بسم الله الرحمن الرحيم

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الالكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها

علي هذه الأفلام قد أعدت دون أية تغيرات

يجب أن

تحفظ هذه الأفلام بعيدا عن الغبار

في درجة حرارة من ١٥-٢٥ مئوية ورطوبة نسبية من ٢٠-٤٠%

To be Kept away from Dust in Dry Cool place of 15-25- c and relative humidity 20-40%

بعض الوثائـــــق الاصليـــة تالفـــة

بالرسالة صفحات
لم ترد بالاصل

SENSITIVITY ANALYSIS OF AIRPORT PAVEMENT DESIGN METHODS

by

Ghazi Ahmad Khalaf

A Thesis Submitted to the
Faculty of Engineering at Cairo University
in Partial Fulfillment of the
Requirement for the Degree of
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ABSTRACT

Different methods have been used for airport pavement structural system design. Some of these methods depend upon empirical formula and others are based upon theoretical approaches. A comparative study of recent flexible pavement design methods "Federal Aviation Administration (FAA), Asphalt Institute (A.I.), Load Classification Number (LCN), French, and Canadian method" has been carried out through their input parameters and characteristics. Sensitivity analysis, for each design method, were investigated to evaluate the relative change in required thickness of the pavement structure that would result from changes in the input parameters. The analysis revealed that variation in both subgrade strength and aircraft weight has the most pronounced effect on the required pavement thickness than variation in repetition, for the selected design methods.For the asphalt institute method, it is obvious that the subgrade vertical compressive strain controls the determining of required thickness when considering the poor (or low) levels of subgrade bearing strength , aircraft annual , and aircraft gross weight. While the asphalt concrete horizontal tensile strain controls it when considering the good (or high) levels. Asphalt Institute method is the least sensitive method due to variations in design factors and it can be considered the most suitable design method. A modifying calculation procedure was developed for the French design method to be able to use it for the direct determination of the required thickness, where the calculations in the fundamental procedure consist of applying an iterative method. This modified procedure has the advantage that the actual movements of each aircraft considered can be converted to equivalent movements of an arbitrarily selected "standard" aircraft, and this type of "standardization" procedure is analogous to the use of 80 KN (18,000 lb) single axle load used in Highway Pavement Design.

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