

European Strong- Motion Database <http://www.isesd.cv.ic.ac.uk/ESD/frameset.htm>

Japan K-NET NIED <http://www.k-net.bosai.go.jp/>

**1.2.3.2** – In the cases where sufficient number of acceleration records cannot be found, artificial earthquake ground motions generated as compatible with the earthquake simulations or the elastic response spectrum may be used. The same acceleration record (accelerogram) shall not be used for both directions. The ground motion simulations shall be based on a physical model considering the fault mechanism, rupture characteristics and the geological structure of the medium between the earthquake source and recording station.

**1.2.3.3** – The average of 5% damped spectral amplitudes calculated at zero period from each set of earthquake ground motion shall not be less than zero-period spectral amplitude of the elastic response spectrum ( $0.4 S_{SD}$ ).

**1.2.3.4** – The duration between the two points where acceleration amplitude first and last exceed  $\pm 0.05g$  shall not be shorter than 5 times the dominant natural vibration period of the building nor 15 seconds for each earthquake ground motion record.

**1.2.3.5** – The resultant spectrum of an earthquake ground motion set shall be obtained through square-root-of-sum-of-squares of 5% damped spectra of the two directions. The amplitudes of earthquake ground motions shall be scaled according to a rule such that the average of amplitudes of the resultant spectra of all records between the periods  $0.2T$  and  $1.2T$  ( $T$  = Dominant natural vibration period of the building) shall not be less than 1.3 times the amplitudes of the elastic response spectrum along the same period range. The scaling of both components shall be made with the same factors.

**1.2.3.6** – Regarding the seismic design of tall buildings according to **Chapter 5**, if needed, parameters related to vertical component of the earthquake ground motion may be specified, subject to the approval of the *Independent Review Board* where applicable.