

عنوان مقاله:

Parametric Finite Element Evaluation of RC Beam-Column Joints

محل انتشار:

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خلاصه مقاله:

Beam-column connections with non-seismic detailing in buildings with moment resisting lateral load bearing systems, are the major cause of post-earthquake damage. The optimal shape and energy absorption of the moment frame structure is dependent on the design and perfect execution of the beam-column connections. In the beam-column connections, the lack of positive reinforcement of the beam in the joint area and non-extension of the column stirrup in the joint area are common defects of the joints in accordance with new regulations. In this study, finite element models with seismic and non-seismic detail were considered and validate with laboratory tests by considering sliding effect of longitudinal beam reinforcement using modified steel stress-strain curve. Then, the effect of different lateral beam conditions around the joint was considered. The results showed well that the finite element model is more consistent with the experimental results when considering the slip effects of the longitudinal beam reinforcement. Also comparing the results of the models with the different lateral beam conditions showed that confining the non-seismic joints can increase the joint strength against lateral loads.

کلمات کلیدی:

Reinforced Concrete Structures, Beam-Column Connection, finite element modeling, bond-slip, monotonic loading

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