

WCTE 2014 CONFERENCE PROGRAM

MONDAY, AUGUST 11 - MORNING

HALL 200A		
WCTE/FPS OPENING AND PLENARY SESSION		
TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
08:30 – 08:45	WCTE/FPS Opening Ceremony	
08:45 – 09:15	Keynote 1. Québec: the City that Wood Built	Jean-Claude Mercier Canada
09:15 – 10:15	Keynote 2. Canadian Timber Renaissance	Robert Malczyk Equilibrium Consulting Inc., Canada
10:15 – 10:45	Special address from the Honourable Greg Rickford	Minister of Natural Resources and Minister for the Federal Economic Development Initiative for the Northern Ontario

HALL 200BC		
COFFEE BREAK - EXHIBITION AND POSTER DISPLAY		

HALL 206A		
MATERIALS AND PRODUCTS		
WCTE 1.1 MODERATOR		
CROSS-LAMINATED TIMBER I Frank Lam, University of British Columbia, Canada		
TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
11:00 – 11:20	Potential of CLT Produced from Non-Structural Grade Australian Pinus Radiata	Christophe Sigrist Bern University of Applied Sciences, Switzerland
11:20 – 11:40	Feasibility of Using Poplar as Cross Layer to Fabricate Cross-Laminated Timber	Meng Gong University of New Brunswick, Canada
11:40 – 12:00	Estimation of Bending Stiffness, Moment Carrying Capacity and Internal Shear Force of Sugi CLT Panel	Minoru Okabe Center for Better Living, Japan

HALL 206B		
CONNECTIONS		
WCTE 2.1 MODERATOR		
MOMENT RESISTING CONNECTIONS André Jorissen, Eindhoven University of Technology, The Netherlands		
TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
11:00 – 11:20	An Algorithm for the Shear Check of Dowelled Connections with Combined Moment and Lateral Loading	Panagiotis Patlakas Southampton Solent University, UK
11:20 – 11:40	Moment Resistance of Post-and-Beam Joints with Concealed Metallic Connectors	Sang-Joon Lee Korea Forest research Institute, Korea
11:40 – 12:00	Design Method for Coupled-Splice Timber Moment Connections	Pouyan Zarnani University of Auckland, New Zealand

HALL 204AB		
STRUCTURAL SYSTEMS		
WCTE 3.1 MODERATOR		
COMPOSITE SYSTEMS I Keith Crews, University of Technology Sydney, Australia		
TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
11:00 – 11:20	Development of Ultra-Thin Timber-Concrete Composite Upgrades	Jonathan Skinner Ramboll UK Ltd., UK
11:20 – 11:40	Linear Elastic Behaviour of T-Shaped Timber-to-Concrete Beam With Uncertain Parameters	Marc Oudjene Université de Lorraine, France
11:40 – 12:00	Timber-Steel Hybrid Beams for Multi-Storey Buildings: Design Criteria, Calculation and Tests	Wolfgang Winter Vienna University of Technology, Austria

MONDAY, AUGUST 11 - MORNING

HALL 205ABC	BUILDINGS AND STRUCTURES
WCTE 4.1 MODERATOR	INNOVATIVE STRUCTURES Iztok Sustersic, CBD, Slovenia

TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
11:00 – 11:20	Field Testing on Innovative Timber Structures	Claude Leyder ETH Zürich, Switzerland
11:20 – 11:40	A Modular Timber Construction System of Hollow-Box Elements	Roman Hausammann Bern University of Applied Sciences, Switzerland
11:40 – 12:00	Seismic Shaking Table Testing of Glass-Timber Buildings	Bostjan Ber Kager Hisa, Slovenia

HALL 202	SERVICEABILITY/FIRE SAFETY/REHABILITATION
WCTE 5.1 MODERATOR	SERVICEABILITY I Andrew Harmsworth, GHL Consultants Ltd., Canada

TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
11:00 – 11:20	Monitoring of Vertical Movement In a 5-Storey Wood Frame Building in Costal British Columbia	Jieying Wang FPInnovations, Canada
11:20 – 11:40	Structural Safety Thanks to Quality: Plan Robustness, Build with Checks, Monitor Permanently	Andreas Müller Bern University of Applied Sciences, Switzerland
11:40 – 12:00	Long-Term In-Situ Measurements of Displacement, Temperature and Relative Humidity in a Multi-Storey Residential CLT-Building	Erik Serrano Linnæus University, Sweden

HALL 200A	PAST, PRESENT AND FUTURE
WCTE 6.1 MODERATOR	ARCHITECTURAL ACHIEVEMENTS I Michael Flach, University of Innsbruck, Austria

TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
11:00 – 11:20	Glulam Structures in New Suspended Walkways in Brasília, Brazil	Roberto Lecomte De Mello Spirale Architecture, Brazil
11:20 – 11:40	Hollow Timber Poles: Te Wharehou O Tuhoe Living Building Challenge	Mark Batchelar mlb Consulting Engineers, New Zealand
11:40 – 12:00	South Hedland Performance Shell. South Hedland, Western Australia	Patrick Beale University of Western Australia, Australia

HALL 2000 HALL 200BC	LUNCH EXHIBITION AND POSTER DISPLAY
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MONDAY, AUGUST 11 - AFTERNOON

HALL 206A	MATERIALS AND PRODUCTS
WCTE 1.2 MODERATOR	CROSS-LAMINATED TIMBER II Christophe Sigrist, Bern University of Applied Sciences, Switzerland

TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
13:40 – 14:00	Efficient Measurement of Elastic Constants of Cross Laminated Timber Using Modal Testing	Jianhui Zhou University of New Brunswick, Canada
14:00 – 14:20	Diagonal Compression Test on Cross-Laminated Timber Panels	Roberto Tomasi University of Trento, Italy
14:20 – 14:40	Bending Strength of Cross Laminated Timber Beams Loaded in Plane	Marcus Flaig Karlsruhe Institute of Technology, Germany
14:40 – 15:00	Time-Dependent Behaviour of CLT	Ciprian Pirvu FPInnovations, Canada
15:00 – 15:20	Creep and Duration of Load Characteristics of Cross Laminated Timber	Shiro Nakajima Building Research Institute, Japan

HALL 206B	CONNECTIONS
WCTE 2.2 MODERATOR	CONNECTIONS PERFORMANCE I Pierre Quenneville, University of Auckland, New Zealand

TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
13:40 – 14:00	Fracture of Mortise Members Due to Changes in Peg Spacing in Timber Frame Joints	Daniel Hindman Virginia Tech, U.S.A.
14:00 – 14:20	Splitting of Beams Caused by Multiple Connections Along the Beam Span	Ad Leijten TU Eindhoven, The Netherlands
14:20 – 14:40	Effects of Self-Tapping Screws as Reinforcements in Beam Supports on the Determination of the Global Modulus of Elasticity in Bending	Roland Maderebner University of Innsbruck, Austria
14:40 – 15:00	Highly Efficient Strengthening of Local Load Introduction Areas of Engineering Wood Structures Using Polymer Concrete Grouting	Wolfram Haedicke Bauhaus University Weimar, Germany
15:00 – 15:20	Experimental and Numerical Analyses of Timber-Concrete Shear Connection	Abdelhamid Bouchair Université Blaise-Pascal, France

HALL 204AB	STRUCTURAL SYSTEMS
WCTE 3.2 MODERATOR	COMPOSITE SYSTEMS II Jochen Köhler, Norwegian University of Science and Technology, Norway

TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
13:40 – 14:00	Development of Large-Scale Load-Bearing Timber-Glass Structural Elements	Erik Serrano Linnæus University, Sweden
14:00 – 14:20	Experimental Investigation of the Bending Behaviour of Timber-to-Timber Composite-Section Beams	Sam Salem Lakehead University, Canada
14:20 – 14:40	Hollow Massive Timber Panels: A High-Performance, Long-Span Alternative to Cross-Laminated Timber	Weichiang Pang Clemson University, U.S.A.
14:40 – 15:00	Experimental Tests of Cross-Laminated Timber Floors for Timber-Steel Hybrid Structures	Cristiano Loss University of Trento, Italy
15:00 – 15:20	Keel-Web Element - Novel Wood-Based Lightweight Element for Wide Spans	Simon Aicher MPA University of Stuttgart, Germany

MONDAY, AUGUST 11 - AFTERNOON

HALL 205ABC	BUILDINGS AND STRUCTURES
WCTE 4.2 MODERATOR	BUILDINGS (SEISMIC) I Dan Dolan, Washington State University, U.S.A.

TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
13:40 – 14:00	Earthquake Response Estimation of Wooden House with New Brace Fastener	Tomoki Furuta Daiichi Institute of Technology, Japan
14:00 – 14:20	Enhancing Dynamic Performance of Lightweight Superstructures Using Supplementary Damping	Ebenezer Ussher University of New Brunswick, Canada
14:20 – 14:40	Multi-Scale Modelling of Timber-Frame Structures Under Seismic Loading	Laurent Daudeville Université Joseph-Fourier, France
14:40 – 15:00	Numerical Analysis of Timber-Frame Structures with Infill Under Seismic Loading	Florent Vieux-Champagne Université Joseph-Fourier, France
15:00 – 15:20	Seismic Analysis of Three-Hinge Glulam Tudor Arches Using the FEMA P-695 Methodology	Finley Charney Virginia Tech, U.S.A.

HALL 202	SERVICEABILITY/FIRE SAFETY/REHABILITATION
WCTE 5.2 MODERATOR	SERVICEABILITY II Andrea Frangi, ETH, Switzerland

TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
13:40 – 14:00	Modelling and Measurement of the Dynamic Performance of a Timber Concrete Composite Floor	Richard Hough Arup, Australia
14:00 – 14:20	Noise and Vibration Control of Light-Frame Wood Joist Floors Topped with Concrete	Lin Hu FPInnovations, Canada
14:20 – 14:40	Effect of End Support Conditions on the Vibrational Performance of Cross-Laminated Timber Floors	Saul Hernandez Maldonado University of New Brunswick, Canada
14:40 – 15:00	Assessment of Timber Floor Vibration Performance: a Case Study in Italy	Daniele Casagrande University of Trento, Italy
15:00 – 15:20	Vibration Serviceability Design Analysis of Cross-Laminated-Timber Floor Systems	Ebenezer Ussher University of New Brunswick, Canada

HALL 200A	PAST, PRESENT AND FUTURE
WCTE 6.2 MODERATOR	ARCHITECTURAL ACHIEVEMENTS II David Moses, Moses Structural Engineers Inc., Canada

TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
13:40 – 14:00	Swimming-Pool Building Made with X-Lam Panels	Alfredo Dias University of Coimbra, Portugal
14:00 – 14:20	Laminated Wooden Structure of the Gipsy Entertainment Centre in Moscow	Miljenko Haiman University of Zagreb, Croatia
14:20 – 14:40	Re-Building Trimble Navigation Offices Using a Damage-Limiting Seismic System	Andrew Brown Opus International Consultants, New Zealand
14:40 – 15:00	CESM Soccer Center in Montreal - Timber Engineering Case Study. Part I	Louis-Philippe Poirier SNC Lavalin, Canada
15:00 – 15:20	CESM Soccer Center in Montreal - Timber Engineering Case Study. Part II	Étienne Mondou Nordic Engineered Wood, Canada

HALL 200BC	COFFEE BREAK - EXHIBITION AND POSTER DISPLAY
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MONDAY, AUGUST 11 - AFTERNOON

HALL 206A	MATERIALS AND PRODUCTS	
WCTE 1.3 MODERATOR	CROSS-LAMINATED TIMBER III Daniel Hindman, Virginia Tech, U.S.A.	

TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
15:40 – 16:00	Effect of Growth Ring Orientation on the Rolling Shear Properties of Wooden Cross Layer Under Two-Plate Shear Test	Meng Gong University of New Brunswick, Canada
16:00 – 16:20	Evaluation of the In-Plane Shear Strength of CLT	Sylvain Gagnon FPInnovations, Canada
16:20 – 16:40	Evaluating Rolling Shear Strength Properties of Cross-Laminated Timber by Torsional Shear Tests and Bending Tests	Minghao Li University of Canterbury, New Zealand
16:40 – 17:00	Duration-of-Load Effect on the Rolling Shear Strength of Cross-Laminated Timber: Duration-of-Load Tests and Damage Accumulation Model	Yuan Li University of British Columbia, Canada

HALL 206B	CONNECTIONS	
WCTE 2.3 MODERATOR	CONNECTIONS PERFORMANCE II Pouyan Zarnani, University of Auckland, New Zealand	

TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
15:40 – 16:00	Use of Double-Threaded Self-Tapping Screws for In-Situ Repair of Cracked Timber Connections	Stephen Delahunty University of New Brunswick, Canada
16:00 – 16:20	Experimental Study on Nail Connection Performance of Stand-Based Wood Composites	Hyung Suk Lim University of British Columbia, Canada
16:20 – 16:40	Withdrawal of Axially Loaded Connectors from Timber Elements - Theory and Validation	Haris Stamatopoulos Norwegian University of Science and Technology, Norway
16:40 – 17:00	Investigation of Lumber Shear-Out in Tension Web Joints in Metal-Plate Connected Wood Trusses	Agron Gjinolli Universal AET, U.S.A.

HALL 204AB	STRUCTURAL SYSTEMS	
WCTE 3.3 MODERATOR	COMPOSITE SYSTEMS III Peggi Clouston, University of Massachusetts, U.S.A.	

TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
15:40 – 16:00	Long-Term Experimental Investigation of Timber Composite Beams in Cyclic Humidity Conditions	Keith Crews University of Technology, Sydney, Australia
16:00 – 16:20	Long-Term Performance of Adhesively Bonded Timber-Concrete-Composites	Thomas Tannert University of British Columbia, Canada
16:20 – 16:40	Determination of Damage Equivalent Factors for the Fatigue Design of Timber-Concrete Composite Road Bridges with Notched Connections	Katrin Stephan MPA University of Stuttgart, Germany
16:40 – 17:00	Fatigue Design of Wood-Concrete-Composite Systems	Leander Bathon , Wiesbaden University of Applied Sciences, Germany

MONDAY, AUGUST 11 - AFTERNOON

HALL 205ABC	BUILDINGS AND STRUCTURES	
WCTE 4.3 MODERATOR	BUILDINGS (SEISMIC) II John van de Lindt, Colorado State University, U.S.A.	

TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
15:40 – 16:00	Seismic Risk Reduction for Soft-Story Woodframe Buildings: Test Results and Retrofit Recommendations from the NEES-Soft Project	John van de Lindt Colorado State University, U.S.A.
16:00 – 16:20	Performance-Based Seismic Retrofit Methodology of Soft-Story Woodframe Buildings with Full-Scale Shake Table Test Validation	Pouria Bahmani Colorado State University, U.S.A.
16:20 – 16:40	Observed Performance of Soft-Story Woodframe Building Retrofitted with CLT Rocking Walls	Asif Iqbal Opus International Consultants, New Zealand
16:40 – 17:00	Seismic Performance of Distributed Knee-Brace (DKB) System as a Retrofit for Soft-Story Wood-Frame Buildings	Mikhail Gershfeld California State Polytech University, U.S.A.

HALL 202	SERVICEABILITY/FIRE SAFETY/REHABILITATION	
WCTE 5.3 MODERATOR	SERVICEABILITY III Erik Serrano, Linnæus University, Sweden	

TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
15:40 – 16:00	Experimental Evaluation of Vibration Propagation Characteristics of a Timber House	Seiichiro Ukyo Forestry and Forest Products Research Institute, Japan
16:00 – 16:20	Model Calibration of Wooden Structure Assemblies - Using EMA and FEA	Åsa Bolmsvik Linnæus University, Sweden
16:20 – 16:40	Ambient Vibration Testing and Modal Analysis of Multi-Storey Cross-Laminated Timber Buildings	Thomas Reynolds University of Bath, UK
16:40 – 17:00	The Risk Basis for Height and Area Limits in North American Building Codes	Keith Calder Sereca Fire Consulting Ltd., Canada

HALL 200A	PAST, PRESENT AND FUTURE	
WCTE 6.3 MODERATOR	ARCHITECTURAL ACHIEVEMENTS III Gary Williams, Timber Systems Limited, Canada	

TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
15:40 – 16:00	Wooden Structures in Brasil: Present Situation and Perspectives	Helio Olga Souza Jr. Ita Construtora Ltda, Brazil
16:00 – 16:20	A Study on Historical Tall Wood Buildings in Canada	Kenneth Koo FPInnovations, Canada
16:20 – 16:40	Massive Wood Use in Institutional Buildings: Lessons Learned from 3 Recent Case Studies	Marie-Odile Marceau McFarlane Marceau Architects, Canada
16:40 – 17:00	Wood as a Core Strategy to Win an Architectural Competition	Normand Hudon Coarchitecture, Canada

WCTE WELCOME RECEPTION	Musée de la Civilisation	
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TUESDAY, AUGUST 12 - MORNING

HALL 200A		
WCTE/FPS PLENARY SESSION		
TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
08:30 – 08:45	Housekeeping	
08:45 - 09:45	Keynote 3. Wood Products and Construction; a Cornerstone of the Emerging Bio-Economy	Ian de la Roche Canada

HALL 200BC		
COFFEE BREAK - EXHIBITION AND POSTER DISPLAY		

HALL 206A		
MATERIALS AND PRODUCTS		
WCTE 1.4 MODERATOR		
GRADING AND QUALITY CONTROL Helen Griffin, Canadian Wood Council, Canada		
TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
10:20 – 10:40	Three Dimensional Fibre Orientation Models for Wood Based on Laser Scanning Utilizing the Tracheid Effect	Anders Olsson Linnæus University, Sweden
10:40 – 11:00	Strength Grading of Timber in Europe with Regard to Different Grading Methods	Peter Stapel Technische Universität München, Germany
11:00 – 11:20	Safety of Timber – An Analysis of Quality Control Options	Andriy Kovryga Technische Universität München, Germany
11:20 – 11:40	Maintenance Procedures for North American Visually-Graded Dimension Lumber Design Values	David Kretschmann USDA FS Forest Products Laboratory, U.S.A.
11:40 – 12:00	Structural (Performance) Class Potential for North America	Eric Jones Canadian Wood Council, Canada

HALL 206B		
CONNECTIONS		
WCTE 2.4 MODERATOR		
INNOVATIVE CONNECTIONS I Hans Blass, Karlsruhe Institute of Technology, Germany		
TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
10:20 – 10:40	Behaviour of Bond Lines in DVW Reinforced Timber Connections	Daniel Brandon, University of Bath, UK
10:40 – 11:00	Joint with Large Diameter Fastener Constructed for Large Span Truss Girders	Miljenko Haiman, University of Zagreb, Croatia
11:00 – 11:20	Novel Steel Tube Connection for Hybrid Systems	Johannes Schneider University of British Columbia, Canada
11:20 – 11:40	High-Performance Timber Composite Joints for Spatial Round Wood Truss Structures	Kay-Uwe Schober Mainz University of Applied Sciences, Germany
11:40 – 12:00	Hybrid Joints with Casted Concrete for Timber Truss Girders	Peer Haller Dresden University of Technology, Germany

HALL 204AB		
STRUCTURAL SYSTEMS		
WCTE 3.4 MODERATOR		
TRADITIONAL STRUCTURES Richard Harris, University of Bath, UK		
TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
10:20 – 10:40	Traditional Timber Frames	André Jorissen Eindhoven Univ. of Technology, The Netherlands
10:40 – 11:00	Sensitivity of Timber Hyperstatic Frames to the Stiffness of Step and Ridge Joints	Thierry Descamps, Université du Mons, Belgique
11:00 – 11:20	Theoretical and Experimental Study of Traditional Japanese Cogged Joint	Keita Ogawa, Nagoya Université, Japan
11:20 – 11:40	Seismic Resisting Mechanism and Formulations of Traditional Wooden Joints with Wedges	Hideaki Tanahashi Ritsumeikan University, Japan
11:40 – 12:00	Blockhaus System: Experimental Characterization of Corner Joints and Shear Walls	Roberto Tomasi University of Trento, Italy

TUESDAY, AUGUST 12 - MORNING

HALL 205ABC	BUILDINGS AND STRUCTURES	
WCTE 4.4 MODERATOR	TALL BUILDINGS I (CANADIAN GUIDE) Erol Karacabeyli, FPInnovations, Canada	

TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
10:20 – 10:40	Design and Construction of Tall Wood Buildings: Input Data, Testing and Advanced Analysis	Mohammad Mohammad FPInnovations, Canada
10:40 – 11:00	Design and Construction of Tall Wood Buildings: A Guide for Fire-Safety Design	Andrew Harmsworth GHL Consultants Ltd., Canada
11:00 – 11:20	Design and Construction of Tall Wood Buildings: Framework for Quality Assurance of Glued Wood Components Fabricated on Site	Ciprian Pirvu FPInnovations, Canada
11:20 – 11:40	Design and Construction of Tall Wood Buildings: A Guide for Prefabrication and Inspection of Assemblies	Bernhard Gafner Fast + Epp Structural Engineers, Canada
11:40 – 12:00	Design and Construction of Tall Wood Buildings: A Guide For Building Enclosure Design	Jieying Wang FPInnovations, Canada

