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NUMERICAL SIMULATION OF RELATIVE HUMIDITY IN A MASONRY WALL APPLYING THREE DIFFERENT WATERPROOFING MEMBRANES

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Abstract

The analysis by numerical simulations can be applied to building materials subjected to different climatic conditions and can be used to envisage the influence of environmental factors in terms of drying time, water absorption and thermal performance of materials. Currently there is a wide variety of new building materials used for insulation, waterproofing and rehabilitation; each one contributing in a specific way to constructions improvement during their service life. In time, every building is subjected to degradation due to the action of environmental factors. One of these is water due to its continuous acting under all forms of aggregation: vapour, liquid, solid, each having particular influence on the building's elements. The present paper highlights a numerical simulation of hygrothermal waterproofing characteristics for three different membranes applied on a brick masonry basement wall. The simulation was performed using WUFI2D 3.2 computer software. The information extracted from the analysis results made reference to the materials performance while subjected to moisture transfer processes.

Key words: capillary rising, drying masonry, rehabilitation, waterproofing membrane

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