Mechanical Performance of Yellow-Poplar Cross Laminated Timber

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	Four Point Bending Test
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Summary:

The purpose of this paper was to examine whether CLT made from fast growing hardwood species can provide sufficient mechanical performance need to be used in structural engineering applications. Yellow-poplar CLT was tested experimentally for stiffness and strength in five-point bending and four-point bending tests, respectively as well as resistance to shear by compression lading and resistance to delamination and the results were compared with American National Standard Institute/APA-The Engineered Wood Association (ANSI/APA) PRG 320-Standard for Performance Rated Cross-Laminated Timber and previous research. Bending stiffness, bending strength and resistance to delamination exceeded the required value in the standard, while wood failure in resistance to shear by compression loading was less than the required value. Shear strength of the yellow-poplar CLT was also greater than CLT produced from softwood species tested in previous research. Acceptable mechanical performance of yellow-poplar CLT confirmed in this research, could be a start point of using hardwood species in CLT structural design.

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