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Acoustic and Thermal Insulating Materials Based on Natural Fibres Used in Floor Construction

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Abstract : The majority of contemporary insulation materials commonly used in the building industry is made from non-renewable raw materials; furthermore, their production often brings high energy costs. A long-term trend as far as sustainable development is concerned has been the reduction of energy and material demands of building material production. One of the solutions is the possibility of using easily renewable natural raw material sources which are considerably more ecological and their production is mostly less energy-consuming compared to the production of normal insulations (mineral wool, polystyrene). The paper describes the results of research focused on the development of thermal and acoustic insulation materials based on natural fibres intended for floor constructions. Given the characteristic open porosity of natural fibre materials, the hygrothermal behaviour of the developed materials was studied. Especially the influence of relative humidity and temperature on thermal insulation properties was observed.

Keywords : Green thermal and acoustic insulating materials, natural fibres, technical hemp, flax, floor construction
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