



Bonding Performance of Adhesive Systems for Cross-Laminated Timber Treated with Micronized Copper Azole Type C (MCA-C)

<https://research.thinkwood.com/en/permalink/catalogue2200>

Author: Lim, Hyungsuk
Tripathi, Sachin
Tang, Juliet

Publisher: ScienceDirect

Year of Publication: 2020

Country of Publication: Netherlands

Format: Journal Article

Material: CLT (Cross-Laminated Timber)

Application: General Application

Topic: Design and Systems
Connections

Keywords: Preservatives
Micronized Copper Azole-Type C
Bonding Performance
Delamination Tests
Block Shear Tests
Adhesives
Block Shear Strength
Wood Failure Percentage

Language: English

Research Status: Complete

Series: Construction and Building Materials

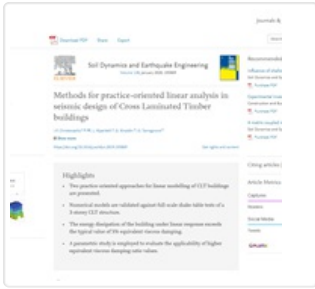
Summary:

The feasibility of manufacturing cross-laminated timber (CLT) from southern yellow pine (United States grown) treated with micronized copper azole type C (MCA-C) preservative was evaluated. Lumber (2x6 visually graded no. 2 boards) was treated to two retention levels (1.0 and 2.4 kg/m³), planed to a thickness of 35 mm, and assembled along with an untreated control group using three adhesive systems following product specifications: melamine formaldehyde (MF), resorcinol formaldehyde (RF), and one-component polyurethane (PUR). Block shear and delamination tests were conducted to examine the bonding performance in accordance with ASTM D905 and ASTM D2559 Standards, respectively. One-way analysis of variance and Kruskal-Wallis H test were conducted to evaluate the effects of preservative retention and adhesive type on block shear strength (BSS) and wood failure percentage (WFP). Regardless of adhesive type, the 1.0 kg/m³ retention treatment significantly lowered BSS compared to the untreated control. CLT composed of the laminations treated at 2.4 kg/m³ maintained BSS when PUR and RF were used but not MF. The average WFP of each CLT configuration ranged from 89% to 99%. The untreated CLT specimens did not experience any delamination under accelerated weathering cycles. The delamination rates of the treated specimens assembled using MF and RF increased with the preservative retention level, while PUR provided delamination rates less than 1% to the laminations treated at both levels. These combined data suggest that, under the conditions tested, PUR provided overall better bonding performance than MF and RF for MCA-C treated wood.

Online Access: Free

Resource Link

https://www.fpl.fs.fed.us/documnts/pdf2020/fpl_2020_lim001.pdf



Methods for Practice-Oriented Linear Analysis in Seismic Design of Cross Laminated Timber Buildings

<https://research.thinkwood.com/en/permalink/catalogue2304>

Author: Christovasilis, Ioannis
Rinaldin, Giovanni
Tamagnone, Gabriele
Riparbelli, L.

Publisher: Elsevier
ScienceDirect

Year of Publication: 2020

Format: Journal Article

Material: CLT (Cross-Laminated Timber)

Application: Wood Building Systems
General Application

Topic: Seismic
Design and Systems

Keywords: Linear Dynamic Analysis
Viscous Damping
Earthquake
Full Scale
Shaking Table Test

Language: English

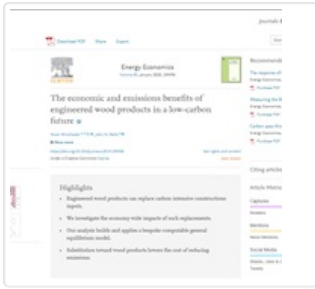
Research Status: Complete

Series: Soil Dynamics and Earthquake Engineering

Online Access: Free

Resource Link

<https://doi.org/10.1016/j.soildyn.2019.105869>



The Economic and Emissions Benefits of Engineered Wood Products in a Low-Carbon Future

<https://research.thinkwood.com/en/permalink/catalogue2351>

Author: Winchester, Niven
Reilly, John

Publisher: Elsevier

Year of Publication: 2020

Country of Publication: United States

Format: Journal Article

Material: CLT (Cross-Laminated Timber)
Other Materials

Application: Wood Building Systems
General Application

Topic: Environmental Impact
Cost

Keywords: Climate Change
Construction
Embodied Emissions
Carbon Emissions
Climate Change Mitigation

