Utilization of Sustainable Energy in a Novel Architecture

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Abstract

This research deals with a novel sustainable architecture through future prospects for the development of this concept. ANSYS software simulation has been used for a real mosque design located in the north of Iraq as a case study. Hence the selection of mosque buildings in Sulaimaniyah city in Iraq as an applied model for the use of clean energy technologies by selecting the internal space of the building and conducting tests using solar energy and studying its impact on providing the energy needed by the building and reducing the waste in electrical energy consumption that depends on fossil resources. This study assumes that the foundations of a novel constructed mosque can be covered with a grid of pipes distributed equally throughout the design. These pipes can be filled with hot water in winter instead of using heaters which cost a lot and consume a large amount of electricity. In addition, it shows the feasibility of using green energy as a heating unit, especially when it can cover the capital cost of installation in just one year because of the high electricity bills in Iraq and the ability to maintain solar energy.

Full Text

Due to technical limitations, full-text HTML conversion of this manuscript could not be completed. However, the latest manuscript can be downloaded and [accessed as a PDF](#).

Figures

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Figure 2

Explains Elevation of the mosque.

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Figure 3

Explain the electrical power plans and it distribution.

Figure 4

Explain the electrical power plans and it distribution.

Figure 5

The Geometry model in the design modular.

Figure 6

The Meshing of the whole model.

Figure (7- B) Streamlines inside Tubes Length

Figure 7

(7-A) Velocity inside Tubes. 7- B) Streamlines inside Tubes Length

Figure 8

(8-A) Temperature Vs Tube Length.(8-B) Temperature on mid-Plane.

Figure 9

(9-A) shows pressure vs Tube length. (9-B) Pressure contour inside tubes.