

عنوان مقاله:

EFFECT OF STRUCTURAL STEEL PARAMETER AND QUALITY OF CONSTRUCTION UNCERTAINTIES ON SEISMIC PERFORMANC OF A SPACIAL MOMENT RESISTING FRAME

محل انتشار:

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خلاصه مقاله:

Seismic excitations are one of the most hazardous loadings encountered during the life time of structures. Seismic evaluation of Steel Moment Frames, which are used often as lateral seismic system subjected to earthquake must account for the structural steel parameter and workmanship uncertainties, is of high importance. In this study, the uncertainties, which involve the quality of workmanship (quality of construction and weld fabrication) that is affected in the behavior of the beam-to-column connections as well as mechanical properties such as Young modulus and yield-strength, are parameters for considering those associated with structural steel framing parameters. Incremental dynamic analysis is utilized to assess the structural dynamic behavior of the frames and to generate the required data for performance based evaluations. A probabilistic framework for seismic assessment of a structural system, which takes into account the uncertainty in the mentioned variables, is used to examine the variation of the probability of exceeding a limit state capacity under seismic excitations. In this study, seismic evaluation of structure has been accomplished in two modes, before construction (the designed structure with no uncertainty) and after construction (the structure with uncertainty). This confidence level is assessable and obtainable through evaluation of the factored demand-to-capacity, namely DCFD format. SMF at the IO performance level, as affected by uncertainties, shows few changes in DCFD values as well as in confidence level in comparison with the structure with no uncertainty while, at CP, result shows more changes, increase of the DCFD parameter and consequently decrease of confidence level of the structure affected by uncertainties.

کلمات کلیدی:

.Structural Steel Uncertainty, Incremental Dynamic Analysis (IDA), Performance Based Evaluation

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