

# Revision of Airport Pavement Maintenance and Rehabilitation Manual

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(Key words) Airport, paving, maintenance

## 1. Introduction

The Airport Pavement Maintenance and Rehabilitation Manual (draft version) was revised and issued officially in April 2011. This manual provides standards and recommendations for inspection, evaluation, design and construction for the rehabilitation of airport pavement. In this revision, the design method for rehabilitation was changed from the specification based method to the performance based method just like the new pavement design method already changed in 2008. Furthermore, standards and recommendations for inspection, evaluation and construction were also revised based on the result of research by the NILIM. This report mentions some of the major points of the revision.

## 2. Inspection

De-bonding between asphalt concrete layers has been inspected by an impact acoustic method using a hammer. However, it takes many days to complete the inspection by this method at a large airport. To develop a new efficient method to detect de-bonding, NILIM conducted a study to verify the applicability of the infrared thermographic inspection method. This method is based on the surface temperature difference between bonded and de-bonded areas caused by de-bonding as shown in Figure 1. The result clarified that this method could detect de-bonding quickly in both the daytime and nighttime in the summer. In the revision of the manual, this method was added as new inspection method.

## 3. Material and Construction

Grooves, whose width is 6mm and depth is 6mm, are constructed on the surface of a runway to drain water quickly and to maintain skid resistance. To prevent failure of the grooves soon after the construction as shown in Figure 2, grooves shall be constructed 2 months after construction of the surface course. This means that the surface condition of runway is “non-grooves” for 2 months after rehabilitation works. However, a laboratory loading test has revealed that grooves constructed on modified asphalt concrete have higher stability than those on straight asphalt concrete. Thus, trial construction of grooves was done on a runway to confirm the stability of grooves. The result of the trial construction verified

that grooves on modified asphalt concrete constructed 1 month after construction of the surface course have high stability. In the revision of the manual, the curing term for grooves was shortened to 1 month in cases where modified asphalt concrete was used for the surface course.



Figure 1. Infrared image (center blue circles indicate low temperature part due to de-bonding)



Figure 2. Failure of grooves

### [Reference]

Civil Aviation Bureau, Ministry for Land, Infrastructure, Transport and Tourism: Airport Pavement Maintenance and Rehabilitation Manual, 2011.