

The Material Behavior in Curved Glulam Beam of Jabon Timber

Authors : Erma Desmaliana, Saptahari Sugiri

Abstract : Limited availability of solid timber in large dimensions becomes a problem. The demands of timbers in Indonesia is more increasing compared to its supply from natural forest. It is associated with the issues of global warming and environmental preservation. The uses of timbers from HTI (Industrial Planting Forest) and HTR (Society Planting Forest), such as Jabon, is an alternative source that required to solve these problems. Having shorter lifespan is the benefit of HTI/HTR timbers, although they are relatively smaller in dimension and lower in strength. Engineering Wood Product (EWP) such as glulam (glue-laminated) timber, is required to overcome their losses. Glulam is fabricated by gluing the wooden planks that having a thickness of 20 to 45 mm with an adhesive material and a certain pressure. Glulam can be made a curved beam, is one of the advantages, thus making its strength is greater than a straight beam. This paper is aimed to know the material behavior of curved glue-laminated beam of Jabon timber. Preliminary methods was to gain physical and mechanical properties, and glue spread strength of Jabon timber, which following the ASTM D-143 standard test method. Dimension of beams were 50 mm wide, 760 mm span, 50 mm thick, and 50 mm rise. Each layer of Jabon has a thickness of 5 mm and is glued with polyurethane. Cold press will be applied to beam laminated specimens for more than 5 hours. The curved glue-laminated beams specimens will be tested about the bending behavior. This experiments aims to obtain the increasing of load carrying capacity and stiffness of curved glulam beam.

Keywords : curved glulam beam, HTR&HTI, load carrying, strength

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