

**EFFECT OF ELASTIC CONSTANTS ON STRESS CONCENTRATION FACTOR IN
AN ORTHOTROPIC RECTANGULAR PLATE WITH CENTRAL CIRCULAR HOLE
UNDER TRANSVERSE LOADING**

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ABSTRACT

A finite element study is made for the analysis of effect of different elastic constants upon stress concentration factor (SCF) in a simply supported orthotropic rectangular plate with central circular hole under transverse static loading. The finite element formulation is carried out by the analysis section of the package ANSYS. The deflection in transverse direction is also assessed for different cases. Studied are carried out for three different D/A ratios (where D is hole diameter and A is plate width) and for two different orthotropic composite materials. The results are presented in graphical form and discussed.

KEY WORDS: Stress concentration factor, Finite element method, Plate, Composite, elastic constants