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Experimental study on the behaviour of nonductile infilled RC frames strengthened with external mesh reinforcement and plaster composite

S. Z. Korkmaz¹, M. Kamanli², H. H. Korkmaz², M. S. Donduren², and M. T. Cogurcu²

¹Selcuk University, Engineering and Architecture Faculty, Architecture Department, 42250, Konya, Turkey

²Selcuk University, Engineering and Architecture Faculty, Civil Engineering Department, 42250, Konya, Turkey

Abstract. The aim of this paper is to report on an experimental study about Turkish Earthquake Code on suggested strengthening method. The proposed method uses existing brick infill walls and the strengthening is done with the application of external mesh reinforcement and plaster. 5 nonductile 1/2 scaled, one bay, two storey RC specimens were tested under a reversed cyclic loading. The first two specimens were reference specimens and the other ones were strengthened with the proposed method. The specimens contained several design and construction mistakes such as low concrete quality and improper steel detailing. Strength, stiffness and storey drifts of the test specimens were measured. The results of the test on these frames were compared with the reference specimens. The effects of the reinforced mesh plaster application for strengthening on behaviour, strength, stiffness, failure mode and ductility of the specimens were investigated. Unexpected failure modes were observed during the testing and the results were summarized in this paper.

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