

Accepted Manuscript

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PII: S0360-1323(18)30503-1

DOI: [10.1016/j.buildenv.2018.08.030](https://doi.org/10.1016/j.buildenv.2018.08.030)

Reference: BAE 5643

To appear in: *Building and Environment*

Received Date: 30 April 2018

Revised Date: 16 July 2018

Accepted Date: 18 August 2018

Please cite this article as: Liu Z, Yu ZJ, Yang T, Qin D, Li S, Zhang G, Haghighat F, Joybari MM, A review on macro-encapsulated phase change material for building envelope applications, *Building and Environment* (2018), doi: 10.1016/j.buildenv.2018.08.030.

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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

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