

Importance of Near-Surface Geotechnical Response on Earthquake Ground Motions

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KEY ASPECTS OF SITE EFFECTS

1. **Stiffness of Surficial Earth Materials (hard to soft rock, very stiff to soft soils)**
2. **Site Stratigraphy & Depth to Bedrock (depth to significant impedance ratio: $\alpha_z = \rho_2 V_{s2} / \rho_1 V_{s1}$)**
3. **Nonlinearity (material stiffness and damping vary with induced shear strain, i.e., with level of shaking)**