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The use of pushover analysis for reduction behavior of hysteresis cycle

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Objectives: In this study, three reinforced concrete moment frames were designed conforming to the third edition of 2800 standard under valid accelerograms which were equal in accordance with available improvement instructions.

Method/Analysis: Nonlinear static or pushover analysis is a new method which is interested by researchers and engineers in the construction industry for its easy fast computing. This method provides the possibility to evaluate the performance of structures against earthquakes. Pushover analysis and comparison of its results with results of nonlinear dynamic analysis, the values obtained for reduced hardness and resistance (C2) were compared with suggested values of the improvement guideline.

Findings: Increase in period of the structure decreases the C2 coefficient; thus, it can be considered equal to one in higher periods and ignored in calculations of target displacement.

Conclusion/Application: Greatest effect of reduced resistance and hardness is experienced on damages to structures with lower period.

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