

Effect of Horizontal Joint Reinforcement on Shear Behaviour of RC Knee Connections

Authors : N. Zhang, J. S. Kuang, S. Mogili

Abstract : To investigate seismic performance of beam-column knee joints, four full-scale reinforced concrete beam-column knee joints, which were fabricated to simulate those in as-built RC frame buildings designed to ACI 318-14 and ACI-ASCE 352R-02, were tested under reversed cyclic loading. In the experimental programme, particular emphasis was given to the effect of horizontal reinforcement (in format of inverted U-shape bars) on the shear strength and ductility capacity of knee joints. Test results are compared with those predicted by four seismic design codes, including ACI 318-14, EC8, NZS3101 and GB50010. It is seen that the current design codes of practice cannot accurately predict the shear strength of seismically designed knee joints.

Keywords : large-scale tests, RC beam-column knee joints, seismic performance, shear strength

Conference Title : ICEES 2017 : International Conference on Earthquake Engineering and Seismology

Conference Location : Paris, France

Conference Dates : April 18-19, 2017