Evaluation of the Moisture Content in Stiffness Properties of Structural Glulam Beams

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Summary:

This research aimed to evaluate the influence of storage time (0, 96 hours) of Pinus elliottii pieces and the tests to obtaining modulus of elasticity (static bending and transversal vibration) in glued laminated timber beams, produced with resorcinol based adhesive and 0.8 MPa compaction pressure. After pieces were properly prepared, part of them was used in immediate three manufacturing glulam beams, tested after adhesive cure, and part stored for 96 hours under a roof with a temperature of 25oC and relative humidity of 60% for subsequent manufacturing and testing three other glulam beams. Results of analysis of variance (ANOVA) revealed that the storage period was significant influence in modulus of elasticity obtained in static bending test (8% reduction from 0 to 96 hours). This not occurred with modulus of elasticity obtained by transversal vibration test (no significant influence). ANOVA results showed equivalence of means in both test procedures.

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Resource Link

https://www.researchgate.net/profile/Francisco_Rocco_Lahr/publication/276367709_Evaluation_of_the_Moisture_Content_in_Stiffness_Properties_of_Structural_Glulam_Beams/links/5561b9c408ae86c06b651884.pdf