COST Action FP1402 “Basis of Structural Timber Design from Research to Standards”

Member fact sheets

Table of Contents

Chair - Dr. Philipp Dietsch (Germany)

Technische Universität München
Munich, Germany
dietsch@tum.de
http://www.hb.bgu.tum.de/index.php?id=68
Chairman COST FP1402

Personal	*Organisation*		
Years of experience in relevant field: 10 Expertise: assessment, reinforcement and monitoring of timber structures, solid timber products, standardization Degree: Dr.-Ing. (24.8.2012)	Chair of Timber Structures and Building Construction (www.hb.bgu.tum.de) Focus: theoretical and practical research / innovation and education / training) Facilities: fully equipped testing lab, climate chambers, equipment for in-situ testing		
	No. of staff	PhD students	MSc/year
	30	24	40

Research projects

Post-tensioned elements from cross-laminated timber for high timber buildings (3 years)

Holes in beams placed eccentrically or in groups (2.5 years)

Economic and environmental potential of high-bay warehouses from timber (2.5 years)

Bonding of various wood species – studies about their applicability in glued laminated timber (3 years)

Design and application of shear reinforcements for glued-laminated timber beams (3 years)

Cross Laminated Timber (CLT) - Plane Structures under Concentrated Loading from Point Supports - Shear Design including Reinforcements (3 years)

Revision of Eurocode 5

Publications

Brandner, R., Dietsch, P., Dröscher, J., Schulte-Wrede, M., Sieder, M., Schickhofer, G., Winter, S., Shear Properties of Cross Laminated Timber (CLT) under in-plane load: Test Configuration and Experimental Study, INTER / 48-12-2, Sibenik, Croatia, 2015

Dietsch, P., Brandner, R., Self-tapping screws and threaded rods as reinforcement for structural timber elements – A state-of-the-art report, Construction and Building Materials, Vol. 97, 2015, pp 78–89

Harte, A., Dietsch, P. (eds), Reinforcement of Timber Structures - A state-of-the-art report, Shaker Publishing Company, Aachen, ISBN 978-3-8440-3751-7, 2015

Dietsch, P., Gamper, A., Merk, M., Winter, S., Monitoring building climate and timber moisture gradient in large-span timber structure, Journal of Civil Structural Health Monitoring, Vol. 5, No. 2, 2015, pp 153-165

Aondio, P.; Winter, S.; Kreuzinger, H.; van de Kuilen, J.-W.: Calculation of cylindrical shells from wood or wood based products and consideration of the stress relaxation, INTER / 47 – 12 – 1, Bath, United Kingdom, 2014

Jiang, Y., Schaffrath, J., Knorz, M., Winter, S., van de Kuilen, J.-W., Applicability of various wood species in glued laminated timber - parameter study on delamination resistance and shear strength, WCTE 2014, Quebec, Canada

Dietsch, P., Kreuzinger, H., Winter, S., Design of shear reinforcement for timber beams, CIB-W18 / 46-7-9, Meeting 46, Vancouver, Canada, 2013

Dietsch, P., Winter, S., Eurocode 5 - Future Developments towards a More Comprehensive Code on Timber Structures, Structural Engineering International 21, Issue 2, pp. 223-231, 2012

Mestek, P., Kreuzinger, H., Winter, S., Design Concept for CLT - Reinforced with Self-Tapping Screws, CIB-W18 / 44-7-2, Meeting 44, Alghero, Italy, 2011

Winter, S., Dietsch, P., Eurocode 5 - Bemessung und Konstruktion von Holzbauwerken, Bauingenieur 86, Heft 7/8, S. 348-355, 2011

Dietsch, P., Robustness of large-span timber roof structures - Structural aspects, Engineering Structures, Vol. 33, No. 11, 2011, pp. 3106–3112

Hamm, P., Richter, A., Winter, S., Floor vibrations – new results, WCTE 2010, Riva del Garda, Italy

MC Vice Chair – Prof. Dr. Jochen Köhler (Norway)

Norwegian University of Science and Technology
Trondheim, Norway

jochen.kohler(at)ntnu.no

Vice Chairman COST FP1402, MC Member, WG1 Leader

Personal	*Organisation*		
Years of experience in relevant field: 15 Expertise: Basic of Design, Structural Reliability, Timber Engineering Degree: PhD. (1.6.2006)	Institute of Structural Engineering (http://www.ntnu.edu/kt) Focus: theoretical and practical research / innovation and education / training) Facilities: fully equipped testing lab, climate chambers, parallel computer, library		
	No. of staff	PhD students	MSc/year
	10	7	30

Research projects

WoodWisdom Project: Durable Timber Bridges / Contact: K.A. Malo (5 PhD)

WoodWisdom Project: TallFacades / Contact: J.Kohler (1PhD)

Phd Project on Reliability Based Code Calibration / Contact: J.Kohler

Publications

Fink, Gerhard; Kohler, Jochen. (2014) Model for the prediction of the tensile strength and tensile stiffness of knot clusters within structural timber. European Journal of Wood and Wood Products. vol. 72 (3).

Köhler, Jochen; Brandner, Reinhard; Thiel, Alexandra B.; Schickhofer, Gerhard. (2013) Probabilistic characterisation of the length effect for parallel to the grain tensile strength of Central European spruce. Engineering structures. vol. 56.

Köhler J. and Svensson S. (2010). Probabilistic representation of duration of load effects in timber structures. Engineering Structures, Volume 33, Issue 2, February 2011, Pages 462-467.

Köhler J., Sørensen J.D. and Faber M.H. (2006). Probabilistic modelling of timber structures. Journal of Structural Safety, Volume 29 (4), pp. 255-267.

Labonnote, Nathalie; Rønnquist, Anders; Malo, Kjell Arne. (2014) Prediction of material damping in timber floors, and subsequent evaluation of structural damping. Materials and Structures.

Angst, Vanessa; Malo, Kjell Arne. (2013) Moisture-induced stresses in glulam cross sections during wetting exposures. Wood Science and Technology. vol. 47 (2).

Malo, Kjell Arne; Siem, Jan Helge; Ellingsbø, Pål. (2011) Quantifying ductility in timber structures. Engineering structures. vol. 33 (11).

Bell, Kolbein. (2014) Design of timber structures in a digital world. WCTE 2014, World Conference on Timber Engineering; Book of abstracts, Volume II.

Bell, Kolbein. (2011) Shear failure in glulam frames - An actual case. Assessment of Failures and Malfunctions - Guidelines for Quality Control.

Austria - Prof. Dr. Reinhard BRANDNER (MC)

Graz University of Technology (TU Graz)
Graz, Austria

reinhard.brandner(at)tugraz.at

COST FP1402, MC Member, WG2 Leader

Personal	*Organisation*
Years of experience in relevant field: 9 Expertise: Timber Engineering , Wood technology, joints & fasteners, timber product modelling, probabilistic approaches, applied statistics, system modelling & effects Degree: PhD. (27.6.2012)	Institute of Timber Engineering and Wood Technology (www.lignum.at, www.tugraz.at) Focus: theoretical and practical research/ innovation, design of structures and education / training) Facilities: own testing facilities (universal testing facility for max. 275 kN, tensile testing facility for max. 750 kN), climate chambers, joinery, etc.; access to testing facilities of institutions within the Building Technology Centre at TU Graz and to other facilities of TU Graz as well

No. of staff	PhD students	MSc/year
7	4	10

Research projects

COMET K-Project 'timber.engineering', 01/2008-12/2012, mainly staff of the competence centre holz.bau forschungs gmbh and of the institute, www.holzbauforschung.at

COMET K-Project 'focus_sts', 01/2013-12/2016, mainly staff of the competence centre holz.bau forschungs gmbh and of the institute, www.holzbauforschung.at

European Framework Programme 7 'Seismic Engineering Research Infrastructures for European Synergies (SERIES)', part Cross Laminated Timber, 07/2011-02/2013, Georg Flatscher, Andreas Ringhofer, Gerhard Schickhofer, www.series.upatras.gr/TIMBER_BUILDINGS

FFG BRIDGE Project 'SCREWS', 03/2010-12/2012, Gernot Pirnbacher, Andreas Ringhofer, Gerhard Schickhofer

Publications

Bogensperger, T., Fitz, M., Hamm, P., Schickhofer, G. 2010, 'Untersuchungen des Schwingungsverhaltens von Deckensystemen aus Brettsperrholz (BSP)', Der Bauingenieur, Vol. 85, pp. 45 - 52.

Brandner, R. 2013, 'Stochastic System Actions and Effects in Engineered Timber Products and Structures', Verlag der Technischen Universität Graz, ISBN 978-3-85125-263-7.

Brandner, R., Schickhofer, G. 2014, 'Properties of Cross Laminated Timber (CLT) in Compression Perpendicular to Grain', 1st INTER-Meeting, INTER/47-12-5, Bath, UK.

Harris, R., Ringhofer, A., Schickhofer, G. 2013, 'Focus Solid Timber Solutions - European Conference on Cross Laminated Timber (CLT)', The University of Bath, ISBN 978-1-85790-181-8.

Jöbstl, R.A., Moosbrugger, T., Bogensperger, T., Schickhofer, G. 2006, 'A Contribution to the Design and System Effect of Cross Laminated Timber (CLT)', CIB-W18/39-12-4, Florenz, Italy.

Hübner, U. 2014, 'Mechanische Kenngrößen von Buchen-, Eschen- und Robinienholz für lastabtragende Bauteile', Verlag der Technischen Universität Graz, ISBN 978-3-85125-314-6.

Schickhofer, G., Bogensperger, T., Moosbrugger, T. (eds.) 2010, 'BSPhandbuch: Holz-Massivbauweise in Brettsperrholz - Nachweise auf Basis des neuen europäischen Normenkonzepts', Verlag der Technischen Universität Graz, ISBN 978-3-85125-109-8.

Schickhofer, G. 2013, 'Starrer und nachgiebiger Verbund bei geschichteten, flächenhaften Holzstrukturen', Verlag der Technischen Universität Graz, ISBN 978-3-85125-262-0.

Austria - Dr. Georg Hochreiner (MC)

Vienna University of Technology
Vienna, Austria

georg.hochreiner(at)tuwien.ac.at

COST FP1402, MC Member, WG1 Member

Personal

Years of experience in relevant field: 25

Expertise: Timber engineering / innovative design

Structural modelling in the context of commercial structural software (connectors, CLT, GL, ..)

Background for several generations of design standards for timber structures

Degree: Dr. techn. (25.8.2014)

Organisation

Institute for Mechanics of Materials and Structures (www.imws.tuwien.ac.at)

Focus: theoretical and practical research / innovation, design of structures, education / training and expert assessment.

Facilities: high performance computation facilities and mechanical testing facilities (including uniaxial and triaxial testing machines for up to 250 kN; full-field deformation measurement system

No. of staff	PhD students	MSc/year
6	3	15

Research projects

Mechwood-1 (2011-2015)

"Characterization of Wood Products and Connections - From Mechanical Modeling to Engineering Applications"

FFG-Project in cooperation with the Association of the Austrian Wood Industries

Mechwood-2 (2007-2010)

"Mechanical characterization of wood for knowledge-based timber industry"

FFG-Project in cooperation with the Association of the Austrian Wood Industries

Publications

for WG1: Probabilistic

G. Kandler, J. Füssl, J. Eberhardsteiner: “Stochastic finite element approaches for wood-based products – theoretical framework and review of methods”; Wood Science and Technology (2015), accepted.

G. Kandler, J. Füssl, E. Serrano, J. Eberhardsteiner: “Influence of stiffness variation in timber boards on effective stiffness of GLT beams”; Wood Science and Technology (2015), accepted.

Austria – Dr. Josef Füssl (MC Sub)

Vienna University of Technology

Vienna Austria

josef.fuessl(at)tuwien.ac.at

COST FP1402, MC Substitute Member , WG2 Member

Personal	*Organisation*
Years of experience in relevant field: - Expertise: Numerical modeling of wood-based products (GLT, CLT) Prediction of effective strength and failure mechanisms Stochastic effects Degree: - (-)	Institute for Mechanics of Materials and Structures (www.imws.tuwien.ac.at) Focus: theoretical and practical research / innovation and education and training Facilities: high performance computation facilities and mechanical testing facilities: - uniaxial and triaxial testing machines for up to 250 kN - full-field deformation measurement system (DIC, ESPI)

No. of staff	PhD students	MSc/year
0	0	0

Research projects

2011-2015
"Characterization of Wood Products and Connections - From Mechanical Modeling to Engineering Application"
FFG-Project in cooperation with the Association of the Austrian Wood Industries

2007-2010
"Mechanical characterization of wood for knowledge-based timber industry"
FFG-Project in cooperation with the Association of the Austrian Wood Industries

Publications

G. Hochreiner, J. Füssl, J. Eberhardsteiner: "Cross-laminated timber plates subjected to concentrated loading - Experimental identification of failure mechanisms"; Strain, 50 (2014), S. 68-81

G. Hochreiner, J. Füssl, E. Serrano, J. Eberhardsteiner: "Influence of Wooden Board Strength Class on the Performance of Cross-Laminated Timber Plates Investigated by Means of Full-Field Deformation Measurements"; Strain, 50 (2014), S. 161-173

M. Lukacevic, J. Füssl: "Numerical Simulation Tool for Wooden boards with a Physically Based Approach to Identify Structural Failure"; European Journal of Wood and Wood Products (2014) 72:497-508

M. Lukacevic, J. Füssl, M. Griessner, J. Eberhardsteiner: "Performance Assessment of a Numerical Simulation Tool for Wooden Boards with Knots by Means of Full-Field Deformation Measurements"; Strain, 50 (2014), S. 301-317

M. Lukacevic, J. Füssl, J. Eberhardsteiner: "Discussion of common and introduction of new indicating.

Austria - Dr. Thomas K. Bader (WG)

Vienna University of Technology
Vienna Austria

thomas.bader(at)tuwien.ac.at

COST FP1402, WG3 Member

Personal	*Organisation*
Years of experience in relevant field: 4 Expertise: Wood mechanics Modelling and experimental characterization of dowel connections Modelling of timber structures Degree: Dr.techn. (09.06.2011)	Institute for Mechanics of Materials and Structures (www.imws.tuwien.ac.at) Focus: theoretical and practical research / innovation and education / training Facilities: high performance computation facilities and mechanical testing facilities (including uniaxial and triaxial testing machines for up to 250 kN; full-field deformation measurement system)

No. of staff	PhD students	MSc/year
6	3	15

Research projects

2011-2015

"Characterization of Wood Products and Connections - From Mechanical Modeling to Engineering Applications"

FFG-Project in cooperation with the Association of the Austrian Wood Industries

2007-2010

"Mechanical characterization of wood for knowledge-based timber industry"

FFG-Project in cooperation with the Association of the Austrian Wood Industries

Publications

for WG 3 "Connections":

[1] G. Hochreiner, T.K. Bader, K. de Borst, J. Eberhardsteiner: "Stiftförmige Verbindungsmittel im EC5 und baustatische Modellbildung mittels kommerzieller Statiksoftware"; Bauingenieur, 88 (2013), S. 275 - 289, in German.

[2] Schweigler, M. (2013) "A Numerical Model for Slip Curves of Dowel Connections and Its Application to Timber Structures", Master Thesis, IMWS, TU Vienna

[3] T.K. Bader, M. Schweigler, G. Hochreiner, J. Eberhardsteiner: "Berechnungsmodell für das Last-Verformungsverhalten von Stabdübelgruppen im Ingenieurholzbau"; in: "Berichte der Fachtagung Baustatik-Baupraxis 12", TU-München, 2014, ISBN: 978-3-00-041256-1, 113 - 121, in German.

[4] T.K. Bader, M. Schweigler, G. Hochreiner, E. Serrano, B. Enquist, M. Dorn: „Dowel deformations in multi-dowel LVL-connections under moment loading“; submitted for publication in Wood Material Science and Engineering, 2015

Material Science and Engineering, 2015

[5] T.K. Bader, M. Schweigler, G. Hochreiner, B. Enquist, M. Dorn, E. Serrano: „Experimental characterization of the global and local behavior of multi-dowel LVL-connections under complex loading“; submitted for publication in Materials and Structures, 2015

Austria - Mr. Andreas Ringhofer (WG)

Graz University of Technology
Graz, Austria

andreas.ringhofer(at)tugraz.at

COST FP1402, WG3 Member

Personal	*Organisation*
Years of experience in relevant field: 5 Expertise: timber engineering, wood technology, joints & fasteners, especially connection technique with self-tapping screws Degree: Dipl.Ing. (24.11.2010)	Institute of Timber Engineering and Wood Technology (www.lignum.tugraz.at) Focus: theoretical and practical research / innovation, design of structures, execution of structures and education/training Facilities : testing lab collaboration of the Faculty of Civil Engineering, especially for determination of mechanical strength and stiffness properties, various test machines with applicable forces up to 4 MN, climatic chambers, etc.

No. of staff	PhD students	MSc/year
7	4	10

Research projects

COMET K-Project 'timber.engineering', 01/2008-12/2012, mainly staff of the competence centre holz.bau forschungs gmbh and of the institute, www.holzbauforschung.at

COMET K-Project 'focus_sts', 01/2013-12/2016, mainly staff of the competence centre holz.bau forschungs gmbh and of the institute, www.holzbauforschung.at

European Framework Programme 7 'Seismic Engineering Research Infrastructures for European Synergies (SERIES)', part Cross Laminated Timber, 07/2011-02/2013, Georg Flatscher, Andreas Ringhofer, Gerhard Schickhofer, www.series.upatras.gr/TIMBER_BUILDINGS

FFG BRIDGE Project 'SCREWS', 03/2010-12/2012, Gernot Pirnbacher, Andreas Ringhofer, Gerhard Schickhofer

Publications

Pirnbacher, G., Brandner, R., Schickhofer, G. 2009 'Base parameters of self-tapping screws', CIB-W18/42-7-1, Duebendorf, Switzerland.

Krenn, H., Schickhofer, G. 2009 'Joints with inclined screws and steel plates as outer members', CIB-W18/42-7-1, Duebendorf, Switzerland.

Huebner, U. 2013 'Withdrawal strength of self-tapping screws in hardwoods' CIB-W18/46-7-4, Vancouver, Canada.

Ringhofer, A., Brandner, R., Schickhofer, G. 2014 'Entwicklung einer optimierten Schraubengeometrie für hochbeanspruchte Stahl-Holz-Verbindungen', Bautechnik, Vol. 91, pp. 31-37.

Ringhofer, A., Grabner, M., Silva, C.V., Branco, J., Schickhofer, G. 2014 'The influence of moisture content variation on the withdrawal capacity of self-tapping screws', Holztechnologie, Vol. 55, pp. 33 - 40.

Ringhofer, A., Brandner, R., Schickhofer, G. 2015 'Withdrawal resistance of self-tapping screws in unidirectional and orthogonal layered timber products', Materials and Structures, Vol. 48, pp. 1435 - 1447.

Flatscher, G., Bratulic, K., Schickhofer, G. 2015 'Experimental tests on cross-laminated timber joints and walls.', Structures and Buildings, DOI: 10.1680/stbu.13.00085 (in press).

Flatscher, G., Schickhofer, G. 2015 'Shaking table test of a cross-laminated timber structure.' Structures and Buildings, (accepted for publication).

Belgium - Prof. Dr. Thierry Descamps (MC)

University of Mons
Mons - Belgium

thierry.descamps(at)umons.ac.be

COST FP1402, MC Member, STSM Manager, WG3 Member

Personal	*Organisation*		
Years of experience in relevant field: 11 Expertise: Old carpentry connections, glued-in rods, modelling, semi-rigidity, optimization. Degree: PhD (01.03.2008)	Civil engineering and Structural Mechanics (www.umons.ac.be) Focus: theoretical and practical research / innovation, design of structures and education / training Facilities: FE softwares		
	No. of staff	PhD students	MSc/year
	3	2	6

Research projects

Development of a new "Structural Insulated Panel" made od CLT pannels, biobased insulation and connected by self-tapping screws.

Modelling of glued-in rods connections under axial and shear solliciations

Publications

Aira José-Ramon, Descamps Thierry, VanParys Laurent, Leoskool Laurent, (2015). "Study of stress distribution and stress concentration factor in notched wood pieces with cohesive surfaces" in European Journal of Wood and Wood Products, (DOI) 10.1007/s00107-015-0891-3

Léoskool Laurent, Serrano Erik, Descamps Thierry, Avez Coralie (2014). "Cross-laminated timber: modelling of connections using self-tapping screws". European Journal of Wood and Wood Products.

Bléron Laurent, Lathuillière Damien, Descamps Thierry, (2014). "Reinforcement of dowelled-type connections". To be published in Construction and Building materials. 16 pages.

Branco Jorge, Descamps Thierry (2014). "Design and reinforcement of old carpentry connections". To be published in Construction and Building materials. 18 pages.

<table>
<tr><td colspan="4">Bulgaria - Dr. Svetozar Madzhov (MC)

Forest Research Institute
Sofia, Bulgaria

smadjov(at)petkovaconsult.com

COST FP1402, MC Member, WG1 Member</td></tr>
<tr><td>Personal</td><td colspan="3">Organisation</td></tr>
<tr><td rowspan="3">Years of experience in relevant field: 3

Expertise: hand and machined milled log homes, modelling, log constructions, wooden bridges

Degree: PhD. (29.1.2007)</td><td colspan="3">Silviculture and Management of Forest Resources (http://www.bas.bg/fribas/?page_id=257)

Focus: theoretical and practical research / innovation, design of structures and education / training

Facilities: testing labs, workshop</td></tr>
<tr><td>No. of staff</td><td>PhD students</td><td>MSc/year</td></tr>
<tr><td>3</td><td>-</td><td>-</td></tr>
<tr><td colspan="4">Research projects</td></tr>
<tr><td colspan="4">Creation and implementation of technology and machinery for manufacturing of wooden houses from round wood in Bulgaria - 3 person involved, we started 1 year ago.</td></tr>
<tr><td colspan="4">Publications</td></tr>
<tr><td colspan="4">Glushkov S., I. Markov, V. Tchakarov, Sv. Madjov 2014 Technology and machinery for manifacture of wooden houses from round wood on Bulgaria – I st. Conference: Performance and maintenance of bio-based building materials – Cost Action FP1303 - First Conference Krasnaq Gora, Slovenia p. 41 – 43</td></tr>
</table>

Bulgaria - Dr. Sotir Gluschkov (MC Sub)

Forest Research Institute
Sofia, Bulgaria

sotirgluschkov(at)abv.bg

COST FP1402, MC Substitute Member, WG1 Member

Personal	*Organisation*		
Years of experience in relevant field: 3 Expertise: hand and machined milled log homes, modelling, log constructions, wooden bridges Degree: PhD. (26.11.2009)	Silviculture and Management of Forest Resources (http://www.bas.bg/fribas/?page_id=257) Focus: theoretical and practical research / innovation, design of structures and education / training Facilities: testing labs, workshop		
	No. of staff	PhD students	MSc/year
	3	-	-

Research projects

Creation and implementation of technology and machinery for manufacturing of wooden houses from round wood in Bulgaria - 3 person involved, we started 1 year ago.

Publications

Glushkov S., I. Markov, V. Tchakarov, Sv. Madjov 2014 Technology and machinery for manifacture of wooden houses from round wood on Bulgaria – I st. Conference: Performance and maintenance of bio-based building materials – Cost Action FP1303 - First Conference Krasnaq Gora, Slovenia p. 41 – 43

Croatia - Prof. Dr. Vlatka Rajčić (MC)

University of Zagreb, Faculty of Civil Engineering
Zagreb, Croatia

vrajcic(at)grad.hr

COST FP1402, MC Member, WG4 Member

Personal	*Organisation*
Years of experience in relevant field: 22 Expertise: composite structures, robustness of timber structures, assesment and evaluation of material properties by NDTs Degree: PhD (10.07.2000)	Structural Department/Chair for Timber Structures (www.unizag.grad.hr) Focus: theoretical and practical research / innovation, design of structures, education / training and revision of timber design projects, timber structures Facilities: Multi-purpose universal testing machines Z600 and ACTUATOR 600/250, ZWICK for static and dynamic testing. Portable devices: ultrasound device, spectral analyser, resistograph, moisturemeters, etc.

No. of staff	PhD students	MSc/year
5	4	55

Research projects

- Experimental evaluation of composite timber-lightweight concrete (EPS) structures behavior“, Faculty of Civil Engineering University of Zagreb, financed by Ministry of Science and Technology RCroatia, coordinator Vlatka Rajčić, 1998.-2000.

- Composite structural systems timber-structural glass and timber-steel“ (Nr. 082-1491823-1463) Faculty of Civil Engineering University of Zagreb, financed by Ministry of Science and Technology RCroatia, coordinator prof.dr.sc. Vlatka Rajčić,(people involved: 2007-2012

- CLIMATE FOR CULTURE Damage risk assessment, macroeconomic impact and mitigation strategies for sustainable preservation of cultural heritage in the times of climate change FP7 project (2009-2014), coordinator Fraunhofer Germany (Johanna Leissner and Ralf Kilian), www.climateforculture.eu

- Bilateral project: - Seismic resistance of composite timber-structural glass structural systems with opimal lavel of enery dissipation” Faculty of Civil Engineering Zagreb, Croatia and Instute for seismic engineering, Skopje, Macedonia. Bilateral project Croatia-Macedonia, 2010- 2013, coordinators prof. Vlatka Rajčić and prof. Lidija Krstevska

- The behavior and the possibility of rehabilitation of wooden frames with structural glass infill in earthquakes , financed by Ministry of Science and Technology RCroatia (2014-2015)

Publications

1. Pavković, Krunoslav; Rajčić, Vlatka; Haiman, Miljenko.Large diameter fastener in locally reinforced and non-reinforced timber loaded perpendicular to grain. // Engineering structures. 74 (2014) ; 256-265 (scientific paper).

2. Steiger, René; Serrano, Erik LU; Stepinac, Mislav; Rajčić, Vlatka; O'Neill, Caoimhe; McPolin, Daniel; Widmann, Robert. Strengthening of timber structures with glued-in rods. // Construction and building materials. 1 (2015) , 1; 1-1 (scientific paper)

3. Stepinac, Mislav; Rajčić, Vlatka; Barbalić Jure. Influence of long term load on timber-concrete composite systems. //Gradevinar, Journal of the Croatian Association of Civil Engineers. 67 (2015) , 3/2015; 235-246 (scientific review)

4. Antolinca, David; Rajčić, Vlatka; Žarnić, Roko: Analysis of hysteretic response of glass infilled wooden frames. // Journal of Civil Engineering and Management. 20 (2014) , 4; 600-608

5. Kirkegaard, Poul Henning; Sørensen, John Dalsgaard; Čizmar, Dean; Rajčić, Vlatka: System reliability of timber structures with ductile behaviour. // Engineering structures. 33 (2011) , 11; 3093-3098

6. Krunoslav Pavković, Vlatka Rajčić, Dean Čizmar: PARAMETRIC ANALYSIS OF LARGE DIAMETER MECHANICAL FASTENER IN REINFORCED GLULAM, Technical Gazette Vol 21, 4(2014), 843-852

7. Rajčić, Vlatka; Bjelanović, Adriana; Rak, Mladenko: Bearing capacity of glued in steel rods in oak elements// Gradevinar, Journal of the Croatian Association of Civil Engineers. Vol 56 (2004), 3; 155-161

8. Krstevska, Lidija; Tashkov, Ljubče; Rajčić, Vlatka; Žarnić, Roko: Shaking Table Test of Innovative Composite Panel Composed of Glued Laminated Wood and Bearing Glass// Proceedings of the 15th World

Croatia - Mr. Mislav Stepinac (MC Sub)

University of Zagreb
Zagreb Croatia
mstepinac(at)gmail.com
COST FP1402, MC Substitute Member, WG3 member

Personal	*Organisation*		
Years of experience in relevant field: 6 Expertise: joints in timber structures, glued in rods, glass-timber composites, timber frames with glass infill Degree: MSc. (12.06.2008)	Faculty of Civil Engineering, Structural department (www.grad.hr) Focus: practical research / innovation, design of structures and education / training Facilities: Testing lab, NDT instruments for timber, quadcopter		
	No. of staff	PhD students	MSc/year
	3	2	55

Research projects

SMOOHS - European Commission (EU), Seventh Framework Programme - ENVIRONMENT, Project Reference: 212939, duration 4 years, people involved: Vlatka Rajčić, Mislav Stepinac, www.smoohs.eu/tiki-index.php

" Seismic resistance of composite structural systems timber-structural glass with optimal energy dissipation" - bilateral project with IZIIS intitute from Skopje, Macedonia, duration 1 year, people involved: Vlatka Rajčić, Mislav Stepinac

Publications

1. Antolinc, David; Rajčić, Vlatka; Žarnić, Roko.
Analysis of hysteretic response of glass infilled wooden frames. // Journal of Civil Engineering and Management. 20 (2014)

2. Pavković, Krunoslav; Rajčić, Vlatka; Haiman, Miljenko.
Large diameter fastener in locally reinforced and non-reinforced timber loaded perpendicular to grain. // Engineering structures. 74 (2014) ; 256-265

3. Čizmar, Dean; Kirkegaard, Poul Henning; Sorensen, John Dalsgaard; Rajčić, Vlatka.
Reliability-based robustness analysis for a Croatian sports hall. // Engineering structures. 33 (2011) , 11; 3118-3124

4. Kirkegaard, Poul Henning; Sørensen, John Dalsgaard; Čizmar, Dean; Rajčić, Vlatka.
System reliability of timber structures with ductile behaviour. // Engineering structures. 33 (2011) , 11; 3093-3098

5. Stepinac, Mislav; Hunger, Frank; Tomasi, Roberto; Serrano, Erik; Rajčić, Vlatka; van de Kuilen, Jan-Willem, Comparison of design rules for glued-in rods and design rule proposal for implementation in European standards // CIB-W18, 2013.

Denmark - Dr. Jørgen Munch-Andersen (MC)

Danish Timber Information
Lyngby, Denmark
jma(at)traeinfo.dk

COST FP1402, MC Member, WG3 Leader

Personal	*Organisation*		
Years of experience in relevant field: 10 Expertise: Design of connections, Statistical data analysis, Loads, Performance requirements Degree: PhD (31.10.1989)	Danish Timber Information (www.traeinfo.dk) Focus: practical research / innovation and education / training Facilities: None		
	No. of staff	PhD students	MSc/year
	5	0	1

Research projects

Running projects (Jørgen Munch-Andersen):

- Background for development of EC5
- Maintenance of the webpage CIB-W18.com
- Development of the programme SØMDIM for calculating the load-carrying capacities of fasteners

Publications

– Svensson, S., Munch-Andersen, J.: Study on the Rope-effect on the Load-carrying Capacity of Nailed Connections. In: Proc. of 1st INTER meeting. Bath, UK, 1 - 4 Sept. 2014.

– Munch-Andersen, J., Svensson, S.: Fasteners and connections in the next Eurocode 5. In: Proc. of CIB W18 meeting 46. Vancouver, Canada, 25 - 29 Aug. 2013.