Language: English

Research Status: Complete

Series: Energy Economics

Online Access: Free

Resource Link

<https://www.sciencedirect.com/science/article/pii/S0140988319303913#!>



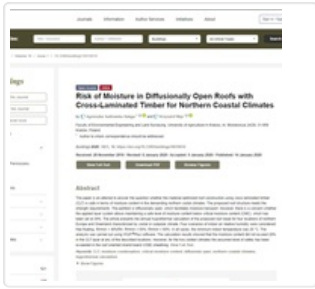
Predicting Failure of Notched Cross-Laminated Timber Plates Including the Effect of Environmental Stresses

<https://research.thinkwood.com/en/permalink/catalogue2354>

Author: Nairn, John
Year of Publication: 2020
Country of Publication: United States
Publication:
Format: Journal Article
Material: CLT (Cross-Laminated Timber)
Application: Wood Building Systems
General Application
Topic: Mechanical Properties
Design and Systems
Keywords: Delamination
Fracture Mechanisms
Residual Stresses
Language: English
Research Status: Complete
Series: Wood Material Science & Engineering
Online Access: Free

Resource Link

<http://www.cof.orst.edu/cof/wse/faculty/Nairn/papers/NotchedCLT.pdf>



Risk of Moisture in Diffusionally Open Roofs with Cross-Laminated Timber for Northern Coastal Climates

<https://research.thinkwood.com/en/permalink/catalogue2355>

Author: Sadlowska-Salega, Agnieszka
Was, Krzysztof

Publisher: MDPI

Year of Publication: 2020

Country of Publication: Switzerland

Format: Journal Article

Material: CLT (Cross-Laminated Timber)

Application: Roofs

Topic: Moisture

Keywords: Moisture Condensation
Critical Moisture Content
Diffusively Open
Hygrothermal Calculation

Language: English

Research Status: Complete

Series: Buildings

Online Access: Free

Resource Link

<https://doi.org/10.3390/buildings10010010> [↗](#)



CLT Handbook - Canadian Edition

<https://research.thinkwood.com/en/permalink/catalogue819>

Organization: FPIInnovations
Editor: Karacabeyli, Erol
Gagnon, Sylvain
Edition: 2nd Edition
Year of Publication: 2019
Country of Publication: Canada
Format: Book
Material: CLT (Cross-Laminated Timber)
Application: Wood Building Systems
Language: English
Research Status: Complete

Summary:

The CLT Handbook provides vital “How to” information on CLT for the design and construction community, and is a great source of information for regulatory authorities, fire services and others. The CLT Handbook is also a good textbook for university level timber engineering courses. In summary, the Canadian CLT Handbook will remain the most comprehensive reference for sharing the latest technical information on North American CLT.

The Canadian edition of the CLT Handbook, first published in 2011 under the Transformative Technologies Program of the Natural Resources Canada, played an imperative role in accelerating the use and acceptance of CLT in North America. Its introduction subsequently led to the publication of the US Edition. The Canadian Edition supported the early use of CLT products from Canadian manufacturers in many small to large projects across Canada and the US, and paved the way for CLT and other wood products to be used in new applications like tall and large buildings, and bridges.

Since then, additional research has taken place globally and substantial regulatory changes have occurred enabling more wood to be used in construction. Those developments highlighted a need for the CLT Handbook to be updated. The 2019 Edition of the CLT Handbook, for example, augments the recently developed CLT provisions in CSA Standard in Engineering Design in Wood and it includes a design example of an 8-storey CLT building. It helps expand the knowledge base of the designers about CLT enabling them to develop alternative solutions for taller and larger buildings that are beyond the boundaries of the acceptable solutions in building codes.

Online Access: Free

Resource Link

<https://web.fpinnovations.ca/ct/>



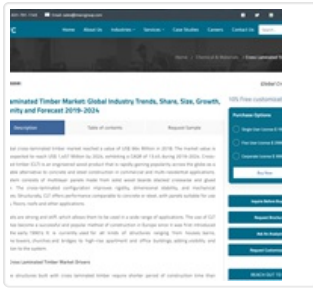
Acoustically-Tested Mass Timber Assemblies

<https://research.thinkwood.com/en/permalink/catalogue1874>

Organization: WoodWorks
Year of Publication: 2019
Country of Publication: United States
Format: Report
Material: CLT (Cross-Laminated Timber)
NLT (Nail-Laminated Timber)
Glulam (Glue-Laminated Timber)
Application: Floors
Walls
Topic: Acoustics and Vibration
Keywords: Mass Timber
Sound Transmission Class
Impact Isolation Class
Assembly
Language: English
Research Status: Complete
Online Access: Free

