

ICAO RECOMMENDED AIRPORT SIGNS, RUNWAY AND TAXIWAY MARKINGS

MANDATORY INSTRUCTION SIGNS

Application

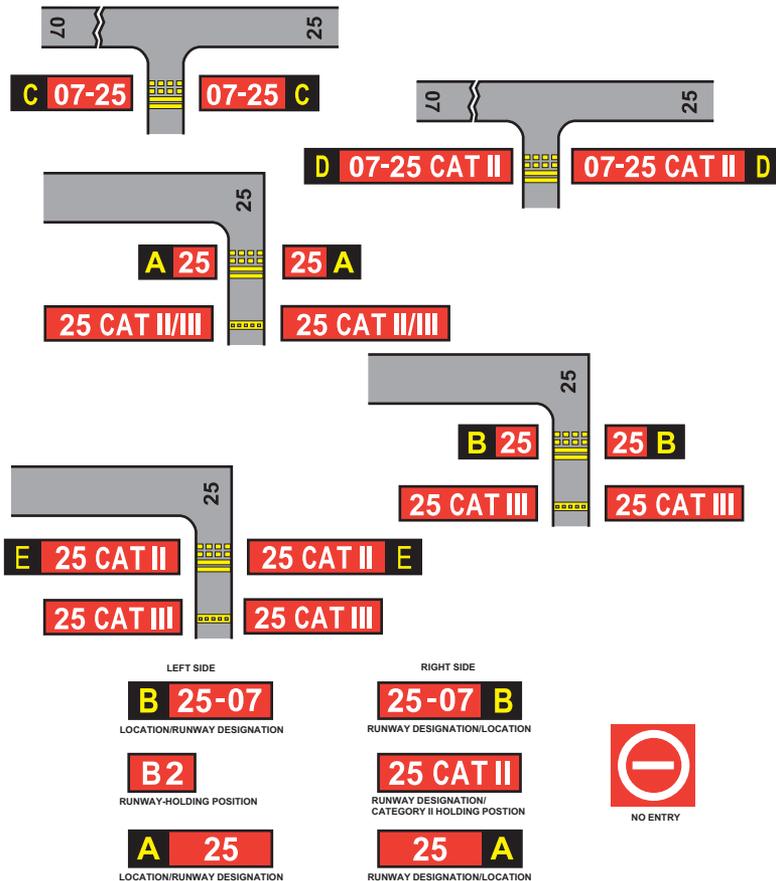
A mandatory instruction sign identifies a location beyond which an aircraft taxiing shall not proceed unless authorized by ATC. At uncontrolled airports, use appropriate precautions prior to proceeding. Mandatory instruction signs may include runway designation signs, category I, II or III holding position signs, runway-holding position signs and NO ENTRY signs. Runway-holding position markings are supplemented at a taxiway/runway or a runway/runway intersection with a runway designation sign. A runway designation sign at a taxiway/runway intersection or a runway/runway intersection will be supplemented with a location sign in the outboard (farthest from the taxiway) position, as appropriate. A NO ENTRY sign is provided when entry into an area is prohibited.

Location

A runway designation sign at a taxiway/runway intersection or a runway/runway intersection will be located on each side of the runway-holding position marking facing into the direction of approach to the runway. A category I, II or III holding position sign will be located on each side of the runway-holding position marking facing into the direction of the approach to the critical area. A runway-holding position sign will be located on each side of the runway-holding position facing the approach to the obstacle limitation surface or ILS/MLS critical/sensitive area, as appropriate.

Characteristics

Mandatory instruction signs have a red background, with white inscriptions. The inscriptions on a runway designation sign will consist of the runway designations of the intersecting runway properly oriented to the viewing direction. The inscriptions on a category I, II or III or joint II/III holding position sign will consist of the runway designator followed by CAT I, CAT II or CAT III as appropriate. The inscriptions on a runway-holding position sign will consist of the taxiway designation and a number.



ICAO RECOMMENDED AIRPORT SIGNS, RUNWAY AND TAXIWAY MARKINGS

INFORMATION SIGNS

Application

An information sign identifies a specific location or routing. Information signs include: direction, location, destination, runway exit and runway vacated signs. A runway exit sign is provided to identify a runway exit. A runway vacated sign is provided where the exit taxiway has no centerline lights and there is a need to indicate leaving the runway, the ILS/MLS critical/sensitive area. A destination sign indicates the direction to a specific destination, such as cargo, general aviation, etc. A combined location and direction sign indicates routing information prior to a taxiway intersection. A direction sign identifies the designation and direction at a taxiway intersection. A location sign is provided in conjunction with a runway designation sign except at a runway/runway intersection.

