

Advanced Wood-Based Solutions for Mid-Rise and High-Rise Construction: Acoustic Performance of Innovative Composite Wood Stud Partition Walls

<https://research.thinkwood.com/en/permalink/catalogue1181>

Author: Lin Hu
Samuel Cuerrier-Auclair
James Deng
Xiang-Ming Wang

Organization: FPInnovations

Year of Publication: 2018

Country of Publication: Canada

Format: Report

Application: Walls

Topic: Design and Systems
Mechanical Properties
Acoustics and Vibration

Keywords: Sound Insulation
Manufacturing
Partition Walls
Steel

Language: English

Research Status: Complete

Notes: Report is currently not available due to the redevelopment of FPInnovations' publications website.

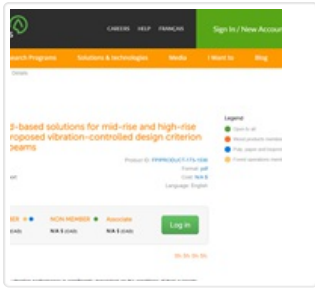
Abstract:

Airborne sound insulation performance of wall assemblies is a critical aspect which is directly associated with the comfort level of the occupants, which in turn affects the market acceptance...

Online Access: Payment Required

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<https://fpinnovations.ca/Extranet/Pages/AssetDetails.aspx?item=/Extranet/Assets/ResearchReportsWP/16781.pdf#.WymKJPIkiUI>



Advanced Wood-Based Solutions for Mid-Rise and High-Rise Construction: Proposed Vibration-Controlled Design Criterion for Supporting Beams

<https://research.thinkwood.com/en/permalink/catalogue1178>

Author: Lin Hu
Organization: FPInnovations
Year of Publication: 2018
Country of Publication: Canada
Format: Report
Application: Floors
Topic: Acoustics and Vibration
Mechanical Properties
Keywords: Floor Supporting Beam
Bending Stiffness
Language: English
Research Status: Complete
Notes: Report is currently not available due to the redevelopment of FPInnovations' publications website.

Abstract:

For wood floor systems, their vibration performance is significantly dependent on the conditions of their supports, specifically the rigidity of the support. Detrimental effects could result if the floor supports do not have sufficient rigidity. This is special ture for floor supporting beams. The problem of vibrating floor due to flexible...

Online Access: Payment Required

Resource Link

https://fpinnovations.ca/Extranet/Pages/AssetDetails.aspx?item=/Extranet/Assets/ResearchReportsWP/16777.pdf#.WymFp_IKiUI



Advanced Wood-Based Solutions for Mid-Rise and High-Rise Construction: Structural Performance of Post-Tensioned CLT Shear Walls with Energy Dissipators

<https://research.thinkwood.com/en/permalink/catalogue1472>

Author: Zhiyong Chen
Marjan Popovski
Paul Symons
Organization: FPInnovations
Year of Publication: 2018
Country of Publication: Canada
Format: Report

Material: CLT (Cross-Laminated Timber)
Glulam (Glue-Laminated Timber)
LVL (Laminated Veneer Lumber)
LSL (Laminated Strand Lumber)

Application: Shear Walls

Topic: Design and Systems
Mechanical Properties
Seismic

Keywords: Compression Tests
Compression Strength
Energy Dissipation
Post-Tensioned
Pres-Lam
Monotonic Loading
Reverse Cyclic Loading

Language: English

Research Status: Complete

Notes: Report is currently not available due to the redevelopment of FPInnovations' publications website.

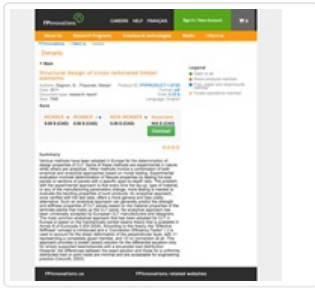
Abstract:

The latest developments in seismic design philosophy have been geared towards developing of so called "resilient" or "low damage" innovative structural systems that can reduce damage to the structure while offering the same or higher levels of safety to occupants. One such innovative structural system is the Pres-Lam system that is a wood-hybrid system that utilizes post-tensioned (PT) mass timber components in both rigid-frame and wall-based buildings along with various types of energy dissipators. To help implement the Pres-Lam system in Canada and the US, information about the system performance made with North American engineered wood products is needed. That information can later be used to develop design guidelines for the designers for wider acceptance of the system by the design community. ...

