Bending Tests on Glulam-CLT Beams connected with Double-Sided Punched Metal Plate Fasteners and Inclined Screws

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	Glulam (Glue-Laminated Timber)
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Summary:

This report presents bending tests performed on composite beams made from glulam beams and cross laminated timber (CLT) panels. The composite beam, with a T-cross section, represents a section of a floor element in a multi-storey CLT construction system. The shear connections used were made either of doublesided punched metal plate fasteners, either of inclined screws, or of a combination of both fastener types. The screws are used to secure the shear connection with double-sided nail plates with respect to possible separation forces between the glulam and the CLT. An additional test with a screw glued connection was made for comparison as the upper bound case in terms of composite action. The results show the beams with double-sided nail plates (with or without screws) achieved a very high level of composite action and an overall satisfactory behaviour. Almost full composite action was achieved for the screw-glued composite beam. A detailed design example of the beam element according to the Eurocode 5 and Finnish National Annex is presented.

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