



# Research Associate Position

Wood Chair (Cátedra Madera)

<http://www.unav.edu/madera>

Department of Building Construction, Services and Structures

Universidad de Navarra (UNAV)

Members of the Wood Chair of the University of Navarra in Pamplona will be working with partners from across Europe the InnoCrossLam Project (ERA-NET Cofund Action “ForestValue 2017”), to develop a more comprehensive understanding of the construction with CLT panels in new building applications and in multifunctional contexts, with the aim at developing new practice-oriented solutions for demanding design situations, covering topics such as flexible floor plans, cantilevered structures, long-span systems, efficient joining techniques, efficient mounting and demounting of building systems, and the potential for additional functionality.

Applications are invited from suitably qualified candidates for a **full-time contract position as Research Associate until February 2022**, to work with members of the Wood Chair on:

- practitioners’ demands and needs for CLT construction;
- existing modelling techniques and strategies for the structural design of CLT multi-storey buildings;
- practice-oriented design and modelling strategies, design formulae and verification approaches for the design of multi-storey and large-span CLT structures;
- development of analytical and finite element models for the structural design of CLT multi-storey buildings;
- development of European guidelines or technical specifications for selected design cases;
- model structural systems with CLT construction;
- interaction with industry partners and research partners;
- preparation of project reports and dissemination of research outputs.

Applicants should have:

- MSc. or PhD in Engineering/Architecture (or related discipline);
- demonstrated knowledge of timber construction and wood technology;
- knowledge of structural modelling software (recommended);
- excellent English language skills;
- Spanish language skills (recommended);
- demonstrated commitment to deliver and publish research results;
- willingness to travel.

The scholarship funds a full contract position, with a gross annual salary (variable according to skills/qualifications) of around €26.000, with a starting date of January 2020.

Financed/supported by ERDF/Ministry of Science, Innovation and Universities - State Research Agency/Project PCI2019-103591.

Applicants should send a **letter of interest including two references and a detailed CV via e-mail** (in Word or PDF format only) to [jcabrero@unav.es](mailto:jcabrero@unav.es).

Applicants must put **[RAP-2019] “Name”** in the subject line of their e-mail application.

**The closing date for applications is 11:00h (CET) on Monday, 16th December 2019**



## InnoCrossLam Research Project

<http://innocrosslam.zag.si/>

Multi-storey timber construction has evolved tremendously during recent years. An important factor has been the development and acceptance of cross-laminated timber (CLT) as a reliable, efficient, sustainable and versatile material. A number of questions relating to structural design (component and structure level) still remain open, though.

InnoCrossLam aims at extending the applicability and flexibility of the use of massive timber elements such as cross-laminated timber (CLT), including innovative multifunctional uses, for multi-storey and large-span structures. It will increase even further the competitiveness of CLT as a versatile engineered product, by improving its predictability in demanding design situations not covered by today guidelines, or codes and standards foreseeable in the near future. Such developments will be achieved by means of a transdisciplinary approach, by integrating into the project work topics like architecture and design, building services (HVAC), and structural engineering, in combination with research and development based on the application of advanced theoretical and experimental approaches. In addition, the project will further develop a previously suggested (proof-of-concept) multi-functional use of CLT in terms of its thermal activation, achieved by allowing conditioned airflow through channels in the CLT elements, making them an integrated part of a heating/ventilation system.

By inviting leading architects, structural engineers and building systems experts, the project will define the challenges that planners and industry have to tackle. Based on their feedback, the project will develop new practice-oriented solutions for demanding design situations making use of cutting-edge methods in research, with a multi-disciplinary and holistic approach. Flexibility will be one of the keywords, in the sense of e.g. flexible floor plans, cantilevered structures, long-span systems, efficient joining techniques, efficient mounting and demounting of building systems, and the potential for additional functionality. The topics covered relate to a multitude of disciplines: structural design, mechanical characterisation, building physics, fire resistance and sound insulation.

The project results will include new solutions with recommendations and design approaches for the use of CLT in new applications/design situations. To accomplish this, numerical simulations of the component and system behaviour for defined design challenges will be undertaken. This will not only concern ultimate limit states but also serviceability limit states (e.g. the dynamic response of floors) since the latter frequently governs the design. If necessary, such simulations will be combined with experiments on the component level in order to derive missing key input data for the numerical models.

The overall InnoCrossLam activities aim (1) to facilitate and widen the use of CLT in the building construction sector, (2) to improve knowledge about how to deal with complex design situations relevant for CLT in multi-storey construction, (3) to add value to the



product CLT by integrating additional (e.g. thermal activation) functions, and (4) to support future standardisation work relevant to the structural design standards Eurocode 5 (timber structures) and 8 (seismic design).

### **Research Partners**

- **Slovenian National Building and Civil Engineering Institute** (Slovenia – Project coordinator).
- **Lund University, Division of Structural Mechanics** (Sweden).
- **Technische Universität Wien** (Austria).
- **Technical University of Munich** (Germany).
- **University of Navarra** (Spain).

### **Associate partners**

- **Association of CLT producers** (Germany)
- **Association of Austrian Wood Industries** (Austria)
- **Swedish Wood** (Sweden)
- **Hermann Kaufmann & Partner ZT** (Germany)
- **Arrea Architecture** (Slovenia)
- **merz kley partner (mkp)** (Austria)
- **Limträteknik AB** (Sweden)
- **Dr.Arch. Miguel Ángel Rgz- Nevado** (Spain)
- **White** (Sweden)