NAIL WITHDRAWAL RESISTANCE OF COMPOSITE WOOD-BASED PANELS MADE FROM PARTICLEBOARD CORE AND CONSTRUCTIVE TWO-PLY CROSS-LAMINATED VENEERS

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ABSTRACT

This paper elaborates the nail withdrawal resistance of composite water-resistant wood-based panels for use in construction.

Three experimental panels were made by combining particleboards and constructive peeled veneers of beech, black pine and poplar with thickness of 1,5 and 3,2 mm. The core layer of composite panels was made from single-layer particleboard with thickness of 16 mm. Particleboards were overlaid on both sides with two-ply cross-laminated veneers.

Water-soluble phenol-formaldehyde resin was used for particle bonding and veneering.

The results from the research showed that the different veneer species used for particleboard overlay significantly impact the nail withdrawal resistance perpendicular to the plain of the composite panels. The highest mean value of this property is achieved in composite model made with beech veneers overlay.

According to the obtained values of nail withdrawal resistance, the composite panels can be used in construction.

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