Resource Link

<http://www.woodworks.org/wp-content/uploads/Acoustically-Tested-Mass-Timber-Assemblies-WoodWorks.pdf>



Cross-Laminated Timber Market: Global Industry Trends, Share, Size, Growth, Opportunity and Forecast 2019-2024

<https://research.thinkwood.com/en/permalink/catalogue1959>

Organization: IMARC Group
Publisher: IMARC Services Pvt. Ltd.
Year of Publication: 2019
Country of Publication: United States
Format: Report
Material: CLT (Cross-Laminated Timber)
Application: General Application
Wood Building Systems
Topic: Market and Adoption
Keywords: Global
Industry Performance
Market Potential
Cost
Manufacturing
Economics
Language: English
Research Status: Complete

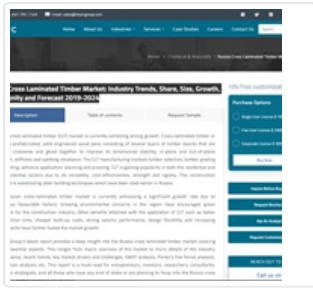
Summary:

This report provides a deep insight into the global cross-laminated timber market covering all its essential aspects. This ranges from macro overview of the market to micro details of the industry performance, recent trends, key market drivers and challenges, SWOT analysis, Porter's five forces analysis, value chain analysis, etc. The report also provides a comprehensive analysis for setting up a cross-laminated timber manufacturing plant. The study analyses the processing and manufacturing requirements, project cost, project funding, project economics, expected returns on investment, profit margins, etc. This report is a must-read for entrepreneurs, investors, researchers, consultants, business strategists, and all those who have any kind of stake or are planning to foray into the cross-laminated timber industry in any manner...

Online Access: Payment Required

Resource Link

<https://www.imarcgroup.com/cross-laminated-timber-manufacturing-plant>



Russia Cross Laminated Timber Market: Industry Trends, Share, Size, Growth, Opportunity and Forecast 2019-2024

<https://research.thinkwood.com/en/permalink/catalogue1960>

Organization: IMARC Group
Publisher: IMARC Services Pvt. Ltd.
Year of Publication: 2019
Country of Publication: United States
Format: Report
Material: CLT (Cross-Laminated Timber)
Application: Wood Building Systems
General Application
Topic: Market and Adoption
Keywords: Residential
Market Demand
Education
Government
Commercial
Russia
Raw Material
Industry Performance
Language: English
Research Status: Complete

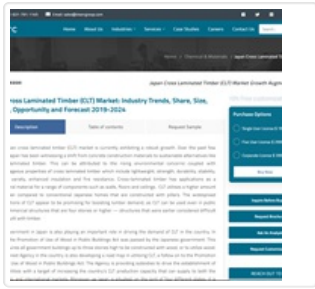
Summary:

IMARC Group's latest report provides a deep insight into the Russia cross laminated timber market covering all its essential aspects. This ranges from macro overview of the market to micro details of the industry performance, recent trends, key market drivers and challenges, SWOT analysis, Porter's five forces analysis, value chain analysis, etc. This report is a must-read for entrepreneurs, investors, researchers, consultants, business strategists, and all those who have any kind of stake or are planning to foray into the Russia cross laminated timber market in any manner.

Online Access: Payment Required

Resource Link

<https://www.imarcgroup.com/russia-cross-laminated-timber-market>



Japan Cross Laminated Timber (CLT) Market: Industry Trends, Share, Size, Growth, Opportunity and Forecast 2019-2024

<https://research.thinkwood.com/en/permalink/catalogue1961>

Organization: IMARC Group
Publisher: IMARC Services Pvt. Ltd.
Year of Publication: 2019
Country of Publication: United States
Format: Report
Material: CLT (Cross-Laminated Timber)
Application: Wood Building Systems
General Application
Topic: Market and Adoption
Keywords: Market Performance
Manufacturing
Japan
Industry Performance
Competition
Language: English
Research Status: Complete

Summary:

This report provides a deep insight into the Japan cross laminated timber (CLT) market covering all its essential aspects. This ranges from macro overview of the market to micro details of the industry performance, recent trends, key market drivers and challenges, SWOT analysis, Porter's five forces analysis, value chain analysis, etc. This report is a must-read for entrepreneurs, investors, researchers, consultants, business strategists, and all those who have any kind of stake or are planning to foray into the Japanese cross laminated timber industry in any manner.

Online Access: Payment Required

Resource Link

<https://www.imarcgroup.com/japan-cross-laminated-timber-market>