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Sao Tome and Principe BIPV solar curtain wall

Overview

This paper presents the design, development and experimental testing of a Building Integrated Photovoltaic/Thermal (BIPV/T) curtain wall prototype. The main purpose of this study was to address the la.

Does Sao Tome & Principe have solar power?

According to data from the International Renewably Energy Agency (IRENA), Sao Tome and Principe did not have any grid-connected solar generation capacity installed at the end of 2021. The World Bank says Sao Tome and Principe has an electricity access rate of around 76%, with 92% of the total coming from imported diesel.

Can a BIPV/T curtain wall improve thermal efficiency?

A BIPV/T curtain wall prototype was studied experimentally in an indoor solar simulator facility. Thermal enhancement techniques, including multiple inlets, semi-transparent instead of opaque PV and a newly introduced flow deflector were evaluated. Test results showed a thermal efficiency of up to 33%.

Is a BIPV/T curtain wall a complete building envelope solution?

This study presented the design, development and testing of a novel BIPV/T curtain wall prototype. The developed system has the potential for prefabrication and modularization, and it is intended as a complete building envelope solution. The design of the prototype was based on structural, architectural and building envelope requirements.

Is a BIPV/T curtain wall suitable for building integration purposes?

The present study documents the design, development and testing of a BIPV/T curtain wall prototype, featuring several thermal enhancing techniques that have been deemed suitable for building integration purposes.

When will a 300 kW power plant be installed in Sao Tome?

Cleanwatts told pv magazine that it started developing 1.1 MW at Sao Tome airport and 300 kWp at Principe airport in August. It expects to complete the

arrays by the end of this year. Another 300 kWp will be installed next year at other communities in Sao Tome.

What is a BIPV/T prototype?

The prototype itself served as a platform to implement the curtain wall design principle and investigate inexpensive and easy to implement thermal enhancements, suitable for building integrated systems. The flow rates used (normalized by the area of the assembly) were selected based on existing full-scale BIPV/T applications [23, 33].

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