Attachment 8

JET BLAST EFFECTS

A8.1. Contents. Jet blast affects various operational areas at an airport. Personnel safety is a major concern in terminal, maintenance, and cargo areas.

A8.2. Considerations. The effects of jet blast are far more serious than those of prop wash and must be considered when designing aircraft parking configurations for all military and civil aircraft. These high velocities are capable of causing bodily injury to personnel, damage to airport equipment, or damage to certain pavements and other erodible surfaces.

A8.2.1. Blast Temperatures. High temperatures are also a by-product of jet exhaust. The area exposed to hazardous high temperatures is typically smaller than the area subjected to hazardous blast velocities.

A8.2.2. Blast Velocities. Blast velocities greater than 48 km/h [30 mph] can cause loose objects on the pavement to become airborne and cause injury to personnel who may be a considerable distance behind the aircraft. The layout of aviation facilities must protect personnel from projectiles.

A8.2.3. Minimum Clearances. The minimum clearance from the rear of a jet operating at military power to dissipate the temperature and velocity to levels that will not endanger aircraft personnel and damage other aircraft is referred to as the safe distance. Safe distances are discussed in paragraph A8.5.

A8.2.4. Engine Blast Relationship. Each jet engine has its own footprint of temperature and velocity versus distance. Jet blast relationships for Army, Air Force, and selected civil aircraft may be obtained from the sources listed in Attachment 7. The relationships are in graphical format showing velocity versus distance and temperature versus distance at various power settings. The planner/designer should obtain the jet blast relationship when the effects of jet blast could create a hazardous condition for personnel and equipment.

A8.3. Protection from Jet Blast Effects:

A8.3.1. Blast Deflectors. Equipment such as blast deflectors may be required at locations where continued jet engine runup interferes with the parking or taxiing of aircraft, the movement of vehicles, and the activities of maintenance or aircraft personnel. Additional information on jet blast deflectors is presented in Attachment 9 of this manual.

A8.3.2. Unprotected Areas. Airfield unprotected areas which receive continued exposure to jet blast can erode and cause release of soil, stones, and other debris that can be ingested into jet engines and cause engine damage.

A8.4. Noise Considerations. Protection against noise exposure is required whenever the sound level exceeds 85 dB(A) continuous, or 140 dB(A) impulse, regardless of the duration of exposure.

A8.5. Jet Blast Requirements:

A8.5.1. Parked Aircraft. Criteria in AFH 32-1084, *Facility Requirements Handbook*, state that a minimum clearance is needed to the rear of an engine to dissipate jet blast to less than 56 km/h [35 mph] and not endanger personnel. Velocities of 48 km/h [30 mph] to 56 km/h [35 mph] can occur over 490 meters [1,600 feet] to the rear of certain aircraft with their engines operating at takeoff thrust. However, these velocities decrease rapidly with distance behind the jet engine.

A8.5.2. Taxiing Aircraft. The distance from the rear of the aircraft engine to the wingtip of other aircraft will be:

A8.5.2.1. A minimum of 38 meters [125 feet];

A8.5.2.2. A distance such that jet blast temperature will not exceed 38 °C [100 °F];

A8.5.2.3. A distance such that jet blast velocity will not exceed 56 km/h [35 mph].