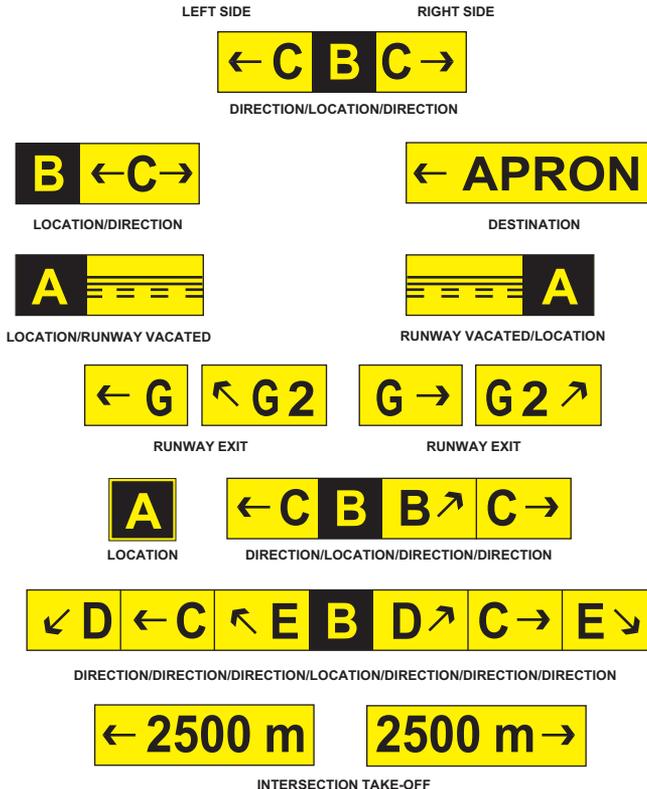
Location

Information signs are located on the left-hand side of the taxiway in line with the taxiway intersection marking. Where there is no taxiway intersection marking the sign is installed at least 40m away from the centerline of the intersecting taxiway. A runway exit sign is located on the same side of the runway as the exit is located (i.e. left or right). A runway vacated sign is located at least on one side of the taxiway.

Characteristics

An information sign other than a location sign consists of an inscription in black on a yellow background. A location sign consists of an inscription in yellow on a black background. A runway exit sign consists of the exit taxiway designator and an arrow indicating the direction to follow. A runway vacated sign depicts the runway-holding position marking as shown in the example in Pattern A in the example under "Runway-Holding Position Markings". The inscriptions on a destination sign comprise an alpha, alphanumerical or numerical message identifying the destination plus an arrow indicating the direction to proceed. The inscriptions on a direction sign comprise an alpha, alphanumerical message identifying the taxiway(s) plus an arrow or arrows appropriately oriented as shown in the example. The inscriptions on a location sign comprise the destination of the location taxiway, runway or other pavement the aircraft is on or is entering.

Note: Generally, signs should be lighted if the runway or taxiway on which they are installed is lighted.



ICAO RECOMMENDED AIRPORT SIGNS, RUNWAY AND TAXIWAY MARKINGS

MANDATORY INSTRUCTION MARKINGS

Application

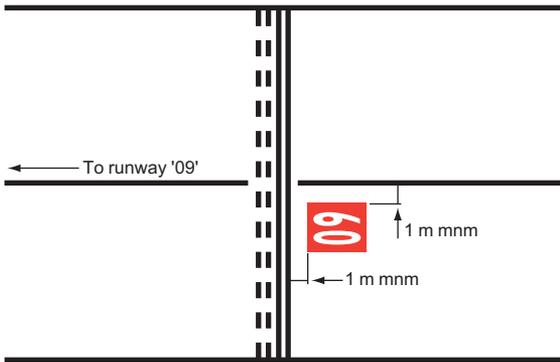
Where it is impracticable to install a mandatory instruction sign a mandatory instruction marking is provided on the surface of the pavement. Where operationally required, such as on taxiways exceeding 60m in width, a mandatory instruction sign may be supplemented by a mandatory instruction marking.

Location

The mandatory instruction marking is located on the left-hand side of the taxiway center line marking on the holding side of the runway-holding position marking.

Characteristics

Mandatory instruction markings consist of an inscription in white on a red background. Except for a NO ENTRY marking, the inscription provides information identical to that of the associated mandatory instruction sign. A NO ENTRY marking consists of an inscription in white reading NO ENTRY on a red background.



ICAO RECOMMENDED AIRPORT SIGNS, RUNWAY AND TAXIWAY MARKINGS

RUNWAY-HOLDING POSITION MARKINGS

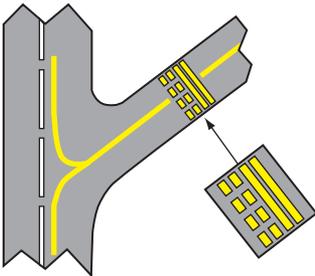
Application and Location

Runway-holding position markings are located at runway holding positions.

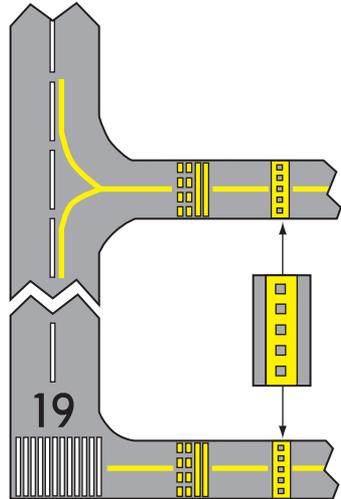
Characteristics

At an intersection of a taxiway and a non-precision, non-instrument or take-off runway or where a single runway-holding position is provided at an intersection of a taxiway and a precision approach category I, II, or III runway, the runway-holding position marking will be as shown as in pattern A. Where two or three runway-holding positions are provided at such an intersection, the runway-holding position marking closer to the runway will be as shown as in pattern A, and the markings farther from the runway as in pattern B. Where a pattern B runway-holding position marking exceeds 60m in length, the term CAT II or CAT III as appropriate will be marked on the surface at the ends of the runway-holding position marking. The runway-holding position marking displayed at a runway/runway intersection will be perpendicular to the centerline of the runway forming part of the standard taxi route. The runway-holding position marking will be shown as in pattern B.

