

Deficient reinforced concrete beam-column joint strengthening

ABSTRACT

Structural buildings in seismic prone area, the required energy dissipation of strong column-weak beam especially for reinforced concrete frame structures is achievable through adequate beam-column joint strengthening connection in order to have high seismic performance. Literature investigation shows several approaches and techniques for modelling the weak joint for a typical frame structure. This paper extensively reviews those techniques, methods, concepts and their performance in improving the shear capacity for a deficient reinforced concrete beam-column joints in withstanding seismic loads. The beam-column joints performance responses showed positive. However, the need for an improved connection that will offer high ductility capacity and energy dissipation ability for post-tensioned reinforced concrete beam-column joints with continuing bottom reinforcement is highly feasible with the use of the Direct Displacement Based design philosophy. This will be of great interest for the future development of highly efficient joint system for frame structure capable of resisting significant seismic load.

Keyword: RC frame structure; Beam-column connection; Post-tensioning; Seismic load