor area as a special purpose readiness bay.

b. Location. This facility may be located either at a surface equipment maintenance facility or at a readiness center, whichever is the most cost effective and practical, but not at both. It should generally be located within a military vehicle parking area or adjacent to some other paved area.

c. All other space requirements not specifically indicated in this Chapter will be treated as exceptions to criteria. The State must fully justify such requests and the NGB proponent must concur with them before ARNG-ILI will approve including them in the programming documents and the final design of the project.

d. Facility design. For detailed design guidance, refer to NGB DG 415-2.

3-6. Unheated Controlled Humidity Preservation (CHP) Shelters

a. Federal support for CHP Shelters is managed by ARNG-ILS-M IAW Memorandum, ARNG-Z of 19 September 2007, and subject: National Guard Bureau Controlled Humidity Preservation Program Policy.

b. Equipment for preservation will be approved by the ARNG-ILS-M CHP Program Manager (PM) IAW ARNG-ILZ-A approved equipment preservation priorities.

c. CHP Shelter space shall be unheated and shall be calculated based on the operational shipping configuration of each approved piece of equipment plus one foot in all directions for circulation space.

d. When enclosed CHP space is provided, the amount of paved area (authorized for parking of military vehicles at the site) shall be reduced by the area of the preservation space.

e. CHP shelters shall be pre-engineered, un-insulated, unheated, and unlighted metal shelters of a design to accommodate a relative humidity (RH) of less than 50% RH at all times, and less than 40% RH 90% of the time; subject to conditions caused by an act of nature.

f. CHP Shelters shall not be provided with fresh water or sewer facilities and shall not be used for any purpose other than Controlled Humidity Preservation unless specifically approved by the ARNG-ILZ-A.

g. CHP Shelters shall be provided with a moisture vapor barrier and concrete floor designed for the heaviest type vehicle to be preserved (eight inches for track vehicles; six inches for wheel vehicles).

h. Manually operated overhead or rollup doors at each end of the CHP shelter are authorized as follows:

- (1) Two doors for each 5,000 Square Foot (SF) or 10,000 SF shelter
- (2) Four doors for each of 15,000 SF; 20,000 SF; 25,000 SF; or 30,000 SF shelters.

i. A 20 foot deep concrete apron is authorized in front of each vehicle entrance.

j. Final shelter design shall be as accepted from the contractor by the CHP PM in ARNG-ILS-M and approved by ARNG-ILI

Table 3-3. Schedule I, Office, Work, and Personnel Space Allowances in SEMF (Allowance in net square feet, exclusive of interior and exterior walls)

Functional Area	Basic Allowance ^{1/}	Field Maintenance	Sustainment Maintenance
1. Office Area			
a. General Supervisor	200	<u>2/</u>	<u>2/</u>
b. Supervisor	150	<u>2/ 3/</u>	<u>2/ 3/</u>
c. Production Controller	150	<u>2/ 3/</u>	<u>2/ 3/</u>
d. Inspection & Library	200	<u>4/</u>	<u>4/</u>

e. Administrative Assistant/Secretary	200	<u>2/</u> <u>4/</u>	<u>2/</u> <u>4/</u>
f. Common IT Space	NA	<u>5/</u>	<u>5/</u>
g. IT Support Activities (Server Room)	NA	<u>6/</u>	<u>6/</u>
h. Classroom	500	10 per Tech <u>7/</u>	10 per Tech <u>7/</u>
i. Conference Room	NA	<u>8/</u>	<u>8/</u>

Table 3-3. Schedule I, Office, Work, and Personnel Space Allowances in SEMF (Allowance in net square feet, exclusive of interior and exterior walls) Cont.

Office Area Notes:

- 1/ Basic allowance column applies to all surface equipment maintenance facilities. It is additive to any allowances authorized in the columns for field maintenance or sustainment maintenance.
- 2/ If position or specialty is authorized.
- 3/ Add 150 square feet for each required position greater than one.
- 4/ Plus 60 square feet per required position over one.
- 5/ Each TDA authorized Standard Army Management Information System (STAMIS) terminal supporting maintenance related programs (e.g. SAMS-E, etc.) is authorized 30 square feet and each printer 10 square feet. A copy of the Information Management Plan authorizing equipment should be included with the initial submission of the programming documents (DD Forms 1390/1391). Desktop computers and other pieces of single user information technology equipment are not eligible for additional floor space because they are considered part of the work area for the individual position.
- 6/ Size to be determined by coordination between State J-6 and ARNG-IMG-G prior to submission of programming documents. Recommend using a planning factor of 150 square feet.
- 7/ Total classroom size may not exceed 2,000 square feet.
- 8/ Authorized 400 square feet for facilities with four or more supervisors. None if less than four Supervisors.

Table 3-3. Schedule I, Office, Work, and Personnel Space Allowances in SEMF Cont.

Functional Area	Basic Allowance <u>1/</u>	Field Maintenance	Sustainment Maintenance
2. Personnel Area			
a. Latrine/Shower	250	<u>2/</u>	<u>2/</u>
b. Locker Room	125	<u>2/</u>	<u>2/</u>
c. Break Area	400	<u>3/</u>	<u>3/</u>
d. Physical Fitness Area	600	<u>4/</u>	<u>4/</u>

Personnel Area Notes:

- 1/ Basic allowance column applies to all surface equipment maintenance facilities. It is additive to any allowances authorized in the columns for field maintenance or sustainment maintenance.
- 2/ The total space authorized for the men's and women's shower and latrine areas is based on an allocation of 10 square feet for each authorized person plus the basic allowance as stated in the table. The total space allocated for men's and women's locker room is 12 square feet for each authorized person plus the basic allowance as stated in the table. These allowances are to be split into separate areas for men and women that are appropriately sized and configured to meet both local code requirements and anticipated building usage.
- 3/ Basic authorization is 400 square feet for up to eight full-time support personnel, with an additional 20 square feet per individual for 9 to 20 full-time support personnel requirements, 12 square feet per individual for 21 to 40 full-time support personnel, and eight square feet per individual for full-time support personnel exceeding 40. This space may be a single consolidated area or several smaller break rooms. Refrigerators, microwaves, etc. may be installed in this area, but ranges are not authorized.
- 4/ The basic allowance is authorized only when there are eight or more required full-time technicians designated on the TDA. For each additional required full-time technician over eight, the allowance increases by 30 square feet to a maximum of 1650 square feet.

Schedule I: Table 3-3 Cont.

Functional Area	Basic Allowance <u>1/</u>	Field Maintenance	Sustainment Maintenance
3. Work Area			
a. Tool Room	600	50 per GPWB <u>3/</u>	50 per GPWB <u>3/</u>

b. Supply Room	500	100 per GPWB <u>4/</u>	100 per GPWB <u>4/</u>
c. Battery Room	200	25 per GPWB <u>5/</u>	25 per GPWB <u>5/</u>
d. Comm/Electronic Shop	100	100 per Tech <u>2/</u>	100 per Tech <u>2/</u>
e. Instrument Repair Shop	350	100 per Tech <u>2/</u>	100 per Tech <u>2/</u>
f. Small Arms Repair Shop	125	100 per Tech <u>2/</u>	100 per Tech <u>2/</u>
g. Small Arms Test Room	440	N/A	<u>2/ 6/</u>
h. Vault (Small Arms)	150	<u>2/ 7/</u>	<u>2/ 7/</u>
i. Vault (Combat Vehicle Arms)	130	<u>2/ 8/</u>	<u>2/ 8/</u>
j. Injector Test Room	300	N/A	<u>2/</u>
k. Fuel and Ignition Repair Shop	525	N/A	<u>2/</u>
l. BII Storage/Issue	<u>N/A</u>	<u>2/ 9/</u>	<u>2/ 9/</u>
m. Machine Shop	1,600	N/A	<u>2/</u>
n. Carpenter Shop	1,500	N/A	<u>2/</u>
o. Lumber Storage Shed	500	N/A	<u>2/</u>
p. Canvas/Vulcanization Shop	800	N/A	<u>2/ 10/ 11/</u>
q. Missile Repair Shop	400	N/A	<u>2/ 12/</u>
r. Vault (Missile)	<u>N/A</u>	<u>2/ 13/</u>	<u>2/ 13/</u>
s. Calibration Room	400	N/A	<u>2/</u>
t. Calibration Storage	400	N/A	20 per 1000 Troops <u>2/</u>
u. Glass Repair Room	200	N/A	15 per GPWB>13 <u>2/</u>
v. Radiator Test & Repair Room	660	N/A	<u>2/</u>
w. COMSEC Repair Room	250	N/A	<u>2/</u>
x. Radiation Calibration Room	300	N/A	<u>2/</u>
y. Bulk POL Storage for Lube Sys			
2 to 6 GPWB	80		
7 to 10 GPWB	176		
11 & Over GPWB	272		
z. Bulk POL Storage	200	50 per GPWB>2 <u>14/</u>	50 per GPWB>2 <u>14/</u>
aa. CWHF	<u>15/</u>	<u>15/</u>	<u>15/</u>
ab. Bulky Equipment Storage	200 per GPWB	<u>16/</u>	<u>16/</u>
ac. Flammable Materials Storage	3% of net area	<u>17/</u>	<u>17/</u>
ad. Enclosed unheated storage	250 per first 4 GPWB	150 per GPWB> 4 <u>18/</u>	150 per GPWB > 4 <u>18/</u>
ae. Washer Dryer Utility Space	100	<u>19/</u>	<u>19/</u>
af. DSESTS/Fire Control Shop	N/A	N/A	200 per set

Work Area Notes:

1/ Basic allowance column applies to all surface equipment maintenance facilities except as noted as NA. It is additive to any allowances authorized in the columns for field maintenance or sustainment maintenance.

2/ If position or specialty is authorized.

3/ This additional tool room space is authorized for each authorized and programmed work bay greater than four.

4/ 100 square feet for the first full-time support individual and 60 square feet for each additional full-time support individual assigned as a supply assistant and/or equipment maintenance clerk may be partitioned off as office space. This office may not increase supply room authorization. A covered dock (if justified) or an apron is authorized.

5/ Total not to exceed 500 square feet.

6/ The net area of the Small Arms Test Room is comprised of a firing area four feet by eight feet, a firing lane tunnel four feet by 82 feet, and a bullet stop area four feet by 20 feet for a total of 440 square feet.

7/ The Small Arms Vault should be sized at 20 square feet for each 1,000 troops supported, but not less than 150 square feet.

8/ This vault is authorized only at a UTES or MATES. In addition to the basic allowance, an additional 2.5 square feet is authorized for each combat vehicle up to 460, then 1.75 square feet for each combat vehicle over 460, and an additional 0.5 square feet for each authorized M2/M3 (Infantry/Cavalry Fighting Vehicle). Double-leaf vault doors are authorized if materials handling equipment is used.

9/ BII not applicable for CSMS. Authorized 21.5 square feet per tracked vehicle and 4.0 square feet per wheeled

vehicle. The combat vehicles or wheeled vehicles to be used in computing the total BII space allowance are vehicles authorized to be permanently assigned to the UTES or MATES. The BII storage may be a separate structure and the inside area may be subdivided by wire mesh partitions to segregate by unit level. A 20 foot wide concrete apron with a cover overhead may be installed on one side of the warehouse to load BII with forklifts. The length of the apron shall not exceed the minimum lateral building dimension. A 20 foot by 20 foot covered loading dock is authorized for BII storage.

10/ A pit (approximately six feet square by three feet deep) may be provided in the Canvas Shop to allow the sewing machine to be installed level with the floor. The pit should be enclosed by a removable protective railing.

11/ An additional 200 square feet is authorized for each canvas repairman over one.

12/ The missile shop area authorization is based only on the largest unit supported, not on the sum of subordinate units supported. If the shop supports a brigade, it receives an additional 200 square feet; if it supports a division, it receives an additional 400 square feet.

13/ Vault size is six square feet per supported missile system as documented on equipment density listing. Vault should normally be collocated with the missile repair area.

14/ Storage may be freestanding or incorporated into the facility.

15/ See Table 1-10 - CWHF.

16/ This space is authorized to accommodate bulky maintenance equipment such as tire changers, floor jacks, portable lifts, equipment stands, and welding equipment. This space can be stand alone or incorporated into the GPWB.

17/ A detached prefabricated metal or masonry building of equivalent size may be used if this area is not incorporated into the facility. The allowance is 3% of total net area but no less than 100 square feet and no more than 600 square feet.

18/ Enclosed unheated storage. Detached buildings may be used, or an equivalent area may be incorporated within the facility to store major end items, items awaiting repair/direct exchange, and Class IX parts that are susceptible to damage from the outside elements. 150 SY of rigid concrete may be provided for access paving to the storage building. The storage area is determined based on the number of authorized field and sustainment maintenance work bays.

19/ This space, if utilized, shall be deducted from the facility management and storage authorization.

Legend for Schedule I

CV - Combat vehicles

CWHF - Controlled Waste Handling Facility

N/A - Not authorized

Tech - Full time employee in technician status assigned to the function

TR - Authorized aggregate supported troop strength

GPWB - General purpose work bay

SPWB - Special purpose work bay

WB - General purpose and special purpose work bays

Schedule II: Table 3-4

Table 3-4. Schedule II, Work Bay Authorizations for Surface Equipment Maintenance Facilities		
Use	Field Maintenance	Sustainment Maintenance
1. General Purpose Work Bay	<u>1/</u>	<u>1/</u>
2. Special Purpose Work Bay	<u>2/</u>	<u>2/</u>
a. Warm-up Bay	<u>3/</u>	<u>3/</u>
b. Welding Bay	1 <u>4/</u>	1 <u>4/</u>
c. Body Shop	N/A	1 <u>4/</u>
d. Optional Wash Bay	1 <u>5/</u>	1 <u>5/</u>
e. Paint Stripping Bay	N/A	1 <u>4/</u> <u>6/</u>
f. Paint Preparation Bay	N/A	1 <u>4/</u>
g. Paint Bay	N/A	1 <u>4/</u> <u>7/</u>
h. Engine/Transmission Test Cell	N/A	1 <u>8/</u>
i. Armament Bay	1 <u>4/</u> <u>9/</u>	1 <u>4/</u> <u>9/</u>
j. Inspection Bay	1 <u>1/</u> <u>4/</u>	1 <u>1/</u> <u>4/</u>

Schedule II Notes:

- 1/ See paragraph 3-3.d. for work bay determination of allowance.
- 2/ Special Purpose work bays shall be the same size as the general purpose work bays.
- 3/ Warm-up bays are authorized IAW Table 3-5.
- 4/ One bay authorized if specialty technicians are authorized to the facility.
- 5/ A wash bay is optional, but if constructed, it will be in lieu of one exterior wash platform.
- 6/ The net bay size is to be 32 feet by 64 feet (exclusive of safety walkways). The blasting equipment may be programmed from the military construction appropriation. The bay requires its own, adjacent mechanical room of approximately 500 square feet, which is in addition to the mechanical space authorized in Table 1-7. The type of paint stripping equipment must be approved in writing by ARNG-ILI prior to initiating design. The design of this space must be reviewed and approved in writing by NGB Industrial Hygiene (ARNG-CSG-P). Their review will include such aspects as the equipment installed, the methods employed for ensuring adequate air flows, and worker safety in general.
- 7/ The net bay size is to be 32 feet by 64 feet (exclusive of mechanical equipment). The paint booth may be programmed from the military construction appropriation and should be designed to fit within the bay, incorporating all local codes and regulations. The bay requires its own adjacent mechanical room of approximately 500 square feet, which is in addition to the mechanical space authorized in Table 1-7. In addition to the bay and the mechanical room, a paint kitchen and a personnel hygiene/equipment maintenance area of 180 and 200 square feet respectively are authorized. The design of this space must be reviewed and approved in writing by NGB Industrial Hygiene (ARNG-CSG-P). Their review will include such aspects as the equipment installed, the methods employed for ensuring adequate air flows, and worker safety in general.
- 8/ Authorized only where justified as a valid mission requirement submitted in writing to and approved by ARNG-ILS-M. If authorized, a total of 2500 square feet are authorized to house a transmission dynamometer test cell, an engine dynamometer test cell, and a control room for each to perform the diagnosis of transmissions and engines. The control rooms may be collocated or separate areas. Additional mechanical space may be provided if required and justified. Dynamometers are authorized for procurement with military construction funds as installed building equipment.
- 9/ Authorized only for facilities supporting M1 series tanks.

