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Numerical Solution to Coupled Heat and Moisture Diffusion in Bio-Sourced Composite Materials

Authors : Mnasri Faiza, El Ganaoui Mohammed, Khelifa Mourad, Gabsi Slimane

Abstract : The main objective of this paper is to describe the hydrothermal behavior through porous material of construction due to temperature gradient. The construction proposed a bi-layer structure which composed of two different materials. The first is a bio-sourced panel named IBS-AKU (inertia system building), the second is the Neopor material. This system (IBS-AKU Neopor) is developed by a Belgium company (Isohabitat). The study suggests a multi-layer structure of the IBS-AKU panel in one dimension. A numerical method was proposed afterwards, by using the finite element method and a refined mesh area to strong gradients. The evolution of temperature fields and the moisture content has been processed.

Keywords : heat transfer, moisture diffusion, porous media, composite IBS-AKU, simulation
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