



Performance of Existing Unreinforced Masonry Wall Structures under Earthquakes and Proposal Method for Their Strengthening

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Abstract: In ancient times buildings were constructed with materials that have been popular for that time. The most known method was the construction of buildings with unreinforced masonry walls (URM). The URM walls are highly resistant to static vertical loads but they are too weak to resist horizontal loads such as earthquake. During certain periods these structures have been subjected to cyclic loads from earthquakes, and in those countries where earthquakes occurred damage has happened and many buildings were totally destroyed. Nowadays the modern knowledge to horizontal earthquake loads is large; many investigations were done to find the best solution for strengthening of existing URM wall structures of historic importance in order to be preserved as cultural heritage and for other purposes. With the discovery of new materials such as Fiber Reinforced Polymers (FRP) which have very high tensile strength, and by using them enabling the easiest way of strengthening these structures for out-of-plan deformation as well as in-plane shear cracks.

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