ABSTRACT

The confinement reinforcing profiles provided in the column considerably improve the resistance to seismic forces in reinforced concrete (RC) constructions. In this work, the effect of different reinforcement configurations on the confinement reinforcement in the column was investigated experimentally. An embedded RC column sample with conventional confinement reinforcement is compared to an embedded RC column with X-Shaped braced compartment reinforcement in terms of cyclic behavior. The study uses a 1:3 scale RC column with a cross section of 150 mm x 150 mm and a length of 1.1 m. Except for the limited reinforcement arrangement, all other features of the reinforced concrete column, such as section size and reinforcement ratio, are equal. A reverse cyclic in-plane load is applied to the RC column samples combined with a sustained axial stress. The results showed that combining an RC column with an X-braced fixed reinforcement improved ultimate load, ultimate displacement, yield load and yield displacement.

Keywords: *cyclic behavior, in-plane load, ultimate load, ultimate displacement, yield load, yield displacement.*