

عنوان مقاله:

An analysis to low-cycle fatigue phenomenon and its impact on seismic behavior and structural design

محل انتشار:

دومین کنفرانس بین المللی یافته های نوین پژوهشی در مهندسی عمران، معماری و مدیریت شهری (سال: 1395)

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خلاصه مقاله:

A seismic design procedure that does not take into account the maximum and cumulative plastic deformation demands that a structure is likely to undergo during severe ground motion could lead to unsatisfactory performance. Current seismic design methodologies do not spot some variants relative to the seismic design into the strong motions. Particularly inattention explicitly the plastic deformation and probable significant reduction at lateral strength may cause irreparable results in the soft soils subject to the cycles of motions. there is total accordant about contrast to low cycle fatigue. And several recommendation were proposed on the quality of its influence at seismic design. For sense to performance seismic design issue the relative between damage measure and performance issues should be evaluated. Seismic design methodologies that account for low cycle fatigue can be formulated using simple damage models. The practical use of one such methodology requires the consideration of the severity of repeated loading through a normalized plastic energy parameter. Damage models that quantify the severity of repeated plastic cycling through plastic energy are simple tools that can be used for practical seismic design. The concept of constant cumulative ductility strength spectra, developed from one such model, is a useful tool for performance based seismic design. and can be used to identify cases in which low cycle fatigue may become a design issue, and also can be used to estimate the design lateral strength of structures against cumulative plastic deformations.

کلمات کلیدی:

Low cycle fatigue, Damage Index, Plastic Energy, Strength Reduction Factor, constant cumulative ductility Spectra

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