



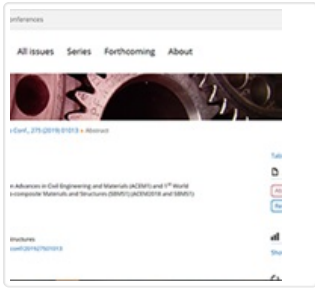
Charring Behavior of Cross Laminated Timber with Respect to the Fire Protection

<https://research.thinkwood.com/en/permalink/catalogue267>

Author: Tiso, Mattia
Organization: SP Technical Research Institute of Sweden
Year of Publication: 2014
Country of Publication: Sweden
Format: Report
Material: CLT (Cross-Laminated Timber)
Topic: Fire
Keywords: Small Scale
Cone Calorimeter
Heat Flux
Gypsum Type F
Plywood
Fire Resistance
Language: English
Research Status: Complete
Online Access: Free

Resource Link

<http://www.diva-portal.org/smash/get/diva2:962826/FULLTEXT01.pdf>



Comparison of Bonding Performance Between Plywood and Laminated Veneer Lumber Induced by High Voltage Electrostatic Field

<https://research.thinkwood.com/en/permalink/catalogue2487>

Author: He, Qian
Zhan, Tianyi
Zhang, Haiyang
Ju, Zehui
Hong, Lu
Brosse, Nicolas
Lu, Xiaoning

Publisher: EDP Sciences

Year of Publication: 2019

Format: Journal Article

Material: LVL (Laminated Veneer Lumber)
Other Materials

Application: Wood Building Systems

Topic: Mechanical Properties
Design and Systems

Keywords: High Voltage Electrostatic Field
Bonding
Masson
Pine
Plywood
Surface Characteristics
Density

Language: English

Research Status: Complete

Series: MATEC Web of Conferences

Online Access: Free

Resource Link

https://www.matec-conferences.org/articles/mateconf/abs/2019/24/mateconf_acem2019_01013/mateconf_acem2019_01013.html



Development of Isocyanate-Free and Formaldehyde-Free Adhesives for CLT

<https://research.thinkwood.com/en/permalink/catalogue2266>

Organization: TallWood Design Institute
Country of: United States
Publication:
Material: CLT (Cross-Laminated Timber)
Topic: Mechanical Properties
Keywords: Bonding
Plywood
Research Status: In Progress
Notes: Contact: Kaichang Li, Oregon State University

Summary:

This project aims to develop a commercially-viable wood adhesive for CLT that is free of formaldehyde and isocyanates and possesses good cure speed properties. Li and his team have successfully developed adhesives for plywood manufacturing using abundant, inexpensive and renewable soy flour. This adhesive mimics the superior bonding properties of mussel additive proteins. Emission of hazardous air pollutants from plywood plants that use this adhesive has dropped 50-90 percent. Development of such an adhesive for CLT would address increasingly stringent air quality regulations in many places such as Oregon and California. The existing chemical formulation for the plywood adhesive will be adapted for use in a cold-pressing process. Specimens will be created at the OSU wood composites labs and first tested to verify conformance with the PRG320 product standard for CLT. Specimens passing the tests will be sent to the Energy Studies in Buildings Laboratory at the University of Oregon, Portland, where they will be conditioned and tested to determine emission characteristics.



Effect of Design Parameters on Mass Timber Floor Vibration Performance

<https://research.thinkwood.com/en/permalink/catalogue2683>

Author: Hu, Lin
Organization: FPInnovations
Year of Publication: 2020
Country of Publication: Canada
Format: Report
Material: DLT (Dowel Laminated Timber)
Application: Floors
Topic: Acoustics and Vibration
Design and Systems
Keywords: Concrete Topping
Plywood
Vibration Performance
Bending Stiffness
Language: English
Research Status: Complete

Summary:

Mass timber is a generic name for a broad range of thick and heavy wood products such as cross-laminated timber (CLT), dowel-laminated timber (DLT), nail-laminated timber (NLT), and gluelaminated timber (GLT), among others. So far, vibration-controlled design methods have been developed mostly for CLT floors.

Online Access: Free

Resource Link

<https://library.fpinnovations.ca/en/permalink/fpipub53014> ↗



Effet des Paramètres de Conception Sur la Performance Vibratoire des Planchers Massifs en Bois

<https://research.thinkwood.com/en/permalink/catalogue2684>

Author: Hu, Lin
Organization: FPInnovations
Year of Publication: 2020
Country of Publication: Canada
Format: Report
Material: DLT (Dowel Laminated Timber)
Application: Floors
Topic: Acoustics and Vibration
Energy Performance
Keywords: Concrete Topping
Plywood
Vibration Performance
Bending Stiffness
Language: French
Research Status: Complete

Summary:

La construction massive en bois est un terme générique qui englobe une grande variété de produits du bois épais et lourds, notamment le bois lamellé-croisé (CLT), le bois lamellé-goujonné (DLT), le bois lamellé-cloué et le bois lamellé-collé (GLT). À ce jour, les méthodes de conception à vibrations contrôlées ont surtout été élaborées pour les planchers en CLT.