HALL 202	SERVICEABILITY/FIRE SAFETY/REHABILITATION	
WCTE 5.4 MODERATOR	FIRE SAFETY I Joseph Su, National Research Council, Canada	

TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
10:20 – 10:40	Behaviour of Coated Wood Tested in a Cone Calorimeter	Josef Kögl University of Innsbruck, Austria
10:40 – 11:00	Charring Rate of Intumescent Fire Protective Coated Norway Spruce	Josef Kögl University of Innsbruck, Austria
11:00 – 11:20	Capacity Prediction of Bonded Beech Joints Under Normal and Elevated Temperatures	Till Valée Fraunhofer IFAM, Germany
11:20 – 11:40	Thermo-Mechanical Behavior of Timber in Shear: An Experimental Study	Abdelhamid Bouchair Université Blaise-Pascal, France
11:40 – 12:00	Fire Resistance of Primary Beam – Secondary Beam Connections in Timber Structures	Stefan Winter Technische Universität München, Germany

HALL 200A	PAST, PRESENT AND FUTURE	
WCTE 6.4 MODERATOR	DESIGN AND DESIGN TOOLS Alfredo Dias, University of Coimbra, Portugal	

TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
10:20 – 10:40	Design of Multi-Story Timber Building Using Multi-Objective Particle Swarm Optimization	Stephanie Armand Decker Université de Bordeaux, France
10:40 – 11:00	Ökonflex IT-Tool For Configuring Wooden House Constructions	Anton Kraler University of Innsbruck, Austria
11:00 – 11:20	A Form Finding Method for Post Formed Timber Grid Shell Structures	Bernardino D'Amico Edinburgh Napier University, UK
11:20 – 12:00	Beyond Endurance: Modular Prefab Timber Façades – Sustainable PlusEnergy Strategies for Wooden Cladding Systems in Multi-Storey Timber Buildings	Magnus Larsson Ordinary Ltd., UK

HALL 2000	GUEST LECTURE	
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TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
12:30 – 13:00	The Role of Forest Products in Sustainable Building for a Green Economy of the Future	Paola Deda UNECE/FAO, Switzerland

TUESDAY, AUGUST 12 - AFTERNOON

HALL 206A	MATERIALS AND PRODUCTS	
WCTE 1.5 MODERATOR	STRUCTURAL PERFORMANCE I David Carradine, Branz, New Zealand	

TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
13:40 – 14:00	The Behaviour of Plank (Tongue and Groove) Wood Decking Systems Under the Effects of Concentrated Load	Kevin Rocchi University of Ottawa, Canada
14:00 – 14:20	Composite Action Evaluation for Modern Pre-fabricated Wood I-Joist Floor Systems	Ned Waltz Weyerhaeuser, U.S.A.
14:20 – 14:40	Sandwich Panels with Holes	André Jorissen Eindhoven UT, The Netherlands
14:40 – 15:00	Effect of Round Holes in High Shear Zones of Laminated Veneer Lumber	Peggi Clouston University of Massachusetts, U.S.A.
15:00 – 15:20	Experimental Analysis of Slender Timber Columns of Pinus SPP	Jorge Daniel De Melo Moura Londrina State University, Brazil

HALL 206B	CONNECTIONS	
WCTE 2.5 MODERATOR	INNOVATIVE CONNECTIONS II Peer Haller, Dresden University of Technology, Germany	

TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
13:40 – 14:00	Load-Slip Behaviour of Timber-to-Concrete Connections Reinforced with Punched Metal Plate	El-Mahdi Meghlat University of Tizi-Ouzou, Algeria
14:00 – 14:20	Performance of an Innovative Roof to Top Plate Connection	Matthew Lovell Rose-Hulman Institute of Technology, U.S.A.
14:20 – 14:40	Evaluation on Dynamic Performance of Glulam Frame Structure Composed of Slotted Bolted Connection System	Kohei Komatsu Kyoto University, Japan
14:40 – 15:00	An Innovative Connection System for CLT Structures: Experimental – Numerical Analysis	Albino Angeli Rothoblaas, Italy
15:00 – 15:20	SHERPA-CLT-Connector for Cross-Laminated Timber (CLT) Elements	Anton Kraller University of Innsbruck, Austria

HALL 204AB	STRUCTURAL SYSTEMS	
WCTE 3.5 MODERATOR	LIGHT FRAME (SEISMIC) Ghasan Doudak, University of Ottawa, Canada	

TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
13:40 – 14:00	Analysis of Engineered Design Provisions for Perforated Shear Walls	Daniel Lawless DrJ Engineering, U.S.A.
14:00 – 14:20	Semi Rigidity of Traditional Timber Floors – Modelling Aspects of Horizontal Diaphragms for Seismic Loading	Eric Fournely Université Blaise-Pascal, France
14:20 – 14:40	Distribution of Chord Forces in Large Panelized Wood Roof Diaphragms	Weichi Pang Clemson University, U.S.A.
14:40 – 15:00	Simulation of the Lateral Drift of Multi-Storey Light Wood Frame Buildings Based on a Modified Macro-Element Model	Zhiyong Chen University of New Brunswick, Canada
15:00 – 15:20	Design of Wood Frame and Podium Structures Using Linear Dynamic Analysis	Grant Newfield RJC Consulting Engineers, Canada

TUESDAY, AUGUST 12 - AFTERNOON

HALL 205ABC	BUILDINGS AND STRUCTURES
WCTE 4.5 MODERATOR	TALL BUILDINGS II Robert Malczyk, Equilibrium Consulting Inc., Canada

TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
13:40 – 14:00	Wind-Induced Vibration of Mid- to High-Rise Wood Buildings – Is it an Issue?	Lin Hu FPInnovations, Canada
14:00 – 14:20	Nearly High-Rise Timber Buildings in Germany - Projects, Experiences and Further Development	Stefan Winter Technische Universität München, Germany
14:20 – 14:40	Integrating Cross-Laminated Timber Panels to Construct Buildings to 20 Levels	John Chapman University of Auckland, New Zealand
14:40 – 15:00	Wind-Induced Motions of "Treet" - A 14-Storey Timber Residential Building in Norway	Magne Bjertnæs Sweco Norway, Norway
15:00 – 15:20	Structural Design and Assembly of "Treet" - A 14-Storey Timber Residential Building in Norway	Rune B. Abrahamsen Sweco Norway, Norway

HALL 202	SERVICEABILITY/FIRE SAFETY/REHABILITATION
WCTE 5.5 MODERATOR	FIRE SAFETY II Christian Dagenais, FPInnovations, Canada

TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
13:40 – 14:00	Behaviour of Non-Metallic Shear Connections in Fire	Daniel Brandon University of Bath, UK
14:00 – 14:20	Fire Resistance of Metal-Plate-Connected Wood Trusses in the Floor Assemblies	Hisa Takeda LGS Canada, Canada
14:20 – 14:40	Fire Resistance Tests of Wall Assemblies for Use in Lower Storeys of Mid-Rise Wood Buildings	Joseph Su National Research Council, Canada
14:40 – 15:00	Shear Strength of LVL Box Beams in Fire Conditions	Andrew Buchanan University of Canterbury, New Zealand
15:00 – 15:20	Predicting the Fire Performance of Small, Exposed Wood Members	Jason Smart American Wood Council, U.S.A.

HALL 200A	PAST, PRESENT AND FUTURE
WCTE 6.5 MODERATOR	TRENDS IN WOOD CONSTRUCTION I Wolfgang Winter, Vienna University of Technology, Austria

TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
13:40 – 14:00	Timber Structures in Brazil: Past, Present and Future	Carlito Calil Junior University of São Paulo, Brazil
14:00 – 14:20	Smart Cites in Wood, Strategies and Recommendations to Prepare the Timber Industry	Michael Flach University of Innsbruck, Austria
14:20 – 14:40	Strategies and Policies Implemented in Québec to Support the Increased Use of Wood in Non-Residential Construction	Louis Poliquin cecobois, Canada
14:40 – 15:00	Construction Value Pathways: Trends and Research Results	Paul Lansbergen Forest Products Association of Canada, Canada

HALL 200BC	COFFEE BREAK - EXHIBITION AND POSTER DISPLAY
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TUESDAY, AUGUST 12 - AFTERNOON

HALL 206A	MATERIALS AND PRODUCTS
WCTE 1.6 MODERATOR	STRUCTURAL PERFORMANCE II Tomi Toratti, Finnish Construction Industries, Finland

TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
15:40 – 16:00	Characterizing Influence of Laminate Characteristics on Elastic Properties of Single-Layer of Cross-Laminated Timber	Jan Niederwestberg University of New Brunswick, Canada
16:00 – 16:20	Load Carrying Behaviour of Naturally Grown Round Wood	Matthias Frese Karlsruhe Institute of Technology, Germany
16:20 – 16:40	Modeling Longitudinal Tensile Failure Load of Larix Gmelinii Finger-Jointed Lumber	Haiqing Ren Chinese Academy of Forestry, China
16:40 – 17:00	Investigations to the Compression Strength Perpendicular to the Grain of Spruce Wood Depending on the Loading Situation and Comparisons with Current Standards	Clemens Le Leve University of Innsbruck, Austria
17:00 – 17:20	Investigation on Elements Presenting Cracks in Timber Structures	Steffen Franke Bern University of Applied Sciences, Switzerland

HALL 206B	CONNECTIONS
WCTE 2.6 MODERATOR	CONNECTIONS DESIGN I Thomas Tannert, University of British Columbia, Canada

TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
15:40 – 16:00	Reliability Study for Performance of Timber Roof Connections Under Wind Forces	Geoff Boughton TimberED Services, Australia
16:00 – 16:20	Directional Dependency in an OSB Sheathing-to-Framing Mechanical Connection	Johan Vessby Linnæus University, Sweden
16:20 – 16:40	Design of Multiple-Bolted Connections for Laminated Veneer Lumber	Borjen Yeh APA - The Engineered Wood Association, U.S.A.
16:40 – 17:00	Four Dowels in a Column Compared to a One Dowel Connection	Jan Siem Norwegian University of Science and Technology, Norway
17:00 – 17:20	Mechanical Behavior of Bolted Glulam Beam-to-Column Connections	Xiaobin Song Tongji University, China

HALL 204AB	STRUCTURAL SYSTEMS
WCTE 3.6 MODERATOR	CLT STRUCTURES Ario Ceccotti, National Research Council, Italy

TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
15:40 – 16:00	Mechanically Jointed CLT Panels for Wall, Floor and Timber-Concrete Composite Structures	Petr Kuklik Czech Technical University in Prague, Czech Republic
16:00 – 16:20	Racking Resistance and Ductility of CLT Shear Walls Under Horizontal and Vertical Loads	Motoi Yasumura Shizuoka University, Japan
16:20 – 16:40	Lateral Loading Tests on CLT Shear Walls by Assembly of Narrow Panels and by a Large Panel with an Opening	Naohito Kawai Kogakuin University, Japan
16:40 – 17:00	Performance of Two-Storey CLT House Subjected to Lateral Loads	Marjan Popovski FPInnovations, Canada
17:00 – 17:20	Dynamic and Static Lateral Load Tests on Full-Sized 3-Storey CLT Construction for Seismic Design	Takahiro Tsuchimoto Building Research Institute, Japan

TUESDAY, AUGUST 12 - AFTERNOON

HALL 205ABC	BUILDINGS AND STRUCTURES	
WCTE 4.6 MODERATOR	ASSESSMENT / UPGRADING Kjell A. Malo, Norwegian University of Science and Technology, Norway	
TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
15:40 – 16:00	Lightweight Deck Replacement Systems for Historic Covered Timber Bridges	James Wacker USDA FS Forest Products Laboratory, U.S.A.
16:00 – 16:20	Structural Properties Evaluation of Unique Boat House Using Oblique Nuki	Yasuhiro Hayashi Kyoto University, Japan
16:20 – 16:40	The Proof Loading vs. Duration of Load Effects in Regard to the Reassessment of Timber Structures	Jochen Köhler Norwegian University of Science and Technology, Norway
16:40 – 17:00	Lateral Load Tests of Houses Damaged in the Christchurch New Zealand Earthquakes	Hugh Morris University of Auckland, New Zealand
17:00 – 17:20	Wood Gives New Life to a Concrete Colossus	Ana Golmajer CBD, Slovenia

HALL 202	SERVICEABILITY/FIRE SAFETY/REHABILITATION	
WCTE 5.6 MODERATOR	FIRE SAFETY III Andrew Buchanan, University of Canterbury, New Zealand	
TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
15:40 – 16:00	Implementation of Fully Coupled Heat and Mass Transport Model to Determine the Behaviour of Timber Elements in Fire	Tomaz Hozjan University of Ljubljana, Slovenia
16:00 – 16:20	Fire Behaviour of Large Scale Wooden Roof Structures	Veronika Hofmann Technische Universität München, Germany
16:20 – 16:40	Fire Resistance of Light Timber Frame Wall and Floor Assemblies	Petr Kuklík Czech Technical University in Prague, Czech Republic
16:40 – 17:00	Full-Scale Fire Tests of 3-Storey Wooden School Building	Yuji Hasemi Waseda University, Japan
17:00 – 17:20	Development of a Canadian Fire-Resistance Design Method for Massive Wood Members	Christian Dagenais FPIInnovations, Canada

HALL 200A	PAST, PRESENT AND FUTURE	
WCTE 6.6 MODERATOR	TRENDS IN WOOD CONSTRUCTION II Carlito Calil Junior, University of São Paulo, Brazil	
TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
15:40 – 16:00	Hybridised Australian Cross-Laminated Timber (ACLT) and Orientated Strand Board (OSB) Wall Panels – A Case Study	David Bylund University of Western Australia, Australia
16:00 – 16:20	Development of Southern Pine Cross-Laminated Timber for Building Code Acceptance	Daniel Hindman Virginia Tech, U.S.A.
16:20 – 16:40	Cortical Concepts: Advanced Membranes for the Timber Age – Innovative Façades for Multi-Storey Timber Buildings	Alex Kaiser Ordinary Ltd., UK
16:40 – 17:00	Wood-Based Construction in Urban Context - Optimization Concepts for Increased Resource Efficiency	Wolfgang Winter Vienna University of Technology, Austria

WEDNESDAY, AUGUST 13 - MORNING

HALL 200A		
WCTE/FPS PLENARY SESSION		
TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
08:30 – 08:45	Housekeeping	
08:45 – 09:45	Keynote 4. Taking the “Frame” out of “Timber Frame”. Earthquake Resilience in Buildings with Weak Frames	Randolph Langenbach U.S.A.

HALL 200BC		
COFFEE BREAK - EXHIBITION AND POSTER DISPLAY		

HALL 206A		
MATERIALS AND PRODUCTS		
WCTE 1.7 MODERATOR		
GLUED-LAMINATED TIMBER Borjen Yeh, APA-The Engineered Wood Association, U.S.A.		
TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
10:20 – 10:40	Bamboo Reinforced Glulam Beams: An Alternative to Punched Metal Plate, GFRP and CFRP Reinforced Glulam Beams	César Echavarría Universidad Nacional de Colombia, Colombia
10:40 – 11:00	Composite Elements of Basalt Fibre Rods and Low-Grade Glulam	Gary Raftery University of Auckland, New Zealand
11:00 – 11:20	Flexural Response of Glued-Laminated (Glulam) Beams Subjected to Blast Loads	Daniel Lacroix, University of Ottawa, Canada
11:20 – 11:40	Remaining Load-Bearing Behaviour of Glued-Laminated Timber Beams – Potential in Respect to Structural Robustness	Jochen Köhler NTNU, Norway
11:40 – 12:00	Identification of Weak Sections in Glulam Beams Using Calculated Stiffness Profiles Based on Lamination Surface Scanning	Jan Oscarsson SP Technical Research Institute of Sweden, Sweden

HALL 206B		
CONNECTIONS		
WCTE 2.7 MODERATOR		
CONNECTIONS DESIGN II Douglas Rammer, USDA FS Forest Products Laboratory, U.S.A.		
TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
10:20 – 10:40	Design Equations for Dowel Embedment Strength and Withdrawal Resistance for Threaded Fasteners in CLT	Shawn Kennedy Université Laval, Canada
10:40 – 11:00	Influencing Parameters on the Experimental Determination of the Withdrawal Capacity of Self-Tapping Screws	Andreas Ringhofer Graz University of Technology, Austria
11:00 – 11:20	Metal Work Used in Timber Engineering	Petr Sejkot Czech Technical Univ. in Prague, Czech Republic
11:20 – 11:40	Failure Modes In CLT Connections	Mohammad Mohammad, FPInnovations, Canada
11:40 – 12:00	Shear Properties of Timber-to-Timber Joints with Large Size Self-Tapping Screws	Kenji Kobayashi, Shizuoka University, Japan

HALL 204AB		
STRUCTURAL SYSTEMS		
WCTE 3.7 MODERATOR		
CLT MULTISTOREY STRUCTURES Motoi Yasumura, Shizuoka University, Japan		
TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
10:20 – 10:40	An Analytical Estimation on Seismic Performance of 3 Story Construction with “Sugi” CLT Panels Depending on Connection Properties	Tatauya Miyake Nihon System Sekkei Architects & Engineers, Japan
10:40 – 11:00	Non-Linear Modelling of the Three and Seven Storey X-Lam Buildings Tested Within the SOFIE Project	Massimo Fragiocomo University of Sassari, Italy
11:00 – 11:20	Application of Translational Tuned-Mass Dampers on Seven Storey Building Tested Within the SOFIE Project	Massimo Fragiocomo University of Sassari, Italy
11:20 – 11:40	Structural Characterization of Multi-Storey Buildings with CLT Cores	Davide Trutalli University of Padua, Italy
11:40 – 12:00	Progress on the Development of Seismic Resilient Tall CLT Buildings in the Pacific Northwest	Shiling Pei Colorado School of Mines, U.S.A.

WEDNESDAY, AUGUST 13 - MORNING

HALL 205ABC	BUILDINGS AND STRUCTURES	
WCTE 4.7 MODERATOR	DESIGN CODES Marjan Popovski, FPInnovations, Canada	

TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
10:20 – 10:40	Design of Timber Structures in a Digital World	Kolbein Bell Norwegian University of Science and Technology, Norway
10:40 – 11:00	Partial Factors Versus Design Values	Tuomo Poutanen TU Tampere, Finland
11:00 – 11:20	An Approach for Estimating Seismic Force Modification Factor of Hybrid Building Systems	Zhiyong Chen University of New Brunswick, Canada
11:20 – 11:40	Specific Design of Light Timber Framed Multi-Storey Buildings for New Zealand	David Carradine BRANZ, New Zealand
11:40 – 12:00	Design of a 6-Storey Light-Frame Timber Building in Québec City	François Charette cecobois, Canada

HALL 202	SERVICEABILITY/FIRE SAFETY/REHABILITATION	
WCTE 5.7 MODERATOR	FIRE SAFETY IV Stefan Winter, München Technische Universität, Germany	

TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
10:20 – 10:40	Numerical-Simulation Research on Building-Facade Geometry and its Effect on Fire Propagation in Wooden Facades	María Pilar Giraldo Catalan Institute of Wood, Spain
10:40 – 11:00	Reliability of Sprinkler Systems During and After a Seismic Event and Application to Tall Wood Buildings	Andrew Harmsworth GHL Consultants Ltd., Canada
11:00 – 11:20	Fire Risk Evaluation Methods for Wood-Based Construction in Urban Context	Wolfgang Winter Vienna University of Technology, Austria
11:20 – 11:40	Fire Safety Challenges of Tall Wood Buildings	Robert Gerard Arup, U.S.A.
11:40 – 12:00	Contemporary Mid-Rise Timber Buildings in Japan, 2013	Mikio Koshihara University of Tokyo, Japan

HALL 200A	PAST, PRESENT AND FUTURE	
WCTE 6.7 MODERATOR	BUILDING ENVELOPE Caroline Frenette, cecobois, Canada	

TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
10:20 – 10:40	Modeling of the Hygroscopic Behavior of Coated Wood Panels Submitted to Accelerated Aging	Jérôme Dopeux Plateforme technologique Bois-Construction du Limousin, France
10:40 – 11:00	Prediction Models of the Water Vapor Diffusion Behavior of Wood-Based Panels	Norbert Ruether Fraunhofer Institute for Wood Research, Germany
11:00 – 11:20	Sustainable Wooden Envelope for Subtropical Regions – The Realization and Validation in Japan	Yutaka Goto TU Chalmers, Sweden
11:20 – 11:40	Cross-Laminated Timber: Towards a Consistent Structural Insulated Panel for Passive Buildings In Belgium	Vladimir Rodríguez Trujillo Calatan Institute of Wood, Spain
11:40 – 12:00	Multi-Storey Residential Buildings in CLT – Interdisciplinary Principles of Design and Construction	Andreas Ringhofer Graz University of Technology, Austria

HALL 2000 HALL 200BC	LUNCH EXHIBITION AND POSTER DISPLAY	
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WEDNESDAY, AUGUST 13 - AFTERNOON

HALL 206A	MATERIALS AND PRODUCTS	
WCTE 1.8 MODERATOR	HARDWOOD PRODUCTS David Kretschmann, USDA FS Forest Products Laboratory, U.S.A.	

TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
13:40 – 14:00	Analysis of Finger Joints from Beech Wood	Bettina Franke Bern University of Applied Sciences, Switzerland
14:00 – 14:20	Experimental Study of Multi-Layered Beams Made of Beech Timber Glued with Different Adhesives	Marc Oudjene Université de Lorraine, France
14:20 – 14:40	Structural Light Weight Construction Panel Based on Beech Wood	Martin Lehmann Bern University of Applied Sciences, Switzerland
14:40 – 15:00	Investigation of Hardwood Cross-Laminated Timber Design	Joseph Loferski Virginia Tech, U.S.A.
15:00 – 15:20	Hardwood Glulams - Emerging Timber Products of Superior Mechanical Properties	Zachary Christian MPA University of Stuttgart, Germany

HALL 206B	CONNECTIONS	
WCTE 2.8 MODERATOR	CLT CONNECTIONS Mohammad Mohammad, FPInnovations, Canada	

TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
13:40 – 14:00	Mechanical Behaviour of Dovetail Connections for Cross-Laminated Timber Wall Elements	Josef Kögl University of Innsbruck, Austria
14:00 – 14:20	High Performance Cross-Laminated Timber Shear Connection with Self-Tapping Screw Assemblies	Ilana Danzig Equilibrium Consulting Inc, Canada
14:20 – 14:40	Screwed Joints in Cross-Laminated Timber Structures	Georg Flatscher Graz University of Technology, Austria
14:40 – 15:00	Pull-Out Strength Properties of Lagscrewbolt Connection in Cross-Laminated Timber	Takuro Mori University of British Columbia, Canada
15:00 – 15:20	Numerical Simulation for the Seismic Behaviour of Mid-Rise CLT Shear Walls with Coupling Beams	Jingjing Liu Kyoto University, Japan

HALL 204AB	STRUCTURAL SYSTEMS	
WCTE 3.8 MODERATOR	LOW DAMAGE SEISMIC DESIGN Stefano Pampanin, University of Canterbury, New Zealand	

TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
13:40 – 14:00	Design and Testing of Post-Tensioned Timber Wall Systems	Francesco Sarti University of Canterbury, New Zealand
14:00 – 14:20	Seismic Design of Floor Diaphragms in Post-Tensioned Timber Buildings	Daniel Moroder University of Canterbury, New Zealand
14:20 – 14:40	Timber Core-Walls for Lateral Load Resistance of Multi-Storey Timber Buildings	Andrew Dunbar University of Canterbury, New Zealand
14:40 – 15:00	The Interaction of Slip-Friction Connectors and Shear Key in a Rocking Timber Shear Wall with Elasto-Plastic Behaviour	Pierre Quenneville University of Auckland, New Zealand
15:00 – 15:20	Damage Avoidance Design of Timber Structures Using High-Force-to-Volume Damping Devices	Massimo Fragiocomo University of Sassari, Italy

WEDNESDAY, AUGUST 13 - AFTERNOON

HALL 205ABC		BUILDINGS AND STRUCTURES
WCTE 4.8 MODERATOR		TIMBER BRIDGES Leander Bathon, Wiesbaden University of Applied Sciences, Germany
TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
13:40 – 14:00	Shear Behavior of On-Site Timber Stress-Laminated Box-Beam Bridges	Humihiko Gotou Akita University, Japan
14:00 – 14:20	A Review of Design Criteria for Vibrational Response of Pedestrian Timber Bridges	Anna Ostrycharczyk Norwegian University of Science and Technology, Norway
14:20 – 14:40	Block Glued Glulam - Bridges, Beams and Arches	Simon Aicher MPA University of Stuttgart, Germany
14:40 – 15:00	Design and Construction of a 160-metre-long Wood Bridge in Mistissini, Québec	Grégoire Richard Dessau, Canada
15:00 – 15:20	Service Life Assessment of Timber Highway Bridges in USA Climate Zones	James Wacker USDA FS Forest Products Laboratory, U.S.A.

HALL 202		SERVICEABILITY/FIRE SAFETY/REHABILITATION
WCTE 5.8 MODERATOR		REHABILITATION I Hugh Morris, University of Auckland, New Zealand
TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
13:40 – 14:00	Numerical Analysis of a Church in Venice for the Study of the Influence of Timber Piling Degradation in the Foundations on the Structure in Elevation	Giulia Bettiol University of Padua, Italy
14:00 – 14:20	Use of Wood for Countermeasures Against Liquefaction	Atsunori Numata Tobishima Corporation, Japan
14:20 – 14:40	Seismic Performance of a Wooden Temple Inferred from Earthquake Observation and Seismic Diagnosis	Toshiaki Sato Tokyo University of Science, Japan
14:40 – 15:00	Seismic Retrofit of Soft-Storey Timber Buildings with Energy Dissipating Floor-Wall Connections	Asif Iqbal Opus International Consultants, New Zealand
15:00 – 15:20	Seismic Shaking Table Testing of a Reinforced Concrete Frame with Masonry Infill Strengthened with Cross-Laminated Timber Panels	Iztok Sustersic CBD, Slovenia

HALL 200A		PAST, PRESENT AND FUTURE
WCTE 6.8 MODERATOR		ENVIRONMENT AND LCA I Robert Beauregard, Université Laval, Canada
TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
13:40 – 14:00	Development of Modular Wooden Buildings with Focus on the Indoor Environmental Quality	Michael Flach University of Innsbruck, Austria
14:00 – 14:20	Updating of U.S. Wood Product Life-Cycle Assessment Data for Environmental Product Declarations	Rick Bergman USDA FS Forest Products Laboratory, U.S.A.
14:20 – 14:40	Wood-Based Building Products Environmental Assessment According to the Environmental Product Declaration Standard	Lauri Linkosalmi Aalto University, Finland
14:40 – 15:00	Carbon Aspects Promote Building with Wood	Arno Fruehwald University of Hamburg, Germany
15:00 – 15:20	Integration of Québec Wood Industry Data in the Québec LCI Database: How Can the Industry Directly Benefit?	Hugues Imbeault-Tétreault CIRAIG, Canada

HALL 200BC		COFFEE BREAK - EXHIBITION AND POSTER DISPLAY
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WEDNESDAY, AUGUST 13 - AFTERNOON

HALL 206A		MATERIALS AND PRODUCTS
WCTE 1.9 MODERATOR		BAMBOO AND PALM TREE PRODUCTS Haiqing Ren, Chinese Academy of Forestry, China
TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
15:40 – 16:00	Understanding the Structural Properties of Moso Bamboo to Engineer Sustainable Structural Bamboo Products	Patrick Dixon Massachusetts Institute of Technology, U.S.A.
16:00 – 16:20	Experimental Behaviour of Structural Size Glued Laminated Guadua Bamboo Members	Juan Correal University of Los Andes, Colombia
16:20 – 16:40	Development of Engineered Bamboo	Keith Crews University of Technology, Sidney, Australia
16:40 – 17:00	Evaluation of the Mechanical Properties of Cross-Laminated Bamboo Panels by Digital Image Correlation and Finite Element Modelling	Hector Archila University of Bath, UK
17:00 – 17:20	The Potential Use of Timber from Palm Trees for Building Purposes	Leila Fathi University of Hamburg, Germany

HALL 206B		CONNECTIONS
WCTE 2.9 MODERATOR		SERVICEABILITY OF CONNECTIONS Adrian Leijten, Eindhoven University of Technology, The Netherlands
TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
15:40 – 16:00	Post-Tensioned Timber Connections. Experimental Analysis of the Long-Term Behavior	Flavio Wanninger ETH Zurich, Switzerland
16:00 – 16:20	Influence of Moisture Content on Timber Elements with Dowel-Type Fastener	Jérôme Dopeux Plateforme technologique Bois-Construction du Limousin, France
16:20 – 16:40	Fatigue Design of Adhesive Connections Using Perforated Steel Plates	Leander Bathon Wiesbaden University of Applied Sciences, Germany
16:40 – 17:00	Effects of Changes in Moisture Content in Reinforced Glulam Beams	Philipp Dietsch Technische Universität München, Germany
17:00 – 17:20	Finite Element Models of Effects of Moisture on Bolt Embedment and Connection Properties of Glulam	Henry Kiwelu University of Dar es Salaam, Tanzania

HALL 204AB		STRUCTURAL SYSTEMS
WCTE 3.9 MODERATOR		ALTERNATIVE ASSEMBLIES Weichiang Pang, Clemson University, U.S.A.
TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
15:40 – 16:00	Performance of Shear Walls with Wood Screws Under Reversed Cyclic Loading	Chun Ni FPInnovations, Canada
16:00 – 16:20	Structural Performance of Shearwalls Studded with Small-diameter Round Timber Under Cyclic Latral Load	Enchun Zhu Harbin Institute of Technology, China
16:20 – 16:40	Research and Application of Timber-Steel Hybrid Structures	Minjuan He Tongji University, China
16:40 – 17:00	Response of Low-Cost Timber Frame Walls with Caña Brava and Mortar Subjected to Earthquake Loading	Christian Málaga-Chuquitaype Imperial College of London, UK
17:00 – 17:20	Evaluation of Restoring Force Characteristics of Mud-walls Considering Effect of Wall-Height for Seismic Structural Design	Hiroyuki Nakaji Tottori University of Environmental Studies, Japan

WEDNESDAY, AUGUST 13 - AFTERNOON

HALL 205ABC	BUILDINGS AND STRUCTURES	
WCTE 4.9 MODERATOR	HYBRID BUILDING SYSTEMS Massimo Fragiaco, University of Sassari, Italy	

TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
15:40 – 16:00	Nonlinear Dynamic Analyses of Novel Timber-Steel Hybrid System	Michael Fairhurst University of British Columbia, Canada
16:00 – 16:20	Seismic Detailing of Post Tensioned Timber Frames	Thomas Armstrong University of Canterbury, New Zealand
16:20 – 16:40	Non-Linear Numerical Modelling of a Post-Tensioned Timber Frame Building with Hysteretic Energy Dissipation	Tobias Smith University of Canterbury, New Zealand
16:40 – 17:00	Shaking Table Testing of a Multi-Storey Post-Tensioned Glulam Building	Stefano Pampanin University of Canterbury, New Zealand
17:00 – 17:20	Lateral Behavior of Post-Tensioned Cross-Laminated Timber Walls Using Finite Element Analysis	Zhouyan Xia Technische Universität München, Austria

HALL 202	SERVICEABILITY/FIRE SAFETY/REHABILITATION	
WCTE 5.9 MODERATOR	REHABILITATION II Roberto Tomasi, University of Trento, Italy	

TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
15:40 – 16:00	Assessment, Reinforcement and Monitoring of Timber Structures: FPS Cost Action FP1101	Jorge M. Branco University of Minho, Portugal
16:00 – 16:20	Wood Buildings and Fire in Historical Urban Context, in Edo (Former Tokyo) and Vienna	Atsuko Tani Vienna University of Technology, Austria
16:20 – 16:40	Damage Behaviour of Taiwanese Traditional Dieh-Dou Timber Frame	Sok Yee Yeo National Cheng Kung University, Taiwan
16:40 – 17:00	Structural Study for Conservation of Group of Traditional Timber Houses in South Nias, Indonesia	Yuka Yasui Mie University, Japan
17:00 – 17:20	Load Carrying Capacity of Large Mortise and Tenon Joints in Wooden Mitre Gates	Wolfgang Gard Delft University of Technology, The Netherlands

HALL 200A	PAST, PRESENT AND FUTURE	
WCTE 6.9 MODERATOR	ENVIRONMENT AND LCA II Dominique Gauzin-Müller, EkologiK/EK, Germany	

TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
15:40 – 16:00	Environmental Properties of Timber Buildings in Life Cycle - From European Viewpoint	Annette Hafner Technische Universität München, Germany
16:00 – 16:20	Environmental Performance of Innovative Wood Building Systems Using Life-Cycle Assessment	Caroline Frenette cecobois, Canada
16:20 – 16:40	Potential Energy Saving by Using Wooden Panel in Bathrooms	Kristine Nore Norwegian Institute of Wood Technology, Norway
16:40 – 17:00	Potential Analysis of the Energy and Climate Performance of Wood-Concrete Hybrid Building Structures	Jeno Balogh Metropolitan State University of Denver, U.S.A.
17:00 – 17:20	A Comparison of the Embodied Energy and Embodied Carbon of a Timber Visitor Centre in Ireland with its Concrete Equivalent	Desmond Dolan National University of Ireland, Ireland

HALL 2000	WCTE/FPS CLOSING BANQUET	
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THURSDAY, AUGUST 14 - MORNING

HALL 206A WCTE 1.10 MODERATOR		
MATERIALS AND PRODUCTS NEW STRUCTURAL PRODUCTS Simon Aicher, MPA University of Stuttgart, Germany		
TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
09:00 – 09:20	Tectonic Strategies for Using Fast-Growing, Low-Grade Softwoods for Engineered Wood Products	Patrick Fleming University of Cambridge, UK
09:20 – 09:40	Structural Performance of Accoya® Wood Under Service Class 3 Conditions	Matthew Roberts Accsys Technologies, U.S.A.
09:40– 10:00	High-Tech Timber Beam® – A High-Performance Hybrid Beam System Made of Composites and Timber	Martin Kaestner Bauhaus-University Weimar, Germany
10:00 – 10:20	Application of Moulded Wooden Tubes as Structural Elements	Peer Haller Dresden University of Technology, Germany

HALL 206B WCTE 2.10 MODERATOR		
CONNECTIONS GLUED-IN RODS Abdelhamid Bouchair, Université Blaise-Pascal, France		
TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
09:00 – 09:20	Manufacturing Gluing-In Rods Under Low Temperatures Using Induction Heating	Till Vallée Fraunhofer Institute of Wood Research, Germany
09:20 – 09:40	Connection for Round Wood Timber Members Using Multiple Glued-In Rods	Alfredo Dias University of Coimbra, Portugal
09:40– 10:00	Timber Joints with Glued-In FRP Rods	Thomas Tannert University of British Columbia, Canada
10:00 – 10:20	Advancement of Glued-In Rods Using Polymer Concrete as Composite Material	Kay-Uwe Schober Mainz University of Applied Sciences, Germany

HALL 204AB WCTE 3.10 MODERATOR		
STRUCTURAL SYSTEMS ADVANCES IN DESIGN METHODS Ian Smith, University of New Brunswick, Canada		
TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
09:00 – 09:20	Informed Design from FEM Analysis of Wood Shoring Used in Urban Search and Rescue	Dan Wheat University of Texas, U.S.A.
09:20 – 09:40	Equivalent Viscous Damping for CLT Infilled Steel Moment Frame Structures	Matiyas Bezabeh University of British Columbia, Canada
09:40 – 10:00	Wood Laminates for Utility Scale Wind Turbine Blades: Numerical Evaluation of the Shear Strength of an Angle-Ply Wood Laminate	Rachel Koh University of Massachusetts, U.S.A.
10:00 – 10:20	In-Plane Stiffness of Cross-Laminated Timber Floors	Sepideh Ashtari University of British Columbia, Canada

THURSDAY, AUGUST 14 - MORNING

HALL 205ABC BUILDINGS AND STRUCTURES		
WCTE 4.10 MODERATOR Ying Hei Chui, University of New Brunswick, Canada		
TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
09:00 – 09:20	Effect of Non-Structural Components on the Natural Period of Wood Light-Frame Buildings	Ghazanfarah Hafeez University of Ottawa, Canada
09:20 – 09:40	Seismic Performance of Mid-Rise Light Wood Frame Building Connected to a Stiff Core	Lina Zhou University of New Brunswick, Canada
09:40– 10:00	Seismic Analysis of Hybrid Multi-Story Light Wood Frames in China	Suyi Guo Tongji University, China
10:00 – 10:20	Numerical Model for Hybrid Simulation of a Three-Story Wood-Frame Building	Weichiang Pang Clemson University, U.S.A.

HALL 202 SERVICEABILITY/FIRE SAFETY/REHABILITATION		
WCTE 5.10 MODERATOR Joseph Loferski, Virginia Tech, U.S.A.		
TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
09:00 – 09:20	Biodeterioration and Structural Analysis of Timber Roofs of an Historical Building in São Paulo, Brazil	Takashi Yojo Institute for Technological Research, Brazil
09:20 – 09:40	User Perspective on the Wearing of Wooden Floors – Cases Viikki Church and Kuokkala Church	Jonna Silvo Aalto University, Finland
09:40– 10:00	The Effect of Drying Condition on Post Flooding Mechanical Properties of Timber Shear Walls	Alistair Bradley University of Bath, UK
10:00 – 10:20	Influence of Material Deterioration on Strength Properties of Hydraulic Timber Structures	Wolfgang Gard Delft University of Technology, The Netherlands

HALL 200A PAST, PRESENT AND FUTURE		
WCTE 6.10 MODERATOR Petr Kuklik, Czech Technical University in Prague, Czech Republic		
TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
09:00 – 09:20	Development of a Wooden Adaptive Architectural System: A Design-Build Approach	Cédric Dumontier Université Laval, Canada
09:20 – 09:40	Timber in Architectural Education – A Case Study in ‘Learn By Making’	David Bylund University of Western Australia, Australia
09:40– 10:00	Expert Competence for Sustainable Timber Building – A Master Program in Close Cooperation Between Industry and Academia	Marie Johansson Linnæus University, Sweden
10:00 – 10:20	Teaching Timber Engineering	Richard Harris University of Bath, UK

HALL 200BC COFFEE BREAK - EXHIBITION AND POSTER DISPLAY		
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HALL 200A WCTE PLENARY AND CLOSING SESSION		
TIME	TITLE	PRESENTER, AFFILIATION, COUNTRY
10:50 – 11:40	Keynote 5. Wood Architecture in Europe - Austrian Precision Meets French Spirit	Dominique Gauzin-Müller, EcologiK/EK, Germany
11:40 – 12:30	WCTE Closing Session	

WCTE 2014 POSTERS

TRACK 1 MATERIALS AND PRODUCTS		
ABSTRACT NUMBER	TITLE	PRESENTER, AFFILIATION, COUNTRY
ABS059	Full Field Measurements on Small Notched Beams by Grid Method - Application to Lattice Elements	Eric Fournely Université Blaise-Pascale, France
ABS102	A Study on the Translucency Seismic Retrofitting Wall with the Punching Metal Sheet	Katsuhiko Kohara Gifu Academy, Japan
ABS103	A Study on Visco-Elastic Damper Effect for Retrofitting of the Large Timber Structure	Katsuhiko Kohara Gifu Academy, Japan
ABS105	Determination of the Modulus of Elasticity for Various Wood Species on the Basis of the Measurement of Free Vibration Parameters	Barbara Misztal Wroclaw University of Technology, Poland
ABS114	Damage Identification of Member in Ancient Timber Structure Based on Modal Strain Energy Method	Xueliang Wang Wuhan University of Technology,, China
ABS148	Strain-Softening Behavior of Wood Estimated in Single-Edge Notched Bending Test	Koji Murata Tokyo University, Japan
ABS172	Analysis of the Penetration of Adhesives at Finger-Joints in Beech Wood	Bettina Franke Bern University of Applied Sciences, Switzerland
ABS175	Investigation of Eucalyptus Globulus Wood for the Use as an Engineered Material	Steffen Franke Bern University of Applied Sciences, Switzerland
ABS194	End Reinforcement of Wood Member Using Shortcut Carbon Fibers	Meng Gong University of New Brunswick, Canada
ABS206	Mechanical Characteristics of Historical Beams of Picea Abies Wood. Assessment by Static Bending	Javier-Ramón Sotomayor-Castellanos Universidad Michoacana de San Nicolás de Hidalgo, Mexico
ABS247	Finite Element Analysis of Uniformly Partial Compression Tests of Wood	Shuhei Mitsui Kure National College of Technology, Japan
ABS257	Glulam Reinforced Using Plates of Distinctive Lengths – Experimentation and Modelling	Gary Raftery University of Auckland, New Zealand
ABS309	Timber Engineering and Conservation of Endangered Forest Species from the Congo Basin: Contribution of Multivariate Analysis	Myriam Chaplain Université de Bordeaux, France
ABS311	An Enhanced Beam Model for Glued Laminated Structures that Takes Moisture, Mechano-Sorption and Time Effects Into Account	Sigurdur Ormarsson Technical University of Denmark, Denmark
ABS327	Study on Seismic Performance Evaluation of Mud Wall Considering Regional Characteristics of Wall Clay	Naoki Utsunomiya Shikoku Polytechnic College, Japan
ABS346	Results of Penetration Tests Performed on GLT Beams	Lenka Melzerova Czech Technical University in Prague, Czech Republic
ABS423	Lateral Torsional Buckling of Wood Beams: FEA-Modelling and Sensitivity Analysis	Ghasan Doudak University of Ottawa, Canada
ABS431	Mixed-Mode Fracture Properties Characterization for Timber Structures Through Digital Image Correlation and Finite Element Method Coupling Process	Jérôme Dopeux Plateforme technologique Bois-Construction du Limousin, France
ABS433	Embedding Behaviour of Cross-Laminated Timber Panels Manufactured from Sugi	Nobuyoshi Yamaguchi Building Research Institute, Japan
ABS450	Influence of Boundary Conditions in Modal Testing on Evaluated Elastic Properties of Timber Panels	Jan Niederwestberg University of New Brunswick, Canada
ABS469	Estimation on Bearing Capacity of Shelf Made From Plywood Subjected to Distributed Load	Manabu Matsushima Kagawa University, Japan
ABS476	Characterization of Eucalyptus Sp. Ties for Use in Brazilian Railways	Felipe Icimoto University of São Paulo, Brazil
ABS484	Numerical Simulation of Swelling and Shrinking Behaviour of Roundwood Trunks	Josef Kögl University of Innsbruck, Austria
ABS489	Bending Performance and Creep of Flat Squares Without Pith Sawn Up from Sugi Large Diameter Logs	Shiro Aratake Miyazaki Prefectural WUR Center, Japan
ABS499	Bending Strength and Finite Element Analysis of Southern Pine Composite Lumber	Zhuo Yang Michigan State University, U.S.A.

