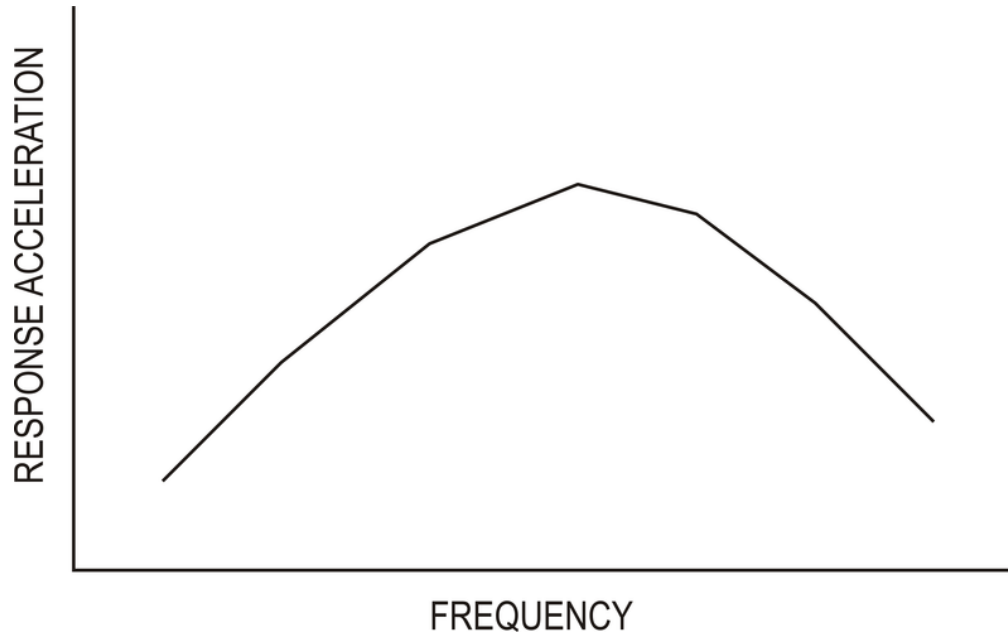
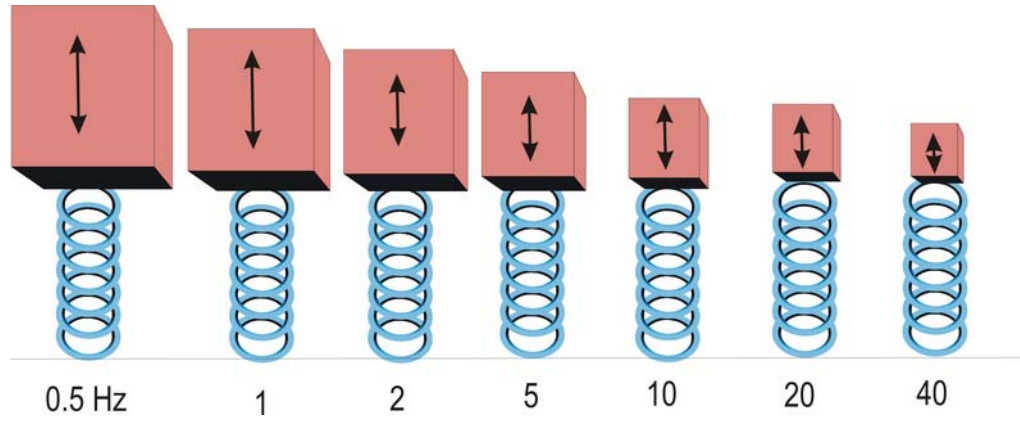
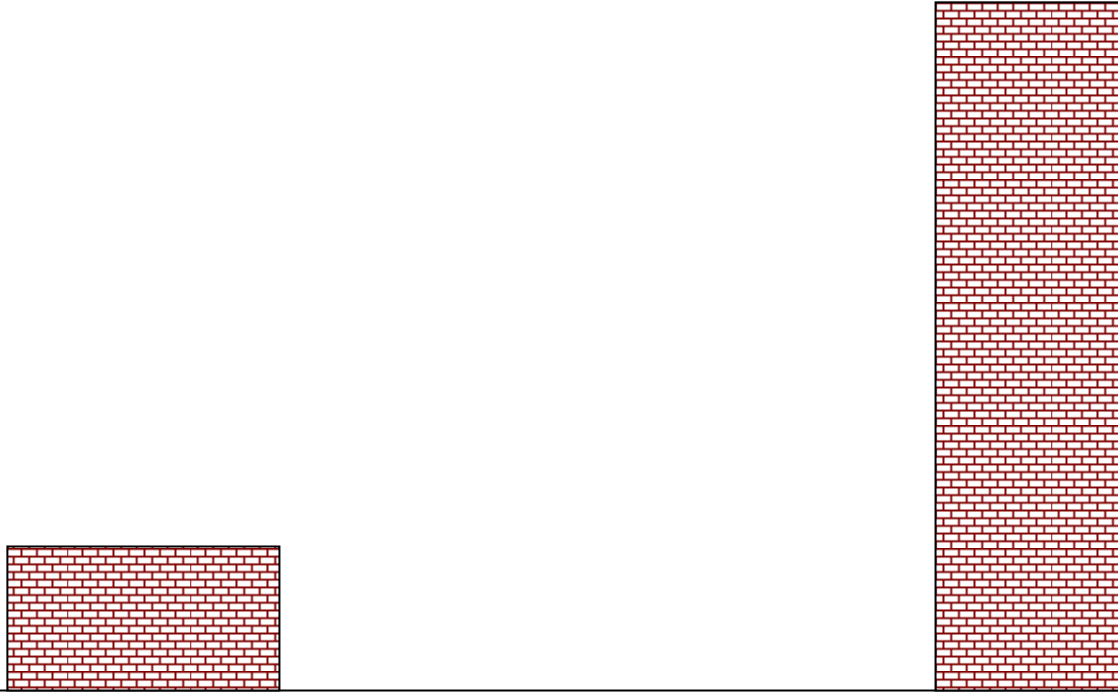


