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STUDIES ON THE POSSIBILITIES OF USING EXPANDED PERLITE FOR REDUCING BUILDINGS ENERGY CONSUMPTION

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Abstract

In the current context, when studies regarding the planet’s ability to sustain the human species consumption present more and more grim scenarios, it is required, more than ever, to consider sustainable development as a main priority for development strategies worldwide. In this sense, reducing the negative environmental impact of building materials and lowering energy consumption in buildings exploitation becomes the main axis for most of the new tendencies in architecture and civil engineering. Therefore, the development of new materials has to consider both low thermal conductivities and reduced embedded energy.

The paper proposes a new mortar recipe based on expanded perlite and it presents an extensive study on the structural, physical and mechanical characteristics that the proposed material can provide, in order to reduce the negative environmental impact of buildings, by reducing buildings energy consumption, through increasing thermal resistance of the envelope. Finally, a series of conclusions and recommendations are presented on the way the proposed material can be used for the buildings thermal insulation process, both for new and refurbished buildings.

Keywords: expanded perlite, mechanical characteristics, sustainable development, thermal conductivity, thermal insulating mortar

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