Pattern A



Pattern B



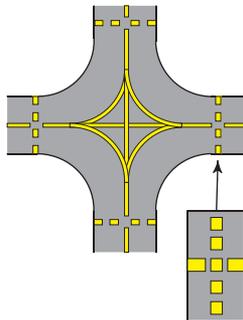
INTERMEDIATE HOLDING POSITION MARKINGS

Application and Location

An intermediate holding position marking is displayed at an intersection of two paved taxiways. It is positioned across the taxiway coincident with a stop bar or intermediate holding position lights, where provided.

Characteristics

An intermediate holding position marking consists of a single broken yellow line.



ICAO RECOMMENDED AIRPORT SIGNS, RUNWAY AND TAXIWAY MARKINGS

STOP BARS

APPLICATION

A stop bar is provided at every runway-holding position when it is intended that the runway will be used in RVR conditions less than 350m or between 350m and 550m. A stop bar will be provided at an intermediate holding position to supplement markings with lights or where normal stop bar lights might be obscured.

LOCATION

Stop bars are located across the taxiway at the point where it is desired that traffic stop. Additional lights may be provided at the taxiway edge.

CHARACTERISTICS

Stop bars consist of lights spaced at intervals across the taxiway, showing red in the intended direction of approach to the intersection or runway-holding position. Stop bars installed at a runway-holding position will be unidirectional, showing red in the direction of approach to the runway.

RUNWAY GUARD LIGHTS

APPLICATION

Runway guard lights, configuration A, are located at each taxiway/runway intersection associated with a runway intended for use in:

RVR conditions less than 550m where a stop bar is not installed; and

RVR conditions between 550m and 1200m where traffic density is medium or low.

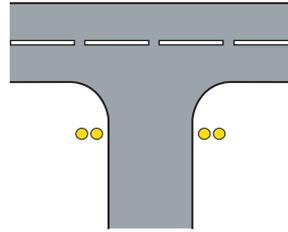
Configuration A or B or both will be provided at each taxiway/runway intersection where the configuration of the intersection needs to be enhanced, such as on a wide throat taxiway.

LOCATION

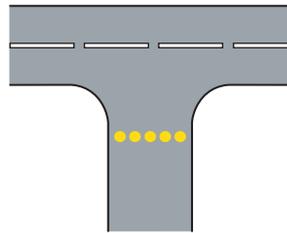
Runway guard lights, configuration A, are located at each side of a taxiway, whereas in configuration B they are located across the taxiway.

CHARACTERISTICS

Runway guard lights are unidirectional flashing yellow lights.



Configuration A



Configuration B

RUNWAY MARKINGS

Runway markings are white.

ICAO RECOMMENDED AIRPORT SIGNS, RUNWAY AND TAXIWAY MARKINGS

THRESHOLD MARKINGS

APPLICATION AND LOCATION

Threshold markings are provided at the threshold of a paved instrument and non-instrument runway intended for use by international commercial air transport.

CHARACTERISTICS

Runway threshold markings consist of a pattern of longitudinal stripes of uniform dimensions disposed symmetrically about the centerline of a runway. The number of stripes shall be in accordance with the runway width as follows:

RUNWAY WIDTH	NUMBER OF STRIPES
18m	4
23m	6
30m	8
45m	12
60m	16

Where a runway designator is placed within a threshold marking, there will be a minimum of three stripes on each side of the runway centerline. Stripes are at least 30m long.

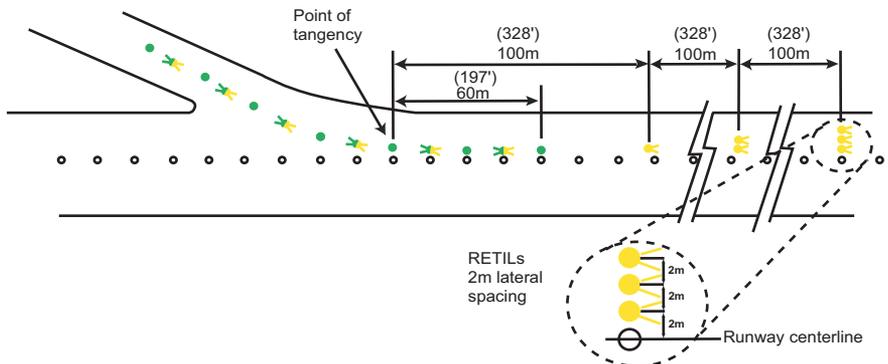
RUNWAY DESIGNATION MARKINGS

APPLICATION AND LOCATION

Runway designation markings are located at the thresholds of a paved runway.

CHARACTERISTICS

Runway designation markings consists of a two-digit number located at the threshold. On parallel runways each runway designation number is supplemented by a letter in the order from left to right when viewed from the direction of approach.



APPLICATION AND LOCATION

A runway centerline marking is provided on a paved runway along the centerline.

CHARACTERISTICS

Runway centerline markings consist of a line of uniformly spaced stripes and gaps. Stripes are normally 30m long, gaps 20m long.

