



Seismic Protection of earthen structures

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Every earthquake that occurs in areas where construction with earth has been and is practiced produces considerable damage or collapse of earthen dwellings and historical monuments. Earthen structures are particularly vulnerable to earthquakes because of the low strength and fragile behavior of their walls. Inhabitants of earthen houses, as well as invaluable historical constructions in the seismic areas of the world, therefore, are under unacceptable risk.

This paper first describes the observed response of unreinforced earthen constructions during earthquakes. Several reinforcement techniques developed at the Catholic University of Peru over more than 35 years of research, in order to improve the seismic safety of earthen structures are then presented and compared. Finally, the challenges involved in the preservation of earthen monuments in seismic areas are discussed.