

# **Smart construction energy storage science and engineering**





## Overview

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What is smart construction & sustainable cities (SCSC)?

Smart Construction and Sustainable Cities (SCSC) is an open-access journal at the forefront of interdisciplinary research, addressing urban challenges, and promoting sustainability through innovative smart technologies and green solutions. Promotes knowledge heterogeneity and cross-disciplinary research collaborations.

Is smart construction and sustainable cities indexed in the Scopus database?

We are delighted to announce that Smart Construction and Sustainable Cities has been officially indexed in the Scopus database as of 27 July 2025. We are proud to acknowledge that over 50% of the articles published in this journal in 2024 were related to one or more of the 17 Sustainable Development Goals (SDGs).

Can a cement-based energy storage system be used in large-scale construction?

The integration of cement-based energy storage systems into large-scale construction represents a transformative approach to sustainable infrastructure. These systems aim to combine mechanical load-bearing capacity with electrochemical energy storage, offering a promising solution for developing energy-efficient buildings and smart infrastructure.

Can energy storage be integrated into structural materials?

CSSCs offer promising potential for integrating energy storage into structural materials, yet key challenges remain. Balancing ionic conductivity and mechanical strength is critical, as increased porosity enhances ion transport but weakens structural integrity.

Should energy storage be included in construction materials?

While existing proposals represent significant advancements in integrating



energy storage within construction materials, it is essential to consider the fundamental electrochemical requirements necessary for optimal performance. Electrical conductivity, while crucial, is not sufficient on its own.

Can carbon-based materials improve charge storage performance?

Carbon-based materials with redox additives can improve charge storage performance. Cement-based energy storage has powered small LEDs and electronic components. Further research is required for large-scale applications in smart infrastructure.



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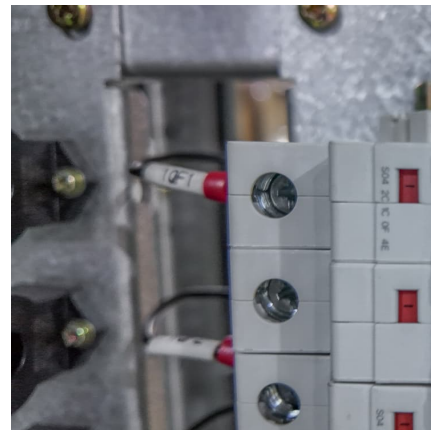


### Market Operation of Energy Storage System in Smart Grid: A ...

From the point of view of the actual scheduling and operation management of energy storage in China, an energy storage regulation and operation management model based on "national, ...

### Improve energy-efficient construction in China , Science

In the past few decades, China's construction industry has undergone a swift expansion, increasing its energy use and carbon emissions ...



### Smart construction sites: A promising approach to improving on ...

The establishment of smart construction sites employing smart technologies for real-time interconnection, communication, and interaction has emerged as an interesting topic ...

### [Energy storage: The future enabled by nanomaterials](#)

Nanomaterials for energy storage applications. The high surface-to-volume ratio and short diffusion pathways typical of nanomaterials



provide a solution for simultaneously achieving high ...



### [Master of Science in Smart Engineering and Construction](#)

Graduates of the MSc in Smart Engineering and Construction programme can embark on rewarding careers in senior positions across a variety of sectors, including government ...

### Shanghai Jiao Tong University's Lin Pioneers Smart Techniques ...

Lin's recent work, published in 'Engineering', delves into the cutting-edge smart techniques that are reshaping the industry, with significant implications for the energy sector.



