



Development of CLT products with improved fire performance

<https://library.fpinnovations.ca/en/permalink/fpipub7708>

Author: He, Guangbo
 Feng, Martin
 Roussière, Fabrice

Date: March 2020

Edition: 52984

Material Type: Research report

Physical Description: 17 p.

Sector: Wood Products

Field: Sustainable Construction

Research Area: Advanced Wood Materials

Subject: Fire
 Structural composites
 Laminate product
 Timber
 Hardwoods
 Testing

Language: English


Abstract: The fire resistance of cross-laminated timber (CLT) could be improved by treating the lamina with fire retardants. The major issues with this technology are the reduced bondability of the treated lamina with commercial adhesives. This study assessed several surface preparation methods that could improve the bondability and bond durability of fire-retardant treated wood with two commercial adhesives. Four surface preparation methods, including moisture/heat/pressure, surface planing, surface chemical treatment, and surface plasma treatment were assessed for their impact on the bondability and bond durability of lodgepole pine lamina. The block shear test results indicated that all surface preparation methods were somewhat effective in improving bond performance of fire-retardant treated wood compared to the untreated control wood samples, depending on the types of fire retardants and wood adhesives applied in the treatment process and bonding process. The selection of surface preparation, fire retardant, and wood adhesive should be considered interactively to obtain the best bond properties and fire performance. It may be possible to effectively bond the treated lamina with PUR adhesive without any additional surface preparation for the fire retardant used in the treatment at FPInnovations.

Documents



52984.pdf

 Read Online

 Download