

## Peak Floor Response for Buildings with Flexible Base

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**Abstract :** This paper explores the modifications on peak acceleration, velocity and displacement profiles over the structure due to dynamic soil-structure interaction (DSSI). A shear beam model is used for the structure. Soil-foundation flexibility (inertial interaction) is considered by a set of springs and dashpots at the structure base. Kinematic interaction is considered using transfer functions. Impedance functions are computed using simplified expressions for rigid foundations. The research studies the influence of the slenderness ratio on the value of the peak floor response. It is shown that the modifications of peak floor responses are not the same for acceleration, velocity and displacement. This is opposite to the hypothesis used by methods included in several building codes. Results show that modifications produced by DSSI on different response quantities are not equal.

**Keywords :** peak floor intensities, dynamic soil-structure interaction, buildings with flexible base, kinematic and inertial interaction

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