

BEHAVIOR OF CONCRETE CONFINED BY GLASS AND CARBON FIBERS

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ABSTRACT

Fiber-reinforced polymer (FRP) composites are widely applied for strength and ductility enhancement of reinforced concrete members. Ease of application as well as the non-increase of stiffness characteristics of the bearing members are important factors for opting for this method. Many empirical and analytical models have been proposed to calculate the increased compressive concrete strength and strain characteristics. However there is still no model capable of describing the enhanced concrete characteristics equally well for all the parameters involved, e.g. concrete strength, amount of confinement. In this work some models found in the literature have been selected owing to the accuracy of their predictions compared to experimental results.

Furthermore, results of tests on plain concrete cylinders that have been reinforced by glass and carbon fibers are presented. The behavior of the specimens tested is compared to the predictions of the models and the observations are discussed.

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