

NEXT Timber – Novel Execution Tool for Timber structures

The overall aim of the project is to develop an open standard tool for planning and execution of timber buildings in an international context as follows:

- Provide interface principles which facilitate the use of new developments with respects to vibrations, acoustics and fire. This will be used as a platform for future developments.
- Ensure the use of the same concepts by all stake holders with focus on the description on element joints to enable the use of elements from different sources and materials. This will benefit trade, innovation sharing and further boost the development of the technologies.
- Develop a base document for an execution standard of timber structures in terms of Eurocode 5.

The ambition of the project is to drive the Nordic views into European standardisation by being proactive and provide the project results to the work of the relevant CEN technical committees. The Nordic timber building developments and execution methods will be introduced as proposals for European standards.

Fulfilling the project aims will drive innovations for the forest products industry and related construction methods to new technical solutions. New cross national ventures will ease cooperative efforts with several producers.

At present the Eurocode design standards are planned to be revised over a five year period. The prime target of the revision - which includes all Eurocodes - is to develop the Eurocode system so it is simpler for the designer to use. A part for execution has to be developed in order to be competitive as execution standards already exist for other materials.

The topic is very relevant at the moment because many regional companies in Europe have been experimenting on multi-storey timber building with different solutions based on national building requirements and building traditions. Utilizing the high degree of knowledge in advanced construction and erection techniques (lean construction), Nordic countries should take a leading role in the development of open standard tools in this field.

With increased focus on building quality, an increasing share of timber buildings is prefabricated. Timber elements or modules are quickly erected at the building site, so a dry building is raised. In order to combine different construction elements within one project, compatibility between elements, different producers and different materials must be ensured. There is an evident need for coordination of systems for timber element assemblies.

The results of the project will be:

- A Nordic draft for a standard on the execution of timber buildings (for CEN TC250/SC5)
- Solution principles for the design for performance on selected critical characteristics (vibration, acoustics and fire)
- Framework for element technology connections and detailing for prefabrication.

The link from standards to innovation is obtained with new possibilities to produce quality buildings with sound economical, technical and environmental performance. The drafts and principles created

will provide solutions for performance and quality on design and erection. Cooperative Nordic efforts from research experts and timber industries are needed for this objective.

In the Nordic countries over the past years, many national initiatives in timber engineering have taken place and new developments have been achieved on creating business from timber building and engineering. This includes research on product performance, new construction techniques and new organisational forms in planning and execution of timber buildings. All these activities have been based on national efforts which have been developed very independently. It is time to initiate joint Nordic efforts in this area, which this project will enable. It is evident that acting together, the partners will gain benefit from each other's experiences and this will be a driver for further innovations in timber engineering. This project will be carried out in cooperation between experts and industries from the Nordic countries: Finland, Sweden, Denmark, Norway and Estonia. These countries are very active in the development of timber building and timber engineering.

The project partners are:

- RTT, Confederation of Finnish construction product industries, Finland, Tomi Toratti, Coordinator
- SP, Technical Research Institute of Sweden (Wood Technology), Sweden, Joachim Schmid.
- TMF, the national trade and employers' association of the wood processing and furniture industry in Sweden, Anders Rosenkilde.
- Traeinfo, Danish Timber Information, Denmark, Jørgen Munch-Andersen
- Treteknisk, Norwegian Institute of Wood Technology, Norway, Kristine Nore.
- NTF, Association of Norwegian Roof Truss Producers, Norway, Håvard Thorsrud.
- TUT, Tallinn University of Technology, Estonia, Alar Just.
- Kod, Kodumaja AS, Estonia, Elar Vilt.

The project initiates in March 2014 and the duration is 2.5 years.

The overall project budget is 2685000 NOK.