HIGH SPEED TAXIWAY TURN-OFF INDICATOR LIGHTS (HSTIL)

ICAO term is Rapid Exit Taxiway Indicator Lights (RETIL)

APPLICATION

HSTIL should be provided on a runway intended for use in RVR conditions less than 350m and/or where traffic density is heavy.

LOCATION

A set of HSTIL shall be located on the runway on the same side of the runway centerline as the associated high speed turn-off taxiway, in the configuration shown below.

CHARACTERISTICS

HSTIL are fixed unidirectional yellow lights, aligned so as to be visible to the pilot of a landing airplane in the direction of approach to the runway.

ICAO RECOMMENDED AIRPORT SIGNS, RUNWAY AND TAXIWAY MARKINGS

RUNWAY TOUCHDOWN ZONE MARKINGS

Application

A touchdown zone marking is provided in the touchdown zone of a paved precision approach runway and non-precision approach runway or non-instrument runway where additional identification of the touchdown zone is required.

Location and Characteristics

A touchdown zone marking shall consist of pairs of rectangular markings symmetrically disposed about the runway centerline with the number of pairs related to the landing distance available (LDA).

A touchdown zone marking shall conform to either of the two runway patterns shown below.

LDA or DISTANCE BETWEEN THRESHOLDS	PAIR(S) of MARKINGS
Less than 900m	1
Less than 1200m but not less than 900m	2
Less than 1500m but not less than 1200m	3
Less than 2400m but not less than 1500m	4
2400m or more	6

RUNWAY AIMING POINT MARKINGS

Application

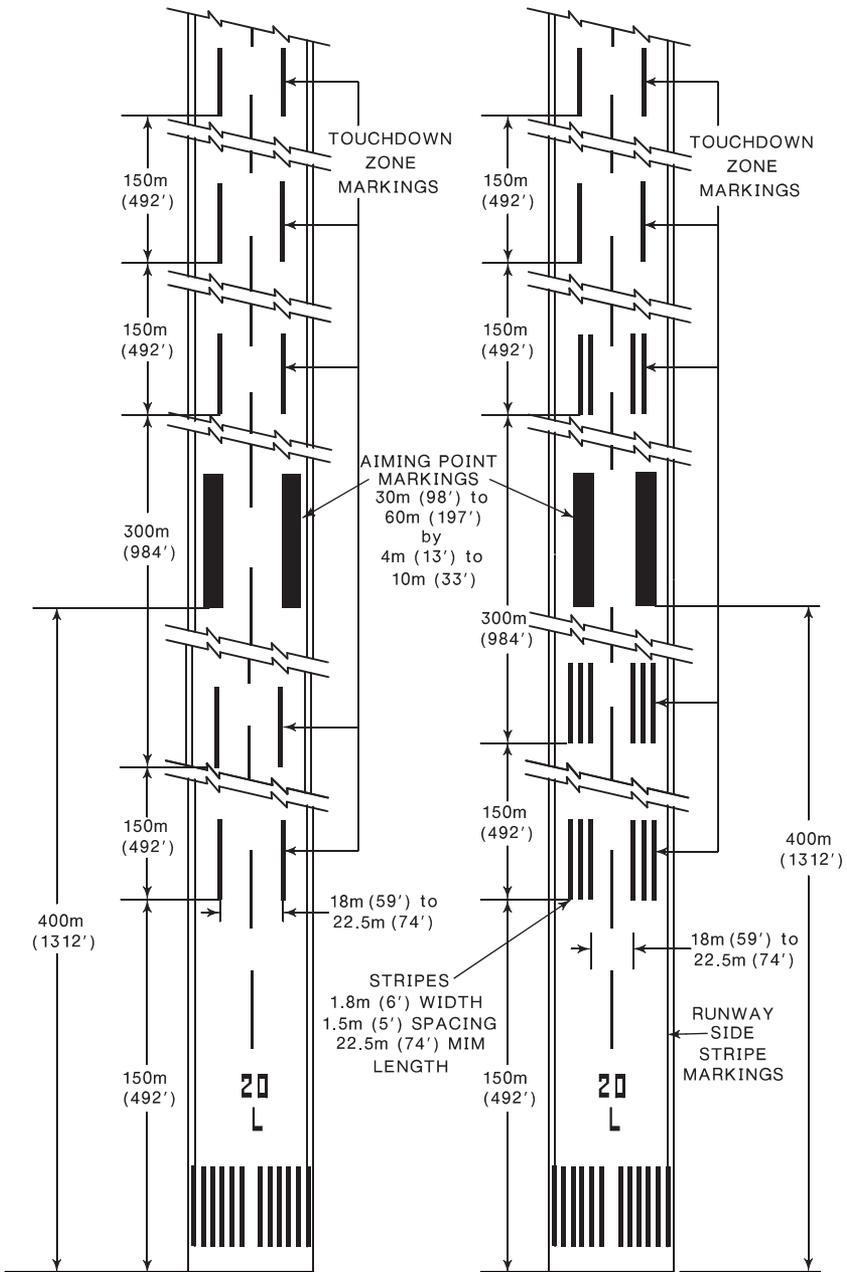
An aiming point marking will be provided at each approach end of a paved instrument or non-instrument runway.

Location and Characteristics

An aiming point marking consists of two conspicuous stripes in conformity with the dimensions shown for the runway patterns in the example shown under "Runway Touchdown Zone and Aiming Point Markings".

