

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
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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

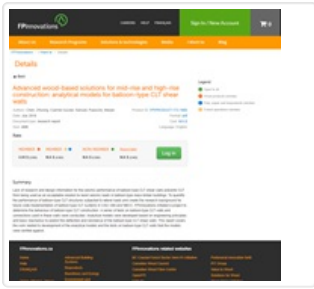
Abstract:

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

Resource Link

<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: Analytical Models for Balloon-Type CLT Shear Walls

<https://research.thinkwood.com/en/permalink/catalogue1877>

Author: Zhiyong Chen
Samuel Cuerrier-Auclair
Marjan Popovski

Organization: FPInnovations

Year of Publication: 2018

Country of Publication: Canada

Format: Report

Material: CLT (Cross-Laminated Timber)

Application: Walls

Topic: Design and Systems

Keywords: Lateral Loads
Shear
Mass Timber

Language: English

Research Status: Complete

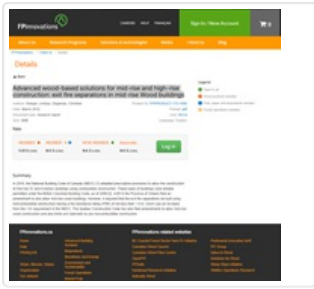
Abstract:

Lack of research and design information for the seismic performance of balloon-type CLT shear walls prevents CLT from being used as an acceptable solution to resist seismic loads in balloon-type mass-timber buildings. To quantify the performance of balloon-type CLT structures subjected to lateral loads and create the research background for future code implementation of balloon-type CLT systems in CSA O86 and NBCC, FPInnovations initiated a project to determine the behaviour of balloon-type CLT construction. A series of tests on balloon-type CLT walls and connections used in these walls were conducted. Analytical models were developed based on engineering principles and basic mechanics to predict the deflection and resistance of the balloon-type CLT shear walls. This report covers the work related to development of the analytical models and the tests on balloon-type CLT walls that the models were verified against.

Online Access: Free

Resource Link

<https://fpinnovations.ca/Extranet/Pages/AssetDetails.aspx?item=/Extranet/Assets/ResearchReportsWP/19625.pdf#>



Advanced Wood-Based Solutions for Mid-Rise and High-Rise Construction: Exit Fire Separations in Mid-Rise Wood Buildings

<https://research.thinkwood.com/en/permalink/catalogue1879>

Author: Lindsay Ranger
Christian Dagenais

Organization: FPInnovations

Year of Publication: 2018

Country of Publication: Canada

Format: Report

Application: Wood Building Systems

Topic: Fire
Design and Systems

Keywords: National Building Code of Canada
Combustible Material
Mid-Rise
Noncombustible Construction

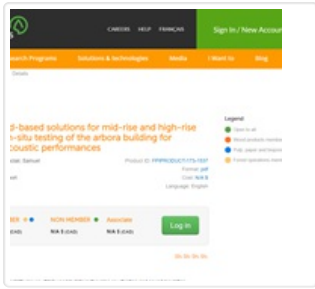
Language: English

Research Status: Complete

Online Access: Free

Resource Link

<https://fpinnovations.ca/Extranet/Pages/AssetDetails.aspx?item=/Extranet/Assets/ResearchReportsWP/16796.pdf#.XFyOgvlKiUk>



Advanced Wood-Based Solutions for Mid-Rise and High-Rise Construction: In-Situ Testing of The Arbora Building for Vibration and Acoustic Performances

<https://research.thinkwood.com/en/permalink/catalogue1179>

Author: Lin Hu
Samuel Cuerrier-Auclair

Organization: FPInnovations

Year of Publication: 2018

Country of Publication: Canada

Format: Report

Application: Wood Building Systems

Topic: Acoustics and Vibration
Design and Systems

Keywords: Sound Insulation
Tall Wood
Vibration Performance
Mid-Rise

Language: English

Research Status: Complete

Abstract:

This report addresses serviceability issues of tall wood buildings focusing on vibration and sound insulation performance. The sound insulation and vibration performance may not affect building's safety, but affects occupants' comfort and proper operation of the buildings and the function of sensitive equipment...

