

Strengthening Techniques of RC Columns Using Fibre Reinforced Polymeric Materials

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Abstract text:

Fibre reinforced composite materials are becoming more frequently used in civil engineering structures. One of the most practical applications of these new materials concerns the strengthening of reinforced concrete columns by means of confinement with fibre composite sheets. In the literature, various theoretical models have been proposed to describe the behaviour of confined concrete columns. The principal advantages of this technique are the high strength-to-weight ratio, good fatigue properties, non-corroding characteristics of the fibre reinforced polymers (FRP), and the facility of its application. The maximum efficiency of confining systems using FRP materials is reached in case of columns with circular cross-section and is explained by the fact that the entire section of the column is involved into the confinement effect. Rectangular confining reinforcement is less efficient as the confinement action is mostly located at the corners. This paper reveals the most utilized techniques of performing composite confining systems for reinforced concrete columns, with their advantages and also disadvantages.

Key Words:

RC columns; fibre reinforced polymeric composites (FRP); strengthening systems.

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