

Shop, Aircraft General Purpose. FAC: 2112

CATCODE: 211152

OPR: AF/A4L

OCR: N/A

1.1. **Description.** The shop provides space for specialized maintenance activities such as metals technology, aerospace systems shops, egress shop and reclamation operations on crash damaged aircraft and equipment. The shop also has space for work, administration, telecommunications, tool cribs, bench stocks, lockers, storage, and security of supplies and reparable parts. Reclamation and fabrication activities may require an open storage yard for aircraft, aircraft parts, and equipment awaiting repairs (see **CATCODE 452252**).

1.2. **Requirements Determination.** This facility provides for specialized and general aircraft maintenance functions. The electrical and environmental systems (E&E) element encompasses aircraft and related E&E maintenance, inspection, repair, and servicing functions. It may also be a holding area for aircraft cryogenic servicing carts. It normally includes work benches, bench stock, battery servicing area (two separate areas, if Ni-Cad and lead acid batteries both require servicing), cryogenics maintenance area, generator and constant speed drive (CSD) test stand area (if required), life raft bottle servicing area, tool crib, administrative space, and personnel locker space.

1.2.1. **Egress Shop.** The Egress facility should be enclosed and separated from other inhabited buildings or areas whenever possible, for off-equipment egress maintenance. The location of the facility requires approval by the fire department, Security Forces, and Civil Engineering. Ensure this facility is large enough to accommodate the average number of egress components requiring maintenance and storage at any one time. Consider explosives storage, maintenance, and grounding capabilities when maintaining Advanced Concept Ejection System (ACES) II units. See AFI 21-112, *Aircrew Egress Systems*, for additional information on egress facilities. The egress shop contains:

1.2.2. **Administration.** Sufficient space is necessary to support technical order storage and management, Core Automated Management System (CAMS) input (or equivalent), time change management, and general administrative processes. See Facility Class 6 of this Manual for additional administrative space standards.

1.2.3. **Maintenance.** ACES II seat maintenance requires room for repacking drogue chutes as well as simultaneous canopy maintenance for F-16 aircraft. Consolidated tool kits (CTK) and support equipment storage should also be placed in this area.

1.2.4. **Storage.** This area is solely utilized for explosives. No maintenance can be performed in this area in accordance with AFMAN 91-201. Size varies depending upon weapon system.

1.3. **Scope Determination.** Table 1.1 lists total gross space requirements for general

purpose maintenance shops based on the mission, (Table 1.2. for specific egress shop requirements). These shops may be in one building or several buildings. Dispersing the shops allows use of space in suitable existing buildings such as hangars. However, when possible and within funding constraints, the E&E functions should be collocated as closely as possible within the same building. Actual space requirements depend on the mission and size of related E&E support equipment and the working area required to perform assigned functions.

1.4. **Dimensions.** See Table 1.1 and 1.2 (below).

1.5. **Design Considerations.**

1.5.1. Floor space and door openings should allow movement and repair of the largest item to be repaired in each shop. See Table 1.2 in **CATCODE 211111**.

1.5.2. Special ventilation and floor drainage is necessary for, but not limited to, the following E&E maintenance areas: Battery servicing, life-raft servicing, cryogenic cart maintenance, and generator and CSD test stand areas. An emergency eye wash station and shower are mandatory near the battery servicing area. A waste oil disposal system to reclaim petroleum based oils and synthetic oils, is needed. Consider providing a storage area for shop support equipment (e.g., portable hoists, jacks, refrigerant and ODC recovery systems, and cryogenic vacuum and purge carts). Provide a fire suppression system, ventilation systems (to accommodate fiberglass, plastic, welding, and plating shop operations), a compressed air source in each shop providing 1,030 kPa (150 psi) of air, a monorail crane hoist system, a multi-phase (110, 240 and 480 voltage) electrical system as required, and air conditioning to protect Computer Numerically Controlled industrial plant equipment as required.

1.5.3. Locate facilities to comply with UFC 3-260-01. See paragraph 1.2 and 1.3 of the Category Group 21 General Criteria for general maintenance facility criteria.

Table 1.1. Space Requirements for General Purpose Maintenance Shops.

Mission	Gross Area	
	m ²	ft ²
1 Fighter or Reconnaissance Wing	3,160	34,000
2 Fighter or Reconnaissance Wings	4,180	45,000
1 Airlift Wing (C-130)	3,620	39,000
1 Heavy Bomber Squadron	4,460	48,000
1 Tanker Wing	4,560	48,000
1 Airlift Wing (C-5)	7,430	80,000
1 Pilot Training Wing	3,900	42,000
1 Navigator Training or Airlift Training Wing	4,270	46,000
1 Special Operations Wing ¹	See Note 1	
1 Combat Search and Rescue Unit ¹	See Note 1	

NOTES:

1. Space is determined by individual analysis and validated by the appropriate MAJCOM/A4M.

Table 1.2. Space Requirements for Egress Shops.

Weapon System ¹	Admin ^{2,3}		Main. Seats ⁴		Canopies ⁴		Storage Seats ⁴		Canopies ⁴	
	Net Area									
	m ²	ft ²	m ²	ft ²	m ²	ft ²	m ²	ft ²	m ²	ft ²
Fighter Shop	5.95/ person	64/ person	2: 56	600	1:93	1,000	8: 37	400	4: 28	300
Fighter Shop	5.95/ person	64/ person	2: 56	600	N/A		8: 37	400	N/A	
Bomber Shop	5.95/ person	64/ person	4: 56	500	N/A		2: 9.3	100	N/A	
Multi MDS	5.95/ person	64/ person	2: 56	600	2:139	1,500	10:46	500	4: 56	600

NOTES:

1. Spatial needs for units supporting egress systems differ depending on total PAA and type MDS aircraft. The above figures are based on fighter shops using two 4.6 m (15 ft) tables to perform maintenance on ACES II seats. The above space requirements are based on the average maintenance capability. If seat/canopy maintenance capabilities needs to increase/decrease from the above average computations, space requirements increase/decrease accordingly.
2. Refer to Chapter 6 of this Manual for approved office types and sizes.
3. Number of personnel require user justification.
4. The first figure in the m² column is the number of seats or canopies, the second figure is the allowable area in square meters.
5. Tool and support equipment storage is figured in the computation. Simultaneous canopy maintenance should be performed on units providing canopy maintenance. All multi- mission design series (MDS) units have ACES II seats.