Runway Excursion 2018 projects

ALTA 2018

Mayor cities workshops

Pilots and controller's simulator section visit

Proposed cities

Miami, Mexico City,
El Salvador, San Jose,
Panama City, Bogota, Lima,
Santiago, Buenos Aires,
São Paulo.

Workshop Agenda

- Pilot`s Perspective 08:00 AM 08:50 AM
- Break 08:50 AM 09:00 AM
- Controller`s Perspective 09:00 AM 09:50 AM
- Break 09:50 AM 10:00 AM
- Airports Lights and Signals 10:00 AM 10;50 AM
- Break 10:50 AM 11:00 AM
- Exercises 11:00 AM 13:00 PM

Pilots Perspective

External conditions management

Runway Condition: Dry, wet, Contaminated.
Braking action: Good, good to medium, medium, medium to poor, poor, nil.
Contamination Codes: # 5 Slush dry snow, wet snow, frost. Code # 4 Contacted snow. Code # 3 Dry or wet snow over compacted snow. Code # 2 Water. Code # 1 Ice and wet ice.
Landing Assessment: Actual runway conditions witch it is going to use, including weather conditions, with normal or abnormal configuration.

Internal conditions management

• **Energy Management:** Airspeed and trend. Altitude, vertical speed or flight path. Drag, speed brakes, landing gear, flaps, slats, spoilers. Thrust.

- In case of inadequate energy management results, may be the following: Loss of control, Landing before reaching the runway, Hard landing, Tail strike, Runway veer off or Runway overrun

Energy Management Recommendations

- Do not allow the airplane to be out of control due to inadequate energy management.
- Think ahead, maintain the highest situational awareness, be prepare to configure the aircraft before it is too late to reduce altitude or speed, use all air decelerated devices.
- Follow ATC instructions, but don't be afraid to say **NO** to them, whenever it's not possible to comply with or instructions will lead the airplane to be unstable later on.

Flare/Landing Technique

- Airborne segment: from a height of 50 feet above the landing surface to the point of main gear touchdown.

- Transition segment: the distance traveled from the point of main gear touchdown to the point where all deceleration devices are used.

- Final stopping configuration: from the point where all deceleration devices used to the point where the airplane comes to a stop.

Flare/Landing technique recommendations

- Review particular runway touchdown, marking and lighting devices well before each landing.
- Maintain constant approach path with or without AP, using electronic guidance, PAPI or visual clues.
- Plan to land at aim point independently of runway length.
- Use aircraft manufacturer recommended landing technique depending of actual conditions. (After crossing runway threshold at 50 feet, reduce descent rate at aprox. 300 feet per minute in order to touchdown with idle thrust)
- Use all available ground decelerating devices, do not take more than necessary time to reduce speed with the correct use of speed brakes, reverses and brakes.

Summary for Pilots

- It is the pilot's responsibility to conduct a landing assessment process.
- Use the proper landing technique according with aircraft manufacturer.
- Apply aeronautical decision-making (ADM) to execute a safe landing or executed a Go-Around if necessary.
- Finally, be proficient in landing techniques (automatic or manual) based on the actual landing conditions.

Controllers Perspective

Basic principles

Unstable approach precursors: weather, tailwind, fatigue, pressure, workload, poor planning, pilot error, Air Traffic Control (ATC) interaction, procedures.
Pilot's Responsibility: discontinues the approach anytime it become unstable.
ATC Involvements in Unstable Approaches: Distances, descent planing, route changes or instructions.

Flight Crew Responsibility

- The flight crew should determine that the track miles proposed by the controller are inadequate for the normal descent profile, so they may request additional track miles to enable them to comply with their criteria restrictions for maintaining a stabilized approach.

- If the extra miles are not available, and the crew continues with the approach, there is an increased risk that the approach may become unstable.

Descent Theory & variations

- Descent planning for jet aircraft is often based on a ‘three times' rule of thumb.
- Point A to point B to point C descent.
- Ideally, no speed instruction is given to an aircraft. (Descent via).
- Altitude or speed restrictions lower or higher than the one on FMS or charts.
- Altitude and speed restrictions at the same time.

Confidence due to Over Confidence

- Refers to the flight crew's or controllers experience with a particular area, allowing them to anticipate instructions or procedures associated with that area.
- As an example, certain airports publish arrival procedures that are seldom adhered to; instead, an unofficial vectored route is provided which may be longer or shorter.
- Pilots or controllers familiar with the approach will most likely position the plane high or low on the descent/ approach in anticipation of the route change.
- Most major airlines use “Airport Briefing” notes to try to provide some local knowledge to crews. This information comes from either pilot or ATC feedback and from previous incidents or hazard reports.

ATC Involvements in Unstable Approaches during final segment

- **Change of Runway Prior to arrival:** instruments to visual or instruments to instrument.
- **Change of Approach:** precision to non precision, ILS to RNAV, Non precision to prediction, etc.
- **Visual Approaches:** to know or unknown airports.
- **Vectoring for Approach:** Sometimes it is good, sometimes isn't.

Speed Restrictions on Final Approach

- Standard 3 degree ILS.
- Approach to be flown at 160 knots until 4 nautical miles, most of the time will be too fast to comply with stabilize approach and landing concepts.
- Pilots must inform, if they can not comply with the allocated speed restriction.