Table 3-5. Warm Up Bays 1/	
Number of GPWB	Number of Warm Up Bays
1 – 6	1
7 – 11	2
12 – 16	3
17 or more	4

1/ Warm-up bays are authorized for geographic areas where the outside winter design temperature is 12 degrees Fahrenheit dry bulb or less as designated in the Unified Facilities Criteria 3-400-02.

3-7. Bollards

Bollards are authorized to protect maintenance facilities IAW Design Guide.

Chapter 4

Section I

Aviation Facilities

4-1. General

a. Standards. This chapter establishes the space allowances for ARNG aviation facility construction projects.

b. Space allowances. All allowances are in net square feet, exclusive of interior and exterior walls. All Chapter 4 tables except 4-4 apply to facilities supporting either rotary wing aircraft or rotary and fixed wing aircraft. Only Tables 4-4 apply to stand-alone fixed wing facilities.

- (1) Refer to Table 4-1 for Space allowances for the hangar floor area.
- (2) Refer to Table 4-2: for Space allowances for specialized work areas.
- (3) Refer to Table 4-3: for Space allowances for the personnel support area.
- (4) Refer to Table 4-4 for Space allowances for stand-alone fixed wing facilities.
- (5) Refer to Table 4-5 for Space allowances for unheated aircraft storage.
- (6) Refer to Table 1-5 for allowances for Flagpoles
- (7) Refer to Table 1-7 for Facility Support Space allowances.
- (8) Refer to Table 1-8 for Circulation allowances.
- (9) Refer to Table 1-9 for Walls allowance.
- (10) Refer to Table 1-10 for Space allowances for Controlled Waste Handling Facilities (CWHF)

(11) All other space requirements not specifically indicated in the referenced tables will be treated as exceptions to criteria. The State must fully justify such requests and the NGB proponent must concur with them before ARNG-ILI will approve including them in the programming documents and the final design of the project.

4-2. Non standard Supporting Items

a. Aircraft parking apron. Outside parking and tiedown spaces are authorized for 50 percent of the authorized aircraft plus one parking/tie down space for transient aircraft (size to be based on CH-47). The layout and dimensions of the aircraft parking and hoverlane/taxilane area shall be according to UFC 3-260-01. Parking and hoverlane/taxilane facilities for aircraft shall consist of rigid concrete. A 20 foot wide access road of rigid concrete is authorized to connect the aircraft parking area to other vehicular pavement and the hangar apron on the site. States should coordinate parking apron layout with ARNG-AV prior to submission of programming documents, especially if they are requesting parking for more than 50% of authorized aircraft.

b. Taxiways. Taxiways of flexible pavement, 40 feet wide, are authorized. They shall be the minimum length required for a practical and economical site layout among hangar ramps, loading area, wash area, parking area, and the nearest exit point connecting to any other existing taxiway or runway system.

c. Shoulders. Aircraft parking ramp and taxiway shoulders of flexible pavement, where authorized in UFC 3-260-01, should be constructed in accordance with NGB DG 415-3.

d. Aircraft wash area.

(1) One aircraft washing apron, category code 11370, is authorized at each aviation facility, to be constructed of rigid concrete according to UFC 3-260-1. Authorized maximum allowance is 118 feet by 74 feet (140 feet by 110 feet if CH-47s). A roof type cover may be provided if required by local code to prevent storm water from draining into the sanitary sewer system.

(2) An exterior wash rack may be enclosed by a heated shed-type structure when the heating design temperature, designated in UFC 3-400-02, is minus (-) 10 degrees Fahrenheit or lower, or the annual snowfall exceeds 30 inches.

4-3. Special Aviation Items

Supporting items or facilities that may be provided at aviation facilities, when individually justified to and approved by ARNG-AV, include the following:

a. Aircraft Rescue and Firefighting Facility (ARFF).

(1) One station capable of accommodating assigned/approved apparatus and personnel is authorized when justified as an exception to criteria. This functional area may be located in a separate building or included in the layout of the main building, but is to be readily accessible to the flight line and aircraft parking area.

(2) A basic allowance of 800 square feet net area is allowed for the associated administrative and storage functions. An additional allowance of 800 square feet net area is authorized for each type ARFF vehicle authorized.

b. Ground support equipment (GSE) storage/maintenance area.

(1) Unheated enclosed or shed-type storage is authorized for GSE. A basic allowance of 1200 square feet net area is allowed for 16 or less authorized aircraft. For more than 16 authorized aircraft, an allowance computed at 20 square feet per aircraft over 16 is authorized in addition to the basic allowance.

(2) A heated area of 320 square feet (within the total allowance) may be provided for maintenance of GSE when the heating design temperature at the site is as designated in UFC 3-400-02, is minus (-) 10 degrees Fahrenheit or lower, or the annual snowfall exceeds 30 inches.

c. Airfield lighting. Pavement marking lights for runways, taxiways, hoverlanes/taxilanes, and aircraft tiedown area shall conform to requirements of TM 5-811-5 (except that, in cases of conflict with Federal Aviation Administration (FAA) guidance, the latter shall govern where the facility is located at a commercial airfield). At the parking ramps and aircraft tiedown areas, perimeter lights must be provided in accordance with TM 5-811-5.

d. Miscellaneous. Additional special aviation items must be justified on an individual basis as essential features, necessary for complete and safe operation of the aviation facility.

e. Special requirements for airfields. Runways, taxiways, aprons, navigational and approach aids, airfield lighting, and other related airfield requirements for aviation facilities non-located with active airfields shall be coordinated with and approved by ARNG-AV prior to submission of programming documents. Refer to UFC 3-260-01 for possible requirements.

f. Aviation Combined Arms Tactical Trainer (AVCATT) Parking Pads. A 35 foot by 70 foot rigid concrete parking pad with electrical power, telephone, and water service is authorized at each NGB approved site permitted an AVCATT location.

4-4. Unheated Enclosed or Shed-Type Storage Space

a. Federal support is authorized for enclosed or shed type storage of military aircraft authorized at an Army Aviation Support Facility (AASF). Refer to Table 4-5 for appropriate allowances. The number of military aircraft for which enclosed storage may be provided shall not exceed allowances provided by the applicable TOE/TDA, less those located elsewhere and those aircraft used to determine main hangar floor sizing. Allowances in this paragraph are in addition to the allowances for aircraft parking as stated in paragraph 4-2a.

b. Unheated enclosed storage is authorized for security and preservation of aircraft and mission accessory equipment per Table 4-2.

c. Federal support for enclosed or shed-type storage is authorized for wheeled vehicles and equipment.

d. Vehicle storage space shall be unheated and shall not exceed 66% of the normally authorized open-air military parking area. When enclosed or shed-type storage is provided, the amount of paved area (authorized for parking of military vehicles at the site) shall be reduced by the area of the covered space. The remaining paved area is to be used for circulation and access to and from the covered/enclosed storage structure.

e. Vehicle doors at approximately 25 feet on centers are authorized at the rate of one for each 1800 square feet of floor area to provide for mass parking of vehicles without the need for internal circulation lanes.

f. A 60 foot long (from the front of the building) concrete apron is authorized the length of each side of the facility with vehicle entrances.

4-5. Security

Aviation facilities are mandated to comply with the requirements of AR 190-51 and DA PAM 190-51 concerning the protection of aviation resources. Reference to these regulations is required to determine appropriate security measures.

Table 4-1. Space Allowances for Hangar Floor Area ^{1/}

AIRCRAFT TYPE	HANGAR BAY FACTOR	HANGAR ENVELOPE (per authorized bay)		
		Length ^{2/}	Width ^{2/}	Allowance ^{3/}
		C-12, C-26	0.2	70
C-23	0.2	70	80	5,600
C-35	1	70	62	4,300
OH-58 (4 Blades)	0.4	70	41	2,870

AH-64, LUH	0.4	70	60	4,200
CH-47, UH-60	0.5	105	66	6,930

Notes:

1/ Hangar floor size in feet and square feet.

a. The hangar floor net area shall be calculated by first multiplying the number of each type aircraft times the hangar factor (average of aircraft expected to be in the hangar for maintenance at a given time) for each aircraft type, rounded up to the next whole number. This will determine the required number of hangar envelopes for each type aircraft to be provided for within the hangar area. Actual square footage of the hangar will be based on logical layout of the aircraft envelopes with appropriate circulation.

b. The actual dimensions of the hangar floor will be based on the smallest rectangular area required to enclose the envelopes of the various type aircraft (with the envelopes arranged for movement of the aircraft in the same direction). In addition, the dimensions of the hangar floor shall include a perimeter wall and door clearance of 5 feet from the rotary wing aircraft envelopes and 10 feet from the fixed wing aircraft envelopes. A single-line drawing of the floor plans shall be drawn to scale on a DD Form 1391C and submitted with the programming documents.

2/ Hangar envelope dimensions include aircraft dimensions plus a minimum 5 foot working clearance and egress clearance required between aircraft. Envelope length for rotary wing aircraft (except CH-47) is based on UH-60 length plus 5-foot working clearance.

3/ Allowance in net square feet, exclusive of interior and exterior walls and perimeter circulation.

Table 4-2. Space Allowances for Specialized Work Areas 1/

Functional Areas	Basic	AH-64		
	Allowance	OH-58	UH-60	CH-47
1 Allied Shops				
a. Propeller/ Rotor <u>2/</u>	750	NA	NA	NA
b. Engine Inspection/Repair <u>3/ 4/</u>	600	NA	<u>5/</u>	<u>6/</u>
c. Pneudraulics <u>3/ 4/</u>	NA	200	300	300
d. Airframe /Welding /Structural <u>3/</u>	1650	NA	NA	NA
e. Paint <u>3/ 7/</u>	540	NA	NA	NA
f. Non-Destructive Inspection	400	NA	NA	NA
g. Component Cleaning Area	100	40	40	40
h. Avionics/Instrument <u>8/</u>	600	NA	NA	NA
i. COMSEC Storage <u>9/</u>	140	NA	NA	NA
j. Electrical <u>3/ 4/</u>	100	200	250	250
k. Night Vision Device/ASE shop	200	NA	NA	NA
l. Battery Room (nickel-cadmium) <u>10/</u>	200	NA	NA	NA
m. Armament Subsystem <u>11/</u>	600	NA	NA	NA
2 Special Tools Room <u>12/</u>	300	100	200	200
3 Repair Parts Room <u>12/</u>	400	100	200	200
4 Accessory Equipment				
TOE/TDA Storage <u>13/</u>	NA	40 <u>14/</u>	100	120
5 Arms Vault <u>11/15/</u>	300	NA	NA	NA
6 Bulk POL Storage <u>16/ 17/</u>	150	NA	NA	NA
7 Contractor Shop/Storage <u>18/</u>	NA	NA	NA	NA
8 Flammable/Combustible Storage	<u>16/</u>	NA	NA	NA

9	Controlled Waste Handling Facility	<u>19/</u>	NA	NA	NA
10	Unheated Storage <u>20/</u>	NA	80	150	250

Notes:

1/ Allowances are in net square feet, exclusive of interior and exterior walls. The amount of the basic allowance is added to the amount for the type of aircraft supported at the facility. If there is more than one type of aircraft supported, sum the allowances for each type of aircraft authorized to be supported at the site.

2/ Room size (15 feet by 50 feet) is based upon largest rotor blade authorized. A 1000 pound electric hoist on a monorail with trolley assembly extending across the length or width of the room is authorized.

3/ Not Authorized for Limited Army Aviation Support Facility (LAASF).

4/ Requires a minimum of two aircraft for space to be authorized. The aircraft assigned to any LAASF are to be included in computing the allowance for the supporting AASF. A separate allowance for this space is not authorized at any LAASF.

5/ 150 square feet authorized for each increment of 8 aircraft authorized at the site of the construction project.

6/ 200 square feet authorized for each increment of 6 aircraft authorized at the site of the construction project.

7/ The paint room is authorized for painting component parts, not complete aircraft. A prefabricated paint booth (approximately 8 foot by 12 foot with an opening for exhaust) is authorized to be installed in the paint room for painting of small parts and aircraft components.

8/ Basic allowance is for 1 to 30 aircraft. 15 square feet is authorized for each additional aircraft over 30 (up to a maximum of 2,400 square feet). The LAASF avionics/instrument shop and avionics float equipment is authorized a combined total of 300 square feet.

9/ Basic allowance is for 1 to 16 aircraft. An additional allowance of 3 square feet is authorized per aircraft for each aircraft over 16.

10/ Aviation facilities shall not be provided with a lead-acid battery room unless specifically requested, justified and approved by ARNG-AV.

11/ Applies only if OH-58D or AH-64 type aircraft are authorized to be supported at the site.

12/ Actual allowance is the basic allowance plus the allowance for each aircraft type. Even though there is only one column for AH-64, UH-60, etc., each listed aircraft is considered a separate type. Office space may be partitioned off for tool and parts attendant(s). However, this office must come out of the existing allowance.

13/ Figure shown represents only the per authorized aircraft figure.

14/ Increase allowance to 60 square feet per aircraft for OH-58D only.

15/ Additional space may be authorized on an individual basis. A single-line drawing of the floor plan and wall elevations showing the proposed lay-out of the authorized weapons systems, without mounts, shall be drawn to scale on DD Form 1391C and submitted with programming documents. Security of arms vaults and supply rooms must include an intrusion detection system, be in accordance by AR 190-11, and be approved by ARNG-ILI-F. Proponent for approval of additional space is ARNG-AV.

16/ A detached prefabricated metal or masonry building of equivalent size may be used if this area is not incorporated into the facility. The allowance is 3% of total net area but no less than 100 square feet and no more than 600 square feet.