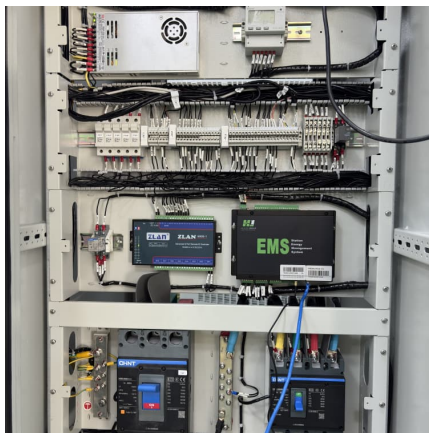
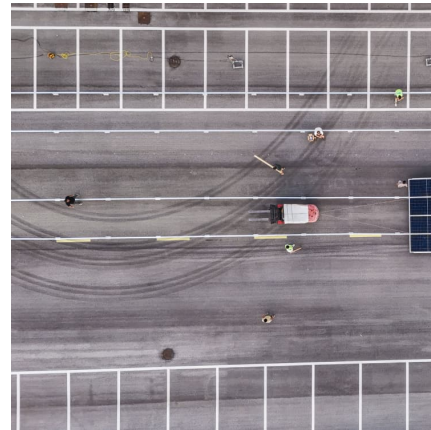
### Applied Thermal Engineering , Sustainable Energy and Sorption ...

2 ???· Integrating sustainable energy systems with advanced sorption heat storage technologies is pivotal for enhancing energy efficiency, reducing carbon footprints, and ...



### **Special Focus Issue: Climate Responsive Smart Construction**

This special issue aims to showcase state-of-the-art research, innovative approaches, and interdisciplinary perspectives on climate-responsive smart construction.



### **Comprehensive review of energy storage systems technologies, ...**

The applications of energy storage systems have been reviewed in the last section of this paper including general applications, energy utility applications, renewable ...

### **Building the future: Smart concrete as a key element in next ...**

As the construction industry steps towards a more sustainable and technologically advanced future, the convergence of sustainability and smart technology ...



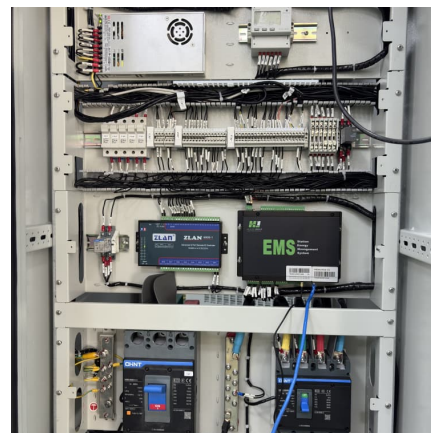
### **Smart Construction & 3D-printed Buildings: The Future of ...**

Conclusion Smart construction combined with 3D printing technology is revolutionizing the architecture and construction sectors by delivering faster, cheaper, and ...



### Smart materials and technologies for sustainable concrete construction

This paper presents a comprehensive review of current trends and opportunities for sustainable concrete construction, emphasizing the importance of adopting eco-friendly ...



### Smart construction energy storage science and engineering

Buildings can reserve and supply energy to the grid using electrical energy storage (e.g., batteries and EVs) as well as thermal energy storage (e.g., HVAC and water

### [Advanced Compressed Air Energy Storage Systems: ...](#)

Low-carbon generation technologies, such as solar and wind energy, can replace the CO2-emitting energy sources (coal and natural gas plants). As a sustainable engineering ...



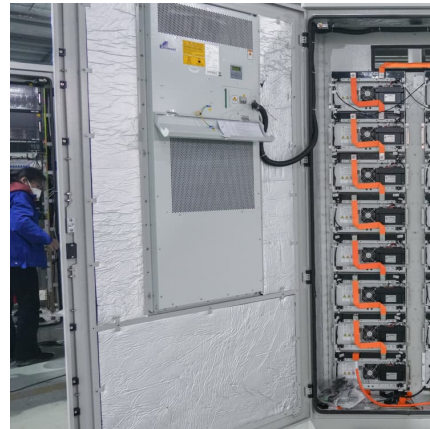


[\(PDF\) Progress and Prospective in the Development ...](#)

Progress and Prospective in the Development of Stored Grain Ecosystems in China: From Composition, Structure, and Smart Construction to ...

**Applicability of smart construction technology: Prioritization and**

Further, these technologies facilitate smart construction, which is defined as the integrated adoption of automation and information technologies in construction to address ...

