

Experimental and Analytical Investigation of Seismic Behavior of Concrete Beam-Column Joints Strengthened by Fiber-Reinforced Polymers Jacketing

Authors : Ebrahim Zamani Beydokhti, Hashem Shariatmadar

Abstract : This paper presents an experimental and analytical investigation on the behavior of retrofitted beam-column joints subjected to reversed cyclic loading. The experimental program comprises 8 external beam-column joint connection subassemblages tested in 2 phases; one was the damaging phase and second was the repairing phase. The beam-column joints were no seismically designed, i.e. the joint, beam and column critical zones had no special transverse stirrups. The joints were tested under cyclic loading in previous research. The experiment had two phases named damage phase and retrofit phase. Then the experimental results compared with analytical results achieved from modeling in OpenSees software. The presence of lateral slab and the axial load amount were analytically investigated. The results showed that increasing the axial load and presence of lateral slab increased the joint capacity. The presence of lateral slab increased the dissipated energy, while the axial load had no significant effect on it.

Keywords : concrete beam-column joints, CFRP sheets, lateral slab, axial load

Conference Title : ICCCM 2018 : International Conference on Composite Constructions and Materials

Conference Location : Dublin, Ireland

Conference Dates : July 23-24, 2018