Industrialized constructive system made of timber for collective residential buildings

October 24 2012

Tecnalia is developing a new constructive system for multi-storey collective dwelling buildings through cross-laminated timber panel CLT structures, together with the company EGOIN, specialized in timber industrialized construction.

This new system is being optimized structurally as well as acoustically in order to enhance the acoustic requirements settled down by the most demanding prescribers in terms of dwelling buildings and will support the internationalization strategy of the company to the European countries, mainly in France.

The constructive system consists on the development of all the constructive solutions within the building: floor, façade, structural partition wall, interior partitions or coverings, based on EGO CLT and EGO CLTMIX timber panels together with the corresponding coverings to configure the system (ceiling, floating floor, lightweight cladding, etc.). Moreover, new junctions between elements have been developed, as well as a design tool for the project phase of a building according to recognized procedures at international level, in order to guarantee the in situ acoustic requirements compliance.

Thanks to the Building Acoustic team in Tecnalia, it has been possible to apply an acoustic design methodology for lightweight and industrialized solutions, which has enabled to cover the present deficit in relation to this matter, as currently there is not still an international agreement on the acoustic behavior of lightweight buildings.

This methodology has been validated successfully in an experimental installation built up by EGOIN, in which the features have been verified in real conditions. These new solutions developed in terms of the sound transmissions, have satisfied the previsions of the developments proposed by Tecnalia, especially in those aspects related to the transmission of the dry junctions between the different constructive elements.

This research project is an Eureka project funded by the CDTI that, under the name of EGOSOINU, has the noise transmission characterization in timber buildings as main goal in order to improve the acoustic design of constructive elements valid for multi-storey dwelling buildings. This project is an innovative bet, for being one of the main R&I lines in different referential Research Centers at international scale.

Provided by Elhuyar Fundazioa