عنوان مقاله:

CORRECTION FACTORS INCLUDING NONCLASSICAL NATURE OF SOIL-STRUCTURE INTERACT ION SPECTRAL ANALYSIS

محل انتشار:

هفتمین کنفرانس بین المللی زلزله شناسی و مهندسی زلزله (سال: 1394)

تعداد صفحات اصل مقاله: 9

نویسندگان:

Farhad BEHNAMFAR - *Department of Civil Engineering, Isfahan University of Technology, Esfahan, Iran*

Hossein ALIBABAEI - *M.Sc. Student, Department of Civil Engineering, Isfahan University of Technolog y, Esfahan, Iran*

خلاصه مقاله:

The problem of non-classical dynamic analysis of structures resting on flexible bases is studied in this paper. Because of presence of the underlying soil in the dynamic model of structure that acts like an energy sink, the damping matrix is not pro portional to structural mass and stiffness and the oretically a non-classical approach should be followed in modal analysis. Considering one to twenty-story buildings, two types of soils, and several suits of ground motions each containing 10 earthquake records specifically selected for each building, the seismic responses are calculated using a time history modal analysis in this paper. Three cases are considered: fixed-base buildings with classical analysis, flexible-base buil dings with classical and non-classical analysis. Using the no nclassical analysis, it is shown that soil-structu re interaction should not be taken into account for moment frame buildings with the fundamental fixed-bas e periods smaller than 1 second. Cases for which the base fl exibility should be considered for the higher mod es too are distinguished. Finally, it is made clear that on each soil type, when the actual non-classicalnature o f the SSI system must be accounted for.

کلمات کلیدی:

Soil-Structure Interaction, Non-Classical, Spectral, Correction Factor