ABSTRACT

Modified Bolotin Method is used to solve the slabs problem with the semi rigid type of edge conditions. Each edge condition has its own rotation stiffness coefficient depends on how rigid the condition is. This analysis studies the effect of non-dimensional rotation stiffness coefficient ($\bar{k}$) to dynamic response of the slab. Using coefficient 0.3 for the condition tends to simply supported edge; 0.5 for the semi rigid state between simply supported and clamped; 0.7 for the condition tends to clamped edge. Slab is modeled as an isotropic and elastic slab with the assumption of the small deflection theory and Kirchoff's theory of plates. The eigen vector is solved using the two transcendental equations. Then the dynamic transverse load with constant velocity is applied to this slab. Analysis will be done when the load still within the slab ($0 < t < t_0$) and after the load left the slab ($t > t_0$). Analysis showed that as the edge condition draws near to simply supported state, the middle deflection when the load at the middle point of slab will be higher. The difference between $\bar{k} = 0.3$ and $\bar{k} = 0.7$ middle deflection is 3.32% when the load within the slab and 69.45% when the load left the slab. The bending moment at center of slab is also higher about 2.3% when the load within the slab and 59.8% when the load left the slab. This works along with the shear force which is higher about 2.19% when the load within the slab and 83.06% when the load left the slab.

Keywords : *Modified Bolotin Method, semi rigid, rotation stiffness coefficient, non-dimensional, isotropic, elastic, transverse load, deflection, bending, shear force.*