Online Access: Payment Required

Resource Link

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Chapter 3: Structural Design of Cross-Laminated Timber Elements

<https://research.thinkwood.com/en/permalink/catalogue809>

Author: Sylvain Gagnon
Marjan Popovski

Organization: FPInnovations

Year of Publication: 2011

Country of Publication: Canada

Format: Book Section

Material: CLT (Cross-Laminated Timber)

Application: General Application

Topic: Mechanical Properties

Keywords: Experimental
Flexural Properties
Stiffness
Strength
Analytical Approach

Language: English

Research Status: Complete

Series: CLT Handbook - Canadian Edition

Notes: Report is currently not available due to the redevelopment of FPInnovations' publications website.

Abstract:

Various methods have been adopted in Europe for the determination of design properties of CLT. Some of these methods are experimental in nature while others are analytical. Other methods involve a combination of both empirical and analytical approaches...

Online Access: Free

Resource Link

<https://fpinnovations.ca/Extranet/Pages/AssetDetails.aspx?item=/Extranet/Assets/ResearchReportsWP/E4842.pdf#.WmtdwXanGUk>



Chapter 3: Structural Design of Cross-Laminated Timber Elements

<https://research.thinkwood.com/en/permalink/catalogue822>

Author: Loren Ross
Sylvain Gagnon
Edward Keith

Organization: FPLInnovations
Binational Softwood Lumber Council

Year of Publication: 2013

Country of Publication: Canada
United States

Format: Book Section

Material: CLT (Cross-Laminated Timber)

Application: General Application

Topic: Mechanical Properties

Keywords: Flexural Properties
Modulus of Rupture
Shear
Stiffness
Strength

Language: English

Research Status: Complete

Series: CLT Handbook - US Edition

ISBN: 978-0-86488-553-1

ISSN: 1925-0495

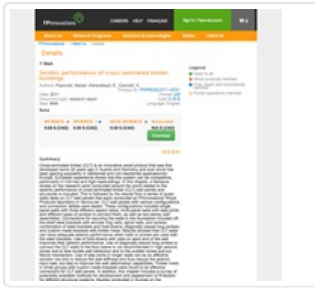
Abstract:

Building using cross-laminated timber (CLT) began in Europe about two decades ago and has used a variety of methods for structural analysis. Experimental testing methods were the most accurate, yet they lacked versatility because changes in lay-up, material, or even manufacturing methods could cause a need for new testing. Consequently, three analytical approaches have been created and are commonly used in Europe as none have been universally accepted to date. ... In the United States and Canada, the product standard (Standard for Performance-Rated Cross-Laminated Timber - ANSI/APA PRG 320) has adopted the Shear Analogy method to derive composite bending and shear stiffness properties.

Online Access: Free

Resource Link

<https://info.thinkwood.com/clt-handbook> ↗



Chapter 4: Seismic Performance of Cross-Laminated Timber Buildings

<https://research.thinkwood.com/en/permalink/catalogue810>

Author: Marjan Popovski
Erol Karacabeyli
Ario Ceccotti

Organization: FPInnovations

Year of Publication: 2011

Country of Publication: Canada

Format: Book Section

Material: CLT (Cross-Laminated Timber)

Application: Walls
Wood Building Systems

Topic: Seismic
Mechanical Properties

Keywords: Nails
National Building Code of Canada
Screws
Seismic Performance
Quasi-Static Test
Steel Brackets
Hold-Down
R-factor

Language: English

Research Status: Complete

Series: CLT Handbook - Canadian Edition

Notes: Report is currently not available due to the redevelopment of FPInnovations' publications website.

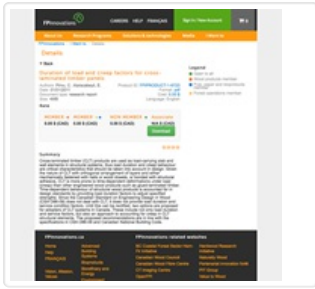
Abstract:

Cross-laminated timber (CLT) is an innovative wood product that was first developed some 20 years ago in Austria and Germany and ever since has been gaining popularity in residential and non-residential applications in Europe. European experience shows th...

Online Access: Free

Resource Link

<https://fpinnovations.ca/Extranet/Pages/AssetDetails.aspx?item=/Extranet/Assets/ResearchReportsWP/E4843.pdf#Wm9S8XanGUk>



Chapter 6: Duration of Load and Creep Factors for Cross-Laminated Timber Panels

<https://research.thinkwood.com/en/permalink/catalogue812>

Author: Ciprian Pirvu
Erol Karacabeyli

Organization: FPInnovations

Year of Publication: 2011

Country of Publication: Canada

Format: Book Section

Material: CLT (Cross-Laminated Timber)

Application: General Application

Topic: Mechanical Properties

Keywords: Creep
Duration of Load

Language: English

Research Status: Complete

Series: CLT Handbook - Canadian Edition

Notes: Report is currently not available due to the redevelopment of FPInnovations' publications website.

