



# Retrofitting of structures using Fiber Reinforced Polymer (FRP): A Review

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## **Abstract:**

With passage of time concrete structure get deteriorated due to exposure to weather, dynamic loading, fatigue and creep phenomenon, so in order to maintain the strength and serviceability, it is need to strengthen the structure, called as retrofitting of structure. The steel plate was used previously for strengthening the existing structures but steel plates tend to corrode with the passage of time, so now a days FRP is the worldwide best solution as a material for strengthening the structure. Aramid fiber reinforced polymer (AFRP) is costlier, also due to more moisture absorbing property, having less structural use.

Carbon fiber reinforced polymer (CFRP) and glass fiber reinforced polymer (GFRP) are used worldwide due to their light weight and more tensile strength among all types of fiber. CFRP has more tensile strength as compared to GFRP but is uneconomical. To achieve approximately same strength as that of CFRP, a multilayer of GFRP glued with epoxy can be used.

This paper presents review of comparison between CFRP and GFRP on the basis of experimental as well as computational simulation analysis done by various researcher. Different positioning of FRP sheet are tested in order to maintain economy and strength. Due to lower modulus of elasticity, GFRP is more suitable and economical for confining the concrete but not good in shear enhancement due to low tensile strength comparable to CFRP. In case of flexure, shear, fatigue, dynamic loading, CFRP is commonly used because of high tensile strength. Reversal loading on RC beam and slab gives unexpected failures which need further investigation.

**Key words:** FRP, GFRP, CFRP, Simulation analysis.