U.S. Department
of Transportation

Federal Aviation Administration

Advisory Circular

Subject: Airport Design

Date: DRAFT **AC No:** 150/5300-13

Initiated by: AAS-100 **Change:** 19

1. PURPOSE. This Change establishes uniform standards for the siting and designation of parachute landing areas.

2. CHANGED TEXT. Changed text is indicated by vertical bars in the margins.

PAGE CONTROL CHART

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i	9/29/1989	i	9/29/1989
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vii-viii	9/30/2011	vii	XX/XX/XXXX
		viii	XX/XX/XXXX
xi	3/28/07	xi	3/28/07
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13-14	9/30/2011	13	XX/XX/XXXX
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300	9/29/06	300	XX/XX/XXXX
301	9/30/2011	301	XX/XX/XXXX

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U.S. Department
of Transportation

**Federal Aviation
Administration**

Advisory Circular

Subject: AIRPORT DESIGN **Date:** 9/29/89 **AC No:** AC 150/5300-13
Initiated by: AAS-110 **Change:**

1. PURPOSE. This advisory circular (AC) contains the Federal Aviation Administration's (FAA) standards and recommendations for airport design.

2. CANCELLATION. This (AC) cancels the following publications:

a. AC 150/5300-2D, Airport Design Standards--Site Requirements for Terminal Navigational Facilities, dated March 10, 1980.

b. AC 150/5300-4B, Utility Airports—AirAccess to National Transportation, dated June 24, 1975.

c. AC 150/5300-12, Airport Design Standards--Transport Airports, dated February 28, 1983.

d. AC 150/5325-5C, Aircraft Data, dated June 29, 1987.

e. AC 150/5335-2, Airport Aprons, dated January 27, 1965.

3. APPLICATION. The FAA recommends the guidelines and standards in this AC for use in the design of civil airports. In general, use of this AC is not mandatory. The standards and recommendations contained in this AC may be used by certificated airports to satisfy specific requirements of Federal Aviation Regulations (FAR) part 139, "Certification of Airports," subparts C (Airport Certification Manual) and D (Operations). Use of this AC is mandatory for all projects funded with federal grant monies through the Airport Improvement Program (AIP) and with revenue from the Passenger Facility Charges (PFC) Program. See Grant Assurance No. 34, "Policies, Standards, and Specifications," and PFC Assurance No. 9, "Standards and Specifications."

Leonard E. Mudd

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b. Recommendations. Other objects that are desirable to clear, if practicable, are objects that do not have a substantial adverse effect on the airport but, if removed, will enhance operations. These include objects in the controlled activity area and obstructions to air navigation that are not covered in paragraph 211.a, especially those penetrating an approach surface. On a paved runway, the approach surface starts 200 feet (61 m) beyond the area usable for takeoff or landing, whichever is more demanding. On an unpaved runway, the approach surface starts at the end of the area usable for takeoff or landing.

212. RUNWAY PROTECTION ZONE (RPZ). The RPZ's function is to enhance the protection of people and property on the ground. This is achieved through airport owner control over RPZs. Such control includes clearing RPZ areas (and maintaining them clear) of incompatible objects and activities. Control is preferably exercised through the acquisition of sufficient property interest in the RPZ.

a. Standards.

(1) RPZ Configuration/Location. The RPZ is trapezoidal in shape and centered about the extended runway centerline. The central portion and controlled activity area are the two components of the RPZ (see Figure 2-3). The RPZ dimension for a particular runway end is a function of the type of aircraft and approach visibility minimum associated with that runway end. Table 2-4 provides standard dimensions for RPZs. Other than with a special application of declared distances, the RPZ begins 200 feet (60 m) beyond the end of the area usable for takeoff or landing. With a special application of declared distances, see Appendix 14, separate approach and departure RPZs are required for each runway end.

(a) The Central Portion of the RPZ. The central portion of the RPZ extends from the beginning to the end of the RPZ, centered on the runway centerline. Its width is equal to the width of the runway OFA (see Figure 2-3). Paragraph 307 contains the dimensional standards for the OFA.