Response spectrum

From Wikipedia, the free encyclopedia

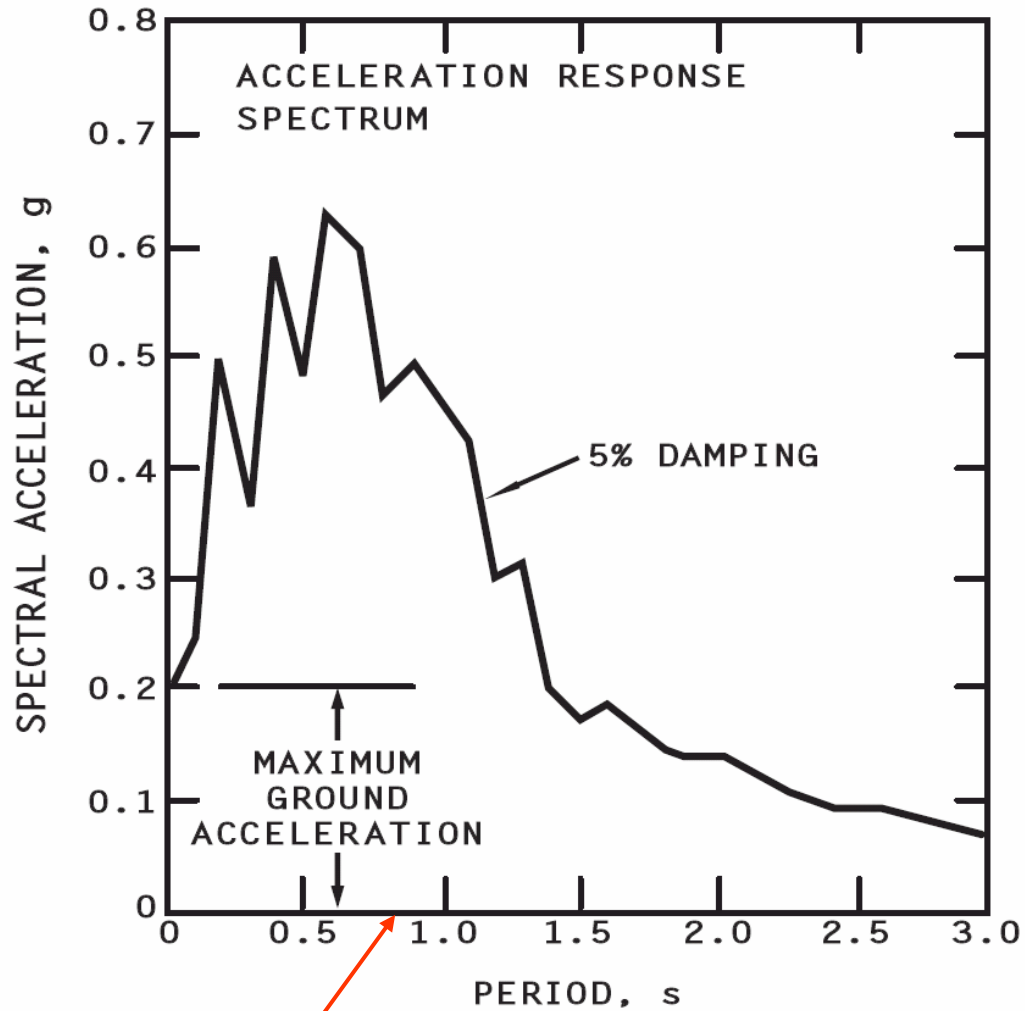
A **response spectrum** is simply a plot of the peak or steady-state response (displacement, velocity or acceleration) of a series of [oscillators](#) of varying [natural frequency](#), that are forced into motion by the same base [vibration](#) or [shock](#). The resulting plot can then be used to pick off the response of any [linear](#) system, given its natural frequency of oscillation. One such use is in assessing the peak response of buildings to [earthquakes](#).





Short buildings, less than 7 to 8 stories have short natural periods (0.2 to 0.6 sec)

Tall buildings have natural periods greater than 0.7 seconds



Buildings having periods less than 0.8 seconds are less than 8 stories

Percent Damping

Because spectral accelerations are used to represent the effect of earthquake ground motions on buildings, the damping used in the calculation of spectral acceleration should correspond to the damping typically experienced in buildings for which earthquake design is used. The building codes assume that 5 percent of critical damping is a reasonable value to approximate the damping of buildings for which earthquake-resistant design is intended. Hence, the spectral accelerations given in the USGS hazard maps at this NSHM site are also 5 percent of critical damping.

<http://earthquake.usgs.gov/research/hazmaps/haz101/faq/parm10.php>