عنوان مقاله:

SENSITIVITY ANALYSIS OF DIFFERENT SHELL ELEMENTS FOR RC SHEAR WALLS

محل انتشار:

یازدهمین کنگره ملی مهندسی عمران (سال: 1398)

تعداد صفحات اصل مقاله: 8

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خلاصه مقاله:

Accurate seismic evaluation of buildings requires appropriate nonlinear models in order to capture all possible behaviors of structural elements under different loading conditions. To this aim, various research has been done, and abundance of models have been introduced as well. Notwithstanding the multiplicity of these models, most of them have deficiencies in precise simulating the structural behavior. Thus, the accuracy of a model must be investigated thoroughly to ensure the reliability of the analysis results. At present, the best methodology to scrutinize the capability of the nonlinear models is to verify the model with the results of an existing experiment and performing sensitivity analyses afterwards. This paper focuses on this procedure by comparing three different shell elements which are already developed for RC shear walls in the platform of OpenSEES. The shake-table test of a full-scale 7-Story building slice tested at UC–San Diego is also employed for models verification. Parameters including mesh size, damping type, and concrete shear retention factor (SRF) were investigated through the nonlinear time-history (NTH) and non-linear static analyses (NSA). It is worth noting that changing these parameters have substantial influence in some cases and therefore appropriate value for each of them must be meticulously selected. The results indicate that the RC shear wall shell models are in an acceptable agreement with the test results.

کلمات کلیدی:

Sensitivity Analysis, Shell Element, RC Shear Wall, Nonlinear Analysis, Pushover Analysis, Damping Effect