TRACK 1 MATERIALS AND PRODUCTS (CONT'D)		
ABSTRACT NUMBER	TITLE	PRESENTER, AFFILIATION, COUNTRY
ABS504	Wood Construction Under Cold Climate	Xiaodong (Alice) Wang Luleå University of Technology, Sweden
ABS513	Effect of Heat Treatment on Physical Properties and Wood Surface of Brazilian Eucalyptus Grandis Used for Structures and Furniture	Alexandre Carvalho Rural Federal University of Rio de Janeiro, Brazil
ABS560	Development of a Portable Hardness Tester for Wood Using Displacement Transducer	Adriano Ballarin São Paulo State University, Brazil
ABS568	Applicability of Various Wood Species in Glued Laminated Timber - Parameter Study on Delamination Resistance and Shear Strength	Stefan Winter München Technische Universität, Germany
ABS597	In-Plane Shear Test of Full Scale Cross-Laminated Timber Panels	Yasuhiro Araki Building Research Institute, Japan
ABS606	An Experimental Study on Resistant Mechanism of Thick Plywood Subjected to Lateral Loadings	Akiko Ohtsuka Tokyo University of Science, Japan
ABS616	Mechanical and Physical Characterization of Composite Bamboo-Guadua Products: Plastiguadua	Hector Archila University of Bath, UK
ABS617	Influence of Micro Structured Surface on the Bond Quality of Hardwood	Martin Lehmann Bern University of Applied Sciences, Switzerland
ABS645	Properties of Strength and Elasticity of Structural Elements of Round Timber of Amaru for Use in Civil Construction	Felipe Icimoto University of São Paulo, Brazil
ABS685	X-Ray CT Technique for Investigating Inner Density Distribution of Historic Wooden Properties	Chul-Ki Kim Seoul National University, Korea
ABS705	Properties of Clear Wood and Structural Timber of Pseudotsuga Menziesii from the Mediterranean Spain	Eduard Correal Institut Català de la Fusta, Spain

TRACK 2 CONNECTIONS		
ABSTRACT NUMBER	TITLE	PRESENTER, AFFILIATION, COUNTRY
ABS048	Modelling the Effect of Grain Orientation on the Lag Screw Withdrawal Load for Tropical Hardwoods	Cláudio Del Menezzi University of Brasília, Brazil
ABS060	Self Tapping Screws Without Pre-Drilling for Brazilian Reforestation Species	Carlito Calil Neto University of São Paulo, Brazil
ABS082	Study on Single Shear Strength of Nailed Joints Subjected to Grain Direction	Kiyotaka Terui Polus R & D Center of Life-Style, Japan
ABS094	Study on Timber Framed Joints Using Drift Pins and UV-Hardening FRP	Shinya Matsumoto Kinki University, Japan
ABS140	Study on Compressive Strain of CLT Wall Bottom Under the Extreme Vertical Load	Satoshi Oonishi Nippon Institute of Technology, Japan
ABS146	Experimental Study and Finite Element Analysis on Seismic Performance of Wooden Mortise-Tenon Joints Before and After Reinforcement	Lu Weidong Nanjing University of Technology,, China
ABS147	Bond Behavior of Glued-In Timber Joint with Deformed Bar Epoxied in Glulam	Zhibin Ling Southeast University, China
ABS168	Study on Prevention for Buckling of Combined Pillar with Fiber Materials or Screws	Hideyuki Nasu Nippon Institute of Technology, Japan
ABS208	Edge Connections for CLT Plates: In-Plane Shear Tests on Half-Lapped and Single-Spline Joints	Masoud Sadeghi University of New Brunswick, Canada
ABS250	An Experimental Study on the Ductility of Bolted Connections Loaded Perpendicular to the Grain	Wataru Kambe Kanto Gakuin University, Japan
ABS256	Development of Connecting Method for Timber Structure Using Expanding of Densified Wood	Kato Masaya Oita University, Japan
ABS337	Adhesively Bonded Timber Joints — To Which Extent Do Defects Matter?	Till Vallée Fraunhofer Institute for Wood Research, Germany

TRACK 2		CONNECTIONS (CONT'D)
ABSTRACT NUMBER	TITLE	PRESENTER, AFFILIATION, COUNTRY
ABS345	Evaluation on the Shear Performance of Wood-Concrete Composite Anchored with Steel Rebar	Sang-Joon Lee Korea Forest Research Institute, Korea
ABS359	Pull-Out Strength of Glued-In Rod Joint From LVL	Kazutoshi Ito Oita University, Japan
ABS375	Evaluate Bearing Stress of Glulam Using Digital Image Correlation	Gi Young Jeong Chonnam National University, Korea
ABS400	Wood-Based Structural-Use Panel Diaphragms and Shear Walls: Problems Due to Moisture Exposure and Recommended Repairs	Agron Gjinolli Universal AET, U.S.A.
ABS478	Effect of Wood Decay on Shear Resistance of Dowel-Type Joints with Steel Side Plates	Kei Sawata Hokkaido University, Japan
ABS492	Development of Continuous Composite Joints on the Basis of Polymer Mortar with Matched Properties	Martin Kaestner Bauhaus-University Weimar, Germany
ABS502	Reinforcement of Shear Failure with Long Screw in Moment-Resisting Joint	Makoto Nakatani Miyazaki Prefectural Research Institute, Japan
ABS526	Exposure Test of Surface-Treated Steel Plates on Preservative-Treated Woods	Hiroki Ishiyama Chubu University, Japan
ABS578	Experimental Study of Pull-Out Strength of a Tenon and Mortise Joint	Atsushi Tabuchi Kyoto Prefectural University, Japan
ABS583	A Study on Failure Mode and Strength Estimation of Timber Joint Using Lagscrewbolts and Driftpins	Hiroyasu Sakata Tokyo Institute of Technology, Japan
ABS586	Development of CLT Shear Frame Using Metal Plate Insert Connections	Akihisa Kitamori Kyoto University, Japan
ABS666	The Quick Connect Moment Joint for Portal Frame Buildings: Case Study and Discussion of Design Challenges and Construction Detailing	Felix Scheibmair University of Auckland, New Zealand
ABS679	Design Equation For Withdrawal Resistance of Threaded Fasteners in the Canadian Timber Design Code	Shawn Kennedy Université Laval, Canada
ABS696	Study on Wood - Steel Plate Connection with Epoxy Resin and Self Drilling Tapping Screws	Ryota Haba FCBA, France
ABS716	Design Equations for Embedment Strength of Wood for Threaded Fasteners in the Canadian Timber Design Code	Shawn Kennedy Université Laval, Canada

TRACK 3		STRUCTURAL SYSTEMS
ABSTRACT NUMBER	TITLE	PRESENTER, AFFILIATION, COUNTRY
ABS087	Behavior Analysis of Conventional Timber Frame Wall Under Seismic Action: Application of N2 Method	Yassine Verdret FCBA, France
ABS108	Structural Performance of Portal Frame Constructed with Japanese Cedar Glulam	Min-Chyuan Yeh National Pingtung University of Science & Technology, Taiwan
ABS109	Buckling of 'Blockhaus' Walls Under In-Plane Vertical Loads	Massimo Fragiaco University of Sassari, Italy
ABS142	Study on Damping Effect of Wooden Bearing Shear Wall	Rika Arai Nippon Institute of Technology, Japan
ABS144	Study on the Influence of Bearing Shear Wall with Opening	Hideyuki Nasu Nippon Institute of Technology, Japan
ABS231	Load-Carrying Capacity of a Built-Up Stud Fabricated with Small-Diameter Round Timber	Guofang Wu Harbin Institute of Technology, China
ABS244	Development and Evaluation of CLT Shear Wall Using Drift Pinned Joint	Shoichi Nakashima Kyoto University, Japan
ABS246	Structural Performance Evaluation of Wooden Framework with Jointed Column	Kota Iinuma Yokohama National University, Japan
ABS270	Morphological and Stability Research for Tree-Like Timber Structures	Chen Xiaowu Nanjing University of Technology,, China

TRACK 3 STRUCTURAL SYSTEMS (CONT'D)

