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Dynamic Soil Structure Interaction in Buildings

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Abstract : Since the evolution of computational tools and simulation software, there has been considerable increase in research on Soil Structure Interaction (SSI) to decrease the computational time and increase accuracy in the results. To aid the designer with a proper understanding of the response of structure in different soil types, the presented paper compares the deformation, shear stress, acceleration and other parameters of multi-storey building for a specific input ground motion using Response-spectrum Analysis (RSA) method. The response of all the models of different heights have been compared in different soil types. Finite Element Simulation software, ANSYS, has been used for all the computational purposes. Overall, higher response is observed with SSI, while it increases with decreasing stiffness of soil.

Keywords : soil-structure interaction, response spectrum, analysis, finite element method, multi-storey buildings
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