



Curriculum vitae– Erik Serrano

Personal information

Name: Erik Alfonso Serrano
Date of birth: 7th of November, 1968 (Málaga, Spain)
Present employment: Professor, Structural Mechanics, Lund university
Office e-mail address: erik.serrano@construction.lth.se

Languages

Swedish, English, Spanish

Education, appointments, awards and memberships (selection)

Doctor in Engineering, Structural Mechanics, Lund University, 2001
Head of Division, Structural Mechanics, Lund University, 2015-03–
Member of the faculty research board, Faculty of Engineering (LTH), 2016–
Member of IVA – The Royal Swedish Academy of Engineering Sciences, Avd. VIII, (2015)

Previous employments

Research engineer, PhD-student, Structural Mechanics, Lund Univ., 1993-1997, 1998-2001
Structural engineer, Valeo Engine Cooling AB, Mjällby, 1997-1998
Project assistant, acting senior lecturer, Structural Mechanics, Lund University, 2001-2006
Researcher, SP Technical Research Institute of Sweden, 50%, 2003-2006, 2007–2015 <20%
Senior lecturer, School of Technology and Design, Linnaeus University, 50%, 2006-2007
Professor (Timber engineering, “Linnéprofessuren”), 2007-01-01 - 2014-12-31

Current and recent major research programmes

2019-2021 *InnoCrossLam* (Erik Serrano was the initiator of this application, gathered the consortium and took part in writing the application.)
BioInnovation (National research programme on innovations for the forestry-based sector)
2016-2018: “Framtidens Biobsaerade Byggande och Boende – FBBB” (The bio-based building and living with wood)
2017-2020: “Outdoor load-bearing timber structures”

Research Achievements

Erik’s main research has related to the use of timber and adhesive joints including *e.g.* fracture properties of wood, mechanical behaviour of finger-joints, laminated wood products (glulam and CLT), connections based on glued-in rods, methods for strength grading and the use of timber-glass composite elements. He has carried out both basic theoretical work within constitutive modelling of wood adhesive bonds, and advanced applied finite element strength analysis. He has also extensive experience within experimental work, including the use of contact free deformation measurement systems by digital image correlation (DIC), used for verification and calibration of theoretical models based on the finite element method. His complete list of publication includes 44 published papers in journals, 50+ conference papers and presentations and 30 reports and chapters in books. He acts as reviewer of papers in international journals, most recently: International Journal of Adhesion and Adhesives, Construction and Building Materials, Engineering Structures (Elsevier), Materials and Structures (Rilem/Springer), Wood Science and Technology, European Journal of Wood and Wood Products, Journal of Wood Science (Springer), Wood Material Science and Engineering (Taylor and Francis), Engineering and Computational Mechanics (Proc. of the Institution of Civil Engineers).

Journal articles (2015-2020)

1. K. Forsman, E. Serrano, H. Danielsson, J. Engqvist. “Fracture characteristics of acetylated young Scots pine”. *European Journal of Wood and Wood Products*, 78:693–703, June 2020.
2. G. Larsson, E. Serrano, P. J. Gustafsson, H. Danielsson. “Dowel design of the shear plate dowel joint”. *Engineering Structures*, vol. 209, April 2020.
3. G. Larsson, P. J. Gustafsson, E. Serrano, R. Crocetti. “Duration of load behaviour of a glued shear plate dowel joint”. *Eur. J. of Wood and Wood Products*, vol. 78, pp. 5–15, 2020.
4. T. P. S. Reynolds, B. Sharma, E. Serrano, P. J. Gustafsson, M. H. Ramage. “Fracture of Laminated Bamboo and the Influence of Preservative Treatments”. *Composites, Part B: Engrg.*, Vol. 174, 2019.
5. B. Azinović, H. Danielsson, E. Serrano, M. Kramar. “Glued-in rods in cross laminated timber – Numerical simulations and parametric studies”. *Cons. & Build. Mat.*, 212:431-441, 2019.
6. M. Jelec, H. Danielsson, V. Rajcic, E. Serrano. “Experimental and Numerical Investigations of Cross-Laminated Timber Elements at in-plane Beam Loading Conditions”. *Cons. & Build. Mat.*, 206:329-346, 2019.
7. H. Danielsson, M. Jelec, E. Serrano, V. Rajcic. “Cross laminated timber at in-plane beam loading – Comparison of model predictions and FE-analyses”. *Engrg. Structures*, 179(15), pp. 246-254, 2019.
8. B. Azinović, E. Serrano, M. Kramar, T. Pazlar. “Experimental investigation of the axial strength of glued-in rods in cross laminated timber”, *Materials and Structures*, 51(6), 2018.
9. H. Danielsson, E. Serrano. “Cross laminated timber at in-plane beam loading – prediction of shear stresses in crossing areas”. *Engineering Structures*, 171, pp. 921-927, 2018.
10. R. Jockwer, E. Serrano, P. J. Gustafsson, R. Steiger. “Impact of knots on the fracture propagating along grain in timber beams”. *International Wood Products Journal*, 8 (sup 1), pp. 39-44, 2017.
11. M. Hu, A. Olsson, M. Johansson, J. Oscarsson, E. Serrano. “Assessment of a three-dimensional fiber orientation model for timber”. *Wood and Fiber Science*, 48(4), 2016, pp. 271-290, 2016.
12. G. Larsson, P. J. Gustafsson, E. Serrano, R. Crocetti. “Bond Line Models of Glued Wood-to-Steel Plate Joints”. *Engineering Structures* 121, 160–169, 2016.
13. C. Avez, T. Descamps, E. Serrano, L. Leoskool. “Finite element modelling of inclined screwed timber to timber connections with a large gap between the elements”. *European Journal of Wood and Wood Products*, 74 (3), pp 467-471. DOI 10.1007/s00107-015-1002-1, 2016.
14. T. Bader, M. Schweigler, E. Serrano, M. Dorn, B. Enquist, G. Hochreiner. “Integrative experimental characterization and engineering modeling of single-dowel connections in LVL”. *Cons. & Build. Mat.*, 107: 235–246, 2016.
15. R. Jockwer, R. Steiger, A. Frangi, E. Serrano. “Load-carrying capacity and failure modes of glulam beams with reinforced notches”. *Eur. J. of Wood and Wood Products*, 74(3):481-482, May 2016.
16. 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”. *Materials and Structures*, 49(6), pp 2407-2424, June, 2016.

17. M. Kozłowski, M. Dorn, E. Serrano. “Experimental testing of load-bearing timber–glass composite shear walls and beams”. *Wood Material Science and Engineering*, 10(3), pp. 276–286, 2015.
18. T. K. Bader, M. Schweigler, G. Hochreiner, E. Serrano, B. Enquist, M. Dorn. “Dowel deformations in multi-dowel LVL-connections under moment loading”. *Wood Material Science and Engineering*, 10(3), pp. 216–231, 2015.
19. G. Kandler, J. Füssl, E. Serrano, J. Eberhardsteiner. “Effective stiffness prediction of GLT beams based on stiffness distributions of individual lamellas”. *Wood Science and Technology*, 49(6), pp 1101-1121, November, 2015.
20. R. Steiger, E. Serrano, M. Stepinac, V. Rajcic, C. O’Neill, D. McPolin, and R. Widmann. “Strengthening of timber structures with glued-in rods”. *Construction and Building Materials*, 97:90-105, October 2015.