Conclusion

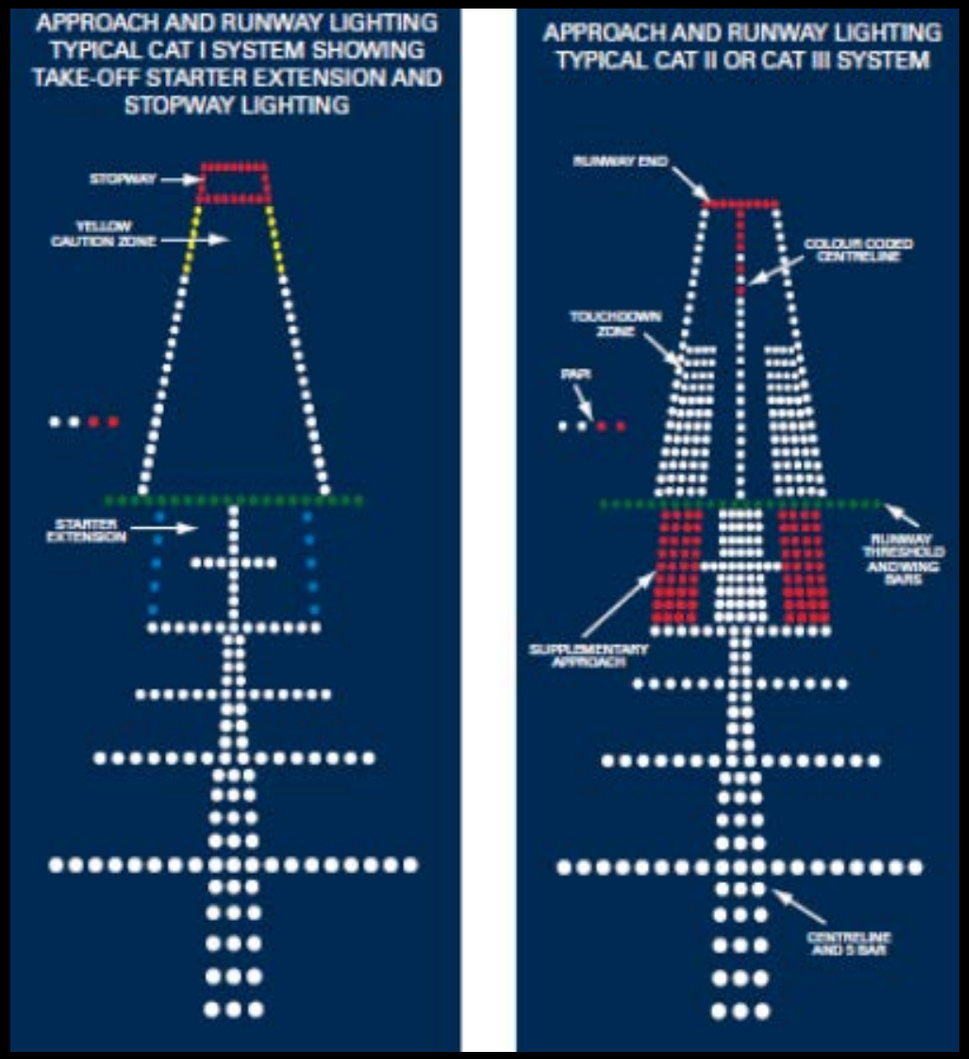
- The events that lead to an unstable approach can already begin to transpire during the initial descent (i.e., long before glide slope intercept).
- Unstable approaches increase risk of an unsuccessful approach and/or landing.
- Any time the route is modified or speed instructions are provided, pilots must be aware of managing techniques.
- If significant shortcuts are provided during the descent, rather than help the flight crew, will give them extra loads.

Conclusion cont.

- Differences between descent and decelerate compared to only descending or only decelerating.
- When providing aircraft with vectors for approach.
- A late runway change.
- Flight crews usually find non-precision approaches more complex.
- Visual approaches and circling approaches.

Category I, II and III Lighting system

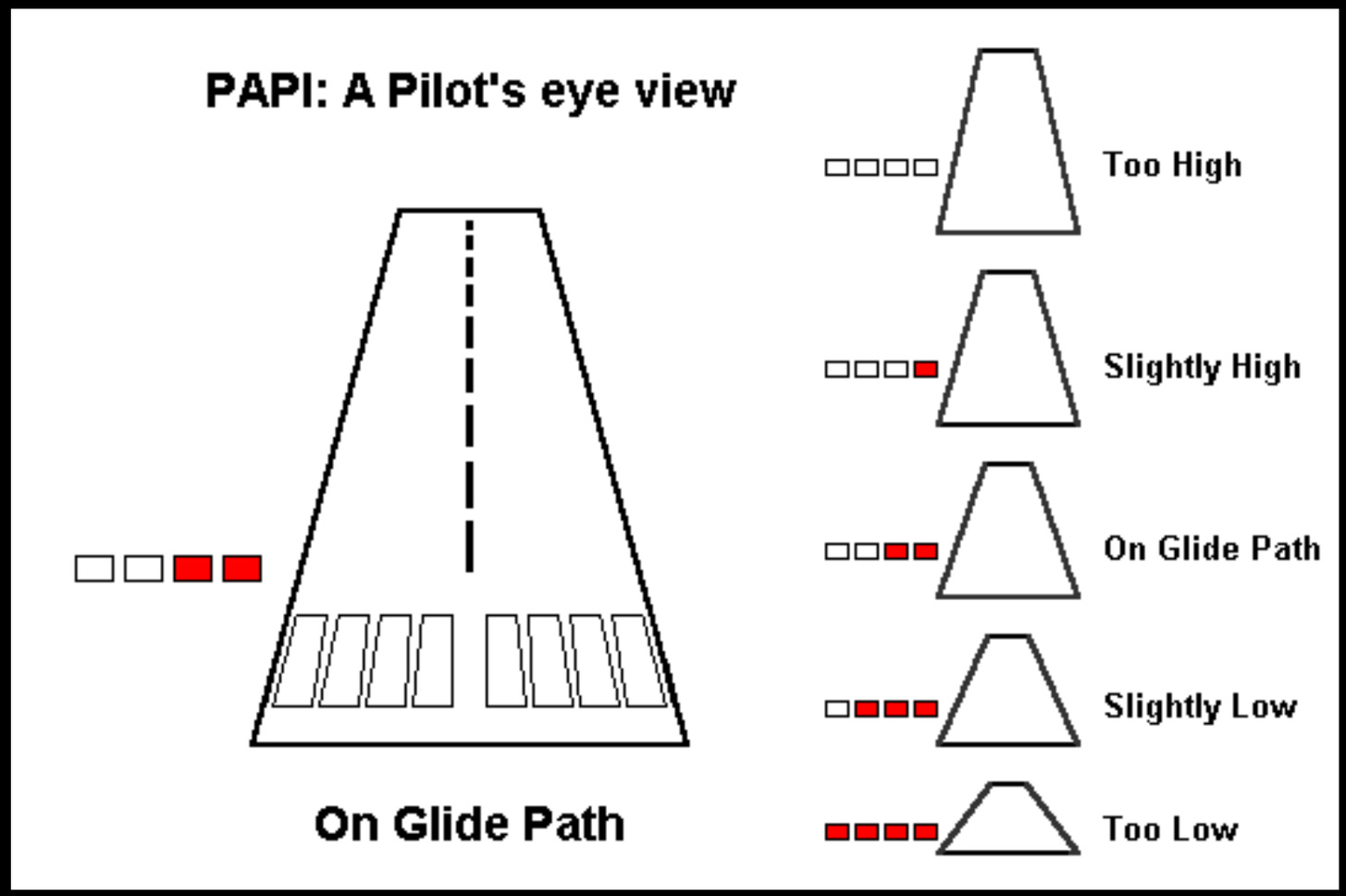
Where Category II and III approaches are conducted, Approach Lighting consisting of centerline barrettes and two rows of red side barrettes are installed in order to provide the pilot with enhanced visual cues over the last 300 m of the approach.