– Munch-Andersen, J., Svensson, S.:The withdrawal strength of 8 threaded nails types. In: Proc. of CIB W18 meeting 45. Växjö, Sweden, 26 - 30 Aug. 2012.

– Munch-Andersen, J., Sørensen, J. D.: Pull-through capacity in plywood and OSB. In: Proc. of CIB W18 meeting 44. Alghero, Italy, 29 Aug. - 1 Sept. 2011.

– Munch-Andersen, J., Sørensen, J. D., Sørensen, F.: Estimation of load-bearing capacity of timber connections. In: Proc. of CIB W18 meeting 43. Nelson, New Zealand, 22 - 26 Aug. 2010.

Denmark - Prof. Dr. John Dalsgaard Sørensen (MC Sub)

Aalborg University
Aalborg Denmark
jds(at)civil.aau.dk

COST FP1402, MC Substitute Member , WG1 member

Personal	*Organisation*		
Years of experience in relevant field: 35 Expertise: Reliability, stochastic modelling, standardization, development of standards Degree: PhD (01.03.1984)	Department of Civil Engineering (http://www.civil.aau.dk/) Focus: theoretical and practical research / innovation and education / training Facilities: Structural testing lab		
	No. of staff	PhD students	MSc/year
	20	1	40

Research projects

COST Action TU1402: Quantifying the Value of Structural Health Monitoring, 2015-2019, John dalsgaard Sørensen

COST Action TU0601: Robustness of Structures, 2007-2011, John Dalsgaard Sørensen

COST Action E55: Modelling of the Performance of Timber Structures, 2007-2011, John Dalsgaard Sørensen

Publications

Sørensen, J.D., E. Rizzuto, Harikrishna Narasimhan and M.H. Faber: Robustness – theoretical framework. Structural Engineering International, Vol. 1, 2012, pp. 66-72.

Köhler, J.D., J.D. Sørensen & M.H. Faber: Probabilistic Modelling of Timber Structures. Struc-tural Safety. 2007, pp. 255-267.

Sørensen, J.D. & P.H. Kirkegaard: Probabilistic Robustness Analysis of Timber Structures – Results from EU COST Action E55:WG3. Taylor & Francis, CD-rom proc. ICASP11 conf., Zurich, Switzerland, 2011, pp. 1345-1352.

Denmark - Mr. Erik Hilmer Riberholt (WG)

H. Riberholt ApS
Lyngby Denmark
Hilmer(at)Riberholt.com
COST FP1402, WG3 Member

Personal	*Organisation*		
Years of experience in relevant field: 40 Expertise: Research in timber structures. Preparation of structural codes and standards. Design of practical timber structures. Degree: Civil Engineering –Structural (30.06.1970)	H. Riberholt ApS (www.Riberholt.com) Focus: design of structures, preparation of standards and codes Facilities: None		
	No. of staff	PhD students	MSc/year
	15	0	0

Research projects

Reinforcement of existing glulam structure by glued in rods. 3 months June to September 2014. 4 people.

Publications

None

Estonia - Dr. Alan Just (MC)

Tallinn University of Technology

Tallinn, Estonia

alar.just(at)gmail.com

COST FP1402 MC Member, WG1 Member

Personal	*Organisation*		
Years of experience in relevant field: 17 Expertise: Design and testing of timber structures; fire design models of timber structures Degree: PhD. (18.10.2010)	Department of structural design (http://www.ttu.ee/faculty-of-civil-engineering) Focus: theoretical and practical research / innovation and education / training Facilities: Testing lab for structures and building physics		
	No. of staff	PhD students	MSc/year
	3	4	4

Research projects

Connections of CLT structures.

Ongoing from 2013.

Eero Tuhkanen, Joosep Mölder

Publications

Tuhkanen, E.; Õiger, K (2013). The behavior of toothed-plate connectors under reversed cyclic loading. In: Structures and Architecture: Concepts, Applications and Challenges: Second International Conference on Structures and Architecture - ICSA 2013, 24.-26.juuli 2013, Guimarães, Portugal. (Eds.)Paulo J.S. Cruz. Taylor & Francis, 2248 - 2254.

Mölder, J. Determination of embedment strength values for dowel type fasteners in GLT and CLT with different layups. Master thesis of Estonian University of Life Sciences. June 2015.

Supervisor: Eero Tuhkanen

Õiger, K.; Just, E.; Just, A. (2001). Experimental and Theoretical Analysis of Reinforced Glulam Beams. IABSE Conference, Lahti 2001, Innovative Wooden structures and Bridges, Aug. 29-31, 2001,Lahti, Finland. , (IABSE Reports), 343 - 348.

Estonia - Mr. Eero Tuhkanen (MC)

Tallinn University of Technology

Tallinn, Estonia

eero.tuhkanen(at)ttu.ee

COST FP1402, MC Member, WG3 Member

Personal	*Organisation*		
Years of experience in relevant field: - Expertise: Joints with Dowel Type Fasteners in CLT Structures; CLT shear wall systems Degree: Master Degree (06.12.2007)	Faculty of Civil Engineering, Department of Structural Design (http://www.ttu.ee/) Focus: theoretical and practical research / innovation, design of structures and education and training Facilities: Zwick/Roell Z250 strength testing device		
	No. of staff	PhD students	MSc/year
	4	3	5

Research projects

* Determination of embedment strength values for dowel type fasteners in GLT and CLT with different layups. In process of completion (10.2014 - 06.2015)

Eero Tuhkanen; Joosep Mölder

Publications

Tuhkanen, E.; Õiger, K (2013). The behavior of toothed-plate connectors under reversed cyclic loading. In: Structures and Architecture: Concepts, Applications and Challenges: Second International Conference on Structures and Architecture - ICSA 2013, 24.-26.juuli 2013, Guimarães, Portugal. (Eds.)Paulo J.S. Cruz. Taylor & Francis, 2248 - 2254.

Finland – Dr. Gerhard Fink (MC Sub)

Aalto University, School of Engineering, Department of Civil Engineering

Espoo, Finland

gerhard.fink(at)aalto.fi

COST FP1402, MC Substitute, WG1 Vice Leader

Personal	*Organisation*		
Years of experience in relevant field: 6 Expertise: Mechanical properties of solid timber and GLT, probabilistic modelling of GLT, strength grading, quality control, test methods, code calibration, Bayes updating, risk analysis Degree: PhD (24.03.2014)	Aalto University, School of Engineering, Department of Civil Engineering (www.aalto.fi) Focus: theoretical and practical research/innovation, education/training Facilities: Testing lab with strong floor, several universal testing machines, hydraulic jacks of different capacities		
	No. of staff	PhD students	MSc/year
	3	2	2

Research projects

WG 2 - Solid Timber Construction:

- Earthquake-resistant timber system for multi-storey buildings. 4 years. 4 persons.
- Assessment of the residual load-carrying capacity of large span glulam members with cracks. 2 years. 3 person.
- Homogenous and combind glulam made from beech wood - Technical basis for the market implementation as building product used for beams and columns. 3 years. 4 persons.

WG 3 - Connections:

- Enhancement of compression perp. to grain strength of glulam with pin-shaped fasteners. 2 years. 3 persons.
- Structural behaviour of glued laminated timber beams with unreinforced and reinforced nothces. 4 years. 3 persons.

WG 4 - Hybrid Structures:

- CLT-concrete composite slab lacking of any rebar and metallic shear connectors. 1.5 years, 3 persons.

Publications

WG 1 - Basis of Design:

Kohler, J. & Fink, G. 2015. Aspects of code based design of timber structures, Accepted for publication at ICASP Applications of Statistics and Probability in Civil Engineering, Vancouver, Canada.

Köhler J., Steiger R., Fink G., Jockwer R. 2012: Assessment of selected Eurocode based design equations in regard to structural reliability. Proceedings of CIB-W18 Meeting 45, Växjö, Sweden, August 27 – 30, 2012. Paper 45-102-1.

WG 2 - Solid Timber Construction:

Theiler M., Frangi A., Steiger R. 2013: Strain-based calculation model for centrically and eccentrically loaded timber columns. Engineering Structures 56: 1103 – 1116.

Steiger R., Gehri E. 2011: Interaction of shear stresses and stresses perpendicular to the grain. Proceedings of CIB-W18 Meeting 44, Alghero, Sardegna (Italy), August 28 – September 1, 2011. Paper 44-6-2.

Steiger R., Arnold A. 2009: Strength grading of Norway spruce structural timber: Revisiting property relation-ships used in EN 338 classification system. Wood Science and Technology 43 (3-4): 259 – 278.

Steiger R., Fontana M. 2005: Bending moment and axial force interacting on solid timber beams. Materials and Structures 38 (279): 507 – 513.

WG 3 - Connections:

Tlustochowicz G., Serrano E., Steiger R. 2011: State-of-the-art review on timber connections with glued-in steel rods. Materials and Structures 44 (5): 997 – 1020.

France - Mr. Renaud Blondeau-Patissier (WG)

Woodeum Ingénierie

Boulogne-Billiancourt, France

r.blondeau(at)woodeum.com

COST FP1402, WG2 Member

Personal	*Organisation*		
Years of experience in relevant field: 10 Expertise: Moddelling of CLT (user) - Certification of CLT (France, Fire) Degree: Master in Timber Structures (01.06.2004)	Woodeum Ingénierie (www.woodeum.com) Focus: design of structure and execution of structures Facilities: on site project monitoring		
	No. of staff	PhD students	MSc/year
	12	0	-

Research projects

- Not yet (new company)

Publications

- Not yet (new company)

France - Mr. Frank Kupferle (WG)

C4Ci
Mundolsheim, France
frank.kupferle(at)c4ci.eu
COST FP1402, WG4 Member

Personal

Years of experience in relevant field: 12

Expertise: Wood-based I-joists and Engineered wood products ; day-to-day application of EC5 ; connections and reinforcements ; hybrid (timber-concrete) structures ; vibration

Degree: Ingénieur Civil des Mines(Nancy) (30.06.1995)

Organisation

C4Ci (www.c4ci.eu)

Focus: practical research / innovation, design of structures and education/training.

Facilities: none (except computers and typical design related software)

No. of staff	PhD students	MSc/year
3	0	1

Research projects

[WG 1] Development of design methodologies to EC5 for traditional carpentry joints, based on calibration from tests realised by the timber industry in France (sponsored by CODIFAB). Involved 3 people (1 Master student). 12 Months. [Recent]

[WG 1] Technical-economical analysis of various vibration design criteria based on large scale litterature review (standards worldwide, NAs to EC5 , research/publications), for : lightweight or heacy timber/I-joist floor, CLT, attic trusses (sponsored by CODIFAB). will involve 2 people. 6 months [Current - about to start]

[WG 1] Extension of design methodologies to EC5 for traditional carpentry joints to Fire Design (sponsored by CODIFAB). [Current - just starting]

[WG 3] Proposition of simplified design methods for dowel-type joints to EC5 (sponsored by CODIFAB). Involves 2 people . 6 months. [Recent]

[WG 4] Hybrid Timber Structures in normal and Fire situation, review of existing research work and proposed methodologies, analysis of technical-economical implications of their applications on two types of connections (notch combined with dowels, dowel type fasteners alone). (Sponsored by CODIFAB). Involves 3 people (1 Master student). 6 Months [Current - WIP]

Publications

No scientifical publications : work sponsored by CODIFAB may be publisehd in form of reports or guides by this public organsation.

France - Prof. Dr. Cedric Montero (WG)

University of Montpellier
Montpellier, France

cedric.montero(at)umontpellier.fr

COST FP1402, WG1 Member

Personal	*Organisation*		
Years of experience in relevant field: 27 Expertise: rheology, hygromechanical couplings of wood, long term deflection of timber Degree: PhD (1998)	Laboratory of Mechanics and Civil Engineering (www.lmgc.univ-montp2.fr) Focus: theoretical and practical research / innovation and education /training Facilities Mechanical testing machines (tensile, compressive, flexural tests), climate chambers (range of temperature and relative humidity on different volumes), vibrational and dynamical machines, thermal machines (oven, fluid heater).		
	No. of staff	PhD students	MSc/year
	14	3	2

Research projects

WG1:

'MechWood – Mechanical characteriza- tion of wood for knowledge-based timber industry', which was launched and partially funded within the initiative 'Building With Wood' by the European Confederation of Woodworking Industries (CEI-Bois) 2008-2011. ; de Borst, K. [TU Vienna]; Jenkel, C. [TU Dresden]; Montero, C. [LMGC]; Colmars, J. [LMGC]; Gril, J. [LMGC]; Kaliske, M. [TU Dresden] & Eberhardsteiner, J. [TU Vienna] http://www.imws.tuwien.ac.at/en/mechwood/mechwood/

Publications

WG1:

. Montero, C.; Gril, J.; Legeas, C.; Hunt, D. G. & Clair, B. Influence of hygromechanical history on the longitudinal mechanosorptive creep of wood Holzforschung, 2012, 66, 757-764

. de Borst, K.; Jenkel, C.; Montero, C.; Colmars, J.; Gril, J.; Kaliske, M. & Eberhardsteiner, J. Mechanical characterization of wood: An integrative approach ranging from nanoscale to structure Computers and Structures, Elsevier Ltd, 2013, 127, 53-67

. Colmars, J.; Dubois, F. & Gril, J. One-dimensional discrete formulation of a hygrolock model for wood hygromechanics Mechanics of Time-Dependent Materials, 2013, 18, 309-328

. Matsuo, M.; Yokoyama, M.; Sugiyama, J.; Kawai, S.; Gril, J.; Kubodera, S.; Mitsutani, T.; Ozaki, H.; Sakamoto, M. & Imamura, M. Aging of wood : Analysis of color changes during natural aging and heat treatment Holzforschung, 2011, 65, 361-368

. Dlouhá, J.; Clair, B.; Arnould, O.; Horáček, P. & Gril, J. On the time-temperature equivalency in green wood: Characterisation of viscoelastic properties in longitudinal direction Holzforschung, 2009, 63, 327-333

. Gril, J.; Hunt, D. G. & Thibaut, B. Using wood creep data to discuss the contribution of cell-wall reinforcing material. Comptes rendus biologies, 2004, 327, 881-888

. Hunt, D. G. & Gril, J. Evidence of a physical ageing phenomenon in wood Journal of materials science letters, 1996, 15, 80-82

Germany - Dr. Carmen Sandhaas (MC)

Karlsruhe Institute of Technology (KIT)

Karlsruhe Germany

sandhaas(at)kit.edu

COST FP1402, MC Member, WG3 Vice Leader

Personal	*Organisation*		
Years of experience in relevant field: 5 Expertise: wood material and joint modelling, execution of tests, seismic behaviour of timber buildings Degree: PhD (01.06.2012)	Institute for Timber Structures and Building Construction (www.vaka.holz.kit.edu) Focus: theoretical and practical research/innovation and education, training. Facilities : testing lab (joint and element tests, shear wall tests, monotonic and cyclic tests, all relevant tests on fasteners), measuring equipment, drying chambers		
	No. of staff	PhD students	MSc/year
	21	5	30

Research projects

WG2 CLT:

Contact joints in CLT (Tobias Schmidt)

CLT Beams (Marcus Flaig)

WG3 connections:

High-performance joints for engineered softwood and hardwood structures (Marcus Enders-Comberg)

Mechanical performance of timber joints with slotted-in steel plates (Carmen Sandhaas)

Publications

WG2 CLT:

Flaig, M., 2014, 'Design of CLT beams with rectangular holes and notches', Paper 47-12-4, Meeting 47 of International Network on Timber Engineering Research (INTER), Bath, United Kingdom, pp. 193-207.

Flaig, M., Blaß, H. J., 2014, 'Bending strength of cross laminated timber beams loaded in plane', Proceedings of the 13th World Conference on Timber Engineering (WCTE), Quebec, Canada.

WG3 connections:

Steilner, M., Blaß, H. J., 2014, 'A method to determine the plastic bending angle of dowel-type fasteners', RILEM bookseries 9: Materials and Joints in Timber Structures. Ed.: S. Aicher, Springer, Berlin, pp. 301-306.

Van de Kuilen, J. W. G., Sandhaas, C., Blaß, H. J., 2014, 'ASteel-to-timber joints with very high strength steel dowels using spruce, beech and azobé', RILEM bookseries 9: Materials and Joints in Timber Structures. Ed.: S. Aicher, Springer, Berlin, pp. 157-165.

Enders-Comberg, M., Blaß, H. J., 2013, 'Influence of holes in the compression area of members - Querschnittsschwächung bei Druckbeanspruchung parallel zur Faser', European Journal of Wood and Wood Products, Vol. 70, Issue 3, pp. 309-317..

Germany - Prof. Dr. Jörg Schänzlin (MC Sub)

Hochschule Biberach
Biberach Germany

schaenzlin(at)hochschule-bc.de

COST FP1402, MC Substitute, WG4 Vice Leader

Personal	*Organisation*
Years of experience in relevant field: 15 Expertise: Timber-concrete-composite structures; long term behaviour Degree: Habilitation (01.12.2010)	Institut für Holzbau (http://www.hochschule-biberach.de/web/ifh) Focus: theoretical research / innovation, design of structures and education /training Facilities: one small testing lab; databases about built timber structures;

No. of staff	PhD students	MSc/year
3	0	1

Research projects

Brettstapel-Beton-Verbunddecken mit integriertem Slim-Floor-Profil. DBU-AZ 21168 , Universtität Stuttgart, Institut für Konstrktion und Entwurf, Prof. Dr.-Ing. U. Kuhlmann

Baukostensenkung durch weiterentwickelte Brettstapel-Beton-Verbunddecken. Schlußbericht zum Forschungsvorhaben im Auftrag des Bundesamt für Bauwesen und Raumordnung (BBR), BS 34-8001 00-1/124-3-6-7, 2002, Universtität Stuttgart, Institut für Konstrktion und Entwurf, Prof. Dr.-Ing. U. Kuhlmann

Erweiterung des Anwendungsbereiches von Holz-Beton-Verbunddecken durch Erfassung von Kriechen und Schwinden am Beispiel der Brettstapel-Beton-Verbunddecke. Schlußbericht zum Forschungsvorhaben AiF 12421N im Auftrag def DGfH, 2002, Universtität Stuttgart, Institut für Konstrktion und Entwurf, Prof. Dr.-Ing. U. Kuhlmann

Publications

Jorge, L.; Schänzlin, J.; Lopes, S.; Cruz, H.; Kuhlmann; U.: Time-dependent behaviour of timber lightweight concrete composite floors. Eng Struct 32(12):3966 - 3973. doi, 2010

Schänzlin, J.: Modeling the long-term behavior of structural timber for typical seviceclass-II-conditions in South-West Germany, Habilitation, Institut für Konstruktion und Entwurf, Universität Stuttgart Nr. 2010-2

Schänzlin, J.; Fragiacomo, M.: Extension of EC5 Annex B Formulas for the Desing of Timber-concrete Composite Structures. In: CIB – W18. Proccedings of the International Council for Research and Innovation in Building and Construction, Working Commission W18 – Timber Structures, Meeting Forty, August 2007, Bled, Slovenia

Schänzlin, J.: Zum Langzeitverhalten von Brettstapel-Beton-Verbunddecken. Mittei-
lungen des Instituts für Konstruktion und Entwurf, Nr. 2003-2, PhD-thesis

Germany - Prof. Dr. Francois Colling (WG)

University of Applied Sciences Augsburg
Augsburg Germany
francois.colling(at)hs-augsburg.de
COST FP1402, WG1 Member

Personal	*Organisation*		
Years of experience in relevant field: 35 Expertise: Timber engineering, basis of design, glued laminated and cross laminated timber, connections etc Degree: Professor (01.09.2015)	Institut für Holzbau (IfH) - Institute for timber engineering (www.ifh-augsburg.de) Focus: theoretical and practical research / innovation and education / training Facilities: testing lab		
	No. of staff	PhD students	MSc/year
	2	0	20

Research projects

Bedö, S. 2014: Bearing capacity of cross laminated timber. Thesis.

Publications

Colling, F. 2015: Creep of CLT in service class 2. European Journal of wood and wood products 2015 (in preparation).

Colling, F. 2014: Holzbau - Grundlagen und Bemessung nach EC 5. 4. Auflage, Springer-Verlag.

Colling, F. 2014: Holzbau - Beispiele. 4. Auflage, Springer-Verlag.

Colling, F. 2011: Aussteifung von Gebäuden in Holztafelbauart. Ingenieurbüro für Holzbau, Karlsruhe.

Colling, F. since 2008: Holzbau: part in Schneider Bautabellen für Ingenieure.

Germany - Dr. Marcus Flaig (WG)

Blaß & Eberhart GmbH
Karlsruhe Germany
flaig(at)ing-bue.de
COST FP1402, WG2 Member

Personal	*Organisation*		
Years of experience in relevant field: 6 Expertise: strength and stiffness of CLT members, shear failure modes, CLT-beams, tapered CLT-beams, CLT beams with holes or notches, system strength factors for CLT, large finger joints in CLT Degree: PhD. (01.06.2013)	Blaß & Eberhart GmbH (www.ing-bue.de) Focus: theoretical research / innovation, design of structure and education / training Facilities: -		
	No. of staff	PhD students	MSc/year
	9	0	0

Research projects

WG2 CLT:

CLT Beams, 2010-2012, Marcus Flaig, holz.vaka.kit.edu

Large finger joints in CLT beams, 2012-2015, Marcus Flaig, holz.vaka.kit.edu

(both projects were carried out at KIT Holzbau und Baukonstruktionen)

Publications

Flaig, M. (2014) Design of CLT Beams with Rectangular Holes or Notches. In: Proceedings of the International Network on Timber Engineering Research (INTER), Meeting 47, Bath, United Kingdom, 01 - 04 September 2014. Paper 47-12-4, Timber Scientific Publishing, Karlsruhe, Germany

Blaß, H.J., Flaig, M. (2014) Bending strength of cross laminated timber beams loaded in plane. In: Proceedings of the 13th World Conference on Timber Engineering, WCTE 2014, August 10-14 2014, Quebec City, Canada

Flaig, M., Meyer, N. (2014) A new test configuration to determine the slip modulus of connec-tions between crosswise bonded boards. In: Experimental Research with Timber, 21-23 May 2014, Prague. Pp77-84, University of Bath, UK

Blaß, H.J., Flaig, M. (2014) Tapered beams made of cross laminated timber. In: Materials and Joints in Timber Structures. RILEM Bookseries Vol. 9, pp 667-676, Springer, Berlin, Germany

Blaß, H.J., Flaig, M. (2013) Shear strength and shear stiffness of CLT-beams loaded in plane. In: Proceedings of the International Council for Research and Innovation in Building and Construc-tion, Working Commission W18 - Timber Structures, Meeting 46, Vancouver, Canada, 26 Au-gust - 29 August 2

Carina Fonseca Ferreira, Dina D'Ayala, Jose L. Fernandez Cabo, Marina Arce Blanco, Rafael Díez Barra, Pedro Hurtado Valdez (2015): Numerical Modelling and Seismic Assessment of Historic Planked Timber Arches. International Journal of Architectural Heritage. DOI: 10.1080/15583058.2015.1041194

Germany – Mr. Matthias Gerold (WG)

Harrer Ingenieure

Karlsruhe Germany

m.gerold(at)harrer-ing.net

COST FP1402, WG1 Member

Personal	*Organisation*		
Years of experience in relevant field: 25 Expertise: Planning of structural framework, structurally engineered check, technical expert of all materials and for all kind of constructions Degree: Dipl.-Ing. (03.09.1985)	Building construction (www.harrer-ing.net) Focus: practical research / innovation, design of structures, execution of structures and education / training Facilities: Structural Design and Civil Engineering, Bridge Construction and Foundation Engineering, Industrial Facility, Overall Plan and Project Management, Risk Management		
	No. of staff	PhD students	MSc/year
	45	1	4

Research projects

WG 1 and 3:

1) DIN EN 1995 – Eurocode 5 Timber Structures – application testing, 2009-2010, Dipl.-Ing. Matthias Gerold, Dipl.-Ing. Marion Kleiber, Dipl.-Ing. Thomas Di Risio (all Harrer Ingenieure, Karlsruhe), Dipl.-Ing. Joachim Sauter (Holzbau Stephan, Gaildorf), Prof. Dr.-Ing. Josef Trabert (Ingenieurbüro Trabert + Partner, Geisa), no webpage

2) DIN EN 1998 – Eurocode 8 Earthquake – application testing, 2010-2011, Dipl.-Ing. Matthias Gerold, Dipl.-Ing. Marion Kleiber, Dr.-Ing. Sascha Schnepf (all Harrer Ingenieure, Karlsruhe) - part Timber Structures, Dr.-Ing. Werner Röser (H + P Ingenieure GmbH & Co. KG, Aachen) - part Concrete Structures, Dr.-Ing. Markus Hauer (Büro für Baukonstruktionen GmbH, Karlsruhe) - part Masonry Structures, Dr.-Ing. Heribert Spitz (Ingenieurgesellschaft für Tragwerksplanung mbH, Euskirchen) - part Composite Structures, Dr.-Ing. Ralf Egner (Ingenieurgruppe Bauen, Freiburg) - part Steal Structures, no webpage

WG 4:

1)Deformation measurements of edge-glued timber concrete composite floor, 2000, GEROLD, M.; KUHLMANN, U.; Di RISIO, T.; SULZBERGER, L.; SCHÄNZLIN, J., no webpage

2) Numerical studies on the feasibility study of timber concrete composite ceilings with LIGNATUR, 2005

KUHLMANN, U.; GEROLD, M., MICHELFELDER, B.

Publications

WG 1 and 3:

1) GEROLD, M.; KLEIBER, M. 2012

Design of timber structures of the future - in Bauen mit Holz, magazine 3 - 5, page 42 – 44, 40 - 34, 34 - 36

2) KLEIBER, M.; GEROLD, M.; SCHNEPF, S. 2013/2014

Seismic design of timber structures to EC8 - in Bauen mit Holz, magazine 11 + 12 (2013), page 23-27, S. 35-39, magazine 1 (2014), page 24-28

WG 4:

1) KUHLMANN, U.; GEROLD, M.; SCHÄNZLIN, J. 2000

edge-glued timber concrete composite - Consideration of creep and shrinkage- in Bauingenieur 75 (2000), magazine 6, page 281 – 288

2) KUHLMANN, U.; GEROLD, M.; SCHÄNZLIN, J. 2001

Carrying and deformation behavior of edge-glued timber concrete composite- in Bauingenieur 76 (2001), magazine 12, page 281 - 288

3) GEROLD, M.; SCHÄNZLIN, J.; KUHLMANN, U. 2003

Material timber as an ideal partner for the Composite - in Bautechnik 80 (2003), magazine 11, page 840 – 845

Germany - Ms. Marion Kleiber (WG)

Harrer Ingenieure
Karlsruhe Germany
m.kleiber(at)harrer-ing.net
COST FP1402, WG3 Member

Personal	*Organisation*		
Years of experience in relevant field: 7 Expertise: Planning of structural framework, structurally engineered check of all materials and for all kind of constructions Degree: Dipl.-Ing. (Master) (17.05.2005)	Structural Design and Civil Engineering (www.harrer-ing.net) Focus: design of structures, execution of structures and education/training. Facilities: Structural Design and Civil Engineering, Bridge Construction and Foundation Engineering, Industrial Facility, Overall Plan and Project Management, Risk Management		
	No. of staff	PhD students	MSc/year
	45	1	4

Research projects

1) DIN EN 1995 – Eurocode 5 Timber Structures – application testing, 2009-2010, Dipl.-Ing. Marion Kleiber, Dipl.-Ing. Matthias Gerold, Dipl.-Ing. Thomas Di Risio (all Harrer Ingenieure, Karlsruhe), Dipl.-Ing. Joachim Sauter (Holzbau Stephan, Gaildorf), Prof. Dr.-Ing. Josef Trabert (Ingenieurbüro Trabert + Partner, Geisa), no webpage

2) DIN EN 1998 – Eurocode 8 Earthquake – application testing, 2010-2011, Dipl.-Ing. Marion Kleiber, Dipl.-Ing. Matthias Gerold, Dr.-Ing. Sascha Schnepf (all Harrer Ingenieure, Karlsruhe) - part Timber Structures, Dr.-Ing. Werner Röser (H + P Ingenieure GmbH & Co. KG, Aachen) - part Concrete Structures, Dr.-Ing. Markus Hauer (Büro für Baukonstruktionen GmbH, Karlsruhe) - part Masonry Structures, Dr.-Ing. Heribert Spitz (Ingenieurgesellschaft für Tragwerksplanung mbH, Euskirchen) - part Composite Structures, Dr.-Ing. Ralf Egner (Ingenieurgruppe Bauen, Freiburg) - part Steal Structures, no webpage

Publications

WG 1 and 3:

1) GEROLD, M.; KLEIBER, M. 2012
Design of timber structures of the future
in Bauen mit Holz, magazine 3 - 5, page 42 – 44, 40 - 34, 34 - 36
2) KLEIBER, M.; GEROLD, M.; SCHNEPF, S. 2013/2014
Seismic design of timber structures to EC8
in bauen mit Holz, magazine 11 + 12 (2013), page 23-27, S. 35-39, magazine 1 (2014), page 24-28

Germany - Prof. Dr. Kay-Uwe Schober (WG)

Mainz University of Applied Sciences

Mainz Germany

schober(at)is-mainz.com

COST FP1402, WG4 Member

Personal	*Organisation*		
Years of experience in relevant field: 13 Expertise: Hybrid timber structures, adhesives Degree: Dr.-Ing. (11.11.2008)	iSmainz - Institute of Innovative Structures (www.is-mainz.com/schober) Focus: theoretical and practical research/innovation, design of structures Facilities: Amtliche Prüfstelle für Baustoffe, static testing equipement, climate chamber for artificial ageing of material samples, dynamic testing machines, high-end digital measurement technology, FEM- and CFM- software		
	No. of staff	PhD students	MSc/year
	13	2	8

Research projects

High-performance timber composite joints for spatial round wood truss structures, 2012-2015, Schober/Becker

Concrete-based adhesives used in connections, ongoing, Schober/Kuechler

Pre-Tensioned Timber Truss Bridges, ongoing, Schober/Becker

Bio-polymer composites for large-span timber structures, planned for 2016, Schober/Becker/Küchler

Bio-polymer composites for road reconstructions, 2016-2019, Schober/Küchler

Publications

Kliger, R., Brunner, M., Harte, A., & Schober, K.U. (2015). „Wood-based beams strengthened with FRP laminates - improved performance with prestressed systems“, European Journal of Wood and Wood Products (under review)

Schober, K.U. (2015). „New ways in composite design - Introducing round wood for modern bridge and truss structures“, Proceedings of 2015 Forest Products Society International Convention, Atlanta, USA.

Schober, K.U. & Tannert, T. (2015). „Hybrid connections for timber structures“, European Journal of Wood and Wood Products (under review)

Drass, M., Schober, K.U. & Kuechler, M. (2014a). „Advancement of glued-in rods using polymer concrete as composite material“, Proceedings of the 13th World Conference on Timber Engineering (WCTE 2014), Quebec, QC, Canada.

