



U.S. Department
of Transportation

**Federal Aviation
Administration**

Memorandum

Subject: **INFORMATION:** Engineering Brief No. 80,
Use of Interim Taxiway Edge Safety Margin
Clearance for Airplane Design Group VI

Date:

MAR 12 2010

From: Manager, Airport Engineering Division, AAS-100

Reply to

Attn. of:

To: All Regions

Attn: Airport Engineering Division, AAS-100

Engineering Brief No. 80, "Use of Interim Taxiway Edge Safety Margin Clearance for Airplane Design Group VI," is attached. Approval authority for modifications to standards (MoS) that comply with specific conditions of this engineering brief is delegated to the Airports Regional Division Manager.

This engineering brief allows Airports Regional Division Managers to approve a modification-to-standard (MOS) for ADG VI airplanes using existing taxiway systems with taxiway edge safety margins of at least 15 feet instead of the standard 20-foot margin on straight and curved sections when using cockpit-over-centerline design.

Regional coordination of all proposed MoSs is not required with the other regional-lines-of business. Upon completion, a copy of the issued MoS is to be sent to the Airport Engineering Division, AAS-100.

Attachment

ENGINEERING BRIEF NO. 80

Use of Interim Taxiway Edge Safety Margin Clearance for Airplane Design Group VI

A. BACKGROUND

The design of a taxiway should be such that when the cockpit of the airplane remains over the taxiway centerline marking, the design provides a given amount of clearance between the outer main wheel of the airplane and the taxiway pavement edge. The minimum amount of clearance, called the Taxiway Edge Safety Margin (TESM), varies according to airplane design group (ADG)¹. As shown in table 4-1 of Advisory Circular 150/5300-13, *Airport Design*, the TESH among the ADGs ranges from 5 to 20 feet.

The function of the TESH is to compensate for normal piloting wander from the taxiway centerline on straight and curved sections with cockpit-over-centerline. At present, the FAA recommends a 15-foot TESH for ADG III airplanes with a wheelbase equal to or greater than 60 feet and for all airplanes within ADGs IV and V. In comparison, the TESH for ADG VI is 20 feet.

FAA Taxiway Centerline Wander R&D. In late 1999, in preparation for the introduction of New Large Airplanes Airbus A380-X and the Boeing 747-X, the FAA commenced R&D to evaluate the statistical rates of normal wander from taxiway centerlines by Boeing 747s. That research gathered actual in-service piloting wander encountered at JFK International Airport, Anchorage International Airport, and San Francisco International Airport². Likewise, other countries conducted comparable field trials of Boeing 747s and other wide-bodied aircraft to compare piloting behavior on a global basis. From 2005 to 2007, the United States and other countries presented their observations to the International Civil Aviation Organization (ICAO) which lacked taxiway design recommendations for ADG VI (per ICAO nomenclature, Code Letter F) airplanes. The totality of the multi-national field trials supported the opinion of the ICAO Aerodrome Panel that New Large Airplanes would exhibit similar wander rates for normal operations as currently exhibited by ADG V airplanes. With such findings ICAO promulgated a clearance of 15 feet as the international TESH design standard³ for Code F (ADG VI) airplanes.

B. APPLICATION

This engineering brief allows Airports Regional Division Managers to approve a modification-to-standard (MOS) for ADG VI airplanes using existing taxiway systems with TESHs of at least 15 feet on straight and curved sections when using cockpit-over-centerline design. No further coordination with other regional lines of business is required for issuing the approval. Upon completion of the MOS, the Airports Regional Division must send a copy of the issued MOS to the Airport Engineering Division, AAS-100. Airports Regional Division Managers must continue to forward MOS approvals to AAS-100 until the interim 15-foot TESH value for ADG VI becomes official in table 4-1 of AC 150/5300-13. New taxiway construction or reconstruction that receives Federal grant monies through the Airport Improvement Program (AIP) or revenue from the Passenger Facility Charges (PFC) Program must be built with the interim 15-foot TESH clearance before the value becomes official in table 4-1 of AC 150/5300-13.

Engineering Brief #80
3/12/2010

A handwritten signature in black ink that reads "Rick Marinelli". The signature is written in a cursive style with a prominent initial "R".

Rick Marinelli
Manager, Airport Engineering Division