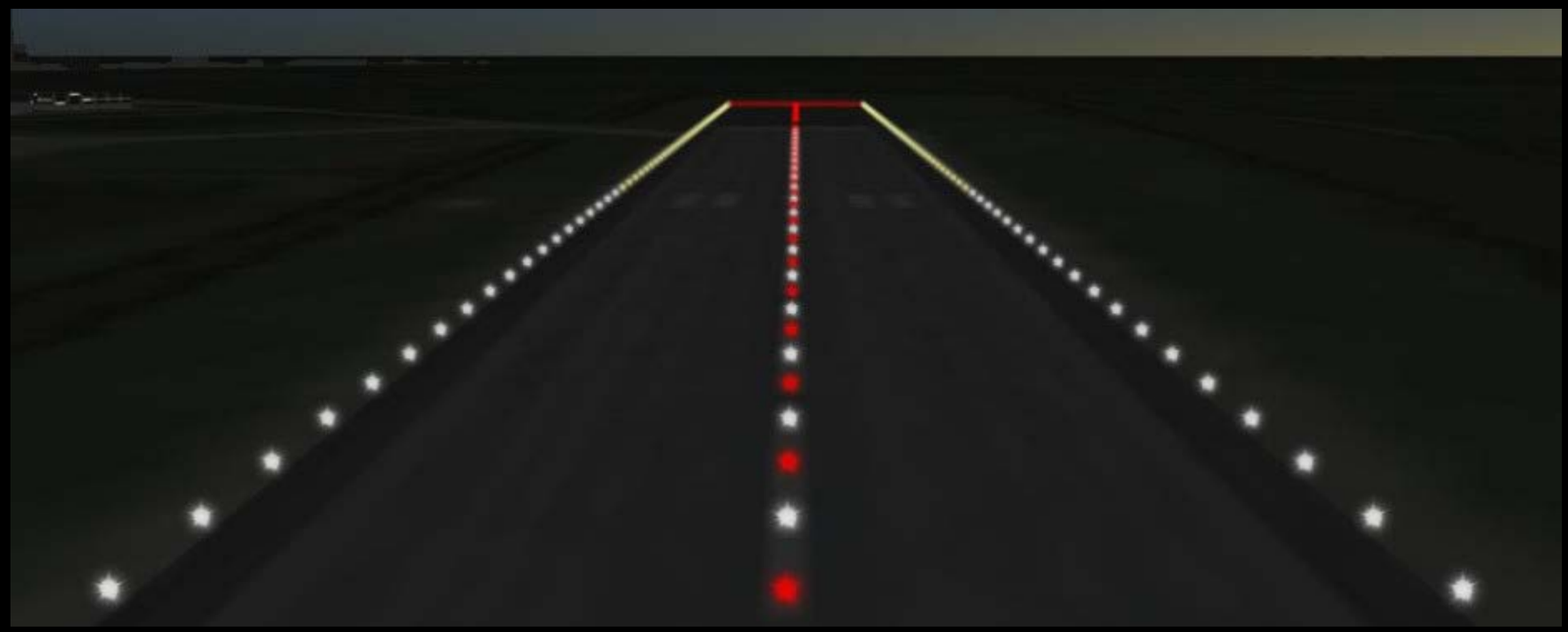
Precision Approach Path Indicator (PAPI)

This visual aid provides approach slope guidance by use of red and light signals.

The PAPI signal is not designed to be used beyond 15° either side of the runway centerline.



Runway edge lights system

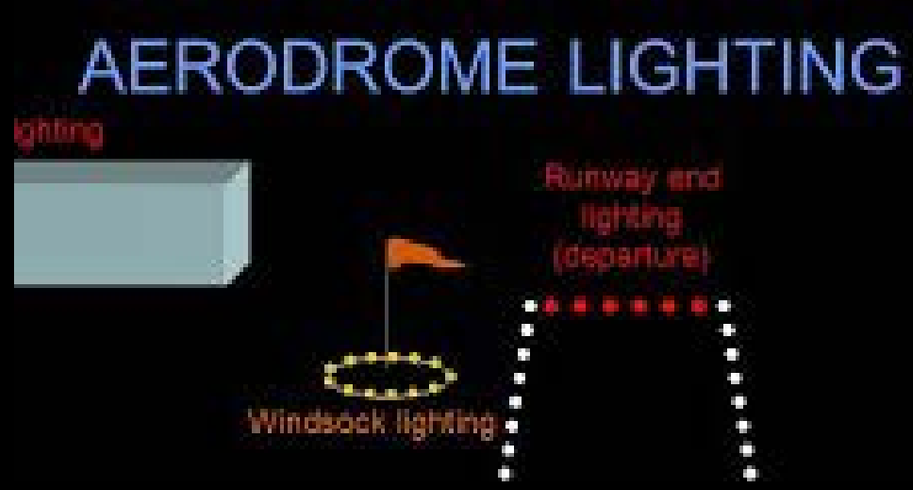


Runway Edge Lighting is located along the edges of the area declared for use as the runway delineated by edge markings.

Longitudinal spacing between light units must not exceed 200 ft (61 m).

