

The Performance of Interlocking Concrete Block Pavements with Various Surface Structures

Wuguang Lin[1], Soo Ahn Kwon[2], Yoon-ho Cho[3]

[1]Shanghai Maritime University, College of Transport and Communications, 1550 Haigang Ave., Shanghai, P.R.China 201-306
[2]Korea Airports Corporation, 78 Haneul-gil, Gangseo-gu, Seoul, Republic of Korea
[3]Department of Civil and Environmental Engineering, Chung-Ang University, 84 HeukSeok-Dong, DongJak-Gu, Seoul, Republic of Korea
Correspondence: yhcho@cau.ac.kr

Abstract :

Concrete block pavement is distinct from typical asphalt pavements. It is built by using individual blocks with unique construction patterns forming a discrete surface layer to bear traffic loadings. The overall structural stability is guaranteed by minimizing the rotation and displacement of the blocks. In this study, the dynamic dropped loading tests and friction tests were performed to evaluate the load dispersion capacity of concrete block pavement with various block shapes and laying patterns. Results have shown that the herringbone pattern showed the best performance whether in vertical or horizontal load transfer capacity. The higher shape factor (surface area/side area) gave a higher level of horizontal interlocking performance and a smaller deflection results in vertical direction.

Keywords : interlocking block pavement,dynamic loading, load transfer efficiency, shape factor