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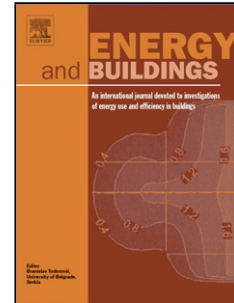
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**TITLE: DEVELOPMENT AND VALIDATION OF A THREE DIMENSIONAL THERMAL
TRANSIENT NUMERICAL MODEL WITH SUN PATCH: Application to a low energy cell**

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ABSTRACT

High performance simulation of low energy building requires ever more accurate descriptions of the systems under study to improve the building's performance. This paper describes a numerical model to simulate a single room, using a three-dimensional description of heat conduction in the envelope with environmental conditions that vary over short time-steps are described. The simulation considers the projection of solar radiation through a window onto interior walls. The indoor air temperature is assumed to be uniform. The temperature of the inner and outer surface of the walls are calculated at each time step using a variable-step solver. Validation of the model was carried out using experimental data from a low energy cell operating in a natural climate. A set of well-calibrated temperature sensors

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