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Non Destructive Evaluation of Modulus of Elasticity of Large Size Wood Based Panel Materials Using ‘E’ Tester

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Abstract

As a first step in the direction of developing a non destructive test method for finding the modulus of elasticity/stiffness of large size wood based panels, a laboratory model of the mechanical ‘E’ tester was designed and fabricated. This equipment facilitates the panel industries for effective grading and quality control.

Investigations carried out to study the effect of width of the panel and effect of span length on modulus of elasticity[MOE] reveals that they are not significant for plywood panels ranging in thickness from 6mm to 18mm. Tests carried out to determine the scale factor [ratio of MOE of large size panel to MOE of small size specimen] for plywoods and blockboards reveals that MOE of large size plywood and blockbaord is more than that of small size specimens by 10 to 12%. A close correlation exists between MOE of large size plywood and blockboard panels and MOE/MOR of small size specimens.