Phase change energy storage device design

Integrating thermal energy storage (TES) into the heating systems can help alleviate this problem, by shifting thermal load and thus shaving peaks in the building electric load. Therefore, it is critical to ...

This article designs a high-altitude border guard post that can fully utilize the heat absorbed by solar collectors to continuously store thermal energy during the day and stably release ...

Advancements in thermal energy storage (TES) technology are contributing to the sustainable development of human society by enhancing thermal utilization efficiency, addressing ...

Developing pure or composite PCMs with high heat capacity and cooling power, engineering effective thermal storage devices, and optimizing system integration have long been ...

It is essential to acquire knowledge of their behavior in latent heat thermal energy storage for the design of storage devices and the construction of an energy conversion and utilization...

The text focuses primarily on the most recent advances in the design and creation of PCESMs. It emphasizes the investigation of new phase change materials (PCMs) that possess ...

This study presents a comprehensive optimization for enhancing the structural configuration of a phase change energy storage device (PCESD) through multi-objective optimization.

To heighten the efficiency of energy transfer for mobile heating, this research introduces the innovative concept of modular storage and transportation. This concept is brought to life through ...

This paper focuses on optimizing the structure of a phase change heat exchanger in a phase change energy storage device to improve its performance. A basic design of the phase ...

Applications include: backup cooling, absorption of thermal transients, quick heating (for startups), defrosting, temperature control, cooling of portable and other devices with low duty cycle,... thermal ...

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