

# Calculation of Earthquake Actions on Building Structures in Australia

**N.T.K. Lam**

*University of Melbourne, Australia*

**B.A. Gaul**

*Guria Consulting, Western Australia*

**J.L. Wilson**

*Swinburne University of Technology, Melbourne, Australia*

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## ABSTRACT

*This paper presents from first principles methods of evaluating the seismic performance of a building using the method of inertial forces, method of maximum energy and method of maximum displacement. The introduction of these methods forms the main thrust of the paper. Importantly, the building can be deemed safe should this be indicated by any one of the three methods none of which requires the natural period of the building nor structural response factors to be estimated. Whilst these methods are very simple and consume little time to apply, the accuracies of the results are comparable with those from response spectrum methods. It is noted that the fundamental basis of each of these methods is very consistent with the new response spectrum model stipulated by the new Australian standard for seismic actions. A succinct and insightful account of the development of the seismic hazard model for Australia is also provided followed by a commentary on the use of dynamic analysis methods in practice.*

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