Online Access: Free

Resource Link

<https://library.fpinnovations.ca/en/permalink/fpipub53013> ↗



Field Measurement of Vertical Movement and Roof Moisture Performance of the Wood Innovation and Design Centre: Instrumentation and First Year's Performance

<https://research.thinkwood.com/en/permalink/catalogue102>

Author: Wang, Jieying
Organization: FPInnovations
Year of Publication: 2015
Country of Publication: Canada
Format: Report
Material: CLT (Cross-Laminated Timber)
Glulam (Glue-Laminated Timber)
Application: Wood Building Systems
Topic: Design and Systems
Serviceability
Keywords: Differential Movement
Long-term
Moisture
Plywood
Roofs
Shrinkage
Tall Wood
Vertical Movement
Language: English
Research Status: Complete

Summary:

Two of the major topics of interest to those designing taller and larger wood buildings are the susceptibility to differential movement and the likelihood of mass timber components drying slowly after they are wetted during construction. The Wood Innovation and Design Centre in Prince George, British Columbia provides a unique opportunity...

Online Access: Free

Resource Link

<https://library.fpinnovations.ca/en/permalink/fpipub44205> 



Innovative Lateral Systems for Mass Timber

<https://research.thinkwood.com/en/permalink/catalogue2793>

Organization:	TallWood Design Institute Oregon State University
Country of Publication:	United States
Material:	CLT (Cross-Laminated Timber) MPP (Mass Plywood Panel)
Application:	Shear Walls
Topic:	Seismic
Keywords:	Post-Tensioned Rocking Walls Energy Dissipation Mass Plywood Experimental Tests Seismic Force Resisting System
Research Status:	In Progress
Notes:	Project contacts are Arijit Sinha, Andre Barbosa and Barbara Simpson at Oregon State University

Summary:

The results of this proposal will provide guidance on efficient design and analysis strategies for wood building construction including rocking/post-tensioned and pivoting spines, a next-generation seismic force resisting system, for improved performance, safety, sustainability, and economy. The use of wood in tall buildings is limited by strength and stiffness considerations. The use of CLT and MPP shear walls, supplemented by energy dissipators may be able to alleviate this problem. Several knowledge gaps exist in terms of the performance of mass timber lateral force resisting systems (LFRS), interconnectivity and compatibility between the modules and LFRS-to-gravity system, and potential hybridization of structural materials for the gravity system and LFRS. The recent 2017 two-story shake table test is the only full scale dynamic on rocking CLT LFRS with energy dissipators. Importantly, since MPP panels are also a recent addition in the mass timber industry, no experimental data exist regarding the self-centering performance of post-tensioned MPP wall panels.

Resource Link

<http://tallwoodinstitute.org/projects/innovative-lateral-systems-mass-timber>



Mass Plywood (MPP) Concrete Composite Floor Systems

<https://research.thinkwood.com/en/permalink/catalogue2795>

Country of Publication: United States

Material: MPP (Mass Plywood Panel)
Glulam (Glue-Laminated Timber)
Timber-Concrete Composite

Application: Floors

Topic: Connections
Mechanical Properties

Keywords: Mass Plywood
Concrete Topping
Bending Stiffness
Span Length
HBV Connector

Research Status: In Progress

Notes: Project contacts are Andre Barbosa and Arijit Sinha at Oregon State University

Summary:

In order to facilitate adoption of new mass timber products into practice, physical testing is required to understand and predict structural behavior. While extensive testing has been conducted at Oregon State on basic engineering properties of mass plywood panels (MPP) and MPP-to-MPP connections, there exists no experimental data on connections between MPP and other timber members (e.g. glulam) or on composite behavior of MPP with a concrete topping. Previous testing on CLT concrete-composite systems looked at different CLT-to-concrete connection systems, with HBV shear connectors-steel plates partially embedded in the timber with epoxy resin- as a strong candidate in terms of strength and stiffness performance. This project will focus on exploring the performance of MPP-concrete composite systems with HBV connectors.

Resource Link

<http://tallwoodinstitute.org/projects/mass-plywood-mpp-concrete-composite-floor-systems> ↗



Mass-Timber Construction in Australia: Is CLT the Only Answer?

<https://research.thinkwood.com/en/permalink/catalogue2727>

Author: McGavin, Robert
Dakin, Tony
Shanks, Jon

Publisher: North Carolina State University

Year of Publication: 2020

Format: Journal Article

Material: CLT (Cross-Laminated Timber)
MPP (Mass Plywood Panel)

Application: Wood Building Systems

Topic: Market and Adoption

Keywords: Veneer
Mass Panel
Mass Plywood
Construction
Australia

Language: English

Research Status: Complete

Series: BioResources

Summary:

Wood-based mass-panels (WBMP) are emerging as an attractive construction product for large-scale residential and commercial construction. Australia is following the lead of Europe and North America with several recent projects being completed using predominately cross-laminated timber panels (CLT). These sawn timber-based panels offer some key advantages to the construction and sawmilling industry. However, veneer-based mass-panel (VBMP) systems could offer additional benefits including the more efficient use of the available forest resources to produce WBMPs that have equivalent to superior performance to CLT. Research to confirm the expected technical viability of veneer-based systems is required. VBMPs could provide a valuable contribution, alongside CLT, to the Australian timber products market.

Online Access: Free

Resource Link

https://ojs.cnr.ncsu.edu/index.php/BioRes/article/view/BioRes_15_3_4642_McGavin_Mass_Timber_Construction_Australia