

## Comparative study of the failure mechanisms in steel and concrete members strengthened with FRP composites

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Recently, advanced composite materials, like carbon fibre reinforced polymer (CFRP) have found their way into civil engineering infrastructure. The benefits of advanced composites are rapidly becoming evident. This paper focuses on the comparative performance of steel and concrete members retrofitted by carbon fibre reinforced polymers. The objective of this work is a systematic assessment and evaluation of the performance of CFRP for both the concrete and steel members available in the technical literature. Comparison is made on the values of the significant variables; the existing empirical and analytical models; pointing out their distinct features; the available experimental results; comparison with analytical models and strengths and weakness of the various models. For this evaluation process, the main parameters are failure mode, bond characteristics, fatigue behaviour, durability, corrosion, load carrying capacity and force transfer. Finally this paper identifies some of the major issues that need further investigation.