



Study on Control Wooden Joint Rigidity, Strength and Ductility with Combinations of Wooden Fibre Directions

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Summary:

Conventionally, energy absorption of joints in wooden structure has been obtained by yield deformation of steel parts. However, we have tried to control behaviour such as rigidity type or ductility type with combinations of wood fibre direction using screws in wooden structure for joint design. We defined the combination ratio of wood fiber as R_p (Ratio of parallel). First, we used special large diameter bolts to get high rigidity and ductility with embedding into combinations of parallel and orthogonal fiber directions. Then, we used long-screw which are more common in the market. We made all CLT test pieces by ourselves. We have compared the joint behavior with experiments and analysis. As a conclusion, we got following results of this study. When R_p rises, rigidity will be higher. On the other hand, ductility will be higher when R_p falls. We suggest the relationship equation for R_p and the rigidity and ductility of the increase or decrease by the theoretical value.

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