



Adhesive Bonding of Timber and Glass in Load-Bearing Facades - Evaluation of the Ageing Behaviour

<https://research.thinkwood.com/en/permalink/catalogue1742>

Author: Nicklisch, Felix
Weller, Bernhard

Year of Publication: 2016

Country of Publication: Austria

Format: Conference Paper

Material: Timber-Glass Composite

Application: Hybrid Building Systems

Topic: Connections
Serviceability

Keywords: Adhesives
Façade
Load Bearing

Language: English

Conference: World Conference on Timber Engineering

Research Status: Complete

Notes: August 22-25, 2016, Vienna, Austria
p. 4913-4920

Summary:

Wooden constructions are on the rise again – encouraged by a strong trend towards sustainable and resource efficient buildings. Load-bearing timber-glass composite elements – a novel concept to use the in-plane loadbearing potential of glass – could contribute to a more efficient use of materials in façades. The current study relates to...

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Advantages and Disadvantages of Timber Glass Composite Beams

<https://research.thinkwood.com/en/permalink/catalogue1764>

Author: Držecnik, Mateja
Premrov, Miroslav
Štrukelj, Andrej

Year of Publication: 2016

Country of Publication: Austria

Format: Conference Paper

Material: Timber-Glass Composite

Application: Beams

Topic: Design and Systems

Language: English

Conference: World Conference on Timber Engineering

Research Status: Complete

Notes: August 22-25, 2016, Vienna, Austria
p. 5199-5207

Summary:

Tendency in modern architecture is to increase the glass surface in buildings towards high living quality and low energy consumption. The main goal of this research is to describe the structural performance of glass components by joining the glass with supplementary material such as timber. Composite beams capable of carrying loads and resisting...

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Design and Dimensioning of a Complex Timber-Glass Hybrid Structure: The IFAM Pedestrian Bridge

<https://research.thinkwood.com/en/permalink/catalogue1797>

Author: Vallée, Till
Grunwald, Cordula
Milchert, Lena
Fecht, Simon

Publisher: Springer International Publishing

Year of Publication: 2016

Country of Publication: Switzerland

Format: Journal Article

Material: Timber-Glass Composite

Application: Bridges and Spans
Hybrid Building Systems
Wood Building Systems

Topic: Design and Systems

Keywords: Joint
Bonding
Standards
Codes
Adhesive Connection

Language: English

Research Status: Complete

Series: Glass Structures & Engineering

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Experimental and Numerical Investigations of Timber-Glass Shear Walls

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Author: Frangež, Rok
Ber, Boštjan
Premrov, Miroslav

Year of Publication: 2016

Country of Publication: Austria

Format: Conference Paper

Material: Timber-Glass Composite

Application: Shear Walls

Topic: Energy Performance
Mechanical Properties

Keywords: Finite Element Model
Load Bearing Capacity
Mechanical Tests
Racking Resistance
Adhesives
Polyurethane

Language: English

Conference: World Conference on Timber Engineering

Research Status: Complete

Notes: August 22-25, 2016, Vienna, Austria
p. 5191-5198

Summary:

Building large-sized glazing into timber walls has significantly grown over the last years, however when combined, the structural behaviour of both elements can be rather complicated. This is one of the major reasons for this investigation. In order to design energy-efficient timber-frame buildings with enlarged fixed glazing, it is of primary...

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Experimental Testing of Load-Bearing Timber–Glass Composite Shear Walls and Beams

<https://research.thinkwood.com/en/permalink/catalogue860>

Author: Kozłowski, Marcin
Dorn, Michael
Serrano, Erik

Publisher: Taylor&Francis Online

Year of Publication: 2015

Country of Publication: United Kingdom

Format: Journal Article

Material: Timber-Glass Composite

Application: Shear Walls
Beams

Keywords: Shear Loading
Vertical Loading
Adhesives
Four Point Bending Test
Load Carrying Capacity

Language: English

Research Status: Complete

Series: Wood Material Science & Engineering

Summary:

The paper presents results from the experimental testing of load-bearing timber–glass composite shear walls and beams. Shear wall specimens measuring 1200 × 2400 mm² manufactured with three adhesives of varying stiffness were tested. Twelve specimens with a single 10 mm thick glass pane and one specimen with an additional insulating glass unit were produced. The testing procedures involved various loading conditions: pure vertical load and different combinations of shear and vertical loading. The test results showed that the adhesive had only a minor influence on the buckling load which was the main failure mechanism. 240 mm high and 4800 mm long timber–glass beams manufactured with adhesives of different stiffness were tested. For the webs, two types of glass were used: annealed float and heat-strengthened glass, in both cases 8 mm thick panes were used. In total, 12 beams were tested in four-point bending until failure. Despite the considerable difference in adhesive stiffness, beam bending stiffness was similar. Concerning load-bearing capacity, the beams with heat-strengthened glass were approximately 50% stronger than the beams made using annealed float glass.

