Phase change energy storage foam concrete

This paper researches the phase change energy storage envelopes with PCMs in porous foamed concrete. The paper simulated the heat transfer in porous foam building ...

Abstract The possible incorporation of phase change materials (PCMs) in building materials has attracted a lot of research interest worldwide due to the concern on global ...

Phase change materials are recognized for their heat storage characteristics. The current study investigates the enhancement of building envelope thermal performance by ...

Numerical analysis for the heat transfer characteristics of the phase change thermal storage foam concrete wall revealed that optimal thermal insulation and thermal storage performances were ...

Abstract Organic phase change materials (O-PCMs) such as alkanes, fatty acids, and polyols have recently attracted enormous attention for thermal energy storage (TES) ...

Abstract Thermal energy storage (TES) materials present very crucial role for heating and cooling load of building envelopes. This investigation focused on manufacturing of ...

In recent years, phase change materials (PCMs) have increasingly received attention in different thermal energy storage and management elds. In the building sector, paraf n as a phase ...

The experimental results show that the apparent density, compressive strength, ultrasonic velocity, and thermal conductivity of phase-change energy-storage concrete (PCC) ...

A new type of phase change thermal storage foam concrete was developed by effectively incorporating a composite phase change material (CPCM) into foam concrete. The CPCM was ...

An innovative lightweight aggregate composite phase change material for thermal energy storage enhancement of concrete under hot weather conditions Khaled Own Mohaisen ...

Abstract Energy consumption can be reduced by improving thermal performance of buildings and using energy efficiently. This can be achieved by integrating ...

Thermal Energy Storage (TES) involves storing and retrieving thermal energy for later use. Various storage media are employed, each with unique properties affecting efficiency ...

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A technology of foam concrete and phase change energy storage, which is applied in the field of building materials, can solve the problems of small heat capacity, restrictions on promotion and ...

The review offers insights into how PCMs can be effectively incorporated into concrete to improve thermal energy storage, contributing to enhanced energy efficiency and ...

The results further confirmed the energy saving potential of the PCM fly ash foam concrete, and consequently, provided the groundwork for better understanding the phase change ...

Their findings revealed that as the proportion of PCM in foamed concrete increased, the phase change temperature, latent heat, and specific heat capacity of foamed ...

The use of phase-change materials (PCM) in concrete has revealed promising results in terms of clean energy storage. However, the negative impact of the interaction between PCM and ...

This study presents a novel approach by incorporating hollow ceramsite composite phase change materials (HC-PCMs) into 3DPC, achieving an innovative balance ...

Abstract The possible incorporation of phase change materials (PCMs) in building materials has attracted a lot of research interest worldwide due to the concern on global warming and the ...

In order to seek building materials with energy-saving effect, a phase change thermal storage foam concrete with thermal storage and temperature regulation capabilities was prepared by ...

Incorporating form stable phase change material (FSPCM) can enhance the thermal storage capacity of concrete. However, it often reduces the mechanical properties of ...

This experimental study developed a phase change foamed concrete (PCFC) with suitable temperature regulation and heat storage capabilities utilizing e...

1. Introduction Phase Change Materials (PCMs) are ""latent"" thermal storage materials possessing a large amount of heat energy stored during its phase change stage [1]. The energy ...

The use of phase-change materials (PCM) in concrete has revealed promising results in terms of clean energy storage. However, the negative impact of the ...

The addition of phase change materials (PCMs) to building envelopes can improve building thermal stability and reduce energy consumption. In this study, phase change ...

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