

To determine the success of a solar thermal air conditioning system, climate data was collected for Cairo, Egypt, between May and September 2023. Many factors affecting the performance ...

It can be seen that the regenerative air temperature is around 52 °C with a slight decrease toward the evening, while the humidity ratio is around 20:25 g/kg. A lower precooled ...

The analysis is based on the following conditions; (i) the cycle time of 0 s to 900 s, (ii) hot water inlet temperature of 55 C to 95 C, (iii) cooling water inlet temperature of 25 C to ...

A novel solar photovoltaic thermoelectric air conditioner (SPVTEAC) for local air conditioning of a 1.0 m³ compartment was experimentally examined under several interior cooling loads. In this system, PV modules generate electric power, which is directly utilized to power the SPVTEAC and lead acid batteries for the self-service night operation ...

system. In the present work, a solar cooling system for air conditioning applications is simulated and optimized under Egyptian meteorological conditions. According to the ...

to limit the radon concentration in the air, comfort ventilation: for cooling the human body, where the air flow passing by the skin increases the evaporation rate from the skin. When the air temperature is higher than the skin, the body is warmed by the heat convection. However, the air velocity increases the evaporation of moisture and by

choices. To attain that, two (mixed-mood) [heating, ventilation and air conditioning (HVAC)] case study buildings were dynamically simulated in three dominant Egyptian climatic zones, using current climate conditions (2002) in addition to three other morphed climate change scenarios (2020, 2050 and 2080). Achieving the required rates for

Climate. Case study: Cairo, Egypt ... to close the window and implement mechanical cooling devices such as air conditioning. ... The mean annual average of solar radiation on a horizontal surface ...

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In particular, these values can be used when determining air-conditioning loads during periods of maximum solar radiation. The values listed in the tables include . Dry-bulb temperature corresponding to 0.4, 2.0, 5.0, and 10.0% cumulative frequency of occurrence for indicated month, °C; mean coincident wet-bulb temperature, °C.

Integrating a phase change material (PCM) into building envelopes can reduce energy needs in the built environment, and the consequent greenhouse emissions. This research examines the impact of PCM integrated into a traditional wall in Egypt on peak and average cooling energy consumption. A MATLAB code based on the finite volume technique using the ...

The results show that outlet air temperature from the wind tower is $27.3 \pm 1.76^{\circ}\text{C}$. The calculated predicted mean vote (PMV) is within the recommended range ($-0.5 < \text{PMV} < +0.5$). ...

The objective of this research is to simulate a solar double-effect absorption air conditioning system in Cairo, so a detailed study on applying this system for the Cairo University...

radiation was converted into cooling capacity by the solar air conditioning system. The solar driving variable effect LiBr-water absorption cooling system was theoretically investigated [10]. The daily performance of this system was calculated and analyzed. Variable effect chiller had high COP under high driving temperature,

Variable effect chiller had high COP under high driving temperature, ensured a competitive overall efficiency. Their results showed that average chiller COP of 0.88 and solar ...

UNEP's recent study shows that 50% of all electricity is already being consumed for air conditioning during the peak summer months in Cairo. Climate projections show that Egypt will continue to experience a higher level of warming than the world average.¹ Compared with the pre-industrial period, temperatures in 2081-2100 could be around 2.5 ...

Building sector is the major consumer of final energy use worldwide by up to 40%. Statistics of responsible organisations and parties evident that most of this percentage is consumed for cooling and air-conditioning purposes (IEA, 2013, IEA and UN Environment Programme, 2019) is commonly known that most of the electric energy is spent on heating, ...

Deye's innovative solar air conditioner series represents a breakthrough in sustainable cooling technology, combining eco-friendly operation with powerful performance. Our solar air conditioners are designed to significantly reduce electricity costs while providing reliable cooling even in the most challenging environments. ... Wide Operating ...

Results indicate that a collector area of 90 m² offers the optimal balance between performance and cost. There are minimal benefits to increasing the collector area beyond 100 ...

Since Qatar won the bidding to stage the 2022 FIFA World Cup, engineers in the country have been researching the application of air conditioning in sports stadiums, using solar energy to supply some of the electricity for the cooling ...

these components can be removed by air. Li and Sumathy (2000) reviewed solar powered air-conditioning systems using water-lithium bromide pair. It is seen that the generator inlet temperature of the chiller is the most important parameter in the design and fabrication of a solar powered air-conditioning system.

10th International Symposium on Heating, Ventilation and Air Conditioning, ISHVAC2017, 19- 22 October 2017, Jinan, China Occupant Comfort and Indoor Temperature Reduction by Using Passive Air Conditioning System with Solar Chimney Concept in Hot Arid Climate Amr Sayed Hassan ABDALLAH* Department of Architecture, Faculty of Engineering, ...

(a) Outdoor hybrid solar air-conditioner (Ningbo Yoton Industrial & Trade Co., 2021), (b) Schematic drawing of the system loops. +15 Cooling systems powered by solar thermal energy (Rafique, 2020).

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