



Evaluation of the Block Shear Resistance of Glulam Manufactured from Borate-Treated Lamina Without Planing After Treatment

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Summary:

Effective preservative treatments for Canadian glulam products are needed to maintain markets for mass timber on building facades, access markets with significant termite hazards, and expand markets for wood bridges. For all three applications, borate-treatment of lamina before gluing would be preferred as it would lead to maximum preservative penetration. However, the need to plane after treatment and prior to gluing removes the best-treated part of the wood, and creates a disposal issue for treated planer shavings. The present research evaluates the block shear resistance of glulam prepared from untreated and borate-treated lamina with a polyurethane adhesive. Borate treatment was associated with a small but statistically significant loss in median shear strength when evaluated dry; however, there was no difference between the performance of untreated and borate-treated samples when exposed to the vacuum-pressure soak/dry or the boil-dry-freeze/dry procedures. Further work is needed to modify the composition or application of the resin to improve shear strength for glulam applications and ensure consistent performance. However, overall, these data indicate that samples prepared from borate-treated lamina perform similarly in terms of block shear resistance to those prepared from untreated lamina.

Online Access: Free

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