THE PERFORMANCE OF R.C SLABS REINFORCED WITH GFRP BARS

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ABSTRACT

The corrosion of reinforcement causes most of the failures in concrete structures especially in an aggressive environment. These situations basically led the researchers to initiate and develop an alternative method or technique of using non-corrosive, non-metallic material as reinforcement. Initially some basic prelimnary investigations were carried out using different ratios of fibre resin inorder to prepare the GFRP (Glass Fiber Reinforced Polymer) bars and gradually arrived at an optimum ratio of fibre resin which is 7:3. As per the tests carried out the tensile strength of GFRP bars is comparable to the mild steel, but the modulus of elasticity is about 25-30 percentage of that of the steel bars. This paper basically deals with all those prelimnary investigations which were carried out on small slab panels totally supported on all four edges with effective spans of (0.9x0.9)m. This also is a part of large research problem undertaken with different ratios of long span to short span along with different conditions of support. The results of these tests are then compared with similar panels reinforced with conventional mild steel bars.

KEYWORDS: GFRP Bars, Steel Bars, Corrosion, Slab Panels, Flexure, Deflections