17/ Increase the allowance 5 square feet for each aircraft authorized to be supported at the site.

18/ Per contractor, when authorized contract maintenance. Size: to be determined in coordination with ARNG-AV prior to submission of programming documents.

19/ See Table 1-10 CWHF.

20/ An unheated storage building for mission and aircraft accessory equipment with area authorized on a per aircraft basis. At its option the State may include this authorized space within the aviation facility or another adjacent facility.

Table 4-3. Space Allowances for Personnel Support Areas

Functional Areas	Allowance <u>1/</u>
1. Administrative and Training Area	
a. Security/Entry Lobby	<u>2/</u>
b. Supervisory Aircraft Pilot	250
c. Secretary	200
d. Supervisory Instructor Pilot	200
e. Flight Instructor (Safety) <u>3/</u>	175
f. Flight Instructors (Aircraft) <u>3/</u>	175 each
g. Administrative Support Area	220
h. Library/Classroom	400
i. Learning Center <u>4/</u>	300
j. Audio/Visual Storage	100
k. Simulation Devices <u>5/</u>	240
l. Flight Surgeon Administration/Examination Area	200
2. Operations	
a. Operations area <u>6/</u>	1400
b. Flight Operations Specialist <u>7/</u>	150
c. Tactical Operations Secure Area <u>8/</u>	240
d. Safety, Briefing and Examination Room <u>9/</u>	400
e. Flight Planning	600
f. Passenger Waiting/Briefing Area <u>10/</u>	240
g. Aviation Emergency Operations Center (AEOC)	<u>11/</u>
3. Aviation Life Support Equipment (ALSE) Shop	
a. ALSE Administration Area	150
b. ALSE Maintenance Support	1000
c. ALSE Storage	<u>12/</u>
4. Maintenance Administrative Area	
a. Flight Engineers (SI/FI)	175 each
b. Supervisory Maintenance Test Pilot	200
c. Aircraft Maintenance Supervisors	150 each
d. Production Controller <u>7/</u>	150
e. Aircraft Automation Clerk/Clerk Typist	100
f. Supervisory Supply Technician	150
g. Maintenance Test Pilots	150 each
h. Aircraft Inspectors (or Quality Assurance Supervisor and Technical Inspectors)	125 each
i. Technical Publications <u>13/</u>	400
j. Common IT Space	<u>14/</u>
k. IT Support Activities	<u>15/</u>
5. Information Technology Space	
a. Common IT Space	<u>14/</u>
b. IT Support Activities	<u>15/</u>
6. Locker Rooms <u>16/</u>	400
7. Break/Assembly Area <u>17/</u>	400
8. Toilets/Showers <u>18/</u>	500
9. Physical Fitness Area	<u>19/</u>

Notes:

1/ Allowance is in net square feet, exclusive of interior and exterior walls.

2/ A Security Entry/Lobby (up to 400 square feet) may be provided within the base facility in lieu of a guard house/access control facility.

3/ Basic allowance is for full-time support personnel. An additional 150 square feet is authorized for every two MTOE/TDA instructor pilot authorizations required to drill simultaneously.

4/ Basic allowance is for up to 50 crew members. An additional allowance of 4 square feet for each crew member above 50 is authorized.

5/ An additional 80 square feet is authorized for each authorized training device over 2.

6/ Allowance is based on 6 or more authorized aircraft. Decrease allowance to 800 square feet when fewer than 6 aircraft are authorized.

7/ An additional 100 square feet is authorized for every authorized position over one.

8/ This includes tactical operations secure storage, Secure Internet Protocol Router Network (SIPRNET), and Aircraft Survivability Equipment Trainer (ASET) areas.

9/ Authorized an additional 12 square feet per authorized crewmember greater than 20 for the authorized crewmember strength of the largest single aviation element supported. This allowance may be split into separate areas as required to accommodate the listed functions.

10/ If the facility is one story, the passenger waiting and briefing area shall be included with or adjacent to the operations area. If the facility is two stories and the operations area is on the second floor, the passenger waiting and briefing area shall be included on the first floor.

11/ An Aviation Emergency Operations Center (AEOC) of approximately 1200 to 1400 square feet. may be requested primarily for use in emergency situations and for training of battle captains and staff, tactical operations officers, and flight operations personnel. The request must be justified by the state and approved by ARNG-AV. No more than one AEOC per State will be approved. Approval will be contingent upon regional threat potential. The AEOC will require secure construction to accommodate secure communication equipment and flight-related data.

12/ Space authorized for ALSE storage for the particular facility in question is computed using the guidelines below. However, this is a maximum authorization. Actual authorization must be established for each case based on anticipated usage (i.e., how many of each of these are items actually to be stored, inspected, and repaired at the facility in question).

a. Storage of helmet, vest and gloves: 4 square feet per crewmember in addition to the 10 square feet per person authorized for a locker room for storage of personal flight gear.

b. Storage of individual life preservers: 8 square feet for every 8 individuals (crew members and passengers) who can be accommodated on board the authorized aircraft. Storage should be in conventional wall lockers at least 5 feet high.

c. Storage of Individual Overwater Survival Kits: 8 square feet for every 8 individuals (crew members and passengers) who can be accommodated on board the authorized aircraft at a location where flight of 30 minutes or more over water might be required. This is generally applicable to facilities located along the East, West and Gulf Coasts, Alaska, Hawaii, Puerto Rico, and the Virgin Islands. Storage should be in conventional wall lockers at least 5 feet high.

d. Storage of Individual Hot Climate Survival Kits: 8 square feet for every 8 individuals (crew members and passengers) who can be accommodated on board the authorized aircraft at locations in the southwestern U.S., Hawaii, Puerto Rico, and the Virgin Islands. Storage shall be in conventional wall lockers at least 5 feet high.

e. Storage of Individual Cold Climate Survival Kits: 8 square feet for every 8 individuals (crew members and passengers) who can be accommodated on board the authorized aircraft at locations in Alaska and the northern tier of States. Storage should be in conventional wall lockers at least 5 feet high.

f. Storage of 7-Man Life Rafts: To be determined on an individual basis, depending on the equipment actually on hand for utility and cargo aircraft assigned to facilities along the East, West, and Gulf Coasts, Alaska, Hawaii, Puerto Rico, and the Virgin Islands. Four cubic feet of storage volume is required for each raft.

g. Storage of Group Survival Kits: To be determined on an individual basis depending on the equipment actually on hand at a given site.

13/ For each aircraft greater than 16 authorized to be supported at the site, an additional 10 square feet is authorized. This space includes publications and Unit Level Logistics System-Aviation (ULLS-A) log book work areas.

14/ Each common use terminal is authorized 30 square feet and each printer 10 square feet. A copy of the Information Management Plan authorizing equipment should be included with the initial submission of the programming documents (DD Forms 1390/1391). Desktop computers and other pieces of single user information technology equipment are not eligible for additional floor space because they are considered part of the work area for the individual position.

15/ Size to be determined by coordination with ARNG-IMG-G prior to submission of programming documents.

16/ Aviation facility locker space is above and beyond readiness center locker space. In addition to the basic allowance in the table, facility is 12 square feet per individual based on the sum of the total authorized number of crew members and authorized full-time support personnel who are not crew members. This allowance is to be split

into appropriate facilities to support both men and women. The split should account for both minimum code requirements and anticipated building usage.

17/ An additional 20 square feet per person is authorized for 9 to 20 full-time support personnel, an additional 12 square feet per person is authorized for 21 to 40 full-time support personnel, and an additional 8 square feet per person is authorized for full-time support personnel exceeding 40.

18/ In addition to the basic allowance, you are authorized 10 square feet per person for whichever is greater: the largest contingent of authorized crew members training simultaneously, or the sum of the authorized full-time support and contract personnel. This allowance is to be split into appropriate facilities to support both men and women. The split should account for both minimum code requirements and anticipated building usage.

19/ An additional net area of 600 square feet is authorized for physical fitness equipment when there are 5 or more approved full-time technicians authorized on the TDA. For each additional approved full-time technician, the allowance increases 30 square feet to a maximum of 1,650 square feet. This allowance may be applied within the aviation facility or added to an existing physical fitness facility on the installation.

Table 4-4. Aviation Space Allowances for Fixed Wing Facilities

Functional Area	Basic Allowance <u>1/</u>
1. Hangar Floor <u>2/</u>	5950
2. Contractor Shop/Storage <u>3/</u>	800
3. Common IT Space	<u>4/</u>
4. IT Support Activities	<u>5/</u>
5. Aircraft Pilot/Contracting Officer's Representative (COR) <u>6/</u>	175
6. Aircraft Pilot <u>7/</u>	150
7. Flight Operations Specialist	200
8. Passenger Waiting Area <u>8/</u>	400
9. Break/Assembly Area	<u>9/</u>
10. ALSE Storage	<u>10/</u>
11. Locker Room <u>11/</u>	200
12. Toilets/Showers <u>12/</u>	250

Notes:

1/ Allowances are in net square feet, exclusive of interior and exterior walls.

2/ Actual square footage will be layout specific. However, minimum allowance is based on a maintenance area of 60' by 75' plus a 10' safety clearance area between the aircraft and walls. This allowance is only for a single aircraft in a standalone facility. If you desire space for multiple fixed wing aircraft, or if you are combining rotary wing and fixed wing aircraft into a common aviation facility, you must coordinate the applicability of these space allowances with ARNG-AV in advance of submitting your programming documents.

3/ Per contractor, when authorized contract maintenance. Locations with multiple aircraft of the same type shall be authorized 125 square feet per each additional authorized aircraft over 1.

4/ Each common use terminal is authorized 30 square feet and each printer 10 square feet. A copy of the Information Management Plan authorizing equipment should be included with the initial submission of the programming documents (DD Forms 1390/1391). Desktop computers, typewriters, and other pieces of single user information technology equipment are not eligible for additional floor space because they are considered part of the work area for the individual position.

5/ Size to be determined by coordination with state J-6 and ARNG-IMG-G prior to submission of programming documents.

6/ COR for aircraft maintenance contractor.

7/ Per each authorized full-time support personnel position for the facility.

8/ Authorized for standalone operational aircraft facilities only; space for other aviation facilities shall be derived from authorized circulation space.

9/ 20 square feet per authorized full-time support and contract personnel position, but not less than 200 square feet.

10/ Refer to ALSE Storage, Table 4-3, Note 12, for space allowance.

11/ In addition to the basic allowance in the table, facility is authorized 12 square feet per individual based on the sum of the total authorized number of crew members and authorized full-time support personnel who are not crew members. This allowance is to be split into appropriate facilities to support both men and women. The split should account for both minimum code requirements and anticipated building usage.

12/ In addition to the basic allowance, facility is authorized 10 square feet per person for whichever is greater: the largest contingent of authorized crew members training simultaneously, or the sum of the authorized full-time support and contract personnel. This allowance is to be split into appropriate facilities to support both men and women. The split should account for both minimum code requirements and anticipated building usage.

Table 4-5. Unheated Aircraft Storage Allowances

Type Aircraft	Length	Width	Allowance
C-12D/F/R	50	58	2900
C-12J	64	58	3712
C-23	64	78	4992
C-26	66	60	3960
OH-58	47	11	517
OH-58D	43	28	1204
AH-64	70	55	3850
UH-60, LUH	70	55	3850
CH-47	105	66	6930

Notes:

- a. Allowances are net and exclude all walls. The above dimensions include six feet additional length and six feet additional width, which provide for handling safety clearance zones between each individual aircraft.
- b. Facility is authorized an additional three foot wide perimeter egress aisle at the back and left and right side walls surrounding the aircraft modules.
- c. Facility is authorized a two foot wall and door thickness around the aircraft modules and egress aisle area.
- d. For programming purposes and in lieu of paragraphs b and c above, you may calculate your egress, aisle, wall, and door areas by adding 15% to the total area authorized.
- e. Egress, aisle, wall, and door authorizations will be adjusted during design review to reflect actual requirements.

Section II

ARNG Facilities Allowances for TUAS/UAS Ready Buildings

4-6. Operating Facility

- a. Standard Design or Sites Adaptable Plan.
- b. Maintenance, Training and Operations Functions
- c. Landing Strip

4-7. Training Facilities

Design Criteria designed to meet Local Requirements and Conditions, and Use Existing Facilities. Unmanned Aerial Vehicles (UAVs) are remotely piloted or self-piloted aircraft that can carry cameras, sensors, communications equipment or other payloads.

a. The Tactical UAS (TUAS) – the “*SHADOW*”

Shadow is typically operated and supported by a platoon of 27 Soldiers.

One system includes:

- Four (4) Unmanned Aircraft
- Ground Control System:
- Two (2) HMMWV GCSs
- Two (2) Ground Data Terminals
- Two (2) Base HMMWV for GCS support
- Two (2) Equipment Trailers with 10-kw generators
- Launcher
- Two (2) HMMWV with AVT and two (2) hydraulic launchers
- One (1) HMMWV AVT support vehicle with one (1) Equipment trailer
- Maintenance
- One (1) HMMWV Maintenance Section Multifunctional (MSM) with

b. Equipment Trailer

- One (1) HMMWV MSM support vehicle with equipment trailer. The maintenance storage facility will be laid out to accommodate 3 Shadow 200 airframes and 2 LMTV Ground Control Stations and the Air Vehicle Transport.

c. Shadow 200 Specifications

- Wingspan: 20.4 ft.
- Length: 11.8 ft.
- Maximum gross weight: 460 lb.

d. Tactical Control Station (TCS): The Tactical Control Station is the software and communications links required to control the TUAV, MAE-UAV, and other future tactical UAV's. It also provides connectivity to other C4I systems.

e. Unmanned Aircraft Systems (UAS) Ready/Building. The larger class UAS (Class III & IV) require obstruction clearances similar to manned aircraft and are generally located at Army Airfields/Heliports. The smaller class UAS are co-located with the parent brigade organization closer to the training complex thereby maximizing "on-station" time for training productivity. *Threshold:* At a minimum, all Class I (manpack) and Class II (generally, 12' wing span/rotor disk or smaller) shall be stored and maintained with the battalion-sized unit they are assigned to. *Objective:* For BCTs, sighting the UAS facility in immediate proximity or direct access to the training area will include the capability to launch and recover UAS from the tank trail or range road whenever land use and obstruction clearances allow.

4-8. Design Considerations

The TUAS/UAS Ready Buildings may be a separate permanent or pre-engineered building, or contiguous with a general warehouse. Design hanger door height to accommodate LMTVs. Plan for a wingspan of 20.4 feet and length of 11.8 feet. Aircraft launcher must be at least 100 feet from "occupied areas". Provide a launching pad that can launch in any directions. Size should be approximately 40 feet by 40 feet.

Provide vehicle staging area approximately 100 feet wide by 40 feet long. Comply with FAA 1:7 height restrictions near the runway. Surface in the parking/maintenance bays needs to be the same surface in a light color. Explore usage of swamp coolers in maintenance bay. Design drives to be 24-feet wide. Final design shall be approved by the State Construction and Facilities Management Officer (CFMO).

