

ENGLISH SUMMARY

Aalto, Jukka and Salonen, Eero-Matti, DETERMINATION OF DISPLACEMENTS
CORRESPONDING TO GIVEN STRAINS

A procedure, developed by the writers and based on the least squares method, to determine the displacements corresponding to given strains is described. The discretization, needed in practice, is performed by the finite element method. Numerical results from three applications are given. The procedure has worked quite well in all cases studied. Approximate strains which do not satisfy the compatibility conditions do not present any difficulties.

UDK 539.4.012.1:519.62/.64 Keywords: Structures, strains, displacements, numerical methods.

Journal of Structural Mechanics, Vol. 16, No. 4 1983 p. 1...15.

Wright, Kirsti and Leppävuori, Erkki KM., APPLICATION OF FRACTURE
MECHANICS TO FINNISH TIMBER

During the past decade, structural design has undergone many radical changes, one of them being the common use of limit state design. Reliability considerations have suffered from the fact that the dependence of the strength of timber on knots and cracks has been merely qualitatively known. With the aid of fracture mechanics, the effect of the defects on the lifetime, behaviour and reliability of a structure can be quantified. A brief summary of the possible applications of fracture mechanics to wood is given and some practical cases are indicated.

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620.172.24

Keywords: Wood, fracture, fracture mechanics, fracture toughness, life-time, load duration, slow crack growth.

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