Drass, M., Schober, K.U. & Kuechler, M. (2014b). „Glued-in rods in timber joints: characterization of failure modes dependent on the test set-up“, Experimental Research with Timber, Schober, K.U. (ed.), Bath, United Kingdom, 17-21. ISBN 1-85790-183-5.

Schober, K.U., Becker, W., Drass, M. & Weber, J. (2014). „High-performance timber composite joints for spatial round wood truss structures “, Proceedings of the 13th World Conference on Timber Engineering (WCTE 2014), Quebec, QC, Canada.

Schober, K.U. (2014). „New jointing techniques for large-scale timber structures“, Keynote lecture, Proceedings of the 2nd Annual International Conference on Architecture and Civil Engineering (ACE 2014), xv-xviii, Singapore. ISSN 2301-394X.

Germany - Mr.Tobias Schmidt (WG)

Karlsruhe Institute of Technology (KIT)
Karlsruhe, Germany

tobias.schmidt2(at)kit.edu

COST FP1402, WG2 Member

Personal	*Organisation*
Years of experience in relevant field: 1 Expertise: in-plane contact joints in CLT, execution of tests Degree: M.Eng. (20.12.2011)	Institute for Timber Structures and Building Construction (vaka.holz.kit.edu) Focus: theoretical and practical research / innovation and design of structures Facilities: testing lab (joint and element tests, shear wall tests, monotonic and cyclic tests, all relevant tests on fasteners), measuring equipment, drying chambers

No. of staff	PhD students	MSc/year
21	5	30

Research projects

WG2 CLT:

Contact joints in CLT (Tobias Schmidt)

CLT Beams (Marcus Flaig)

WG3 connections:

High-performance joints for engineered softwood and hardwood structures (Marcus Enders-Comberg)

Mechanical performance of timber joints with slotted-in steel plates (Carmen Sandhaas)

Publications

WG2 CLT:

Flaig, M., 2014, 'Design of CLT beams with rectangular holes and notches', Paper 47-12-4, Meeting 47 of International Network on Timber Engineering Research (INTER), Bath, United Kingdom, pp. 193-207.

Flaig, M., Blaß, H. J., 2014, 'Bending strength of cross laminated timber beams loaded in plane', Proceedings of the 13th World Conference on Timber Engineering (WCTE), Quebec, Canada.

WG3 connections:

Steilner, M., Blaß, H. J., 2014, 'A method to determine the plastic bending angle of dowel-type fasteners', RILEM bookseries 9: Materials and Joints in Timber Structures. Ed.: S. Aicher, Springer, Berlin, pp. 301-306.

Van de Kuilen, J. W. G., Sandhaas, C., Blaß, H. J., 2014, 'ASteel-to-timber joints with very high strength steel dowels using spruce, beech and azobé', RILEM bookseries 9: Materials and Joints in Timber Structures. Ed.: S. Aicher, Springer, Berlin, pp. 157-165.

Enders-Comberg, M., Blaß, H. J., 2013, 'Influence of holes in the compression area of members - Querschnittsschwächung bei Druckbeanspruchung parallel zur Faser', European Journal of Wood and Wood Products, Vol. 70, Issue 3, pp. 309-317.

Germany - Prof.Dr. Mike Sieder (WG)

Technische Universität Braunschweig
Braunschweig, Germany

m.sieder(at)tu-braunschweig.de

COST FP1402, WG2 Member

Personal	*Organisation*
Years of experience in relevant field: 5 Expertise: modelling of CLT, practical application of CLT, joining techniques with CLT Degree: Dr.-Ing. (15.07.2003)	Institut für Baukonstruktion und Holzbau iBHolz (http://www.ibholz.tu-bs.de) Focus: theoretical and practical research/innovation, design of structures, execution of structures and education/training and expert's opinion Facilities: iBHolz does not have an own testing lab. Close collaboration with material testing institute MPA Braunschweig and Fraunhofer Institute for Wood Research (Fraunhofer WKI) with usage of their facilities.

No. of staff	PhD students	MSc/year
10	5	10

Research projects

1.) Development of a load-factor method for in-plane shear stressed timber panel elements (2015-2017 / Anheier, David / http://www.ibholz.tu-bs.de)
2.) Shear strength capacity of CLT (2014-2015 / Dietsch, Philipp (TU München) / Brandner, Reinhard (TU Graz) / Sieder, Mike (TU Braunschweig))
3.) Methods for elastic and plastic modeling of in-plane shear stressed timber panel elements (2006-2009 / Hall, Christoph / http://www.ibholz.tu-bs.de/index.php?page=forschung)

Publications

1.) Basic test method for valuation of shear strength of cross laminated timber (2013, "Die Bautechnik 90", Heft 5, Seite 314-316)
2.) Methods for elastic and plastic modeling of in-plane shear stressed timber panel elements (2012, doctoral thesis Hall, Christoph)

Germany - Dr.Tobias Wiegand (WG)

Studiengemeinschaft Holzleimbau e.V.
Wuppertal Germany
wiegand(at)ib-wiegand.de
COST FP1402, WG2 Member

Personal	*Organisation*		
Years of experience in relevant field: 6 Expertise: Secretary of German association of producers of structural glued materials (e.g. CLT and glulam); convenor of CEN/TC 124 WG 3 "glued products" and CEN/TC 250 SC 5 WG 1 "CLT" Degree: Dr.-Ing. (01.01.2006)	Studiengemeinschaft Holzleimbau e.V. (www.brettschichtholz.de) Focus: Association dealing with R&D, standardization and other technical issues Facilities: none		
	No. of staff	PhD students	MSc/year
	1	0	0

Research projects

None

Publications

None

<table>
<tr><td colspan="4">Greece - Prof. Dr. Charalampos Mouzakis (MC Sub)
National technical University of Athens (N.T.U.A)
Athens, Greece
harrismo(at)central.ntua.gr
COST FP1402, MC Substitute, WG3 or 4 Member</td></tr>
<tr><td>Personal</td><td colspan="3">Organisation</td></tr>
<tr><td rowspan="3">Years of experience in relevant field: 25
Expertise: Earthquake response of timber structures. Design of timber structures. Timber and masonry
Degree: PhD. (01.09.2000)</td><td colspan="3">School of Civil engineering
(www.lee.civil.ntua.gr)
Focus: theoretical and practical research / innovation, design of structures
Facilities : Shaking Table 6DOF , reaction wall for StatickTests</td></tr>
<tr><td>No. of staff</td><td>PhD students</td><td>MSc/year</td></tr>
<tr><td>10</td><td>2</td><td>15</td></tr>
<tr><td colspan="4">Research projects</td></tr>
<tr><td colspan="4">'Cyclic response of timber diaphragms' Diploma thesis a post graduate student, a Phd student was also involved
'Earthquake response of timber diaphragms 'Diploma thesis of a graduate student, a Phd student was also involved</td></tr>
<tr><td colspan="4">Publications</td></tr>
<tr><td colspan="4">Both thesis are sent for possible publication</td></tr>
</table>

Greece - Dr. Vasileios Tsipiras (WG)

itech
Athens, Greece
v.tsipiras(at)itech-soft.com
COST FP1402, WG2 or 3 Member

Personal

Years of experience in relevant field: 2

Expertise: CAE oriented analysis and design of wood composite beams (according to EC5 and ETAs).

CAE oriented modelling of CLT elements.

Computer software development for analysis and design of timber elements and structures.

Degree: PhD. (08.01.2014)

Organisation

Software development team (http://www.itech-soft.com/)

Focus: design of structures , education/training and practical research and modelling of timber elements and structures for computer software development

Facilities: 2 servers, 20 personal computers with the corresponding peripherals, 2 plotters.

No. of staff	PhD students	MSc/year
17	0	0

Research projects

• Mechanical design of wooden staircases (in collaboration with “AFEB" (French association of wooden staircases constructors)). (2014-today) (3 people involved)

• Mechanical design of wooden pallets (in collaboration with “FCBA" (French technical center for wood construction)” and “HPE" (German association of wooden pallets constructors)). (2012-today) (4 people involved) (http://www.pallet-express.com/)

• CAE oriented analysis and design of wood panels (according to EC5 and ETAs). (2013-today) (5 people involved) (http://www.itech-bois.com/)

• CAE oriented analysis and design of direct and indirect connection systems of timber elements with metal fasteners (according to EC5 and ETAs). (2011-today) (7 people involved) (http://www.itech-bois.com/)

Publications

• Participation in the working group ELOT /TC 67 /WG5 Eurocode 5 "Timber Structures" (September 2014), which follows the corresponding works of the European Committee for Standardization CEN/TC 250 "Structural Eurocodes", having the subject of the revision of the norm EN1995-1-1:2005 [AC:2006 + A1:2008] (EC5 - Design of timber structures - general - common rules and rules for buildings): Compilation and assessment of proposed revisions.

Hungary - Dr. Daniel Honfi (MC)

SP Technical Research Institute of Sweden
Göteborg Sweden
daniel.honfi(at)sp.se
COST FP1402, MC Member, WG1 Member

Personal	*Organisation*		
Years of experience in relevant field: 7 Expertise: code calibration, structural reliabilty, serviceability, modelling of mechano-sorptive creep Degree: PhD (23.01.2014)	SP Technical Research Institute of Sweden, Structural and Solid Mechanics (www.sp.se) Focus: practical research / innovation Facilities: structural laboratory		
	No. of staff	PhD students	MSc/year
	20	-	-

Research projects

Cluster Wooden Bridges, 2013-2014, A. Gustafsson, A. Pousette

DuraTB – Durable Timber Bridges, 2014-17, A. Pousette

Tall Timber Facades - Identification of Cost-effective and Resilient Envelopes for Wood Constructions, 2014-17, K. Sandberg

Service life and performance of exterior wood above ground (WoodExter), 2007-2011, J. Jermer

Harmonization of building regulations in the Nordic countries for wooden houses, 2007-2008, A. Gustafsson, A. Pousette

Publications

Honfi, D., A. Mårtensson, S. Thelandersson and R. Kliger (2014). "Modelling of Bending Creep of Low- and High-Temperature-Dried Spruce Timber." Wood Science and Technology 48(1): 23-36.

Olsson, A., J. Oscarsson, E. Serrano, B. Källsner, M. Johansson, and B. Enquist (2013). "Prediction of Timber Bending Strength and in-Member Cross-Sectional Stiffness Variation on the Basis of Local Wood Fibre Orientation." European Journal of Wood and Wood Products 71(3), 319-33.

Björngrim, N., A. Gustafsson, A. Pousette and O. Hagman (2011). “Health monitoring of a cable-stayed timber footbridge”, International Conference on Structural Health Monitoring of Timber Structures, Lisbon, Portugal.

Viitanen, H, T. Toratti, L. Makkonen, S. Thelandersson, T. Isaksson, E. Früwald, J. Jermer, F. Englund and E. Suttie (2011). "Modelling of service life and durability of wooden structure. Proceedings NSB 2011, 9th Nordic Symposium on Building Physics, Tampere, Finland.

Gustafsson, A., A. Pousette and N. Björngrim (2010) “Health monitoring of timber bridges”, International Conference on Timber Bridges (ICTB), Lillehammer, Norway

Serrano, E. and P. J. Gustafsson (2006). "Fracture Mechanics in Timber Engineering – Strength Analyses of Components and Joints." Materials and Structures 40(1): 87-96..

Ireland - Mr. Matthew Collins (MC)

University of Limerick
Castletroy, Limerick

matthew.collins(at)ul.ie

COST FP1402, MC Member, WG3 Member

Personal	*Organisation*		
Years of experience in relevant field: 2 Expertise: Modelling of connections, Material testing, Connection testing, Timber Gridshells Degree: BE(Hons) in Civil Eng. (26.08.2012)	University of Limerick (www.ul.ie) Focus: theoretical and practical research / innovation, education and training Facilities: 100 kN Universal Testing Machine 10 kN Universal Testing Machine Small sized conditioning chamber		
	No. of staff	PhD students	MSc/year
	3	1	1

Research projects

Title: Form Finding and Structural Analysis of actively bent Irish OSB timber grid shells

Duration: 4 years (currently in year 3)

People involved: Matt Collins (PhD Candidate)
Prof. Tom Cosgrove (Supervisor)

Webpage: http://www.ul.ie/civileng/research/

Publications

Collins, M. ; O'Regan, B. ; Cosgrove, T. (2015), 'Potential of Irish Orientated Strand Board in Bending Active Structures', World Academy of Science, Engineering and Technology, International Science Index 99, International Journal of Civil, Structural, Construction and Architectural Engineering, 9(3), 309 - 316.

Ireland - Dr. Elizabeth Shotton (MC)

University College Dublin

Dublin, Ireland

elizabeth.shotton(at)ucd.ie

COST FP1402, MC Member, WG2 Member

Personal

Years of experience in relevant field: 20

Expertise: Architecture, Design CLT detail junctions

Degree: PhD. (01.06.2013)

Organisation

Architecture (http://www.ucd.ie/eacollege/architecture/)

Focus: theoretical and practical research / innovation, education / training and history of construction technology

Facilities: Wood working shop. Structural testing

No. of staff	PhD students	MSc/year
6	0	75

Research projects

1. CASWOOD Economic and Environmental Mapping of Cascade Use of Wood 2014-2016

The project is conducted in conjunction with the Department of Life Sciences, University of Limerick, Ireland.

2. SECA WoodWeld 2010-13

Collaborative research project between School of Architecture, School of Civil, Structural and Environmental Engineering and School of Mechanical Engineering at UCD; École Nationale Supérieure Des Technologies et Industries Du Bois, Université Henri Poincaré, France.

Publications

O'Lionsigh, C., Oudjene, M., Shotton, E., Pizzi, A. and Fanning, P.J. Mechanical behaviour and 3D stress analysis of multi-layered wooden beams made with welded through wood dowels. Composite Structures. 2012.

O'Loinsigh, C., Oudjene, M., Ait-Aider, H., Fanning, P., Pizzi, A., Shotton, E., Meghlat, E.M. Experimental Study of Timber-to-Timber Composite Beam Using Welded-Through Wood Dowels. Construction and Building Materials. 2012.

Ireland - Dr. Karol Sikora (MC Sub)

National University of Ireland
Galway, Ireland
karol.sikora(at)nuigalway.ie
COST FP1402, MC Substitute Member, WG2 member

Personal	*Organisation*
Years of experience in relevant field: 2 Expertise: Testing, properties and durability of CLT Degree: PhD (07.03.2013)	Civil Engineering Discipline, College of Engineering and Informatics (www.irishtimber.org) Focus: theoretical and practical research / innovation and education / training Facilities: State-of-the art Structural Testing Laboratory (375 m2) and fully equipped Timber Engineering Laboratory (174 m2), including: two climate controlled rooms (39 m2 and 9 m2), pressure chamber for durability testing, strength grading machines: Cook-Bolinders, MTG.

No. of staff	PhD students	MSc/year
2	2	1

Research projects

1. Innovation in Irish Timber Usage

duration: 3 years (start: Jan 2013)

funded by the Department of Agriculture, Food and Marine of the Republic of Ireland under the FIRM/RSF/COFORD scheme; Queens University, Belfast (QUB) is collaborating partner

People involved:

Dr. Annette Harte (NUIG) - project coordinator,Dr. Danny McPollin (QUB) - principal investigator, Dr. Karol Sikora (NUIG) - postdoctoral researcher, Ms. Caoimhe O'Neill (QUB) - PhD student, Mr. Conan O'Ceallaigh (NUIG) - PhD student

website: www.irishtimber.org

2. Potential of Irish-grown Sitka Spruce for the manufacture of cross-laminated timber (CLT) panels

duration: 4 years (start: Oct 2014)

People involved:

Ms. Caitriona Ui Chulain - PhD student, Dr. Annette Harte – supervisor, Dr. Karol Sikora - 2nd supervisor

Publications

Sikora K. S., Harte A. M., McPolin D., Bonding strength and durability of adhesive bonds in Sitka spruce cross-laminated timber, International Journal of Adhesion and Adhesives (2015) (article in preparation)

Sikora K., Harte A., McPolin D., Irish Timber – Bond quality of cross-laminated timber (CLT) from Irish Sitka spruce, Civil Engineering Research in Ireland, Belfast, UK, 28-29/08/2014

Sikora K., Harte A., McPolin D., Durability of adhesive bonds in cross-laminated timber (CLT) panels manufactured using Irish Sitka spruce, The 57th SWST (Society of Wood Science and Technology) International Convention, Zvolen, Slovakia, 23-27/06/2014

Raftery, G.M., Harte, A.M., 2013, Material characterisation of fast-grown plantation spruce, Structures and Buildings, DOI: 10.1680/stbu.12.00052

Raftery, G.M., Harte, A.M., 2013, Nonlinear numerical modelling of FRP reinforced glued laminated timber beams, Composites Part B: Engineering, 52(Sep2013)40-50, doi:10.1016/j.compositesb.2013.03.038

Baylor, G., Harte, A.M., 2013, Finite element modelling of castellated timber I-joists. Constr Build Mater 47(Oct 2013)680-688 http://dx.doi.org/10.1016/j.conbuildmat.2013.05.076

Zhang, B., Jorissen, A., Rasmussen, B, Harte, A., 2013, Comparison of vibrational comfort assessment criteria for design of timber floors among the European countries, Engineering Structures, 52(1)592-607. http://dx.doi.org/10.1016/j.engstruct.2013.03.028

Harte, A.M., Baylor, G., 2011, Structural evaluation of castellated timber I-joists, Engineering Structures, 33(12)3748-3754, doi:10.1016/j.engstruct.2011.08.011

Italy - Prof. Dr. Massimo Fragiacomo (MC)

University of Sassari

Alghero (SS), Italy

fragiacomo(at)uniss.it

COST FP1402, MC Member, WG3 Member

Personal	*Organisation*		
Years of experience in relevant field: 15 Expertise: Seismic resistance of timber structures; Timber-concrete composites; Fire resistance of timber structures; FE modelling; Use of low-grade timber. Degree: PhD. (08.02.2001)	Architecture, Design and Urban Planning (http://www.architettura.uniss.it/) Focus: theoretical research / innovation and education / training Facilities: -		
	No. of staff	PhD students	MSc/year
	4	3	1

Research projects

1.“RELUIS-Research line: Timber Structures – WP4: Timber buildings with special systems and/or protective devices (Log-haus buildings)”, 2014-2016, 1 Fixed Term Assistant Professor (Chiara Bedon).

2. "FE modelling of cross-lam multi-storey timber buildings for earthquake resistance”, 2014-2016, 1 Postdoc (Giovanni Rinaldin) and 1 PhD student (Matteo Izzi).

3. "Revision of the Section 8 - Timber Structures - of the Eurocode 8 - Design for earthquake resistance", 2015-2016, 1 Postdoc (Maurizio Follesa).

4. “Sustainable use of Sardinia forests for production of timber panels and bio-energy”, 2014-2016, 1 PhD student (Riccardo Riu).

5. "Determination of a procedure for seismic design of log house timber buildings with ‘Blockbau’ system", 2012-2014, 1 Postdoc (Chiara Bedon).

6. "Numerical modelling of timber elements and timber structures as part of the Cornet project OptimberQuake”, 2011-2013, 1 PhD student (Herve Pohsie) and 1 postdoc (Giovanni Rinaldin).

Publications

1. Bedon, C., Rinaldin, G., and Fragiacomo, M. (2015). “Non-linear modelling of the seismic behaviour of 'Blockhaus' structures.” Engineering Structures, Vol. 91, pp. 112-124.

2. Gavric, I., Fragiacomo, M., and Ceccotti, A. (2015). “Cyclic behaviour of typical screwed connections for cross-laminated (CLT) structures.” European Journal of Wood and Wood Products, 73(2), 179-191.

3. Gavric, I., Fragiacomo, M., and Ceccotti, A. (2015). “Cyclic behavior of cross-laminated timber (CLT) wall systems: Experimental tests and analytical prediction models.” ASCE Journal of Structural Engineering, 14 pp., 04015034.

4. Bedon, C., and Fragiacomo, M. (2015). “Numerical and analytical assessment of the buckling behaviour of Blockhaus log-walls under in-plane compression.” Engineering Structures, Vol. 82, pp. 134-150.

5. Fragiacomo, M., and Lukaszewksa, E. (2015). “Influence of the construction method on the long-term behavior of timber-concrete composite beams.” ASCE Journal of Structural Engineering, 15 pp., 04015013.

6. Gavric, I., Fragiacomo, M., and Ceccotti, A. (2014). “Cyclic behaviour of typical metal connectors for cross-laminated (CLT) structures”. RILEM Materials and Structures, published online.

7. Fragiacomo, M., Balogh, J., To, L., and Gutkowski, R.M. (2014). “Three dimensional modeling of long-term structural behavior of wood-concrete composite beams.” Journal of Structural Engineering, ASCE, Vol. 140 No. 8, 11 pp., A4014006.

8. Rinaldin, G., Amadio, C., and Fragiacomo, M. (2013). “A component approach for the hysteretic behaviour of connections in cross-laminated wooden structures.” Earthquake Engineering and Structural Dynamics, Vol. 42 No. 13, pp. 1885–2042, doi: 10.1002/eqe.2310.

Carina Fonseca Ferreira, Dina D’Ayala, Jose L. Fernandez Cabo, Marina Arce Blanco, Rafael Díez Barra, Pedro Hurtado Valdez (2015): Numerical Modelling and Seismic Assessment of Historic Planked Timber Arches. International Journal of Architectural Heritage. DOI: 10.1080/15583058.2015.1041194

Italy - Prof. Dr. Roberto Tomasi (MC)

DICAM - University of Trento

Trento Italy

roberto.tomasi(at)unitn.it

COST FP1402, MC Member, WG2 Vice Leader

Personal	*Organisation*		
Years of experience in relevant field: 15 Expertise: Seismic resistance of multi-storey timber buildings (CLT and Timber Frame), Timber connections, TCC timber concrete composite structures Degree: PhD (17.02.2000)	Department of Civil, Environmental and Mechanical Engineering (http://lpms.dicam.unitn.it/?page_id=176) Focus: theoretical and practical research/innovation and education/training Facilities : Please refer to the web page: http://lpms.dicam.unitn.it/?page_id=176		
	No. of staff	PhD students	MSc/year
	3	3	160

Research projects

SERIES Project - Seismic performance of multi-storey timber buildings (2010-2013) -

European Framework Program 7. Duration 36 months. People of my organization involved: 7. Webpage:

http://www.series.upatras.gr/TIMBER_BUILDINGS

RELUIS Project – Timber structures (2010-2013) - DPC-ReLUIS (National Network of Seismic University). Duration 36 months. People of my organization involved: 7. Webpage: http://www.reluis.it/index.php?lang=en

RELUIS Project – Timber structures in earthquake prone areas (2014-2016) - DPC-ReLUIS (National Network of Seismic University). Duration 36 months. People of my organization involved: 6. Webpage: http://www.reluis.it/index.php?lang=en

Publications

Piazza M., Tomasi R., Crosatti A., Theoretical and experimental analysis of timber-to-timber joints connected with inclined screws, Construction and Building Materials 24, 9 (2010), pp. 1560–1571

Zonta D., Loss C., Piazza M., Zanon P., Direct Displacement Based Design of glulam timber frame buildings, Journal of Earthquake Engineering, Taylor & Francis,2010

Andreolli M., Piazza M., Tomasi R., Zandonini R., Ductile moment resistant steel-timber connections, SPECIAL ISSUE IN TIMBER ENGINEERING, Proceedings of the Institution of Civil Engineers - Structures and Buildings, Vol. 164, Issue 2, 2011, p. 65-78, ISSN: 0965-0911

C. Loss, D. Zonta, M. Piazza (2013), On estimating the seismic displacement capacity of timber portal-frames, Journal of Earthquake Engineering, 17:879–901, 2013 (available on line: DOI:10.1080/13632469.2013.779333)

Tomasi, R. and Smith, I. (2014). "Experimental Characterization of Monotonic and Cyclic Loading Responses of CLT Panel-To-Foundation Angle Bracket Connections." J. Mater. Civ. Eng. , 10.1061/(ASCE)MT.1943-5533.0001144 , 04014189.

Crocetti, R., Sartori, T., and Tomasi, R. (2014). "Innovative Timber-Concrete Composite Structures with Prefabricated FRC Slabs." J. Struct. Eng. , 10.1061/(ASCE)ST.1943-541X.0001203 , 04014224.

Tomasi, R., Sartori, T, Casagrande, D, Piazza, M. Shaking table testing of a full-prefabricated three-storey timber framed building. (2014) Journal of Earthquake Engineering

Italy - Dr. Mauro Andreoli (MC Sub)

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Trento, Italy
info(at)timbertech.it or mauro.andreoli(at)timbertech.it
COST FP1402, MC Substitute Member, WG2 Member

Personal	*Organisation*		
Years of experience in relevant field: 9 Expertise: Software for analysis and design of timber buildings Seismic resistance of multi-storey timber buildings Degree: PhD (24.03.2006)	TIMBER TECH SRL (www.timbertech.it) Focus: design of structures and software development Facilities: -		
	No. of staff	PhD students	MSc/year
	3	0	0

Research projects

CLT Training Course 2014 "Structural design of Cross Laminated Timber (CLT)", University of Trento, people in my organization involved: 2
http://web.unitn.it/dicam/evento/33372/clt-training-course-2014

Publications

Andreolli M., Rigamonti M., Tomasi R, Diagonal compression test on cross-laminated timber panels (2014), World Conference of Timber Engineering, Quebec City, Canada

M. Andreolli, R. Tomasi, Axial glued-in rods in ductile moment resistant steel-timber connections in COST Action FP1004, Zagabria: University of Bath, 2012. Atti di: COST, Zagabria, Croazia, April 19-20, 2012

Italy - Prof. Dr. Maurizio Piazza (MC Sub)

DICAM - University of Trento
Trento, Italy

maurizio.piazza(at)unitn.it

COST FP1402, MC Substitute, WG3 Member

Personal	*Organisation*		
Years of experience in relevant field: 30 Expertise: Seismic resistant of timber structures Timber connections TCC timber concrete composite structures Degree: PhD (14.03.1978)	Department of Civil, Environmental and Mechanical Engineering (http://lpms.dicam.unitn.it/?lang=en) Focus: theoretical and practical research / innovation and education /training Facilities: Please refer to the web page: http://lpms.dicam.unitn.it/?page_id=176		
	No. of staff	PhD students	MSc/year
	3	3	160

Research projects

SERIES Project - Seismic performance of multi-storey timber buildings (2010-2013) -

European Framework Program 7. Duration 36 months. People of my organization involved: 7. Webpage:

http://www.series.upatras.gr/TIMBER_BUILDINGS

RELUIS Project – Timber structures (2010-2013) - DPC-ReLUIS (National Network of Seismic University). Duration 36 months. People of my organization involved: 7. Webpage: http://www.reluis.it/index.php?lang=en

RELUIS Project – Timber structures in earthquake prone areas (2014-2016) - DPC-ReLUIS (National Network of Seismic University). Duration 36 months. People of my organization involved: 6. Webpage: http://www.reluis.it/index.php?lang=en

Publications

Piazza M., Tomasi R., Crosatti A., Theoretical and experimental analysis of timber-to-timber joints connected with inclined screws, Construction and Building Materials 24, 9 (2010), pp. 1560–1571

Zonta D., Loss C., Piazza M., Zanon P., Direct Displacement Based Design of glulam timber frame buildings, Journal of Earthquake Engineering, Taylor & Francis,2010

Andreolli M., Piazza M., Tomasi R., Zandonini R., Ductile moment resistant steel-timber connections, SPECIAL ISSUE IN TIMBER ENGINEERING, Proceedings of the Institution of Civil Engineers - Structures and Buildings, Vol. 164, Issue 2, 2011, p. 65-78, ISSN: 0965-0911

C. Loss, D. Zonta, M. Piazza (2013), On estimating the seismic displacement capacity of timber portal-frames, Journal of Earthquake Engineering, 17:879–901, 2013 (available on line: DOI:10.1080/13632469.2013.779333)

Tomasi R., Sartori T., Casagrande D., Piazza M., Shaking table testing of a full-scale prefabricated three-story timber-frame building, Journal of Earthquake Engineering, 19:505-534, 2015 (on line: DOI: 10.1080/13632469.2014.974291)

Italy - Dr. Daniele Casagrande (WG)

University of Trento
Trento, Italy

daniele.casagrande(at)unitn.it

COST FP1402, WG2 Member

Personal	*Organisation*		
Years of experience in relevant field: 5 Expertise: Seismic behaviour of CLT buildings, Modelling of CLT buildings under lateral loads, Modal testing of CLT structures, Shake table tests of timber buildings, Vibrations of CLT floors Degree: PhD. (10.04.2014)	Department of Civil, Environmental and Mechanical Engineering (http://lpms.dicam.unitn.it/?page_id=176) Focus: theoretical and practical research / innovation , and education / training Facilities: Please refer to the web page: http://lpms.dicam.unitn.it/?page_id=176		
	No. of staff	PhD students	MSc/year
	5	2	160

Research projects

SERIES Project - Seismic performance of multi-storey timber buildings (2010-2013) -

European Framework Program 7. Duration 36 months. People oinvolved: 7. Webpage:

http://www.series.upatras.gr/TIMBER_BUILDINGS

RELUIS Project – Timber structures (2010-2013) - DPC-ReLUIS (National Network of Seismic University). Duration 36 months. People involved: 7. Webpage: http://www.reluis.it/index.php?lang=en

Publications

Daniele Casagrande, Simone Rossi, Tiziano Sartori, Roberto Tomasi, "Proposal of an analytical procedure and a simplified numerical model for elastic response of single-storey timber shear-walls" in CONSTRUCTION AND BUILDING MATERIALS, v. 2015, (2015). - URL: http://www.sciencedirect.com/science/article/pii/S0950061815000021 . - DOI: 10.1016/j.conbuildmat.2014.12.114

D. Casagrande, M. Piazza, A. Franciosi, F. "Assessment of timber floor vibration performance: a case study in Italy" in World Conference on Timber Engineering 2014, WCTE 2014, Quebec City, canada: [WCTE 2014]

D. Casagrande, T. Sartori, R.Tomasi, "Capacity design approach for multi-storey timber-frame buildings" in 1st. International Network on Timber Engineering Research (INTER) Meeting 1, Gran Bretagna: INTER, Meeting 47, Bath, Uk, 2014, 2014. Atti di: INTRA, Bath, 1st-4th September 2014

R.Tomasi, T.Sartori, D.Casagrande, M.Piazza, , "Shaking table testing of a full-prefabricated three-storey timber framed building" in JOURNAL OF EARTHQUAKE ENGINEERING, v. 2014, (2014). - DOI: 10.1080/13632469.2014.974291

D. Casagrande, S. Rossi, T. Sartori, R. Tomasi, "Analytical and numerical analysis of timber framed shear walls" in World Conference on Timber Engineering 2012, WCTE 2012, Auckland, New Zealand: [WCTE 2012], 2012, p. 497-503. Atti di: WCTE, Auckland, New Zealand, 2012

Italy - Dr. Ivan Giongo (WG)

University of Trento - DICAM
Trento, Italy

ivan.giongo(at)unitn.it

COST FP1402, WG4 Member

Personal	*Organisation*		
Years of experience in relevant field: 6 Expertise: Timber-to-timber composite structures with incomplete interaction Timber connections Timber diaphragms (CLT panels as original decking or reinforcing elements) Degree: PhD (29.04.2013)	- (http://lpms.dicam.unitn.it/?page_id=176) Focus: theoretical and practical research / innovation and education/training. Facilities: please refer to : http://lpms.dicam.unitn.it/?page_id=176		
	No. of staff	PhD students	MSc/year
	3	3	160

Research projects

SERIES Project - Seismic performance of multi-storey timber buildings (2010-2013) -

European Framework Program 7. Duration 36 months. People of my organization involved: 7. Webpage:

http://www.series.upatras.gr/TIMBER_BUILDINGS

RELUIS Project – Timber structures (2010-2013) - DPC-ReLUIS (National Network of Seismic University). Duration 36 months. People of my organization involved: 7. Webpage: http://www.reluis.it/index.php?lang=en

RELUIS Project – Timber structures in earthquake prone areas (2014-2016) - DPC-ReLUIS (National Network of Seismic University). Duration 36 months. People of my organization involved: 6. Webpage: http://www.reluis.it/index.php?lang=en

Long term out-of-plane testing of compound CLT diaphragms (joists + CLT panels).

