**Seismic performance of unreinforced masonry walls with various seismic retrofit methods**

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**Abstract.** In the present study, various practical retrofit methods for unreinforced masonry walls by using fiber reinforced cementitious composites (FRCC) were developed for improving their seismic performance. In order to investigate the seismic retrofitting effects of the masonry walls using the retrofit methods, eight masonry wall specimens including one control specimen and seven retrofitted specimens were fabricated and tested under lateral cyclic loading.

From the cyclic test results, the improvement of seismic performance of the retrofitted masonry walls was assessed by various parameters such as hysteresis response, ductility capacity, stiffness degradation, and energy dissipation capacity compared to the unreinforced masonry wall. The test results indicated that all the retrofitted masonry walls showed a significant improvement in terms of load-carrying capacity compared to the control specimen.

Furthermore, an analytical model was proposed to predict the lateral load-carrying capacity and deformation capacity of the retrofitted masonry walls, and overall its prediction indicated a good agreement with the test results.

**Keywords:** Masonry walls, Seismic retrofit, Fiber-reinforced cementitious composite, Cyclic loading, Analytical model.