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## A STUDY ON THE BEHAVIOUR OF DEEP BEAMS REINFORCED INTERNALLY WITH HYBRID FIBRE REINFORCED POLYMER WITH AND WITHOUT WEB OPENINGS

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**ABSTRACT:** The use of non-corrosive reinforcements in the place of steel reinforcements has therefore been focused as an alternative to improve the life span of the concrete structures. Fibre Reinforced Polymer (FRP) reinforcements offer many advantages over steel reinforcements including resistance to electrochemical corrosion, high strength to weight ratio and easy in fabrication and electromagnetic insulating properties. Further, the use of hybrid FRP reinforcements, in lieu of conventional steel reinforcements requires better understanding under different parametric conditions. Therefore the present study deals mainly with the behavior of Concrete Deep beams with and without openings reinforced internally with hybrid type Fibre Reinforced Polymer (FRP) reinforcements under static loading conditions. In this study concrete deep beam with and without web openings are investigated. Among the eight beams, four beams are reinforced internally using conventional reinforcements with and without web openings, four beams are reinforced internally using hybrid FRP reinforcements with and without web openings. Different parameters like strength of concrete, web opening positions, span sprinkled FRP hybrid reinforcements are considered. Based on this study, static load carrying capacities and their modes of failures of deep beams reinforced internally with FRP hybrid type reinforcements for various web openings positions are compared with the existing theories for better under standings. Based on the experimental and analytical work, final conclusions of the present study are derived.

**Keywords:** Fibre Reinforced Polymer(FRP) Hybrid Reinforcements, Deep beams, Static Loading, Web Openings, Shear Span to Depth Ratio

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