

EXPERIMENTAL AND NUMERICAL INVESTIGATION OF THE DYNAMIC CHARACTERISTIC OF LAMINATED COMPOSITE PLATE HYBRID WITH STEEL

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ABSTRACT

The laminated composite plates are basic structural components in many varieties of engineering applications such as airplane wings, sport equipment, turbine blades as well as other applications in mechanical and civil industries. Computation of natural frequencies and mode shapes represent the important elements in dynamic analysis because these plates subjected to a variety of dynamic excitations. Four plates are made using the hand-lay process. Carbon fiber, stainless steel and polyester resin as a matrix are used for composite plates. Experimental dynamic tests are carried out using specimens of different volume fractions of steel. From the results the influence of steel volume fraction on the natural frequency is investigated. The experimental results are used to validate the results obtained from the finite element software ansys.

KEYWORDS: Laminated, Composite, Plates, Dynamic Analysis, Steel