

Establish annual exceedance probability (AEP) for different performance requirements commensurate with the Hazard Potential Classification

Perform Seismic Source Zone study: define source zones incorporating geologic and statistical information, estimate recurrence rates of different magnitudes for each zone

Specify frequency dependent Ground-motion Attenuation Relations for peak ground acceleration (PGA) and response spectra, conduct probabilistic hazard analysis

Conduct Probabilistic Seismic Hazard Assessment (PSHA): construct site-specific uniform hazard response spectra for the selected AEP for site or other reference ground condition

For site with potentially active faults, select scenario events and generate responses spectra at the site

Choose (acceleration) time histories consistent with the site response spectra (and the scenario events if appropriate) over the frequency range of significance and with appropriate strong ground motion duration – “Earthquake Design Ground Motion (EDGM)”

Study site material parameters and local topography; develop ground motion for soil-structure interface (where applicable)