



## Cross Laminated Timber (CLT) Plane Structures Under Concentrated Loading from Point Supports - Shear Design including Reinforcements

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Author: Mestek, Peter  
 Organization: Technical University of Munich  
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### Summary:

This thesis deals with the shear design of Cross Laminated Timber (CLT) elements stressed by concentrated loads which are locally reinforced by means of self-tapping screws with continuous threads. A simplified model is presented using an effective width for the calculation of the shear stresses in the vicinity of point supports or concentrated loads. Laboratory tests supply material-mechanical principles to determine the interaction of rolling shear stresses and compression perpendicular to the grain. In addition to experimental tests theoretical models are developed to examine the load bearing behaviour of CLT-elements reinforced by self-tapping screws.

Preliminary tests with plate elements provide initial experience with these reinforcements under biaxial load transfer. Finally a design concept validated by means of the test results is proposed.

Online Access: Free

### Resource Link

<http://mediatum.ub.tum.de?id=1079875>