

部分應力模式應用於一階層板理論

The PHSM (Partial Hybrid Stress Method) Hellinger-Reissner principle applied to the first-order plate theory is established for orthotropic laminated plates in this paper. σ_x , σ_y , τ_{xy} , are included in the flexural part, and assumed transverse shear stresses (τ_{xz} , τ_{yz}) are included in the transverse shear part. Through variation, the stiffness of PHSM is the assembly of the flexural stiffness by displacement formulation and of the transverse shear stiffness by hybrid formulation. For displacement and stress analysis of thin, moderately thick and thick laminated plates, PHSM obtains much better results than the finite element displacement formulation of first-order plate theory. Moreover, PHSM is better than displacement formulation of higher-order plate theory in the displacement analysis and the through thickness distribution of transverse shear stress.