

Engineering Brief # 26

Date: March 24, 1981

In Reply Refer To: AAS-200

Subject: INFORMATION: Engineering Brief No. 26
Drainage Design Considerations

From: Chief, Engineering and Specifications Division, AAS-200
To: All Regions

Attn: Chief, Airports Division

Engineering Brief No. 26, Drainage Design Considerations, discusses two aspects of drainage design which we feel need emphasis and lists some of the changes we feel are needed in Advisory Circular 150/5320-5B, Airport Drainage.

Any comments you may wish to offer will be appreciated.

ORIGINAL SIGNED BY:
ROBERT BATES
for
EDWARD AIKMAN

Enclosure

ENGINEERING BRIEF NO. 26

DRAINAGE DESIGN CONSIDERATIONS

Two important considerations in the design of drainage systems for airports have been brought to our attention which we feel require more emphasis than is given in our Advisory Circular 150/5320-5B, Airport Drainage. We are currently planning to revise AC 150/5320-5B during this year. Our changes will include the considerations discussed below as well as adding plastic pipe to the standard.

The first deals with the assignment of roughness coefficients for use in the Manning formula. The roughness coefficients given in Table II page 16 of AC 150/5230-5B are approximate values. We wish to emphasize that the assignment of roughness coefficients is a matter of judgment and the value selected for design should represent conditions which prevail during the useful life of the pipe. In our revision to the circular we are planning to show ranges of roughness coefficients in Table II to allow latitude in selecting design values. Bends, curves, intersections, etc., will have an effect on the selection of roughness coefficients.

The second deals with the use of coated pipe. A research study conducted for the Federal Highway Administration, FHWA-RD-80-059 dated June 1980, lead to the conclusion that durability problems

are encountered with all protective coatings now commonly used. The durability problems were encountered mainly where the pipe carried abrasive flow or water containing corrosive elements. In airport applications, petroleum based linings should be avoided where fuel spillage may enter the drainage system. Aircraft fuel will attack and dissolve petroleum based linings. The research study referenced above suggests coatings of urethane, epoxy neoprene, fusion-bonded, ceramic on metallized coatings may be more cost effective than the more commonly used coatings now employed. More experience and performance studies are recommended to determine the most cost effective coating.

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