Ongoing project. Expected duration 18-36 months

Publications

Piazza M., Tomasi R., Crosatti A., Theoretical and experimental analysis of timber-to-timber joints connected with inclined screws, Construction and Building Materials 24, 9 (2010), pp. 1560–1571

Zonta D., Loss C., Piazza M., Zanon P., Direct Displacement Based Design of glulam timber frame buildings, Journal of Earthquake Engineering, Taylor & Francis,2010

Andreolli M., Piazza M., Tomasi R., Zandonini R., Ductile moment resistant steel-timber connections, SPECIAL ISSUE IN TIMBER ENGINEERING, Proceedings of the Institution of Civil Engineers - Structures and Buildings, Vol. 164, Issue 2, 2011, p. 65-78, ISSN: 0965-0911

C. Loss, D. Zonta, M. Piazza (2013), On estimating the seismic displacement capacity of timber portal-frames, Journal of Earthquake Engineering, 17:879–901, 2013 (available on line: DOI:10.1080/13632469.2013.779333)

Tomasi, R. and Smith, I. (2014). "Experimental Characterization of Monotonic and Cyclic Loading Responses of CLT Panel-To-Foundation Angle Bracket Connections." J. Mater. Civ. Eng. , 10.1061/(ASCE)MT.1943-5533.0001144 , 04014189.

Giongo I., Piazza M., Tomasi R., "Cambering of timber composite beams by means of screw fasteners". SAHC - 2012, Journal of Heritage Conservation, Vol. 32-2012

Giongo I., Piazza M., Tomasi R., "Investigation on the self tapping screws capability to induce internal stress in timber elements". Advanced Materials Research, 778, 604 611. doi:10.4028/www.scientific.net/AMR.778.604

Italy - Prof. Alessandra Gubana (WG)

University of Udine
Udine, Italy

alessandra.gubana(at)uniud.it

COST FP1402, WG2 Member

Personal	*Organisation*		
Years of experience in relevant field: 9 Expertise: Timber Structures, Seismic behaviour of Timber Structures, CLT modelling Degree: MSc (28.04.1987)	DICA Dipartimento di Ingegneria Civile e Architettura (www.uniud.it) Focus: theoretical and practical research / innovation, design of structures and education/training. Facilities: testing labs, shear test rigs, 500 kN hydraulic servocontrolled systems		
	No. of staff	PhD students	MSc/year
	4	1	60

Research projects

High reversible timber to timber strenghtening interventions on wooden floors by using CLT panels, OSB panels and multiple layers of boards

expected duration 3 years

1 PhD student 2 researchers

Cross laminated timber panels to strenghten wood floors

Several experimental tests and numerical models since 8 years

2 researcher and Phd students

Publications

GUBANA A., TOMASI G. (2014). Valutazione della risposta non lineare di pareti ed edifici a telaio leggero A mediante analisi piushover (Push over non linear analysis of wood platform frame buildings), Technical report, p. 1-46

GUBANA A (2010). Consolidamento sismico di solai in legno con pannelli XLam (Seismic strenghtening of timber floors by means of CTL panels). In: Atti del Convegno Sicurezza e Conservazione nel recupero dei Beni Culturali colpiti da sisma. p. 272-281, Venezia, 8-9 Aprile 2010

GUBANA A (2010). Experimental Tests on Timber-to-CrossLam Composite Section Beams. In: A. Ceccotti J.W. van de Kuilen, Proceedings of WCTE 2010 World Conference on Timber Engineering, Riva del Garda (ITALY), ISBN: 9788890166037

GUBANA A (2009). Prove sperimentali sul comportamento delle sezioni composte legno-XLam. In: Atti del VII Workshop Italiano sulle Strutture Composte. p. 287-296, ISBN: 9788890275234, Benevento, 23-24 Ottobre 2008

GUBANA A (2008). Comportamento sperimentale a taglio di pannelli in legno a strati incrociati. In: 17° Congresso C.T.E. p. 1149-1156, ISBN: 9788890364730, Roma, 5-8 Novembre 2008

GUBANA A (2008). Cross laminated timber panels to strenghten wood floors. In: D. D'Ayala, E. Fodde, Proceedings of the International Congress SAHC2008 Structural Analysis of Historical Constructions. p. 949-955, LEIDEN:CRC Press/Balkema, ISBN: 9780415468725, Bath (UK), JUL 02-04,2008, doi: 10.1201/9781439828229.ch108

Italy - Dr. Thomas Moosbrugger (WG)

Rubner EBG Gmbh
Bolzano Italy
thomas.moosbrugger(at)rubner.com
COST FP1402, WG2 Member

Personal	*Organisation*		
Years of experience in relevant field: 10 Expertise: structural mechanics of CLT, design and product development of CLT Degree: Dr.techn. (12.04.2013)	Rubner EBG Gmbh (www.rubner.com) Focus: theoretical and practical research / innovation and education /training Facilities : product development, testing lab,		
	No. of staff	PhD students	MSc/year
	-	-	-

Research projects

WG1:
shrinking and swelling of clt, 1 year;

Publications

Design charts for a single spanned timber beam under bending – Part 2: Floor structures with inhomogeneous beam cross-section

Netherlands - Prof. Dr. André Jorissen (MC)

SHR

Wageningen The Netherlands

a.j.m.jorissen(at)tue.nl

COST FP1402, MC Member, WG3 Member

Personal	*Organisation*
Years of experience in relevant field: 30 Expertise: timber connections - composite structures - structural design Degree: PhD (21.12.1998)	SHR, Built Environment (www.shr.nl) Focus: practical research/innovation, design of structures, education/training and durability aspects-performance of existing(historical) structures Facilities: TU/e: structural design testing equipment + timber related testing equipment like moisture measurement - timber grader. SHR: small structural design testing equipment + durability, etc.

No. of staff	PhD students	MSc/year
20	2	10

Research projects

(1) connections related

- roof to casco (general and related to earthquake design)
- timber floor to masonry walls (earthquake related)
- compression perpendicular (deciduous wood species)
- pile foundation to structure
- finger joints in portal frames
- capentry connections
- tube connections (in LVL and related to earthquake design)
- traditioonal portal frame analyses (brace to column and beam connections)

(2) composite structures related

- "multi deck / box" element properties
- sandwich elements (pure sandwich withe hole + creep; elements with reinforcements + creep)
- timber concrete (ordinary concrete - leight weight concrete)

(3) other topics

- timber floor (vibration) design

Publications

1.Leijten A.J.M, Leijer, B. & Jorissen, A.J.M. (2012). The perpendicular to grain compressive behaviour of timber beams. In Hugh Morris & Pierre Quenneville (Ed.), Oral : Oral : Paper presented at the World Conference on Timber Engineering (WCTE 2012), 16-19 July 2012, Auckland, New Zealand, (pp. 356-361). www.WCTE2012.com.

2.Daniela Wrzesniak, Massimo Fragiacomo, André Jorissen. (2013). Alternative approach to avoid brittle failure in dowelled connections. In: proceedings of the RILEM International Symposium on Materials and Joints in Timber Structures – Recent advancement of technology – From 08 October 2013 to 10 October 2013 in Stuttgart, Germany

3.André Jorissen, Jaco den Hamer, Ad Leijten. 2014. Traditional timber frames. In Alexander Salenikovich (Ed.), Paper presented at the World Conference on Timber Engineering (WCTE 2014), August 10-14, 2014, Quéebec City,Canada, (paper 055). www.WCTE2014.ca.

4.André Jorissen, Luc Castelijns, Johnny van Rie and Herm Hofmeyer. 2014. Sandwich panels with holes. In Alexander Salenikovich (Ed.), Paper presented at the World Conference on Timber Engineering (WCTE 2014), August 10-14, 2014, Quéebec City,Canada, (paper 056). www.WCTE2014.ca.

Netherlands - Dr. Adrian Leijten (MC)

Eindhoven Technical University
Eindhoven, the Netherlands

adleijten(at)hotmail.com

COST FP1402, MC Member, WG4 Member

Personal	*Organisation*		
Years of experience in relevant field: 26 Expertise: Structural Timber and Bamboo, connections, dvw reinforced connections, background Eurocode 5. Degree: - (-)	Department of the Build Environment (https://www.tue.nl/en/university/department) Focus: theoretical and practical research /innovation, design of structures and education/ training Facilities: see website		
	No. of staff	PhD students	MSc/year
	2	3	10

Research projects

stresses analyses of non-prismatic timber beams and portal frame corners;

bearing or support stresses perpendicular to grain;

splitting of beams caused by connections perpendicular to grain;

stress concentration of notched beams;

structural assessment and repair of historic timber structures and foundations;

climate effects on wooden decorated panels;

structural behaviour of historic timber connections;

high rise timber buildings, in-fill frame options, (dvw) reinforced connections;

wood based panel products; determination of design rules for application as integrated roof-, floor- and wall elements;

bamboo used as structural elements

Publications

ISI Brandon, D. & Leijten, A.J.M. (2014). Advances in moment transferring dvw reinforced timber connections : numerical analyses and verification, Part 2. Construction and Building Materials, 56, 32-43. doi: 10.1016/j.conbuildmat.2014.01.026

ISI Leijten, A.J.M. & Schoenmakers, J.C.M. (2014). Timber beams loaded perpendicular to grain by multiple connections. Engineering Structures, 80, 147-152. doi: 10.1016/j.engstruct.2014.08.048

Jorissen, A.J.M., Castelijns, L.J.J., Van Rie, J.L.G. & Hofmeyer, H. (2014). Sandwich panels with holes. In A Salenikovich (Ed.), Proceedings of the World Conference on Timber (WCTE) 2014, 10-14 August 2014, Quebec, Canada (pp. 1-11). Quebec city: FPInnovations.

Brandon, D. & Leijten, A.J.M. (2014). Behaviour of bond lines in dvw reinforced timber connections. In A. Salenikovitch (Ed.), Proceedings of the World Conference on Timber Engineering (WCTE 2014), 10-14 Aug

Wrzesniak, D., Fragiacomo, M. & Jorissen, A.J.M. (2014). Alternative approach to avoid brittle failure in dowelled connections. In S. Aicher, H.W. Reinhardt & H. Garrecht (Eds.), Materials and joints in timber structures : recent developments of technology (RILEM Bookseries, 9) (pp. 273-287). Springer. http://repository.tue.nl/770181

Norway – Prof. Dr. Jochen Köhler (MC)

Norwegian University of Science and Technology
Trondheim, Norway

jochen.kohler(at)ntnu.no

Vice Chairman COST FP1402, MC Member, WG1 Leader

Personal	*Organisation*		
Years of experience in relevant field: 15 Expertise: Basic of Design, Structural Reliability, Timber Engineering Degree: PhD. (1.6.2006)	Institute of Structural Engineering (http://www.ntnu.edu/kt) Focus: theoretical and practical research / innovation and education / training) Facilities: fully equipped testing lab, climate chambers, parallel computer, library		
	No. of staff	PhD students	MSc/year
	10	7	30

Research projects

WoodWisdom Project: Durable Timber Bridges / Contact: K.A. Malo (5 PhD)

WoodWisdom Project: TallFacades / Contact: J.Kohler (1PhD)

Phd Project on Reliability Based Code Calibration / Contact: J.Kohler

Publications

Fink, Gerhard; Kohler, Jochen. (2014) Model for the prediction of the tensile strength and tensile stiffness of knot clusters within structural timber. European Journal of Wood and Wood Products. vol. 72 (3).

Köhler, Jochen; Brandner, Reinhard; Thiel, Alexandra B.; Schickhofer, Gerhard. (2013) Probabilistic characterisation of the length effect for parallel to the grain tensile strength of Central European spruce. Engineering structures. vol. 56.

Köhler J. and Svensson S. (2010). Probabilistic representation of duration of load effects in timber structures. Engineering Structures, Volume 33, Issue 2, February 2011, Pages 462-467.

Köhler J., Sørensen J.D. and Faber M.H. (2006). Probabilistic modelling of timber structures. Journal of Structural Safety, Volume 29 (4), pp. 255-267.

Labonnote, Nathalie; Rønnquist, Anders; Malo, Kjell Arne. (2014) Prediction of material damping in timber floors, and subsequent evaluation of structural damping. Materials and Structures.

Angst, Vanessa; Malo, Kjell Arne. (2013) Moisture-induced stresses in glulam cross sections during wetting exposures. Wood Science and Technology. vol. 47 (2).

Malo, Kjell Arne; Siem, Jan Helge; Ellingsbø, Pål. (2011) Quantifying ductility in timber structures. Engineering structures. vol. 33 (11).

Bell, Kolbein. (2014) Design of timber structures in a digital world. WCTE 2014, World Conference on Timber Engineering; Book of abstracts, Volume II.

Bell, Kolbein. (2011) Shear failure in glulam frames - An actual case. Assessment of Failures and Malfunctions - Guidelines for Quality Control.

Norway - Prof. Dr. Kolbein Bell (WG)

Norwegian University of Science and Technology
Trondheim Norway

kolbein.bell(at)ntnu.no

COST FP1402, WG1 Member

Personal	*Organisation*		
Years of experience in relevant field: 20 Expertise: Computational mechanics, computer programming, timber engineering education and teaching Degree: Dr.-Ing. (16.11.1968)	Department of structural engineering (http://www.ntnu.no/kt) Focus: theoretical and practical research / innovation and education / training Facilities: Testing lab, climate chamber, parallel computer, library		
	No. of staff	PhD students	MSc/year
	10	7	30

Research projects

WoodWisdom Project: Durable Timber Bridges / Contact: K.A. Malo (5 PhD)

WoodWisdom Project: TallFacades / Contact: J.Kohler (1PhD)

Phd Project on Reliability Based Code Calibration / Contact: J.Kohler

Publications

Fink, Gerhard; Kohler, Jochen. (2014) Model for the prediction of the tensile strength and tensile stiffness of knot clusters within structural timber. European Journal of Wood and Wood Products. vol. 72 (3).

Köhler, Jochen; Brandner, Reinhard; Thiel, Alexandra B.; Schickhofer, Gerhard. (2013) Probabilistic characterisation of the length effect for parallel to the grain tensile strength of Central European spruce. Engineering structures. vol. 56.

Köhler J. and Svensson S. (2010). Probabilistic representation of duration of load effects in timber structures. Engineering Structures, Volume 33, Issue 2, February 2011, Pages 462-467.

Köhler J., Sørensen J.D. and Faber M.H. (2006). Probabilistic modelling of timber structures. Journal of Structural Safety, Volume 29 (4), pp. 255-267.

Labonnote, Nathalie; Rønnquist, Anders; Malo, Kjell Arne. (2014) Prediction of material damping in timber floors, and subsequent evaluation of structural damping. Materials and Structures.

Angst, Vanessa; Malo, Kjell Arne. (2013) Moisture-induced stresses in glulam cross sections during wetting exposures. Wood Science and Technology. vol. 47 (2).

Malo, Kjell Arne; Siem, Jan Helge; Ellingsbø, Pål. (2011) Quantifying ductility in timber structures. Engineering structures. vol. 33 (11).

Bell, Kolbein. (2014) Design of timber structures in a digital world. WCTE 2014, World Conference on Timber Engineering; Book of abstracts, Volume II.

Bell, Kolbein. (2011) Shear failure in glulam frames - An actual case. Assessment of Failures and Malfunctions - Guidlines for Quality Control.

Poland - Ms. Ewa Ingeborga Kotwica (MC)

BUD-LOGISTIK
Mierzyn, Poland
ewainga(at)members.pl

COST FP1402, MC Member, WG1 Member

Personal	*Organisation*		
Years of experience in relevant field: 18 Expertise: Execution of timber structures, design consultancy, training (design, montage, certification), approval procedures, standardization. Laboratory, I'm cooperating to (SPPD): research and modelling of structural plates made of timber and engineered timber products. Degree: MSc (17.11.1995)	BUD-LOGISTIK; Wood Based Panels Producers Association of Poland (http://sppd.pl/) Focus: practical research /innovation, education/ training and examination of existing structures Facilities: SPPD - accredited lab, connections testing (out of accreditation)		
	No. of staff	PhD students	MSc/year
	-	-	-

Research projects

1. Kotwica E.I. Trainings Certification of timber and wood products, RCIiTT, ZUT 2006-2010
2. Kotwica E.I E-learning training, Timber structures - requirements and basic of design and execution; homepage of Polish Association of Civil Engineers, 2012-
3. SPPD: „ECOinterACOUSTIC BAFFLE – ecological, mudular systems of sound barriers. 2007-2013. (5-6 people involved)
4. SPPD: „Development of technology of processing and recovery of environmentally harmful packaging waste for building materials and consumer products". 2008. (5-6 people involved)

Publications

1. Kotwica Ewa Ingeborga, Nożyński Władysław, Konstrukcje drewniane - przykłady obliczeń (handbook:Timber structures - design examples), SPPD, Szczecin 2015
2. Kotwica Ewa, Krzosek Sławomir, Analyses of comparison old and new strength classes of structural timber basing on visual grading. Annals of Warsaw University of Life Sciences - SGGW, Warsaw 2014
3. Kotwica Ewa, Krzosek Sławomir, Technical requirements and practical guide for sawn timber and glulam applications in wooden constructions, Annals of Warsaw University of Life Sciences - SGGW, Warsaw 2014;
4. Kotwica E., Orłowicz R., Gil Z..; Konstrukcje z drewna klejonego – analiza przyczyn awarii i katastrof. Inżynier Budownictwa 05.2011;
5. Szyperska B, Kotwica E. I., Przestrzeganie wymagań w zakresie projektowania i wykonawstwa konstrukcji drewnianych, VII Konferencja Naukowa Drewno i materiały drewnopochodne w konstrukcjach budowlanych, Szczecin – Międzyzdroje 2006,
6. Hikiert M. A., Mrozek M., Orlikowski D., Rodzeń. K., Opracowanie technologii i zaprojektowanie, wykonanie i przebadanie kilku wariantów prefabrykowanej konstrukcyjnej belki stropowo-dachowej z materiałów drewnopochodnych. OB-RPPD nr 253.1441.3.00, 2000.06.30. (SPPD)
7. Hikiert M. A. Material and Energy use of Wood, Innovawood Poznań 2007 (SPPD)

Poland - Dr. Tomasz Nowak (MC)

Wroclaw University of Technology

Wroclaw, Poland

tomasz.nowak(at)pwr.edu.pl

COST FP1402, MC Member, WG4 Member

Personal

Years of experience in relevant field: 14

Expertise: historic timber structures, strengthening, repair, non-destructive testing, epoxy resins, FRPs

Degree: PhD (21.11.2007)

Organisation

Faculty of Civil Engineering (www.wbliw.pwr.edu.pl)

Focus: theoretical and practical research/innovation, education/training and examination of existing structures

Facilities: The Testing Laboratory of the Faculty of Civil Engineering has been granted the accreditation of the Polish Centre for Accreditation

No. of staff	PhD students	MSc/year
-	-	-

Research projects

Innovative methods of modifications of timber glulam girders by using internal reinforcement. No. N N506 048640. Principal Investigators: Jasieńko J, Nowak T. Sponsoring Agency: National Science Center, Poland. 8 persons involved. Duration: 2011-2014.

COST Action FP1004 "Enhance mechanical properties of timber, engineered wood products and timber structures". Duration: 2011-2015.

COST Action FP1101 "Assessment, Reinforcement and Monitoring of Timber Structures". Duration: 2011-2015.

Publications

Jankowski L.J., Nowak T. (2015) Experimental assessment of the glued laminated timber beams in 4-point bending tests and photoelastic coating technique. Solid State Phenomena (accepted)

Ilharco T, Lechner T., Nowak T (2015) Assessment of timber floors by means of non-destructive testing methods. Construction and Building Materials (2015), doi:10.1016/j.conbuildmat.2015.05.133

Jasieńko J., Nowak T. (2014) Solid timber beams strengthened with steel plates – Experimental studies. Construction and Building Materials 63: 81-88.

Lechner T., Nowak T., Kliger R. (2014) In situ assessment of the timber floor structure of the Skansen Lejonet fortification, Sweden. Construction and Building Materials 58: 85-93.

Jasieńko J., Nowak T., Bednarz Ł. (2014) The baroque structural ceiling over the Leopoldinum Auditorium in Wrocław University - tests, conservation and a strengthening concept. International Journal of Architectural Heritage 8(2): 269-289.

Nowak T., Jasieńko J., Czepiżak D. (2013) Experimental tests and numerical analysis of historic bent timber elements reinforced with CFRP strips. Construction and Building Materials 40: 197-206.

Jasieńko J., Nowak T., Hamrol K. (2013) Selected methods of diagnosis of historical timber structures - principles and possibilities of assessment. Advanced Materials Research 778: 225-232.

Poland - Ms. Katarzyna Hamrol-Bielecka (WG)

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COST FP1402, WG4 Member

Personal	*Organisation*		
Years of experience in relevant field: 1 Expertise: Nondestructive testing of wood Degree: MSc, Eng. (13.07.2011)	Division of Building Materials, Timber and Monumental Heritage Struct. (zmb.pwr.wroc.pl and www.ib.pwr.wroc.pl) Focus: theoretical and practical research / innovation, design of structure and education / training Facilities: Accredited Laboratory at the Institute of Building Engineering		
	No. of staff	PhD students	MSc/year
	20	5	-

Research projects

-

Publications

-

Poland - Prof. Slawomir Krzosek (MC Sub)

Faculty of Wood Technology WULS
Warsaw, Poland

slawomir_krzosek(at)sggw.pl

COST FP1402, MC Substitute, WG2 Member

Personal	*Organisation*		
Years of experience in relevant field: 25 Expertise: sawmilling, stress grading of sawn timber, visual grading, densitometry Degree: ( )	Department of Wood Science and Wood Protection (www. sggw.wtd.pl) Focus: theoretical and practical research /innovation, education/ training Facilities: testing machines different types, climatic chamber, gamma ray densitometer, Mobile Timber Grader		
	No. of staff	PhD students	MSc/year
	3	1	1

Research projects

Polish sawn timber grading according European Standards, 2006-2008, 5

Publications

Krzosek Sławomir, Grześkiewicz Marek, Bacher Martin, 2008: Mechanical properties of Polish-grown Pinus silvestris L. structural sawn timber. COST E53 Conference proceedings, 29-30 of October, Delft, Netherlands. p. 253-260.

Krzosek Sławomir, Bacher Martin, Grzeskiewicz Marek, 2009: Comparison of strength grading machine settings for different grade Combinations for Polish-grovn Pinus sylvestris L. structural sawn timber. COST Action E53 Conference 22 – 23 October, in Lisbon, Portugal.

Krzosek Sławomir 2011: Timber strength grading of Pinus sylvestris L. using a

visual method according to Polish Standard PN-82/D-94021 and German Standard DIN 4074. Wood Research, Vol 56, nr 3, s.435-440.

Bacher Martin, Krzosek Sławomir, 2013: Modulus of elasticity tension/bendig ratio of polisch grown pine (Pinus sylvestris L.) and spruce (Picea bies Karst.) timber. Annals of Warsaw University of Life Sciences – SGGW Forestry and Wood Technology, No 82/2013, p. 31-38.

Kotwica Ewa, Krzosek Sławomir, 2013: Technical requirements and practical guide for sawn timber and glulam applications in wooden constructions. Annals of Warsaw University of Life Sciences – SGGW Forestry and Wood Technology, No 83/2013, p. 57-62.

Bacher Martin, Krzosek Sławomir, 2014: Bending and Tension Strength Classes

in European Standards. Annals of Warsaw University of Life Sciences – SGGW

Forestry and Wood Technology, No. 88, p. 14 - 22.

Kotwica Ewa, Krzosek Sławomir, 2014: Comparison of sawn timber strength

classes determined according old and new standards.Annals of Warsaw University of Life Sciences – SGGW Forestry and Wood Technology, No.87 p. 109-113

Kotwica Ewa, Krzosek Slawomir , 2015 : Historical timber bridges in Poland. COST Timber Bridge Conference CTBC 2014, 24-25 September 2014, Bern University of Applied Sciences Biel, Switzerland, p159-164.

Portugal – Prof. Dr. Alfredo Geraldes Dias (MC)

University of Coimbra

Coimbra Portugal

alfgdias(at)dec.uc.pt

COST FP1402, MC Member, WG4 Leader

Personal	*Organisation*		
Years of experience in relevant field: 10 Expertise: Timber composites Connections in timber composites Degree: PhD (04.04.2005)	Civil Engineering (www.uc.pt/fctuc/dec) Focus: theoretical and practical research / innovation, and education and training Facilities: Testing lab facility for timber structures and products Specific testing equipment for timber structures and products		
	No. of staff	PhD students	MSc/year
	3	5	6

Research projects

WG4

LOGCORK - "Sustainability in construction through the incorporation of materials optimized by nature", 3 years (2010-2013), Alfredo Dias, Helena Cruz, Sandra Monteiro

Ecotabuleiro – "Road bridges for rural areas made with roundwood members", 2.5 years (2013-2015), Alfredo Dias and Sandra Monteiro.

WG3

Mechanical assessment of glued based connetion for structural timber members, 3 years (2005-2008), Alfredo Dias.

Publications

WG1

- Dias, A. M. P. G., A. R. D. Martins, L. M. C. Simões, P. P. and A. Andrade (2015). "Statistical Analysis of the Load Slip Behaviour in Timber-Concrete Connections." Computers and Structures

WG2

- Jorge, L. F. C. and A. M. P. G. Dias (2013). "X-Lam panels in swimming-pool building – monitoring the environment and the performance." journal Advanced Materials Research 778.

WG3

- Dias, A. M. P. G. and L. F. C. Jorge (2011). "The effect of ductile connectors on the behaviour of timber-concrete composite beams." Engineering Structures 33(11): 3033-3042.

- Morgado, T. F. M., A. M. P. G. Dias, J. S. Machado and J. H. Negrao (2013). "Structural Connections for Small-Diameter Poles." Journal of Structural Engineering 139(11)

WG4

- Santos, P. G. G., A. M. P. G. Dias, C. E. J. Martins and L. Godinho (2015). "Vibration Testing and Modeling of a Reinforced Timber-Concrete Composite Floors." Journal of Structural Engineering - ASCE

- Monteiro, S. R. S., A. M. P. G. Dias and S. M. R. Lopes (2014). "Bi-dimensional numerical modeling of timber–concrete slab-type structures." Materials and structures 37(2): 50-65.

- Dias, A. M. P. G. (2012). "Analysis of the Nonlinear Behavior of Timber-Concrete Connections." JOURNAL OF STRUCTURAL ENGINEERING-ASCE 138(9): 1128-1137

Portugal - Dr. Jorge Branco (MC Sub)

University of Minho
Guimarães Portugal
jbranco(at)civil.uminho.pt
COST FP1402, MC Substitute, WG3 Member

Personal	*Organisation*		
Years of experience in relevant field: 15 Expertise: Carpentry joints; Reinforcement, Cyclic behavior of joints Degree: PhD. (28.07.2008)	Civil Engineering (http://www.hms.civil.uminho.pt/) Focus: theoretical and practical research / innovation, design of structures and education / training Facilities: Testing labs, NDTs equipment		
	No. of staff	PhD students	MSc/year
	3	3	6

Research projects

(2007-2010): Safety evaluation of timber structures through nondestructive methods and stochastic analysis. PTDC/ECM/66527/2006 da Fundação para a Ciência e a Tecnologia. (Paulo Lourenço, Saporiti Machado, Jorge Branco).

(2012-2013): Seismic performance of multi-storey timber buildings. Seismic Engineering Research Infrastructures for European Synergies SERIES. EU Framework Program 7 (Jorge Branco, Paulo Lourenço, Maurizio Piazza, Roberto Tomasi, Gerhard Schickhofer, Georg Flatscher).

(2012-2015): WoodenQuark – Wooden Houses. Contract n.º 2011/21635 do Quadro de Referência Estratégico Nacional. (Jorge Branco). http://www.woodenquark.com/

(2014-) SISMO – Seismic design of multi-storey Cross Laminated Timber buildings. Stora Enso. (Jorge Branco, Paulo Lourenço).

Publications

Branco, J.M., Kekeliak, M., Lourenço, P.B., In-plane stiffness of timber floors strengthened with CLT. European Journal of Wood and Wood products. (in-press DOI: 10.1007/s00107-015-0892-2)

Branco, J.M., Tomasi, R. (2013), Analysis and Strengthening of Timber Floors and Roofs. In Structural Rehabilitation of Old Buildings. Costa, A, Miranda Guedes, J, Varum H. (eds.), Springer, ISBN: 978-3-642-39685-4, pp. 235 258. URL: http://dx.doi.org/10.1007/978-3-642-39686-1 http://hdl.handle.net/1822/26659

Sena-Cruz, J.M., Jorge, M., Branco, J.M., Cunha, V.M.C.F. (2013), Bond between glulam and NSM CFRP laminates. Construction and Building Materials. 40 (2013) 260–269. URI: http://hdl.handle.net/1822/21509

Branco, J.M., Araújo, J.P. (2012), Structural behaviour of log timber walls under lateral in-plane loads. Engineering Structures. 40 (2012), 371-382. URI: http://hdl.handle.net/1822/19907

Branco, J.M., Piazza, M., Cruz, P.J.S. (2011), Experimental evaluation of different strengthening techniques of traditional timber connections. Engineering Structures. 33 (8), 2011, 2259-2270. URI: http://hdl.handle.net/1822/13592

Branco, J.M., Cruz, P.J.S., Piazza, M. (2009), Experimental analysis of laterally loaded nailed timber-to-concrete connections. Construction and Building Materials. 23 (1), 2009, 400-410. URI: http://hdl.handle.net/1822/9208

Portugal – Prof. Dr. Artur Feio (MC Sub)

University Lusíada
Lissabon Portugal
arturfeio(at)gmail.com
COST FP1402, MC Substitute, WG1 Member

Personal	*Organisation*		
Years of experience in relevant field: 14 Expertise: Develops, since 2001, investigation in the fields of sustainability of materials and construction systems, wood structures, structural rehabilitation of wood structures, NDT tests on wood structures and modelling of structural wood-wood connections. Degree: PhD. (01.03.2006)	Architectural and Civil Eng. Department (www.fam.ulusiada.pt) Focus: theoretical and practical research / innovation and education / training Facilities: Regular Testing Lab.		
	No. of staff	PhD students	MSc/year
	5	3	22

Research projects

SFRH/BD/73853/2002 - Inspection and Diagnosis of Historical Timber Structures: NDT Correlations and Structural Behaviour.

