

Analytical Investigation on Seismic Behavior of Infilled Reinforced Concrete Frames Strengthened with Precast Diagonal Concrete Panels

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Abstract : In this study, a strengthening method applicable without any evacuation process was investigated. In this analytical study, the pushover analysis results carry out by using the software of SAP2000. For this purpose, 1/3 scaled, 1-bay and 2-story R/C seven frames having usual deficiencies faults produced, one of which were not strengthened, but having brick-infill wall and the other 3 frames with infill walls strengthened with various shaped of high strength-precast diagonal concrete panels. The prepared analytical models investigated under reversed-cyclic loading that resembles the seismic effect. As a result of the analytical study, the properties of the reinforced concrete frames, such as strength, rigidity, energy dissipation capacity, etc. were determined and the strengthened models were compared with the unstrengthened one having the same properties. As a result of this study, the contributions of precast diagonal concrete applied on the infill walls of the existing frame systems against seismic effects were introduced with its advantages and disadvantages.

Keywords : RC frame, seismic effect, infill wall, strengthening, precast diagonal concrete panel, pushover analysis

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