

*Appendix C*

Design Requirements



## AIRPORT DESIGN AIRPLANE AND AIRPORT DATA

Aircraft Approach Category B	
Airplane Design Group II	
Airplane wingspan . . . . .	78.99 feet
Primary runway end approach visibility minimums are not lower than 3/4 mile	
Other runway end approach visibility minimums are not lower than 3/4 mile	
Airplane undercarriage width (1.15 x main gear track) . . . . .	9.00 feet
Airport elevation . . . . .	160 feet

### RUNWAY AND TAXIWAY WIDTH AND CLEARANCE STANDARD DIMENSIONS

	Airplane Group/ARC
Runway centerline to parallel runway centerline simultaneous operations when wake turbulence is not treated as a factor:	
VFR operations with no intervening taxiway . . . . .	700 feet
VFR operations with one intervening taxiway . . . . .	700 feet
VFR operations with two intervening taxiways . . . . .	700 feet
IFR approach and departure with approach to near threshold . . . . .	2500 feet less
100 ft for each 500 ft of threshold stagger to a minimum of 1000 feet.	
Runway centerline to parallel runway centerline simultaneous operations when wake turbulence is treated as a factor:	
VFR operations . . . . .	2500 feet
IFR departures . . . . .	2500 feet
IFR approach and departure with approach to near threshold . . . . .	2500 feet
IFR approach and departure with approach to far threshold . . . . .	2500 feet plus
100 feet for each 500 feet of threshold stagger.	
IFR approaches . . . . .	3400 feet
Runway centerline to parallel taxiway/taxilane centerline . . . . .	239.5 240 feet
Runway centerline to edge of aircraft parking . . . . .	250.0 250 feet
Runway width . . . . .	75 feet
Runway shoulder width . . . . .	10 feet
Runway blast pad width . . . . .	95 feet
Runway blast pad length . . . . .	150 feet
Runway safety area width . . . . .	150 feet
Runway safety area length beyond each runway end or stopway end, whichever is greater . . . . .	300 feet
Runway object free area width . . . . .	500 feet
Runway object free area length beyond each runway end or stopway end, whichever is greater . . . . .	300 feet
Clearway width . . . . .	500 feet
Stopway width . . . . .	75 feet
Obstacle free zone (OFZ):	
Runway OFZ width . . . . .	400 feet
Runway OFZ length beyond each runway end . . . . .	200 feet
Inner-approach OFZ width . . . . .	400 feet
Inner-approach OFZ length beyond approach light system . . . . .	200 feet
Inner-approach OFZ slope from 200 feet beyond threshold . . . . .	50:1
Inner-transitional OFZ slope . . . . .	0:1
Runway protection zone at the primary runway end:	
Width 200 feet from runway end . . . . .	1000 feet
Width 1900 feet from runway end . . . . .	1510 feet

Length . . . . .		1700 feet
Runway protection zone at other runway end:		
Width 200 feet from runway end . . . . .		1000 feet
Width 1900 feet from runway end . . . . .		1510 feet
Length . . . . .		1700 feet
Departure runway protection zone:		
Width 200 feet from the far end of TORA . . . . .		500 feet
Width 1200 feet from the far end of TORA . . . . .		700 feet
Length . . . . .		1000 feet
Threshold surface at primary runway end:		
Distance out from threshold to start of surface . . . . .		200 feet
Width of surface at start of trapezoidal section . . . . .		1000 feet
Width of surface at end of trapezoidal section . . . . .		4000 feet
Length of trapezoidal section . . . . .		10000 feet
Length of rectangular section . . . . .		0 feet
Slope of surface . . . . .		20:1
Threshold surface at other runway end:		
Distance out from threshold to start of surface . . . . .		200 feet
Width of surface at start of trapezoidal section . . . . .		1000 feet
Width of surface at end of trapezoidal section . . . . .		4000 feet
Length of trapezoidal section . . . . .		10000 feet
Length of rectangular section . . . . .		0 feet
Slope of surface . . . . .		20:1
Taxiway centerline to parallel taxiway/taxilane centerline . . . . .	104.8	105 feet
Taxiway centerline to fixed or movable object . . . . .	65.3	65.5 feet
Taxilane centerline to parallel taxilane centerline . . . . .	96.9	97 feet
Taxilane centerline to fixed or movable object . . . . .	57.4	57.5 feet
Taxiway width . . . . .	24.0	35 feet
Taxiway shoulder width . . . . .		10 feet
Taxiway safety area width . . . . .	79.0	79 feet
Taxiway object free area width . . . . .	130.6	131 feet
Taxilane object free area width . . . . .	114.8	115 feet
Taxiway edge safety margin . . . . .		7.5 feet
Taxiway wingtip clearance . . . . .	25.8	26 feet
Taxilane wingtip clearance . . . . .	17.9	18 feet

