

عنوان مقاله:

Numerical Modeling of a New Mitigation Measure for Reverse Surface Fault Rupture Hazards Effects on Buildings

محل انتشار:

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خلاصه مقاله:

Surface fault rupture can lead to significant harm to engineered structures and facilities due to differential displacement in the ground. With the growing demand for land use, it might become essential to implement strategies to protect structures against hazards arising from fault rupture propagation. This study examines a novel mitigation approach utilizing an underpinning technique. To lessen foundation rotation during a fault rupture, a pile similar to the underpinning technique is employed beneath the foundation. This pile is not used to reinforce the main foundation; rather, it serves as a structural element to reduce hazards during a fault rupture with the removed support between the foundation and the pile. The effectiveness of this pile in the soil under the structure is evaluated through a series of numerical models. The findings suggest that while this pile is effective in mitigating the dangers of surface fault rupture, such as building rotation, its application should be guided by comprehensive geotechnical investigation given the complex nature of fault-foundation interaction issues.

کلمات کلیدی:

Fault rupture, Soil-Structure Interaction, Mitigation, piled foundation

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