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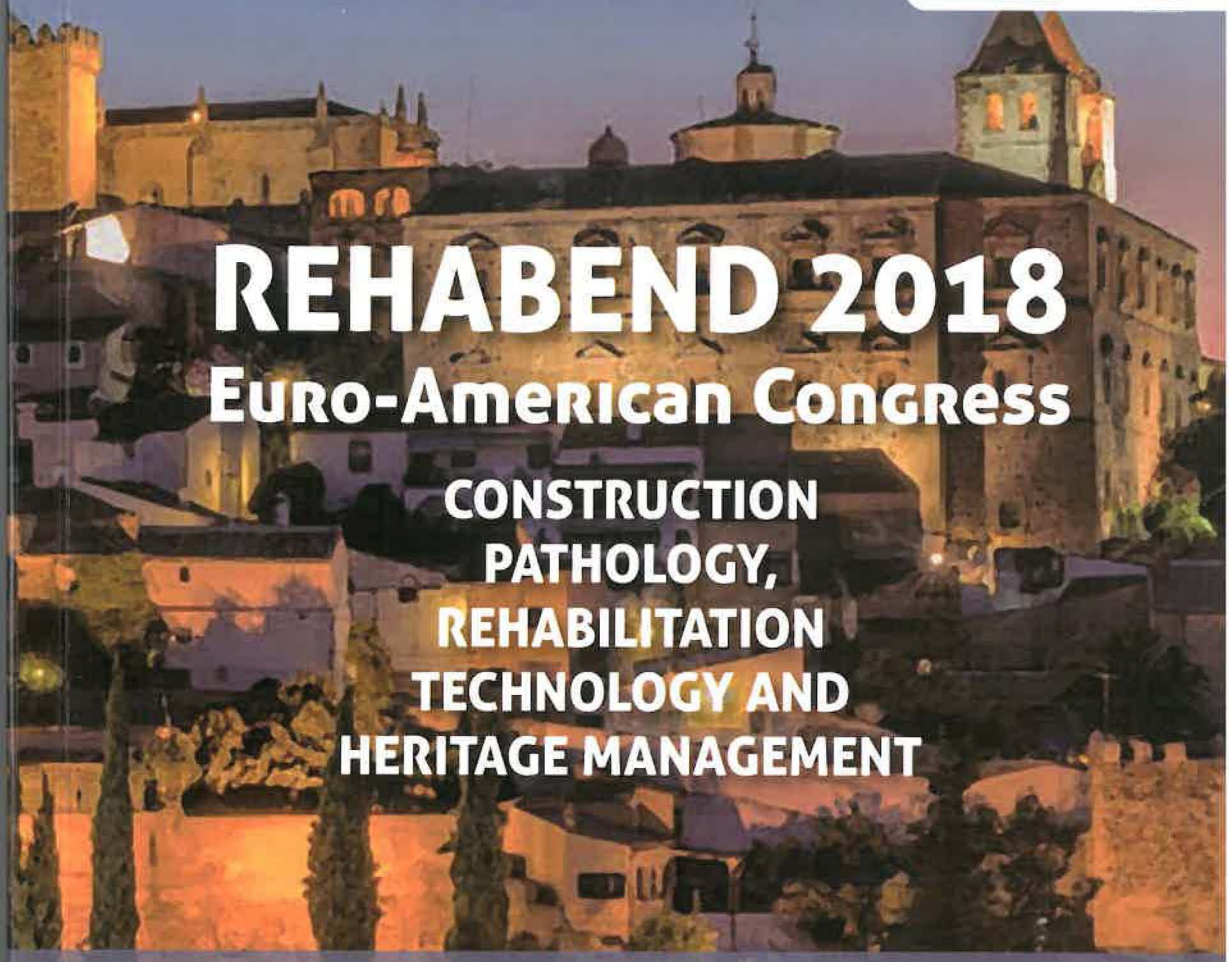

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ECOLOGICAL BLOCKS OF SOIL-CEMENT WITH INCORPORATION OF WASTES

Ferreira, Débora[1]*; Luso, Eduarda[1]; Cruz, Maria[1]

1: Instituto Politécnico de Bragança, Escola Superior de Tecnologia e Gestão de Bragança
debora@ipb.pt, eduarda@ipb.pt, lurdes@ipb.pt

KEYWORDS: Soil-cement blocks; ecologic; wastes.

ABSTRACT

This paper aims the revision of work already carried out on soil-cement blocks with incorporation of waste, which it´s the basis of VALORCOMP project and which intends to characterize ecological blocks resulting from a homogeneous and compacted mixture of soil, cement and water in suitable proportions, cured without heating.

Soil is an abundant raw material, recyclable and reusable, non-combustible, non-toxic, with significant thermal behaviour and without too expensive transformation processes, which allows selecting this material as a major possibility for sustainable construction. The limitations of soil as a construction material, in particular its mechanical behaviour and its susceptibility in the presence of water, can be minimized through soil stabilization processes. In the composition of the blocks, the soil is the major element and the cement is added in various proportions functioning as a binder since it is responsible for the mechanical strength properties of the final product. With wastes incorporation, mechanical, physical and thermal properties change. Laboratory tests in order to evaluate the potential use of the wastes in blocks composition, it´s essential.

The main organic wastes found in the research were eggshells or ashes, rice husk, malt bagasse, sugar cane, boiler ash, waste paper industry, wood and organic waste deposited in landfills. The best results in terms of overall performance were achieved with eggshells or ashes, rice husk, banana bagasse and organic residues, which allows verifying that this alternative of reuse for the wastes, besides the environmental advantages also allows a low costs associated with landfills.