## Experimental Determination of Heat and Moisture Transport Properties of AAC in the Range of Subzero to Room Temperature

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The hygrothermal processes in porous building materials are of high importance in current engineering practice. Heat and moisture and their transport through the porous body of various construction materials affect not only esthetics of buildings and constructions, but also their service life or energy performance. However, both heat and moisture transport properties may be affected by several factors such as temperature and moisture content or their gradients. Therefore, when hygrothermal assessment of building components is carried out, the effect of temperature and moisture on transport parameters should be taken into account. The effect of moisture content or no moisture diffusivity was investigated thoroughly in the past, and most of the current computational tools have already implemented its effect on transport properties into their code. However, the current practice of laboratory measurements still neglects the effect of temperature as the measurements are mostly performed under isothermal conditions, usually corresponding with the room temperature. The objective of this research is to enhance the accuracy of current simulation tools by providing temperature-dependent material parameters in the range of subzero to room temperature. Namely, the moisture diffusivity, water vapor diffusion resistance factor, thermal conductivity, and specific heat capacity will be measured in laboratory conditions at various temperatures, and the experimental data will be processed for their subsequent application in computational models.

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