Online Access: Payment Required

Resource Link

<https://fpinnovations.ca/Extranet/Pages/AssetDetails.aspx?item=/Extranet/Assets/ResearchReportsWP/16779.pdf#.WymHSvKiUI>



Advanced Wood-Based Solutions for Mid-Rise and High-Rise Construction: Modelling of Timber Connections Under Force and Fire

<https://research.thinkwood.com/en/permalink/catalogue1473>

Author: Zhiyong Chen
Chun Ni
Christian Dagenais

Organization: FPInnovations

Year of Publication: 2018

Country of Publication: Canada

Format: Report

Material: LVL (Laminated Veneer Lumber)
Glulam (Glue-Laminated Timber)

Application: Beams

Topic: Connections
Fire
Seismic
Design and Systems

Keywords: Finite Element Model
Bolted Connection
Load-Displacement Curves

Language: English

Research Status: Complete

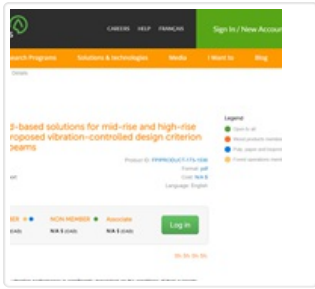
Abstract:

FPInnovations carried out a survey with consultants and researchers on the use of analytical models and software packages related to the analysis and design of mass timber buildings. The responses confirmed that a lack of suitable models and related...

Online Access: Payment Required

Resource Link

https://fpinnovations.ca/Extranet/Pages/AssetDetails.aspx?item=/Extranet/Assets/ResearchReportsWP/16794.pdf#.Wzz_ivlKiUI



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

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

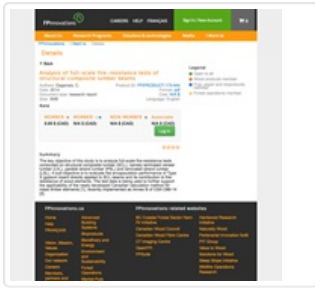
Abstract:

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

https://fpinnovations.ca/Extranet/Pages/AssetDetails.aspx?item=/Extranet/Assets/ResearchReportsWP/16802.pdf#.Wzz6h_IKiUI



Analysis of Full-Scale Fire-Resistance Tests of Structural Composite Lumber Beams

<https://research.thinkwood.com/en/permalink/catalogue366>

Author: Christian Dagenais
Organization: FPInnovations
Year of Publication: 2014
Country of Publication: Canada
Format: Report
Material: LSL (Laminated Strand Lumber)
LVL (Laminated Veneer Lumber)
PSL (Parallel Strand Lumber)
Application: Beams
Topic: Fire
Keywords: Encapsulation
Type X Gypsum Board
Fire Resistance
Full Scale
Language: English
Research Status: Complete

Abstract:

The key objective of this study is to analyze full-scale fire-resistance tests conducted on structural composite lumber (SCL), namely laminated veneer lumber (LVL), parallel strand lumber (PSL) and laminated strand lumber (LSL)...

Online Access: Payment Required

Resource Link

<https://fpinnovations.ca/Extranet/Pages/AssetDetails.aspx?item=/Extranet/Assets/ResearchReportsWP/E4914.pdf>



Assessing The Flammability of Mass Timber Components: A Review

<https://research.thinkwood.com/en/permalink/catalogue87>

Author: Jim Mehaffey
Christian Dagenais

Organization: FPInnovations

Year of Publication: 2014

Country of Publication: Canada

Format: Report

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

Application: Wood Building Systems

Topic: Fire

Keywords: National Building Code of Canada
Flame Spread
Model
Cone Calorimeter Testing
Buildings

Language: English

Research Status: Complete

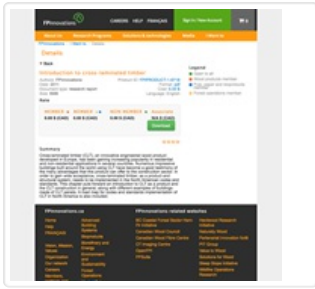
Abstract:

In recent decades, the wood industry has developed a number of innovative mass timber products. Among others, structural composite lumber (SCL) products, such as parallel strand lumber (PSL), laminated strand lumber (LSL) and laminated veneer lumber (LVL...

Online Access: Free

Resource Link

<http://www.bcfii.ca/system/files/reports/public/fii407-2013-14-fpinnovations-assessing-the-flammability-of-mass-timber-components-a-review.pdf> [↗](#)



Chapter 1: Introduction to Cross-Laminated Timber

<https://research.thinkwood.com/en/permalink/catalogue807>

Organization: FPInnovations
Year of Publication: 2011
Country of Publication: Canada
Format: Book Section
Material: CLT (Cross-Laminated Timber)
Application: General Application
Topic: General Information
Keywords: North America
Codes
Construction
Language: English
Research Status: Complete
Series: CLT Handbook - Canadian Edition

Abstract:

Cross-laminated timber (CLT), an innovative engineered wood product developed in Europe, has been gaining increasing popularity in residential and non-residential applications in several countries. Numerous impressive buildings built around the world...

Online Access: Free

Resource Link

<https://fpinnovations.ca/Extranet/Pages/AssetDetails.aspx?item=/Extranet/Assets/ResearchReportsWP/E4840.pdf#.WmtcWnanGUK>