ICAO RECOMMENDED AIRPORT SIGNS, RUNWAY AND TAXIWAY MARKINGS

RUNWAY TOUCHDOWN ZONE AND AIMING POINT MARKINGS
(continued)



ICAO RECOMMENDED AIRPORT SIGNS, RUNWAY AND TAXIWAY MARKINGS

RUNWAY SIDE STRIPE MARKING

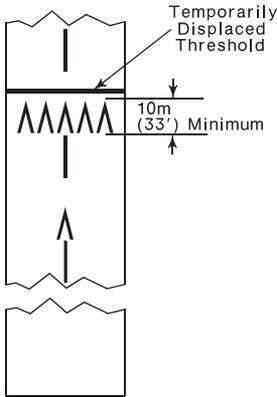
Application

Runway side 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.

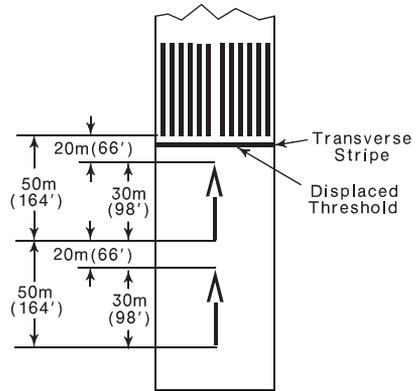
Location and Characteristics

Runway side stripe markings consist of two stripes, one placed along each edge of the runway no more than 30m from the runway centerline regardless of the runway width.

DISPLACED THRESHOLD MARKINGS



TEMPORARILY DISPLACED THRESHOLD



TEMPORARILY OR PERMANENTLY DISPLACED THRESHOLD

CLOSED RUNWAYS, TAXIWAYS OR PARTS THEREOF

Application and Location

A closed marking will be displayed at each end of a runway or portion thereof, declared permanently closed to use by all aircraft. Additionally, markings are placed so that the maximum interval between the markings does not exceed 300m. On a taxiway, a closed marking shall be placed at least at each end of a taxiway or portion thereof that is closed.

Characteristics

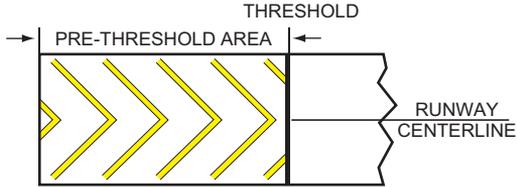
The closed marking is shaped like a cross. The marking is white when displayed on a runway and yellow when displayed on a taxiway.

NON LOAD-BEARING SURFACES

The boundary between load-bearing surfaces and non load-bearing surfaces, such as shoulders for taxiways, holding bays, aprons and other non load-bearing surfaces which, if used, might result in damage to the aircraft are indicated by a taxi side stripe. This marking consists of a pair of solid lines the same color as the taxiway centerline marking.

ICAO RECOMMENDED AIRPORT SIGNS, RUNWAY AND TAXIWAY MARKINGS**PRE-THRESHOLD AREA MARKING (CHEVRON MARKING)**

When the paved surface prior to the threshold exceeds 60m in length and is not suitable for use by aircraft, the entire length will be marked with a chevron marking (preferably yellow) pointing in the direction of the runway threshold.

**END OF ICAO RECOMMENDED AIRPORT SIGNS, RUNWAY AND TAXIWAY MARKINGS**

UNITED STATES AIRPORT SIGN SYSTEMS

MANDATORY SIGNS

Mandatory signs have a red background with a white inscription. They are used to denote an entrance to a runway or critical area and areas where an aircraft is prohibited from entering.

TAXIWAY/RUNWAY AND RUNWAY/RUNWAY HOLDING

This sign is located at the holding position on taxiways that intersect a runway or on runways that intersect other runways. The inscription on the sign contains the designation of the intersecting runway. The runway numbers on the sign are arranged to correspond to the respective runway threshold. For example, "15-33" indicates that the threshold for Runway 15 is to the left and the threshold for Runway 33 is to the right. A runway holding position sign on a taxiway will be installed adjacent to holding position markings on the taxiway pavement. On runways, holding position markings will be located only on the runway pavement adjacent to the sign, if the runway is normally used by air traffic control for "Land, Hold Short" operations or as a taxiway.



On taxiways that intersect the beginning of the takeoff runway, only the designation of the takeoff runway may appear on the sign, while all other signs will have the designation of both runway directions.



When a sign is located on a taxiway that intersects the intersection of two runways, the designations for both runways will be shown on the sign along with arrows showing the approximate alignment of each runway. In addition to showing the approximate runway alignment, the arrow indicates the direction to the threshold of the runway whose designation is immediately next to the arrow.

ILS CRITICAL AREA HOLDING

At some airports, when the instrument landing system is being used, it is necessary to hold an aircraft on a taxiway at a location other than the normal holding position. In these situations the holding position sign for these operations will have the inscription "ILS" and be located adjacent to the holding position marking on the taxiway.



RUNWAY APPROACH AREA HOLDING

At some airports, it is necessary to hold an aircraft on a taxiway located in the approach or departure area for a runway so that the aircraft does not interfere with operations on that runway. In these situations, a sign with the designation of the approach end of the runway followed by a "dash" (-) and letters "APCH" will be located at the holding position on the taxiway. In this example, the sign may protect the approach to Runway 15 and/or the departure for Runway 33.