REFERENCE: AC 150/5300-13, Airport Design, including Changes 1 through 4.

## AIRPORT DESIGN AIRPLANE AND AIRPORT DATA

### Aircraft Approach Category B

Airplane Design Group II	78.99 feet
Airplane wingspan	
Primary runway end approach visibility minimums are not lower than CAT I	
Other runway end approach visibility minimums are not lower than 3/4 mile	
Airplane undercarriage width (1.15 x main gear track)	9.00 feet
Airport elevation	160 feet
Airplane tail height	24.02 feet

### RUNWAY AND TAXIWAY WIDTH AND CLEARANCE STANDARD DIMENSIONS

	Airplane Group/ARC
Runway centerline to parallel runway centerline simultaneous operations when wake turbulence is not treated as a factor:	
VFR operations with no intervening taxiway	700 feet
VFR operations with one intervening taxiway	700 feet
VFR operations with two intervening taxiways	705 feet
IFR approach and departure with approach to near threshold	2500 feet less
100 ft for each 500 ft of threshold stagger to a minimum of 1000 feet.	
Runway centerline to parallel runway centerline simultaneous operations when wake turbulence is treated as a factor:	
VFR operations	2500 feet
IFR departures	2500 feet
IFR approach and departure with approach to near threshold	2500 feet
IFR approach and departure with approach to far threshold	2500 feet plus
100 feet for each 500 feet of threshold stagger.	
IFR approaches	3400 feet
Runway centerline to parallel taxiway/taxilane centerline	239.5 300 feet
Runway centerline to edge of aircraft parking	400.0 400 feet
Runway width	100 feet
Runway shoulder width	10 feet
Runway blast pad width	120 feet
Runway blast pad length	150 feet
Runway safety area width	300 feet
Runway safety area length beyond each runway end or stopway end, whichever is greater	600 feet
Runway object free area width	800 feet
Runway object free area length beyond each runway end or stopway end, whichever is greater	600 feet
Clearway width	500 feet
Stopway width	100 feet
Obstacle free zone (OFZ):	
Runway OFZ width	400 feet
Runway OFZ length beyond each runway end	200 feet
Inner-approach OFZ width	400 feet
Inner-approach OFZ length beyond approach light system	200 feet
Inner-approach OFZ slope from 200 feet beyond threshold	50:1
Inner-transitional OFZ height H	53.1 53.1 feet
Inner-transitional OFZ slope	6:1
Runway protection zone at the primary runway end:	

Width 200 feet from runway end . . . . .	1000 feet
Width 2700 feet from runway end . . . . .	1750 feet
Length . . . . .	2500 feet

Runway protection zone at other runway end:

Width 200 feet from runway end . . . . .	1000 feet
Width 1900 feet from runway end . . . . .	1510 feet
Length . . . . .	1700 feet

Departure runway protection zone:

Width 200 feet from the far end of TORA . . . . .	500 feet
Width 1200 feet from the far end of TORA . . . . .	700 feet
Length . . . . .	1000 feet

Threshold surface at primary runway end:

Distance out from threshold to start of surface . . . . .	200 feet
Width of surface at start of trapezoidal section . . . . .	1000 feet
Width of surface at end of trapezoidal section . . . . .	4000 feet
Length of trapezoidal section . . . . .	10000 feet
Length of rectangular section . . . . .	0 feet
Slope of surface . . . . .	34:1

Threshold surface at other runway end:

Distance out from threshold to start of surface . . . . .	200 feet
Width of surface at start of trapezoidal section . . . . .	1000 feet
Width of surface at end of trapezoidal section . . . . .	4000 feet
Length of trapezoidal section . . . . .	10000 feet
Length of rectangular section . . . . .	0 feet
Slope of surface . . . . .	20:1

Taxiway centerline to parallel taxiway/taxilane centerline	104.8	105 feet
Taxiway centerline to fixed or movable object . . . . .	65.3	65.5 feet
Taxilane centerline to parallel taxilane centerline . . . . .	96.9	97 feet
Taxilane centerline to fixed or movable object . . . . .	57.4	57.5 feet
Taxiway width . . . . .	24.0	35 feet
Taxiway shoulder width . . . . .		10 feet
Taxiway safety area width . . . . .	79.0	79 feet
Taxiway object free area width . . . . .	130.6	131 feet
Taxilane object free area width . . . . .	114.8	115 feet
Taxiway edge safety margin . . . . .		7.5 feet
Taxiway wingtip clearance . . . . .	25.8	26 feet
Taxilane wingtip clearance . . . . .	17.9	18 feet

REFERENCE: AC 150/5300-13, Airport Design, including Changes 1 through 4.

## AIRPORT DESIGN AIRPLANE AND AIRPORT DATA

Aircraft Approach Category B	
Airplane Design Group III	
Airplane wingspan . . . . .	117.99 feet
Primary runway end approach visibility minimums are not lower than CAT I	
Other runway end approach visibility minimums are not lower than CAT I	
Airplane wheelbase is 60 feet or more	
Airplane undercarriage width (1.15 x main gear track) . . . . .	9.00 feet
Airport elevation . . . . .	160 feet
Airplane tail height . . . . .	24.02 feet

### RUNWAY AND TAXIWAY WIDTH AND CLEARANCE STANDARD DIMENSIONS

Airplane Group/ARC

Runway centerline to parallel runway centerline simultaneous operations when wake turbulence is not treated as a factor:

VFR operations with no intervening taxiway . . . . .	700 feet
VFR operations with one intervening taxiway . . . . .	700 feet
VFR operations with two intervening taxiways . . . . .	852 feet
IFR approach and departure with approach to near threshold 2500 feet less 100 ft for each 500 ft of threshold stagger to a minimum of 1000 feet.	

Runway centerline to parallel runway centerline simultaneous operations when wake turbulence is treated as a factor:

VFR operations . . . . .	2500 feet
IFR departures . . . . .	2500 feet
IFR approach and departure with approach to near threshold . . . . .	2500 feet
IFR approach and departure with approach to far threshold 2500 feet plus 100 feet for each 500 feet of threshold stagger.	
IFR approaches . . . . .	3400 feet

Runway centerline to parallel taxiway/taxilane centerline . . . . . 259.0	350 feet
Runway centerline to edge of aircraft parking . . . . . 400.0	400 feet
Runway width . . . . .	100 feet
Runway shoulder width . . . . .	20 feet
Runway blast pad width . . . . .	140 feet
Runway blast pad length . . . . .	200 feet
Runway safety area width . . . . .	400 feet
Runway safety area length beyond each runway end or stopway end, whichever is greater . . . . .	800 feet
Runway object free area width . . . . .	800 feet
Runway object free area length beyond each runway end or stopway end, whichever is greater . . . . .	800 feet
Clearway width . . . . .	500 feet
Stopway width . . . . .	100 feet

Obstacle free zone (OFZ):

