A refined theory for symmetric orthotropic laminated plates.

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Abstract

In this thesis, reined theory for symmetric orthotropic laminated plates is developed. The theory takes into account the influence of transverse normal stress and strain as well as shear deformation. Computer programs were written to help solve the governing equations for simply supported plates under distributed loading. Examples of plates consisting of square three-ply, rectangular three-ply, square four-ply and sandwich plates were solved. The results were compared to the exact elasticity solutions and to solutions from other existing technical theories. It was found that this theory predicts the deflections and stresses in good agreement with the exact elasticity solutions.