Technologies for Seismic Retrofitting and Strengthening of Earthen and Masonry Structures: Assessment and Application

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Abstract

Earthen and masonry structures are usually heavy and do not possess an integral behavior. A consequence of these characteristics, in combination with the adopted materials featuring low tensile strength and ductility, is that such structures often collapse in a quasi-brittle way, with local failures, usually out-of-plane. This paper first addressed the seismic assessment of these structures, by providing some recent shaking table tests and blind predictions. Obvious limitations were found in providing a good estimate of collapse. Subsequently, techniques for retrofitting and strengthening are addressed, with applications shown in a real case study.