عنوان مقاله:

THE APPLICATION OF THE FORCE ANALOGY METHOD (FAM) IN PUSHOVER ANALYSIS FOR STEEL MOMENT RESISTING FRAMES

محل انتشار:

هشتمین کنفرانس بین المللی زلزله شناسی و مهندسی زلزله (سال: 1398)

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خلاصه مقاله:

In this research, the precision and efficiency of the use of FAM in static nonlinear analysis (pushover analysis) have been compared to the case of using other common element types such as forced-based and displacement-based fiber elements and SAP2000 super elements in nonlinear analysis. In addition, the effects of elastic axial deformation of the members on the performance of the structures, which have not been investigated before using FAM, have also been implemented through analysis by modifying the stiffness matrices of the structural elements. To achieve this goal, a computer code has been developed in MATLAB to analyze the structures using improved FAM. Differences between the FAM and other mentioned methods are revealed through conducting pushover analysis on six 2D steel special momentresisting frames. The results of pushover curves, base shear forces, and plastic rotation of the critical hinges obtained from all of the methods are compared to demonstrate the accuracy of the FAM. The results indicated that in general, the predictions obtained using the FAM had a good agreement and compatibility with those from other methods of analysiscurrently used in practice for seismic performance assessment of structures

کلمات کلیدی:

Force analogy method (FAM), Force-based fiber element, Displacement-based fiber element, Pushover analysis, Special moment resisting frame

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