POCI/ECM/56552/2004 (2005-2008). Influence of the joint stiffness in the static and dynamic behaviour of timber structures: consequences of different strengthening techniques.

Publications

Artur O. Feio; Paulo B. Lourenço; José S. Machado. Testing, NDT and modeling of a traditional timber mortise and tenon joint. Materials and Structures, RILEM, Volume 47, Issue 1-2, pages 213-225 January 2014.

Artur O. Feio; Paulo B. Lourenço; José S. Machado. Non-Destructive Evaluation of the Mechanical Behavior of Chestnut Wood in Tension and Compression Parallel to Grain. International Journal of Architectural Heritage, Volume 1, Issue 3 July 2007, pages 272 – 292.

Paulo B. Lourenço; Artur O. Feio; José S. Machado. Chestnut wood in compression perpendicular to the grain: Non-destructive correlations for test results in new and old wood. Construction and Building Materials, Volume 21, Issue 8, August 2007, Pages 1617-1627, ISSN 0950-0618.

Feio, A.; Lourenço, P.B.; Machado, J. Capacity of a Traditional Timber Mortise and Tenon Joint. Structural Analysis of Historic Construction: Preserving Safety and Significance. Proceedings of the 6th International Conference on Structural Analysis of Historic Construction, SAHC08, pp. 833-841. Taylor & Francis Group, London, ISBN 978-0-415-46872-5, July 2008.

Portugal - Mr.Tiago Ilharco (WG)

NCREP - Consultancy on Rehabilitation of Built Heritage Ltd.
Porto, Portugal

tiago.ilharco(at)ncrep.pt

COST FP1402, WG1 Member

Personal	*Organisation*
Years of experience in relevant field: 10 Expertise: Assessment, non destructive testing and structural analysis of old timber structures Structural and Seismic strengthening of existent buildings Degree: MSc (2008)	- (www.ncrep.pt) Focus: practical research / innovation, design of structures and education/training. Facilities: Our company has a protocol with 2 labs: Laboratory of Seismic and Structural Engineering of the Faculty of Engineering of Porto University; Laboratory of Structures of the School of Engineering of the Polytechnic of Porto.

No. of staff	PhD students	MSc/year
7	3	-

Research projects

NCREP - Consultancy on Rehabilitation of Built Heritage, Ltd. is an office that provides consultancy, monitoring, safety evaluation and design in the field of rehabilitation of constructions, namely regarding old and new timber structures. The office was born from the knowledge and experience gathered at the Faculty of Engineering of Porto University (FEUP) for many years on structural retrofitting / strengthening projects.

In its approach to rehabilitation, NCREP follows an integrated methodology that starts from the search of the detailed knowledge of the constructions through inspection and diagnosis, followed by analysis using safety assessment tools (commercial and research software) that, all together, allow defining the intervention procedures that better fit the construction actual characteristics and physical state, as well as code demands. The whole process is developed according to the most recent international recommendations concerning the intervention on built heritage, and it aims enhancing an equilibrium between functionality, safety and safeguard through minimum impact interventions. This integrated methodology can involve laboratorial and on-site tests, numerical simulations and monitoring before, during and after the implementation of the intervention solutions.

The experience of the NCREP team involves also laboratory and in-situ experimental testing of large structures and retrofitting / strengthening techniques, as well as the use and enhancement of Non-Destructive and Slightly-Destructive Techniques (NDT and SDT, respectively), namely sonic, ulta-sonic, resistance drilling machines, etc., for in-situ assessment of the mechanical characteristics of structural elements.

In the scope of the development of the structural projects regarding the rehabilitation and strengthening of old timber structures and the design of new timber structures, the generality of the topics of the COST Action FP1402 are covered by NCREP. Among these projects, structural and seismic analysis of old buildings, and particularly of old timber structures, in the city centres of Lisbon and Porto are the most common. Recently NCREP was also involved in a World Bank project regarding the structural analysis of the traditional constructions of Bhutan.

NCREP is also involved in COST Action FP1101, by its partner Tiago Ilharco, which is a member of WG1-TG2 of that COST Action. Tiago Ilharco was also present in some events of COST Action 1004.

Publications

• Ilharco, T., Guedes, J., Costa, A., Arêde, A. “Avaliação experimental de pavimentos antigos de madeira através de ensaios de carga”. Construção Magazine. Vol.45. Pág. 34-38. 2011.

• Ilharco, T., Costa, A.A., Lopes, V., Costa, A., Guedes, J. “Assessment and intervention on the timber structure of a XVII century building in Lisbon; an example of seismic retrofitting”. Revista Portuguesa de Engenharia de Estruturas (RPEE). Series II, Vol. 11. Pág. 26-37. 2012.

• Ilharco, T., Guedes, J., Costa, A., Arêde, A., Paupério, E. “Avaliação da distribuição de carga em pavimentos de madeira através de ensaios in situ”. Revista da Associação Portuguesa de Análise Experimental de Tensões. Vol.21. Pág. 1-11., 2012.

• Costa, A., Arêde, A., Paupério, E., Guedes, J., Costa, A.A., Silva, B., Neves, F., Ilharco, T., Lopes, V. “Metodologia Integrada de análise de estruturas existentes. A experiência do NCREP”. Anuário do Património 2012. Pág. 200-205. 2012.

• Paupério, E., Guedes, J., Lopes, V., Ilharco, T., Costa, A., Romão, X. “The ”abuse” on portoghese built heritage – Portugal”. Unsustainable Living. Recovery and Reintegration of Degraded Environments. Alinea Editrice. Pág. 110-118. 2012.

Portugal - Dr.Luis Jorge (WG)

TISEM LDA
Figueira da Foz, Portugal
luisfc(at)ipcb.pt
COST FP1402, WG2 Member

Personal	*Organisation*		
Years of experience in relevant field: 5 Expertise: Design of CLT Degree: PhD (12.06.2006)	TISEM LDA (www.tisem.pt) Focus: practical research /innovation, design of structures and execution of structures Facilities: Laborary for mechanical testing on elements and connections (static and dynamic tests).		
	No. of staff	PhD students	MSc/year
	4	0	1

Research projects

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Publications

Jorge, L., Dias, A., X-Lam panels in swimming-pool building - monitoring the environment and the performance. Advanced Materials Research. Volume 778, 2013, Pages 779-785

Jorge, L., Habenbacher, J., Dujic, B., TIMBER-CONCRETE COMPOSITE SYSTEMS WITH CROSS-LAMINATED TIMBER. 10th World Conference on Timber Engineering. WCTE10. Italy. 2010

Jorge, L., Lopes, S., Aplicação de sistemas mistos madeira-betão com painéis Xlam. BE2010 – Encontro Nacional Betão Estrutural. Lisboa – 10, 11 e 12 de Novembro de 2010. (in portuguese)

Jorge, L., Lopes, E., Martins, H., Sistema construtivo com painéis maciços de madeira lamelada-colada cruzada (Xlam). Reabilitar 2010. LNEC. 2010 (in portuguese)

Jorge, L., Lopes, E., CONSTRUÇÃO EM PAINÉIS DE MADEIRA 'CLT': O ESTUDO DE CASO DA PISCINA MUNICIPAL DA CAPARICA. JPEE 2014. LNEC. LISBOA (in portuguese)

Jorge, L., Dias, A., Lopes, E., SWIMMING-POOL BUILDING MADE WITH X-LAM PANELS. World Timber Engineering Conference 2014. Quebeq City. Canadá. 2014

Ventura, D. , Negrão, J., Jorge, L., Torres eólicas em madeira lamelada cruzada colada. JPEE 2014. LNEC. 2014 (in portuguese)

Portugal - Dr. Xavier José (WG)

Universidade de Trás-os-Montes e Alto Douro (UTAD)
Vila Real, Portugal

jmcx(at)utad.pt

COST FP1402, WG2 Member

Personal

Years of experience in relevant field: 8

Expertise: Mechanical characterisation of biological tissues and structures; Full-field optical methods in experimental mechanics (digital image correlation, grid method, defletometry, feature tracking method, ESPI); Mechanical and fracture identification methods (e.g. virtual fields method)

Degree: PhD. (27.11.2007)

Organisation

Engineering (http://www.jmcx.utad.pt/)

Focus: practical research /innovation and education /training

Facilities: Digital Image Correlation, Testing machines

No. of staff	PhD students	MSc/year
5	1	2

Research projects

Innovative photomechanical approaches in identification of the dynamic mechanical behaviour of materials. Responsible researcher: Fabrice Pierron. J.Xavier is responsable for Task 4.7: High strain rate tests on wood at the meso scale. Financial support: EPSRC Fellowship, UK. EPSRC Reference : EP/L026910/1.

Numerical and experimental study of cohesive laws in bonded wood joints

Principal contractor: University of Trás-os-Montes e Alto Douro.

Portuguese Foundation for Science and Technology: PTDC/EME-PME/114443/2009

Publications

[1] Xavier, J.; Fernandes, J.R.A.; Frazão, O.; Morais, J.J.L. Measuring mode I cohesive law of wood bonded joints by combining digital image correlation and fibre Bragg grating sensors. Composite Structures 121:83-89, 2015.

[2] Xavier, J.; Oliveira, M.; Morais, J.; de Moura, M.F.S.F. Determining mode II cohesive law of Pinus pinaster by combining the end-notched flexure test with digital image correlation. Construction and Building Materials 71:109–115, 2014.

[3] Xavier, J.; Monteiro P.; Morais, J.; Dourado, N.; de Moura, M.F.S.F. Moisture content effects on the fracture characterisation of Pinus pinaster under mode I. Journal of Materials Science 49(21):7371-7381, 2014. [4] Xavier, J.; Oliveira, J.; Monteiro, P.; Morais, J.J.L.; de Moura, M.F.S.F. Direct evaluation of cohesive law in mode I of Pinus pinaster by digital image correlation. Experimental Mechanics 54(5): 829-840, 2014.

[5] Silva, F.; Morais, J.; Dourado, N.; Xavier, J.; Pereira, F.A.M.; de Moura, M.F.S.F. Determination of cohesive laws in wood bonded joints under mode II loading using the ENF test. International Journal of Adhesion and Adhesives 51: 54–61, 2014.

[6] Pereira, J.; Xavier, J.; Morais, J.; Lousada, J. Assessing wood quality by spatial variation of elastic properties within the stem: case study of P. pinaster in the transverse plane. Canadian Journal of Forest Research, 44(2): 107-117, 2014.

[7] Xavier, J.; Belini, U.; Pierron, F.; Morais, J.; Lousada, J.; Tomazello, M. Characterisation of bending stiffness components of MDF panels from full-field slope measurements. W Sci. Tech. 47(2): 423-441, 2014

Portugal - Ms. Sandra Monteiro (WG)

University of Coimbra
Coimbra Portugal

sandra(at)dec.uc.pt

COST FP1402, WG4 Member

Personal	*Organisation*		
Years of experience in relevant field: - Expertise: Modelling and experimental testing of timber-concrete floors; modelling and testing of timber concrete notched connections. Degree: Master in Civil Engineer (05.05.2009)	Civil Engineering (www.uc.pt/fctuc/dec) Focus: theoretical and practical research / innovation and education /training Facilities: Testing lab facility for timber structures and products Specific testing equipment for timber structures and products		
	No. of staff	PhD students	MSc/year
	3	5	6

Research projects

WG4

LOGCORK - "Sustainability in construction through the incorporation of materials optimized by nature", 3 years (2010-2013), Alfredo Dias, Helena Cruz, Sandra Monteiro

Ecotabuleiro – "Road bridges for rural areas made with roundwood members", 2.5 years (2013-2015), Alfredo Dias and Sandra Monteiro.

WG3

Mechanical assessment of glued based connetion for structural timber members, 3 years (2005-2008), Alfredo Dias.

Publications

WG1

- Dias, A. M. P. G., A. R. D. Martins, L. M. C. Simões, P. P. and A. Andrade (2015). "Statistical Analysis of the Load Slip Behaviour in Timber-Concrete Connections." Computers and Structures

WG2

- Jorge, L. F. C. and A. M. P. G. Dias (2013). "X-Lam panels in swimming-pool building – monitoring the environment and the performance." journal Advanced Materials Research 778.

WG3

- Dias, A. M. P. G. and L. F. C. Jorge (2011). "The effect of ductile connectors on the behaviour of timber-concrete composite beams." Engineering Structures 33(11): 3033-3042.

- Morgado, T. F. M., A. M. P. G. Dias, J. S. Machado and J. H. Negrao (2013). "Structural Connections for Small-Diameter Poles." Journal of Structural Engineering 139(11)

WG4

- Santos, P. G. G., A. M. P. G. Dias, C. E. J. Martins and L. Godinho (2015). "Vibration Testing and Modeling of a Reinforced Timber-Concrete Composite Floors." Journal of Structural Engineering - ASCE

- Monteiro, S. R. S., A. M. P. G. Dias and S. M. R. Lopes (2014). "Bi-dimensional numerical modeling of timber–concrete slab-type structures." Materials and structures 37(2): 50-65.

- Dias, A. M. P. G. (2012). "Analysis of the Nonlinear Behavior of Timber-Concrete Connections." JOURNAL OF STRUCTURAL ENGINEERING-ASCE 138(9): 1128-1137

Slovakia - Prof. Dr. Jaroslav Sandanus (MC)

Slovak University of Technology in Bratislava
Bratislava, Slovakia

jaroslav.sandanus(at)stuba.sk

COST FP1402¸ MC Member, WG4 Member

Personal	*Organisation*
Years of experience in relevant field: 21 Expertise: Composite timber-concrete structures, diagnostics and refurbishment of historical timber structures Degree: Assoc.Prof (25.05.2011)	Slovak University of Technology in Bratislava (www.svf.stuba.sk) Focus: theoretical and practical research / innovation, design of structures and education and training Facilities: Mobile testing devices (force and displacement transducers, strain gauges, pressure devices, moisture meter)

No. of staff	PhD students	MSc/year
3	1	12

Research projects

1. Composite beams made of wood, concrete, and high-strength materials. Their real features, serviceability, reconstructions, joints, rheology and ecology (VEGA 1/1032/11)

2. Timber and combined beams - real operation, development, reconstructions (VEGA 1/3309/06)

Publications

1. Poštulka, J., Sandanus, J.: Berechnungsverfahren für eine Holz-Beton-Verbunddecke mit nägeln als verbindungsmittel.
In: Bautechnik, 1999, 76 (11), pp. 1026-1030, ISSN 0932-8351

2. Sandanus, J.: Parametric study of the factors affecting the resistance of a composite timber-concrete cross-section
In: Wood Research, 2007, 52 (3), pp. 109-114, ISSN 1336-4561

3. Blesák, L. – Sandanus, J. – Draškovič, F.: Modification of physical, mechanical and stiffness features of timber and its influence on the resistance of a connection timber-timber.
In: Wood Research, 2012, 57 (4), pp. 601-612, ISSN 1336-4561

Slovakia - Dr. Kristian Sogel (MC)

Slovak University of Technology in Bratislava

Bratislava Slovakia

kristian.sogel(at)stuba.sk

COST FP1402, MC Member, WG4 Member

Personal	*Organisation*		
Years of experience in relevant field: 11 Expertise: Long-term operation of timber structures, Diagnostics and refurbishment of historical timber structures Degree: PhD (19.06.2009)	Department of Steel and Timber Structures (www.svf.stuba.sk) Focus: theoretical and practical research / innovation, design of structures and education and training Facilities: Mobile testing devices (force and displacement transducers, strain gauges, pressure devices, moisture meter)		
	No. of staff	PhD students	MSc/year
	3	1	12

Research projects

1. Composite beams made of wood, concrete, and high-strength materials. Their real features, serviceability, reconstructions, joints, rheology and ecology (VEGA 1/1032/11)

2. Timber and combined beams - real operation, development, reconstructions (VEGA 1/3309/06)

Publications

1. Sogel, K.: Timber Beams Subjected to Long-term Loading. In: Slovak Journal of Civil Engineering. Vol. 18, No. 3, 2010, pp. 21-26, ISSN 1210-3896

2. Sandanus, J. – Sogel, K.: Load-bearing structure modelling of historic buildings. In. Transaction of the VŠB – Technical University of Ostrava. Civil Engineering Series. Vol. 13, No. 2, 2003, ISSN 1804-4824 (podiel 50%)

3. Sandanus, J. – Sogel, K.: Refurbishment of Significant Timber Structures in Slovakia. In: Journal of Civil Engineering and Architecture. Vol. 8, No. 8, 2014, pp. 1009-1016. David Publishing Company, New York, USA, ISSN 1934-7359 (podiel 50%)

4. Sandanus, J. – Slivanský, M. – Sógel, K.: Long-Term Test on Timber Trusses. In: Proceedings of IASS - SLTE 2014: 6th Latin-American Symposium on Tension Structures. Shells, Membranes and Spatial Structures. 15.-19.9.2014, Brasilia. Footprints, Brasilia, unpag. (podiel 33%)

Slovenia - Dr. Tomaž Pazlar (MC)

Slovenian National Building and Civil Engineering Institute

Ljubljana Slovenia

tomaz.pazlar(at)zag.si

COST FP1402, MC Member, WG3 Member

Personal	*Organisation*
Years of experience in relevant field: 6 Expertise: Inspection and assessment of timber structures, laboratory testing of fasteners, timber based structural elements and timber structures, certification of timber based construction products and fasteners, preparation of national and European Technical Approvals/Assessments Degree: PhD (03.10.2008)	Section for Metal, Timber and Polymer Structures (http://www.zag.si) Focus: practical research/innovation Facilities : Modular equipment for performing tests of building structures and their elements under static or dynamic loadings (max. length: 30 m, max. load: 6000 kN), onedirectional shaking table (2 m x 3.2 m), Zwick 250 kN, Resistograph IML PD500, Brookhuis Timber Grader MTG

No. of staff	PhD students	MSc/year
10	0	0

Research projects

National projects:

1.) Strength grading of timber structural elements, 2008-2011.

2.) Seismic behaviour of multi-storey shear walls with openings, 2014-2017.

3.) Technical-economic analysis of energy retrofitting of residential buildings, 2007-2009.

COST actions:

1.) COST Action E53: »Quality Control for Wood and Wood Products«, 2006-2010, http://www.coste53.net/

2.) COST Action FP1004: »Enhance mechanical properties of timber, engineered wood products and timber structures«, 2010-2015, http://costfp1004.holz.wzw.tum.de/

3.) COST Action FP1101: »Assessment, Reinforcement and Monitoring of Timber Structures« 2010-2015, http://www.costfp1101.eu/

4.) COST Action FP1404: »Fire safe use of bio-based building products«, 2014-2019, http://www.costfp1404.com/en/Sidor/default.aspx

Publications

1.) PAZLAR, Tomaž, KRAMAR, Miha. Traditional timber structures in extreme weather conditions. International Journal of Architectural Heritage: Conservation, Analysis and Restoration, 2015.

2.) SEIM, Werner, KRAMAR, Miha, PAZLAR, Tomaž, VOGT, Tobias. OSB and GFB as Sheathing Materials for Timber-Framed Shear Walls: Comparative Study of Seismic Resistance. ASCE Journal of Structural Engineering, Special issue on Seismic Resistant Timber Structures, 2015 (accepted for publication).

3.) HOZJAN, Tomaž, PAZLAR, Tomaž. Experimental and numerical analyisys of glulam beams in natural climatic conditions. Proceedings of 12th World Conference on Timber Engineering, 2012.

4.) PAZLAR Tomaž. Assessment and rehabilitation of timber structures in slovenian cultural heritage structures. Proceedings of International Scientific Conference - INDIS, 2012.

5.) PAZLAR Tomaž, SRPČIČ Jelena, PLOS Mitja, TURK Goran. Strength grading of Slovenian structural timbere masonry buildings in Ljubljana. Proceedings of 12th World Conference on Timber Engineering, 2012.

Slovenia - Dr. Miha Kramar (MC Sub)

Slovenian National Building and Civil Engineering Institute
Ljubljana, Slovenia

miha.kramar(at)zag.si

COST FP1402, MC Substitute, WG1 Member

Personal

Years of experience in relevant field: 3

Expertise: Assessment of the load-carrying capacity of existing building structures, laboratory tests of structures and structural elements, modelling of different types of timber structures and elements (timber frame structures, CLT), seismic risk assessment

Degree: PhD. (11.07.2008)

Organisation

Section for Metal, Timber and Polymer Structures (http://www.zag.si)

Focus: practical research /innovation

Facilities: Modular equipment for performing tests of building structures and their elements under static or dynamic loadings (max. length: 30 m, max. load: 6000 kN), onedirectional shaking table (2 m x 3.2 m), Zwick 250 kN, Resistograph IML PD500, Brookhuis Timber Grader MTG

No. of staff	PhD students	MSc/year
10	0	0

Research projects

National projects:

1.) L2-2214: Strength grading of timber structural elements

2.) J2-6749: Seismic behaviour of multi-storey shear walls with openings

3.) J2-5461: Design of structures for tolerable seismic risk using non-linear methods of analysis

4.) Z2-3659: Seismic resistance of modern masonry structures

5.) V2-0469: Technical-economic analysis of energy retrofitting of residential buildings

COST actions:

1.) COST Action E53: »Quality Control for Wood and Wood Products«, 2006-2010

2.) COST Action FP1404: »Fire safe use of bio-based building products«, 2014-2019

3.) COST Action FP1004: »Enhance mechanical properties of timber, engineered wood products and timber structures«, 2010-2015

4.) COST Action FP1101: »Assessment, Reinforcement and Monitoring of Timber Structures« 2010-2015

Publications

1.) PAZLAR, Tomaž, KRAMAR, Miha. Traditional timber structures in extreme weather conditions. International Journal of Architectural Heritage: Conservation, Analysis, and Restoration. 2015.

2.) SEIM, Werner, KRAMAR, Miha, PAZLAR, Tomaž, VOGT, Tobias. OSB and GFB as Sheathing Materials for Timber-Framed Shear Walls: Comparative Study of Seismic Resistance. ASCE Journal of Structural Engineering, Special issue on Seismic Resistant Timber Structures, 2015 (accepted for publication).

3.) LUTMAN, Marjana, ŠKET MOTNIKAR, Barbara, WEISS, Polona, KLEMENC, Iztok, ZUPANČIČ, Polona, CERK, Matej, JERAJ, Julij, BANOVEC, Primož. Aspects of earthquake risk management in Slovenia. Accepted for 4th International Conference on Building Resilience, 8-10 September 2014

4.) TOMAŽEVIČ, Miha, GAMS, Matija. Shaking table study and modelling of seismic behaviour of confined AAC masonry buildings. Bulletin of earthquake engineering, Jun 2012, vol. 10, issue 3, 863-893.

5.) LUTMAN, Marjana. Seismic resistance assessment of heritage masonry buildings in Ljubljana. International journal of architectural heritage, ISSN 1558-3058. [Print ed.], Jul. 2010, vol. 4, iss. 3, pp. 198-221.

Slovenia – Prof. Dr. Tomaž Hozjan (MC)

University of Ljubljana, Faculty of Civil and Geodetic Eng.
Ljubljana Slovenia

tomaz.hozjan(at)fgg.uni-lj.si

COST FP1402, MC Substitute Member, WG3 Member

Personal	*Organisation*		
Years of experience in relevant field: 10 Expertise: modeling of heat and mass transfer, mechanical response modelling, modeling of composite structures. Degree: PhD (12.03.2009)	Chair of Mechanics (http://www3.fgg.uni-lj.si/en/) Focus: theoretical and practical research / innovation, design of structures and education/training. Facilities: testing lab for structures including horizontal response		
	No. of staff	PhD students	MSc/year
	6	5	40

Research projects

EU Hardwoods, European hardwoods for the building sector, 2014-2016, FCBA and SIMONIN SAS (FRA), HFA, BFW and FHO (AUT), MPA and FVA (GER), CBD and UL (SLO), http://km.fgg.uni-lj.si/hardwood/index.html

PAST:

Gradewood, Grading of timber for engineered wood products, 2008-2010, VTT(FIN), BRE (UK),FCBA F(FRA),TUM (GER), SP (SWE), HFA andTUF (AUT), UL (SLO).

Classification of timber structural elements by the strength (applied research project), 2009-2012, Slovenian project together with Slovenian National Building and Civil Engineering Institute and Biotechincal Faculty.

Methods of classification of timber by strength (applied research project), 2004-2007, Slovenian project together with Slovenian National Building and Civil Engineering Institute and Biotechincal Faculty.

Glulam timber beams in natural environment (applied research project), 2001-2004, Slovenian project together with Slovenian National Building and Civil Engineering Institute.

Publications

WG2:

HOZJAN, Tomaž, SVENSSON, Staffan. Theoretical analysis of moisture transport in wood as an open porous hygroscopic material. Holzforschung, ISSN 0018-3830. 2011, 65(1), pp. 97-102, doi: 10.1515/HF.2010.122.

SVENSSON, Staffan, TURK, Goran, HOZJAN, Tomaž. Predicting moisture state of timber members in a continuously varying climate. Engineering structures, 2011, 33(11), pp. 3064-3070, doi: 10.1016/j.engstruct.2011.04.029.

WG4:

HOZJAN, Tomaž, SAJE, Miran, SRPČIČ, Stane, PLANINC, Igor. Geometrically and materially non-linear analysis of planar composite structures with an interlayer slip. Computers & Structures, 2013, 114-115, pp. 1-17, ilustr., doi: 10.1016/j.compstruc.2012.09.012.

SCHNABL, Simon, PLANINC, Igor, TURK, Goran. Buckling loads of two-layer composite columns with interlayer slip and stochastic material properties. Journal of engineering mechanics, 2013, 139, 8, pp. 1124-1132, doi: 10.1061/(ASCE)EM.1943-7889.0000478.

WG1:

TORATTI, Tomi, SCHNABL, Simon, TURK, Goran. Reliability analysis of a glulam beam. Structural safety, 2007, 29(4), pp. 279-293, doi: 10.1016/j.strusafe.2006.07.011.

Slovenia - Mr. Boštjan Ber (WG)

University of Maribor, Faculty of civil engineering
Maribor Slovenia

bostjan.ber(at)kager.si

COST FP1402, WG4 Member

Personal	*Organisation*		
Years of experience in relevant field: 6 Expertise: - Design of timber structures (general) - Modelling & design of timber-glass hybrid structures Degree: BSc. (05.06.2008)	Faculty of civil engineering, department for analysis of structures (www.fg.um.si ; www.kager-house.com) Focus: theoretical and practical research / innovation and design of structures Facilities: Testing lab, equiped with a static tensile loading machine (approx. capacity 30kN) and a costumized multifunctional machine for testing timber frame-panel walls (approx. capacity 100kN).		
	No. of staff	PhD students	MSc/year
	10	6	5

Research projects

- WoodWisdom-Net, http://www.woodwisdom.net/
- COST Action TU0905 (Structural Glass), http://www.glassnetwork.org/

Publications

Ber B., Premrov M., Strukelj A., Kuhta M. (2014) Experimental investigations of timber-glass composite wall panels. Construction and Building Materials 66 (2014) 235–246. http://dx.doi.org/10.1016/j.conbuildmat.2014.05.044

Ber B., Sustersic I., Dujic B., Jancar J., Premrov M. (2014) Seismic shaking table testing of glass-timber buildings. Proceedings of the World Conference of Timber Engineering – Alexander Salenikovich (Ed), Quebec City, Canada, 10–14 August 2014, ABS643.

Ber B., Premrov M., Strukelj A., Sustersic I., Dujic B. (2014) Static and dynamic testing of timber-glass composite wall panels. Proceedings of the Challenging Glass 4 & COST TU0905 Final Conference – Louter, Bos, Belis & Lebet (Eds), EPFL, Lausanne, Switzerland, 6-7 February 2014, 219–227.

Ber B., Premrov M., Sustersic I., Dujic B. (2013) Innovative earthquake resistant timber-glass buildings. Natural Science, Vol.5, No.8A1, 63-71 (2013). http://dx.doi.org/10.4236/ns.2013.58A1008

Ber B., Sustersic I., Jancar J., Premrov M., Dujic B. (2013) Shake table testing of one- and two-story glass-timber structures. Proceedings of the International Conference on Earthquake Engineering, Skopje, Macedonia, 29-31 May 2013.

Slovenia - Prof. Dr. Andreja Kutner (WG)

University of Primorska
Koper, Slovenia
andreja.kutnar(at)upr.si
COST FP1402, WG4 Member

Personal	*Organisation*		
Years of experience in relevant field: 10 Expertise: Thermo-hydro mechanical treatment of wood, wood-based composites, adhesive bonding, environmental impact assessment Degree: PhD. (22.10.2008)	Andrej Marušič Institute (http://www.upr.si/) Focus: theoretical and practical research / innovation and education/training. Facilities: DMA, universal testing machine Zwick 50kN, access at Brest pohištvo d.o.o.: Hot Press LZT-UK-30-L Langzauner		
	No. of staff	PhD students	MSc/year
	5	1	15

Research projects

1. H2020 Teaming Renewable materials and healthy environments research and innovation centre of excellence (InnoRenew CoE), 2015-2016. http://innorenew.eu/sl/news

2. Grant holder and chair of COST Action FP1407 “Understanding wood modification through an integrated scientific and environmental impact approach (ModWoodLife), 2014-2019. http://cost.famnit.upr.si/en/

3. WoodWisdom-ERA-net+: Cascading Recovered Wood (CaReWood), 2014-2017. http://carewood.eu/

4. WoodWisdom-ERA-net+: What We Wood Believe? Societal perceptions of the forest-based sector and its products towards a sustainable society (W3B Wood Believe), 2014-2017. http://wood-w3b.eu/index.php/en/

National Slovenian research projects

• Z4-5520-1669 Rheological properties of thermo-hydro-mechanically treated wood, 1.8.2013—31.7.2015

Publications

1. KITEK KUZMAN, Manja, KUTNAR, Andreja. Contemporary Slovenian timber architecture for sustainability, (Green energy and technology). Cham [etc.]: Springer, cop. 2014. XIX, 163p.

2. KUTNAR, Andreja, KAMKE, Frederick A., ŠERNEK, Milan. Density profile and morphology of viscoelastic thermal compressed wood. Wood Science and Technology, ISSN 0043-7719, 2009, vol. 43, no. ½: 57-68.

