

Do university dormitories need a solar shading system?

In such climatic conditions, west-facing university dormitories are prone to severe solar exposure, and implementing effective fixed external shading systems is essential for improving indoor thermal comfort and visual quality.

Should solar heat gain be reduced in a dormitory?

Considering that thermal regulation in the dormitory primarily relies on natural ventilation and window operation, reducing seasonal fluctuations in solar heat gain is essential to minimizing thermal discomfort risks and enhancing the capacity for passive environmental control.

Do university dormitories in Kunming receive higher solar exposure?

Consequently, west-facing university dormitories in Kunming receive significantly higher solar exposure from April to July compared to other orientations, exerting a considerable impact on the indoor thermal and lighting environment. (a) Annual sun path diagram in Kunming. (b) Azimuthal distribution of global horizontal irradiance (GHI) in Kunming.

Do shading parameters influence thermal environment and visual comfort of dormitory space?

In this study, the shading parameters that influence the thermal environment and visual comfort of the dormitory space (as listed in Table 3) were used as variables in a 50-generation multi-objective optimization using the NSGA-II algorithm.

panels. However, numerous studies have explored the implementation of PV panels. Izquierdo et al. (2008) proposed five levels of solar valuation, including physical potential, geographical potential, technical ...

This article analyzes the path towards achieving electric energy independence for dormitories. It examines electricity consumption in dormitories to determine the necessary volume for ...

In dormitory studies, Long et al. (2017) evaluated photovoltaic shading across five cities and found that Kunming dormitories have the potential for net-zero or negative carbon emissions.

As universities expand outdoor learning, off-grid solar furniture is emerging as a new class of campus infrastructure.

The renewable energy-based power system stands as the most significant contributor to achieving a low-carbon campus. This study collects actual hourly energy consumption data from a ...

The feasibility analysis of installing a combined photovoltaic solar cell and fuel cell system for a dormitory building was realized. The idea was to produce energy for day-time ...

A technical and economic analysis highlighted a potential PV-trigeneration-hydrogen production system

installed in the Vocational School Campus of Hitit University, Turkey [20]. Green ...

With dormitories operating 24/7, universities face mounting pressure to control energy costs while meeting student demands for eco-conscious campuses. Photovoltaic panels on school dormitory ...

However, photovoltaic (PV) panels still have not attained the desired efficiency and economic mature. PV tracking techniques can play a vital role in improving the performance of the ...

Solar power harnessing in a dormitory setting can significantly enhance energy efficiency while promoting sustainable living. 1. Solar panels can be installed on rooftops or balconies, 2. Solar ...

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