

The Importance of Soil Behaviour for Structures during Earthquakes

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Abstract:

The shortcoming of current seismic design is that structures are designed with the assumption of a rigid foundation, even when the ground is soft. In addition, the influence of surroundings, like adjacent structures, is ignored. However, it is known that the surroundings can alter the propagating seismic waves significantly and thus the ground excitation of structures of focus. Since the response of structures can only be as accurate as the load assumption, the seismic behaviour of structures with rigid foundations cannot reflect the actual behaviour of structures on the ground. Hence, the seismic performance of the structures does not reflect the reality. To have resilient structures and communities, the seismic behaviour of the entire soil-structure system needs to be incorporated in the seismic design to estimate the seismic response of structures realistically.