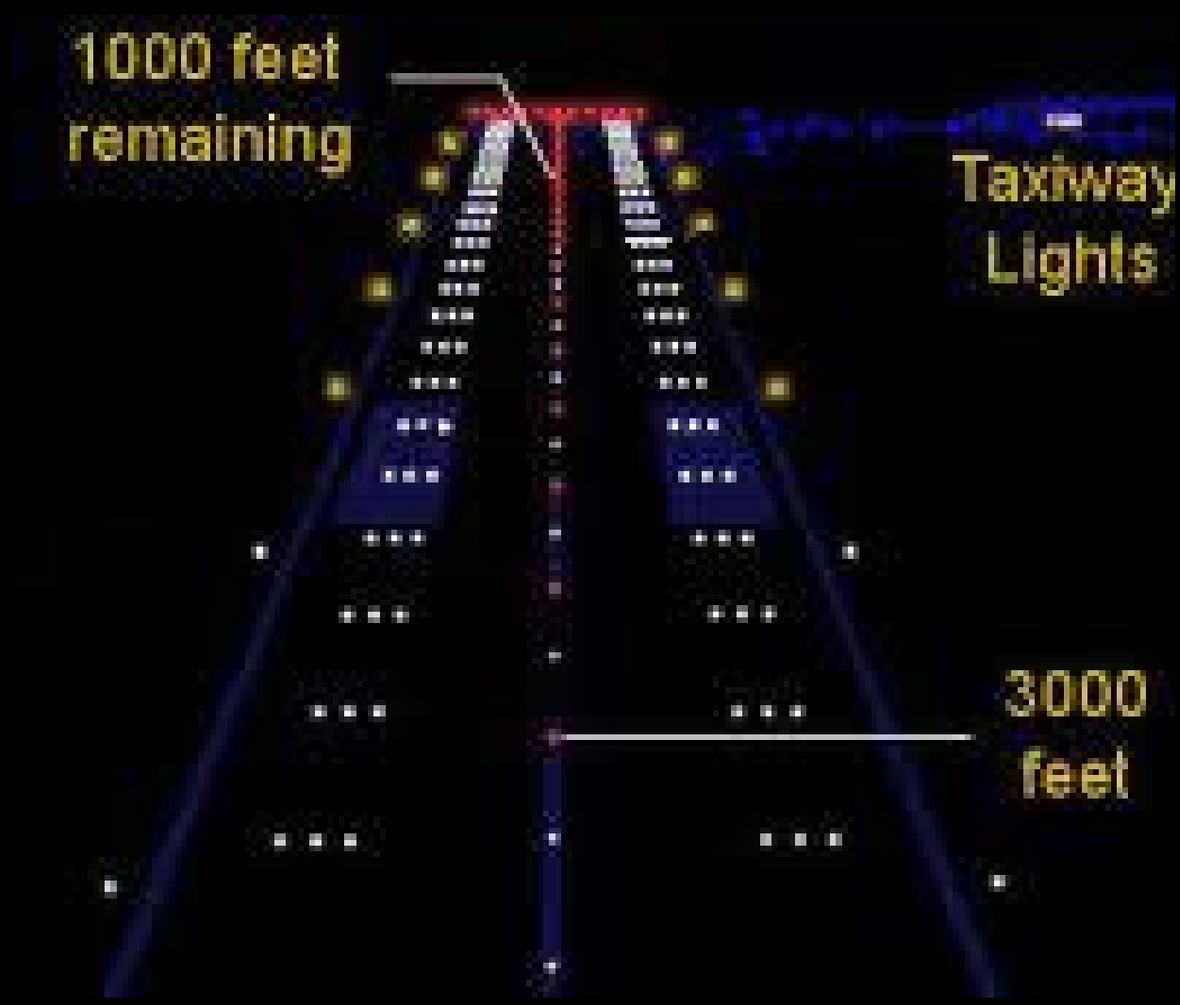
Runway threshold lighting

* is green and indicates the start of the available landing distance.
* Runway end lighting is red and marks the extremity of the runway.
* Pilots should not land before the green threshold lighting nor continue a landing roll or taxi beyond the red runway end lights.



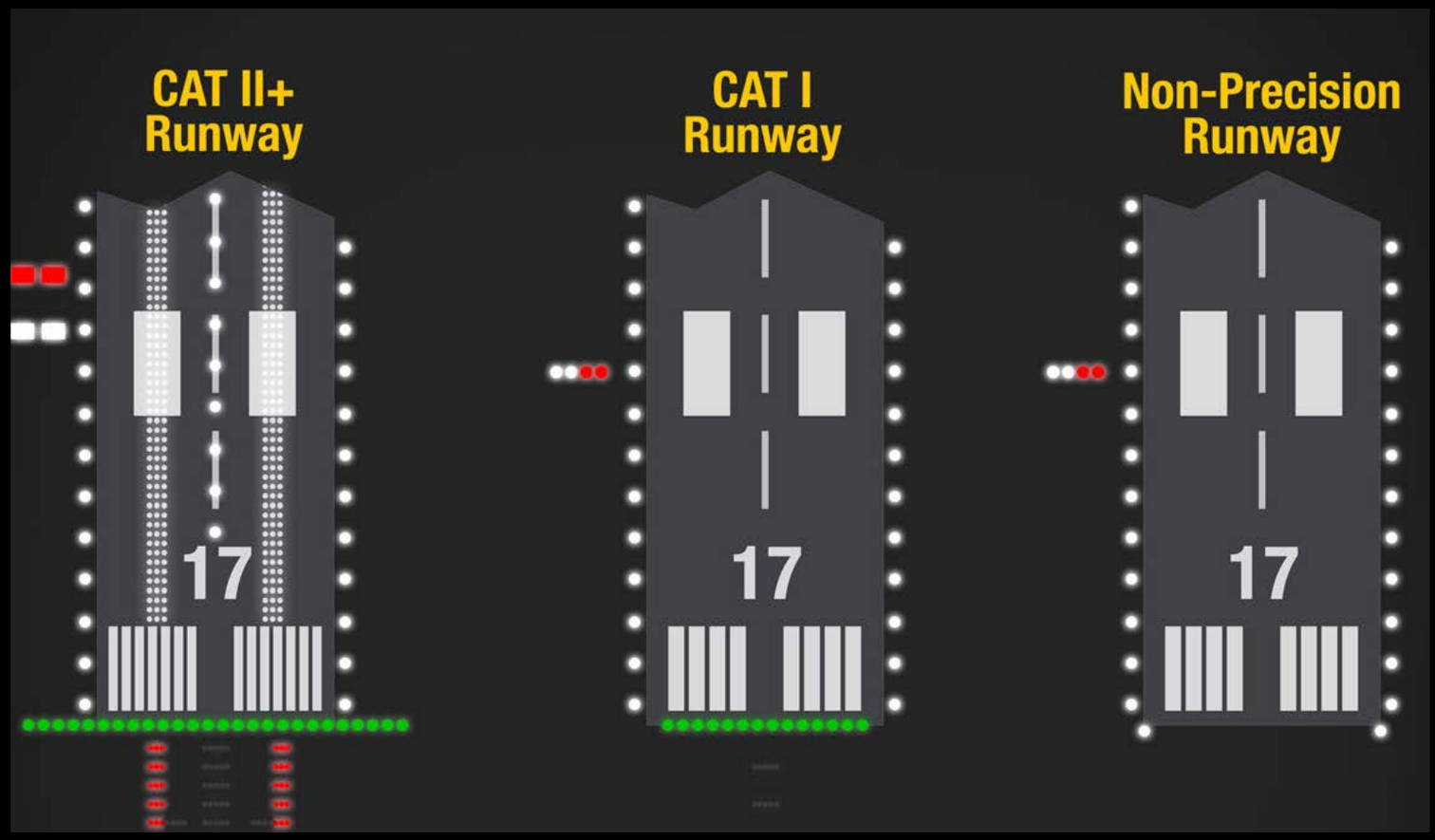
Hi intensity centerline lighting

Is provided to help in low visibility operations.
The centerline lighting is color coded in order to warn a pilot of the approaching end of the runway.
They extends from the threshold to 900 m from the runway end, the following 600 m is lit with alternate and red and the final 300 m lit by red centerline lighting.



