

## Airfields

Modern land-based aircraft are extremely sophisticated and expensive pieces of equipment which require an airfield base to operate from. Military airfields are equipped with electronic systems to communicate with aircraft on runways and assist them in flight; defensive systems to secure their boundaries and airspace; stores of fuel and weapons for replenishing aircraft; structures for storing and maintaining aircraft; and buildings in which to house, feed and train the personnel who carry out all of the airfield's functions. This feature identifies the key areas of a typical airfield and examines each of them in detail.



## 1. Runways

Aircraft land and take-off from **runways**, which are commonly constructed of asphalt and concrete although grass, graded earth, ice, steel planking and water can also be used. The threshold at each end is marked with a series of white stripes and the compass orientation of the runway, and a centre-line is painted along the middle to assist pilots in steering their aircraft. There can be an overshoot/undershoot area at each end, beyond the touchdown zone, along with an arrestor cable to halt overshooting aircraft.

Also visible near runways are the systems of lights bracketing the touchdown zone, to assist pilots in making their approach to the runway and the localiser and glide-slope elements of the Instrument Landing System.



## 2. Aircraft

The primary function of an airfield is to operate aircraft. The type, variant, quantity and state of readiness of aircraft present on aerial photography will allow the function and operational state of the site to be assessed.

In this image, two Westland Wessex helicopters, in yellow search-and-rescue livery, are visible on hardstandings.



### 3. Security

To control access to the airfield, a guardhouse is provided at the **main entrance**, where vehicles and visitors are vetted. Security personnel check access permits, operate an access barrier and issue directions to visitors. A continuous security fence encloses the airfield perimeter and is patrolled by armed guards.

In this image, the guardhouse is located at upper-right, and a security fence can be seen running from centre to lower left, between operations buildings and domestic housing.



During the Second World War, a ring of **pillboxes** was placed around the perimeters of airfields in the UK. Many of these survive to this day, such as that visible on this image, at upper left. Augmented by earth-reveted **picket** posts positioned at key locations within the site, these provide strong points for defence against attack from the ground. Installations for point defence against air attack, such as anti-aircraft artillery (AAA) and surface-to-air missile (SAM) batteries, are also commonly seen at airfields around the world.

The circular feature at lower right is the compass swing base, where the alignment of aircraft compasses is checked.



### 4. Technical Areas

Aircraft repair and maintenance is carried out in large sheds called **hangars**. These have large sliding doors, to allow aircraft access, and tend to be grouped together, adjacent to large aircraft parking aprons. Lighting towers are provided to allow the safe movement of aircraft around the hangars at night.



Some specialist technical equipment needs to be sited at a distance from domestic areas of the airfield. Here, two engine **de-tuners** can be seen on a hardstanding; these are used to test jet engines before re-fitting to aircraft.



The movement of fuel, weapons and personnel around the extensive perimeter of an airfield requires a number of specialist vehicles, all of which are housed and maintained by the station's Motor Transport section. Here, a variety of fuel bowsers, mini-buses and cars can be seen parked outside **garages** and workshops.



## 5. Dispersals

A dispersal area is an aircraft parking area situated away from the main technical site, often with some form of protection for individual aircraft.

In this image, two English Electric **Lightning** interceptors are parked on hardstandings flanked by blast walls. To offer more protection against enemy air attack, many military airfields now house their combat aircraft in **Hardened Aircraft Shelters** or Hardened Aircraft Bunkers, which can withstand a nearby bomb blast or chemical attack.



Situated close to the runway threshold, these two adjoining shelters house armed fighter aircraft assigned to rapid-response air defence duties. This Quick Reaction Alert facility, or **Q-shed**, is manned around the clock, with the aircraft and crews kept at a high state of readiness.

In this image, two McDonnell Douglas **Phantom** aircraft are parked adjacent to the shed.



## 6. Air Traffic Control

Sited with an uninterrupted view of the airfield, the **air traffic control tower** controls all aircraft movements. A signal square is provided in front of the tower and emergency vehicles are co-located with easy access to the runways.

To assist aircraft to manoeuvre safely in crowded skies and bad weather, a variety of electronic navigation aids, instrument landing and precision approach radar systems are available on modern airfields.



## 7. Munitions Storage

Bombs, ammunition, missiles, explosives and pyrotechnics are stored in a secure compound located well away from technical and domestic areas of the airfield. The **storage buildings** are protected by blast walls or earth revetments and are arranged in a symmetrical pattern, well-served by road. In this image, the site can be seen to be enclosed by a double security fence.



## 8. Fuel Storage

Airfields normally have several bulk fuel storage installations, since intensive aircraft operations consume vast quantities of fuel. These installations are located around the airfield and can be sited unprotected above-ground, semi-buried or completely buried. Fuel bowsers are used to move fuel to the aircraft and each fuel store has a road loop to permit vehicle movement.



## 9. Domestic Areas

Airfields are manned by highly-trained personnel who live in barrack accommodation adjacent to the technical area of the base. Barrack blocks normally have a regular plan and are situated adjacent to dining, recreation and car-parking facilities.

