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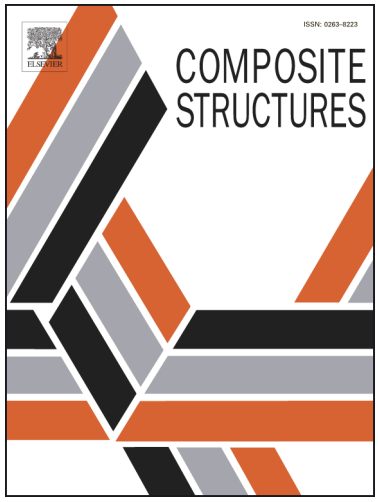

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Stiffness and failure behaviour of wood based honeycomb sandwich corner joints in different climates

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Abstract

Changes in air relative humidity and temperature exert a negative influence on hygroscopic wood based composites from which honeycomb sandwich panels are manufactured. Ready market globalisation causes that furniture from honeycomb sandwich panels manufactured in conditions of a dry climate are utilised in a tropical climate or are transported for several weeks through a tropical climate zone and then used in a dry climate. Water sorption and desorption processes by wood composites affect their loss of stiffness and strength. This study determined the impact of changes in ambient climatic conditions on the stiffness and strength of joints manufactured from honeycomb panels. A new method of numerical stiffness and strength modelling of joints subjected to changes in air relative humidity and temperature was developed.

Key words: climate; experiment; FEM, honeycomb; joints; strength

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