

Seismic Chart In Performance-Based Earthquake Engineering

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Summary

A seismic chart as design aid for simple structures is proposed. It is suitable to be used in the environment of the Performance-Based Earthquake Engineering together with the Non-linear Static Procedure (NSP) or pushover analysis. The chart utilizes the inelastic response spectra of 10% kinematic hardening SDOF system. The performance parameters to include strength, hysteretic energy and damage, as function of numbers of independent variables such as the intensity & duration of the input motions, site characteristic, ductility, with constraint on displacement, are discussed. The random variables involved and their uncertainties can be taken into account explicitly, enabling simple incorporation of the information on the Seismic Hazard Analysis, when available. Comparison with the experimental data confirms the prediction.

Keywords: Seismic chart, inelastic spectra, performance-based, Non-linear Static Procedure, Seismic Hazard Analysis.