

EFFECT OF SLENDERNESS RATIO ON THE BEHAVIOR OF REINFORCED CONCRETE COLUMN CONFINED WITH CARBON FIBER REINFORCED POLYMER COMPOSITES UNDER AXIAL LOAD

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ABSTRACT

The present paper deals with the analysis of experimental results, obtained from tests on circular reinforced concrete (RC) columns, confinement with external carbon fiber reinforced polymer (CFRP) sheets. Two parameters were studied, including the number of CFRP wrap layers and slenderness ratio of the columns (24, 36 and 48). Twelve circular RC columns were tested under pure axial compression load to failure. Crack and failure load have been recorded, to evaluate the load –displacement behavior, ultimate strength, and ductility of the specimens. Results conspicuously demonstrate that, wrapping with CFRP can enhance the structural performance of RC columns, by providing higher load carrying capacity and ductility, compared to unwrapped RC columns. The effects of test parameters are evidenced and compared.

KEYWORDS: RC Column, CFRP, Confinement & Slenderness

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