

## Experimental study of truss using CLT (Cross Laminated Timber) for lower chord

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### Abstract

CLT (Cross Laminated Timber), which contributes to proactive utilization of forest resources in Japan, is drawing attention not only in Japan but also globally as a material that will revitalize the Japanese architectural industry and give new possibilities unprecedented.

The feature (characteristic) of CLT is that a large plate of 3 m × 12 m can be made, and if it is within the length that can be manufactured, a space without pillars is possible by a simple joining method.

In other words, it is possible to apply to a roof and floor of 12 m span without a joint.

Then, how do you deal with it if you need more span?

We propose a system that composites CLT and truss, in order to enable further long span and to change direction of force transmission with respect to vertical load from one direction to two directions (Fig.1).

In this proposal, it is also possible to design the CLT cross section to be thin.

Furthermore, by adopting a three-dimensional configuration, it is also possible to develop it into a radiation type truss having a shell effect (Fig.2).

In this system, the joining method between CLTs is important.

Since CLT is used for lower chord of truss, we propose joining method which can correspond to tensile joining hardware, and grasp the Mechanical performance by applying Tensile test.

We carry out actual experiment of CLT truss and then grasp the mechanical characteristics from experiment result (Fig.3).

Finally, consider the consistency of the experimental result and the analysis model.

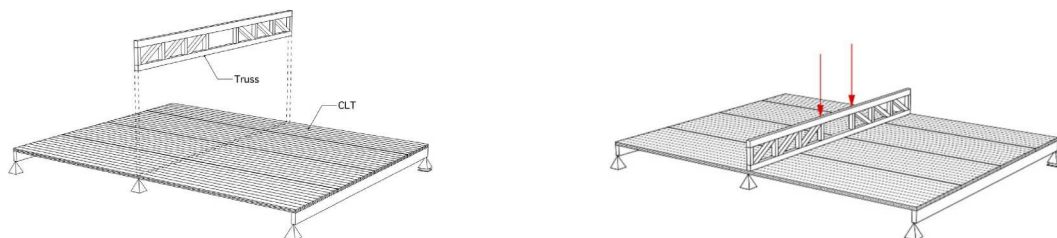


Fig.1 Conceptual diagram

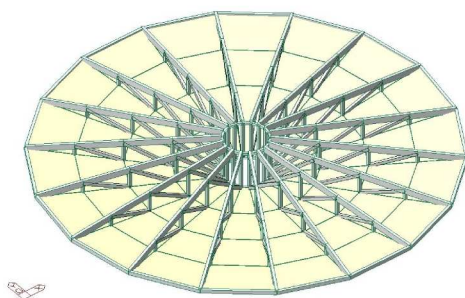


Fig.2 Radiation type truss



Fig.3 Experiment model