NEW FACILITY REQUIREMENTS (OPTIMUM)		
ARNG - TUAS Facility		
No. of Unit Clerks		1
No. of Training Devices		1
No of UAS Type Airframe		4
1 Administrative Area		700
a. Entry/Security Lobby		200
b. Platoon Leader		120
c. Platoon Sergeant		80
d. Standardization Pilot		80
e. Flight Operations Specialist/Unit clerk		80
f. Administrative Support Area 80 g. Audio/Visual Storage		60
2 Operations Area		1,700
a. Mission/Flight Planning		400
b. Library/Classroom/Briefing/Operator Work Area		600
c. Tactical Operations (Imagery) Secure Area/SIPRNET		100
d. Simulation Training Area (Shadow Crew Trainer)		600
3 Maintenance Area		3,840
a. Contractor office		120
b. Contractor Storage Area / Parts Room		160
c. QC/Prod Control Office/Tech Pubs.		460
d. General repair shop / Tool storage area		400
e. Ground Vehicle parking (140 sq ft / HMMWV)		700
f. Ground Equipment storage (GCS/GDT/launcher)		400
g. UAS parking/maintenance bays		1600
4 Break/Assembly Area		400
5 Toilets/Showers		400
6 Locker Rooms		300
7 Physical Training Area		240
8 Storage		600
Total TUAS Facility Net Area		8,180
Maintenance and Storage (3% of Net Area)		245
Mechanical/Electrical Room (5% of Net Area)		409
Telecom/IT (1% of Net Area)		82
Circulation Allowance (15% of Net Area/22% for Mult.e		1227
Structural Allowance (10% of Net Area)		946
Total TUAS Facility Gross Area		11,089

New Facility Requirements

Chapter 5

Training Center Facilities

5-1. General

a. Standards: This chapter establishes the space allowances at ARNG training centers, exclusive of space associated with educational facilities. Allowances are based on the ARNG-TR classification of Army National Guard Training Centers (reference NGR 5-3), habitual training relationships, mission of the training center, and training center manning. The training center classification will be one of the following.

(1) Local Training Areas (LTA). An LTA supports individual and unit training at or near home station. No full-time support or cantonment facilities are authorized. For facility allowances see para 5-4 below. Please note that except for para 5-4, the allowances and standards of this chapter do not apply to an LTA, but only to the other five types of training centers.

(2) Local Training Center (LTC). The LTC support individual and unit training at or near home station, and make the maximum use of training aids, devices and simulations systems (TADSS). Full-time support and minimal cantonment facilities are authorized. Construction will generally be limited to the requirements to support two companies simultaneously.

(3) Intermediate Training Center (ITC). All ITC are designed to support individual and collective training from squad through company level. Full-time support and limited cantonment facilities are authorized. Each ITC shall include limited small arms ranges and maneuver space. Training facilities are focused on individual through platoon weapons proficiency and company Army Training and Evaluation Program (ARTEP) maneuvers. Construction will generally be limited to the requirements to support three companies simultaneously.

(4) Collective Training Center (CTC). Typically, a CTC is designed to support individual and collective training up to battalion level. Full-time support and cantonment facilities are authorized. A CTC provides small arms ranges and maneuver areas for company force on force training. Construction will generally be limited to the requirements to support a single battalion or equivalent.

(5) Maneuver Training Center-Light (MTC-L). This is a maneuver training center designed to support individual and collective training for battalion and higher units. Full-time support and cantonment facilities are authorized. The MTC-L shall include ranges and cantonment facilities and must have sufficient maneuver area to support all the using units. An MTC-L has sufficient ranges and training land to support collective live fire proficiency, combined arms live fire exercises, and annual battalion training evaluations. Construction will generally be limited to the requirements to simultaneously support two to three battalions.

(6) Maneuver Training Center-Heavy (MTC-H). A maneuver training center which focuses on multiple battalions and above task force level training, using a combination of live fire ranges and maneuver training land. Full-time support and cantonment facilities are authorized. An MTC-H must have sufficient land to doctrinally accommodate fire and maneuver training using multiple scenarios over varied terrain. The MTC-H includes ranges and cantonment facilities, and must have sufficient land for combined arms maneuver. Construction will generally be limited to the requirements to support more than three battalions simultaneously.

b. Space allowances.

(1) Training center facility space allowances are based on the classification of the center as verified and set by ARNG-TR (NGR 5-3), habitual training relationships, mission of the training center, and training center manning. The classification drives the number and mix of facilities, which in and of themselves are of standard size. A project may consolidate some or all facilities into a single complex.

(2) Prior to submittal of the DD Forms 1390/91 for a training center project, States should contact ARNG-TR to verify the current classification of the training center, any requested ranges, and any requested deviations from the standard training center package. All such deviations must be processed as exceptions to criteria.

(3) Refer to Table 5-1 for the Type and Number of Unit Transient Training Cantonment Facilities.

(4) Use Table 5-2 to determine Unit Transient Training Cantonment Facility and Parking Allowances.

(5) Table 5-3 provides the space allowances for Training Center Billeting.

(6) See Table 5-4 for Troop Medical Clinic Allowances.

(7) Refer to Table 5-5 for Physical Exam Allowances.

(8) Refer to Table 5-6 for Chapel Allowances.

(9) Refer to Table 5-7 for Range Facilities Allowances.

(10) Refer to Table 5-8 for Training Center Headquarters Allowances.

(11) Refer to Table 5-9 for Range Operations and Maintenance Allowances.

- (12) Refer to Table 5-10 for ID Processing Center Allowances.
- (13) Refer to Table 5-11 for Department of Public Works Allowances.
- (14) Refer to Table 5-12 for Police Station Allowances.
- (15) Refer to Table 5-13 for Fire Station Allowances.
- (16) Refer to Table 5-14 for Recycle Center Allowances.
- (17) Refer to Table 1-5 for Space allowances for Flagpoles
- (18) Refer to Table 1-7 for Facility Support Space allowances.
- (19) Refer to Table 1-8 for Circulation allowances.
- (20) Refer to Table 1-9 for Walls allowance.
- (21) Refer to Table 1-10 for Space allowances for Controlled Waste Handling Facilities (CWHF)
- (22) All other space requirements not specifically indicated in the referenced tables will be treated as exceptions to criteria. The State must fully justify such requests and the NGB proponent must concur with them before ARNG-ILI will approve including them in the programming documents and the final design of the project.

5-2. Non standard Supporting Items

In planning the functional arrangement of facilities, the State shall give appropriate consideration to the existing site conditions, layout, and materials of construction in order to achieve maximum operating efficiency, cost effectiveness, and flexibility. The following exterior items are authorized Federal reimbursement for training center projects:

a. Roads:

The allowance for roads shall be as indicated on the approved State Real Property Development Plan (RPDP) and as specified below.

(1) Cantonment area. Main roads shall be 24 feet wide. Construction shall be flexible pavement unless rigid concrete is justified by an economic analysis. In addition, a 5 foot wide sidewalk is authorized for one side of each cantonment area road.

(2) Tank trails. Main tank trails shall be 30 feet wide, and secondary tank trails shall be 20 feet wide. Construction may be stabilized hardstand.

(3) Training Area Roads. Roads shall be 30 feet wide if tracked vehicles are authorized and 24 feet wide otherwise. Construction shall be improved gravel surface.

(4) Other roads. Flexible pavement or rigid concrete (if supported by an economic analysis) surface on other roads will be justified on an individual basis.

(5) NGB-ILI will determine the exact amount and type of pavement at the preliminary design review, based on an economical and practical site facility layout.

b. Vehicle wash platforms:

(1) The number of wash platforms authorized at a training center is in addition to those authorized for a MATES or UTES located on the training center but does include any wash platforms at other DoD component facilities on the training center that are available for ARNG use.

(2) The size and design of wash facilities shall be IAW TM 5-814-9.

(3) Other environmental features required by Federal, State and local codes will be included. Central birdbath wash facilities must be justified on a case-by-case basis.

(4) An exterior wash rack may be enclosed by a heated shed-type structure when the heating design temperature, as designated in UFC 3-400-02, is minus (-) 10 degrees Fahrenheit or lower, or the annual snowfall exceeds 30 inches and the Training Center is operational during the months when the conditions prevail.

5-3. Training Center Facilities

These facilities fall into three major categories: those facilities that are issued to training units, ranges and training areas used by training units, and facilities utilized primarily by the training center support staff to maintain the training center.

a. Facilities issued to training units (Tables 5-1 through 5-6):

(1) Authorizations will be based on the classification of the training center. However, they shall not exceed sizing to accommodate units with a habitual training relationship with the training center plus a growth factor of 25%. Space allowances are authorized in accordance with the approved RPDP, which includes the training center's Site Development Plan (SDP). Facilities not listed on the plan may be authorized when individually justified as an exception to criteria. See Tables 5-1 through 5-6.

(2) Aviation facilities.

(i) Helipads (rigid concrete and unlighted according to UFC 3-260-01) are authorized at training sites that are used more than 30 days per year by a major aviation unit.

(ii) Tiedown pad layout and dimensions of aircraft parking and maneuver area shall be according to UFC 3-260-01. Parking facilities shall be rigid concrete. Pads will be authorized when justified by usage for a minimum of 30 days per year or two annual training cycles. Unlighted reflective hover-lane markers and lighted wind socks are authorized in conjunction with the pads.

(iii) An aircraft maintenance area may be provided in conjunction with the tie-down pads. It shall be rigid paving, 75 feet by 75 feet or sized to accommodate CH 47 Aircraft.

(iv) Hardstand for vehicular access to the maintenance area and for maneuvering of refueling and service vehicles may be provided in conjunction with the tie-down pads/maintenance area. A 15 foot by 45 foot covered curbed rigid concrete pad is authorized for parking of each refueling vehicle.

(v) A grounding connection should be provided at each refueling pad.

(vi) Construction of new fixed wing, hard surfaced runways and associated facilities will be handled as exceptions to criteria. Sustainment, Restoration and Modernization (SRM) of existing facilities is authorized.

b. Ranges and training areas used by training units (Table 5-7).

Ranges are authorized at training centers when validated with a Range Complex Master Plan (RCMP) and approved by ARNG-TR. In addition ARNG-AV must validate the surface danger zone (SDZ). Range development projects require careful, deliberate planning by a team of trainers, engineers, safety specialists, environmental specialists, and resource managers. Ranges are authorized at training centers to support the annual weapons qualification/familiarization requirements for the Army (AR) and Army National Guard (ARNG) units habitually using the training center in accordance with DA Pam 350-38. Requirements must be documented in the State Range Development Plan.

(1) For each established aerial gunnery range, four firing/harmonization points are authorized. They shall be constructed of rigid paving, 40 feet by 40 feet – Ref. Training Circular No. 25-8 (TC 25-8) .

(2) For each established aerial gunnery range rearming/refueling points are authorized as required. They shall be rigid paving, 75 feet by 75 feet, Ref. TC 25-8, Hot refueling and approved by ARNG-AV. A hardstand service road may be provided for access by ammunition and fuel trucks.

(3) The supporting facilities at a range shall be based on the type and size of range authorized, and the space allowance will normally be limited to those in Table 5-7. The requirements of TC 25-8 and Corps of Engineers Huntsville Center (CEHNC) 1110-1-23 shall take precedence over authorizations in this table. Table 5-7 authorizations are for gross area, including walls and circulation.

(4) Authorizations are for standard small arms ranges. Ranges that have lower usage rates should have the number of firing lanes and support facilities scaled down or eliminated so that only those facilities necessary to render a complete and usable range are included in the project.

c. Facilities utilized by the training center support staff to maintain the training center (Tables 5-8 through 5-14). In addition to those facilities identified in Table 5-8 through Table 5-14 training centers are authorized the following space.

(1) Mail Room. A 600 sq ft mailroom is authorized to conduct mail room operations at training centers. Location and construction shall take force protection requirements into consideration.

(2) Access Control Facilities. A training center is authorized facilities housing operations for the regulation of access and/or egress to designated areas or facilities. Primary uses of these facilities are to provide entrance control, guard posts, and watchtowers. Such facilities offer observation and control of incoming and outgoing traffic, protection of security personnel from the elements, and an area to conduct personnel identification and visitor control.

(3) Land Mobile Radio System Tower: The quantity of land mobile system towers is based on the training center mission, size (acreage/square miles), number of ranges, and number of mobile radios in operation. Users include range operations, facilities, equipment, and vehicle maintenance, fire and emergency services, medical response, and air and ground evacuation.

(4) Soldier Readiness Processing (SRP) Facilities. As authorized by ARNG-TR, those training centers designated as a Power Projection Platform/Power Support Platform or those training centers with a requirement to deploy units to the mobilization station once SRP is completed are authorized an SRP facility. Primary tasks supported by this facility (or facilities) are administrative (records review, legal document preparation, finance review) and medical (vaccinations, dental, physical exams). Ideally, all SRP facilities should be co-located to facilitate command and control of the units being supported. Waiting areas should be designated to support company sized units and to conduct required briefings and group instructions. There are normally two waiting areas required, one for units beginning in-processing and one used as a holding area for processing Soldiers.

(5) Training Aids Support Center (TASC)/ Multiple Integrated Laser Engagement System (MILES) Warehouse). Authorizations are for TASC items issued to the training center to support the units that habitually train there. To determine the authorized size, multiply the required storage space times 2 (for intrafunctional circulation) and add 130 square feet per assigned employee and 200 square feet for a device testing and repair center. TASC equipment has specific limitations on how many storage containers can be stacked on one another. To calculate the storage space for each separate type of item multiply the numbers of containers times the size in square feet of the container and then divide by the authorized number of containers in a stack.

(6) Museums. Museums are authorized if they are recognized by the Center for Military History. Museums are authorized Federal support for construction, sustainment, restoration, modernization, and facilities operating costs if they are specifically recognized and approved in writing by Office of the National Guard Historian (NGB-PAH) and approved for DOD support by ARNG-ILI-E.

(7) Ammunition Supply Point (ASP). An ASP is authorized at training sites, when justified and approved by the Department of Defense Explosive Safety Board (DDESB).

(i) Ammunition related projects and projects within the quantity distance arc (QDA) of ASP facilities will not receive approval to go beyond conceptual design until the State receives DDESB approval of the preliminary site plan. Such plans must comply with AR 385-64, DA Pam 385-64, U.S. Army Technical Center for Explosives Safety Publication (USATCESP) 385-02, and other appropriate publications.

(ii) Storage shall be according to AR 385-64, DA Pam 385-64, and other appropriate DA and DoD publications. US Army Corps of Engineers (USACE) standard drawings should be used as the standard design for earth covered steel arch magazines. A limited or small quantity of ammunition may be stored in above ground structures or reinforced above ground magazines (RMAG), if approved by DDESB.

(iii) In addition to meeting all safety and structural requirements, ammunition storage projects shall include fencing, security lighting and intrusion detection systems as required by AR 190-11 and approved by ARNG-ILI

(iv) A covered loading dock fitted with a dock leveler is authorized.

