

Abstract

In this research, wooden logs of I-shape from two species of Fagus and Poplar were investigated in three ways: rotary welding of wood by hand drill and column drill and bonding through the adhesive as a control. For joining the wings to the sides of the beam, a wooden nail stud was used. Variable factors in this research were woody woodpecker and wood species, and the method of connecting wood welds by drill and hand drills and bonding. The mechanical properties of the beam including the MOR and shear stress at 26.25 mm in length and 37.5 mm in height at 37.5 mm height at width (σ_s) and modulus of elasticity (MOE), tensile strength of the fit equation (σ_{pl}), (Shear stress was tested in wooden double blocks (τ)). The results of TTEST and ANOVA tests at 95% level showed that there is no significant difference in the shape of I-beam beams by rotary welding method between species variables. But the use of Poplar species is the highest rupture modulus and modulus of elasticity and the highest shear stress at 26.25 mm in width and 37.5 mm in width of John WBL and the highest shear stress resistance in wooden double joints. There is no significant difference in the method of construction between the methods. However, the use of adhesive for connecting the wings to the beam and the formation of the beam I_h has the best structural resistance in the rupture modulus and the modulus of elasticity and shear stress.

Key words: wood rotational welding, wood I- joist beam, Dowel.



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**The application of rotational wood welding technology in making
the wood I-joint beam from abies and poplar wood**

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