Analysis of energy saving in solar greenhouse

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The implementation of the energy-saving solar greenhouses for overwintering production emerges as a vital solution to the annual vegetable supply challenges in high latitudes and cold regions worldwide. This non-heated greenhouse serve not only as a robust strategy to address the scarcity of agricultural resources such as water, arable land ...

Chinese energy-saving solar greenhouse originated from the southern of Liaoning Province, which had fully independent intellectual property right, and played an important role in protected ...

This significantly influences the solar radiation received by the south roof and that projected on the wall, ultimately affecting the light performance of the greenhouse. Therefore, a solar ...

4 ???· The findings reveal that a residential building without a solar greenhouse consumes 3261.5 kWh annually for heating and 1535.5 kWh for cooling. Incorporating a basic solar ...

DOI: 10.17660/ACTAHORTIC.2005.691.59 Corpus ID: 110298646; The solar greenhouse: state of the art in energy saving and sustainable energy supply. @inproceedings{Bot2005TheSG, title={The solar greenhouse: state of the art in energy saving and sustainable energy supply.}, author={Gerard P.A. Bot and N. J. van de Braak and Hugo Challa and Silke Hemming and Th. ...

A multifactor and multiobjective unbiased evaluation method based on the orthogonal test and entropy methods is proposed to study energy-saving transformation of solar greenhouses. The conclusions obtained in this paper can provide a scientific and objective theoretical basis for solar greenhouse energy-saving renovations.

In this analysis, the reference case is the greenhouse including internal masses and cultivations and the simulations are devoted to determine the potential of energy saving using the passive technologies. The comparison is based on the daily greenhouse internal air temperature T a, i n and in terms of daily energy

needs of the greenhouse ...

transformation of solar greenhouses. The results show that the thickness of the gas layer, type of front roof. tively, of the total energy consumption. Based on energy savings, carbon...

In the present study, a structural model was developed for energy-saving Chinese solar greenhouses (ECSG), which combines a greenhouse energy balance model with a detailed shape analysis. All ...

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Energy consumption, wall heat storage performance, and room temperature of these schemes are analyzed by using EnergyPlus. Energy consumption, heat storage capacity, room temperature regulation, payback period, and carbon emissions were used to ...

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The present work aims the analysis of a pilot greenhouse combining solar-powered RO desalination, fan-pad cooling and hydroponic systems for optimal water/energy ...

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