Experimental Characterization of the Thermal Behavior of a Sawdust Mortar

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Abstract : Currently, the reduction of energy consumption, through the use of abundant and recyclable natural materials, for better thermal insulation represents an important area of research. To this end, the use of bio-sourced materials has been identified as one of the green sectors with a very high economic development potential for the future. Because of its role in reducing the consumption of fossil-based raw materials, it contributes significantly to the storage of atmospheric carbon, limits greenhouse gas emissions and creates new economic opportunities. This study constitutes a contribution to the elaboration and the experimental characterization of the thermal behavior of a sawdust-reduced mortar matrix. We have taken into account the influence of the size of the grain fibers of sawdust, hence the use of three different ranges and also different percentage in the different confections. The intended practical application consists of producing a light weight compound at a lower cost to ensure a better thermal and acoustic behavior compared to that existing in the field, in addition to the desired resistances. Improving energy performance, while reducing greenhouse gas emissions from the building sector, is amongst the objectives to be achieved. The results are very encouraging and highlight the value of the proposed design of organic-source mortar panels which have specific mechanical properties acceptable for their use, low densities, lower cost of manufacture and labor, and above all a positive impact on the environment.

Keywords : mortar, sawdust waste, thermal, experimental, analysis
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