Accelerograms for Dynamic Analysis under the New Australian Standard for Earthquake Actions

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ABSTRACT

The new Australian Standard for Earthquake Actions requires buildings exceeding 50 m in height and located in areas with hazard factor of $Z \geq 0.08$ (which applies to most capital cities including Canberra, Sydney, Melbourne, Adelaide and Perth) to be designed for earthquake actions based on dynamic analyses. This paper presents a methodology for generating and using artificial accelerograms for obtaining site-specific design response spectra, which could be used for dynamic analyses. This time-history analysis approach of determining earthquake actions can result in more efficient designs in comparison with using response spectra specified by the Standard. An ensemble of accelerograms simulated for both rock and soil conditions are available in an electronic file named: "accelerograms for public access.xls" which can be downloaded free from the journal website for shared usage by all. The accelerogram file also contains listing of the baseline corrected displacement time-histories which are required for input into shaking table experiments and certain seismic simulation programs.

KEYWORDS
Artificial Accelerograms, Time-history, Earthquake, Seismic loading, Australia