3. KUTNAR, Andreja, SANDBERG, Dick, HALLER, Peer. Compressed and moulded wood from processing to products - a review. Holzforschung, ISSN 1437-434X. [Online ed.], 2015:1-13.

3. Kutnar Andreja, Kamke Frederick A., Petrič Marko, Šernek Milan. The influence of viscoelastic thermal compression on the chemistry and surface energetics of wood. Colloids and surfaces. A, Physicochemical and Engineering Aspects 329 (2008) 82-86. doi: doi:10.1016/j.colsurfa.2008.06.047. Times cited: 14

4. Rautkari Lauri, Laine Kristiina, Kutnar Andreja, Medved Sergej, Hughes Mark. Hardness and density profile of surface densified and thermally modified Scots pine in relation to degree of densification. Journal of Materials Science 48 (6) (2013) 2370-2375. doi: 10.1007/s10853-012-7019-5. Times cited: 9

5. Kutnar Andreja, Kamke Frederick A. Influence of temperature and steam environment on set recovery of compressive deformation of wood. Wood Science and Technology 46 (5) (2012) 953-964. doi: 10.1007/s00226-011-0456-5. Times cited: 9

Slovenia - Mr. Bogdan Šega (WG)

University of Ljubljana, Biotechnical Faculty
Ljubljana, Slovenia

bogdan.sega(at)bf.uni-lj.si

COST FP1402, WG2 Member

Personal	*Organisation*
Years of experience in relevant field: 21 Expertise: timber grading, gluing of wood, testing of mechanical properties Degree: MSc. (21.03.2002)	Department of Wood Science and Technology (http://www.bf.uni-lj.si) Focus: theoretical and practical research/innovation and education/training Facilities: - Mechanical testing laboratory, Laboratory for wood adhesives - Materials testing machines: Zwick Z100 and Zwick/Roell Z005 - Rheometer Ares G2, DSC Mettler Toledo, Heat Flow Meter Stirolab

No. of staff	PhD students	MSc/year
6	1	2

Research projects

Strength grading of timber construction elements - Razvrščanje lesenih konstrukcijskih elementov po trdnosti (ARRS project L2-2214) ; 2009 - 2012; dr. Bučar Bojan, dr. Gornik Bučar Dominika, dr. Hozjan Tomaž, dr. Kroflič Aleš, dr. Pazlar Tomaž, mag. Srpčič Jelena, mag. Šega Bogdan, dr. Turk Goran; this project was related to GRADEWOOD project.

Publications

KITEK KUZMAN, Manja, KUTNAR, Andreja. Contemporary Slovenian timber architecture for sustainability, (Green energy and technology). Cham [etc.]: Springer, cop. 2014. XIX, 163 str., ilustr. ISBN 978-3-319-03634-2. ISBN 978-3-319-03635-9.

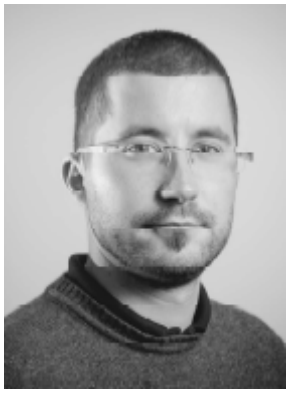
KARIŽ, Mirko, KITEK KUZMAN, Manja, ŠERNEK, Milan. The effect of heat treatment on the withdrawal capacity of screws in spruce wood. Bioresources, ISSN 1930-2126, 2013, vol. 8, no. 3.

ŠEGA, Bogdan. Vpliv značilnosti slovenskega smrekovega konstrukcijskega žaganega lesa na njegove mehanske lastnosti in prevedba sortirnih razredov v trdnostne = Influence of characteristics of stuctural sawn timber made from Slovenian spruce on its mechanical properties and assignment of visual grades to strength classes. Les, ISSN 0024-1067, 2010, letn. 62, št. 11/12.

ŠEGA, Bogdan, GORNIK BUČAR, Dominika, PAZLAR, Tomaž, PLOS, Mitja, SRPČIČ, Jelena, TURK, Goran. Report on the visual classification of structural timber of rectangular cross section from the Slovenian spruce and fir and the appropriate destructive tests : this report serves as a basis for including the Slovene rules for visual grading to the EN 1912 list : poročilo za Komisijo CEN TC124/TG1 Task group for grading and strength properties. Ljubljana: University of Ljubljana, Biotechnical faculty: Slovenian National Building and Civil Engineering Institute: University of Ljubljana, Faculty of Civil and Geodetic Engineering, 2010.

Slovenia - Mr. Iztok Sustersic (WG)

CBD d.o.o. & University of Ljubljana
Celje, Slovenia
iztok.sustersic(at)cbd.si
COST FP1402, WG1 Member



Personal	*Organisation*		
Years of experience in relevant field: 7 Expertise: Seismic modelling of CLT, seismic retrofit. Degree: Bachelor of Engineering (26.06.2008)	Development and Application of Timber Structures (www.cbd.si) Focus: theoretical and practical research / innovation, design of structures, execution of structures, education/training and practical research in partner laboratories Facilities: Construction analysis software, in-situ testing equipment (thermal camera, etc.)		
	No. of staff	PhD students	MSc/year
	9	2	-

Research projects

FP 1004; invited speakers at meetings and training schools (Cyprus and Trento), members of training Schools (Edinburgh).

Publications

FP 1004;
meeting Zagreb (Simplified Cross-Laminated Timber Wall Modelling for Linear-Elastic analysis)
meeting Cyprus (Use of CLT in Slovenia on Seismically Active Areas)

Spain - Prof. Dr. Jose Manuel Cabrero Ballarin (MC)

University of Navarra
Pamplona Spain

jcabrero(at)unav.es

COST FP1402, MC Member, WG3 Member

Personal	*Organisation*		
Years of experience in relevant field: 7 Expertise: Numerical modelling. Failure criteria for wood. Dowelled connections. Fiber reinforced wood. Architectural design Degree: PhD (26.09.2006)	Department of Building Construction, Services and Structures (www.unav.es/madera; www.unav.es/estructuras) Focus: theoretical and practical research / innovation and education / training Facilities: Testing lab with loadoto carnet cells up to 400 kN, specialized in building components and materials characterisation. Computer Numerical Control (CNC). Laser cutting printer. 3D printer.		
	No. of staff	PhD students	MSc/year
	5	2	0

Research projects

- RETICC - structures durability: REinforcemet of TImber and Concrete Constructions. (2011). http://www.unav.edu/centro/madera/reticc

- esMADERA (isWOOD). efficient and sustainable: Timber Applied to the Design of High Performance Structures (2008-2011). http://www.unav.edu/centro/madera/esmadera

- Timber mechanical connections. (2012-2015) http://www.unav.edu/centro/madera/optimizaciondeunionesmecanicasdemadera

- New applications, treatments and products for beechwood. (2011-2013) http://www.unav.edu/centro/madera/nuevos-mercados-para-la-madera-de-haya

- Characterisation, modelling and automated design of 3D semi-rigid steel joints. (2015-2018). http://www.structuralconnections.es

- Analysis and design of 3D semi-rigid connections in steel and concrete structures (2007-2016)

-METAJOINT2D - A new methodology for the direct and automatic characterization of 2D steel and timber joints based on specialized metamodels built from deformation modes. (2017-2019)

Publications

-Yurrita M., Cabrero J.M. (2018) New criteria for the determination of the parallel-to-grain embedment strength of wood, Construction and Building Materials, 173, pp. 238-250. doi: 10.1016/j.conbuildmat.2018.03.127
-Cabrero J.M., Yurrita M. (2018) Performance assessment of existing models to predict brittle failure modes of steel-to-timber connections loaded parallel-to-grain with dowel-type fasteners. Engineering Structures, 171, pp. 895-910. doi: 10.1016/j.engstruct.2018.03.037
-Stepinac M., Cabrero J.M., Ranasinghe K., Kleiber M.(2018) Proposal for reorganization of the connections chapter of Eurocode 5. Engineering Structures, 170, pp. 135-145. doi: 10.1016/j.engstruct.2018.05.058
-Iraola B., Cabrero J.M. (2016) An algorithm to model wood accounting for different tension and compression elastic and failure behaviors, Engineering Structures, 117, pp. 332-343. doi:10.1016/j.engstruct.2016.03.021
- Cabrero JM, Gebremedhin K (2008) Finite Element Model for Predicting Stiffness of Metal-Plate Connected Tension Splice and Heel Joints of Wood Trusses, Transactions of the ASABE.
- Gil B, Goñi R (2015) T-Stub behaviour under out-of-plane bending. I: Experimental research and finite element modelling. Engineering Structures.
- Gil B, Bijlaard FSK, Bayo E (2015) T-Stub behaviour under out-of-plane bending. II: Parametric Study and analytical characterization. Engineering Structures.
- Gil B, Goñi R, Bayo E (2013) Experimental and numerical validation of a new design for three-dimensional semi-rigid composite joint under general loads
- Cabrero JM, Heiduschke A, Haller P (2010) Analytical assessment of the load carrying capacity of axially loaded wooden reinforced tubes, Composite Structures.
- Blanco C, Cabrero JM, Martin-Meizoso A, Gebremedhin KG (2015) Design oriented failure model for wood accounting for different tensile and compressive behavior. Mechanics of Materials.
- Cabrero JM, Blanco C, Gebremedhin KG, Martín Meizoso A (2012) Assessment of phenomenological failure criteria for wood. European Journal of Wood and Wood Products.
- Cabrero JM, Vargas G (2015) Analysis of the validity of the three-point off-axis bending method. Applied Mathematical Modelling.
- Iraola B, Cabrero JM, Gil B (2015) A three dimensional direction dependent wood model. Wood Science and Technology (under review)
- Bayo E, Gracia J, Gil B, Goñi R (2012) Efficient modelling of semirigid composite connections for frame analysis. Journal of Constructional Steel Research

Spain - Dr. Vladimir Rodriguez Trujillo (MC)

Barcelona Tech - Universitat Politecnica de Catalunya

Barcelona, Spain

biotectura(at)gmail.com

COST FP1402, MC Member, WG1 Member

Personal	*Organisation*		
Years of experience in relevant field: 10 Expertise: Timber construction, Numerical simulation of the thermal behaviour of wooden building, CLT architectural design Degree: PhD (2010)	Architectural Innovation and Technology Laboratory - LITA (https://lita.upc.edu/en) Focus: theoretical and practical research / innovation, and education/training. Facilities: CAD software, computers, studies rooms, building for testing in real scale.		
	No. of staff	PhD students	MSc/year
	12	5	15

Research projects

Title:

Cross-Laminated Timber: Demand, Supply and Research

Duration:

2015-2016

People involved:

4 people from 3 differents institutions

- Architectural Innovation and Technology Laboratory - LITA, Barcelona Tech. Barcelona, Spain
- Forest Products Management Development Institute Chair
  Bioproducts and Biosystems Engineering Department, University of Minnesota. St. Paul, USA
- Departament of Sustainable Biomaterials, Virginia Tech, USA

Publications

WG2

Leoskool L., Rodriguez V.,, Descamps T., Van Parys L., 2014. Cross-laminated timber: Towards a consistent Structural Insulated Panel for Passive Buildings in Belgium. In: USB Proceedings of the WCTE 2014 World Conference on Timber Engineering. Quebec City.

Espinoza O., Rodriguez V., Buelmann U., Laguarda M. F. 2015. Cross-Laminated Timber: Status and Research Needs in Europe. Bioresources Journal (under review - August 2015)

Espinoza O., Buelmann U., Laguarda M. F., Rodriguez V. 2015. Research Needs of Cross Laminated Timber in North America (not yet published)

Spain - Dr. Abel Vega (MC Sub)

CETEMAS

Asturias, Spain

avega(at)cetemas.es

COST FP1402, MC Substitute, WG1 Member

Personal	*Organisation*		
Years of experience in relevant field: 8 Expertise: Structural timber characterization; wood mechanical and physical properties, wood technology, structural design Degree: PhD (21.9.2013)	Wood Technology and Construction (www.cetemas.es) Focus: theoretical and practical research/ innovation and education/training. Facilities: Testing labs (mechanical, physical and chemical propertties); Non-destructive equipments (ultrasounds, modal analysis...); numerical modelling software		
	No. of staff	PhD students	MSc/year
	19	3	3

Research projects

2015-2016. Estudio de las propiedades estructurales de vigas de madera laminada encolada de Eucalyptus grandis producida en Uruguay para su asignación a clases resistentes. Integrante como Investigador Externo Postdoctoral. Fondo Sectorial Innovagro. Instituto Nacional de Investigación Agraria de Uruguay (INIA)

2010 – 2014. Hi Fretech Impregnation of Wood. Coordinator of Spanish working group (CETEMAS, INIA y TINASTUR). Wood Wisdom Research Programme, con Universidad George August de Götingen (Germany)

2009 – 2012. Caracterización de la madera de castaño para su uso como madera estructural y su incorporación al Código Técnico de la Edificación. Integrante del Equipo. Subproyecto 2 (Normalización de la madera de castaño), integrado en el Proyecto Singular Estratégico 'VALOCAS: Valorización forestal e industrial del castaño en España'. Consejería de Educación y Ciencia-ayudas complementarias al MICINN

Publications

2015. Hermoso, E.; Vega, A. Effect of microwave treatment on the impregnability and mechanical properties of Eucalyptus globulus wood. Maderas: Ciencia y Tecnología 18(1)

2015. Vazquez, C.; Gonçalves, R.; Bertoldo, C.; Baño, V.; Vega, A.; Crespo, J.; Guaita, M. Determination of the mechanical properties of Castanea sativa Mill. using ultrasonic wave propagation and comparison with static compression and bending methods. Wood Science and Technology 49(3)

2013. Vega, A.; Arriaga, F.; Guaita, M.; Baño, V. Proposal for visual grading criteria of structural timber of sweet chestnut from Spain. Eur J Wood Prod 71(4)

2012. Vega, A.; Dieste, A.; Guaita, M.; Majada, J.; Baño, V. Modelling of the mechanical properties of Castanea sativa Mill. structural timber by a combination of non-destructive variables and visual grading parameters. Eur. J. Wood Prod. 70(6)

Spain - Prof. Dr. Jose L. Fernandez-Cabo (MC Sub)

ETS de Arquitectura de Madrid

Madrid Spain

jose.fcabo(at)upm.es

COST FP1402, MC Substitute, WG4 Member

Personal	*Organisation*		
Years of experience in relevant field: 20 Expertise: Maybe in timber composite structures, timber trusses. Degree: PhD. Architect (01.01.1998)	Structural Department (www.aq.upm.es) Focus: theoretical and practical research / innovation and education / training Facilities: Regular Testing Lab.		
	No. of staff	PhD students	MSc/year
	40	2	15

Research projects

Name of the project: Definition of a Protocol for the Refurbishment of Timber Floors by the Connection with the new Concrete Topping.

Funded by: Education and Science Ministery

Duration: 2004-2007.

Name of the project: HOLIWOOD: Holistic implementation of European thermal treated hard wood in the sector of construction industry ana noise protection by sustainable, knowledge-based and value added products"

Funded by: Comunidad Europea VI Programa Marco (2004-2008)

Duration:2005-2009.

Publications

Fernández Cabo, Jose Luis; Fernández-Lavandera, Jorge; Avila Jalvo, Jose Miguel. "Wood-Concrete and Wood-Wood Mixed Beams: Rational Basis for Selecting Connections". JOURNAL OF STRUCTURAL ENGINEERING. Vol. 134, 3, 440-447. 2008.

Fernandez-Cabo, José L.; Arriaga-Martitegui, Francisco; Majano-Majano, Almudena; Iñiguez, Guillermo. "Short-term performance of the HSB® shear plate type connector for timber-concrete composite beams". Construction and Building Materials 30 (2012) 455–462

Fernandez-Cabo, José L; Fernandez-Lavandera, Jorge; Diez Barra, Rafael, Avila Jalvo, Jose Miguel "Timber Composite Beams with a Discrete Connection System". 2012. http://dx.doi.org/10.1680/stbu.11.00007. STRUCTURES AND BUILDINGS, ICE. 16p.

Carina Fonseca Ferreira, Dina D'Ayala, Jose. L. Fernandez Cabo,and Rafael Díez. "Numerical Modelling of Historic Vaulted Timber Structures". ADVANCED MATERIALS RESEARCH. Vol. 778 (2013) pp 517-525. Doi:10.4028/www.scientific.net/AMR.778.517

José L. Fernández-Cabo, Robert Widmann, Marina Arce-Blanco, Roberto Crocetti, José Xavier, Almudena Majano-Majano. Assessment of wire-frame analysis models of a historical planked timber archAccepted on March 2015 for its publication in BUILDING AND STRUCTURES, Proceedings of the Institution of Civil Engineers, UK.

Carina Fonseca Ferreira, Dina D'Ayala, Jose L. Fernandez Cabo, Marina Arce Blanco, Rafael Díez Barra, Pedro Hurtado Valdez (2015): Numerical Modelling and Seismic Assessment of Historic Planked Timber Arches. International Journal of Architectural Heritage. DOI: 10.1080/15583058.2015.1041194

Spain - Dr. José-Ramón Aira (WG)

Timber Construction Research Group/Tec. University of Madrid
Madrid, Spain

joseramonaira(at)hotmail.com

COST FP1402, WG1 Member

Personal	*Organisation*		
Years of experience in relevant field: 7 Expertise: FEM analysis of joints in timber structures Degree: PhD (13.09.2013)	Forest and Environmental Engineering and Management (www.montes.upm.es) Focus: theoretical and practical research / innovation, design of structures, execution of structures and education/training. Facilities: Portable devices for non-destructive testing		
	No. of staff	PhD students	MSc/year
	150	15	18

Research projects

- Non-destructive techniques for grading of timber structures in new and rehabilitated buildings. 3 years. Timber Construction Research Group. www2.montes.upm.es/Dptos/DptoConstruccion/cestruct.

Publications

- Baño V., Arriaga F., Soilán A. and Guaita M. (2011). Prediction of bending load capacity of timber beams by finite element method simulation of knots and grain deviation. DOI: 10.1016/j.biosystemseng.2011.05.008.

- Arriaga F., Íñiguez-González G. and Esteban M. (2011). Bonding shear strength in timber and GFRP glued with epoxy adhesives. Wood Research, 56(3):2011, 297-310.

- Fernandez-Cabo J.L., Arriaga F., Majano-Majano A., Iñiguez-González G. (2012). Short-term performance of the HSB® shear plate-type connector for timber-concrete composite beams. DOI:10.1016/j.conbuildmat.2011.12.035.

- Baño V., Arriaga F. and Guaita M. (2013). Determination of the influence of size and position of knots on load capacity and stress distribution in timber beams of Pinus sylvestris using finite element model.

DOI: 0.1016/j.biosystemseng.2012.12.010.

- Arriaga F., Íñiguez-Gonzalez G., Esteban M. and Fernandez-Cabo J.L. (2013). Simplified model for the strength assessment of timber beams joined by bonded plates. DOI: 10.1061/MT.1943-5533.0000660.

- Aira J.R., Arriaga F., Íñiguez-González G., Crespo J. (2014). Static and kinetic friction coefficients of Scots pine (Pinus sylvestris L.), parallel and perpendicular to grain direction. DOI: 10.3989/mc.2014.03913.

- Aira J.R., Arriaga F., Íñiguez-González G. (2014). Determination of the elastic constants of Scots pine (Pinus sylvestris L.) wood by means of compression tests. DOI: 10.1016/j.biosystemseng.2014.07.008.

- Aira J.R., Descamps T., Van Parys L., and Léoskool L. (2015). Study of stress distribution and stress concentration factor in notched wood pieces. DOI 10.1007/s00107-015-0891-3.

Spain - Dr. Beatriz Gil (WG)

University of Navarra
Pamplona, Spain

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COST FP1402, WG4 Member

Personal	*Organisation*		
Years of experience in relevant field: 4 Expertise: Composite steel concrete structures; Structural design; Semi-rigid Connections; Numerical modelling Degree: PhD (15.09.2006)	Department of Building Construction, Services and Structures (www.unav.es/madera) Focus: theoretical and practical research / innovation, design of structures and education/training. Facilities: Testing lab with loader carnet cells up to 400 kN, specialized in building components and materials characterisation. Computer Numerical Control (CNC). Laser cutting printer. 3D print		
	No. of staff	PhD students	MSc/year
	5	1	-

Research projects

- RETICC - structures durability: REinforcemet of TImber and Concrete Constructions. (2011). http://www.unav.edu/centro/madera/reticc
- esMADERA (isWOOD). efficient and sustainable: Timber Applied to the Design of High Performance Structures (2008-2011). http://www.unav.edu/centro/madera/esmadera
- Timber mechanical connections. (2012-2015) http://www.unav.edu/centro/madera/optimizaciondeunionesmecanicasdemadera
- New applications, treatments and products for beechwood. (2011-2013) http://www.unav.edu/centro/madera/nuevos-mercados-para-la-madera-de-haya
- Characterisation, modelling and automated design of 3D semi-rigid steel joints. (2015-2018). http://www.structuralconnections.es
- Analysis and design of 3D semi-rigid connections in steel and concrete structures (2007-2016)

Publications

- Cabrero JM, Gebremedhin K (2008) Finite Element Model for Predicting Stiffness of Metal-Plate Connected Tension Splice and Heel Joints of Wood Trusses, Transactions of the ASABE.
- Gil B, Goñi R (2015) T-Stub behaviour under out-of-plane bending. I: Experimental research and finite element modelling. Engineering Structures.
- Gil B, Bijlaard FSK, Bayo E (2015) T-Stub behaviour under out-of-plane bending. II: Parametric Study and analytical characterization. Engineering Structures.
-- Gil B, Goñi R, Bayo E (2013) Experimental and numerical validation of a new design for three-dimensional semi-rigid composite joint under general loads
- Cabrero JM, Heiduschke A, Haller P (2010) Analytical assessment of the load carrying capacity of axially loaded wooden reinforced tubes, Composite Structures.
- Blanco C, Cabrero JM, Martin-Meizoso A, Gebremedhin KG (2015) Design oriented failure model for wood accounting for different tensile and compressive behavior. Mechanics of

Materials.
- Cabrero JM, Blanco C, Gebremedhin KG, Martín Meizoso A (2012) Assessment of phenomenological failure criteria for wood. European Journal of Wood and Wood Products.
- Cabrero JM, Vargas G (2015) Analysis of the validity of the three-point off-axis bending method. Applied Mathematical Modelling.
- Iraola B, Cabrero JM, Gil B (2015) A three dimensional direction dependent wood model. Wood Science and Technology (under review)

Spain - Mr. Miguel Rgz. Nevado (WG)

enmadera.info
Aldealengua, Spain
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COST FP1402, WG2 Member

Personal	*Organisation*
Years of experience in relevant field: 30 Expertise: Practical implementation of CLT Degree: Architect (30.06.2004)	Freelance structural engineer (www.enmadera.info) Focus: design of structures, execution of structures Facilities: -

No. of staff	PhD students	MSc/year
1	-	-

Research projects

- .

Publications

Articles in www.aitim.es bulletin:

* Anta Natura Cellar in the Duero River, 2006
* Pavillion in Almazán, 2007
* A six storey building in Lérida, 2011
* Spanish Pavillion in Floriade, 2012
* Four urban dwellings between party walls, 2011-2013
* Spanish Pavillion in Expo Milan, 2015

Spain - Dr. Eduard Correal Mòdol (WG)

Forest Sciences Centre of Catalonia – Incafust

Lleida, Spain

eduard.correal (at) incafust.cat

COST FP1402, WG2 Member

Personal	*Organisation*		
Years of experience in relevant field: 10 Expertise: Wood Technology, visual timber grading, machine timber grading, adhesives, engineered wood products, CLT, wood anatomy, surface properties, softwood, hardwood, forestry Degree: PhD (23/9/2013)	Incafust - Institut Català de la Fusta - Catalan Institute of Wood (http://www.incafust.cat/) Focus: Practical research / innovation and education/training. Facilities: Laboratory of Wood technology focused on physical and mechanical properties. Universal test machine, Bending test machine than can test a a board up to 6000x1400 mm and witha maximum load of 30 tones. Climate chamber.		
	No. of staff	PhD students	MSc/year
	3	0	1

Research projects

We are currently starting two projects related with the development of CLT for industrial production. Both projects will use local timber and local species. At this moment both are on a preliminary stage an both are confidential.

On the first project we will give support to a small factory that is expected to produce several thousands of cubic metres of CLT per year. The second project is for a bigger factory that will produce about 30.000 m3/year of CLT.

On both projects the role of the institute will be to assist the factories to obtain the CE marking and make the control of the production.

Publications

Correal-Mòdol, E.; Vilches-Casals, M.; Langbour, P.; Thevenon, M-F.; Gérard, J.; Guibal, D. (2016 expected). Physico-mechanical properties, durability and impregnability of Pinus uncinata from the Pyrenees. World Conference on Timber Engineering. Conference Innovators Ltd

Correal-Mòdol, E.; Vilches Casals, M. (2015). Characterization of cross-laminated timber panels of Pinus sylvestris from Catalonia. 26TH International Conference on Wood Science and Technology (ICWST). Implementation of Wood Science in Woodworking sector. Proceedings. Zagreb: University of Zagreb. Innovawood. Zagreb Fair

Correal-Mòdol, E.; Iglesias Rodríguez, C. (2014). Potential strength class of the glulam made of Castanea sativa from Catalonia. Proceedings of the 3rd International Conference on Processing Technologies for the Forest and Bio-based Products Industries. Kuchl

Correal-Mòdol, E.; Vilches Casals, M. (2009). Visual quality and physical and mechanical properties of glulam made with Pyrenean Pinus nigra. Ávila. 5th Spanish Forestry Congress. SECF

Sweden - Prof. Dr. Erik Serrano (MC)

Lund University, Structural Mechanics
Lund, Sweden
erik.serrano(at)construction.lth.se
COST FP1402, MC Member, WG2 Member

Personal	*Organisation*		
Years of experience in relevant field: 10 Expertise: modelling of fracture in timber products, fracture mechanics, testing, FEM Degree: PhD (01.02.2001)	Structural Mechanics (www.byggmek.lth.se) Focus: theoretical and practical research / innovation, and education and training Facilities: testing labs for mechanical testing, digital image correlation, acoustic lab, test facility for DOL test in outdoor sheltered climate (50 kN)		
	No. of staff	PhD students	MSc/year
	4	4	5

Research projects

WG 2

Mechwood II, 2012-2014, Erik Serrano (at former employer Linnaeus University)

AkuLite, AcuWood, 2010-2012 Delphine Bard

SilentTimber, 2014-2017, Delphine Bard

WG 3

Mechwood II, 2012-2014, Erik Serrano (at former employer Linnaeus University)

Innovative joints for timber structures, 2014-2016, Gustaf Larsson (PhD-Student), Per Johan Gustafsson (main supervisor), Roberto Crocetti, Henrik Danielsson, Johan Jönsson and Erik Serrano (co-supervisors)

Publications

WG 2

Serrano, E. & Enquist, B. Compression strength perpendicular to grain in cross-laminated timber (CLT) World Conference on Timber Engineering, 2010

Hochreiner, G.; Füssl, J.; Serrano, E. & Eberhardsteiner, J. Influence of wooden board strength class on the performance of cross-laminated timber plates investigated by means of full-field deformation measurements Strain, 2014, 50, 161-173

J. Negreira, A. Trollé, K. Jarnerö, L.-G. Sjökvist, D. Bard, Psycho-vibratory evaluation of timber floors – Towards the determination of design indicators of vibration acceptability and vibration annoyance, Journal of Sound and Vibration, Volume 340, 31 March 2015, Pages 383-408.

WG 3

T. Bader, M. Schweigler, G. Hochreiner, E. Serrano, B. Enquist. Dowel deformations in multi-dowel LVL-connections under moment loading. Wood Material Science and Engineering (submitted)

T. Bader, M. Schweigler, G. Hochreiner, M. Dorn, E. Serrano. Experimental characterization of the global and local behavior of multi-dowel LVL-connections under complex loading. Materials and Structures (submitted)

Sweden - Dr. Johan Vessby (MC)

Linnaeus University

Växjö Sweden

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COST FP1402, MC Member, WG3 Member

Personal	*Organisation*		
Years of experience in relevant field: 10 Expertise: numerical modelling, experimental tests, shear walls, connections Degree: PhD (11.05.2011)	Building Technology (www. lnu.se) Focus: theoretical and practical research / innovation, design of structures and education and training Facilities: Testing lab with three hydraulic test rigs of which one is setup for biaxial experiments, several other hydraulic pistons, DIC evaluation systems		
	No. of staff	PhD students	MSc/year
	6	1	10

Research projects

[1] Expert competence for sustainable timber buildings (master courses for practicing engineers), 2012-2018, e.g. J. Vessby, J. Oscarsson, S. Ormarsson, M. Johansson, A. Olsson, lnu.se/ehtb (in Swedish)

[2] Part in the research project Mechwood 2, 2012-2014, T. Bader, E. Serrano, M. Dorn, B. Enquist, http://www.imws.tuwien.ac.at/en/mechwood/mechwood/

[3] Simulation of effects of moisture in members and connections in timber structures, 2015-, S. Ormarsson

Publications

[1] T.K. Bader, M. Schweigler, G. Hochreiner, B. Enquist, M. Dorn, E. Serrano: „Experimental characterization of the global and local behavior of multi-dowel LVL-connections under complex loading“; submitted for publication in Materials and Structures, 2015

[2] S. Ormarsson and Ó. V. Gíslason: Moisture-induced stresses in timber structures, European Journal of wood and wood products, In process for publication, 2015.

[3] Vessby, J., Serrano, E., Olsson, A. (2010). Coupled and uncoupled nonlinear elastic finite element models formonotonically loaded sheathing-to-framing joints in timber based shear walls. Engineering structures. 32. 3433-3442.

[4] Vessby, J., Källsner, B., Olsson, A., Girhammar, U.A. (2014). Evaluation of softening behaviour of timber light-frame walls subjected to in-plane forces using simple FE models. Engineering structures. 81. 464-479.

