

innocrosslam

Innovative Solutions for Cross Laminated Timber Structures

InnoCrossLam aims at increasing even further the competitiveness of cross laminated timber (CLT) as a versatile engineered product, by increasing its predictability in demanding design situations not covered by the guidelines of today, or codes and standards foreseeable in a near future. In addition, the project will further develop a previously suggested (proof-of-concept) multi-functional use of CLT in terms of its thermal activation.

Main Objectives

- Facilitate and widen the use of CLT in the building construction sector
- Improve knowledge about how to deal with complex design situations relevant for CLT in multistorey construction
- Add value to the product CLT by integrating additional functions (e.g. thermal activation)
- Support future standardization work relevant to the structural design standards Eurocode 5 and 8

The main objectives of the project will be addressed in six work packages (WPs) which are being processed by various research institutions throughout Europe. The Technical University of Munich (TUM) will lead WP5 (innovative multifunctional CLT). TUM will also contribute to WP6 (structural design).

WP5 - Innovative Multifunctional CLT

In WP5 the findings from a recently finalized pilot study on thermally activated CLT elements (also realized at TUM) are developed towards maturity for application. The main objective towards this aim is to achieve the technical and regulatory requirements according to the Construction Product Regulation (CPR)¹. The first step will be to determine the essential strength and stiffness properties. Numerical parameter studies will extrapolate the strength values and reduction factors to a wider range of application. A catalogue of connection types which are applicable to thermally activated CLT elements constitutes a key deliverable. Another focus is detailing with respect to fire resistance and sound insulation.

WP6 - Structural Design

This WP (lead by UNAV, Spain) will develop practical design equations, models and guidelines. Its results will be summarized in practical design guides which will form an important part of the dissemination of the results of the project and reports to be presented in the relevant standardization committees for the inclusion of the developed results in structural standards. It will also provide guidance for the modelling of CLT structures when using commercial software. TUM will demonstrate its competence in standardization and building regulations by preparing research results in text and figures which can be adapted for their introduction into design guidelines, technical specifications and proposals for product or design standards.

¹ European Commission, *Construction products regulation (CPR)*, vol. 305/2011. Bruxelles, Belgium, 2011

Overall Coordination

Slovenian National Building and Civil Engineering Institute (ZAG), Ljubljana

Research Department WP 5 & 6

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Full Partners

- The Slovenian National Building and Civil Engineering Institute (ZAG)
- Lund University, Sweden (LU)
- Vienna University of Technology, Austria (TUW)
- Technical University of Munich, Germany (TUM)
- University of Navarra, Spain (UNAV)

Associate Partners

- The Association of German CLT producers
- The Association of Austrian Wood Industries
- Hermann Kaufmann & Partner ZT GmbH, Austria
- merz kley partner ZT GmbH, Austria
- Limträteknik AB, Sweden
- arrea, arhitektura d. o. o., Slovenia
- Swedish Wood, Swedish Forest Industries Federation
- White Arkitekter, Sweden