NO ENTRY

Prohibits an aircraft from entering an area. Typically, this sign will be located on a taxiway intended to be used in only one direction or at the intersection of vehicle roadways with runways, taxiways or aprons where the roadway may be mistaken as a taxiway or other aircraft movement surface.



LOCATION SIGNS

Location signs are used to identify either a taxiway or runway on which the aircraft is located. Other location signs provide a visual cue to pilots to assist them in determining when they have exited an area. The various location signs are described below.



Taxiway Location Signs have a black background with a yellow inscription and yellow border. The inscription is the designation of the taxiway on which the aircraft is located. These signs are installed along taxiways either by themselves or in conjunction with direction signs or runway holding position signs.



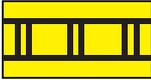
Runway Location Signs have a black background with a yellow inscription and yellow border. The inscription is the designation of the runway on which the aircraft is located. These signs are intended to complement the information available to pilots through their magnetic compass and typically are installed where the proximity of two or more runways to one another could cause pilots to be confused as to which runway they are on.



Runway Boundary Signs have a yellow background with a black inscription with a graphic depicting the pavement holding position marking. This sign, which faces the runway and is visible to the pilot exiting the runway, is located adjacent to the holding position marking on the pavement. The sign is intended to provide pilots with another visual cue which they can use as a guide in deciding when they are "clear of the runway."

UNITED STATES AIRPORT SIGN SYSTEMS

LOCATION SIGNS (continued)



ILS Critical Area Boundary Signs have a yellow background with a black inscription and a graphic depicting the ILS pavement holding position marking. This sign is located adjacent to the ILS holding position marking on the pavement and can be seen by pilots leaving the critical area. The sign is intended to provide pilots with another visual cue which they can use as a guide in deciding when they are "clear of the ILS critical area."

DIRECTION SIGNS

Direction signs have a yellow background with a black inscription. The inscription identifies the designation(s) of the intersecting taxiway(s) leading out of the intersection that a pilot would normally be expected to turn onto or hold short of. Each designation is accompanied by an arrow indicating the direction of the turn.

When more than one taxiway designation is shown on the sign each designation and its associated arrow is separated from the other taxiway designations by either a vertical message divider or a taxiway location sign.

Direction signs are normally located on the left prior to the intersection. When used on a runway to indicate an exit, the sign is located on the same side of the runway as the exit.



Taxiway Direction Sign or Runway Exit Sign



When the intersection is comprised of only one crossing taxiway, it will have two arrows associated with the crossing taxiway.

DESTINATION SIGNS

Destination signs also have a yellow background with a black inscription indicating a destination on the airport. These signs always have an arrow showing the direction of the taxi route to that destination. When the arrow on the destination sign indicates a turn, the sign is located prior to the intersection.

Destinations commonly shown on these types of signs include runways, aprons, terminals, military areas, civil aviation areas, cargo areas, international areas, and fixed base operators. An abbreviation may be used as the inscription on the sign for some of these destinations.



Outbound Destination Sign



Outbound Destination Sign to Different Runways. More than one runway, separated by a dot, is shown where the taxiing route is common to both runways.



Inbound Destination Sign

INFORMATION SIGNS

Information signs have a yellow background with a black inscription. They are used to provide the pilot with information on such things as areas that cannot be seen from the control tower, applicable radio frequencies, and noise abatement procedures. The airport operator determines the need, size, and location for these signs.

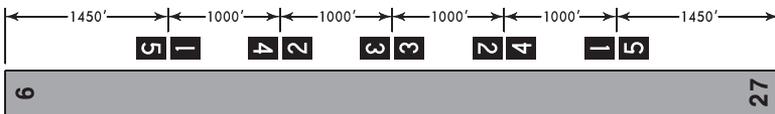
RUNWAY DISTANCE REMAINING SIGNS



Runway Distance Remaining Signs are used to provide distance remaining information to pilots during take-off and landing operations. The signs are located along one or both sides of the runway, and the inscription consists of a *white numeral on a black background*. The signs indicate the distance remaining in thousands of feet.

The distance remaining may be *50 ft less than shown on the sign*. There is a 50 ft tolerance in the sign placement. *Some signs may be omitted* because they cannot meet this tolerance.

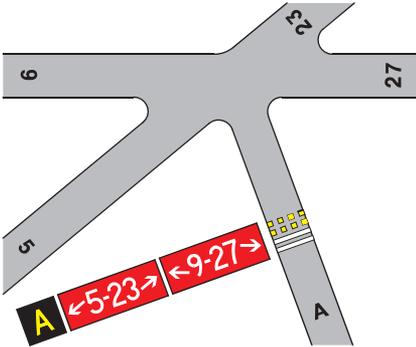
When runway length is not an even multiple of 1000 ft, half the "additional distance" is added to the first and last sign placement. The example below is for a 6900 ft runway.



