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Abstract

Seismic damage surveys and analyses conducted on modes of failure of structures during past earthquakes observed that the asymmetrical buildings show the most vulnerable effect throughout the course of failures (Wegner, 2009). Thus, all asymmetrical buildings significantly fails during the shaking events and it is really needed to focus on the accurate analysis of the building, including all possible accuracy in the analysis. Apart from superstructure geometry, the soil behavior during earthquake shaking plays a pivotal role in the building collapse (Chopra, 2012). Fixed base analysis where the soil is considered to be infinitely rigid cannot simulate the actual scenario of wave propagation during earthquakes and wave transfer mechanism in the superstructure (Wolf, 1985). This can be well explained in the soil structure interaction analysis, where the ground movement and structural movement can be considered with the equal rigor. In the present study the object oriented program has been developed in C++ to model the SSI system using the finite element methodology. In this attempt the seismic soil structure interaction analysis has been carried out for T, L and C types piled raft supported buildings in the recent 25th April 2015 Nepal earthquake (M= 7.8). The soil properties have been considered with the