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Review for Mechanical Tests of Corner Joints on Wooden Windows and Effects to the Stiffness

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Abstract : Corner joints are the weakest part of windows, where the members are connected together. Since the dimensions of the windows started become bigger, the strength requirements for corner joints started to increase as well. Therefore, the aim of this study was to test the samples of corner joints of wooden windows. Moisture content of test specimens was stabilized in the climate chamber. After conditioning, test specimens were loaded in the laboratory conditions onto an universal testing machine and the failure load was measured. Data was recalculated by using goniometric, bending moment and stiffness equation to the stiffness coefficients and the bending moments were investigated. The results showed difference that was observed for the mortise with tenon joint and the dowel joint. This difference was explained by a varied adhesive bond area, which is related to the dimensions of dowels (diameter and length) as well. The bending moments and stiffness ware (except of type of corner joint) also affected by type of used adhesive, type of dowels and wood species.

Keywords : corner joint, wooden window, bending moment, stiffness
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