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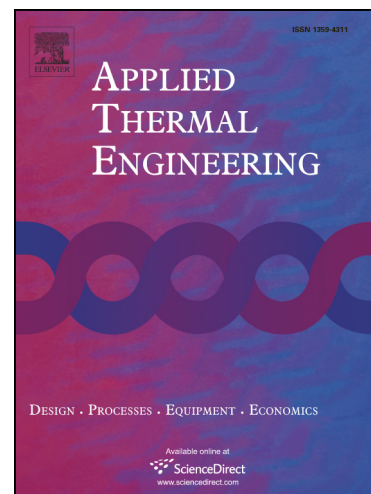
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Energy performance of double shape-stabilized phase change materials wallboards in office building

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Abstract

A novel sandwich-type wallboard was that of a three-layer panel with external and internal layer consisting of shape-stabilized phase change materials (SSPCMs) wallboards and middle layer consisting of concrete. The external layer was active in hot seasons and the internal layer was active in cold seasons. One office room integrated with double SSPCMs wallboards was used for simulation platform. Another office room with the same envelope and just without double SSPCMs wallboards was used as reference room for comparison. Split variable and constant frequency air-conditioner were used in these two different rooms. Studies were conducted to investigate the effects of double SSPCMs and variable/constant frequency air-conditioner on energy performance in typical climate area with hot summer and cold winter (Wuhan city, China). Test results showed that building operation energy consumption in SSPCM room was 6.4% lower than that in reference room under variable frequency air-conditioner in summer. The building operation energy consumption in SSPCM

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