(b) The Controlled Activity Area. The controlled activity area is the portion of the RPZ to the sides of the central portion of the RPZ.

(2) Land Use. In addition to the criteria specified in paragraph 211, the following land use criteria apply within the RPZ:

(a) While it is desirable to clear all objects from the RPZ, some uses are permitted, provided they do not attract wildlife (see paragraph 202.g., Wildlife Hazards, and Appendix 17 or dimensional standards), are outside of the Runway OFA, and do not interfere with navigational aids. Automobile parking facilities, although discouraged, may be permitted, provided the parking facilities and any associated appurtenances, in addition to meeting all of the preceding conditions, are located outside of the central portion of the RPZ. Fuel storage facilities may not be located in the RPZ.

(b) Land uses prohibited from the RPZ are residences and places of public assembly. (Churches, schools, hospitals, office buildings, shopping centers, and other uses with similar concentrations of persons typify places of public assembly.) Fuel storage facilities may not be located in the RPZ.

b. Recommendations. Where it is determined to be impracticable for the airport owner to acquire and plan the land uses within the entire RPZ, the RPZ land use standards have recommendation status for that portion of the RPZ not controlled by the airport owner.

c. FAA Studies of Objects and Activities in the Vicinity of Airports. The FAA policy is to protect the public investment in the national airport system. To implement this policy, the FAA studies existing and proposed objects and activities, both off and on public- use airports, with respect to their effect upon the safe and efficient use of the airports and safety of persons and property on the ground. These objects need not be obstructions to air navigation, as defined in 14 CFR Part 77. As the result of a study, the FAA may issue an advisory recommendation in opposition to the presence of any off-airport object or activity in the vicinity of a public-use airport that conflicts with an airport planning or design standard or recommendation.

213. RUNWAY HOLDING POSITION (HOLDLINE). At airports with operating airport traffic control towers, runway holding positions (holdlines) identify the location on a taxiway where a pilot is to stop when he/she does not have clearance to proceed onto the runway. At airports without operating control towers, these holdlines identify the location where a pilot should assure there is adequate separation with other aircraft before proceeding onto the runway. The holdline standards, which assume a perpendicular distance from a runway centerline to an intersecting taxiway centerline (See paragraph 409) are in Tables 2-1 and 2-2. However, these distance standards may need to be longer and placed in such a way to take into account the largest aircraft (tail, body, or wing tip) expected to use the runway from penetrating the Obstacle Free Zone. These distances do not guarantee sufficient clearance behind a holding aircraft to permit the passing of another aircraft on a parallel taxiway. No part of an aircraft (wing-tip, fuselage, etc.) shall extend beyond the holdline.

214. GUIDANCE FOR PARACHUTE LANDING AREA. To accommodate safe sport parachuting

(skydiving) activities, the airport should carefully select and designate a suitable Parachute Landing Area (PLA). Consideration of hazards, size, and location of the PLA is critical when operating within close proximity to other aeronautical activities at an airport. Appendix 18 lists the standards for the siting and design of a PLA on an airport.

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Appendix 18. PARACHUTE LANDING AREA (PLA) STANDARDS

The following standards apply to parachute landing areas (PLA) on airports:

1. Hazards. Areas on an airport intended for parachute landings must be hazard-free. Hazards are defined as:

a. telephone and power lines

b. towers

c. buildings

d. open bodies of water

e. clusters of trees covering more than 32,000 square feet (3,000 sq m)

f. runways and taxiways (unless a risk mitigation plan is accepted by the FAA)

g. above-ground equipment required by FAA standards or regulation but excluding elevated runway lights, elevated taxiway lights, and equipment necessary for skydiving operations

2. Size. Table A18-1 depicts the minimum size of PLAs based on the type of parachute activity and canopy used. If an on-airport PLA will be accommodating more than one type of parachuting activity, use the largest minimum size area or designate multiple PLAs.

