



Mechanical Behaviour of Finger Joints at Elevated Temperatures

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Summary:

Finger joints are commonly used to produce engineered wood products like glued laminated timber beams. Although comprehensive research has been conducted on the structural behaviour of finger joints at ambient temperature, there is very little information about the structural behaviour at elevated temperature. A comprehensive research project on the fire resistance of bonded timber elements is currently ongoing at the ETH Zurich. The aim of the research project is the development of simplified design models for the fire resistance of bonded structural timber elements taking into account the behaviour of the adhesive used at elevated temperature. The paper presents the results of a first series of tensile and bending tests on specimens with finger joints pre-heated in an oven. The tests were carried out with different adhesives that fulfil current approval criteria for the use in loadbearing timber components. The results showed substantial differences in temperature dependant strength reduction and failure between the different adhesives tested. Thus, the structural behaviour of finger joints at elevated temperature is strongly influenced by the behaviour of the adhesive used for bonding and may govern the fire design of engineered wood products like glued laminated timber beams.

Online Access: Free

Resource Link

http://doc.rero.ch/record/310472/files/226_2011_Article_444.pdf



Performance of Glue-Laminated Beams from Malaysian Dark Red Meranti Timber

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Production
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Fire Test
Failure
Finger Joints
Softwood
Europe
Density
End Pressure
Cramping Pressure
Strength
Charring Rate
Fire Performance
Polyurethane
Bending Strength
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