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WE CAN HELP YOU TO IMPLEMENT THE NEW SEISMIC REQUIREMENTS OF THE 2019 CBC

Site specific seismic hazard analysis has become increasingly complicated in recent years. The new 2019 California Building Code requires a Site-Specific Ground Motion Hazard Analysis (GMHA) or a Site Response Analysis (SRA) for certain building and soil type combinations. A site-specific seismic hazard analysis will help your client's bottom line by potentially reducing the earthquake-induced lateral loads.

Contact

Dr. Ali Bastani, PhD, F. ASCE, PE, GE
for more information.

abastani@GMUgeo.com
949.888.6513 (o)
949.546.0019 (d)



San Francisco City Hall, 1906



GMU can prepare GMHA's and SRA's for any type of structure or site.

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Stiff and Soft Soil Sites (Site Class D & E)

GMHA may be used to reduce earthquake loadings mandated by the new code.

For Liquefiable and Soft Soils Sites (Site Class F)

SRA will be required for soils vulnerable to collapse.

GROUND MOTION HAZARD ANALYSES

A site-specific GMHA will consist of:

- Compute the spectral acceleration from a 5% damped acceleration response spectrum that has a 2% probability of exceedance within a 50-year period (2,475-ARP ARS) for the maximum response in the horizontal plane;
- Convert the 2,475-ARP ARS to 1% probability of collapse with a 50-year period (4,975-ARP) using one of the methods provided in Section 21.2.1 of ASCE 7-16;
- Compute the deterministic ARS for maximum horizontal response per Section 21.2.2 of ASCE 7-16;
- Compute the MCE_R and Design response spectra; and
- Evaluate the Design acceleration parameters (S_{DS} & S_{DI}).

SITE RESPONSE ANALYSES

A site response analysis will consist of:

- Evaluate the site shear wave velocity profile;
- Determine the design acceleration response spectra (ARS) at the bedrock or stiff soil level below the liquefiable soils;
- Find a minimum of five acceleration time histories at the bedrock or stiff soil level;
- Scale (scalar or spectral matching) the time histories to the design ARS;
- Propagate the motion through the soil profile using a site response analysis; and
- Prepare a report.

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