3. Location. For all hazards defined above (except runways and taxiways), the PLA is to be sited to be clear of obstacles and to maintain a 45-degree clearance plane from the center of the PLA to any hazard bordering the perimeter of the landing zone. If practicable, the edge of the PLA should be at least 30 feet (9 m) from above-ground equipment (See Figure A18-1). Finally, Table A18-2 provides the minimum distance from the edge of any runway or taxiway, based on the Airplane Design Group using that runway or taxiway. If no other location is feasible, a PLA may be located in a protected area (e.g., Runway or Taxiway Safety Area or Object Free Area) as long as the clearance standards noted above are met. At any airport certificated under 14 CFR part 139, a PLA must not be located within a Runway Safety Area, or such that a parachutist would have to enter any safety area after landing.

4. Recommended Markings. Mark PLA perimeter boundaries to distinguish the PLA from the surrounding area. Examples of markings include:

a. a dashed line, a minimum of 3 inches (8 cm) wide in white or orange chalk, paint, or tape

b. traffic cones

c. flags

d. streamers

e. landscaping

f. mowing

5. Application. The PLA Standards apply to airports that enter into grant agreements with the FAA subsequent to the effective date of Change 19 to this AC. See Grant Assurance No. 22, “Economic Nondiscrimination.” Airports that have existing PLAs will have 60 months from the date of a new grant agreement to comply. If an airport is not able to modify its existing PLA to comply within this timeframe, the airport must provide the FAA with a plan prior to the end of the 60 months. This plan must be submitted to the local FAA Airports District Office or Regional Airports Office (where applicable) for approval, and must include a timetable describing how the airport will meet the PLA Standards within a timeframe acceptable to the Administrator. For other airports, the Standards are recommended.

Table A18-1. Minimum PLA size

Parachute Activity	Minimum PLA Size using Square or "Ram-air" Canopies (sq ft/sq m)	Minimum PLA Size using Round Canopies (sq ft/sq m)
Student/Training[1]	338,000/31,400	528,000/49,050
Tandem[2]	84,500/7,900	N/A
All other activity[3]	5,000/465	338,000/31,400

1. For square or "ram-air" canopies, the minimum recommended size of a PLA for student/training activities is based on a 656-foot (200 m) diameter circle. Other examples of acceptable shapes include, but are not limited to:

   - 582-foot-by-582-foot (177 m by 177 m) square
   - 700-foot-by-483-foot (213 m by 147 m) rectangle
   - Other shapes acceptable to the FAA with an area equaling 338,000 square feet (31,400 sq m)

   The minimum recommended size of a PLA size for student/training activities using round canopies is based on a 820-foot (250 m) diameter circle. Other examples of acceptable shapes include, but are not limited to:

   - 726-foot-by-726-foot (221 m by 221 m) square
   - 900-foot-by-586-foot (274 m by 179 m) rectangle
   - Other shapes acceptable to the FAA with an area equaling 528,000 square feet (49,050 sq m)

2. The minimum recommended size of a PLA for tandem activities is based on a 328-foot (100 m) diameter circle. Other examples of acceptable shapes include, but are not limited to:

   - 292-foot-by-292-foot (89 m by 89 m) square
   - 340-foot-by-250-foot (104 m by 76 m) rectangle
   - Other shapes acceptable to the FAA with an area equaling 84,500 square feet (7900 sq m)

   The minimum recommended size of a PLA for tandem activities does not apply for round canopies because they are not used for tandem jumps.

3. The minimum recommended size of a PLA for all other activities using square or "ram-air" canopies is based on an 80-foot (24 m) diameter circle. Other examples of acceptable shapes include, but are not limited to:

   - 70-foot-by-70-foot (21 m by 21 m) square
   - 85-foot-by-60-foot (26 m by 18 m) rectangle
   - Other shapes acceptable to the FAA with an area equaling 5,000 square feet (465 sq m)

   The minimum recommended size of a PLA for all other activities using round canopies is based on a 656 foot (200 m) diameter circle. Other examples of acceptable shapes include, but are not limited to:

   - 582-foot-by-582-foot (177 m by 177 m) square
   - 700-foot-by-483-foot (213 m by 147 m) rectangle
   - Other shapes acceptable to the FAA with an area equaling 338,000 square feet (31,400 sq m)

Table A18-2. Minimum distance from PLA to runway or taxiway

Airplane Design Group	Minimum Distance from PLA to Runway or Taxiway (ft/m)
I	20/6
II	31/10
III	48/15

Note: If these minimum distances cannot be met or if the Airplane Design Group is higher than Group III, then a safety risk mitigation plan shall be submitted for review and acceptance by the FAA.

