

Solar power generation behind high-rise buildings

These strategies can be applied and adapted to high-rise buildings by using direct solar gain, indirect solar gain, isolated solar gain, thermal storage mass and passive cooling systems. On ...

Having a far distance from the ground levels exposed to turbulent wind conditions, tall buildings have the potential of generating wind energy. However, there are many challenges to incorporating wind generation into ...

Nonetheless, it should be acknowledged that facades of high-rise buildings in densely populated urban areas are significantly shielded from one another, and facade ...

A major increase in the number of solar energy components mounted on buildings or integrated into the structure of a building will help the EU achieve its goal of carbon dioxide (CO₂) neutrality for the building stock by 2050.

As a result, buildings can convert sunlight into electricity and operate with reduced power consumption while generating a portion of the energy they require, thereby ...

Sun shading effects, Building shapes, High-rise buildings, Building-integrated photovoltaic, Podium, Shadow impact factor, Solar energy Accepted: 22 January 2019

Opportunity for Solar Power Generation. The new technology provides a huge opportunity for solar power generation around the world, and in addition, potentially makes the ...

The development of dvPVBEs holds great potential for high-rise buildings with substantially glazed facades in modern cities. In this paper, we propose a new type of dvPVBE ...

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The purpose of the paper is to evaluate the shadow impact factor of buildings on building-integrated photovoltaic (BIPV) system efficiency and ...

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photovoltaic (BIPV) system efficiency and to determine optimal building ...

Ultimately, the optimal layout of the PV modules aims to maximize the energy ...

These so-called PowerNESTs are placed on high-rise buildings and make use of the forces of nature and the entire roof surface. In this way the constructions contribute to decentralized ...

Wang et al. [12] proposed combining solar chimneys with high-rise buildings to mitigate overheating caused by air conditioners by increasing natural ventilation within the ...

Ultimately, the optimal layout of the PV modules aims to maximize the energy revenue and minimize the life cycle cost. A case study is presented for a high-rise building in ...

Analyzing case studies illustrate that applying solar passive strategies in high-rise buildings have a meaningful effect on reducing the total annual cooling and heating ...

The authors propose a system that naturally reacts to climatic conditions and analyse the power generation, natural light availability and heat transfer from the system to the building structure ...

BIPV technology can be applied to almost any built structure, such as high-rise buildings, stadiums, residential homes, bus stops, greenhouses, sidewalks, noise barriers, and ...

This approach allows for power generation while achieving effective land-use and architectural aesthetics. 2-4 The increasing popularity of windows or semi-transparent ...

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