

ABSTRACT

Research of rigid roadway pavement under moving load has been carried out by several experts. Plate is one of an important part in the building construction. Over period of time, methods to analyzed the behavior of the plate due to dynamic moving loads have been found. In this study, rigid pavement is modeled as a rectangular orthotropic plate supported by Pasternak foundation with the elastic vertical support (dowels) and shear layer (tie bars) along its edge. The wave numbers and the natural frequencies by using Modified Bolotin Method (MBM) along with two transcendental equations. The dynamic response of plate subjected to the moving loads in this study will include the inertial soil factor (m_0), spring constant of Pasternak foundation (k), shear constant of Pasternak foundation (G_s). The dynamic response of plate that will be analyzed in this research will include the maximum dynamic deflection of plates, the internal moments and shear forces. From the dynamic analysis it is found that maximum absolut deflection at the centre of the plate is reduced when the factor of inertial soil is taken into account, as well as the value of moments and shear forces. This result shows that by including the inertial soil factor in the analysis, the rigid roadway pavement can be designed more accurate and economic.

Keywords : Rectangular orthotropic plate, moving load, Pasternak foundation, Modified Bolotin Method (MBM), inertial soil, dynamic response of plate.