Behaviour of reinforced concrete building under simultaneous horizontal and vertical ground motion

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Authors: A. Kadid, D. Yahiaoui, R. Chebili.

Abstract

This paper is concerned with the study of the effect of combined horizontal and vertical accelerations on the seismic response of reinforced concrete structures. To achieve this objective, three reinforced concrete buildings representative of rigid, semi-rigid and flexible structures were analyzed in the nonlinear range using lumped mass and distributed mass models. The results obtained indicate that the inclusion of the vertical component has little effect on the storey drifts and base shears but can greatly influence the axial forces in the columns and the vertical displacements of girders.

Keywords : REINFORCED CONCRETE STRUCTURES, VERTICAL AND HORIZONTAL EXCITATIONS, NONLINEAR ANALYSIS, DISTRIBUTED MASS, LUMPED MASS.

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