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USE OF WASTE MATERIALS FOR THERMAL INSULATION IN BUILDINGS

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Abstract

The thermal insulation of buildings is needed in order to diminish the final energy consumption in buildings and, by this way, to contribute to the use of unconventional regenerative sources of energy (wind and sun) for a sustainable development. The requirement for heat consumption under the limit of 120...150 kWh/m^2.a, or even to 15...45 kWh/m^2.a, stipulated for the year 2020 (passive houses) is implying the use of huge and expensive quantities of expanded polystyrene, mineral wool or polyurethane foam. The study encompasses the utilization of bulk waste materials (sawdust, crumbled expanded polystyrene, hacked paper and PVC recipients) for thermal insulations in buildings, contributing also to the environmental protection and cost reduction. Specific laboratory equipment for thermal conductivity measurements of bulk granular waste materials has been created and solutions for energy efficient building envelopes are suggested.

Key words: efficiency, sustainable development, thermal conductivity, thermal insulation, waste bulk materials

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