ABSTRACT

This research studies the variations in compressive strength of high performance concrete columns under lateral confinement using steel hollow sections, carbon fiber wraps as the confining materials and together with reinforcing steel bars at different spacing as lateral links.

The experimental programme consists of four test series. For the first three series, the main variables were the effect of link spacing and carbon fiber (providing full lateral constraints) for grades 40,60,80 concrete. In the fourth test series, the effectiveness of carbon fiber wrap, circular and square steel hollow sections as lateral jackets were explored.

The results showed that the closer the spacing of links, the higher is the column’s compressive strength. (i.e.upto about 40% compare to those unconfined specimens).

However, the highest percentage (67.9 %) was found in the use of circular steel hollow section.