ENGLISH SUMMARIES

SHEAR DEFORMATION IN BUCKLING OF COLUMNS

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The paper deals with the effect of shear deformation in the buckling of centrally compressed columns. The theories of Engesser and Haringx are reviewed and the difference of the predicted buckling loads, in particular for columns with small shear stiffness, is discussed. A new buckling equation based on Biot's theory of a medium under initial stress is derived. It predicts a buckling load which is between the Engesser and Haringx loads.

STRESS STATE AROUND A HOLE IN A PLATE

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A hole in a plate changes the stress distribution creating stress concentrations. The determination of this stress distribution in the case where the stress state in the intact plate can be freely chosen is the topic of this article. The material is assumed to be isotropic. The hole shape is described by a conformal mapping thus restricting the shape of the hole in practice to an ellipse or a polygon. The method to solve the stress distribution utilizes the thery of analytic functions. The general theory for the isotropic case is described in this article and the case of anisotropic material and rectangular holes is intended to be tackled in a subsequent article.

ON THE EFFECT OF EU-DIRECTIVES UPON THE RENEWING OF THE FINNISH REGULATIONS FOR SOUNDINSULATION

Laila Hosia

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The regulations for soundinsulation in the Finnish buildingcode are under the renewing process. The European directive for building production must be taken into account including the interpretative document (ID 5) of protection against noise and the changes in the ISO/CEN standards. The idea is to make the regulations as simple as possible. Each EU country will determine the level of regulations by itself. Finland strives for the Middle-European level of requirements.

EQUILIBRIUM EQUATIONS FOR SIMPLE FUNDAMENTAL STRUCTURAL MODELS - part IV THREE-DIMENSIONAL BEAMS

Juha Paavola and **Eero-Matti Salonen**

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In this series of papers, the analysis of various fundamental structural models is considered paying attention to educational purposes, particularly. The expressions for strains are derived by utilizing a local Cartesian coordinate system. The equilibrium equations are derived by applying the principle of virtual work. The variations of assumed real displacements are chosen to compose the virtual displacement state. The advantage of the procedure applied is in an extremely systematic presentation, using which also rather complicated considerations can be performed supporting only on very basic mathematical tools. Any type of structure, in this part the three-dimensional beams, can be handled using exactly similar procedure.