Aircraft Shelter. FAC: 1466

CATCODE: 141181
OPR: AF/A3O-A
OCR: AF/A4L

1.1. **Description.**

1.1.1. **Ready Aircraft Shelter.** This shelter is for fighter or tactical aircraft with an alert commitment.

1.1.2. **Alert Aircraft Shelter.** This is a shelter for aircraft with an alert commitment to be airborne within prescribed time limits.

1.2. **Requirements Determination.** Shelters are authorized for 75 percent of unit-equipped aircraft assigned to tactical air defense missions. Shelters needed for tactical aircraft not assigned to air defense are based on individual missions and locations. See UFC 3-260-01 for additional information. Obtain additional guidance from MAJCOM sources.

1.3. **Scope Determination.**

1.3.1. **Ready Aircraft Shelter.** This structure has minimal insulation and utilities. Doors are installed front and rear with no specific opening speed. Rear doors are necessary for engine exhaust. These shelters are usually created on existing aprons and are not intended for maintenance purposes. This shelter protects aircraft parked on the apron in a ready condition and during operational checks on electronic equipment. This shelter is necessary to protect equipment from dust, moisture, and high winds.

1.3.2. **Alert Aircraft Shelter.** Unlike shelters for ready aircraft, shelters for alert aircraft may be insulated and heated. Typically, each site supports up to six aircraft (four on alert and two spares). Each aircraft on alert status should be sheltered in a hangar or hangar substitute, with or without doors, depending on local climate and operational conditions. Spare aircraft are not required to be sheltered unless local climate or other conditions warrant. As a general rule, Air Sovereignty Alert (ASA) facilities north of the 38th parallel should have fully enclosed facilities with shelters for all aircraft, including spares (cold weather location), and facilities south of the 38th parallel may use ramp parking spaces for spare aircraft (hot weather location). Ensure all shelters have minimal insulation and sufficient lighting. At least one of the alert shelters should be fully enclosed, to include doors, to provide an appropriate work area for aircraft maintenance. Include lightning protection and grounding requirements IAW DoD and service directives for all new facilities to support flight line maintenance activities. Ensure shelter design and siting comply with DoD and service directives safety standards. See *ACC Air Sovereignty Alert Site Template* (August 2008) for further information.

1.4. **Dimensions.** Shelters are sized based on the aircraft being supported. See **Table 1.1** for aircraft separation inside shelters.

1.5. **Design Considerations.**

1.5.1. Shelters are intended to be pre-engineered, concrete masonry unit (CMU) block, or tilt-up concrete panel construction. A hybrid design may also be considered. Ensure doors on alert aircraft shelters have fully automatic openers. Ensure doors are power-operated with manual override features at each end of the shelter. Ensure the door operating speed provides full opening within 60 seconds of activation. Provide a minimum of two personnel doors which meet emergency exit criteria per NFPA and Life Safety Codes. All architectural features should be consistent with local base standards and Base Architectural Compatibility Plan. Comply with all local codes for wind, snow, and seismic loads. Refueling operations require a drainage system capable of handling a fuel spill.

1.5.2. Provide minimal heat (50°F) and ventilation. Provide air compressors and other real property installed equipment (RPIE) and real property similar equipment (RPSE) per local requirements, and limited temporary hazard materials storage and cryogenics (liquid oxygen [LOX], Nitrogen) storage. Each shelter requires an eyewash/shower facility.

1.5.3. Alert aircraft are loaded with explosives (loaded) and, therefore, require site planning in accordance with DoD 6055.9-Std and AFMAN 91-201. Site shelters for alert aircraft away from explosive munitions according to the Q-D safety provisions of AFMAN 91-201. Aircraft with forward-firing munitions may need a commander's risk assessment for siting purposes.

1.5.4. **Electrical.** Provide electrical converters that generate adequate technical power for aircraft maintenance/start-up requirements throughout all hangar/shelter facilities. F-15 and F-16 aircraft require 250Vdc. F-22 and F-35 aircraft require 270Vdc. Provide sufficient lighting to allow minimal flight-line level maintenance and servicing of aircraft. Emergency/back-up generators are needed for shelter door operations as a minimum and should support the entire ASA site. Back-up power should be accomplished by series smaller, load shedding, commercially available generators. Use non-diesel (or dual fuel) generators when possible (propane or natural gas). Include lightning protection IAW DoD and service directives for all new facilities to support flight line level maintenance activities. Refueling operations require provisions for Class 1, Division 1 hazardous locations below floor/grade level 5.

1.5.5. **Fire-Protection.** Comply with fire protection criteria per NFPA and Life Safety Codes. Ensure permanent, fully enclosed shelters have proper fire/safety equipment, meet National Electrical Code (NEC) and comply with UFC 3-600-1, ETLs 02-15, *Fire Protection Engineering Criteria - New Aircraft Facilities* and 01-4, *Fire Protection Engineering Criteria – Protective Aircraft Shelters (PAS)*, and NFPA standards in order to support flight line level maintenance activities. Refueling operations require an automatic foam-water fire suppression system.

Table 1.1 Aircraft Separation Dimensions Inside Hangars.

Minimum Clearances from Hangar Elements1,2						
Aircraft Element	Door		Walls		Roof Framing	
	m	ft	m	ft	m	ft
Wing Tip - under 30.5 m (100 ft) span	3	10	3	10	-	-
Fuselage - under 30.5 m (100 ft) span	3	10	3	10	3	10
Wing Tip - over 30.5 m (100 ft) span	3	10	4.6	15	-	-
Fuselage - over 30.5 m (100 ft) span	3	10	4.6	15	3	10
Tail - Vertical	2.1	7	-	-	3	10
Tail - Horizontal	3	10	3	10	3	10
Helicopter Rotor Blade	3	10	3	10	3	10

NOTES:
1. Clearances between aircraft components should be at least 3 m (10 ft) where two or more aircraft are housed. Evaluate existing hangars for the above clearances and waivers requested in accordance with UFC 3-260-01, Attachment 2 (Waiver Processing Procedures), for facilities that do not provide the minimum clearances. The above clearances are also applicable to alert and hardened aircraft.
2. For KC-10 general purpose maintenance hangars, provide 10 m (32 ft) of clearance from the tail of the KC-10 aircraft to the hangar door. The engine maintenance stand for the number two engine extends aft 5 m (17 ft) beyond the tail of the KC-10 aircraft.