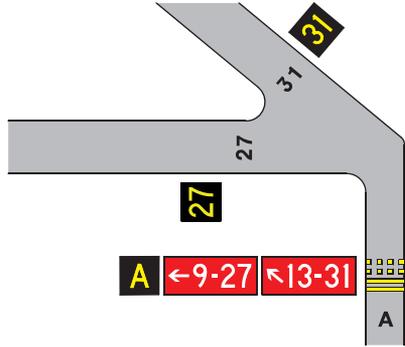
UNITED STATES AIRPORT SIGN SYSTEMS

EXAMPLES (continued)

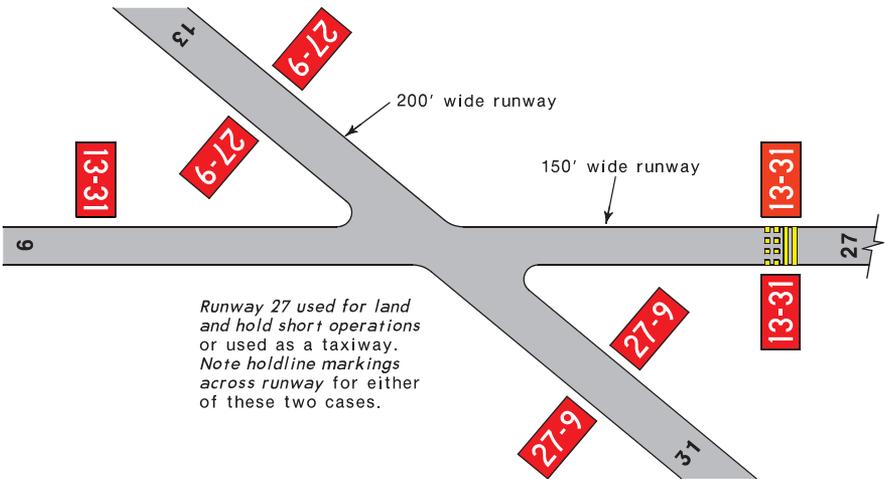
TAXIWAY ENTRANCE AT INTERSECTION OF TWO RUNWAYS



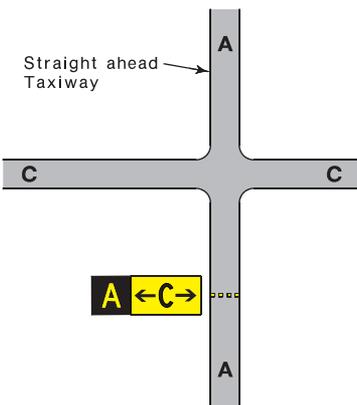
TAXIWAY ENTRANCE AT INTERSECTION OF TWO RUNWAY ENDS



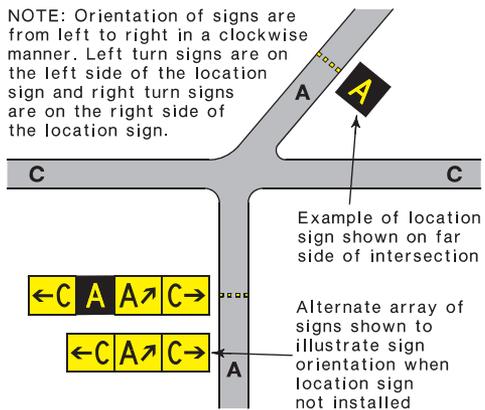
HOLDING POSITION SIGNS AT RUNWAY INTERSECTIONS



STANDARD 4-WAY TAXIWAY INTERSECTION



STRAIGHT AHEAD TAXIWAY HAS DIRECTION CHANGE GREATER THAN 25°



UNITED STATES INSTRUMENT RUNWAY MARKINGS

Runway markings are *white*. Markings, excluding hold lines and the runway designator marking (the runway number) are described below.

THRESHOLD MARKING

Eight longitudinal stripes of uniform dimensions arranged symmetrically about the runway centerline. They are always 150' long.

RUNWAY CENTERLINE MARKINGS

A line of uniformly spaced stripes and gaps located on the centerline of the runway. Stripes are 120' long, gaps 80' long.

RUNWAY TOUCHDOWN ZONE MARKINGS AND FIXED DISTANCE MARKINGS

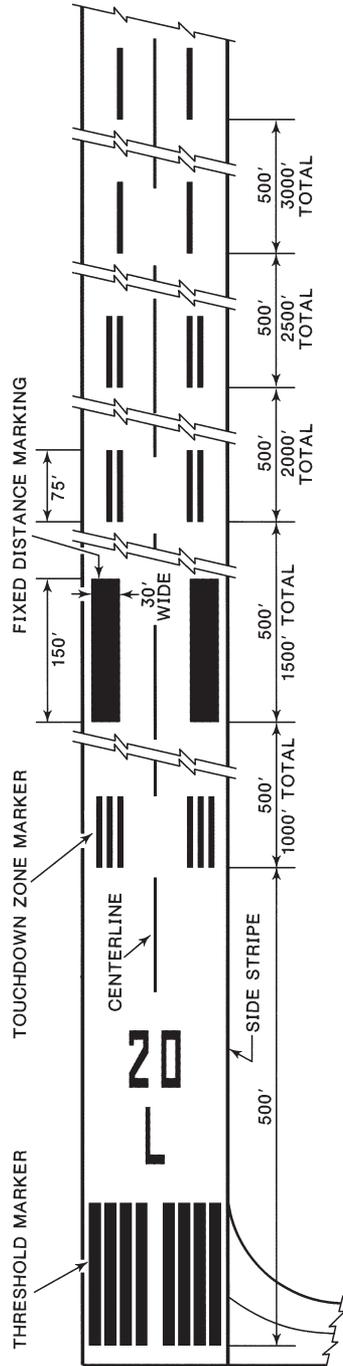
Distance from approach end of runway to beginning of the markings

500'	Touchdown Zone. Three bars 75' long on each side of the centerline. They are the beginning of the fixed distance markers. Fixed distance markers are positioned 500' apart.
1000'	Thousand Foot Fixed Distance Marker. One "heavy" bar on each side of the centerline, 150' long and 30' wide.
1500'	Two bars, 75' long, on each side of the centerline.
2000'	Two bars, 75' long, on each side of the centerline.
2500'	One bar, 75' long, on each side of the centerline.
3000'	One bar, 75' long, on each side of the centerline.

