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Welding of solid wood

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[Puni tekst \(Hrvatski\) Str. 113 - 119 \(pdf, 885.83 KB\) downloads: 83](#)

Sažetak

This paper presents the up-to-date knowledge and results of the application of wood welding techniques at the Faculty of Forestry University of Zagreb. Wood welding technologies have been developed as a new way of bonding timber by using high temperature generated by friction and pressure. Timber is assembled without any adhesives. During the process the surface layer of timber (lignin), which is in direct contact with its counterpart, melts due to high pressure and temperature, which is usually generated by mechanical friction of the elements being connected. The cell structure in the interface area of timber is completely destroyed, while in the welding area the density is increased due to the destruction of wood cells. The cell walls are broken, as a result of exposure to high temperatures, mechanical pressure and chemical process, which occur during the cooling stage. Only natural materials are used in wood welding, which makes these products eco-friendly. In case of recycling, welded products may be disposed of just as natural timber, without the release of toxic substances.

Ključne riječi

solid wood; welding wood; dowels; adhesion

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Posjeta: 141 (od 01.01.2007.)

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