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DYNAMIC RESPONSE ANALYSES AND MODEL VIBRATION TESTS ON SEISMIC ISOLATING FOUNDATION OF BRIDGE PIER

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In this study, the oscillation behavior and the aseismicity of bridge piers with isolating foundations are investigated. An isolating foundation is formed by installing isolation materials such as sand, gravel and PTFE (Teflon sheet) between the footing and the pier foundation and mainly utilizes the relative displacements (sliding and rocking) between the footing and the foundation to absorb and dissipate energy during large-scale earthquakes. The governing equations of motion are derived and dynamic response analyses and model vibration tests on a single pier are carried out. The results show that this isolating system has a significant positive effect in decreasing responses during earthquakes.

Key Words: bridge pier, dynamic response analysis, model vibration test, seismic isolating foundation, sliding, rocking, lift-off



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