ENGLISH SUMMARY

UDK 624.011:624.072.2:699.81:614.841:
691.11.02

KALLIONIEMI, PEKKA, Fire resistance of wooden laminated beams

This article describes studies concerning the basic factors needed
for determining the fire resistance of bearing wooden structures: the
charring of wood and the moisture and temperature of the cross section
of an uncharred part during the fire. The effect of temperature and
moisture on the strength of wood was examined with small faultless
testing specimen. The supporting capacity of glued laminated wooden
structures may be determined by the joint knowledge of temperature and
moisture distribution of uncharred cross section and knowledge of the
dependence of strength upon these factors. Test results on the
supporting capacity of natural-size glued laminated wooden beams have
been obtained by menas of loaded fire tests. In all the tests the wood
was spruce and the type of glue was Finnish-made
resorsinolphenolformaldehydresin.

UDK 624.042:519.65

MÄKELÄINEN, PENTTI, An approximation method for the prediction of
creep strains under cyclic loading.

Based on the Boltzmann superposition principle and the use of creep
curves at constant maximal or minimal loading intensity, approximate
procedures for the prediction of creep strains under cyclic loading
are considered. For the case of a periodic tensile loading with one
stress-dip in each cycle, an improved prediction formula is set up by
the author. This formula is extended, also by the author, to the
general loading case with an arbitrary varying stress in the cycle.
Accuracy of the approximation method is also tested against the results
from creep and cyclic stress experiments on glass reinforced unsatu-
rated polyester resin (GR-UP) laminates.

UDK 620.178.3:539.42:539.431

TALLGREN, TOR, Fatigue strenght by using fracture mechanics

The article is an abstract from the diploma work, which has been done
in the Laboratory of Structural Engineering of Technical Research Centre
of Finland. In this work it has been studied the fatigue strenght of
the welded joint of the tower crane by using fracture mechanics. In the
theoretical part it was illustrated the initiation and the growth of
fatigue cracks. In the experimental part the joint of the crane was
fatigued and the results of the test were compared with the theoretical
model.