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Response of Buildings with Soil-Structure Interaction with Varying Soil Types

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Abstract : Over the years, it has been extensively established that the practice of assuming a structure being fixed at base, leads to gross errors in evaluation of its overall response due to dynamic loadings and overestimations in design. The extent of these errors depends on a number of variables; soil type being one of the major factor. This paper studies the effect of Soil Structure Interaction (SSI) on multi-storey buildings with varying under-laying soil types after proper validation of the effect of SSI. Analysis for soft, stiff and very stiff base soils has been carried out, using a powerful Finite Element Method (FEM) software package ANSYS v14.5. Results lead to some very important conclusions regarding time period, deflection and acceleration responses.

Keywords : dynamic response, multi-storey building, soil-structure interaction, varying soil types
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