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<http://www.diva-portal.org/smash/get/diva2:852756/FULLTEXT02>



Geometrical Aspects for the Design of Prefabricated Load-Bearing Timber-Glass-Facades

<https://research.thinkwood.com/en/permalink/catalogue1746>

Author: Pascha, Khaled Saleh
Pascha, Vitalija
Winter, Wolfgang

Year of Publication: 2016

Country of Publication: Austria

Format: Conference Paper

Material: Timber-Glass Composite

Application: Hybrid Building Systems

Topic: Design and Systems
Mechanical Properties

Keywords: Façade
Prefabricated
Load-Bearing Capacity

Language: English

Conference: World Conference on Timber Engineering

Research Status: Complete

Notes: August 22-25, 2016, Vienna, Austria
p. 4947-4955

Summary:

The considerable increase in the architectural demands for highly transparent and load-bearing structures have recently resulted in the development of an innovative hybrid structure. This article provides a review of design parameters for Timber-Glass composite facades. The design/architectural question, which arose in the project, was how...

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Highly Energy Dissipative and Ductile Timber-Glass Hybrid Element

<https://research.thinkwood.com/en/permalink/catalogue1744>

Author: Rajcic, Vlatka
Žarnic, Roko

Year of Publication: 2016

Country of Publication: Austria

Format: Conference Paper

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

Application: Hybrid Building Systems

Topic: Mechanical Properties
Seismic

Keywords: Glued-In Rods
Ductility
Energy Dissipation
Vertical Loads
Cyclic Loads
Horizontal Loads
Racking Test
Stiffness

Language: English

Conference: World Conference on Timber Engineering

Research Status: Complete

Notes: August 22-25, 2016, Vienna, Austria
p. 4930-4937

Summary:

CLT frames infilled with load-bearing glass sheets represent an innovative, hybrid structural element that can serve as load-bearing panel carrying load in both vertical and lateral direction. It can be used as a part of the prefabricated timber house or as a strengthening structural element in an existing timber building or the supporting...

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Numerical Evaluation of Seismic Capacity of Structures with Hybrid Timber-Glass Panels

<https://research.thinkwood.com/en/permalink/catalogue1745>

Author: Barbalic, Jure
Rajcic, Vlatka

Year of Publication: 2016

Country of Publication: Austria

Format: Conference Paper

Material: Timber-Glass Composite

Topic: Mechanical Properties

Keywords: Seismic
Ductility
Panels
Strength
Stiffness
Energy Dissipation
Full Scale
Shaking Table Test
Eurocode 8

Language: English

Conference: World Conference on Timber Engineering

Research Status: Complete

Notes: August 22-25, 2016, Vienna, Austria
p. 4938-4946

Summary:

Fulfilment of conditions given by European design codes for structures in seismic regions presents a problem during the design of new and repairing of existing structures. Although there are various options, obvious choices are solutions which provide increase of rigidity and seismic capacity with minimal increase of structural mass...

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Timber-Glass Composite Beams: Experimental Study

<https://research.thinkwood.com/en/permalink/catalogue1748>

Author: Fadai, Alireza
Rinnhofer, Matthias
Winter, Wolfgang

Year of Publication: 2016

Country of Publication: Austria

Format: Conference Paper

Material: Timber-Glass Composite

Application: Beams

Topic: Connections
Mechanical Properties

Keywords: Load Bearing Capacity
Adhesives
Silicone
Epoxy
Strength
Stiffness

Language: English

Conference: World Conference on Timber Engineering

Research Status: Complete

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p. 4964-4971

Summary:

Glued glass fronts are extensively applied and meet the highest standards. The objective of several research projects was the development of stiffening glass fronts to replace expansive frameworks or wind bracings. Furthermore, the use of timber-glass composite (TGC) beams was investigated. Within the research project "Load Bearing TimberGlass...

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Timber-Glass Composite: Long-term Behavior

<https://research.thinkwood.com/en/permalink/catalogue1743>

Author: Fadai, Alireza
Nicklisch, Felix
Rinnhofer, Matthias

Year of Publication: 2016

Country of Publication: Austria

Format: Conference Paper

Material: Timber-Glass Composite

Application: Hybrid Building Systems

Topic: Serviceability
Mechanical Properties
Environmental Impact
Cost

Keywords: Stiffening
Multi-Story
Long-term
Load Bearing
Creep
Façade

Language: English

Conference: World Conference on Timber Engineering

Research Status: Complete

Notes: August 22-25, 2016, Vienna, Austria
p. 4921-4929

Summary:

Up to now, structural sealant glazing façades have been extensively applied. They are at the cutting edge of technology and meet the highest standards. The objective of several research projects was to develop stiffening glass fronts, which replace expensive frameworks or wind bracings behind the large glass windows. Thus, potential applications...

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