

## Effective Moment of Inertia of Beam-Slab Section under Lateral Load

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**Abstract-** This study developed the modified equivalent frame method, using column elements and equivalent slab-beam elements for two-way slab systems under lateral loads. A detailed comparative study between the F.E analysis, which is based on the three dimensional full width of slab, and 3D frame analysis using different types of effective moment of inertia of beam-slab section. The purpose of this step is to choose an appropriate model of effective width of slab to represent the full width of slab under lateral loads. The dynamic analysis was done using finite element procedure provided by ETABS. Parametric studies were carried out to evaluate the effects of several factors such as panel of slab aspect ratio, column aspect ratio, column to span ratio, irregularity in plan of buildings and height of buildings. Two heights of buildings were considered for those above mentioned factors, these are (45m and 75m). This study presents the modified beam model, which gives the effective moment inertia of slab-beam system under lateral load. The response of the proposed model gives a good result in comparison with F.E idealization with small error range from (2-5) % for displacement and frequency and (5-8) % for base shear and base moment

**Keywords:** Two-way slab, Moment of Inertia of Beam-Slab Section, Lateral Load.