Sweden - Dr. Andreas Falk (MC Sub)

KTH Royal Institute of Technology

Stockholm, Sweden

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COST FP1402, MC Substitute Member, WG2 Member

Personal	*Organisation*		
Years of experience in relevant field: 15 Expertise: Structural and architectural design of CLT, Wood material properties in structural applications, Innovative design of timber structures, Timber-based hybrid structures, Production chain perspective of refined engineered timber products. Degree: PhD (30.11.2005)	Civil and Architectural Engineering (https://www.kth.se/en/abe/) Focus: theoretical and practical research/innovation and education/training Facilities: -		
	No. of staff	PhD students	MSc/year
	120	70	300

Research projects

EnWoBio - Engineered Wood and Biobased Materials and Products Laboratory (2015-2017)

Prof Magnus Wålinder, Dr Andreas Falk, Dr Kristoffer Segerholm, Prof Dick Sandberg (Luleå University of Technology, Sweden), Dr Anders Bystedt (SP Technical Research Institute of Sweden)

Hybrid structures for resource efficient construction (2015-2016)

Dr Andreas Falk, Prof Magnus Wålinder, Prof Tom Lindström

Multi-criteria optimisation of folded CLT-based shells (2008-2017)

Dr Andreas Falk, Prof Peter von Buelow (University of Michigan, US)

Publications

• Falk, A. and Wålinder, M. “Bio-based material hybrids seeking new applications in construction”; Proceedings of the IASS WORKING GROUPS 12 + 18 International Colloquium 2015: “Bio-based and Bio-inspired Environmentally Compatible Structures” Tokyo, Japan, A. FALK, P. VEGH and J. CHILTON (eds.), April 10-13, Tokyo Denki University, Tokyo 2015

• Falk, A. “Towards increased use of Bio-based Construction? – Architectural and Ecological Perspectives on Resource Management”; Proceedings of the International Association for Shell and Spatial Structures (IASS) 2014: “Shells Membranes and Spatial Structures: Footprints”, Brasilia, Brazil 2014

• Falk, A. “Timber-Based Material Hybrid Systems for Improved Environmental Performance”; Proceedings of the International Association for Shell and Spatial Structures (IASS) 2013: “Beyond the Limits of Man”, Wroclaw, Poland 2013

• Falk, A. “Cross-Laminated Timber: Driving Forces and Innovation”; Proceedings of the 2nd International Conference on Structures & Architecture 2013, Guimarães, Portugal 2013

• von Buelow, P., Falk, A. and Turrin, M. “Optimization of structural form using a genetic algorithm to search associative parametric geometry”; Proceedings of the 1st International Conference on Structures & Architecture 2010, Guimarães, Portugal 2010, pp. 609-706

Sweden - Dr. Eva Frühwald-Hansson (MC Sub)

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COST FP1402, MC Substitute Member, WG1 Member

Personal	*Organisation*		
Years of experience in relevant field: 10 Expertise: safety of timber structures, durability and service life prediction of timber Degree: PhD (01.06.2007)	Division of Structural Engineering (www.kstr.lth.se) Focus: theoretical and practical research / innovation and education /training Facilities: testing lab for mechanical tests, vibration/acoustics testing, climate chambers etc.		
	No. of staff	PhD students	MSc/year
	5	5	10

Research projects

WG1 (Basis of Design):

- Risk management and service life design of timber constructions (start 2013, ongoing; PhD-student)
- Instability and Bracing of Slender Steel and Timber Structures (start 2012, ongoing; PhD-student)
- Conceptual design of structural systems - minimizing risks and uncertainties in the modern design process (start 2012, ongoing; PhD-student)
- WOODBUILD: Service life and performance of exterior wood above ground and wood in the building envelope (2008-2012, several senior researchers)
- Serviceability Design of Structures and Structural System (2009-2014, PhD-student)
- Survey and analysis of failures in timber structures (2005-2007, several senior researchers)

WG2 (CLT):

- some MSc-theses

WG3 (Connections):

- several MSc-theses, a guest researcher

WG4 (Hybrid Timber Structures):

- some MSc-theses and smaller senior researchers projects

Publications

WG1 (Basis of Design):

- Honfi, 2013: Design for Serviceability - A probabilistic approach, PhD-Thesis
- Honfi, Mårtensson, Thelandersson, 2012: Reliability of beams according to Eurocodes in serviceability limit state, Engineering Structures 35, p 48-54
- Frühwald, Serrano, Toratti, Emilsson, Thelandersson, 2007: Design of Safe Timber Structures - How Can we Learn from Structural Failures in Concrete, Steel and Timber? Report
- Thelandersson, Isaksson, Frühwald, Suttie, 2011: Service life of wood in outdoor above ground applications - engineering design guideline, Report
- Fröderberg, 2014; The human factor in structural engineering: A source of uncertainty and reduced structural safety, Licenciate thesis

WG4 (Hybrid timber structures)

- Crocetti, Sartori, Tomasi, Cabo, 2014: An innovative prefabricated timber-concrete composite system, Materials and Joints in TImber Structures, Vol 9, p 507-516
- Costa, 2011: Timber concrete composite floors with prefabricated fiber reinforced concrete, MSc-thesis

Sweden - Dr. Daniel Honfi (MC Sub)

SP Technical Research Institute of Sweden
Göteborg Sweden
daniel.honfi(at)sp.se
COST FP1402, MC Substitute Member, WG1 Member

Personal	*Organisation*		
Years of experience in relevant field: 7 Expertise: code calibration, structural reliabilty, serviceability, modelling of mechano-sorptive creep Degree: PhD (23.01.2014)	SP Technical Research Institute of Sweden, Structural and Solid Mechanics (www.sp.se) Focus: practical research / innovation Facilities: structural laboratory		
	No. of staff	PhD students	MSc/year
	20	-	-

Research projects

Cluster Wooden Bridges, 2013-2014, A. Gustafsson, A. Pousette

DuraTB – Durable Timber Bridges, 2014-17, A. Pousette

Tall Timber Facades - Identification of Cost-effective and Resilient Envelopes for Wood Constructions, 2014-17, K. Sandberg

Service life and performance of exterior wood above ground (WoodExter), 2007-2011, J. Jermer

Harmonization of building regulations in the Nordic countries for wooden houses, 2007-2008, A. Gustafsson, A. Pousette

Publications

Honfi, D., A. Mårtensson, S. Thelandersson and R. Kliger (2014). "Modelling of Bending Creep of Low- and High-Temperature-Dried Spruce Timber." Wood Science and Technology 48(1): 23-36.

Olsson, A., J. Oscarsson, E. Serrano, B. Källsner, M. Johansson, and B. Enquist (2013). "Prediction of Timber Bending Strength and in-Member Cross-Sectional Stiffness Variation on the Basis of Local Wood Fibre Orientation." European Journal of Wood and Wood Products 71(3), 319-33.

Björngrim, N., A. Gustafsson, A. Pousette and O. Hagman (2011). “Health monitoring of a cable-stayed timber footbridge”, International Conference on Structural Health Monitoring of Timber Structures, Lisbon, Portugal.

Viitanen, H, T. Toratti, L. Makkonen, S. Thelandersson, T. Isaksson, E. Früwald, J. Jermer, F. Englund and E. Suttie (2011). "Modelling of service life and durability of wooden structure. Proceedings NSB 2011, 9th Nordic Symposium on Building Physics, Tampere, Finland.

Gustafsson, A., A. Pousette and N. Björngrim (2010) “Health monitoring of timber bridges”, International Conference on Timber Bridges (ICTB), Lillehammer, Norway

Serrano, E. and P. J. Gustafsson (2006). "Fracture Mechanics in Timber Engineering – Strength Analyses of Components and Joints." Materials and Structures 40(1): 87-96..

Sweden - Dr. Elzbieta Barbara Lukaszweska (WG)

Byggnadstekniska Byrån BTB
Stockholm, Sweden

elzbieta.lukaszewska(at)btb.se

COST FP1402, WG4 Member

Personal	*Organisation*		
Years of experience in relevant field: 0 Expertise: Prefabricated timber-concrete composite structures - connections Degree: PhD. (30.09.2009)	Structural Engineering (www.btb.se) Focus: design of structures Facilities: not relevant		
	No. of staff	PhD students	MSc/year
	90	3	5

Research projects

Master Thesis project which will be started in autumn and will be focused on analysis of vibrations of prefabricated timber-concrete composite structures with connection studied in Doctoral Thesis of mine.

Publications

Any reports, articles published yet in 2014-2015.

Sweden - Prof. Dr. Staffan Svensson (WG)

University of Borås
Borås, Sweden

staffan.svensson(at)hb.se

COST FP1402, WG3 Member

Personal	*Organisation*		
Years of experience in relevant field: 10 Expertise: Modelling connections, moisture induced stress, duration of load effects Degree: PhD. (10.01.1998)	School of Engineering (https://www.hb.se/Forskning/Forskare/Svensson-Staffan/) Focus: theoretical and practical research, education/training Facilities : Laboratory for Mechanical testing and material physics (moisture)		
	No. of staff	PhD students	MSc/year
	5	3	0

Research projects

Moisture induced strains and stresses in timber structures, Professor, Assistant Prof. Agnes Nagy and PhD student (starts June 15)

Kinematics of timber connections, Professor and Post-Doc (starts fall 15)

Composite concrete-wood-CLT joist elements, mechanical modelling, Professor, Assistant Prof. Agnes Nagy and PhD student (starts fall 15)

Publications

Svensson S and J. Munch-Andersen 2014. Study on nail connections in deformed state. 1st INTER meeting, Bath UK.

Köhler J. and S. Svensson, 2011: Probabilistic representation of duration of load effects in timber structures. Engineering Structures, 33 pp 462-467.

Engelund, E. T., S. Svensson, 2011: Modeling time-dependent mechanical behavior of softwood using deformation kinetics. Holzforschung, 65 pp 231-237.

Svensson, S. and S. Thelandersson, 2003: Aspects on reliability calibration of safety factors for timber structures. Holz als Roh- und Werkstoff, 61 pp. 336-341.

Switzerland - Dr. Robert Jockwer (MC)

ETH Zurich, Institute of Structural Engineering
Zurich Switzerland

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COST FP1402, MC Member, WG3 Member

Personal	*Organisation*		
Years of experience in relevant field: 6 Expertise: connections, reinforcement, modelling of moisture induced stresses, fracture mechanics Degree: Dr. sc. (01.06.2014)	Institute of Structural Engineering, Chair for Timber Engineering (www.ibk.ethz.ch) Focus: theoretical and practical research / innovation and education/training. Facilities: Universal testing machines -2MN, Strong floor, Optical Measurements, Climate chambers		
	No. of staff	PhD students	MSc/year
	-	8	20

Research projects

http://www.ibk.ethz.ch/fr/research/index

WP 2: Solid Timber Construction

"Influence of local strain differences on the bearing capacity of glulam", Dr. Gerhard Fink

"Structural behaviour of glued-laminated timber members subjected to axial compression or combined compression and bending (2nd order analysis)", Dr. Matthias Theiler

"Structural behaviour of glued-laminated timber beams with notches or holes", Dr. Robert Jockwer

"Glued laminated timber from Beech wood", Thomas Erhardt

WP 3: Connections

"Enhancement of compression perpendicular to the grain strength and stiffness of glulam members with the use", Dr. Robert Jockwer

"Assessment of the residual load-carrying capacity of large span members in wood", Dr. Robert Jockwer

WP 4: Hybrid Timber Structures

"Post-tensioned timber frame structures", Flavio Wanniger

"Reliable timber and innovative wood products for structures - Beam-type structural elements made of LVL beech wood", Peter Kobel

" - Plate-type structural elements made of LVL beech wood", Lorenzo Boccadoro

"ETH House of Natural Resources", Claude Leyder

Publications

WP 1: Basis of Design

Kohler, Jochen; Steiger, René; Fink, Gerhard; Jockwer, Robert, "Assessment of selected Eurocode based design equations in regard to structural reliability", 45th CIB-W18 Meeting 2012, 45, CIB-W18/45-102-1.

Steiger, René; Jockwer, Robert, "Tragwerksanalyse und Bemessung", Dokumentation SIA, Holzbau: Teilrevision der Norm SIA 265, Ausgabe 2012, Zürich, Switzerland.

WP 3: Connections

Jockwer, Robert; Steiger, René; Frangi, Andrea,"Fully Threaded Self-tapping Screws Subjected to Combined Axial and Lateral Loading with Different Load to Grain Angles", Materials and Joints in Timber Structures, 2014, 9, 265-272.

Jockwer, Robert, "Structural behaviour of self-tapping screws - Theory", COST Timber Bridge Conference - CTBC 2014, Biel, Switzerland.

Jockwer, Robert, "Self-tapping screws as reinforcement in areas of recessed beams under transverse shear loads", 20. Internationales Holzbau-Forum (IHF 2014), 2014, Garmisch-Partenkirchen, Germany.

Jockwer, Robert; Steiger, René; Frangi, "Design model for inclined screws under varying load to grain angles", International Network on Timber Engineering Research: 1st INTER Meeting, 2014, Bath, United Kingdom.

Switzerland - Prof.Dr. Christophe Sigrist (MC)

Bern University of Applied Sciences
Biel-Bienne, Switzerland

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COST FP1402, WG2 Member

Personal	*Organisation*		
Years of experience in relevant field: 30 Expertise: Connections, grading, hardwood, testing, glulam, CLT, hybrid structures, standardisation work Degree: PhD (01.01.1992)	Architecture, Wood and Civil Engineering (www.ahb.bfh.ch) Focus: practical research/innovation, design of structures, execution of structures and education/training Facilities: testing lab including universal testing machines (small clear testing to full scale testing), testing rigg, climate chambers, U-value measurement, window testing, chemistry laboratory, robots		
	No. of staff	PhD students	MSc/year
	115	-	12

Research projects

WG2: Solid / massive timber

Massivholzplatten für das Bauwesen - Berechnungsgrundlagen für mechanische Eigenschaften und Eckverbindungen, KTI-Projekt Nr. 5927.2 KTS, ETHZ / EMPA / SH-Holz

Zugfestigkeit von BSH-Lamellen. Kontrolle der Wirksamkeit der visuellen Sortierung zur Er-zeugung von BSH gemäss Entwurf SIA 265: Holzbau", Buwal

European construction systems made of timber elements using innovative products (Pro-secco), Forschungsgemeinschaft SH-Holz, TU Graz, Blass & Eberhard Karlsruhe, Industrieauftrag Stora Enso Timber, Finnland

WG3 Hybrid Timber Structures

Hochleistungs-Hybridbausystem mit Holz und Stahl (HHHS), Commission for Technology and Innovation CTI, 1.4.2015 to 1.9.2018

Publications

WG2:

Sigrist C., Lehmann M: An integral production chain to reliably produce glued laminated timber, WCTE Auckland 2012, 16 -19 July, Proceedings; 2012

Sigrist C., Lehmann M: Development of a cross laminated, post tensioned bridge deck, WCTE Auckland 2012, 16 -19 July, Proceedings; 2012

Sigrist C., Lehmann M.: Potential of CLT produced from non-structural grade Australian pinus radiata, WCTE Quebec City 2014, 10 -14 August, Proceedings; 2014

Sigrist C.: Mechanische Eigenschaften von Brettschichtholz hergestellt aus visuell sortierten Fichtenbrettern, in SIA Dokumentation 0251 Neue Erkenntnisse zur Zuverlässigkeit von Brettschichtholz, ETH Zürich, Lignum, 2015

Sigrist C., Lehmann M.: Mechanical properties of glulam produced from visually graded boards, WCTE Vienna 2016, 22 -25 August, Proceedings; 2016

WP3: Connections

Nailed joints in engineered timber structures using Australian hardwoods, PhD Theses, School of Civil Engineering, University of Technology, Sydney, Australia, C.Sigrist, 1992

C. Sigrist, M. Howald, P. Niemz, (2007), Verbindungen und Verbindungsmittel an Brettsperrholz, Tagungsband 39. Fortbildungskurs SAH 2007, Weinfelden, Seiten 157-174

Switzerland - Mr. Thomas Ehrhart (WG)

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COST FP1402, WG2 Member

Personal	*Organisation*
Years of experience in relevant field: 1 Expertise: material properties of CLT, testing methods and configurations Degree: Dipl.-Ing. (24.09.2014)	Institute of Structural Engineering (www.ibk.ethz.ch) Focus: theoretical and practical research / innovation, design of structures and education / training Facilities: different testing machines (to perform tensile, compression, bending, shear, ...tests), measuring instruments (inductive, optical, ...), climate chambers

No. of staff	PhD students	MSc/year
13	9	60

Research projects

WG 1: Influence of varying material properties on the load-bearing capacity of glued laminated timber

Dr. Gerhard Fink, Dr. Jochen Köhler, Prof. Dr. Andrea Frangi

Completed (10.02.2009 – 30.12.2014)

https://www.rdb.ethz.ch/projects/project.php?proj_id=27423

WG 2: (1) Biaxial timber slab using hardwood - ETH HoNR; 2011 - ongoing; F. Wanninger, A. Frangi; http://www.honr.ethz.ch/en/the-group/structural-system/composite-floor-slab.html (2) Fire behavior of cross-laminated solid timber panels; ongoing; M. Klippel, A. Frangi, M. Fontana, http://www.ibk.ethz.ch/fr/research/Klippel1/index_EN

WG 3: (1) Post-tensioned timber structures; Flavio Wanninger, Jelena Ogrizovic, Prof. Dr. Andrea Frangi; Ongoing (01.03.2010); https://www.rdb.ethz.ch/projects/project.php?proj_id=26754 (2) Reliable timber and innovative wood products for structures - Beam-type structural elements made of LVL beech wood; Peter Kobel, Prof. Dr. Andrea Frangi; Ongoing (01.01.2012); https://www.rdb.ethz.ch/projects/project.ph

WG 4: Timber-concrete composite slab using beech wood plates; ongoing; L. Boccadoro, A. Frangi; http://www.honr.ethz.ch/en/the-group/structural-system/composite-floor-slab.html

Publications

WG 1: Modelling the Bending Strength of Glued Laminated Timber - Considering the Natural Growth Characteristics of Timber, G. Fink; A. Frangi; J. Kohler, 46th Annual Meeting on Timber Structures 2013

WG 2: Fire tests on Loaded Cross-Laminated Timber Wall and Floor Elements; M. Klippel, C. Leyeder, A. Frangi; 11th International Symposium on Fire Safety Science; 2014

WG 3: (1) Experimental and analytical analysis of a post-tensioned timber connection under gravity loads, Wanninger, F; Frangi, A, Engineering Structures 2014, 70, 117-129 (2) Fully Threaded Self-tapping Screws Subjected to Combined Axial and Lateral Loading with Different Load to Grain Angles, Jockwer, Robert; Steiger, René; Frangi, Andrea, Materials and Joints in Timber Structures 2014, 9, 265-272 (3) Experimental Analysis on the Structural Behaviour of Connections with LVL Made of Beech Wood, Kobel, Peter; Steiger,

René; Frangi, Andrea, Materials and Joints in Timber Structures 2014, 9, 211-220

WG 4: (1) Elasto-Plastic Model for Timber-Concrete Composite Beams with Ductile Connection; A. Frangi, M. Fontana; Struct. Eng. Int., 13/1; 2003 (2) Experimental analysis on the structural behavior of timber-concrete composite slabs made of beech-laminated veneer lumber; L. Boccadoro, A. Frangi; Journal of Performance of Constructed Facilities; 2013 (3) Brandschutzkonzepte im Holz-Beton-Verbundbau; A. Frangi; Bau und Wissen Fachveranstaltung Holz-Beton-Verbunddecken in Theorie und Praxis; 2012

Switzerland - Mr. Benjamin Kreis (WG)

ETH Zürich
Zurich Switzerland

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COST FP1402, WG4 Member

Personal	*Organisation*
Years of experience in relevant field: 1 Expertise: mechanical modelling, testing methods and configurations Degree: MSc Civil Engineer (04.03.2015)	Institute of Structural Engineering (IBK) (www.ibk.ethz.ch) Focus: theoretical and practical research / innovation, design of structures and education/training. Facilities: different testing machines (to perform tensile, compression, bending, shear, ...tests), measuring instruments (inductive, optical, ...), climate chambers

No. of staff	PhD students	MSc/year
13	9	60

Research projects

WG 1: Influence of varying material properties on the load-bearing capacity of glued laminated timber

Dr. Gerhard Fink, Dr. Jochen Köhler, Prof. Dr. Andrea Frangi

Completed (10.02.2009 – 30.12.2014)

https://www.rdb.ethz.ch/projects/project.php?proj_id=27423

WG 2: (1) Biaxial timber slab using hardwood - ETH HoNR; 2011 - ongoing; F. Wanninger, A. Frangi; http://www.honr.ethz.ch/en/the-group/structural-system/composite-floor-slab.html (2) Fire behavior of cross-laminated solid timber panels; ongoing; M. Klippel, A. Frangi, M. Fontana, http://www.ibk.ethz.ch/fr/research/Klippel1/index_EN

WG 3: (1) Post-tensioned timber structures; Flavio Wanninger, Jelena Ogrizovic, Prof. Dr. Andrea Frangi; Ongoing (01.03.2010); https://www.rdb.ethz.ch/projects/project.php?proj_id=26754 (2) Reliable timber and innovative wood products for structures - Beam-type structural elements made of LVL beech wood; Peter Kobel, Prof. Dr. Andrea Frangi; Ongoing (01.01.2012); https://www.rdb.ethz.ch/projects/project.ph

WG 4: Timber-concrete composite slab using beech wood plates; ongoing; L. Boccadoro, A. Frangi; http://www.honr.ethz.ch/en/the-group/structural-system/composite-floor-slab.html

Publications

WG 1: Modelling the Bending Strength of Glued Laminated Timber - Considering the Natural Growth Characteristics of Timber, G. Fink; A. Frangi; J. Kohler, 46th Annual Meeting on Timber Structures 2013

WG 2: Fire tests on Loaded Cross-Laminated Timber Wall and Floor Elements; M. Klippel, C. Leyeder, A. Frangi; 11th International Symposium on Fire Safety Science; 2014

WG 3: (1) Experimental and analytical analysis of a post-tensioned timber connection under gravity loads, Wanninger, F; Frangi, A, Engineering Structures 2014, 70, 117-129 (2) Fully Threaded Self-tapping Screws Subjected to Combined Axial and Lateral Loading with Different Load to Grain Angles, Jockwer, Robert; Steiger, René; Frangi, Andrea, Materials and Joints in Timber Structures 2014, 9, 265-272 (3) Experimental Analysis on the Structural Behaviour of Connections with LVL Made of Beech Wood, Kobel, Peter; Steiger,

René; Frangi, Andrea, Materials and Joints in Timber Structures 2014, 9, 211-220

WG 4: (1) Elasto-Plastic Model for Timber-Concrete Composite Beams with Ductile Connection; A. Frangi, M. Fontana; Struct. Eng. Int., 13/1; 2003 (2) Experimental analysis on the structural behavior of timber-concrete composite slabs made of beech-laminated veneer lumber; L. Boccadoro, A. Frangi; Journal of Performance of Constructed Facilities; 2013 (3) Brandschutzkonzepte im Holz-Beton-Verbundbau; A. Frangi; Bau und Wissen Fachveranstaltung Holz-Beton-Verbunddecken in Theorie und Praxis; 2012

Switzerland - Prof. Dr. Steffen Franke (WG)

Bern University of Applied Sciences

Bern, Switzerland

steffen.franke(at)bfh.ch

COST FP1402, WG3 Member

Personal	*Organisation*
Years of experience in relevant field: 15 Expertise: Investigation and development of new structural systems; material behaviour of softwood and hardwood; connections; finite element modelling, assessment and monitoring of timber structures Degree: Dr.-Ing. (03.07.2008)	Architect, Wood and Civil Engineering (www.ahb.bfh.ch) Focus: theoretical and practical research / innovation, design of structures and education/training. Facilities: structural and material testing labs and equipment, NDT-Equipment, robotic and CNC machinery, sawnmill, vakuum and kiln dryer, chemical investigation equipment, microscops …

No. of staff	PhD students	MSc/year
30	2	10

Research projects

- Development of hybrid CLT panels from hard- and softwood, 1 year, S. Franke, B. Franke, A. Müller
- Development of Design Tool for Adhesively bonded timber joints, 3 years, A. Moshtagin, S. Franke, A. Vasilopolous, T. Keller
- Enhancement of compression perpendicular to the grain strength and stiffness of glulam members with the use of pin shaped fasteners, 2 years, S. Franke, B. Franke, R. Widmann, R. Jockwer
- Investigation and analysis of press glued connections for timber structures, 2 years, S. Franke, M. Schiere
- Assessment of the residual load-carrying capacity of large span members in wood, 2 years, S. Franke, B. Franke, R. Steiger, R. Widmann, R. Jockwer

Publications

- Magnière N., Franke S., Franke B. (2014): Investigation on Elements Presenting Cracks in Timber Structures. WCTE 2014. Quebec, Canada.
- Franke S., Magnière N. (2014): Discussion of testing and evaluation methods for the embedment behaviour of connections. INTER 2014.01-04/09/2014.Bath, UK.
- Franke S., Franke B. (2014): Causes, assessment and impact of cracks in timber elements. COST FP 1101 Workshop.Biel, Switzerland.
- Franke S., Franke B. (2014): X-Ray technology for the assessment of timber structures. COST FP 1101 Workshop.Biel, Switzerland.
- Magnière N., Franke S., Franke B. (2014): Numerical investigation of the residual load-carrying capacity of cracked timber elements. COST FP1004 - Experimental research with timber. Prague, Czech Republic.
- Franke S. (2013): Analysis of the elasto-plastic failure behavior of wood under compression. ICSA 2013. Guimaraes, Portugal.
- Franke B., Franke S., Quenneville P. (2012): Numerical modelling and analysis of the failure. In Tagungsband der ECCOMAS, Wien, Österreich.
- Tannert T., Vallée T. Franke S., Quenneville P. (2012): Comparison of test methods to determine weibull parameters for wood. In Tagungsband der WCTE, Auckland, Neuseeland.
- Franke S., Quenneville P. (2012): Embedding behaviour of douglas fir. In Tagungsband der WCTE - 12th World Conference on Timber Engineering, Auckland, Neuseeland.
-Leitjen A.J.M., Franke S., Quenneville P., Gupta R. (2012): Bearing Strength Capacity of continuous Supported Timber Beams : Unified approach for test methods and structural design codes.

Switzerland - Dr. René Steiger (MC Sub)

Empa, Materials Science and Technology
Dübendorf, Switzerland

rene.steiger(at)empa.ch

COST FP1402, MC Substitute, WG1 Member

Personal	*Organisation*
Years of experience in relevant field: 20 Expertise: Mechanical properties of solid timber and glulam, strength grading, quality control, buckling of columns, 2nd order structural analysis, seismic design of timber structures, test methods, code writing, glued-in rods Degree: PhD. (23.07.1996)	Structural Engineering Research Laboratory (www.empa.ch) Focus: practical research/innovatgion, education/training and expert's opinion Facilities : Testing lab with 12.0 m x 40.8 m strong floor, several universal testing machines and hydraulic jacks of different capacities, extensive equipment for performing static and dynamic experiments in the lab and on-site, cable testing, concreting plant.

No. of staff	PhD students	MSc/year
2	1	2

Research projects

WG 2 - Solid Timber Construction:

- Earthquake-resistant timber system for multi-storey buildings. 4 years. 4 persons.
- Assessment of the residual load-carrying capacity of large span glulam members with cracks. 2 years. 3 person.
- Homogneous and combind glulam made from beech wood - Technical basis for the market implementation as building product used for beams and columns. 3 years. 4 persons.

WG 3 - Connections:

- Enhancement of compression perp. to grain strength of glulam with pin-shaped fasteners. 2 years. 3 persons.
- Structural behaviour of glued laminated timber beams with unreinforced and reinforced nothces. 4 years. 3 persons.

WG 4 - Hybrid Structures:

- CLT-concrete composite slab lacking of any rebar and metallic shear connectors. 1.5 years, 3 persons.

Publications

WG 1 - Basis of Design:

Köhler J., Steiger R., Fink G., Jockwer R. 2012: Assessment of selected Eurocode based design equations in regard to structural reliability. Proceedings of CIB-W18 Meeting 45, Växjö, Sweden, August 27 – 30, 2012. Paper 45-102-1.

WG 2 - Solid Timber Construction:

Theiler M., Frangi A., Steiger R. 2013: Strain-based calculation model for centrically and eccentrically loaded timber columns. Engineering Structures 56: 1103 – 1116.

Steiger R., Gehri E. 2011: Interaction of shear stresses and stresses perpendicular to the grain. Proceedings of CIB-W18 Meeting 44, Alghero, Sardegna (Italy), August 28 – September 1, 2011. Paper 44-6-2.

Steiger R., Arnold A. 2009: Strength grading of Norway spruce structural timber: Revisiting property relation-ships used in EN 338 classification system. Wood Science and Technology 43 (3-4): 259 – 278.

Steiger R., Fontana M. 2005: Bending moment and axial force interacting on solid timber beams. Materials and Structures 38 (279): 507 – 513.

WG 3 - Connections:

Tlustochowicz G., Serrano E., Steiger R. 2011: State-of-the-art review on timber connections with glued-in steel rods. Materials and Structures 44 (5): 997 – 1020.

Steiger R., Köhler J. 2005: Analysis of censored data - Examples in timber engineering research. Proceed-ings of CIB-W18 Meeting 38, Karlsruhe, Germany, August 29 – 31, 2005. Paper 38-17-1.

Turkey - Dr. Ergün Güntekin (MC)

Suleyman Demirel University

Isparta Turkey

ergunguntekin(at)sdu.edu.tr

COST FP1402, MC Member, WG1 Member

Personal	*Organisation*		
Years of experience in relevant field: - Expertise: wood mechanics Degree: PhD (15.05.2002)	Suleyman Demirel University, Department of Forest Products Engineering (www.sdu.edu.tr) Focus: education/training Facilities : wood testing lab		
	No. of staff	PhD students	MSc/year
	2	2	2

Research projects

Orthotropic mechanical behavior of some important wood species grown in Turkey, 3 years, Guntekin, E. Aydın, T.Y. and Niemz, P.

Orthotropic elastic properties of black pine and scotch pine, 3 years, Guntekin, E.

Publications

Güntekin, E. 2007. Bending Moment Capacity of MPC Wood-Splice Joints Constructed with Red Pine (Pinus brutia Ten.) Lumber. Tubitak Journal of Agriculture and Forestry. 31 (2007): 207-212.

Guntekin, E. 2009. Performance Of Turkish Calabrian Pine (Pinus Brutia Ten.) Timber Joints Constructed With Metal Plate Connectors. Wood Research: 54(3):99-108

Guntekin, E. Emiroglu, Z.G., and Yimaz T. 2013. Prediction of Bending Properties for Turkish Red Pine (Pinus brutia Ten.) Lumber using Stress Wave Method. BioResources, 8(1):231-237

Guntekin, E. Ozkan, S. Yilmaz,T. 2014. Prediction of bending properties for beech lumber using stress wave method. Maderas. Ciencia y tecnología.16(1):93-98.