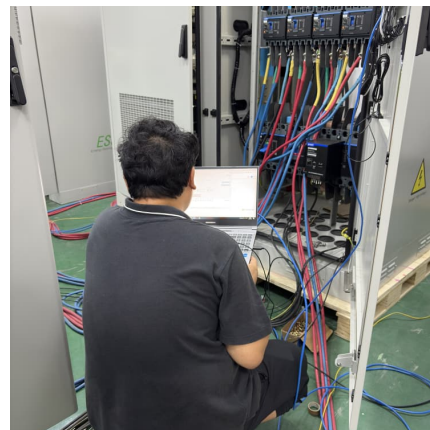


[Advanced Batteries for Sustainable Energy Storage](#)

The increasingly severe energy crisis and environmental issues have raised higher requirements for grid-scale energy storage system. Rechargeable batt...

**Smart Buildings and Construction Materials: Advances in ...**

The main aim of this special issue is to encapsulate the current interest and state of research related to the smart materials in building and construction applications, underpinning current ...



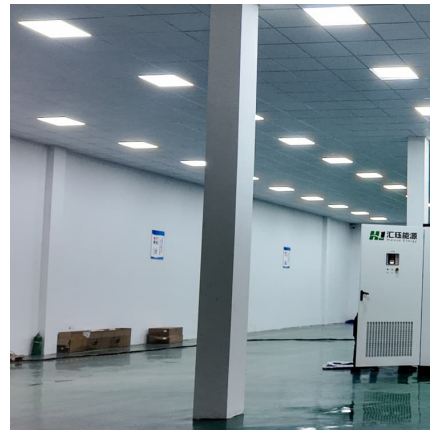


### [Smart sustainable concrete materials and structures](#)

In particular, the following sections consider advanced sustainable and smart concrete solutions for resilient and eco-friendly construction practices, starting from the ...

### **Energy Storage Technologies for Modern Power Systems: A ...**

Energy storage technologies can potentially address these concerns viably at different levels. This paper reviews different forms of storage technology available for grid ...



### **Smart Techniques Promoting Sustainability in Construction ...**

To contribute to a better understanding of the state of the art of smart techniques for engineering projects, this paper provides a comprehensive review of multi-criteria decision-making (MCDM) ...

### **Energy storage systems for carbon neutrality: Challenges and**

In recent years, improvements in energy storage technology, cost reduction, and the increasing imbalance between power grid supply and demand, along with new incentive ...





### **Editorial Board , Smart Construction , Journal , ELSPublishing**

Smart Construction (SC) is a peer-reviewed Open Access (OA) journal focused on publishing original works, communications, reviews, perspectives, and commentaries in areas of ...

### **Technical research and demonstration projects of the intelligent**

The effectiveness of the comprehensive application of various low-carbon power technologies with the smart grid was verified through long-term energy-saving and low-carbon ...



### **Advanced energy storage systems in construction materials: A**

CSSCs demonstrate high cycle stability and promising electrochemical properties, whereas cement-based batteries require further advancements in cycling ...

### **Critical review of energy storage systems: A comparative ...**

The worldwide energy transition driven by fossil fuel resource depletion and increasing environmental concerns require the establishment of strong energy storage systems ...



[Energy Storage Science and Engineering-?????????.?? ...](#)

Major: Energy Storage Science and Engineering (Pumped StorageDirection) PositioningofMajor: Energy Storage Science and Engineering, based on core energystorage technologies and ...



**Fostering renewable energy use through smart city construction: ...**

In recent years, China has made significant progress in building smart cities and promoting renewable energy. This study examines the impact of smart city construction on ...



[Overview-Smart Energy Innovation Institute](#)

Smart Energy Innovation InstituteShanghai Jiao Tong University (SJTU) and State Power Investment Group Corporation (SPIC) officially launched the ...





## Smart Construction

This collaboration aims to constantly improve exchanges and cooperation in scientific and technological innovation for offshore wind power, energy storage, and distributed energy.



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