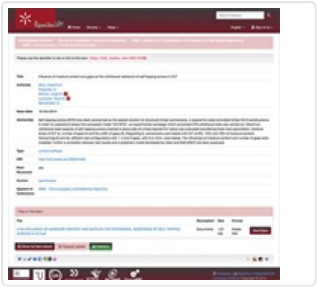

Influence of Moisture Content and Gaps on the Withdrawal Resistance of Self Tapping Screws in CLT

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Summary:

Self-tapping screws (STS) have been proclaimed as the easiest solution for structural timber connections, in special for cross laminated timber (CLT) constructions. In order to understand deeply the composite model “CLT-STS”, an experimental campaign which comprised 270 withdrawal tests was carried out. Maximum withdrawal load capacity of self-tapping screws inserted in plane side of a three layered CLT panel was evaluated considering three main parameters: moisture levels of CLT (i), number of gaps (ii) and the width of gaps (iii). Regarding (i), connections were tested with CLT at 8%, 12% and 18% of moisture content. Concerning (ii) and (iii), different test configurations with 1, 2 and 3 gaps, with 0 or 4mm, were tested. The influences of moisture content and number of gaps were modeled. Further a correlation between test results and a prediction model developed by Uibel and Blaß (2007) has been proposed.

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