

Response to Reviewer 3 Comments

We would like to thank to the reviewer for the comments, which we have used in order to improve this paper.

Point 1: The data statistics could be enhanced. In the conclusions, the authors mentioned significant differences in strength (row 319). Authors could test a factor of surface treatment using ANOVA. Duncan's test could compare mean value differences and confirm significant/nonsignificant differences in the strength/modulus of glulam beams.

Response 1: We have accepted your suggestion and analysis of variance (ANOVA) combined with a post-hoc Duncan Multiple Range Test (DMRT) was performed in order to confirm statistically significant differences for Turkey oak and rough sanding of lamellas (S60) compared to just planing (P) or fine sanding (S80) of lamellas. The calculations were carried out in Microsoft Excel using the XLSTAT software. Following sentences and tables have been added:

"The obtained bending strength, global and local MOE for each GLT beam were subjected to analysis of variance (one-way ANOVA) at a 95% confidence level ($p \leq 0.05$) in order to evaluate the effect of different surface treatment of lamellas on previously mentioned properties. The results of analysis indicate no statistically significant impact of different surface treatment of lamellas on bending strength and stiffness of GLT beam made of European hornbeam and maple. On the other hand, ANOVA showed significant difference among means of bending strength and MOE of GLT beam made of Turkey oak. Since the P-value of the F-test is less than 0.05, as can be seen from Table 3., there is a significant difference between the means of the three groups regarding different surface treatments.

Table 3. Results of ANOVA for bending strength of GLT beams made of Turkey oak.

Source of Variation	SS	df	MS	F	P-value	F _{crit}
Between groups	1917.5	2	958.7	4.6	0.025	3.633
Within groups	3275.1	16	204.7			
Total	5192.6	18				

Accordingly, post-hoc Duncan Multiple Range Test (DMRT) at a 95% confidence level ($p \leq 0.05$) was used to determine which means of bending strength and MOE of GLT beams made of Turkey oak were significantly different from others. Comparisons between means were performed and compared with the least significant range. As can be seen from Table 4. significant differences are confirmed for Turkey oak with planing and rough sanding of lamellas (S60) compared to just planing (P) or fine sanding (S80) of lamellas

Table 4. Results of DMRT for bending strength of GLT beams made of Turkey oak.

Contrast	Difference	Standardized difference	Critical value	Pr > Diff	Significant
S60 ¹ vs P ²	23.486	2.803	3.144	0.032	Yes
S60 vs S80 ³	18.143	2.372	2.998	0.031	Yes
S80 vs P	5.343	0.638	2.998	0.533	No

¹ Rough sanding; ² planning; ³ fine sanding.”

Point 2: Row 71: Is it correct to test wet conditions for service class 1? It is confusing since class 1 defines wood in dry conditions. Please explain or remove it.

Response 2: Sentence given in row 71 is correct, but in order to avoid confusion the sentence has been changed to:

“Moreover, EAD [23] provides two options for bond shear strength test, at dry and at wet conditions.”

European Assessment Document states that shear strength test at dry conditions is needed for service class 1. Additionally, Table 2.20 from EAD, where wet and dry conditions are encompassed, states that is valid for service classes 1, 2 and 3.

Point 3: Row 104: For each hardwood specie, (comma) one set ...

Response 3: According to reviewer feedback, editing has now been done via MDPI Language Editing Services.

Point 4: Figure 4 shows the shear field measurement. I am just wondering; did you get any satisfactory results on the shear modulus? Any comments on this?

Response 4: Yes, we have measured shear modulus. The problem was, since our beams are small, we could get relevant data only with strain gauges. Results from shear field test apparatus were not satisfactory. We did not have sufficient number of those exact strain gauges at hand, so we only have results for 11 beams, i.e.

	Shear modulus [MPa]		
	P	S80	S60
Hornbeam	1206	1051	1250
Hornbeam	1242	1460	1029
Hornbeam	1226	1123	1147
Turkey oak	1056		1003

Point 5: Table 1 and Table 2: The abbreviations (P, S80, S60) should be defined in the title or the footnotes of the table. Please add units in the first column. WFP is in %, contrary to the text description in row 196. Please unify the WFP units.

Response 5: The abbreviations are defined in the title and units are added in Table 1 and Table 2.

Point 6: Figure 7: The legend (P, S80, S60) should be explained in the title. Please, check the presented data. The maple glulam samples give the highest force values (7a). Assuming the same span and dimensions there is inconsistency with the strength value listed in Table 2 and Figure 6. If Figure 7 is correct, please add a table of the glulam beam dimensions in Materials and Methods.

Response 6: Due to the editing we have accidentally replaced Figure 7 (a) with Figure 7 (c). All beams were of the same size. The error is now corrected.