

Seismic Response of Moment Resisting Steel Frame with Hysteresis Envelope Model of Joints

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Abstract : The seismic response of moment-resisting steel frames depends on the behavior of the joints, especially when they are considered as ductile zones. The aim of this research is to provide a realistic assessment of the moment-resisting steel frame behavior under seismic loading using nonlinear static pushover analysis (N2 method). The hysteresis behavior of the joints in the frame model was described using a new hysteresis envelope model. The obtained seismic response was compared with the results of the seismic analysis obtained for the same steel frame that takes into account the monotonic model of the joints.

Keywords : beam-to-column joints, hysteresis envelope model, moment-resisting frame, nonlinear static pushover analysis, N2 method

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