



Bending Properties of Cross Laminated Timber (CLT) with a 45° Alternating Layer Configuration

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Summary:

Bending tests were conducted with cross laminated timber (CLT) panels made using an alternating layer arrangement. Boards of Norway spruce were used to manufacture five-layer panels on an industrial CLT production line. In total, 20 samples were tested, consisting of two CLT configurations with 10 samples of each type: transverse layers at 45° and the conventional 90° arrangement. Sample dimensions were 95 mm × 590 mm × 2000 mm. The CLT panels were tested by four point bending in the main load-carrying direction in a flatwise panel layout. The results indicated that bending strength increased by 35% for elements assembled with 45° layers in comparison with 90° layers. Improved mechanical load bearing panel properties could lead to a larger span length with less material.

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