

Why is solar shading important in Khartoum?

Solar shading of windows is an important design strategy in both contemporary and future designs. Active cooling is an essential design strategy to achieve optimal thermal comfort levels in all seasons in the future 2070 climate of Khartoum, while it is essential only for the hot and wet seasons in 2015.

Are future design strategies for Khartoum sustainable and climate responsive?

With the climate data projections for 2070, future design strategies for Khartoum can be proposed to achieve sustainable and climate responsive building designs. The design strategies adapted in this research work for both the contemporary and future climate of Khartoum.

How to cool buildings in Khartoum?

Several suitable passive and active cooling strategies can be applied to buildings in Khartoum. Based on Climate Consultant 6.0 analysis, two-stage evaporative cooling seems the most suitable cooling strategy for Khartoum in both dry and wet seasons of the year.

Which filtration system is best for Khartoum buildings?

Trombe walls, active living walls, and bio-filtration systems are good for their numerous advantages and adaptable for Khartoum buildings. Wind towers and underground tunnel systems have high initial cost and their construction requires additional land therefore they are not an economical choice for Khartoum.

Why do Khartoum buildings need thermal insulation?

Khartoum buildings receive intense solar radiation between April and September and the greater part of the radiation falls on horizontal surfaces. For this reason it is very important to use thermal insulation on roofs to reduce cooling load.

Does Khartoum receive solar radiation?

Because of Khartoum's location at 16° north, it receives solar radiation from the north between May and July; a little effort is encouraged to shade northern windows with roof overhangs. East and west side windows can be shaded with vertical, moveable fins.

The bulkier design of solar panels means they project out from the roof, and they're usually coloured black or blue. Solar tiles, on the other hand, replicate the appearance and colour of standard roofing tiles. Durability. Solar ...

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Each tile has been engineered with a roof interlock design. This allows Volt to interconnect and lock into place with other volt solar tiles and standard roofing tiles, concealing itself within the roof profile, instead of being mounted on top like a standard panel.

The objective of this work is to design and construct a lithium bromide-water ($\text{LiBr-H}_2\text{O}$) absorption cooling system with a nominal capacity of approximately 1 TOR driven by solar energy which ...

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While two-stage evaporative cooling is the most strategic for all of Khartoum's seasons, more resilient passive-design strategies should be adapted for use with Khartoum's ...

THE POTENTIAL FOR ROOFTOP SOLAR PHOTOVOLTAICS ... 2.0 Khartoum and Solar PV 2.1 City Background The climate of Khartoum is classified as hot desert (Koppen-Geiger classification). Its daily solar irradiation (GHI) is approximately 6 KWh/m² (SolarGIS, 2019), with daily hours of sunshine typically exceeding 9

This paper searches to find out building of integrated photovoltaic (PV) system designs in Khartoum. It discussed technical issues and the design of an integrated PV in domestic use, ...

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Solar laminates must be compatible with porous and rough-surfaced roof tiles (Guas et al., 2011). It is shown that the type of substrate tile, including its surface properties and material composition, can significantly impact the deposition process and the optoelectronic performance of the solar cells (Guas et al., 2011). Therefore ...

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Furthermore, they predict that upwards of 80% of the bulk material in solar panels will be recyclable; recycling of solar panels is already economically viable. However, certain steps in the production chain of solar PV systems involve the use of toxic materials, e.g. the production of poly-silicon, and therefore require

Khartoum residential areas are a favourable target for solar PV integration as the houses have relatively high plot areas of > 150 m² (Mohammed & Takaguchi, 2018), which ...

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In contrast, optical efficiency of 91% was predicted for dielectric-filled BIPV covers (Zacharopoulos, 2001) and 85% for an air-filled Design of BIPV house in Khartoum of 3.8 kW/day depends mainly on installing polyvinyl chloride (PVC) panels in ceilings (Bungalow) and connection of batteries with internal network of solar house, in ...

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There is significant potential for the use of the photovoltaic solar energy in countries like Sudan which receive abundant amounts of solar ...

In the future climate of Khartoum with appropriate weather control to reduce climate change and maximization of passive-design strategies such as evaporative cooling, natural ventilation, wind towers, solar chimneys and sustainable active cooling (desiccant and heat pumps), a reduction could be made in use of conventional air-conditioning ...

The Al-Bageer Project will require the design, engineering, procurement, construction, testing, commissioning, operation, and maintenance of a fixed tilted ground-mounted photovoltaic power plant of approximately 10 MWp installed ...

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When Solex solar roof tiles are installed, each tile uses 3 aluminium support bars screwed directly into the battens, to hold the tile on the roof. Then, as the roof is installed, our double-lapped patten ensures adequate



Khartoum Solar Tile Design

weatherproofing for even the worst weather.

Our high quality solar roof tiles combine aesthetics with efficiency, providing a sustainable and stylish solution for your energy needs. SOLTEQ United Kingdom. Home ... Sleek Design. Our solar roof tiles combine photovoltaics and solarthermal technology with elegant aesthetics, enhancing the look of your home while saving you money on energy ...

The world is shifting towards sustainable energy. Among the many innovations in renewable power, solar roof tiles have emerged as a game-changer in home design. These tiles offer the functionality of traditional solar panels while blending seamlessly into modern architecture. Homeowners no longer have to choose between aesthetics and sustainability. ...

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