

EXPERIMENTAL STUDY ON THE BEHAVIOR OF SAGU BARK LAMINATED BEAMS WITH BOLTED MECHANICAL CONNECTIONS

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ABSTRACT

The utilization of sago bark waste as an alternative construction material remains suboptimal, despite its abundant availability and potential for development into an eco-friendly building material. One approach involves processing this waste into laminated beams assembled using adhesives and mechanical connection systems. This study aims to analyze the behavior of sago bark laminated beams featuring bolted mechanical connections through laboratory-based experimental methods. The research stages encompass material preparation, fabrication of laminated beam specimens, installation of bolted connections, and various tests—specifically tensile, compressive, shear, and flexural strength tests. Analyzed parameters include maximum load, Modulus of Rupture (MoR), Modulus of Elasticity (MoE), and the failure patterns observed in the beams. The findings are expected to provide insights into the viability of sago bark as a structural lamination material and the impact of

bolted connection systems on beam performance. Furthermore, this research aims to serve as a reference for the development of more economical and sustainable waste-based construction materials.

Keywords : sago bark waste, laminated beam, bolted connection, Efloor adhesive, tensile strength test, compressive strength test, shear strength test, flexural strength test, Modulus of Rupture, Modulus of Elasticity, mechanical properties, structural behavior.