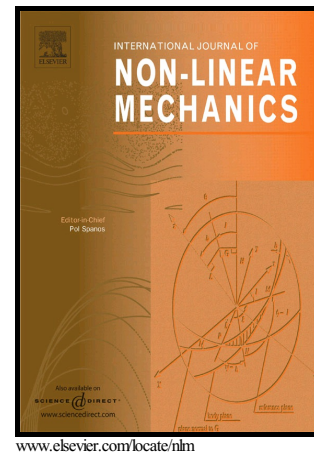


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# Investigating effects of various base restraints on the nonlinear inelastic static and seismic responses of steel frames

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## Abstract

This paper deals with effects of various base restraints on the nonlinear inelastic static and seismic response of plane and space steel frames. The inelastic behavior is captured by a plastic fiber beam-column method, in which the beam-column member is monitored by integration points along the member length, and the cross-section is meshed into several sub-sections. The second-order effects are considered through the use of stability functions and the geometric stiffness matrix. The effect of shear deformation is also taken into account. The column-base restraint is simulated by using a multi-spring connection element developed by authors. The independent hardening model is employed for performing hysteretic loops of rotational springs under seismic loadings, whereas mathematical models are adopted for representing moment-rotation

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