ABSTRACT NUMBER	TITLE	PRESENTER, AFFILIATION, COUNTRY
ABS273	The Analysis of Horizontally Offset Diaphragms	R. Terry Malone WoodWorks, U.S.A.
ABS288	Experimental Study on the Contribution of GWB to the Lateral Performance of Wood Shearwalls	Zhiyong Chen University of New Brunswick, Canada
ABS314	Light-Frame Wood Stud Walls Under Blast Loading - An Assessment of the Canadian Blast Design Standard Provisions	Daniel Lacroix University of Ottawa, Canada
ABS329	Structural Health Monitoring of Wooden Structure by Using Subspace System Identification Based on Shaking Table Tests	Takenori Hida Tokyo University of Science, Japan
ABS344	Seismic Performance of Wooden House Wetted by Rainfall or Submerging in Water	Kei Tanaka Oita University, Japan
ABS355	Experimental and Numerical Investigation of Novel Steel-Timber-Hybrid System	Pooja Bhat University of British Columbia, Canada
ABS356	Mechanical Performances of Timber Connections, Improvement by Mechanical Preparation of the Interfaces: Its Application to Structural Member	Stéphane Girardon ENSTIB, France
ABS360	Reinforcement of the Support Areas of Glued Laminated Timber Structures	Damien Lathuilière ENSTIB, France
ABS363	Development of Novel Post-Tensioned Glulam Timber Composites	Emma McConnell Queen's University of Belfast, UK
ABS372	Development of Bidirectional Rahmen Structure Using a Wood Bonded Composite Panels	Hisamitsu Kajikawa Misawa Homes Institute of R&D, Japan
ABS380	Geographic Distribution of Construction Systems and Materials of Timber-Framed Houses in Japan	Chikako Tabata Mie University, Japan
ABS435	Experimental Study on Seismic Performance of Mortar Finishing External Wall	Masato Nakao Yokohama National University, Japan
ABS441	Hybrid Wood-Masonry Wall Test and Verification of Two-Dimensional Modelling Approach	Lina Zhou University of New Brunswick, Canada
ABS463	Load Distribution in Lateral Load Resisting Elements of Timber Structures	Zhiyong Chen University of New Brunswick, Canada
ABS472	Development of High Load Carrying Capacity Shear Wall with Thick Plywood Sheathing for Large Timber Construction	Kenji Aoki Forestry and Forest Products Research Institute, Japan
ABS512	A New Construction System for CLT Structures	Albino Angeli CNR-IVALSA, Italy
ABS532	Experimental Study on Lateral Resistance of Timber Post and Beam Systems	Haibei Xiong Tongji University, China
ABS570	Torsional Interaction of Two-Story Timber Houses with 3D Eccentricity	Kento Suzuki Tokyo Institute of Technology, Japan
ABS610	Development of Numerical Analysis Method for Japanese Traditional Wood Houses Considering the Sliding Behavior of Column Ends	Takafumi Nakagawa National Institute for Land and Infrastructure Management, Japan
ABS654	Considerations Regarding Earthquake-Resistant Design of Wooden Residences Utilizing Measurement Data Taken with a Seismograph for Standalone Residences with Damage Assessment Functionality	Hisamitsu Kajikawa Misawa Homes Institute of R&D, Japan
ABS655	Stub Girder Flooring System for Timber Construction	Reza Masoudnia University of Auckland, New Zealand
ABS670	Structural Detail Investigation and Seismic Performance Evaluation for Three-Story Traditional Wooden House in Kanazawa Urban Area	Tatsuru Suda Kanazawa Institute of Technology, Japan

TRACK 4 BUILDINGS AND STRUCTURES

ABSTRACT NUMBER	TITLE	PRESENTER, AFFILIATION, COUNTRY
ABS010	Structural Performance of Half Through Arch Timber Highway Bridge	Hideyuki Honda Kanazawa Institute of Technology, Japan
ABS062	Sensitivity Analysis for Probabilistic Seismic Behaviour of a Wood Frame Building	Jianzhong Gu Thompson Rivers University, Canada
ABS149	Seismic Behavior of Cylindrical Wooden Water Tank in Vibration Test	Fukuji Iida Japan Woodtank and Pipe MFG CO., Japan
ABS150	Timber Bridges with Asphalt Surfacing – Technical Specifications	Andreas Müller Bern University of Applied Sciences, Switzerland
ABS210	Influence of Arrangements of Walls and Opening Roofs to Maximum Seismic Response of Japanese Traditional Wooden House	Koji Yamada Toyota National College of Technology, Japan
ABS212	The Study and Proposed Application of the Multi-Storey Hybrid Timber Structural System on the Design Flexibility and Hazard Prevention	Mengting Tsai University of Tokyo, Japan
ABS241	Application of Non-Linear Finite Element Dynamic Analysis for Traditional Wooden Structure	Atsuo Takino Nara Women's University, Japan
ABS303	Replacement of Steel Structure for Wooden Structure in Environment Exposed to Marine Aggressiveness	Alexandre Wahrhaftig Federal University of Bahia, Brazil
ABS338	Building Damages of Modern Wooden Architectures in Japan by the 2011 Off the Pacific Coast of Tohoku Earthquake	Naoyuki Matsumoto University of Tokyo, Japan
ABS347	Structural Performance Assessment of the First Vehicular Timber Bridge in Korea	Sang-Joon Lee Korea Forest Research Institute, Korea
ABS407	Structural Evaluation of Traditional Townhouse with Timber Through Column in Japan	Hiroimi Sato University of Tokyo, Japan
ABS408	Collapsing Analysis of an Old Wooden-House Against a Strong Earthquake Ground Motion	Tomiya Takatani Maizuru National College of Technology, Japan
ABS447	Structural Properties Evaluation of Unique Boat House Using Oblique Nuki Part I: Structural Investigation	Noriko Takiyama Kyoro University, Japan
ABS464	Reduction of Sand Pressure to the Partition Wall Using Logs in Fish Ladder	Hideyuki Hirasawa Hakodate National College of Technology, Japan
ABS501	Seismic Design Method of Hybrid Structure of Wood and RC	Yoshihiro Yamazaki Tokyo Institute of Technology, Japan
ABS510	Experimental Study on Seismic Performance of Wooden School Building	Mitsuhiro Miyamoto Kagawa University, Japan
ABS577	A Seismic Design of 3-Story Building Using Japanese "Sugi" CLT Panels	Kazuyuki Matsumoto Nihon System Sekkei Architects & Engineers, Japan
ABS599	Quantitative Evaluation for Influence of Eccentricity to Design Asymmetric Housing Structure with Flexible Rigidity at Floors	Yoichi Mukai Kobe University, Japan
ABS604	Shaking Table Tests of Composite Structure of Reinforced Concrete and Timber Frame	Hiroshi Isoda Kyoto University, Japan
ABS626	Full-Scale Shaking Table Test of Traditional Timber Structure with Gable Roof Placed Free on Foundation	Kyosuke Mukaibo Ritsumeikan University, Japan
ABS628	Racking Performance of Sheathed Shear Wall Fastened with Nails and Screws Together	Yasunobu Noda Forest Products Research Institute, Japan
ABS636	Seismic Assessment of Wooden Houses for Tephra Falls of Kirishima Mountain (Shinmoedake) in Southern Kyusyu, Japan	Takeshi Yamamoto Miyakonjo National College of Technology, Japan
ABS686	The Structural Potential of Bidirectional Rahmen Structure Using a Wood Bonded Composite Panels Method for Medium- and High-Height Structures	Hisamitsu Kajikawa Misawa Homes Co, Japan
ABS688	Discrete Bracing of Timber Beams Subjected to Gravity Loads	Anders Klasson Lund Institute of Technology, Sweden
ABS689	Seismic Response Analysis for Damped Timber Structure by Simplified Spring Model	Kazuhiro Matsuda Tokyo Institute of Technology, Japan
ABS717	Seismic Protection of Timber Platform Frame Building Structures with Hysteretic Energy Dissipators. Feasibility Study	Edgar Segués Technical University of Catalonia, Spain

TRACK 5 SERVICEABILITY, FIRE SAFETY, REHABILITATION		
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ABSTRACT NUMBER	TITLE	PRESENTER, AFFILIATION, COUNTRY
ABS047	Numerical Simulation of the Temperature Field in A Wood-Concrete Composite Cross Section in Fire	Julio Cesar Molina University of São Paulo, Brazil
ABS136	Prediction of Flame Spread Along a Wooden Surface of Wall Against Localized Fire	Koji Harada Oita University, Japan
ABS137	Interactive Visualisation Between Wood-Moisture Relations and Moisture-Induced Deformations	Rafael Passarelli University of Tokyo, Japan
ABS139	Acoustic Performance of Timber and Timber-Concrete Composite Floors	Keith Crews University of Technology, Sydney, Australia
ABS260	Enhancement of Deflection Serviceability Performance of Metal Web Joist Timber Floors Using Strongbacks	Binsheng Zhang Glasgow Caledonian University, UK
ABS268	Intermediate-Scale Furnace Tests for Encapsulation Materials for Use in Protecting Structural Elements	Joseph Su Natural Resources Canada, Canada
ABS320	Influence of Fire Exposure on the Mechanical Properties of Wood	Chihiro Kaku Waseda University, Japan
ABS365	Estimation of Shear Strength of Nails Driven into Decayed Wood	Takuro Mori Kyoto University, Japan
ABS440	Fire Resistance of Timber Framed Floor with Isolated Ceiling Assembly	Sang-Joon Lee Korea Forest Research Institute, Korea
ABS613	Stiffness of Sheathing-to-Framing Connections in Timber Shear Walls – In Serviceability Limit State	Ida Näslund Luleå University of Technology, Sweden

TRACK 6 PAST, PRESENT AND FUTURE		
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ABSTRACT NUMBER	TITLE	PRESENTER, AFFILIATION, COUNTRY
ABS020	Fuzzy Ventilation Control for Wood-Based Houses in Tropical Climates	Carmen Riverol University of the West Indies, Trinidad and Tobago
ABS037	Cross-Laminated Round-Wood Panel: Design Guidelines in the State of São Paulo	Rafael Passarelli University of Tokyo, Japan
ABS090	Timber Architecture Education Using Active Learning Method. Short-Course Case Study on University of São Paulo's Faculty of Architecture	Rafael Passarelli University of Tokyo, Japan
ABS096	Small Scale Models, Timber Construction and the Teaching of Architecture: A Brazilian Experience	Ivan do Valle University of Brasilia, Brazil
ABS099	The Contribution of Zanine Caldas to Timber Construction in Brasilia: Four Projects of Self-Taught Architect	Ivan do Valle University of Brasilia, Brazil
ABS285	Comparison of Construction Types Using Analytic Hierarchy Process – Case Study Timber Passive House	Milan Sernek University of Ljubljana, Slovenia
ABS328	Seismic Performance of Aged and Deteriorated Wooden Joints of Japanese Traditional Timber Structures	Yu Ooka Ritsumeikan University, Japan
ABS361	Hut Emergency Evacuation in the Event of a Disaster of Using the Wooden Panel	Akito kikuchi Akito Kikuchi Architect & Associates, Japan
ABS496	Analysis of Western Wooden Structure Technology's Influence on Yangzhou Wooden Architecture in Modern Times	Yan Liu Yangzhou University, China
ABS574	Verifying the Validity of Studying and Archiving Design Language Based on Timber Structures from the Perspective of Adaptation to Actual Construction	Atsushi Tabuchi Kyoto University, Japan
ABS590	Timber Gridshells: Design Methods and Their Application to a Temporary Pavilion	Dragos Naicu University of Bath, UK
ABS625	The Untapped Potential of Wood in Developing Energy-Efficient Living Spaces	Lauri Linkosalmi Aalto University, Finland
ABS653	Low-Cost Housing with Prefab Wood-Bamboo Panels	Vladimir Rodríguez Trujillo Catalan Institute of Wood, Spain
ABS672	A New Version of Timber Structures at the Cerrado's Excellence Centre in Brasília, Brazil	Roberto Lecomte De Mello Spirale Architecture, Brazil
ABS719	This is Hardcore: CNC Prototypes for Timber Cores – Designing Multi-Storey Timber Buildings from the Inside Out	Alex Kaiser Ordinary Ltd., UK
ABS720	Against the Grain: Redefining the Living Unit – Advanced Slotting Strategies for Multi-Storey Timber Buildings	Alex Kaiser Ordinary Ltd., UK