Touchdown Zone (TDZ)

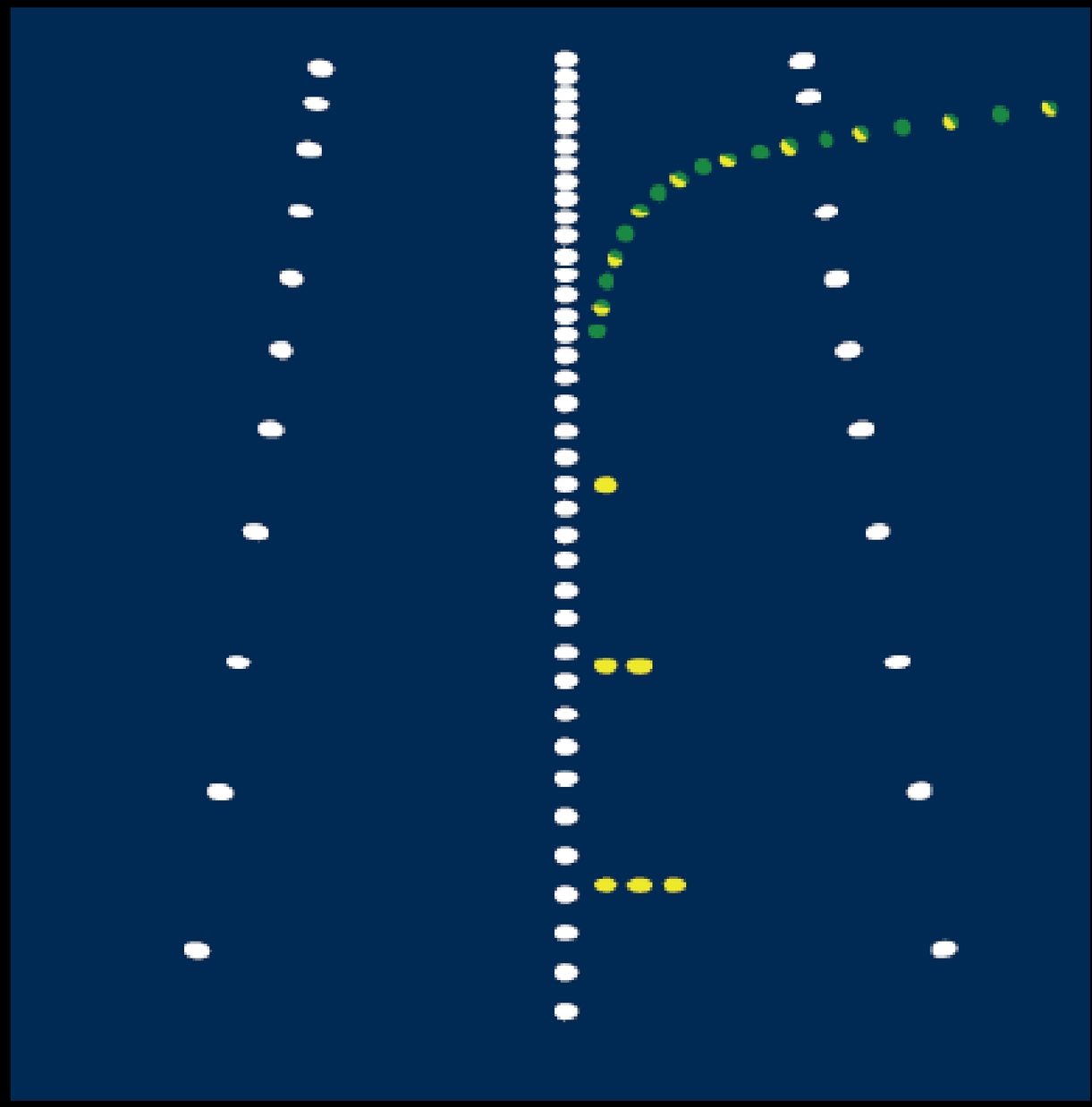
On runways equipped for Category II and III approaches, additional lighting consisting of two rows of barrettes is installed in order to provide textural cues in the touchdown area.



The additional lighting extends from the threshold either for 900 m or to the midpoint of the runway, whichever is the lesser distance.

Rapid exit taxiway

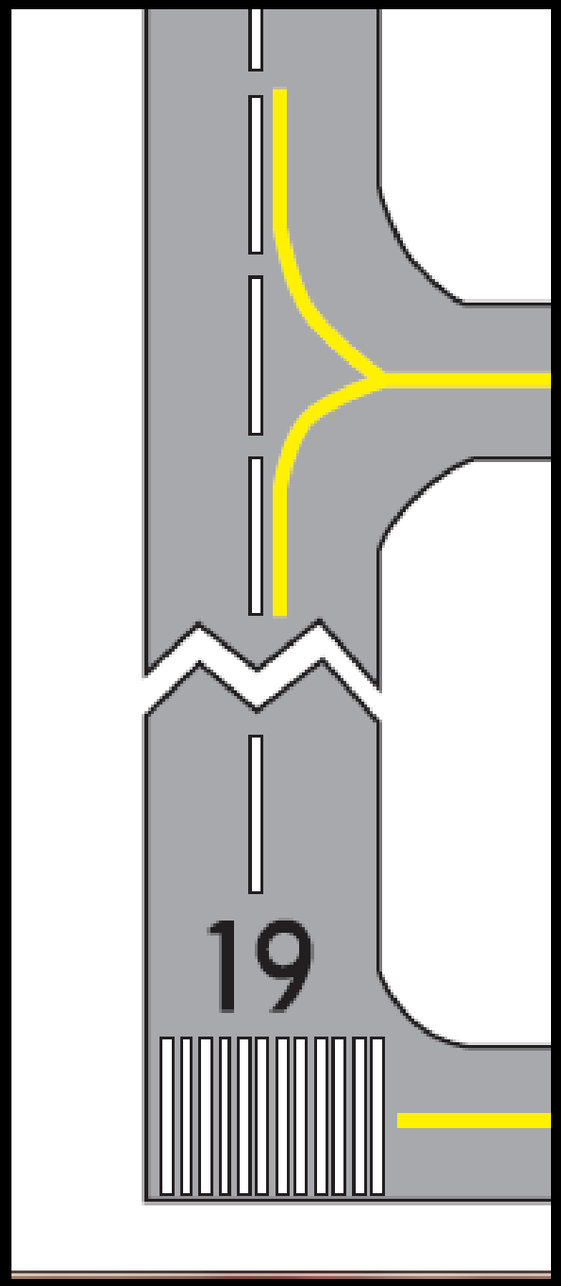
indicator lights (RETILs) provide pilots with distance to go information to the nearest rapid exit taxiway on the runway, to enhance situational awareness in low visibility conditions and enable pilots to apply braking action for more efficient roll-out and runway exit speeds.



