

Improved confinement of reinforced concrete columns

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Traditional steel ties reinforcement cannot provide superior confinement for Reinforced Concrete (RC) columns due to the constraints on tie spacing and disturbance of concrete continuity. This paper presents a practical confinement configuration consisting of single expanded metal mesh (EMM) layer in addition to regular tie reinforcement. The EMM layer is warped above ties. The proposed transverse reinforcement, with various volumetric ratios of ties, was investigated in sixteen square short RC column specimens categorized in two groups according their slenderness ratios. The specimens were cast in vertical position simulating the construction field and they were tested under concentric compression till failure. The results indicated that the columns, confined with proposed lateral reinforcement, revealed significant improvement in the strength and ductility. Also, high reduction in ties volumetric ratio with no loss in ultimate load could be achieved by installing the EMM layer.