Effects of Arrangement of Steel Plates on Strength of Dowel-Type Cross Laminated Timber Joints with Two Slotted-In Steel Plates Subjected to Lateral Force

https://research.thinkwood.com/en/permalink/catalogue1564

Author:	Sawata, Kei
	Kawamura, Hirokatsu
	Takanashi, Ryuya
	Ohashi, Yoshinori
	Sasaki, Yoshihisa

Year of Publication:	2016
Country of Publication:	Austria
Format:	Conference Paper
Material:	CLT (Cross-Laminated Timber)
Topic:	Connections
	Mechanical Properties
Keywords:	Dowel-Type Joints
	Steel Plates
	Johansen's Yield Model
	Yield Modes
	Strength
Language:	English
Conference:	World Conference on Timber Engineering
Research Status:	Complete
Notes:	August 22-25, 2016, Vienna, Austria p. 1556-1563

Summary:

Cross-laminated timber (CLT) has received particular attention as a structural material, and its material and joint strengths have been researched. This study derived a strength formula for dowel-type CLT joints with slottedin two steel plates, based on Johansen’s yield theory. When the steel plate is inserted in CLT that has five laminae, the dowel-type joints with slotted-in two steel plates have thirty-nine yield modes. This study derived the formulas for each yield mode and compared them with experimentally obtained results. The yield mode assumed by the yield theory was congruent with the failure mode of the CLT specimens after the experiments. The strength of dowel-type joints calculated based on the yield theory was close to the yield strength obtained in the experiments.

Online Access: Free

Resource Link

http://hdl.handle.net/20.500.12708/172