Engineering a New Foundation for Buildings To Withstand Seismic Disruptions and Soil Liquefaction

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This study explores the effects of earthquakes and soil liquefaction and evaluates the safety of an existing foundation and to create a new style of foundation, taking into account of (1) earthquake intensity, (2) the effects of water distribution on soil and sand on a foundation, and (3) risks of each foundation. While there are many factors that contribute to the effectiveness and success of a foundation, we will focus on earthquake intensity as well as water distribution on a measurable and quantifiable scale. Since foundations serve different purposes and have their strengths and weaknesses, we examine these foundations under the same conditions. Not to mention, that foundations and buildings are created with many materials and geological locations vary. Thus, we consider scenarios where materials and buildings stay consistent and the properties of soil remain the same throughout. Through a set of tests, we are able to examine the safety of foundations during earthquakes and soil liquefaction.

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