Runway Centerline Marking

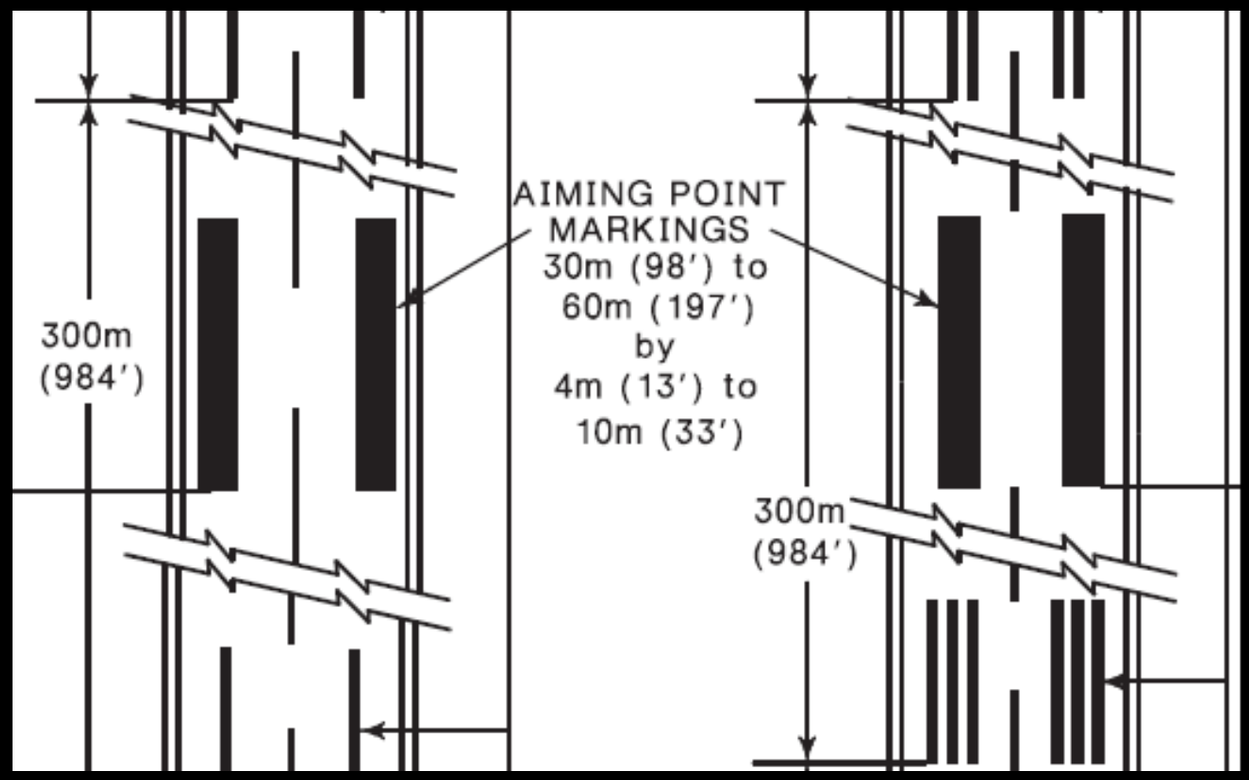
The runway centerline identifies the center of the runway and provides alignment guidance during takeoff and landings.

The centerline consists of a line of uniformly spaced stripes and gaps.



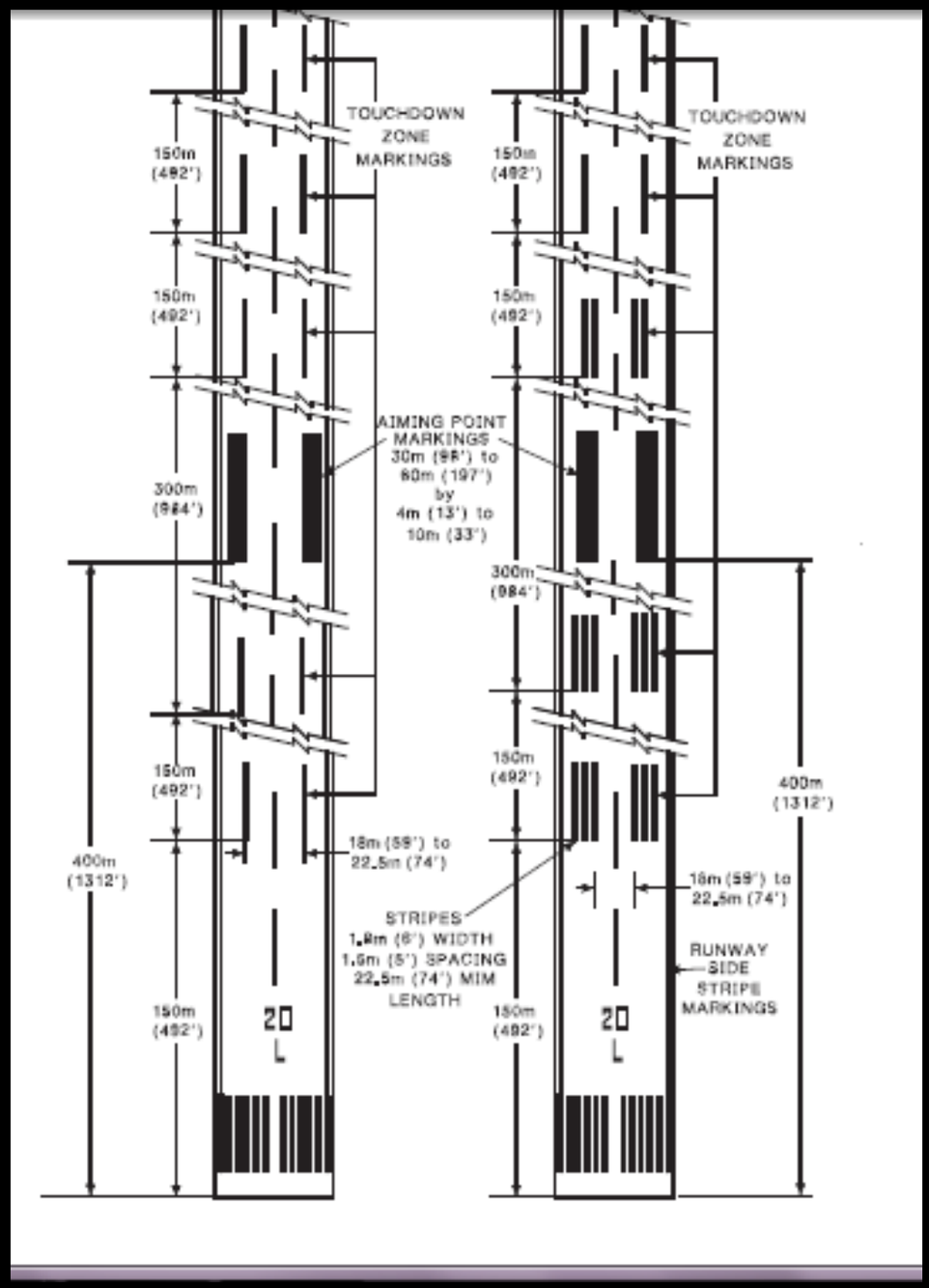
Runway Aiming Point Marking

The aiming point marking serves as a visual aiming point for a landing aircraft. These two rectangular markings consist of a broad white stripe located on each side of the runway centerline and approximately 1,000 feet from the landing threshold, Precision Instrument Runway Markings.