(v) ASP administrative offices, where no ammunition operations are conducted, should be located at Inhabited Building Distance (IBD) from ammunition storage or operations.

(vi) A surveillance/operation building is authorized at all ASPs.

(vii) A residue building is authorized at all ASPs.

(viii) A vehicle marshalling/inspection area large enough to hold all the ammunition vehicles of the ASP's largest customer is authorized near the entrance of the ASP.

(8) TISA. A TISA is authorized only at locations where commercial supplies are not available within a reasonable distance. Prior to submitting DD Forms 1390/1391 programming documentation for the establishment and construction of a TISA, States shall contact ARNG-ILS to determine if a facility is authorized and to obtain guidance on justification and space allowances. Any requested TISA shall be considered an exception to criteria.

(9) Storage facilities. Warehouses, hazardous materials (HAZMAT) storage, enclosed vehicle storage, enclosed equipment storage, etc., are authorized, when appropriate and justified, to store and manage the materials, supplies and equipment required by the training center to support the units/personnel utilizing the training center. Space allowances are calculated based on cubic feet, stack height, personnel authorized, and intra-functional circulation required. Allowances vary between training centers based upon the mission and may include but are not limited to storage for:

(i) Linens

(ii) Billeting furniture

(iii) Office furniture

(iv) Kitchen equipment

(v) Mission specific supplies/equipment

(vi) Morale, Welfare, and Recreation (MWR) supplies

(vii) Medical supplies

(viii) Miscellaneous Class II supplies

(ix) Prepositioned unit equipment

(x) Training Unit Class IV/V (replicated) storage

(10) Environmental Facilities. The facilities in this area vary from training center to training center. These facilities are authorized based upon the support mission of this section, the number of required employees (Active Guard/Reserves (AGRs), military technicians, Federally reimbursed State employees, and contractors), and the amount and type of equipment required.

(11) Parade Field. Training centers are authorized an area that provides open space for military ceremonies, outdoor training, and conduct of physical exercise. The parade field should include permanent or portable bleachers, a 600 square foot covered reviewing stand and, electricity to power a portable public address system.

(12) Running track/multipurpose athletic field. Training centers are authorized a facility to conform to the standards established in TC 3-22.20. The track and athletic field is only authorized for individual preparation for and conduct of the Army Physical Fitness Test (APFT).

(13) Potable water point(s). Potable water points shall be strategically located in order to fully support training units.

(14) Training Center Communications. Facilities to support the telecommunications hub(s) are authorized as required to support the training center in coordination with the State's J-6.

5-4. Local Training Areas

a. General. Facilities may be of a type consistent with training in a field environment.

b. Field kitchens. Construction of field kitchens shall consist of a concrete floor and lightweight wood or metal roof structure, with 4 foot high siding and screens above. Wood shutters may be provided to cover the screens.

c. Mess shelter. Construction of mess shelters shall consist of a concrete floor and lightweight wood or metal roof structure. Screening or siding may be authorized if justified.

d. Latrines. Latrines shall consist of a concrete floor, lightweight wood or metal roof structure and wood, metal, or concrete block walls. Ventilation openings shall be screened and shuttered. No windows are authorized. Unless an existing sanitary system is available at the site, concrete holding tanks/pits shall be provided in accordance with applicable Federal, State, and local environmental laws and regulations.

e. Vehicle wash platform. A wash platform may be authorized, if justified.

f. Others. All other facility requirements not specifically indicated shall require approval of an exception to criteria.

Table 5-1. Type and Number of Unit Transient Training Cantonment Facilities

Facility 1/	LTC	ITC	CTC	MTC-L	MTC-H
1 Billets 2/	380 spaces	570 spaces	1,000 spaces	2,100 spaces	4,200 spaces
2 Dining Facility	200 person, 2/	200 person, 3/	200 person, 3/ 1 400 person	3/	3/
3 Div. Headquarters	NA	NA	NA	NA	1
4 Bde. Headquarters	NA	NA	NA	1	2
5 Div/Bde Support Fac.	NA	NA	NA	0	2
6 Bn Headquarters	NA	NA	1	3	6
7 Co. Supply/Admin	2	3	6, 4/	14, 4/	24, 4/
8 Physical Fitness Area	1/ 5/	1/ 5/	1/ 5/	1/ 5/	1/5/
9 Bn Sup/Rat Breakdown Cleaning/Maint Bldg	NA	NA	1	3	6
10 6/	760 sq. ft	1,140 sq. ft.	3,000 sq. ft.	30,000 sq. ft	45,000 sq. ft.
11 Battalion Maint Shelter	NA	NA	1	3	6
12 Troop Medical Clinic	NA	NA	1	1	1
13 Physical Exam Center	NA	NA	NA	1,7/	1,7/
14 Vending Machine/ Public Telephone shelter	NA	NA	1	3	6
15 Training Device/ Simulation Center	8/	8/	8/	8/	8/

Table 5-1. Type and Number of Unit Transient Training Cantonment Facilities Cont.

16	Distance Learning					
	Center	9/	9/	9/	9/	9/
17	General Instruction	1,000, 10/	1,500, 10/	2,400, 10/	2,700, 10/	3,000, 10/
	Buildings Base					
18	Chapel	1,11/	1,11/	1,11/	1,11/	1,11/

1/ Authorizations will be based on the classification of the training center. However, they will not exceed sizing to accommodate units with a habitual training relationship with the training center times a growth factor of 25%.

Space allowances are authorized in accordance with the approved State RPDP, which includes the training center's SDP. Facilities not listed on the plan may be authorized when individually justified as an exception to criteria.

2/ The numbers depicted are maximum authorizations. Actual authorizations will be calculated based upon the habitual peak training unit requirement plus 10% to allow for lost bed spaces to allow for unit integrity. Training centers will have to justify the allocation of spaces among barracks and Bachelor Officer's Quarters (BOQ) based on the makeup of those units that have a habitual training relationship with the training center.

3/ Dining hall allowances equal authorized billeting spaces. Up to one-half of the allowance may be company-sized mess halls; the remainder should be served by 400 or 800 persons sized dining facilities.

4/ Plus one building per battalion for a support element headquarters. For unheated storage, detached buildings may be used, or an equivalent area may be incorporated within the facility.

5/ TI 800-01, Appendix H, updated 22 June 2002. The space criteria for physical fitness centers are shown in the table below. Generally these facilities include gear issue control, gymnasium, locker rooms, offices, exercise room(s), spectator area, storage, and toilet facilities. This type of facility is intended to be capable of supporting basic physical fitness skill training requirements. New physical fitness facilities shall be designed in accordance with technical criteria for U.S. Army Physical Fitness Facilities.

Space Criteria for Physical Fitness Facilities		
Military Population	Area (sf)	Area (square meters)
251 to 1,000	27,771	2580
1,001 to 3,000	44,347	4120

Military population is defined as all personnel (AGR, technician and Federally reimbursed State employees) assigned to the training center, plus 25% of their dependents, plus 10% of habitual training unit strength. At training centers where the population is less than or equal to 250, refer to Table 5-2 to obtain the space authorization for a Physical Fitness Facility.

6/ This allowance is for buildings in which units clean and maintain small arms weapons and basic initial issue equipment. For each MTC-L and MTC-H, there shall normally be one per authorized battalion headquarters. For an ITC or LTC, there shall normally be one per authorized company supply/admin building. For a CTC, the State may choose between one consolidated building or one per authorized company supply/admin building.

7/ Space is authorized if validated and approved by ARNG-CSG. See Table 5-5 for space allowances.

8/ Training centers are authorized any facility listed in DA Pam 415-28 with a facility category code beginning with 172 and 179 so long as these facilities are required by habitual users of the training center and are approved by ARNG-TR

9/ Space is authorized if validated and approved by ARNG-ILS-L. This space is in addition to any classroom space otherwise authorized.

10/ Classroom space is authorized using the formula 10 square feet per person based on the strengths of those habitual training unit(s) that train simultaneously, plus the basic space from the table. An auditorium with inclined floor and installed seats is authorized for CTC and larger level training centers. Auditorium space is subtracted from the authorized classroom space.

11/ For chapel space allowances, see Table 5-6.

Table 5-2. Unit Transient Training Cantonment Facility and Parking Allowances

Standard Facility 1/	Net Square Feet	Admin. Vehicles Parking (sq yd)

1. Division Headquarters	11,110	900
2. Brigade Headquarters	7,120	600
3. Battalion Headquarters	5,196	400
4. Battalion Supply/Ration Breakdown	2,409	400
5. Company Supply and Administration	2,980	200
6. Dining Facilities		
a. 200 Person	4,500	200
b. 400 Person	8,400	300
c. 800 Person	14,800	400
7. Troop Medical Clinic	2/	500
8. Battalion Maintenance Shelter 3/	7,204	
9. Vending Machine/Public Telephone Shelter	200	
10. Physical Fitness Area 4/	2,050	400
11. Motor Pool (per battalion/sep company size element) 5/		8,000
12. Ranges		
a. Admin/Basic		150
b. Wheeled Vehicles		No firing lanes x 50 divided by 2
c. Tracked Vehicles		Estimated number of tracked vehicles to be on range times 75
13. Div/Bde Support Facility		
a. Heated Storage	2,690	400
b. Covered Storage	10,000	
c. Open Storage (Fenced)	6,000 Sq Yds	

Notes:

1/ Allowance is per facility/area as authorized in Table 5-1

2/ The Troop Medical Clinic shall provide a scope of care directed by Health Services Command to eligible military personnel. Sizing shall be based on Table 5-4.

3/ The shelter should be an open-shed type enclosed on three sides with 6-inch rigid concrete floor and up to 400 square feet may be enclosed for an office and latrine. The shelter may be enclosed on four sides and heated if located geographically where the outside design temperature is 15 degrees Fahrenheit dry bulb or less designated in UFC 3-400-02 or the annual snowfall exceeds 30-inches as designated in UFC 3-400-02; and where the shelter is required to be used for winter annual training/Inactive Duty Training (IDT). Maintenance bays for oversized vehicles will be addressed as exceptions to criteria.

4/ An additional 22 square feet per TDA full time position is authorized for shower/locker/latrine space. 450 square feet of the basic allowance is also for this purpose. This portion of the allowance is to be split into appropriate facilities to support both men and women. The split should account for both minimum code requirements and anticipated building usage. If there are readiness centers, educational facilities, logistics facilities, and aviation facilities located on the training center, they are not authorized a separate physical fitness area. Instead, the TDA full-time authorizations for all activities on the training center should be combined and multiplied by 22 to get the additional allowance for shower/locker/latrine space.

5/ Where more than one motor pool is to be constructed, they should be contiguous to accommodate varying sizes of battalions/separate companies. This area may be fenced.

Table 5-3. Training Center Billeting Allowances 1/

Pay Grade	Open Bay 2/	1 + 1 3/	Private 4/
E4 and below	90 SF/person	90 SF/person	NA
E5 and E6	90 SF/person	135 SF/person	NA
E7 through E9	NA	250 SF/person	250 SF
W01, CW2, 01, 02	NA	NA	250 SF
CW3-CW5, O3-O6	NA	NA	250 SF
General Officer	NA	NA	430 SF
Lounge	10 SF/person	10 SF/person	10 SF/person
Laundry	144 SF/20 billeting spaces	144 SF/20 billeting paces	144 SF/20 billeting spaces

Notes:

1/ Allowance is in net square feet, exclusive of interior and exterior walls and of a 20 square foot closet in each 1+1 and private room. States must justify the split among the three configurations of rooms and the number/location of separate buildings. HVAC is authorized.

2/ No more than 20 persons per room with an additional allowance of 10 square feet per person for a latrine (including showers).

3/ One individual per room sharing bath/service area of 100 square feet (not included in the allowance shown above).

4/ One individual per room with a private bath/service area of 100 square feet (not included in the allowance shown above).

Table 5-4. Troop Medical Clinic Allowances 1/

Functional Area	SF	Notes
1. Clinic Entrance	50	Plus 50 SF covered entrance
2. Entrance Lobby	200	
3. Public Toilet	380	
4. Information Desk	60	
5. Radiology	360	
6. Clinic Pharmacy	240	
7. Advise Nurse Area	100	Plus 60 SF/nurse
8. Appointment Clerk	130	
9. Central waiting		3 seats/provider, 16 SF/seat, except that 5% of seats are 25 SF for handicapped/litter patients
10. Reception control	140	
11. Screening, weights, & measures		80 SF each, 1 room per 4 providers or fraction thereof
12. Provider exam rooms		120 SF each, 2 exams rooms/provider
13. Isolation exam	140	
14. Dedicated isolation toilet	60	
15. Patient toilets	220	
16. Administrative Office	400	Plus 130 SF/admin person assigned
17. Provider's office		130 SF each
18. Nurse manager	130	1 per 10 nurses
19. Nurse's workroom	130	Plus 40 SF per nurse above 4
20. NCOIC/LCPO/LPO Office	130	One per provider team
21. Clean utility room	120	less than or = 15 exam rooms
	150	16 to 30 exam rooms
	160	>30 exam rooms
22. Soiled utility room	90	less than or = 15 exam rooms
	120	16 to 30 exam rooms
	150	>30 exam rooms
23. Scope wash room	120	
24. Equipment storage	100	
25. Team conference room	250	Per provider team of 6-8 persons
26. Litter/wheelchair storage	60	
27. Staff lounge	140	
28. Staff lockers	282	
29. Staff toilets	380	
30. Janitorial closet	60	
31. Treatment room - GP	175	1 per 6 providers

32. Holding room	175	
33. Treatment room, 2 station	340	
34. Immunization Waiting Area		16 SF per space. 12 spaces per injection station
35. Immunization Room	215	One per primary care clinic; one station. Multiple stations may be authorized for more than 12 immunizations per hour requirement.
36. Immunization Holding area	100	One per immunization room
37. Orthopedic Appliance Mod, Prep, & Cast Room	140	
38. Laboratory (Mini Lab)	60	

Note: 1/ Based on DoD Space Planning Criteria for Health Facilities, 28 January 2002.

Table 5-5. Physical Exam Allowances 1/

Functional Areas	Allowances		
	Exams per Year		
	161-320	321-640	641-1280 2/
1. Reception, Waiting and Form Writing	210 SF	280 SF	350 SF
2. Doctor's Office (80 sf each)	80 SF	80 SF	160 SF
3. Exam Room (110 sf each) 3/	220 SF	330 SF	550 SF
4. History Station	70 SF	70 SF	105 SF
5. Height & Weight Station	70 SF	70 SF	70 SF
6. Blood Pressure and Pulse Station	70 SF	70 SF	70 SF
7. Electronic Consult System (ECS) and Tonometry Station	in exam room	110 SF	110 SF
8. Lab	70 SF	70 SF	70 SF
9. Blood Specimen Collection	70 SF	70 SF	70 SF
10. Specimen Toilet	36 SF	36 SF	60 SF
11. Vision Test	70 SF 4/	70 SF 4/	70 SF 4/
12. Hearing Test	90 SF	150 SF	210 SF
13. Dental Check (100 sf ea)	100 SF	100 SF	200 SF
14. Circulation	345 SF 4/	485 SF 4/	675 SF 4/

Notes:

1/ Authorized where physical examinations are conducted at the training center. On those training centers that are required both a Troop Medical Clinic (TMC) and Physical Exam Station, they should be co-located to take advantage of like type equipment and space.

