Cancelled by 150/5335-4

AC NO: 150/5330-2A

DATE: 7/26/68

ADVISORY CIRCULAR

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

SUBJECT: RUNWAY/TAXIWAY WIDTHS AND CLEARANCES FOR AIRLINE AIRPORTS

1. PURPOSE. This advisory circular presents recommendations of the Federal Aviation Administration (FAA) for widths and clearances of runways, taxiways, and landing strips at airports served by certificated air carriers.

2. CANCELLATION. Advisory Circular 150/5330-2, Runway/Taxiway Widths and Clearances, dated August 16, 1965, is cancelled.

3. REFERENCES. The publications identified below should be used, as appropriate, in conjunction with this advisory circular.

   a. The following items may be obtained from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. No c.o.d. orders are accepted. Enclose with your request a check or money order made payable to the Superintendent of Documents.

      (1) Federal Aviation Regulations Part 77, Objects Affecting Navigable Airspace. ($.35)

      (2) Federal Aviation Regulations Part 151, Federal Aid to Airports. ($.40)

      (3) Federal Aviation Regulations Part 157, Notice of Construction Alteration, Activation, and Deactivation of Airports. ($.15)

   b. Advisory circulars in the 150 series, "Airports;" AC 00-2, Advisory Circular Checklist; AC 150/5325-4, Runway Length Requirements for Airport Design; and additional copies of this circular may be obtained from the Department of Transportation, Distribution Unit, TAD-484.3, Washington, D.C. 20590.

Initiated by: AS-560

4. BACKGROUND.

a. This circular provides width and clearance recommendations for airline airports; therefore, criteria relating to AC 150/5300-1, VFR Airports, and AC 150/5300-4, Utility Airports - Design Criteria and Dimensional Standards (which cancelled VFR Airports), have been deleted.

b. A revised method is presented for determining the lengths necessary to use Attachment 1, Figure 1. This method provides the basic runway length which reduces the actual runway length (including length beyond displaced thresholds) to sea level, zero gradient, and 59 degrees Fahrenheit (International Standard Atmosphere - ISA). The former method of using a temperature of 59 degrees Fahrenheit (ISA standard sea level) plus 41 degrees Fahrenheit did not provide a true comparative length and had the effect of ignoring temperature.

5. WIDTH AND CLEARANCE RECOMMENDATIONS.

a. Attachment 1, Figure 1, provides the recommended widths of runways, taxiways, and landing strips along with the clearances needed for various aircraft operating areas. Experience in the application of these dimensions has indicated a high level of safety and efficient use of the airport.

b. In order to determine which column of basic runway length in the figure is applicable, the planned runway lengths will be reduced to standard sea level conditions by removing the effect of elevation, temperature ($^{o}F.$), and runway gradient. The effect of these factors is represented by the following formulas:

(1) The elevation factor (F_e) applies an average rate of 7 percent per one thousand feet of airport elevation (E) as expressed in the formula:

$$F_e = (0.07E + 1)$$

(2) The temperature factor (F_t) applies an average rate of one-half percent for each one degree of difference between the normal maximum Fahrenheit temperature (T) of the hottest month at the airport and the standard sea level Fahrenheit temperature (59^{o}) corrected for airport elevation as expressed by the formula:

$$F_t = 0.005 \left[T-(59-3.566E) \right] + 1$$

(3) The gradient factor (F_g) applies an average rate of 20 percent (10 percent for all turbojet aircraft) for each one percent of effective runway gradient (G) as expressed by the formula:

Turbojets $F_g = (0.10G + 1)$
All Other $F_g = (0.20G + 1)$

c. The planned runway length when divided by the product of the factors noted in paragraph 5b above will provide the basic runway length needed to apply the criteria in figure 1 as follows:

$$\text{Basic Runway Length} = \frac{\text{Planned Runway Length}}{F_e \times F_t \times F_g}$$

d. The above procedure is not to be used to determine required runway length since AC 150/5325-4, Runway Length Requirements for Airport Design, provides aircraft performance curves for that purpose.

6. PARALLEL RUNWAY SEPARATION.

a. For simultaneous ILS or precision approaches, the minimum separation between centerlines of parallel runways is 5,000 feet. For actual operations under these conditions, specific electronic navigational aids and monitoring equipment, air traffic control, and approved procedures are required by the FAA.

b. Minimum separation standards for VFR operations vary depending on whether the runways are to be used for simultaneous landings or takeoffs. Thus, for airline airports, the application of terminal air traffic control procedures should be considered in airport design to avoid future limitations in the operational use of the runway system. The table shown in Attachment 1, Figure 2, notes the runway separations necessary at controlled airports for simultaneous operations in the same direction based on aircraft category, and in opposite directions based on the time of day.

c. Consider, also, the operational limitations on parallel runways with less than a 3,500-foot separation. Air traffic procedures for this separation are based on the same direction operations for missed approach courses or the application of existing or planned radar procedures, and vary depending on the angular difference in departure courses.

Clyde W. Pace, Jr.
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	Basic Runway Lengths 1/	
	3200 to 2/ 4200 feet	More than 4200 feet
1. Landing Strip Width	400 Min.	500
2. Runway Width	100	150
3. Taxiway Width	50	75 3/
4. Taxiway Centerline to: 4/		
a. Obstacle (see note)	100	200
b. Aircraft Parking or Tiedown Area	175	250
c. Parallel Taxiway Centerline	200	300
5. Runway Centerline to: 4/		
a. Obstacle (see note) 5/	200	250
b. Taxiway Centerline	250	400
c. Aircraft Parking or Tie-down Area	425	650
d. Property Line	500 Min.	750 Min.
e. Building Line, Non-Precision Runway	500	750
f. Building Line, Precision Runway	750	750

Note: Exceptions are made for certain navigational, meteorological, and visual aids approved by the Administrator, the location and height of which are fixed by their functional purposes.

1/ These lengths are determined by reducing the planned length by the procedure in paragraph 5 of the text.

2/ Where the approved airport layout plan indicates the planned basic runway length will exceed 4,200 feet, the clearance given for this length for items 4 and 5 should be used.

3/ For two- and three-engine turbojet air carrier airplanes, a minimum taxiway width of 60 feet is recommended.

4/ For new construction designed to accommodate aircraft such as the Boeing 747, clearances should be in excess of the minimums shown in this table.

5/ For a precision approach runway, this lateral clearance is 500 feet.

FIGURE 1. RUNWAY/TAXIWAY WIDTH AND LATERAL CLEARANCE RECOMMENDATIONS FOR AIRLINE AIRPORTS

SIMULTANEOUS VFR OPERATIONS ON PARALLEL RUNWAYS 1/

	SAME DIRECTION OPERATIONS 2/ (Aircraft Category)			OPPOSITE DIRECTION OPERATIONS (Time of Day)	
Distance Between	Lightweight Single-Engine Propeller-Driven	Twin-Engine Propeller-Driven	All Other	Sunrise to Sunset	Sunset to Sunrise
Runway Centerlines	300	500	700	1,400	2,800
Adjacent Edges of landing strips or a runway and a landing strip	200	400	600	1,400	Not Authorized

1/ Two-way radio communication is required to be maintained with the aircraft involved.

2/ Where aircraft of different category are involved, use the separation required for the larger aircraft.

FIGURE 2. PARALLEL RUNWAY SEPARATIONS FOR SIMULTANEOUS VFR OPERATIONS