

# Floor acceleration spectra: from research to seismic code provisions

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**Abstract.** Seismic design and evaluation of acceleration-sensitive nonstructural components is usually performed by using floor acceleration spectra. The concept was initially used mainly in the design of nuclear power plants. Much later, it was recognized that nonstructural components account for the majority of direct property losses due to earthquake damage in all buildings, and floor spectra attracted more attention of researchers, code developers and designers. In the paper, first the historical development of floor response spectra is briefly presented. Then, the main research results, which represented the base for the determination of seismic demand on nonstructural components in the latest generation of European (draft revised Eurocode 8) and US (ASCE 7-22) codes are summarized. The simplifications made in both code provisions are discussed and a comparison between the procedures and results obtained by using both documents is made. A conceptual difference between the floor acceleration spectra in two codes can be clearly seen. Eurocode 8 is based to a large extent on the dynamics of structures, whereas ASCE 7-22 relies more on empirical observations and judgement.