2/ For over 1280 exams/year, use the space data for 641-1280 and increase the number of days per year that the facility is operated.

3/ One room may be used for consulting, review of completed physical examination paperwork, weight control counseling or similar purposes.

4/ An additional 140 square feet is authorized to accommodate eye examinations if the facility is authorized to conduct flight physical examinations. The circulation space should then be increased by 20 square feet because of the additional 140 square feet for the eye examinations.

Table 5-6. Chapel Allowances

1. Chapel	10.5 sq. ft/seat (minimum 335 sq. ft) 1/
2. Altar	100 sq. ft
3. Storage	100 sq. ft
4. Chancel	100 sq. ft
5. Chaplain's Office	140 sq. ft plus 120 sq. ft for each additional chaplain
6. Chaplain Assistant and Waiting	120 sq. ft
7. NCOIC	120 sq. ft
8. Chaplain Trainee	100 sq. ft plus 60 sq. ft for each additional trainee

9. Counseling Room	140 sq. ft (1 per every 3 Chaplains – minimum 1)
10. Rest Rooms	3 sq. ft/seat

Note:

1/ Determined by the State Chaplain, based on the habitual training unit historical worship service requirements. (Reference DoD Mil Hdbk 11-90, September 1987 and DoD Space Planning Criteria for Health Facilities, 28 January 2002)

Table 5-7. Range Facilities Allowances

Facility (See Note)	Gross Sf
1. Range Control Tower	100, 144 or 256 <u>1/</u>
2. Target Operations and Storage Building	800 <u>2/</u>
3. Ammunition Breakdown Building	240 <u>3/</u>
4. Latrines	200 <u>4/</u>
5. Concurrent Training Building (Bleacher Building)	600 or 800 <u>5/</u>
6. Mess Shelter	800 <u>6/</u>
7. Vehicle Parking	<u>7/</u>
8. Fencing	<u>8/</u>
9. Road Width	<u>9/</u>
10. Foxholes-Firing Positions	<u>10/</u>
11. Walks	<u>11/</u>
12. Range Flag/Safety Barriers	<u>12/</u>
13. Range Sign	<u>13/</u>
14. Range Utilities	<u>14/</u>
15. Range Communications	<u>15/</u>

Notes:

Data in this table is for planning purposes for range modernization and/or construction of new ranges. TC 25-8, Appendix D, lists additional range components, and TC 25-8 and CEHNC 1110-1-23 shall take precedence over data in this table.

1/ The range control tower is authorized 100 square feet for non-Automated Target System (ATS) ranges, 144 square feet for small arms ATS ranges and 256 square feet for ATS-equipped tank ranges. For non-ATS ranges, the construction shall be an open platform on either steel or wood pole supports. The height shall be 5 to 18 feet contingent upon the topography of the range. For ATS ranges, the tower shall follow the Army Corps of Engineers standard plans and may be fenced.

2/ The target operations/storage building should be divided into two separate areas by means of a partition. The target operations area will be authorized lighting, windows, heating and insulation. The storage area will be authorized gravity-type ventilation and lighting.

3/ The ammunition breakdown facility shall consist of 120 square feet of enclosed space. A lean-to of up to 120 square feet covering the issue counter, which may also be used for a weapons cleaning area, is recommended.

4/ The latrine waste disposal method of choice is the aerated vault system. Other systems (including water-borne systems) may be used if documented as more cost effective.

5/ The concurrent training facility (CTF) may consist of a bleacher enclosure (enclosed on three sides) of 600 square feet. With ARNG-TR authorization as an exception to criteria, an 800 square foot general instruction building (GIB) may be constructed. The two situations which support a GIB are when required training typically coincides with severe weather conditions at the training center and when there are ranges such as the Military Operations on Urbanized Terrain (MOUT) assault course and combat lanes training courses, which have special training requirements.

6/ The Mess Shelter may be a walled facility complete with a roof and permanently attached tables (up to three rows).

7/ The formula for vehicle parking area is as shown in Table 5-2 above.

8/ Fencing and signage are required in accordance with DA Pam 385-63, para 2-2, to enclose the impact areas of all ranges that produce duds/unexploded ordnance (UXO). Fencing may also be authorized for ranges with unusual

security requirements. Validation for this must be provided by the State Antiterrorist/Force Protection/Safety Officer and validated by ARNG-TR as required to meet documented security requirements.

9/ Roads that will support wheeled traffic shall be authorized a width of 12 feet for lengths that normally support unidirectional traffic and 24 feet for those areas in which bi-directional traffic is high frequency or required. Roads that will support tank traffic shall be authorized a width of 15 feet for lengths that normally support unidirectional traffic and 30 feet for those areas in which bi-directional traffic is high frequency or required.

10/ See Corps of Engineers Range Design to determine the standard number and type of firing positions.

11/ Walks constructed of a 4 inch layer of sand and/or gravel are authorized to connect the support facilities and the firing line.

12/ Support is authorized for a 20 foot to 30 foot wood, steel or aluminum range flag pole. Range safety barriers may be constructed of two wooden posts to which a chain and cautionary signage can be attached. This chain should traverse each access road to the range impact area to prevent vehicular traffic from entering the surface danger zone during firing.

13/A range sign is authorized in accordance with local training center design.

14/ Range utilities are authorized in accordance with paragraph 1-9u above.

15/ Range communications and audio/video systems that enhance unit training and/or increase safety on the range will be included in the design and construction of new/modernized ranges as approved by ARNG_TR.

Table 5-8. Training Center Headquarters Allowances.

Functional Areas	Allowances Based on Required Strength <u>1/</u>			
	1-54 <u>2/</u>	55-99	100-175	175-350
1. Multi-functional Training Area	<u>3/</u>	6,200	6,800	7,800
2. Library/Classroom		250	250	300
3. Learning Center		250	250	300
4. Training Aid Storage		80	120	140
5. Kitchen	<u>4/</u>	1,300	1,300	1,300
6. Break Room	<u>5/</u>	<u>5/</u>	<u>5/</u>	<u>5/</u>
7. Vending Area		75	75	100
8. Toilets/Showers	<u>6/</u>	1,220	1,300	1,400
9. Flam Mats. Storage		100	100	150
10. Family Readiness Office		250	250	250
11. Recruiting/Retention Office		250	250	250
12. Audio/Visual Storage		80	100	150
13. Table/Chair Storage		300	375	550
14. Administrative Office Space	<u>7/</u>	400	800	800
15. Special Administrative Allowances	<u>8/</u>	1,950	2,850	3,300
16. Unit Storage (Including Arms Vault)	<u>9/</u>	<u>9/</u>	<u>9/</u>	<u>9/</u>
17. Locker Room Space	<u>10/</u>	200	200	200
18. Controlled Waste Handling Facility	<u>11/</u>	<u>11/</u>	<u>11/</u>	<u>11/</u>

Notes:

1/ The required strength of a training center headquarters is the sum of the required strengths of all assigned units to the training center TDA.

2/ Net floor area is 2000 square feet plus 130 square feet per authorized full-time employee, including assigned Federally reimbursed State employees. The allowance includes latrines, which are split into appropriate facilities to support both men and women. The split should account for both minimum code requirements and anticipated building usage.

3/ Multi-functional training space is authorized using the formula 10 square feet per person based on the required strength of the training center TDA plus the basic space from the table. An auditorium with inclined floor and installed seats is authorized for CTC or higher level Training Centers. Auditorium space is subtracted from the authorized multi-functional training space. Multi-functional means that the space may be designed as a combination of fixed and moveable walls.

4/ Authorized contractor furnished and installed and government furnished kitchen equipment is listed in NGB DG 415-1, Appendix B. U.S. Army Troop Support Agency approved kitchen layout drawings and equipment schedules are also provided in NGB DG 415-1, Appendix B.

5/ Basic authorizations are 200 square feet for up to 4 full-time support personnel and 400 square feet for up to 8 full-time support personnel, with an additional 20 square feet per individual for 9 to 20 full-time support personnel, 12 square feet per individual for 21 to 40 full-time support personnel, and 8 square feet per individual for full-time support personnel exceeding 40.

6/ In addition to the basic toilet area, shower space is authorized. Shower area shall be determined using the largest number of people required to train simultaneously at the headquarters. This number shall be divided by 15 (persons per shower) and the result multiplied by 40 square feet. This figure should then be added to the basic allowance in the table. The toilet/shower allowance is to be split into appropriate facilities to support both males and females. The split should account for both minimum code requirements and anticipated building usage. The basic allowance (which serves a dual purpose as a public toilet) may be increased by ten percent (10%), if the facility has two or more floors, in order to allow a toilet area to be installed on each floor.

7/ In addition to the basic space, addition space is authorized by the formula: 130 square feet times the sum of the number of administrative positions in the TDA and of Federally-reimbursed State employees not on the TDA who serve in administrative positions. Eligible positions include all commanders; leaders; staffs; clerks; and all other clearly identifiable positions with a major administrative function. (Included are the senior NCO in each division of the training center and unit supply positions.) The sizing formula does not mean persons get only 130 square feet of work area.

8/ Special administrative allowances include a secure planning/briefing room, conference/meeting rooms, operations center, files/supplies storage, etc.

9/ Unit storage space shall be computed based on authorized strength of the unit, and cubage of the equipment (excluding vehicles/equipment provided space under military equipment parking, other items normally stored outside and provided space elsewhere, and individual clothing and equipment) authorized to the Training Center headquarters.

a. Heated storage space. A net area of 2400 square feet within the headquarters facility is authorized for an equipment cubage of 0 to 4000 cubic feet. This allowance includes space for a vault (300 square feet) and, if desired, a climate controlled area (maximum of 250 square feet).

b. Unheated storage space. If total equipment cubage exceeds 4,000 cubic feet, a detached building or an equivalent area incorporated with the readiness center facility is authorized based on one of the following applicable categories:

Total Cubage In Cubic Feet	Net Square Feet (NSF) Authorized
4,001 to 8,000	$NSF = 0.6 \times (\text{Total Cubage} \text{ minus } 4,000)$
Exceeds 8,000	$NSF = 2,400 + [0.2 \times (\text{Total Cubage} \text{ minus } 8,000)]$

10/ Basic space plus 18 square feet per each individual authorized in the headquarters. Space may be divided, provided that the total of the separate space allocated to men and women is within the total space authorized. Also, a part of the total area may be used as unit storage space.

11/ See Table 1-9 - CWHF.

Table 5-9. Range Operations and Maintenance Allowances

Functional Area	SF	Notes
a. Admin Space	130	Per authorized position
b. Break Room/Area		1/
c. Toilet and Shower	250	Plus 10 SF per auth position
d. Locker Room	125	Plus 12 SF per auth position
1. Range Administration		
a. Reception Area	175	
b. Conference/Classroom		As required
c. Record Storage	150	
2. Range Operations		
a. Map Storage/Library	400	

b. Radio Room	250	
c. Scheduling Area	200	
d. Safety Briefing Room		As required
3. Target Systems		
a. Electrical Shop/Bay		As required
b. Storage Room (electrical)		As required
c. Battery Room		As required
4. Supply/Support		
a. Carpenter/Target Maintenance Shop		As required
b. Untreated Lumber Storage (Unheated)		As required
c. Tool Room Storage		As required
d. Target Storage (unheated)		As required
e. Treated Lumber Storage (unheated)		As required
f. Ground Maintenance Equipment Storage (unheated)		As required
g. Paint Storage		As required
h. Fire Truck Ready Bay/Water Tanker	1024	Per assigned vehicle

Notes:

1/ Basic authorizations are 200 square feet for up to 4 full-time support personnel It is 400 square feet for staffing levels between 5 and 8 full-time support personnel, with an additional 20 square feet per individual for 9 to 20 full-time support personnel, 12 square feet per individual for 21 to 40 full-time support personnel, and 8 square feet per individual for full-time support personnel exceeding 40.

Table 5-10. ID Processing Center Allowances

1. Work station allowance	130 sf / workstation
2. File storage	50 square feet / workstation
3. Personnel holding space/photo processing	65 square feet / workstation
4. User specific display area	30 square feet / workstation
5. Waiting room/Reception Area	150 square feet / workstation
6. Break Room/Area	1/
7. Toilet and Shower	250 square feet plus 10 square feet per auth position
8. Locker Room	125 square feet plus 12 square feet per auth position

Notes:

1/ Basic authorizations are 200 square feet for up to 4 full-time support personnel It is 400 square feet for staffing levels between 5 and 8 full-time support personnel, with an additional 20 square feet per individual for 9 to 20 full-time support personnel, 12 square feet per individual for 21 to 40 full-time support personnel, and 8 square feet per individual for full-time support personnel exceeding 40.

Table 5-11. Department of Public Works Allowances 1/

I. Administration	
a. Conference/Classroom	500 SF + 10 SF per person based on authorized strength
b. Record / Archive Storage	
c. Drafting Office	130 SF/ auth pos plus automation
d. Drafting Table	100 SF/ table
e. Geographic Information Systems (GIS) Operator	130 SF/ auth pos plus automation
f. Learning/Library Center	250 SF
g. Drafting Supply Storage Area	100 SF
h. Surveying Equipment Storage Area	

i. Break Room/Area	<u>2/</u>
j. Toilet and Shower	250 square feet plus 10 square feet per auth position
k. Locker Room	125 square feet plus 12 square feet per auth position
2. Facilities Maintenance Section <u>1/</u>	
a. Carpenter's Shop	
b. Electrical Shop	
c. Plumbing Shop	
d. Machine Shop	
e. HVAC Shop	
f. Glass Repair Shop	
g. Locksmith Shop	
h. Sign Shop	
i. Paint Shop w/heated storage	
j. Telecom Shop	
k. Tool Room	
l. Tool Issue Office	
m. Supply Warehouse	
n. Supply Yard	
Table 5-11. Department of Public Works Allowances <u>1/</u> Cont.	
3. Roads and Grounds Shop <u>1/</u>	
a. Grounds Maintenance Shop	
b. Operator Repair Work bay (32x64)	
c. Tool Room	
d. Welding Shop	
e. Ground Maintenance Equipment Storage	
f. Equipment Storage Compound	
g. Loading Ramp	

Notes:

1/ The facilities in this area vary from training center to training center. These facilities are authorized based upon the support mission of this section, the number of required employees (AGRs, military technicians, and Federally reimbursed State employees), and the amount and type of equipment required. The information in this table should be used as a planning tool for areas to consider while designing this facility.

2/ Basic authorizations are 200 square feet for up to 4 full-time support personnel It is 400 square feet for staffing levels between 5 and 8 full-time support personnel, with an additional 20 square feet per individual for 9 to 20 full-time support personnel, 12 square feet per individual for 21 to 40 full-time support personnel, and 8 square feet per individual for full-time support personnel exceeding 40.

