

Nonlinear hinge model simulating moment-rotation behavior of slab-column connections

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ABSTRACT

This paper introduced a nonlinear hinge model to simulate the moment-rotation behavior at slab-column connections for the nonlinear static analysis of flat plate structures under lateral loading. Structural damage and plastic deformations due to gravity or lateral loads in flat plate structures were assumed to concentrate within an area defined by twice the effective slab thickness from the column face. The total unbalanced moment transferred by the joint was defined as the sum of flexural, shear, and torsional contributions at the joint critical section. The proposed nonlinear hinge model was applied to existing slab-column joint specimens and was found to predict nonlinear load-displacement behavior with reasonable accuracy.

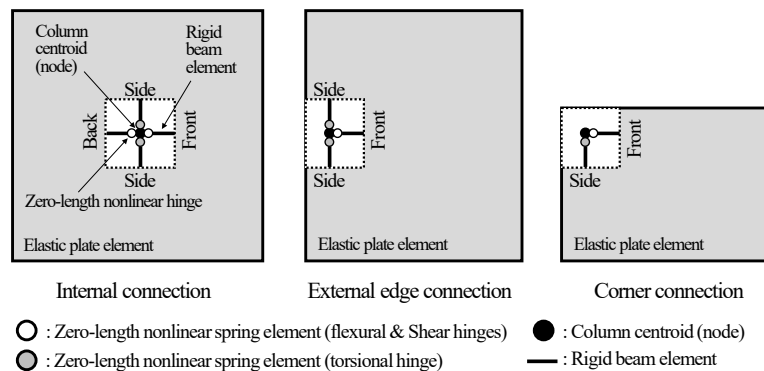


Fig. 1 Modeling of slab-column connections

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