International Civil Aviation Organization
Asia and Pacific Office

Twentieth Meeting of the Asia Pacific Regional Aviation Safety Team (APRAST/20)

(Bangkok, Thailand, 07-11 August 2023)

Agenda Item 5: Presentations – State / Industry / ICAO

AIRPORT PAVEMENT MANAGEMENT TO STRENGTHEN RUNWAY SAFETY POST-PANDEMIC

(Presented by the Republic of Korea)

SUMMARY

The purpose of the paper is to share airport pavement management for strengthening runway safety and to find out best practices for enhancing the runway safety by other APAC States to improve runway safety in Asia-Pacific Region.

1. INTRODUCTION

1.1 Many runways, taxiways and aprons are constructed of flexible pavements with asphalt surfaces. The performance of the runway surface is critical to the safe operation of aircraft.

1.2 Normally when paving the runway six meters at a time, cold joints are generated in between. In particular, damages to the pavement such as ravelling, longitudinal cracks, or wear occur over time on cold joints in the centre of the runway which is intensively affected by aircraft loads.

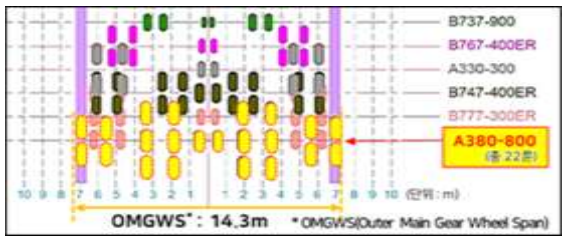
1.3 Degradation of pavement quality, or FOD (Foreign Object Debris) generation from those damages may have significant effects on the safety of aircraft operations that is the top priority in the aviation.

1.4 To tackle this issue, we are implementing the plan for strengthening runway safety (RE) and pavement sustainability in line with Global Aviation Safety Plan (GASP) with airport operators.

2. DISCUSSION

Echelon pavement

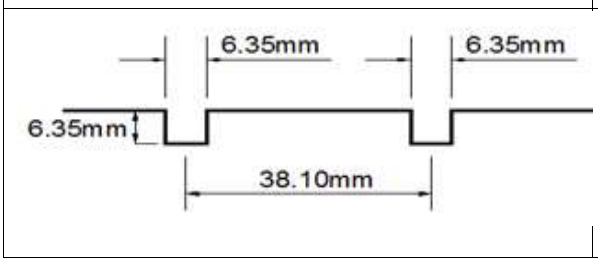
2.1 Echelon pavement means a V-shaped wide-width formation pavement method covering 24m[note] in the center of the runway under intensive aircraft load at once without cold joints using a wide-width finisher (12m) and 2 normal-width finishers (6m).

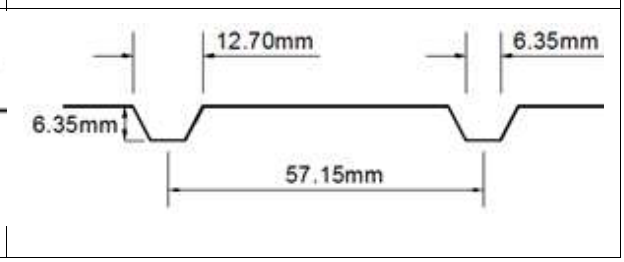


The largest OMGWS figure:
A380-800 Outer Main Gear Wheel Span 14.3m

Trapezoid groove

2.2 Both safety and economic feasibility were secured by improving the drainage capacity, friction performance, and pavement durability of the runway through trapezoidal grooving considering climate change.

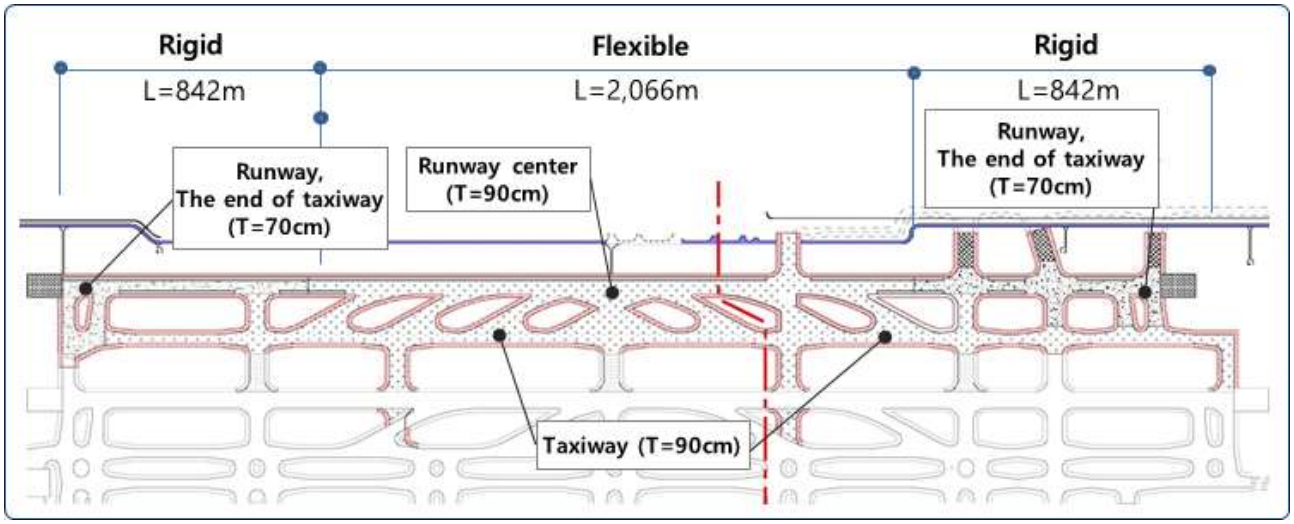




Note- A380 OMGWS 14.3≒15m + Lateral deviation tolerance width(4.5m*2) + 9m = 24m

Extension of rigid pavement

2.3 In addition, by expanding the rigid pavement section to 842m (existing runway 300-700m) based on the results of the aircraft landing analysis, we could allow the majority of aircraft to touch-down on the rigid pavement runway enhancing the safety of aircraft operations.



2.4 In conclusion, we could not only enhance runway safety by improving runway pavement quality and minimizing FOD, but also airport customer experience that directly contributes to the success or failure of key aviation policies by providing safer airport services to airport customers.

3. ACTION BY THE MEETING

3.1 The Meeting is invited to:

a) note the information contained in this paper;

b) share best practices to strengthen the runway safety by other APAC States for improving runway safety in Asia-Pacific region; and

c) discuss any relevant matters as appropriate.

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