Turkey – Associate Prof. Dr. Bilgin Icel (MC)

Canakkale 18 Mart University
Isparta Turkey
Bilginicel(at)comu.edu.tr

COST FP1402, MC Member, WG1 Member

Personal	*Organisation*		
Years of experience in relevant field: 20 Expertise: Wood mechanics, non-destructive testing, modelling Degree: PhD (27.05.2004)	Wood mechanics and technology (-) Focus: practical research/innovation, design of structures and education, training. Facilities:Wood mechanics lab, Rezistograph, Fractometer, IR Cameras		
	No. of staff	PhD students	MSc/year
	5	3	15

Research projects

-Estimation of Density and some mechanical properties opf heat treated lumbers by drilling resistance method (Resistograph) and statistical modelling (accepted in 2015 – duration : 2 years-Bilgin Icel as project leader)

-The use of timber and wood composits in light wood –framed houses (finished in 2004-Bilgin Icel as researchers)

-Effects of different sylvicultural treatment on timber properties of Pinus brutia (finished-Bilgin Icel as project leader)

Publications

-The effects of thinning treatments on density, MOE, MOR and crushing strength of Pinus brutia Ten. Wood, Annals of Forest Sci. 64(4):467-475, 2007

-Estimation of Pinus brutia wood density from FTIR bands by ANN (artificial neural network), Sci. Res. And Essays 1765-17699, 2010

-Physical and mechanical properties of European Hophornbeam wood, Bioresources Tech. 4780-4785, 2008

Ukraine - Prof. Vadim Fursov (MC)

Kharkiv National University of Civil Engineering and Architectur

Kharkiv Ukraine

vadfursov(at)mail.ru

COST FP1402, NNC Member, MC Observer, WG2 Member

Personal	*Organisation*		
Years of experience in relevant field: - Expertise: Timber anisotropy of strength and elastic properties, scale factor, plywood thin-webbed beams, LVL, glued-in steel rods. Degree: Habilitation (24.04.1996)	Metal and Timber Constructions (www.kstuca.kharkov.ua) Focus: theoretical and practical research/innovation, design of structures and education/training Facilities: Testing labs, press equipment		
	No. of staff	PhD students	MSc/year
	3	2	25

Research projects

Recent research projects :

-work of GLT elements in conditions of complex stress (simultaneously action of tension and compression), 2006-2010, Fursov, Kovlev.

-investigation of new type of glued thin-webbed beam with curved plywood webs and without cross ribs, 2011-2013, Fursov, Bidakov

-renovation of glued laminated timber(GLT) electro- physical complex which stay in outdoor conditions with length 55m, width 6m and high 33m, 2012-2013, Fursov, Bidakov

-investigation of scale factor in solid timber (ST) and GLT, developing of module of volume deformation, Fursov, Bidakov

Present research projects :

-analysis of mechanical and elastic properties of laminated veneer lumber (LVL) and tests of flued-in steel rods, 2014, Fursov, Bidakov, Raspopov

-theoretical analysis of information about CLT panels as constructive orthotropic material

Publications

1.Fursov V, Standardization of timber constructions in building with accounting EC-5, Collected scientific papers of Moscow State Civil Engineering Institute, Materials of conference “Industrial and Civil Engineering”

2.V.V. Fursov, A.M. Bidakov. Glued thin-webbed beams with X-form plywood webs. Design, manufacture and installation of steel constructions. Experience and prospects of development: collection of scientific papers “V.Shimanovsky Ukrainian Research and Design Institute of Steel Constructions” -2013.-No.12, p. 88-94

3.Fursov V, Bidakov A, Influence of cross sections dimensions on the strength characteristics of GLT. Promising Directions of Innovative Development of Construction Industry and Engineering Training (PDDC 2014), part 1, p.287-292, Brest, Belarus, 2014.

4.V.V. Fursov, A.M. Beidakov, M. Puriazdanhah. Comparative analysis of results theoretical and experimental full-scale investigations of GLT arch. (Electornic resource) Engineering Bulletin of Don. - 2014, No. 2: http://www.ivdon.ru/magazine/archive/n2y2014/2395.

5.V.V. Fursov, A.M. Beidakov. Puzzle joints of plywood elements building constructions. Scientific bulletin of building: collection of papers.-Kharkiv:KNUCEA, 2014, No. 76, p.90-93

6.V.V. Fursov, A.M. Bidakov. New Thin-webbed beam constructions with X-form plywood web. Materials of International scientific-technical conference “Innovative building technologies, theory and practice”, - Orenburg Russia, 2013, p.209-214.

7.V.V. Fursov, A.M. Bidakov, M. Puriazdanhah. Timber compression strength by loading action in different angles to the grains. Scientific bulletin of building : collection of papers. – Kharkiv:KNUCEA, 2013

Ukraine - Dr. Andrii Bidakov (MC Sub)

O.M.Beketov National University of Urban Economy in Kharkiv
Kharkiv Ukraine

bidakov(at)mail.ru; bidakov(at)mdk-khnuba.com

COST FP1402, NNC Member, MC Observer, WG2 Member

Personal	*Organisation*		
Years of experience in relevant field: - Expertise: Timber anisotropy of strength and elastic properties, scale factor, plywood thin-webbed beams, LVL, glued-in steel rods. Degree Dr.-Ing. (22.12.2014)	Metal and Timber Constructions (www.kstuca.kharkov.ua) Focus: theoretical and practical research/innovation, design of structures and education/training Facilities: Testing labs, press equipment		
	No. of staff	PhD students	MSc/year
	3	2	25

Research projects

Recent research projects :

-investigation of new type of glued thin-webbed beam with curved plywood webs and without cross ribs, 2011-2013, Fursov, Bidakov

-renovation of glued laminated timber(GLT) electro- physical complex which stay in outdoor conditions with length 55m, width 6m and high 33m, 2012-2013, Fursov, Bidakov

-investigation of scale factor in solid timber (ST) and GLT, developing of module of volume deformation, Fursov, Bidakov

Present research projects :

-analysis of mechanical and elastic properties of laminated veneer lumber (LVL) and tests of flued-in steel rods, 2014, Fursov, Bidakov, Raspopov

-theoretical analysis of information about CLT panels as constructive orthotropic material

Publications

1.V.V. Fursov, A.M. Bidakov. Glued thin-webbed beams with X-form plywood webs. Design, manufacture and installation of steel constructions. Experience and prospects of development: collection of scientific papers “V.Shimanovsky Ukrainian Research and Design Institute of Steel Constructions” -2013.-No.12, p. 88-94

2.Fursov V, Bidakov A, Influence of cross sections dimensions on the strength characteristics of GLT. Promising Directions of Innovative Development of Construction Industry and Engineering Training (PDDC 2014), part 1, p.287-292, Brest, Belarus, 2014.

3.V.V. Fursov, A.M. Beidakov, M. Puriazdanhah. Comparative analysis of results theoretical and experimental full-scale investigations of GLT arch. (Electornic resource) Engineering Bulletin of Don. - 2014, No. 2: http://www.ivdon.ru/magazine/archive/n2y2014/2395.

4.V.V. Fursov, A.M. Beidakov. Puzzle joints of plywood elements building constructions. Scientific bulletin of building: collection of papers.-Kharkiv:KNUCEA, 2014, No. 76, p.90-93

5.V.V. Fursov, A.M. Bidakov. New Thin-webbed beam constructions with X-form plywood web. Materials of International scientific-technical conference “Innovative building technologies, theory and practice”, - Orenburg Russia, 2013, p.209-214.

6.V.V. Fursov, A.M. Bidakov, M. Puriazdanhah. Timber compression strength by loading action in different angles to the grains. Scientific bulletin of building : collection of papers. – Kharkiv:KNUCEA, 2013

Ukraine - Ass. Prof. Ivan Sopushynskyy (MC Sub)

Ukrainian National Forestry University

Lviv Ukraine

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COST FP1402, NNC Member, MC Observer, WG1 Member

Personal	*Organisation*		
Years of experience in relevant field: 1 Expertise: wood quality, timber construction, relation between wood and water, wood bridges, industrial norms Degree PhD. (23.9.2014)	Botany, Wood Science and Non-Wood Forest Products (http://ilspg.nltu.edu.ua/en/departments/bot/) Focus: theoretical and practical research/innovation, design of structures and education/training Facilities: Laboratory of wood quality, testing machine, kiln chamber, construction of sound testing.		
	No. of staff	PhD students	MSc/year
	25	10	15

Research projects

Diagnose, qualimetry and breeding of forest tree species with desired wood quality in the FC “Berehomet forest–hunting enterprise”
2014-2017, 17 people, http://nltu.edu.ua/ and http://blmg.com.ua/

Publications

Sopushynskyy I.M., Mayevskyy V.O., Volyanyk H.M., Kharyton I.I. (2014) Some Features of Qualimetry of Stemwood, Issue 24.11: 150-154.

Sopushynskyy I.M. Klym N.M., Kharyton I.I. (2014): European Experience in Pricing of Softwood Round Timber // Scientific Bulletin of UNFU, Issue 24.10: 29-34.

Sopushynskyy I., Vintoniv I. (2014): Wood Science. – Lviv: Liga-Press. – 144 p

Sopushynskyy I., Kharyton I., Teischinger A., Mayevskyy V., Heorhiy H. (2016) Wood density and annual growth variability of *Picea abies* (L.) Karst. growing in the Ukrainian Carpathians, Eur. J. Wood Prod., pp 1-10.
http://link.springer.com/article/10.1007/s00107-016-1079-1

United Kingdom - Prof. Richard Harris (MC)

Time for Timber

Bath, England

r.harris(at)bath.ac.uk ; timefortimber(at)btinternet.com

COST FP1402, MC Member, Dissemination/Practical application, WG 4 Member

Personal	*Organisation*		
Years of experience in relevant field: 40 Expertise: Timber engineering design, Tall timber buildings, Timber-concrete composites, Connections Degree: BSc (01.07.1972)	The University of Bath (http://www.bath.ac.uk/ace/people/harris/) Focus: theoretical and practical research / innovation, and education and training Facilities: Small structural engineering lab, various facilities in other departments		
	No. of staff	PhD students	MSc/year
	4	7	90

Research projects

Serviceability of Tall Timber Buildings under Wind Load, three plus one year, Thomas Reynolds, Wen-Shao Chang, Richard Harris

Fire and structural performance of non-metallic timber connections, 3 years, Daniel Brandon, Peter Walker, Martin Ansell, Richard Harris

Thin Topping Timber-Concrete Composite Floors, 3 years, Jonathan Skinner, Peter Walker, Martin Ansell, Richard Harris

Structural Dynamics, Ongoing PhD projects, Haoyu Huang, Wen-Shao Chang, Richard Harris

Drying Effects in Flooded Timber Structures, 3 years, Alistair Bradley, Wen-Shao Chang, Richard Harris

Publications

Reynolds, T., Harris, R., Chang, W.-S., Bregulla, J. and Bawcombe, J., 2015. Forthcoming. Output-only modal analysis of a multi-storey cross-laminated timber building. Proceedings of the Institution of Civil Engineers: Construction Materials:

Bradley, A., Chang, W.-S. and Harris, R., 2015. Forthcoming. The effect of drying on timber frame connections post flooding. Proceedings of the Institution of Civil Engineers: Construction Materials:

Skinner, J., Bregulla, J., Harris, R., Paine, K. and Walker, P., 2014. Screw connectors for thin topping, timber-concrete composites. Materials and Structures, 47 (11), pp. 1891-1899.

Reynolds, T., Harris, R. and Chang, W., 2014. Nonlinear pre-yield modal properties of timber structures with large-diameter steel dowel connections. Engineering Structures, 76, pp. 235-244.

United Kingdom - Mr. Julian Marcroft (MC)

Mitek
Hampshire, United Kingdom
jmarcroft(at)mitek.co.uk
COST FP1402, MC Member, WG1 Member

Personal

Years of experience in relevant field: 25

Expertise: Timber engineering consultant mainly undertaking applied research for industry. Main areas of interest are development of timber design codes, wall diaphragm design, panel products, serviceability of floors and connection design (including nailplates).

Degree: BSc in Civil Engineering, 1st class (20.06.1981)

Organisation

None - small consultancy office (www.marcrofttimberconsultancy.co.uk)

Focus: practical research / innovation, design of structures, execution of structures and education/training.

Facilities: Consultancy office only - testing work sub-contracted out

No. of staff	PhD students	MSc/year
1	0	0

Research projects

WG1 - BASIS OF DESIGN

1. Ongoing development of UK support documents to EN1995-1-1 - UK NA and PD6693-1 in collaboration with BSI committee B/525/5.
2. Ongoing project entitled 'Development of procedures in PD6693-1 for wall diaphragm design'.

Publications

WG1 - BASIS OF DESIGN

1. PD6693-1, UK support document to EN1995-1-1.
2. Compilation of BSI document 'Concise Eurocodes: Design of Timber Structures' intended to give a more accessible presentation of EN1995-1-1 for small consulting engineers.
3. Series of papers to BSI mirror committee for EN1995-1-1 to justify 'Design procedure for wall diaphragms' inserted in PD6693-1.

United Kingdowm - Dr. Wen-Shao Chang (WG)

University of Bath

Bath United Kingdom

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COST FP1402, WG3 Member

Personal	*Organisation*		
Years of experience in relevant field: 3 Expertise: Earthquake Engineering, Structural Dynamic, Timber Connections Degree: PhD (15.05.2006)	Department of Architecture and Civil Engineering (http://www.bath.ac.uk/ace/) Focus: theoretical and practical research / innovation , and education / training Facilities: Standard testing machines, strong walls and floor, field vibration measurement equipment		
	No. of staff	PhD students	MSc/year
	2	6	6

Research projects

WG1:

Title: Wind loading on tall timber buildings

Duration: 10/2013-10/2014

People involved: Dr. Wen-Shao Chang, Prof. Richard Harris, Dr. Thomas Reynolds

WG3:

Title: Understanding stress distribution of screws with various thread patterns and their effectiveness

Duration: 10/2014 - 10/2018

People involved: Mr. Cong Zhang, Dr. Wen-Shao Chang

WG4:

Title: Thin topping timber concrete composite floor

Duration: 10/2010 - 10/2013

People involved: Dr. Jon Skinner, Prof. Richard Harris, Prof. Pete Walker

Title: New hybrid timber concrete (HTC) system for timber floor

Duration: 10/2013-12/2013

People involved: Dr. Wen-Shao Chang, Mr. Ioannis Thanopoulos

Publications

1. Thomas Reynolds, Richard Harris, Wen-Shao Chang, Julie Bregulla, Jonathan Bawcombe. 2015. “Ambient vibration tests of a cross-laminated timber building”. Proceedings of ICE – Construction Materials. 168:121-131.

2. Jon Bawcombe, Richard Harris, Pete Walker and Martin Ansell. 2015. The quality of Douglas-fir grown in the United Kingdom. Proceedings of the Institution of Civil Engineers: Construction Materials.

3. Thomas Reynolds, Richard Harris, Wen-Shao Chang. 2014. ” Nonlinear pre-yield modal properties of timber structures with large-diameter steel dowel connections”. Engineering Structures. 76:235-244.

4. Thomas Reynolds, Richard Harris, Wen-Shao Chang. 2014. “Stiffness of dowel-type timber connections under pre-yield oscillating loads”. Engineering structures . 65:21-29.

5. Thomas Reynolds, Wen-Shao Chang, Richard Harris. 2013. “An analytical model for embedment stiffness of a dowel in timber under cyclic load”. European Journal of Wood and Wood Products. 71(5): 609-622.

6. Thomas Reynolds, Wen-Shao Chang, Richard Harris. 2013. “Viscoelastic behaviour of dowel-type timber connections under in-service vibration”. European Journal of Wood and Wood Products. 71(5): 623-634.

United Kingdom - Dr. Keerthi Ranasinghe (WG)

BM TRADA
Buckinghamshire, United Kingdom
kranasinghe(at)bmtrada.com
COST FP1402, WG3 Member

Personal	*Organisation*		
Years of experience in relevant field: 18 Expertise: Structural Engineering Design, Testing, Inspections & Investigations and Provision of Training Courses, Publications & Certification of Materials, Systems and Software related to Structural Eurocodes. Member of UK and European Standardisation Committees Degree: PhD. (01.09.2003)	Building Products and Services (http://www.bmtrada.com/) Focus: practical research / innovation, design of structures, execution of structures, education/training, structural investigations, product certification, publications Facilities : Structural, Fire, Mechanics, Dynamics and Acoustics Testing Facilities and capability to carry out on-site structural assessments		
	No. of staff	PhD students	MSc/year
	137	0	0

Research projects

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Publications

1. National Structural Timber Specification - Book, Specification Document (In preparation)
2. Eurocode 5 Span Tables - Book
3. Manual for the Design of Timber Building Structures to Eurocode 5 - Book
4. Concise Illustrated Guide to Timber Connections - Book
5. Timber in Contemporary Architecture - Book
6. Timber Frame Construction - Book
7. Introduction to Eurocode 5 - Wood Information Sheet
8. Eurocode 5 and CE Marking - Information Sheet
9. Eurocode 5, the Supply Chain Perspective - Information Sheet
10. Vibration in Timber Floors to Eurocode 5 - Guidance Document
11. Design of Structural Timber Connections - Guidance Sheet

fYR Macedonia – Prof. Dr. Toni Arangjelovski (MC)

University"Ss.Cyril and Methodius",Faculty of Civil Engineering Skopje, R.Macedonia

arangelovskitoni(at)gf.ukim.edu.mk

COST FP1402, MC Member, WG1 Member

Personal	*Organisation*		
Years of experience in relevant field: 12 Expertise: design and assesment of new and exsisting timber structures Degree: PhD (12.07.2010)	Chair of Concrete and Timber Structures (www.gf.ukim.edu.mk) Focus: theoretical research / innovation, design of structures Facilities: Testing basic properties of timber, real scale testing of structural timber elements		
	No. of staff	PhD students	MSc/year
	5	1	8

Research projects

No current funded research project due to the lack of funding by the government.

Publications

None

fYR Macedonia - Prof. Dr. Kiril Gramatikov (MC)

Civil Engineering Faculty, University "Sts Cyril & Methodius"
Skopje, Macedonia
gramatikov(at)gf.ukim.edu.mk
COST FP1402, MC Member, WG3 Member

Personal	*Organisation*		
Years of experience in relevant field: 30 Expertise: experimental (static and dynamic) testing of timber, timber elements, connections and structures, evaluation and analysis of traditional and prefabicated timber houses, composite Degree: PhD (25.07.1990)	Department on Concrete and Timber Structures (www.gf.ukim.edu.mk) Focus: theoretical and practical research/innovation, design of structures, education/training and consultancy and quality control Facilities: Testing basic properties of timber, real scale testing of structural timber elements		
	No. of staff	PhD students	MSc/year
	7	2	4

Research projects

No current funded research project due to the lack of funding by the government.

Publications

none

fYR Macedonia - Dr. Violeta Jakimovska-Popovska (WG)

Ss. Cyril and Methodius University - Skopje
Skopje Macedonia
jakimovska(at)fdtme.ukim.edu.mk
COST FP1402, WG4 Member

Personal	*Organisation*
Years of experience in relevant field: - Expertise: Wood composite materials Degree: PhD. (20.11.2014)	Faculty of design and technologies of furniture and interior - Skopje (www.fdtme.ukim.edu.mk) Focus: education /training Facilities: Laboratory for testing furniture equipped with testing machines for windows, doors, fasades and furniture elements. Universal tsting machine for mechanical properties of wood.

No. of staff	PhD students	MSc/year
2	0	0

Research projects

Researches of the characteristics of structurally reinforced constructive plywood-doctoral dissertation (Violeta Jakimovska Popovska), supervisor: Prof. Borche liev, PhD.

Within this research a structural hybrid composites were made (structural plywood reinforced with glass fiber and cotton fiber preimpregnated fabrics) for use in construction.

Research on the characteristics of modified multilayer structural plywood, National scientific research project funded by the Ministry of education and science of the Republic of Macedonia, main researcher: prof. Borche Iliev, PhD, young researcher: assistant Violeta Jakimovska Popovska, project time: 01.06.2010-31.05.2012.

WBP wood based composites and its characteristics, scientific research project funded by the Ss. Cyril and Methodius University in Skopje, main researcher: prof. Borche Iliev, researcher: assistant Violeta Jakimovska Popovska, project time: 01.10.2012 - 01.09.2013.

Publications

JAKIMOVSKA POPOVSKA, V., Iliev, B., Mihajlova, J. (2014): Water resistance of plywood bonded with alcohol-soluble-phenol-formaldehyde resin, Scientific journal - Innovations in woodworking industry and engineering design, 1/2014 (5): 127-136.

JAKIMOVSKA POPOVSKA, V., Iliev, B. (2014): Tensile strength in different directions of plywood made from beech veneers, Scientific journal - Innovations in woodworking industry and engineering design, 2/2014 (6): 65-71.

JAKIMOVSKA POPOVSKA, V., Iliev, B. (2013): Influence of plywood structure on compressive strength parallel to the plane of the panel, Proceedings of international scietific conference “Wood technology & product design”, pg. 194-200, Ohrid, Republic of Macedonia.

Aziri, B., JAKIMOVSKA POPOVSKA, V., Iliev, B. (2013): Water impact on the change of the physical characteristics of multilayered constructive plywood, Proceedings of international scientific conference “Wood technology & product design”, pg. 225-232, Ohrid, Republic of Macedonia.

JAKIMOVSKA POPOVSKA, V., Iliev, B. (2013): Research on the characteristics of laboratory made plywood, Proceedings of 9th international scientific conference on production engineering “Development and modernization of products-RIM 2013”, pg. 717-724, Budva.

JAKIMOVSKA POPOVSKA, V., Aziri, B., Iliev, B. (2014): Water impact on the change of the physical characteristics of combined water-resistant wood based panels. Proceedings of the 25st International scientific conference „New materials and technologies in the function of wooden products”, 17 October, 2014, Zagreb, Croatia, pg. 145-152.

fYR Macedonia - Dr. Marta Stojmanovska (WG)

UKIM-IZIIS

Skopje Macedonia

marta(at)pluto.iziis.ukim.edu.mk

COST FP1402, WG2 Member

Personal	*Organisation*		
Years of experience in relevant field: 7 Expertise: - Degree: PhD. (10.06.2015)	Institute of Earthquake Engineering and Engineering Seismology (www.iziis.edu.mk/) Focus: theoretical and practical research/innovation, design of structures and education/training Facilities: Laboratory with two-component programmed seismic shaking table for dynamic testing of structures, material testing frames, equipment for quasi-static testing, data acquisition, acceleration, velocity and displacement transducer.		
	No. of staff	PhD students	MSc/year
	7	0	1

Research projects

No recent or ongoing projects

Publications

V.Hristovksi, B.Dujic, M.Stojmanovska, V.Mircevska. „Full-Scale Shaking table tests of Xlam Panel Systems and Numerical Verification : Specimen 1“ Journal of Structural Engineering ASCE, Volume 139, Number 11.

Canada - Prof. Dr. Frank Lam (MC Observer)

University of British Columbia
Vancouver BC, Canada
frank.lam(at)ubc.ca
COST FP1402, IPC Member, MC Observer, WG Member

Personal	*Organisation*		
Years of experience in relevant field: 30 Expertise: Modeling of engineered wood products and systems Degree: PhD. (27.11.1992)	Wood Science (http://team.forestry.ubc.ca/) Focus: theoretical and practical research /innovation, education /training Facilities: IAS Accrediated Structural test laboratory		
	No. of staff	PhD students	MSc/year
	10	5	2

Research projects

Strategic Network on Innovative Wood Products and Building Systems 2010-2015

Performance of connections in heavy timber construction 2011-2014

Performance of Canadian Glulam 2009-2012

Reliability of Timber Structural System under Seismic Loading 2007-2012

Publications

Li Z., M. He, M. Li, F. Lam (2014) Damage assessment and performance-based seismic design of timber-steel hybrid shear wall systems. Earthquakes and Structures. 7(1):101-118.

Chen Y., F. Lam. (2013). Bending performance of box based cross laminated timber systems. Journal of Structural Engineering. ASCE. 139(12) 04013006-1-12.

Li M., F. Lam, B.J. Yeh, T. Skaggs, D. Rammer, J. Wacker. (2012). Modeling force transfer around openings in wood-frame shear walls. Journal of Structural Engineering. ASCE. 138(12):1419-1426.

Song X., F. Lam. (2012). Stability analysis of metal-plate-connected wood truss assemblies. Journal of Structural Engineering. ASCE. 138(9):1110-1119

Canada - Prof. Dr. Thomas Tannert (MC Observer)

University of British Columbia
Vancouver BC, Canada
thomas.tannert(at)ubc.ca

COST FP1402, IPC Member, MC Observer, WG4 Member

Personal	*Organisation*		
Years of experience in relevant field: 14 Expertise: Timber connections, hybrid structures Degree: PhD. (30.04.2008)	Wood Science and Civil Engineering (http://team.forestry.ubc.ca/ and http://tannert.forestry.ubc.ca) Focus: theoretical and practical research /innovation, education /training Facilities: Two fully equipped structural testing labs		
	No. of staff	PhD students	MSc/year
	20	8	10

Research projects

http://tannert.forestry.ubc.ca/research/
http://team.forestry.ubc.ca/research/

Publications

http://tannert.forestry.ubc.ca/research/
http://team.forestry.ubc.ca/research/

New Zealand - Prof. Dr. Pierre Quenneville (MC Observer)

The University of Auckland
Auckland, New Zealand

p.quenneville(at)auckland.ac.nz

COST FP1402, IPC Member, MC Observer, WG3 Member

Personal	*Organisation*		
Years of experience in relevant field: 29 Expertise: connections, brittle failures Degree: PhD. (01.05.1992)	Civil and Environmental Engineering (www.cee.auckland.ac.nz) Focus: theoretical and practical research / innovation, design of structures and education/training Facilities : Structures testing lab, 1000 kN Tension and Compression capacity, fabrication		
	No. of staff	PhD students	MSc/year
	4	6	2

Research projects

1. development of the connection chapter for the New Zealand timber design standard (NZS 3603)

2. Development of design rules for small-dowel type fasteners with brittle behaviour (these results are to be incorporated in the next version of the NZS 3603 and the Canadian O86 "Design of Timber Structures" design standard)

3. development of design rules for timber moment connection that exhibit brittle failure

4. verification of design rules for self-tapping screws connections that exhibit brittle failure

Publications

Franke, B., & Quenneville, P. (2014). Analysis of the fracture behavior of Radiata Pine timber and Laminated Veneer Lumber. Engineering Fracture Mechanics, 116, 1-12.

Loo, W., Quenneville, P., & Chouw, N. (2014). Experimental testing of a rocking timber shear wall with slip-friction connectors. Earthquake Engineering and Structural Dynamics. doi:10.1002/eqe.2413

Zarnani, P. & Quenneville, P. 2014, "Group Tear-Out in Small Dowel-Type Timber Connections: Brittle and Mixed Failure Modes of Multinail Joints", J. Struct. Eng., doi: 10.1061/(ASCE)ST.1943-541X.04014110.

Zarnani, P. & Quenneville, P. 2014, "Strength of timber connections under potential failure modes: An improved design procedure", Construction and Building Materials, 60(2014), p. 81-90.

Zarnani, P. & Quenneville, P. 2014, "Wood Block Tear-out Resistance and Failure Modes of Timber Rivet Connections: A Stiffness-Based Approach", J. Struct. Eng., 140(2), 04013055.

Zarnani, P., & Quenneville, P. (2014). Splitting Strength of Small Dowel-Type Timber Connections: Rivet Joint Loaded Perpendicular to Grain. Journal of Structural Engineering, 140(10)

New Zealand - Dr. Gary Raftery (MC Observer)

Department of Civil and Env Eng, The University of Auckland
Auckland, New Zealand

g.raftery(at)auckland.ac.nz

COST FP1402, IPC Member, MC Observer, WG3 Member

Personal	*Organisation*		
Years of experience in relevant field: 10 Expertise: Glued laminated timber, Adhesive bonding, Numerical modelling, Experimental testing, Composite systems Degree: PhD. (01.06.2010)	Civil and Environmental Engineering (www.cee.auckland.ac.nz) Focus: theoretical and practical research / innovation, design of structures, education/training Facilities : Structures testing lab, 1000 kN Tension and Compression capacity, fabrication		
	No. of staff	PhD students	MSc/year
	4	6	2

Research projects

1. development of the connection chapter for the New Zealand timber design standard (NZS 3603)

2. Development of design rules for small-dowel type fasteners with brittle behaviour (these results are to be incorporated in the next version of the NZS 3603 and the Canadian O86 "Design of Timber Structures" design standard)

3. development of design rules for timber moment connection that exhibit brittle failure

4. verification of design rules for self-tapping screws connections that exhibit brittle failure

Publications

Franke, B., & Quenneville, P. (2014). Analysis of the fracture behavior of Radiata Pine timber and Laminated Veneer Lumber. Engineering Fracture Mechanics, 116, 1-12.

Loo, W., Quenneville, P., & Chouw, N. (2014). Experimental testing of a rocking timber shear wall with slip-friction connectors. Earthquake Engineering and Structural Dynamics. doi:10.1002/eqe.2413

Zarnani, P. & Quenneville, P. 2014, "Group Tear-Out in Small Dowel-Type Timber Connections: Brittle and Mixed Failure Modes of Multinail Joints", J. Struct. Eng., doi: 10.1061/(ASCE)ST.1943-541X.04014110.

Zarnani, P. & Quenneville, P. 2014, "Strength of timber connections under potential failure modes: An improved design procedure", Construction and Building Materials, 60(2014), p. 81-90.

Zarnani, P. & Quenneville, P. 2014, "Wood Block Tear-out Resistance and Failure Modes of Timber Rivet Connections: A Stiffness-Based Approach", J. Struct. Eng., 140(2), 04013055.

Zarnani, P., & Quenneville, P. (2014). Splitting Strength of Small Dowel-Type Timber Connections: Rivet Joint Loaded Perpendicular to Grain. Journal of Structural Engineering, 140(10)

New Zealand - Dr. Felix Scheibmair (MC Observer)

The University of Auckland, Dept Civil and Env Engineering
Auckland New Zealand
f.scheibmair(at)auckland.ac.nz
COST FP1402, IPC Member, MC Observer, WG3 Member

Personal	*Organisation*		
Years of experience in relevant field: 6 Expertise: timber connections Degree: PhD. (05.05.2013)	Civil and Environmental Engineering (http://www.cee.auckland.ac.nz/) Focus: theoretical and practical research/innovation, design of structures and education/training Facilities: Large scale strong wall/ floor testing facilties		
	No. of staff	PhD students	MSc/year
	4	6	2

Research projects

1. development of the connection chapter for the New Zealand timber design standard (NZS 3603)

2. Development of design rules for small-dowel type fasteners with brittle behaviour (these results are to be incorporated in the next version of the NZS 3603 and the Canadian O86 "Design of Timber Structures" design standard)

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Loo, W., Quenneville, P., & Chouw, N. (2014). Experimental testing of a rocking timber shear wall with slip-friction connectors. Earthquake Engineering and Structural Dynamics. doi:10.1002/eqe.2413

Zarnani, P. & Quenneville, P. 2014, "Group Tear-Out in Small Dowel-Type Timber Connections: Brittle and Mixed Failure Modes of Multinail Joints", J. Struct. Eng., doi: 10.1061/(ASCE)ST.1943-541X.04014110.

Zarnani, P. & Quenneville, P. 2014, "Strength of timber connections under potential failure modes: An improved design procedure", Construction and Building Materials, 60(2014), p. 81-90.

Zarnani, P. & Quenneville, P. 2014, "Wood Block Tear-out Resistance and Failure Modes of Timber Rivet Connections: A Stiffness-Based Approach", J. Struct. Eng., 140(2), 04013055.

Zarnani, P., & Quenneville, P. (2014). Splitting Strength of Small Dowel-Type Timber Connections: Rivet Joint Loaded Perpendicular to Grain. Journal of Structural Engineering, 140(10)