

The Application of Extend Spectrum-Based Pushover Analysis for Seismic Evaluation of Reinforced Concrete Wall Structures

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Abstract : Reinforced concrete (RC) shear wall structures are one of the most popular and efficient structural forms for medium- and high-rise buildings to resist the action of earthquake loading. Thus, it is of great significance to evaluate the seismic demands of the RC shear walls. In this paper, the application of the extend spectrum-based pushover analysis (ESPA) method on the seismic evaluation of the shear wall structure is presented. The ESPA method includes a nonlinear consecutive pushover analysis procedure and a linear elastic modal response analysis procedure to consider the combination of modes in both elastic and inelastic cases. It is found from the results of case study that the ESPA method can predict the seismic performance of shear wall structures, including internal forces and deformations very well.

Keywords : reinforced concrete shear wall, seismic performance, high mode effect, nonlinear analysis

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