SIDE STRIPE MARKING

Continuous stripes located along each side of the runway to provide contrast with the surrounding terrain and/or to delineate the full strength runway pavement areas. Maximum distance between the stripes is 200'. *Side stripe markings are normally provided only on precision instrument runways.*

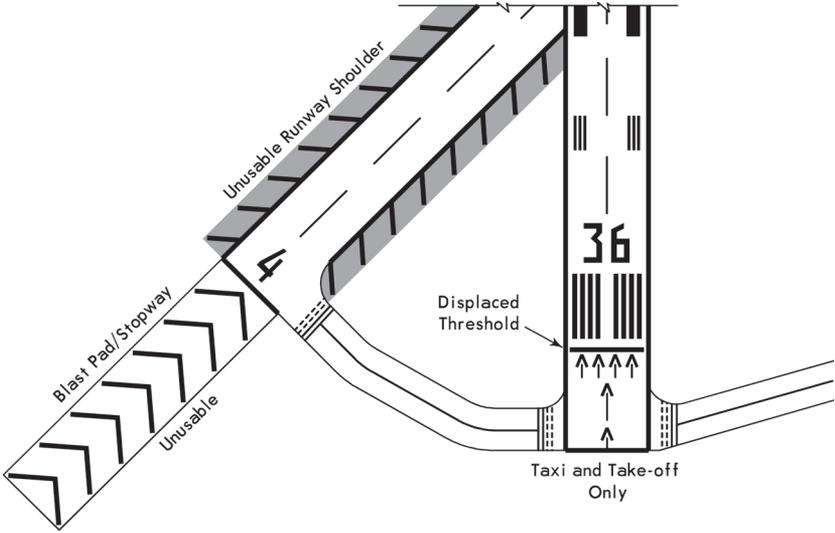
PRECISION INSTRUMENT RUNWAY



For nonprecision instrument runways: TDZ markers are not provided. Fixed distance markers are provided only on runways 4000' or longer used by jet aircraft.

UNITED STATES INSTRUMENT RUNWAY MARKINGS

DISPLACED THRESHOLD MARKINGS AND MARKINGS FOR BLAST PADS AND STOPWAYS

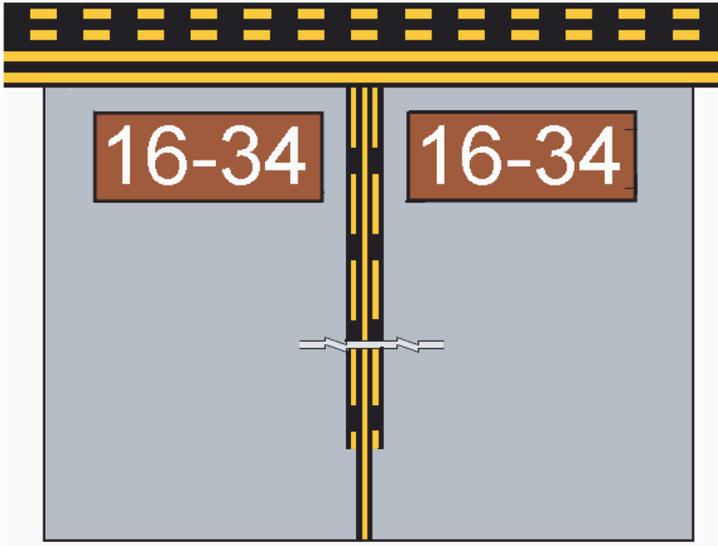


UNITED STATES INSTRUMENT RUNWAY MARKINGS**ENHANCED TAXIWAY CENTERLINE AND RUNWAY HOLDING POSITION MARKINGS****APPLICATION**

The taxiway centerline markings prior to runway holding positions are being enhanced to provide pilots with a visual cue that they are approaching a holding position. Runway holding position markings are also being extended onto the paved shoulders of taxiways and may be accompanied by surface painted holding position signs. These new markings will be the standard for many major airports in the United States.

CHARACTERISTICS

- a. Taxiway centerline markings are modified beginning 150 feet prior to the runway holding position markings (where sufficient space is available) with the addition of parallel dashed yellow lines on both sides of the existing taxiway centerline.
- b. Existing holding position markings are extended onto paved taxiway shoulders allowing them to be visible to pilots from the side windows of the cockpit for many aircraft.
- c. Runway holding position signs may be painted on the surface of the taxiway on both sides of the taxiway centerline leading up to the runway holding position marking (where sufficient space is available), white numbers on red background.

**END OF UNITED STATES AIRPORT SIGNS AND INSTRUMENT RUNWAY MARKINGS**