

## Acoustic Testing and Wood Supply for Framework Office Building in Portland, OR

<https://research.thinkwood.com/en/permalink/catalogue1830>

Organization: ARUP  
StructureCraft  
InterTek

Year of Publication: 2017

Country of Publication: United States

Format: Report

Material: CLT (Cross-Laminated Timber)

Application: Floors  
Ceilings  
Walls  
Roofs  
Wood Building Systems

Topic: Acoustics and Vibration

Keywords: Sound Transmission  
Impact Noise Transmission  
Concrete Topping

Language: English

Research Status: Complete

Series: Framework: An Urban + Rural Design

**Abstract:**

- A. Shop Drawings and Details for Tests
- B. Sound and Impact Test Results Summary
- C. Test 1: Sound and Impact Transmission Test - CLT
- D. Test 2: Sound and Impact Transmission Test - Concrete Topping
- E. Test 3a: Sound and Impact Transmission Test - Marmoleum
- F. Test 3b: Sound and Impact Transmission Test - Marmoleum
- G. Test 4: Sound and Impact Transmission Test - Carpet
- H. Test 5a: Sound and Impact Transmission Test - Luxury Vinyl Plank
- I. Test 5b: Sound and Impact Transmission Test - Luxury Vinyl Plank
- J. Test 6: Sound and Impact Transmission Test - Mechanical Roof

Online Access: Free

**Resource Link**

<https://www.thinkwood.com/wp-content/uploads/2018/10/19-Framework-Acoustic-Testing-and-Wood-Supply.pdf>



# Calculative Cost and Process Analysis of Timber-Concrete-Composite Ceilings with Focus on Effort and Performance Values for Cost Calculations of Multi-Storey Timber Buildings

<https://research.thinkwood.com/en/permalink/catalogue1753>

Author: Joerg Koppelhuber  
Alexander Leitenbauer  
Detlef Heck

Year of Publication: 2016

Country of Publication: Austria

Format: Conference Paper

Material: Timber-Concrete Composite  
CLT (Cross-Laminated Timber)

Application: Ceilings

Topic: Cost

Keywords: Prefabrication  
Multi-Storey

Language: English

Conference: World Conference on Timber Engineering

Research Status: Complete

Notes: August 22-25, 2016, Vienna, Austria  
p. 5006-5014

## Abstract:

Composite structures use the advantages of two materials – timber and concrete – and improve the efficiency of a material application. Especially the concept of timber-concrete-composite ceilings has synergetic effects to achieve an effective ratio of thickness to span with high cost effectiveness simultaneously. Following the systematic...

Online Access: Free

## Resource Link

<http://repositum.tuwien.ac.at/obvutwoa/content/pageview/1650022> ↗



## Chapter 10: Building Enclosure Design for Cross-Laminated Timber Construction

<https://research.thinkwood.com/en/permalink/catalogue829>

Author: Samuel Glass  
Jieying Wang  
Steve Easley  
Graham Finch

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: Roofs  
Walls

Topic: Design and Systems  
Moisture

Keywords: Airflow  
Climate  
Heat  
Moisture Control  
Building Enclosure  
Exterior Walls

Language: English

Research Status: Complete

Series: CLT Handbook - US Edition

### Abstract:

Cross-laminated timber (CLT) was developed in Europe for the prefabricated construction of wall, roof, and flooring elements. Adaption of CLT for use in the United States requires consideration of the different climates, building codes, and construction methods in this country. ... This Chapter provides guidance on hear, air, and moisture control in wall and roof assemblies that utilize CLT panels in U.S. climate zones. The overarching strategies are to prevent wetting of CLT panels by using drained wall systems, to control airflow using an air barrier on the exterior of the CLT panels, to place rigid insulation to the exterior of the panels, to prevent moisture from accumulating within the panels, and to allow the panels to dry should they get wet. In certain climates, preservative treatment of CLT is recommended to provide additional protection against potential hazards such as decay and termites. ...

Online Access: Free

### Resource Link

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



## Connection and Performance of Two-Way CLT Plates

<https://research.thinkwood.com/en/permalink/catalogue1482>

Author: Chao Zhang  
George Lee  
Frank Lam

Organization: University of British Columbia

Year of Publication: 2018

Country of Publication: Canada

Format: Report

Material: CLT (Cross-Laminated Timber)

Application: Floors  
Roofs

Topic: Mechanical Properties  
Connections

Keywords: Two-Way  
Bending Test  
Modulus of Elasticity  
Self-Tapping Screws  
Glued-In-Rod  
Steel Connectors  
Steel Plates

Language: English

Research Status: Complete

### Abstract:

The two-way action of Cross Laminated Timber (CLT) is often ignored in the design of CLT due to its complexity. But in some cases, for example, large span timber floor/roof, the benefit of taking the two-way action into account may be considerable since it is often deflection controlled in the design...

