ENGLISH SUMMARY

UDK 624.043:519.63

IKONEN, KARI, On the selection of time increment in numerical solution of some partial differential equations.

Stability criteria concerning the selection of time increment are presented for some simple difference schemes, which describe 1-, 2- and 3-dimensional thermal conduction, axial vibrations and bending vibrations in beams and plates. The Fourier method was applied when deriving the criteria.

UDK 624.04:519.64

KAASINEN, Harri, Comparison of certain direct time integration methods with respect to accuracy and stability.

Some procedures used in the stability and accuracy analysis of direct integration methods in structural dynamics are described. The methods studied are the central difference method, the Houbolt method, Wilson θ-method and the Newmark integration procedure. Amplitude decay and period elongation are used as the basic parameters in order to compare various methods. As an example the accuracy of one, previously unnamed scheme ($\alpha = 22$, $\beta = 8$, $\gamma = 3$ -method) and the Houbolt method with $\alpha = 27$, $\beta = 9$, $\gamma = 3$ are investigated.

UDK 624.042.41:624.073:624.012.6

KAUHANEN, SEPPO, The strength of glass sheets against wind pressure

The article deals with determination of the thickness of window glass sheets on the basis of wind pressure. First the mechanical properties of glass and the determination of wind loading are discussed. The main part of the article consist of a description of the extensive test series of pressure loaded glass sheets performed in the Laboratory for Structural Engineering in the Technical Research Center. Based on the tests instructions for determination of the necessary glass thickness are given.