Table 5-12. Police Station Allowances 1/

1. Holding Cell, 2 each @ 72sf	144 SF
2. Arms Vault	300 SF
3. Dispatch Office	130 SF/person
4. Evidence Room	150 SF
5. Training Aid Storage	50 SF
6. Parking	POV 35 sy/ea Organizational 50 sy/ea Visitor 300 sy
7. Break Room/Area	<u>2/</u>
8. Toilet and Shower	250 square feet plus 10 square feet per auth position
9. Locker Room	125 square feet plus 12 square feet per auth position

Notes:

1/ A building that houses the operations of a provost marshal and the services and operations of the military police. The provost marshal is responsible for physical security, traffic, supervision of gate personnel, and law enforcement on the training center.

2/ Basic authorizations are 200 square feet for up to 4 full-time support personnel. It is 400 square feet for staffing levels between 5 and 8 full-time support personnel, with an additional 20 square feet per individual for 9 to 20 full-time support personnel, 12 square feet per individual for 21 to 40 full-time support personnel, and 8 square feet per individual for full-time support personnel exceeding 40.

Table 5-13. Fire Station Allowances 1/

1. Administration/Training Area	1777 SF
2. Apparatus/Equipment Area	2197 SF
3. Billeting	675 SF
4. Latrines/Showers/Locker Rooms/Laundry/etc.	375 SF plus 22 SF per employee
5. POV/Civ Parking	35sy ea
6. TOE/TDA Equip Parking	50sy ea/75sy for ea over 30' long
7. Helipads	Sized IAW MEDEVAC Requirements

Note:

1/ Authorizations are per engine company. A fire station is a building that houses firefighting vehicles and equipment as well as the operating personnel of fire-fighting companies. Also included are facilities housing fire and emergency rescue equipment and personnel at any heliport or airfield on the training center. Space for drying hoses is included. Also report this facility with unit of measure vehicles (VE). Data should be available from the training center fire chief. If not, conduct a physical count of stalls and survey building area. Each firefighting/rescue vehicle stall provided at the facility counts as one VE. (Ref: ACOE Design Pamphlet - Fire Stations, Nov 1994).

Table 5-14. Recycle Center Allowances 1/

1. Office/Admin Space	130 SF/employee
2. Break Area	120 SF
3. Latrines/Shower	400 SF
4. Horizontal Bailer Area	1800 SF plus 800 SF for each additional bailer
5. Paper Shredding Area	1000 SF
6. Brass Deformer/Shredder Area	800 SF
7. Conveyor Area	1600 SF
8. Glass Processing Area	800 SF per color of glass
9. Storage Area	As Required
10. Receiving Area	1600 SF
11. Sorting Area	1200 SF
12. Shipping Area	1600 SF
13. Intra-functional	2000 SF
14. Battery Charging Area	400 SF for each piece of electric material handling equipment
15. Trash Transfer Point	1000 SF per outside container
16. Scrap Metal Storage Area	1000 SF per outside container
17. Pallet Processing Area	1800 SF
18. Truck Scales Area	2800 SF

Note:

1/ The facilities in this area vary from training center to training center. These facilities are authorized based upon the volume of recyclable materials, the number of required employees (AGRs, military technicians, and Federally reimbursed State employees), and the amount and type of equipment. The information in this table should be used as a planning tool for areas to consider while designing this facility.

Chapter 6

Educational Facilities

6-1. General

a. Standards. This chapter establishes the space allowances for ARNG educational facilities (and educational support facilities) that are part of the Army School System (TASS).

b. Space allowances.

(1) TASS facility space allowances are based on the Army Training Requirements and Resources System (ATRRS) student load as verified and set by ARNG-TR, the authorized strength(s) of the staff as documented on the TDA, and other manning documents showing full-time personnel, the numbers and types of equipment authorized, and special requirements of the supported units.

(2) Prior to submittal of DD Forms 1390/91 for an educational facility, States should contact ARNG-TR to determine if an educational facility is authorized and to obtain sizing guidance for space allowances.

(3) Refer to Table 6-1 for Space allowances based on student load.

(4) Refer to Table 6-2 for Space allowance for educational facility billeting.

(5) Refer to Table 1-5 for Flagpoles allowances

(6) Refer to Table 1-7 for Facility Support Space allowances.

(7) Refer to Table 1-8 for Circulation allowances.

(8) Refer to Table 1-9 for Walls allowance.

(9) Refer to Table 1-10 for Space allowances for Controlled Waste Handling Facilities (CWHF)

(10) All other space requirements not specifically indicated in the referenced tables will be treated as exceptions to criteria. The State must fully justify such requests and the NGB proponent must concur with them before ARNG-ILI will approve including them in the programming documents and the final design of the project.

(11) If there are any conflicts between the criteria in this pamphlet and those of Training and Doctrine Command (TRADOC) for an educational facility teaching the same Program of Instruction (POI), the TRADOC criteria shall take precedence. However, the State must include documentation of the TRADOC requirement(s) criteria as part of its request for exception to criteria.

6-2. Non standard Supporting Items

a. Parking pad for MCOFT and similar simulators. Federal support is authorized for a 60 foot square rigid concrete parking pad, with electrical power and telephone service, at each ARNG-TR approved site authorized to have an MCOFT or similar simulation device.

Table 6-1. Educational Facility Allowances 1/

Functional Areas	Basic Allowance	Student Load for Peak Training Month		
		Below 100	100-199	Over 199
1. Administration				
a. General Administration	130 SF/TDA position	1500	2000	2500
b. Medical/Aid Station	NA	400	400	400
c. Supply <u>2/</u>	NA	2400	2400	2400
d. Publication Storage	5 SF/student	500	500	500
e. Material Reproduction/ Mail Center	NA	400	500	600
f. Weapons/Ammunition storage	NA	250	250	250
g. Toilets/Showers/Lockers <u>3/</u>	22 SF/TDA position	300	300	300
2. Education <u>4/</u>				
a. Classrooms	35 SF/student	800	1000	1500
b. Instructor Preparation/ Counseling	NA	500	800	1000
c. Multi-Purpose Training Area	NA	5400	5800	6300
d. Auditorium	NA	2000	2500	3000
e. Library	NA	600	600	600

f. Learning Center	NA	300	550	800
g. Distance Learning Center	NA	5/	5/	5/
h. Training Device/Simulation Center	NA	6/	6/	6/
i. Training Aid Storage	NA	300	600	900
j. Audio Visual Storage	NA	300	600	900
k. Test Control Storage	NA	100	100	100
l. Break Area	5 SF/student	250	250	250
m. Physical Fitness Area <u>7/</u>	NA	1000	1225	1600
n. Toilets <u>8/</u>	3 SF/student	300	400	500
3. Dining Facility				
a. Dining Area & Kitchen <u>9/</u>	NA	4100	4100	4100

Notes:

1/ All allowances are in net square feet exclusive of interior and exterior walls. Total allowance for an item is the sum of the basic allowance and the allowance for the student load the educational facility is authorized. Per student in the basic allowance refers to the maximum number of students authorized to be at the TASS complex at any point during a training year.

2/ This allowance includes space for a vault (300 square feet) and, if desired, a climate controlled area (maximum of 250 square feet). For unheated storage, detached buildings may be used, or an equivalent area may be incorporated within the facility.

3/ This allowance is to be split into appropriate facilities to support both men and women. The split should account for both minimum code requirements and anticipated building usage.

4/ If there are any conflicts between the criteria in this pamphlet and those of TRADOC for an educational facility teaching the same POI, the TRADOC criteria shall take precedence.

5/ Space is authorized if validated and approved by ARNG-TR. This space is in addition to any classroom space otherwise authorized.

6/ Space is authorized if validated and approved by ARNG-TR.

7/ All equipment must be obtained with other than Federal construction funds.

8/ This allowance is to be split into appropriate facilities to support both men and women. The split should account for both minimum code requirements and anticipated building usage.

9/ Based on 200 person standard design to include all supporting functional areas. Dining facility authorized only if adequate dining facility is not otherwise available on the training center. Requires exception to criteria and ARNG-TR approval.

Table 6-2. Space Allowances for Educational Facility Billeting 1/

Pay Grade	Open Bay <u>2/</u>	2 + 2 <u>3/</u>	1 + 1 <u>4/</u>	Private <u>5/</u>
E4 and below	90 SF/person	90 SF/person	90 SF/person	NA
E5 and E6	NA	135 SF/person	135 SF/person	NA
E7 through E9	NA	250 SF/person	250 SF/person	250 SF
W01, CW2, 01, 02	NA	NA	250 SF/person	NA
CW3-CW5, O3-O6	NA	NA	NA	250 SF
Lounge	10 SF/person	10 SF/person	10 SF/person	10 SF/person
Laundry	144 SF/20 billeting spaces			

Notes:

1/ Allowance is in net square feet, exclusive of: interior and exterior walls; necessary circulation space; a 20 square foot closet (2 closets in the 2+2 rooms). An educational complex is authorized to billet as many people as are shown

on the approved student load plus the authorized TDA positions, including any authorized instructors not on the TASS TDA. States must justify the split among the three configurations of rooms and the construction of more than a single building containing billets.

2/ No more than ten persons per room/bay, all sharing a latrine of 500 square feet (not included in the allowance shown above).

3/ Two individuals per room sharing private bath/service area of 100 square feet (not included in the allowance shown above).

4/ One individual per room sharing bath/service area of 100 square feet (not included in the allowance shown above).

5/ One individual per room with a private bath/service area of 100 square feet (not included in the allowance shown above).

Appendix A References

Section I Required Publications

ACOE Design Pamphlet, Fire Stations (Cited in Table 5-13 (Note 1))

American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE) Guide (Cited in para 1-6e)

AR 40-61
Medical Logistics Policy and Procedures (Cited in Table 2-2 (Note 13))

AR 190-11
Physical Security of Arms, Ammunition, and Explosives (Cited in Table 4-2 (Note 15) and para 5-3c(8)(c))

AR 190-51
Security of Unclassified Army Property (Sensitive and Non-Sensitive) (Cited in paras 2-2o, 3-2o, 4-2r, 4-5, and 6-2o)

AR 385-64
U.S. Army Explosives Safety Program (Cited in paras 5-3c(8)(a) and 5-3c(8)(b))

Army National Guard DG 415-1
Readiness Centers: Design Guide (Cited in Table 2-1 (Note 7), and Table 5-8 (Note 4))

Army National Guard DG 415-2
Logistics Facilities Design Guide (Cited in Para 3-4f and Para 3-7c)

Army National Guard DG 415-3
Aviation Facilities Design Guide (Cited in Para 4-2p)

Army National Guard DG 415-4
Training Site Facilities Design Guide (Cited in paras 5-2d(4), 5-2k,, 6-2d(4), and 6-2k)

CEHNC 1110-1-23
Design Guide for Ranges (Cited in para 5-3b(1) and Table 5-7)

DA Pam 190-51
Risk Analysis for Army Property (Cited in para 4-5)

DA Pam 350-38
Standards in Weapons Training (Cited in para 5-3b)

DA Pam 385-63
Range Safety (Cited in Table 5-7 (Note 8))

DA Pam 385-64
Ammunition and Explosives Safety Standards (Cited in paras 5-3c(8)(a) and 5-3c(8)(b))

DA Pam 415-28
Guide to Army Real Property Category Codes (Cited in Table 5-1 (Note 8))

Design Guide for Indoor Firing Ranges (Cited in Table 2-1 (Note 5))

DoD Military Handbook 11-90

Facility Planning and Design Guide (Cited in Table 5-6 (Note 1))

DoD Space Planning Criteria for Health Facilities (Cited in Table 5-4 (Note 1))

FM 21-20

Physical Fitness Training (Cited in para 5-3c(13))

NGR 5-3

Army National Guard Garrison Training Centers (Cited in para 5-1b)

NGR Pam 415-5

Army National Guard Military Construction Program Execution. (Cited in para 3-4f)

NGR 350-1

Army National Guard Training

NG Pamphlet 210-20

Real Property Development Planning Procedures for The Army National Guard

NGR 415-10

Army National Guard Facilities Construction (Cited in paras 2-3a and 3-6a)

TC 25-8

Training Ranges (Cited in para 5-3b (1) and Table 5-7)

TI 800-01

Design Criteria (Cited in Table 5-1 (Note 5))

TM 5-811-5

Army Aviation Lighting (Cited in paras 2-2i and 4-3d)

TM 5-814-9

Central Vehicle Wash Facilities (Cited in para 5-2v (2))

UFC 3-260-01

Airfield and Heliport Planning and Design (Cited in paras Table 2-2 (Note 21), 4-2j, 4-2p, 4-2x (1), 4-2y(1), 4-3f, 5-3c(3)(a), and 5-3c(3)(b))

UFC 3-400-02

Design: Engineering Weather Data (Cited in paras 1-6f, 3-4g (4)(d), 3-5c(3)(c), 3-5c(4), Table 3-5 (Note 3), 4-2y(2), 5-2v(7), Table 5-2 (Note 3), and 6-2v(4))

UFC 4-010-01

Unified Facilities Criteria, DoD Minimum Antiterrorism Standards for Buildings (Cited in paras 2-2o, 3-2o, 4-2r, 5-2o, and 6-2o)

UFC 4-010-02

Unified Facilities Criteria, DoD Minimum Antiterrorism Standoff Distances for Buildings (Cited in paras 2-2o, 3-2o, 4-2r, 5-2o, and 6-2o)

USATCESP 385-02

Site and General Construction Plan Developers Guide (Cited in para 5-3c(8)(a))

Section II
Related Publications

AR 11-27

Army Energy Program

AR 25-1

Army Knowledge Management and Information Technology

AR 40-5

Preventive Medicine

AR 55-80

Highways for National Defense

AR 190-13

The Army Physical Security Program

AR 200-1

Environmental Protection and Enhancement

AR 200-2

Environmental Effects of Army Actions

AR 200-3

Natural Resources

AR 200-4

Cultural Resources Management

AR 200-5

Pest Management

AR 385-10

The Army Safety Program

AR 385-16

System Safety Engineering and Management

AR 385-63

Policies and Procedures for Firing Ammunition for Training, Target Practice, and Combat

AR 420-49

Utilities Services

Army National Guard DG 415-5

General Facilities Information Design Guide

29 CFR Part 1900 et seq

Occupational Safety and Health Administration, Department of Labor

36 CFR Part 800

Protection of Historic Properties

DA Pam 190-51

Risk Analysis for Army Property

DA Pam 385-64

Ammunition and Explosive Safety Standards

DA Pam 420-7

Natural Resources - Land, Forest, and Wildlife Management

DoD 6055.9-STD

DoD Ammunition and Explosives Safety Standards

DoDD 1225.7

Reserve Component Facilities Programs and Unit Stationing.

