

Confinement of the Concrete Structures by Embedded Composite Grids

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Description

Composite materials have shown their efficiency in improving the mechanical properties of concrete structures, in addition to ensuring better resistance to environmental conditions. Reinforced concrete structures are often very sensitive to accidental loads, leading to deterioration, failures and human life fatalities. The reinforcement of concrete columns by composite materials, judiciously integrated in the concrete matrix, has the advantage of offering sufficient rigidity and strength to prevent overall collapse, on one hand, and, to preserve external and esthetic aspects of reinforced concrete works, on the other hand. The experimental and numerical studies in the present work represent a promising revelation regarding the effectiveness of the proposed confinement process by integrating a composite grid inside the reinforced concrete matrix. The concepts of single and double confinement are developed and