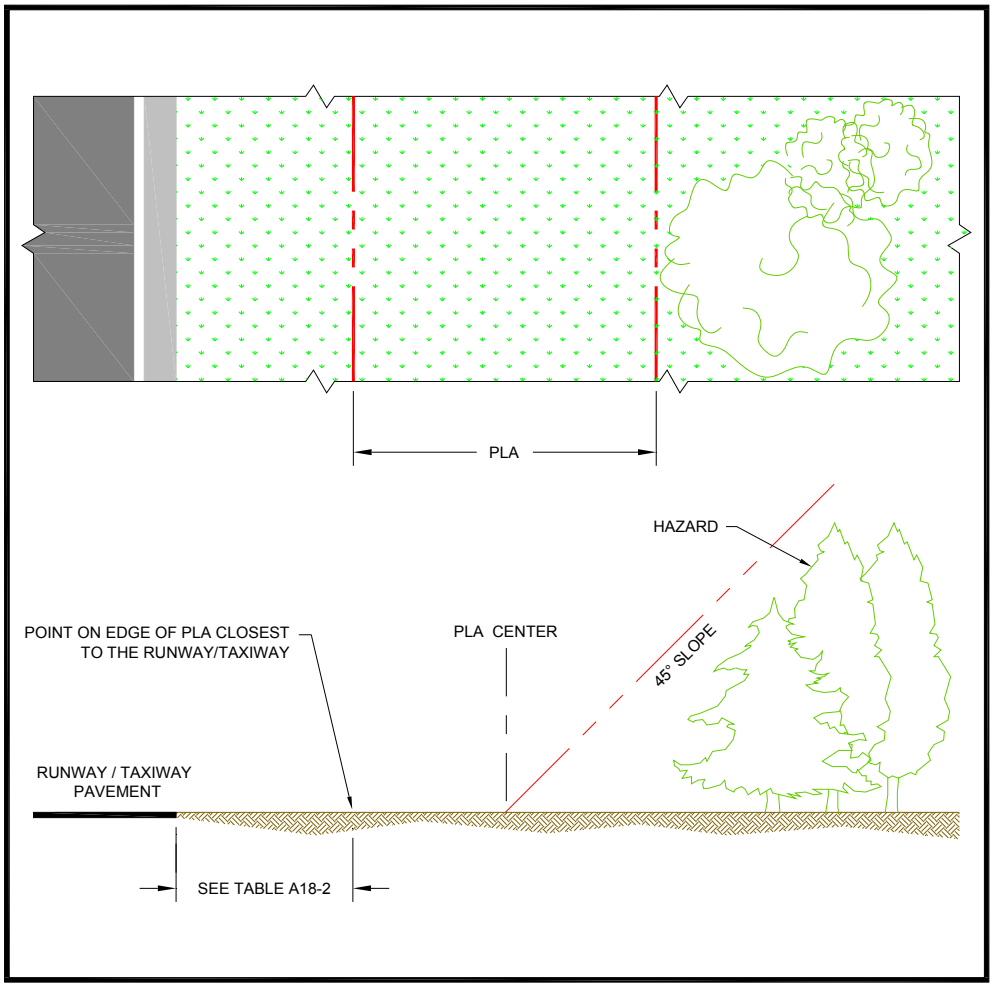

Figure A18-1. Parachute landing area

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Appendix 19. ACRONYMS

The acronyms presented herein are intended for use with this publication only.

