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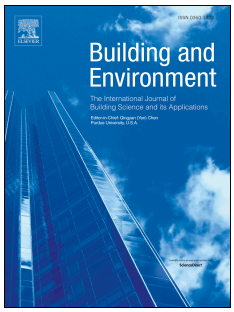


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# A review on macro-encapsulated phase change material for building envelope applications

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**Highlights**

- Comprehensive review on macro-encapsulated PCM in building envelopes.
- Definition and material selection for PCM macro-encapsulation.
- Common macro-encapsulation forms and PCM melting processes within these forms.
- Thermal performance enhancement for macro-encapsulated PCM.

## Abstract

Integrating phase change material (PCM) into building envelopes significantly reduces building energy consumption and improves indoor environment. Among different integration techniques, macro-encapsulation allows for an efficient, safe and convenient way of using PCM, and its applications have been widely investigated in recent years. However, this study argues that there is a lack of a systematic analysis regarding the thermal performance of macro-encapsulated PCM, particularly for