Online Access: Free

### Resource Link

<http://team.forestry.ubc.ca/files/2018/05/TEAM-Report-2017-08-Connection-and-performance-of-Two-way-CLT-Plate.pdf>



## Cross-Laminated Timber in the U.S.: Potential Adopter Perceptions

<https://research.thinkwood.com/en/permalink/catalogue293>

Author: Maria Fernanda Laguarda Mallo  
Omar Espinoza

Publisher: Forest Products Society

Year of Publication: 2016

Country of Publication: United States

Format: Journal Article

Material: CLT (Cross-Laminated Timber)

Application: Walls  
Floors  
Roofs

Topic: Market and Adoption

Keywords: US  
Architects

Language: English

Research Status: Complete

Series: Wood Design Focus

Online Access: Free

### Resource Link

[http://ojs.cnr.ncsu.edu/index.php/BioRes/article/download/BioRes\\_11\\_1\\_281\\_Espinoza\\_Cross\\_Laminated\\_Timber\\_Europe/3996](http://ojs.cnr.ncsu.edu/index.php/BioRes/article/download/BioRes_11_1_281_Espinoza_Cross_Laminated_Timber_Europe/3996) ↗



## Experimental Testing and Numerical Validation of Cross-Laminated Timber Under Debris Impact Loading

<https://research.thinkwood.com/en/permalink/catalogue2056>

Author: Michael Stoner  
Weichi Pang

Year of Publication: 2018

Country of Publication: South Korea

Format: Conference Paper

Material: CLT (Cross-Laminated Timber)

Application: Walls  
Roofs

Topic: Mechanical Properties

Keywords: Numerical Model  
Debris Impact Testing  
Experimental Tests

Language: English

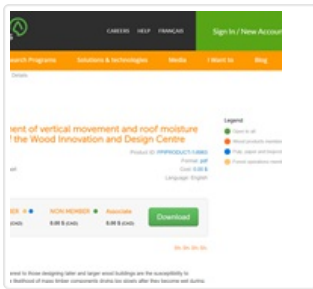
Conference: World Conference on Timber Engineering

Research Status: Complete

Online Access: Free

### Resource Link

<https://indico.conference4me.psnr.pl/event/171/session/328/contribution/51/material/paper/1.pdf>



# Field Measurement of Vertical Movement and Roof Moisture Performance of the Wood Innovation and Design Centre

<https://research.thinkwood.com/en/permalink/catalogue1182>

Author: Jieying Wang  
Organization: FPInnovations  
Year of Publication: 2018  
Country of Publication: Canada  
Format: Report  
Material: CLT (Cross-Laminated Timber)  
Glulam (Glue-Laminated Timber)  
PSL (Parallel Strand Lumber)  
Application: Wood Building Systems  
Roofs  
Topic: Serviceability  
Moisture  
Keywords: Vertical Movement  
Moisture Content  
Temperature  
Relative Humidity  
Monitoring  
Language: English  
Research Status: Complete  
Notes: Report is currently not available due to the redevelopment of FPInnovations' publications website.

## Abstract:

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 too slowly after they become wet during construction. The Wood Innovation and Design Centre in Prince George, British Columbia provides a unique opportunity for non-destructive...

Online Access: Free

## Resource Link

<https://fpinnovations.ca/Extranet/Pages/AssetDetails.aspx?item=/Extranet/Assets/ResearchReportsWP/16782.pdf#.WymL1PIKiUI>



## Field Measurement of Vertical Movement and Roof Moisture Performance of the Wood Innovation and Design Centre

<https://research.thinkwood.com/en/permalink/catalogue1638>

Author: Jieying Wang  
Eric Karsh  
Graham Finch  
Mingyuk Chen

Year of Publication: 2016

Country of Publication: Austria

Format: Conference Paper

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

Application: Roofs  
Wood Building Systems

Topic: Moisture  
Serviceability

Keywords: Moisture Content  
Vertical Movement  
Temperature  
Relative Humidity  
Monitoring

Language: English

Conference: World Conference on Timber Engineering

Research Status: Complete

Notes: August 22-25, 2016, Vienna, Austria  
p. 3152-3160

### Abstract:

The Wood Innovation and Design Centre (WIDC) in Prince George, British Columbia, with 6 tall storeys and a total height of 29.5 m, provided a unique opportunity for non-destructive testing and monitoring to measure the 'As Built' performance of a relatively tall mass timber building. The mass timber structural system consists of glulam columns and beams with cross laminated timber (CLT)...

Online Access: Free

### Resource Link

<http://repositum.tuwien.ac.at/obvutwoa/content/pageview/1649168> ↗





## Fire Demonstration: Cross-Laminated Timber Stair/Elevator Shaft

<https://research.thinkwood.com/en/permalink/catalogue1277>

Author: Joseph Su  
Saša Muradori

Organization: National Research Council of Canada

Year of Publication: 2015

Country of Publication: Canada

Publication: Report

Material: CLT (Cross-Laminated Timber)

Application: Floors  
Walls  
Shafts and Chases

Topic: Fire

Keywords: Origine  
Fire Resistance  
Exterior Walls

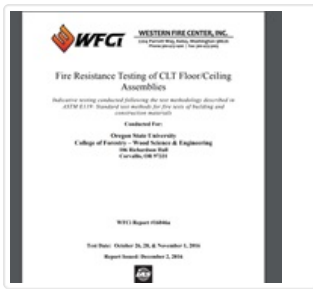
Language: English

Research Status: Complete

Online Access: Free

### Resource Link

<http://doi.org/10.4224/21277597>



## Fire Resistance Testing of CLT Floor/Ceiling Assemblies

<https://research.thinkwood.com/en/permalink/catalogue1721>

Organization: Oregon State University  
Year of Publication: 2016  
Country of Publication: United States  
Publication:  
Format: Report  
Material: CLT (Cross-Laminated Timber)  
Application: Ceilings  
Floors  
Topic: Fire  
Keywords: Fire Resistance  
Load Bearing  
Language: English  
Research Status: Complete  
Online Access: Free

### Resource Link

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<http://tallwoodinstitute.org/clt-fire-testing-reports> ↗