Runway OFZ width . . . . .	400 feet
Runway OFZ length beyond each runway end . . . . .	200 feet
Inner-approach OFZ width . . . . .	400 feet
Inner-approach OFZ length beyond approach light system . . . . .	200 feet
Inner-approach OFZ slope from 200 feet beyond threshold . . . . .	50:1
Inner-transitional OFZ height H . . . . . 49.4	49.4 feet
Inner-transitional OFZ slope . . . . .	6:1

Runway protection zone at the primary runway end:

Width 200 feet from runway end . . . . .	1000 feet
Width 2700 feet from runway end . . . . .	1750 feet
Length . . . . .	2500 feet

Runway protection zone at other runway end:

Width 200 feet from runway end . . . . .	1000 feet
Width 2700 feet from runway end . . . . .	1750 feet
Length . . . . .	2500 feet

Departure runway protection zone:

Width 200 feet from the far end of TORA . . . . .	500 feet
Width 1200 feet from the far end of TORA . . . . .	700 feet
Length . . . . .	1000 feet

Threshold surface at primary runway end:

Distance out from threshold to start of surface . . . . .	200 feet
Width of surface at start of trapezoidal section . . . . .	1000 feet
Width of surface at end of trapezoidal section . . . . .	4000 feet
Length of trapezoidal section . . . . .	10000 feet
Length of rectangular section . . . . .	0 feet
Slope of surface . . . . .	34:1

Threshold surface at other runway end:

Distance out from threshold to start of surface . . . . .	200 feet
Width of surface at start of trapezoidal section . . . . .	1000 feet
Width of surface at end of trapezoidal section . . . . .	4000 feet
Length of trapezoidal section . . . . .	10000 feet
Length of rectangular section . . . . .	0 feet
Slope of surface . . . . .	34:1

Taxiway centerline to parallel taxiway/taxilane centerline . . . . .	151.6	152 feet
Taxiway centerline to fixed or movable object . . . . .	92.6	93 feet
Taxilane centerline to parallel taxilane centerline . . . . .	139.8	140 feet
Taxilane centerline to fixed or movable object . . . . .	80.8	81 feet
Taxiway width . . . . .	39.0	60 feet
Taxiway shoulder width . . . . .		20 feet
Taxiway safety area width . . . . .	118.0	118 feet
Taxiway object free area width . . . . .	185.2	186 feet
Taxilane object free area width . . . . .	161.6	162 feet
Taxiway edge safety margin . . . . .		15 feet
Taxiway wingtip clearance . . . . .	33.6	34 feet
Taxilane wingtip clearance . . . . .	21.8	22 feet

REFERENCE: AC 150/5300-13, Airport Design, including Changes 1 through 4.



AIRPORT AND RUNWAY DATA

Airport elevation . . . . .	160 feet
Mean daily maximum temperature of the hottest month . . . . .	65.10 F.
Maximum difference in runway centerline elevation . . . . .	30 feet
Length of haul for airplanes of more than 60,000 pounds . . . . .	1000 miles
Wet and slippery runways	

RUNWAY LENGTHS RECOMMENDED FOR AIRPORT DESIGN

Small airplanes with approach speeds of less than 30 knots . . . . .	300 feet
Small airplanes with approach speeds of less than 50 knots . . . . .	810 feet
Small airplanes with less than 10 passenger seats	
75 percent of these small airplanes . . . . .	2300 feet
95 percent of these small airplanes . . . . .	2830 feet
100 percent of these small airplanes . . . . .	3360 feet
Small airplanes with 10 or more passenger seats . . . . .	3860 feet
Large airplanes of 60,000 pounds or less	
75 percent of these large airplanes at 60 percent useful load	5250 feet
75 percent of these large airplanes at 90 percent useful load	6640 feet
100 percent of these large airplanes at 60 percent useful load	5460 feet
100 percent of these large airplanes at 90 percent useful load	7030 feet
Airplanes of more than 60,000 pounds . . . . .	Approximately 6020 feet

REFERENCE: Chapter 2 of AC 150/5325-4A, Runway Length Requirements for Airport Design, no Changes included.