AAA	Airport Airspace Analysis
AC	Advisory Circular
AD	Airport Design
AFD	Airport Facility Directory
ADG	Airplane Design Group
AIP	Airport Improvement Program or Aeronautical Information Publication
ALP	Airport Layout Plan
ALS	Approach Lighting System
ALSF(-1, -2)	Approach Lighting System with Sequenced Flashers
APV	Approach Procedure with Vertical Guidance
ARC	Airport Reference Code
ARP	Airport Reference Point
ASDA	Accelerate-Stop Distance Available
ASDE	Airport Surface Detection Equipment
ASR	Airport Surveillance Radar
ATC	Air Traffic Control
ATCT	Airport Traffic Control Tower
AWOS	Automated Weather Observing System
AZ	Azimuth
BRL	Building Restriction Line
CAT	Category
CFR	Code of Federal Regulation
CFW	Center Field Wind
CWY	Clearway
DA	Decision Altitude
DER	Departure End of Runway
DME	Distance Measuring Equipment
DXF	AutoCAD Drawing Interchange file format
EDS	Environmental Data Service
EL	Elevation
FBO	Fixed Base Operator
GPA	Glidepath Angle
GPS	Global Positioning System
GQS	Glidepath Qualification Surface
GS	Glide Slope
GVGI	Generic Visual Slope Indicator
HAT	Height Above Touchdown
HIRL	High Intensity Runway Lights
IFR	Instrument Flight Rules
IGES	Initial Graphics Exchange Specification file format
ILS	Instrument Landing System
IM	Inner Marker
IMC	Instrument Meteorological Conditions
LAAS	Local Area Augmentation System
LDA	Landing Distance Available or Localizer Type Directional Aid
LDIN	Lead-In Lights
LIRS	Low Impact Resistant Supports
LNAV	Lateral Navigation
LOC	Localizer
LPV	Localizer Performance with Vertical Guidance
MALS	Medium Intensity Approach Lighting System
MALSF	Medium Intensity Approach Lighting System with Sequenced Flashers
MALSR	Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights
MIRL	Medium Intensity Runway Lights
MLS	Microwave Landing System
MM	Middle Marker
MSL	Mean Sea Level
NAVAID	Navigational Aid
NCDC	National Climatic Data Center
NDB	Nondirectional Beacon
NP	Non-Precision (Markings)
NPIAS	National Plan of Integrated Airport Systems
NTIS	National Technical Information Service
OCS	Obstacle Clearance Surface
ODALS	Omnidirectional Approach Lighting System
OEI	One Engine Inoperative
OFA	Object Free Area
OFZ	Obstacle Free Zone
OIS	Obstacle Identification Surface
OM	Outer Marker
NPA	Non-Precision Approach
P	Precision (Markings)
PA	Precision Approach
PAPI	Precision Approach Path Indicator
PLA	Parachute Landing Area
POFA	Precision Object Free Area
RAIL	Runway Alignment Indicator Lights
REIL	Runway End Identifier Lights
RNAV	Area Navigation
ROFA	Runway Object Free Area
RPZ	Runway Protection Zone
RSA	Runway Safety Area
RVR	Runway Visual Range
RW	Runway
SALS	Short Approach Lighting System
SSALR	Short Simplified Approach Lighting System with Runway Alignment Indicator Lights
SSALS	Simplified Short Approach Lighting System
SWY	Stopway
TCH	Threshold Crossing Height
TERPS	FAA Order 8260.3, United States Standard for Terminal Instrument Procedures
TH	Threshold
TL	Taxilane
TODA	Takeoff Distance Available
TORA	Takeoff Run Available
TSA	Taxiway Safety Area
TVOR	Terminal Very High Frequency Omnirange
TW	Taxiway

USGS	United States Geological Service
V	Visual (Markings)
V_1	Takeoff decision speed
V_2	Takeoff safety speed
VFR	Visual Flight Rules
V_{LOF}	Lift-off speed
V_{SO}	Stalling speed or the minimum steady flight speed in the landing configuration
VNAV	Vertical Navigation
VOR	Very High Frequency Omnirange
WAAS	Wide Area Augmentation System

Appendix 20. INDEX