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Non-Linear Static Pushover Analysis of 15 Storied Reinforced Concrete Building Structure with Shear Wall

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Abstract : In this paper, nonlinear static pushover analysis is performed on 15 storied RC building structure with a shear wall to evaluate the seismic performance of the building. Section sizes of the members are obtained based on structural optimization method utilizing MATLAB frame optimizer, then the structure is simulated and designed in ETABS program conforming ACI 318-14 design code. The pushover curve has been generated by pushing the top node of the structure to the limited target displacement. Members failure due to the formation of plastic hinges, considering shear wall-frame structure was observed and the result of this study is presented based on current regulation of FEMA356, ASCE7-10, and ACI 318-14 design criteria

Keywords : structural optimization, linear static analysis, ETABS, MATLAB, RC moment frame, RC shear wall structures
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