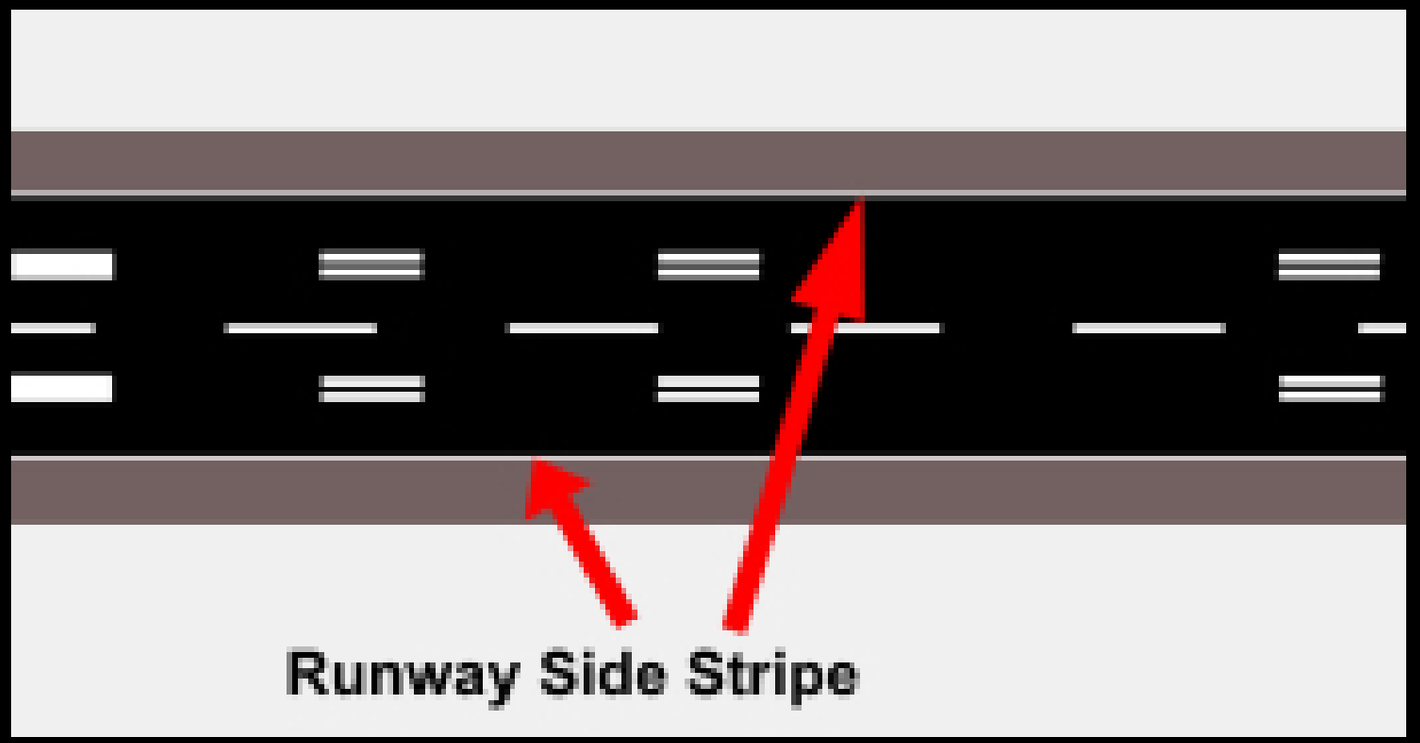


Runway Touchdown Zone Markers

The touchdown zone markings identify the touchdown zone for landing operations and are coded to provide distance information in 500 feet (150m) increments.
These markings consist of groups of one, two, and three rectangular bars symmetrically arranged in pairs about the runway centerline.



