

UNIT-4

GEOMETRIC DESIGN OF RUNWAYS AND TAXIWAYS

TAXIWAY:



Taxiways are defined as paths on the airfield surface for the taxiing of the aircraft and are intended to provide linkage between one part of the airfield and another part of the airfield. What it wants to say is that we are trying to provide the connectivity for those aircrafts, which are reaching or arriving on any of the airport, so that they can taxi on this particular lane away from the active runway strip on which the continuous movements are going on and in that sense it provides a connectivity between the different locations or different parts of any airport and all those such connectivity's are termed as taxiways.

Taxiway is the paved way rigid or flexible which connects runway with loading apron or service and maintenance hangers or with another runway. They are used for the movement of aircraft on the airfields for various purposes such as exit or landing, exit for takeoff etc. The speed of aircraft on taxiway is less than that during taking off or landing speed.

The taxiway should be laid on such a manner to provide the shortest possible path and to prevent the interference of landed aircraft taxiing towards loading apron and the taxiing aircraft running towards the runway. The intersection of runway and taxiway should be given proper attention because during turning operation, this part comes under intense loading. If it is weaker then the aero plane may fall down from taxiway. Its longitudinal grade should not be greater than 3% while its transverse gradient should not be less than 0.5%. It is also provided with a shoulder of 7.5m width paved with bituminous surfacing. The taxiway should be visible from a distance of 300m to a pilot at 3m height from the ground.

Taxiway Lights

Taxiway Edge Lights: Taxiway edge lights are blue in color and line the taxiways. Airports often have green taxiway centerline lights, as well.

Clearance Bar Lights - Set inside the taxiway, clearance bar lights are steady yellow and are meant to increase the visibility of a hold line or a taxiway intersection at night.

Stop Bar Lights - Only installed at select airports, stop bar lights are meant to reinforce an ATC clearance to cross or enter a runway in low visibility situations (low IMC). They're in-pavement lights that are steady red and extend across the taxiway at a hold short line. Once a pilot is cleared onto the runway, the stop bar lights will be turned off.

Runway Guard Lights - A pair of two steady yellow lights that are positioned at each side of the taxiway at the hold short line, the runway guard lights are meant to draw attention to the hold short line - the area where a taxiway meets the runway.

Runway Lights

Runway End Identifier Lights (REILs): A pair of white flashing lights, one on each side of the approach end of the runway, that help identify the runway from taxiways at night.

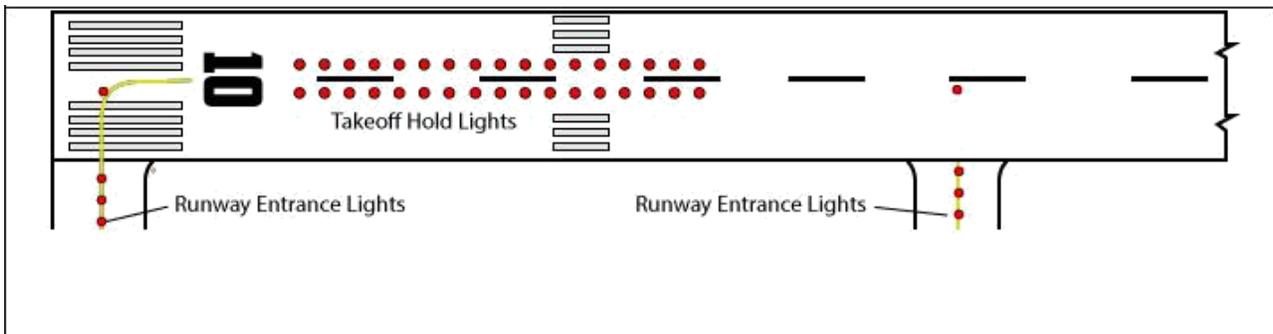
Runway Edge Light Systems (HIRL/MIRL/LIRL): The runway edge lights are steady white lights on the edges of the runways. On instrument runways, the white lights change to yellow during last 2,000 feet, or half the runway length, whichever is less, and then they turn red as the aircraft reaches the end of the runway. They can be high—intensity.

Runway Centerline Lighting System (RCLS) - On some precision runways, a runway centerline light system is installed, with white lights spaced at 50-ft intervals on the centerline of the runway. With 3,000 feet remaining, the white lights change to alternating white and red, and then all red during last 1,000 feet.

Touchdown Zone Lights (TDZL) - Touchdown zone lights are steady white lights placed in two rows next to the centerline, starting at 100 feet and extending to the midpoint of the runway, or 3,000 feet beyond the threshold, whichever is less.

Land and Hold Short Lights - When land and hold short operations (LAHSO) are in effect, flashing white lights may be seen across the runway at the hold short line.

Other runway lighting may include Runway Status Lights (RWSL), which includes Runway Entrance Lights (RELs), the Takeoff Hold Light Array (THL), Runway Intersection Lights (RILs), and the Final Approach Runway Occupancy Signal (FAROS). These lights work in conjunction with surveillance systems and are fully automated. They assist in informing pilots and ground vehicle operators when it's safe to enter or cross a runway.





•Runway-Holding Position Marking