Abstract:

Cross-laminated timber (CLT) products are used as load-carrying slab and wall elements in structural systems, thus load duration and creep behaviour are critical characteristics that should be taken into account in design. Given the nature of CLT with or...

Online Access: Free

Resource Link

<https://fpinnovations.ca/Extranet/Pages/AssetDetails.aspx?item=/Extranet/Assets/ResearchReportsWP/E4845.pdf#.WmtgxnanGUK>



Chapter 6: Duration of Load and Creep Factors for Cross-Laminated Timber Panels

<https://research.thinkwood.com/en/permalink/catalogue825>

Author: Ciprian Pirvu
Bradford Douglas
Borjen Yeh

Organization: FPInnovations
Binational Softwood Lumber Council

Year of Publication: 2013

Country of Publication: Canada
United States

Format: Book Section

Material: CLT (Cross-Laminated Timber)

Application: General Application

Topic: Mechanical Properties

Keywords: Creep
Duration of Load
Time Dependent Behavior

Language: English

Research Status: Complete

Series: CLT Handbook - US Edition

ISBN: 978-0-86488-553-1

ISSN: 1925-0495

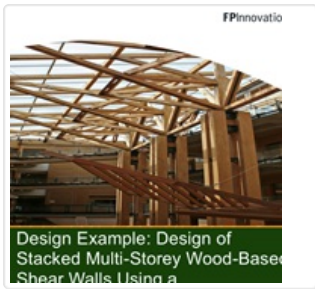
Abstract:

Cross-laminated timber (CLT) products are used as load-carrying slab and wall elements in structural systems, thus load duration and creep behavior are critical characteristics that must be addressed in structural design. Given its lay-up construction with orthogonal arrangement of layers bonded with structural adhesive, CLT is more prone to time-dependent deformations under load (creep) than other engineered wood products such as structural glued-laminated timber. Time dependent behavior of structural wood products is addressed in design standards by load duration factors that adjust design properties. Since CLT has been recently introduced into the North American market, the current design standards and building codes do not specify load duration and creep adjustment factors for CLT. Until this can be rectified, an approach is proposed in this Chapter for adopter of CLT systems in the United States. This includes not only load duration and service factors, but also an approach to accounting for creep in CLT structural elements.

Online Access: Free

Resource Link

<https://info.thinkwood.com/clt-handbook> [↗](#)



Design Example: Design of Stacked Multi-Storey Wood Shear Walls Using a Mechanics Based Approach

<https://research.thinkwood.com/en/permalink/catalogue739>

Author: Grant Newfield
Chun Ni
Jasmine Wang

Organization: Canadian Wood Council
FPInnovations

Year of Publication: 2013

Country of Publication: Canada

Format: Report

Material: Light Frame (Lumber+Panels)

Application: Wood Building Systems
Shear Walls

Topic: Design and Systems
Mechanical Properties
Seismic

Keywords: Codes
National Building Code of Canada
Lateral Seismic Loads

Language: English

Research Status: Complete

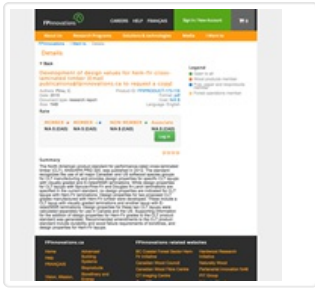
Abstract:

Figure 1 shows a floor plan and elevation along with the preliminary shear wall locations for a sixstorey wood-frame building. It is assumed some preliminary calculations have been provided to determine the approximate length of wall required to resist t...

Online Access: Free

Resource Link

<http://cwc.ca/wp-content/uploads/2013/11/Design-of-stacked-multistorey-wood-shearwalls-using-a-mechanics-based-approach.pdf>



Development of Design Values for Hem-Fir Cross-Laminated Timber

<https://research.thinkwood.com/en/permalink/catalogue116>

Author: Ciprian Pirvu
Organization: FPInnovations
Year of Publication: 2015
Country of Publication: Canada
Format: Report
Material: CLT (Cross-Laminated Timber)
Application: General Application
Topic: Mechanical Properties
Keywords: Hem-Fir
Visually graded
Machine Stress Rated
Durability
Bondlines
Canada
US
Language: English
Research Status: Complete
Notes: Report is currently not available due to the redevelopment of FPInnovations' publications website.

Abstract:

The North American product standard for performance-rated cross-laminated timber (CLT), ANSI/APA PRG 320, was published in 2012. The standard recognizes the use of all major Canadian and US softwood species groups for CLT manufacturing and provides design...

Online Access: Free

Resource Link

<https://fpinnovations.ca/Extranet/Pages/AssetDetails.aspx?item=/Extranet/Assets/ResearchReportsWP/3226.pdf>