

Moisture Buffering Capacity of Hygroscopic Curtains: Theoretical and Experimental Study

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Abstract: *This study will shed light on the potential use of hygroscopic curtains regenerated by solar energy to control the indoor relative humidity of a typical office in Lebanon. Sorption isotherms of several curtain materials will be obtained experimentally. The transient moisture transfer between the curtain and the air will be modeled and simulated. Experiments will follow to validate the model and test the ability of curtains to absorb moisture and to regenerate using solar lamps. Finally, an energy simulation of the building will determine the effect of hygroscopic materials on the required HVAC capacity and human thermal comfort.*