ABSTRACT

Slab structures is kind of structures that we use in construction. Slab structure is used to increase the rigidity of the building horizontally that help to distribute lateral force (inplane) of the vertical element building from the top to the bottom of buildings. Therefore, slab needs to be analyzed to restraint the lateral load that work on the plate.

Dynamic response analysis of concrete slab structure in this thesis is modeled as orthotropic concrete slab with semi-rigid support at the four sides that have a rectangular geometry with the length 6 m, width 3 m and the slab thickness 120 mm. This dynamic slab condition is solved by using *Modified Bolotin Method* (MBM) with two transcendental equations.

Slab structure is analyzed with condition to restraint the lateral load and transverse load. The inplane load is assumed into static load from two direction of plate x and y axes. The transverse load is assumed as a heavy vehicle with a maximum capacity that crosses a slab surface of dynamic loads with constant speed without an acceleration. In this thesis, the transverse load is modeled as point load that moving in the x axes and the inplane load is modeled as uniform load on the four sides of plates. In solving these dynamic functions load we are using special characters of Dirac-delta function. This dynamic slab problem is only reviewed from solution of dynamic problem when the load is moving on the slab and momentarily left the slab.

Keywords : MBM (Modified Bolotin Method), orthotropic, semi-rigid, dynamic respons, slab, Dirac-delta, inplane load, transverse load.