Runway side stripe markings

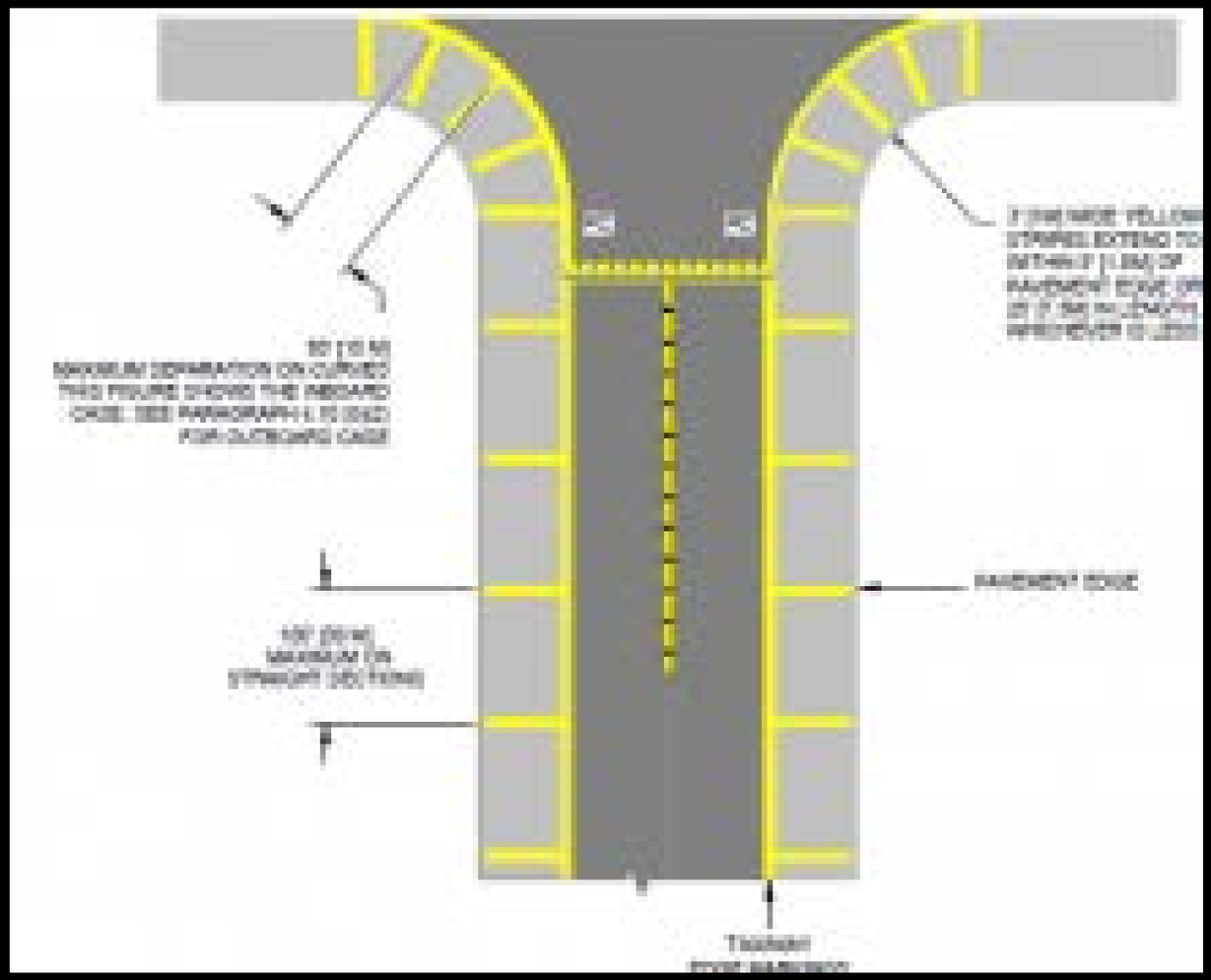


Stripe Markings are provided between the thresholds of a paved runway where there is lack of contrast between the runway edges and the shoulders. Runway side stripe markings are provided on precision approach runways.

Runway Shoulder Markings

Runway shoulder stripes may be used to supplement runway side stripes to identify pavement areas contiguous to the runway sides that are not intended for use by aircraft.

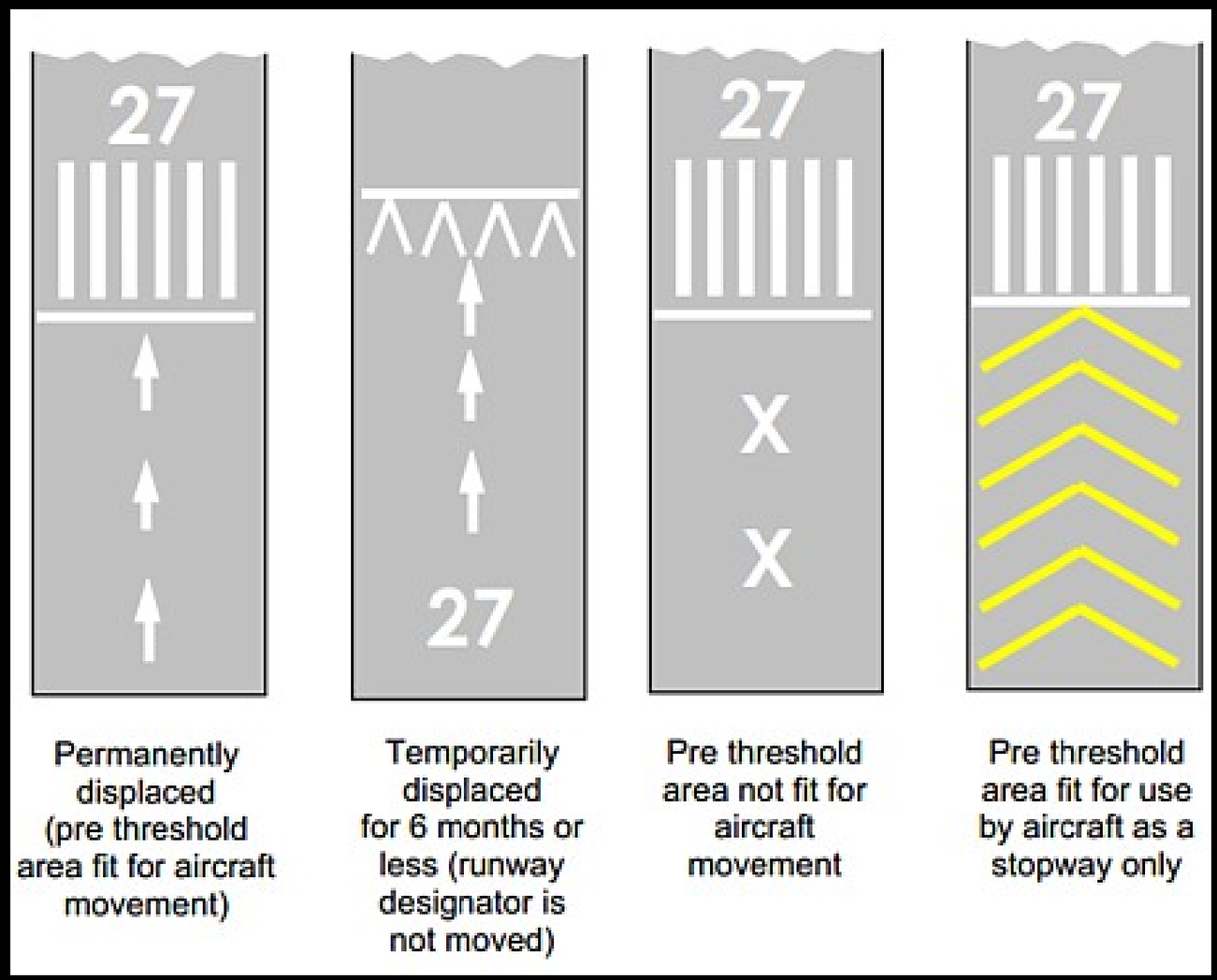
Runway Shoulder stripes are yellow.



Runway Threshold Markings

They either consist of eight longitudinal stripes of uniform dimensions disposed symmetrically about the runway centerline, or the number of stripes is related to the runway width.

A threshold marking helps identify the beginning of the runway that is available for landing. In some instances the landing threshold may be relocated or displaced.



Runway Distance Remaining

Are used to provide distance remaining information to pilots during take-off and landing operations.
The signs indicate distance remaining in thousands of feet.

The signs are located along one or both sides of the runway, and the inscription consists of a white numeral on a black background.

Pilots and controller's simulation section visit

Miami, Mexico City,
El Salvador, San Jose,
Panama City, Bogota,
Lima, Santiago,
Buenos Aires, São Paulo.

Taca international Proposal

Recurrent training Simulador section visit.

Ideal abnormal situations: Unstable approaches, control flight into terrain, TCAS events, lost of control condition and recovery.

Workshop exercises

Flight or ATC simulator for pilots and controllers at the same time.