

ABSTRAK

Metode perencanaan tebal perkerasan landas pacu yang umum dipakai di Indonesia yaitu metode CBR (*US Army Corps of Engineers*), FAA (*Federal Aviation Administration*), LCN (*Load Classification Number*), dan *Asphalt Institute*. Setiap metode menghasilkan tebal perkerasan yang berbeda, karena parameter perencanaan yang digunakan berbeda. Dalam penelitian Santoso dkk, (2017) metode FAA menghasilkan tebal perkerasan lentur lebih besar dibanding metode LCN sedangkan dalam penelitian Yusuf (2010) metode LCN menghasilkan tebal perkerasan lentur paling besar diikuti metode CBR dan FAA. Oleh karena itu perlu dilakukan analisis tebal perkerasan lentur landas pacu menggunakan metode CBR, FAA, dan LCN, dengan lokasi penelitian pada Bandar Udara Internasional Yogyakarta yang memiliki volume lalu lintas pesawat cukup tinggi. Tujuan penelitian untuk mengetahui tebal perkerasan dan perbandingan total tebal serta tebal setiap lapisan yang dihasilkan metode CBR, FAA, dan LCN.

Berdasarkan hasil analisis, pesawat rencana yang digunakan adalah pesawat B737-9MAX. Metode LCN menghasilkan total tebal perkerasan paling besar yaitu 127 cm, diikuti metode CBR dan FAA sama besar yaitu 109 cm. Untuk lapis permukaan metode CBR dan FAA menghasilkan tebal sama besar yaitu 11 cm, metode LCN menghasilkan tebal paling besar yaitu 20 cm. Untuk lapis pondasi atas metode FAA menghasilkan tebal paling besar yaitu 38 cm, diikuti metode CBR 35 cm, dan metode LCN 21 cm. Untuk lapis pondasi bawah metode LCN menghasilkan tebal paling besar yaitu 86 cm, diikuti metode CBR 63 cm, dan metode FAA 60 cm.

Perbandingan tebal lapis permukaan, lapis pondasi atas dan lapis pondasi bawah untuk metode CBR dan FAA hampir sama yaitu $\pm 1 : 3 : 6$, sedangkan metode LCN memiliki perbandingan yang berbeda yaitu $\pm 1,5 : 1,5 : 7$. Perencanaan tebal perkerasan landas pacu menggunakan metode LCN tidak direkomendasikan menggunakan pesawat rencana yang memiliki total keberangkatan tahunan > 3.200 lintasan. Dengan nilai total keberangkatan > 3.200 akan menghasilkan nilai LCN pesawat melebihi nilai maksimum (60).

Kata kunci : bandar udara, landas pacu, perkerasan lentur, CBR, FAA, dan LCN.

ABSTRACT

The runway pavement thickness planning methods commonly used in Indonesia are the CBR (US Army Corps of Engineers), FAA (Federal Aviation Administration), LCN (Load Classification Number), and Asphalt Institute. Each method produces a different pavement thickness because the planning parameters used are different. In the research of Santoso et al, (2017) the FAA method produces a greater flexible pavement thickness than the LCN method. Meanwhile, in research by Yusuf (2010) the LCN method produces the largest flexible pavement thickness, followed by the CBR and FAA methods. Therefore, an analysis of the flexible pavement thickness for the runway was carried out using the CBR, FAA, and LCN methods, with the research location at Yogyakarta International Airport which has a fairly high volume of aircraft traffic. The purpose of the study was to determine the thickness of the pavement and the ratio of the total thickness and thickness of each layer produced by the CBR, FAA, and LCN methods.

Based on the results of the analysis, the planned aircraft used is the B737-9MAX aircraft. The LCN method produces the largest total pavement thickness, which is 127 cm, followed by the CBR and FAA methods, which are equal to 109 cm. For the surface course, the CBR and FAA methods produce the same thickness namely 11 cm, while the LCN method produces the largest thickness which is 20 cm. For the base course, the FAA method produces the largest thickness which is 38 cm, followed by the 35 cm CBR method, and 21 cm LCN method. For the subbase course, the LCN method produces the largest thickness which is 86 cm, followed by the CBR method 63 cm, and the FAA method 60 cm.

The ratio of the thickness of the surface course, base courser, and subbase course for the CBR and FAA methods is almost the same namely $\pm 1: 3: 6$, while the LCN method has a different ratio namely $\pm 1.5 : 1.5 : 7$. Planning of pavement thickness runway using the LCN method is not recommended using a planned aircraft that has a total annual departure of $> 3,200$ passes. With a total annual departure value of $> 3,200$, the LCN value of the aircraft exceeds the maximum value (60).

Keywords : airport, runway, flexible pavement, CBR, FAA, and LCN.