

# **Finite element modelling for the bending of thick plates**

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Abstract

A finite element formulation for flexure of isotropic plate based on a recently developed refined theory is presented. The refined theory incorporates the effects of transverse shear, transverse normal stress and transverse normal strain. A five degree of freedom, eight-noded quadrilateral element from the family of two-dimensional  $C^0$  continuous isoparametric elements is then developed. The performance of this element is evaluated by solving problems of thick square plates with different support conditions and subject to uniform distributed loads. The numerical results of the present formulation are compared with Mindlin/Reissner and elasticity solutions.