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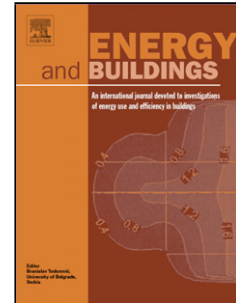
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Dynamic modelling and analysis of a novel latent heat battery in tankless domestic solar water heating

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Abstract

The concept of integrating latent heat with domestic solar water heater (DSWH) has been around for few decades but commercial application has not been recognized yet. This might be due to the lack of feasibility studies for latent heat technology particularly for long-term operation. In this paper, we developed a process flowsheet to integrate a latent heat ‘battery’ (LHB) into a domestic solar water heater (LHB-DSWH) and eliminate the traditional water tank. In this novel tankless LHB-DSWH, the hot water does not need to be continuously maintained at health-regulation-constraint temperature (*viz.* 60 °C to prevent the breeding of *Legionella* bacteria) as in the case of conventional DSWH or other literature LHB-DSWH processes. A dynamic model of the proposed LHB-DSWH process was developed and validated against experimental data. The

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