DoDD 4270.5

Military Construction Responsibilities

DoDD 6055.9

DoD Explosives Safety Board (DDESB) And DoD Component Explosives Safety Responsibilities

DoDI 1225.8

Programs and Procedures for Reserve Component Facilities Programs and Unit Stationing

Engineer Technical Letter 1110-3-491

Sustainable Design for Military Facilities

Executive Order 11988

Flood Plain Management

Executive Order 11990

Protection of Wetlands

Executive Order 12056

Federal Compliance with Pollution Prevention and Emergency Planning-Community Right to Know Acts

Executive Order 12873

Federal Acquisition, Recycling, and Waste Prevention

Executive Order 13007

Indian Sacred Sites

Executive Order 13045

Protection of Children From Environmental Health Risks and Safety Risks

Executive Order 13123

Greening the Government Through Efficient Energy Management

JCS Pub 22

Worldwide Military Command and Control System (WWMCCS) ADP System Security Manual

MIL-STD-3007

Standard Practice For Unified Facilities Criteria And Unified Facilities Guide Specifications

NG Pam 25-1

Training Site General Information

NGR 11-27

ARNG Energy Conservation Plan

NGR 190-11

Military Police, Physical Security of Arms, Ammunition and Explosives

NGR (AR) 200-3

State and Federal Environmental Responsibilities

NGR 415-5

Army National Guard Military Construction Program Development and Execution

Sustainable Project Rating Tool (Army Corps of Engineers)

TM 5-683

Electrical Interior Facilities

TM 5-684

Electrical Exterior Facilities

TM 5-803-14

Site Planning and Design

TM 5-853-1

Security Engineering: Project Development

TM 5-1300

Structures to Resist the Effects of Accidental Explosions

Unified Facilities Criteria

Uniform Building Code

10 U.S.C. §172

Ammunition Storage Board

10 U.S.C. Chapter 159

Real Property

10 U.S.C. Chapter 169

Military Construction and Military Family Housing

10 U.S.C. Chapter 1803

Facilities for Reserve Components

15 U.S.C. §§2601-2692

Toxic Substances Control Act

16 U.S.C. § 470 et. seq.

National Historic Preservation

16 U.S.C. §§1271-1287

Wild and Scenic Rivers Act

16 U.S.C. §§1531-1544

Endangered Species Act

18 U.S.C §1001

Fraud and False Statements

33 U.S.C. §466 et. seq.

Clean Water Act

40 U.S.C. §541 et seq

Selection of Architects and Engineers

42 U.S.C. §300f et. seq.

Safe Drinking Water Act

42 U.S.C. §1996

American Indian Religious Freedom Act

42 U.S.C. §§4151-4157

Architectural Barriers Act of 1968

42 U.S.C. §§4321-4370a

National Environmental Policy Act

42 U.S.C. §§6901-6992

Resource Conservation and Recovery Act

42 U.S.C. §§7401-7661

Clean Air Act

42 U.S.C. §§9601-9657

Comprehensive Environmental Response, Compensation and Liability Act

Section III

Prescribed Forms

This section contains no entries.

Section IV

Referenced Forms

DD Form 1390

FY Military Construction Program

DD Form 1391

FY Military Construction Project Data

Glossary

Section I

Abbreviations

AASF

Army Aviation Support Facility

USACE

Army Corps of Engineers

AEOC

Aviation Emergency Operations Center

AGR

Active Guard/Reserve

ALSE

Aviation Life Support Equipment

APFT

Army Physical Fitness Test

AR

Army Regulation

ARFF

Aircraft Rescue and Firefighting Facility

ARNG

Army National Guard

ARNG-AV

Army National Guard Aviation Safety Division

ARNG-CSG-P

Army National Guard Industrial Hygiene

ARNG-FM

Army National Guard Force Management Division

ARNG-ILI

Army National Guard Installations Division

ARNG-IMG-G

Army National Guard Governance and Policy Branch

ARNG-TR

Army National Guard Training Division

ARTEP

Army Training and Evaluation Program

ASHRAE

American Society of Heating, Refrigerating, and Air Conditioning Engineers

ASET

Aircraft Survivability Equipment Trainer

ASP

Ammunition Supply Point

AT

Annual Training

AT/FP

Anti-Terrorism/Force Protection

ATS

Automated Target System

Auth

Authorized

AVCATT

Aviation Combined Army Tactical Trainer

Bde

Brigade

BEQ

Bachelor Enlisted Quarters

BII

Basic Issue Items

Bn

Battalion

BOQ

Bachelor Officer's Quarters

CEHNC

Corps of Engineers Huntsville Engineering Support Center

CFMO

Construction and Facilities Management Officer

CHS

Common Hardware Software

Civ

Civilian

CMDSA

COMSEC Material Direct Support Activities

Co

Company

COMSEC

Communication security

COR

Contracting Officer's Representative

CRC

Component Repair Company

CSMS

Combined Support Maintenance Shop

CSSAMO

Combat Service Support Automation Management Office

CTA

Common Table of Allowances

CTC

Collective Training Center

CTF

Concurrent Training Facility

CV

Combat vehicles

CWHF

Controlled Waste Handling Facility

DA

Department of the Army

DARNG

Director of Army National Guard

DD

Department of Defense

DDESB

Department of Defense Explosives Safety Board

DG

Design Guide

Div

Division

DoD

Department of Defense

DoDD

Department of Defense Directive

DoDI

Department of Defense Instruction

DS4

Direct Support Unit Standard Supply System

DSU

Direct Support Unit

ECS

Electronic Consult System

EMCS

Energy Management Control System

EST

Engagement Skills Trainer

FAA

Federal Aviation Administration

FISP

Federal Inventory and Support Plan

FM

Field Manual

FMS

Field Maintenance Shop

GIB

General Instruction Building

GIS

Geographic Information Systems

GPM

Gallons per Minute

GPTB

General Purpose Training Bay

GPWB

General Purpose Work Bay

GSA

General Services Administration

GSE

Ground support equipment

GSU

General Support Unit

HAZMAT

Hazardous Materials

HEMTT

Heavy Expanded Mobility Tactical Truck

HET

Heavy Equipment Transporter

HHC

Headquarters and Headquarters Company

HHD

Headquarters and Headquarters Detachment

IAW

In Accordance With

IBD

Inhabited Building Distance

IDT

Inactive Duty Training

IT

Information Technology

ITC

Intermediate Training Center

JFHQ

Joint Force Headquarters

JOC

Joint Operations Center

KD

Known Distance

LAASF

Limited Army Aviation Support Facility

LTA

Local Training Area

LTC

Local Training Center

LUH

Light Utility Helicopter

Maint

Maintenance

MATES

Maneuver Area Training Equipment Site

MCNG

The Army National Guard Military Construction appropriation

MCOFT

Mobile Conduct of Fire Trainer

MEDEVAC

Medical evacuation

MEVA

Mission Essential Vulnerability Area

MILES

Multiple Integrated Laser Engagement System

MOUT

Military Operations on Urbanized Terrain

MTC-H

Maneuver Training Center - Heavy

MTC-L

Maneuver Training Center - Light

MWR

Morale, Welfare, and Recreation

MTOE

Modified Table of Organization and Equipment

NA

Not Authorized

NG

National Guard

NGB

National Guard Bureau

NGR

National Guard Regulation

NSF

Net Square Feet

Pam

Pamphlet

PLS

Palletized Load System

POI

Program of Instruction

POL

Petroleum Oil Lubricants

POV

Privately owned vehicle

QDA

Quantity Distance Arc

RAOC

Rear Area Operations Center

RAPIDS

Real-Time Automated Personnel Identification System

Rat

Ration

RMAG

Reinforced Above Ground Magazines

RPDP

Real Property Development Plan

RWOS

Representative Weather Observation Station

RXA

Repair/Direct Exchange

SAMS

Standard Army Maintenance System

SB

Supply Bulletin

SDP

Site Development Plan

SDZ

Surface Danger Zone

SEMF

Surface Equipment Maintenance Facility

SF

Square Feet

SIPRNET

Secure Internet Protocol Router Network

SP

Self-propelled

SPWB

Special Purpose Work Bay

SQ YD

Square Yard

SRM

Sustainment, Restoration, and Modernization

SRP

Soldier Readiness Processing

SSA

Supply Support Activity

STAMIS

Standard Army Management Information System

Sup

Supply

SY

Square Yard(s)

TADSS

Training Aids, Devices, and Simulations Systems

TASC

Training Aids Support Center

TASS

The Army School System

TC

Training Circular

TDA

Table of Distribution and Allowances

Tech

Military Technician

TI

Technical Instruction

TISA

Troop Issue Subsistence Activity

TM

Technical Manual

TMC

Troop Medical Clinic

TOE

Table of Organization and Equipment

TRADOC

U.S. Army Training and Doctrine Command

TSB

Training Support Brigade

UFC

Unified Facilities Criteria

ULLS-A

Unit Level Logistics System - Aviation

USATCESP

U.S. Army Technical Center for Explosives Safety Publication

U.S.C.

United States Code

USPFO

United States Property and Fiscal Office

UTES

Unit Training and Equipment Site

UXO

Unexploded Ordnance

WB

Work Bay (General Purpose, Special Purpose Work Bay, and or Maintenance Training Work Bay)

WWMCCS

Worldwide Military Command and Control System

Section II

Terms

Collocated Facilities

ARNG facilities are considered to be collocated if they have at least one adjacent land-use area boundary in common or are separated only by the width of the vehicle thoroughfare.

Combat Vehicle

For the purpose of this regulation, the term combat vehicles includes tanks, armored personnel carriers, tracked command and reconnaissance vehicles, combat engineer vehicles, self-propelled artillery, tank retrievers and other like type vehicles.

Construction

The erection, installation, or assembly of a new facility; the relocation of a facility; the complete replacement of an existing facility; or the addition, expansion, extension, alteration, or conversion (to a new type use) of an existing facility. This includes installed building equipment and related site preparation, excavation, filling and landscaping or other land improvements. It also includes increases in components of facilities for functional reasons when a facility is not being repaired and the components are not required to meet current standards, and it includes the extension of utilities to areas not previously served. Construction is an activity that may be a part of either the restoration or modernization program.

Construction Specifications Institute (CSI)

A non-profit organization dedicated to the advancement of construction technology through communication, education, research and service. CSI serves the interest of architects, engineers, contractors, product manufacturers and others in the construction industry.

Facility

A separate or individual building, structure, utility system, or other real property improvement. It includes supporting elements for structures, such as sidewalks, fire hydrants, gasoline and diesel fuel dispensing systems, flammable materials buildings, roads, fencing, and hard stand.

Federal Funds

The terms "Federal funds" or "Federal costs" refers to funds appropriated for the Army National Guard Military Construction (MCNG) program. It does not include appropriations funding the non-construction aspects of the project. However, in the case of a joint use facility, it may include construction appropriation funds contributed by the other reserve component(s). Also, in the case of projects that fall within the statutory limits of operations and maintenance construction, it refers to the Operations and Maintenance National Guard appropriation (but only that portion supporting the construction aspects of the project).

Floodplain

Floodplains are the lowland and relatively flat areas next to inland and coastal waters including flood prone areas of offshore islands. This includes, at a minimum, that area with a one percent or greater chance of flooding in any given year (the "100 year flood"). For critical facilities where evacuation would be difficult, such as hazardous chemical storage or hospitals, the floodplain will be that area subject to a 0.2 percent or greater chance of flooding in any given year (the "500 year flood").

Green Building

Green Building or High Performance/Sustainable Building (HPSB) is constructed using the Guiding Principles, an integrated synergistic approach. For more information refer to NG Design Guide 415-5

Hardstand

This is an area constructed of crushed stone, gravel, slag, shale, or similar materials. These materials are shaped and compacted into position without the addition of any binder materials.

Installation

An aggregation of contiguous or near contiguous, common mission-supporting real property holdings under the jurisdiction of the State, the District of Columbia, territory, or commonwealth controlled by and at which an ARNG unit or activity is permanently assigned. For the purpose of Installation Status Report reporting and the calculation of programming inventory, each State shall be considered a separate installation. However, for real property inventory reporting, each entity with a FISP installation number shall be reported as an installation.

Life-Cycle Cost Analysis (LCCA)

An economic assessment of an item, system, feature, or facility by considering all significant costs of ownership over an economic life, expressed in terms of equivalent costs. Such an analysis of economic results in a determination as to whether any increase in initial construction cost due to inclusion of the feature or system would be recouped during its lifetime by decreases in operating and/or maintenance costs, when calculated in discounted dollars and using documentable current local fuel cost and escalation forecasts as prepared by the Office of the Secretary of Defense.

MATES with Support

An SEMF that performs both field and sustainment level maintenance missions. A MATE with Support is typically not collocated with a CSMS since the CSMS performs the same sustainment maintenance mission as a MATES with Support.

MATES without Support

This SEMF performs only field level maintenance missions. The MATES without Support is typically collocated with a CSMS.

Military Vehicles

Any motorized or towed-vehicles, wheeled or track, authorized to units by TOE, MTOE, or TDA.

Motor Vehicle

Motor vehicles are self-propelled military equipment, including amphibious equipment, classed as 1/4-ton or over in size.

Pre-Wired Workstations

A workstation which should include posts, panels, partitions, wiring for electricity and communications, task lighting, and partition-hung components to support individual and group efforts. Both panel-to-panel and post-to-panel systems are acceptable. Additional system components are ambient lighting and partition supported files. A pre-wired workstation should, at a minimum, provide for the following functions: (1) An acoustically treated enclosure defining the limits of an individual or a shared use workstation. (2) Adequate work surfaces to accommodate the individual's equipment, writing, and work layout needs. (3) Storage space for individual files and supplies. (4) Task lighting and electrical and communications outlets to support the individual's equipment. Pre-wired workstations do not include movable furniture and furnishings such as chairs, stand alone file cabinets, coat hooks or racks, name tags, in and out file trays, and other similar accouterments.

Replacement

Reconstruction of a real property facility destroyed or damaged beyond the point at which it may be economically repaired. Complete replacement is classified as construction.

Site Preparation

Clearing; grubbing; demolition of existing structures; removing existing utilities, excavation and embankment earth work, drainage channels or systems, and retaining walls; the grading/compaction of site soils to proposed subgrade elevations; and necessary environmental compliance actions.

Surface Danger Zone (SDZ)

The statistical area in which a particular round fired from a particular weapon at a particular point toward a particular target will impact if there are no physical barriers to impede its path.

Sustainable Design and Development

The systematic consideration of current and future impacts of an activity, product, or decision on the environment, energy use, natural resources, the economy, and quality of life. In terms of military construction, it is also the design, construction, operation, and reuse/removal of the built environment (infrastructure and buildings) in an environmentally and energy efficient manner.

UTES

This SEMF performs field level maintenance on the vehicles and equipment stored at the facility to support training activities at a nearby ARNG training center or active duty post.

Wetlands

Wetlands are those areas flooded or inundated by surface or ground waters often enough to support aquatic life or vegetation. Wetlands generally include swamps, marshes, bogs, and similar areas, such as sloughs, open or wet meadows, river outflows, mud flats, natural ponds, wet forests, potholes, and riparian areas. They may or may not be located in flood plains.

Section III**Special Abbreviations and Terms**

This section contains no entries.