

EFFECTS OF METHODS OF SCALING AT LINEAR AND NONLINEAR RESPONSE OF THE BUILDINGS

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The behavior of a building during an earthquake depends on many factors including the characteristics of the ground motion, the configuration and dynamic characteristics of the structure, the hysteretic behavior of the structural components, the building's non-structural parts, and the local soil behavior. When conducting seismic assessment studies, controlling the first factor involves selecting appropriate earthquake records and Scaling to a specific level of intensity is one of the challenges in non-linear dynamic analysis of structures. This paper presents, how these differences among scaling methods effects the results of time-history analysis. Three methods had been compared. The Iranian standard No. 2800 (2005), Spectral correction and Spectral balance (Behnamfar et al., 2009) are the usual scaling procedures in Iran. The studied model is 10 story Dual-steel concentrically Braced Frames located in Tehran .The records had been selected with a respect to site consideration (Kalkan and Chopra, 2010), from BHRC (Building and Housing Research Center). The results showed that first, the responses of non-linear analysis that consisted of base shear, overturning moment and lateral displacement is more than linear analysis. And second, the Iranian standard No. 2800 method had largest response among three methods. Based on the results of this study, it is obvious that the Iranian standard No. 2800 procedure is conservative than the others.

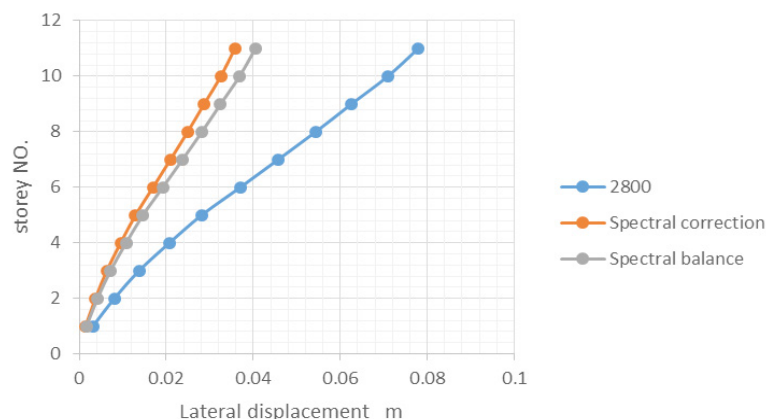


Figure 1. Effects of methods on lateral displacement

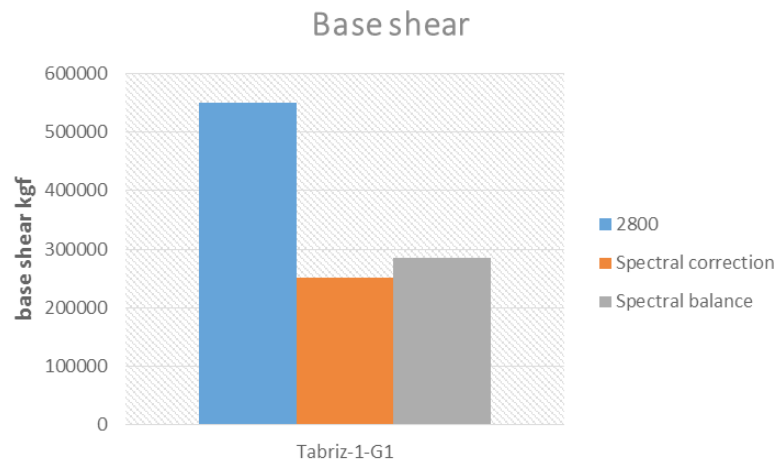


Figure 2. Effects of methods on base shear

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