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LIGHTWEIGHT MEMBRANES WITH FIBRE MATERIALS IN INTERIOR DIVIDING WALLS

J. Velosa¹, M. Macieira², R. Fangueiro¹, P. Mendonça²

¹Department of Textile Engineering, University of Minho, 4800-050 Guimarães, Portugal, joao.velosa@netcabo.pt

²Department of Architecture, University of Minho, 4800-050, Guimarães, Portugal

Growing necessity to save material and energetic resources, allied to a growing concern over the environmental issues and incertitude on the evolution of the economy, has impelled minimalist-approaches to Architecture and Engineering, reducing to the minimum necessary expression the constructive elements.

The development of new light materials, many of them composites with fiber reinforcement is from interest of Textile and Materials Industry. However these materials still do not have a significant implementation in the construction industry or, at least this implementation is not being made exploring all their potentialities.

The process of selecting materials for an interior dividing walls project is a challenging task. This paper intends to present materials such as polyesters, polypropylene, glass fibers, Ethylene tetrafluoroethylene (ETFE) film, Polyvinyl chloride (PVC), polytetrafluoroethylen (PTFE), polyvinylidene Fluoride (PVDF), silicone and their potentialities like insulation materials or coating applied on interior walls solutions. Constructions materials and mechanisms will be studied based on functional requirements of system. Specific materials types have properties which make them more or less attractive for applications in different market sectors.

In this work the mechanical and functional properties (and performance) of lightweight membranes with fiber materials based on 3D spacer fabrics by flat knitting offer a strong potential for interior dividing walls, is presented and discussed. These are compared with reference values of panels of rock wool.

Keywords: Composites; Textile processing; Interior walls solutions.