Examensarbete vid Byggnadsmekanik

FEM ANALYSIS AND VISUALISATION OF SHAPE STABILITY IN WOOD

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Wood deforms when it is subjected to changes in moisture contents. Moreover, wood is an orthotropic material with different properties in radial, tangential and axial directions. Due to these facts the deformations of wood are asymmetric in all directions. The size of the asymmetric deformations depends on the amount and rate of change in moisture contents and the surrounding temperature. This behaviour can be calculated with FEM (finite element method) and that is the essence of this dissertation.
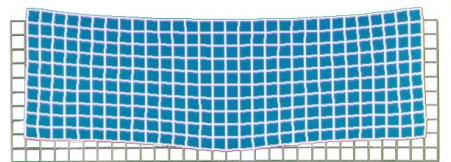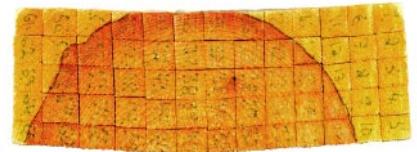
The major parts of this dissertation are:

- *Design and implementation of a user-friendly interface for an FEM program.*

- *Encapsulation of existing FEM code. The encapsulation is going to be implemented as a Corba or DCOM object.*

- *Visualisation of the deformations using VRML or OpenGL*

The goal with this program is to be able to make good estimations of the deformations of a dried piece of wood in a simple way.

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