

DUCTILITY SPECTRUM METHOD TO ESTIMATE SEISMIC DEMANDS FOR STRUCTURES

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ABSTRACT

Forces and displacements induced by major seismic effects can go beyond the elasticity range in structural elements. In current designs, the traditional way to take into account the nonlinearity of the structure is the non linearity of structure is taken into account in association with the reduction of level forces with an indirect elastic analysis. The movements are then verified in an approximate way. This is the design method based on strengths. Design with direct coverage of travel and accurate evaluation of the nonlinear behavior expected of each structural element is, however, a more exact approach. This is the design method based on performance.

In this paper an improved procedure, applicable to evaluation and design of structures has been developed and illustrated by examples for Multi-Degree-of-Freedom Systems. This procedure uses inelastic spectra and gives peak responses consistent with those obtained when using the nonlinear time history analysis.

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