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Abstract

This paper presents a simplified first order shear deformation theory (FSDT) for laminated composite and sandwich plates. Unlike the existing FSDT, the present one has a novel displacement field which include undetermined integral terms and contains only four unknowns. Equations of motion and boundary conditions are derived from the Hamilton's principle. Navier-type analytical solution is obtained in closed form and by solving the eigenvalue equation. The comparison of the present results with the available elasticity solutions and the results computed independently using the FSDTs available in the literature shows that this theory predicts the fundamental frequencies with good accuracy. It can be concluded that the proposed theory is accurate and simple in solving the dynamic behavior of single and sandwich laminated composite plates.

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