

## INVESTIGATION OF IMPACT RESPONSE FOR CFRP/STEEL HYBRID COMPOSITE PLATE UNDER LOW-VELOCITY IMPACT

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### ABSTRACT

The response of composite plate embedded with steel wires subjected to low velocity impact was studied. The steel wires were embedded within the layers two and three of the composite laminate plates. The first order shear deformation theory (FSDT) as well as the Fourier series method was utilized to solve the governing equations analytically. A computer program was developed based on the analysis. The effect of volume fraction of steel on the deflections and in-plane strains and stresses on the composite plate under impact was studied. It was seemed that the embedding the steel wires within the layers of laminated composite plates would improve the impact resistance of the plate where, the transverse deflection of the center of the plate reduced from (1.68E-07 m) in the composite medium (the composite without steel wires) to (1.25E-07 m) in the hybrid composite plate in which the volume fraction of the steel is 9.3%.

**KEYWORDS:** The Steel, Plate Reduced, Hybrid Composite, Fraction