

**FROM TRADITION TO MODERNIZATION THROUGH INNOVATIONS:  
THE EFFECT OF ARCHITECTURAL SHADING BY RESIDENTIAL HOUSES IN BODRUM, TURKEY**

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Early evidences like by Socrates and Vitruvius show that,«solar principles and other local climatic qualities to achieve comfortable living spaces were not used only in this millennium. Nevertheless, the energy consumption of a building is strongly related to the climate surrounding it and the needs of the occupants. Climatic, structural and physical conditions of the buildings, installed system, and the requirements of the inhabitants have been changing within time. This leads to more energy consumption, whereas the fossil sources are rapidly running out. Therefore, measures in order to enhanced energy efficiency are strongly necessary.

The aim of this work is to show architectural shading concepts for reducing the energy demand of the residential houses. In this regard, housing settlements in Bodrum are evaluated. It is a characteristic city in the Aegean Region of Turkey, where the vernacular urban and architectural patterns provide useful hints for designing energy efficient environments.

First, traditional houses and new settlements in Bodrum have been analyzed energetically. Then a prototype house has been developed according to the simulation results of the reference objects. Local, window, and roof shading elements have been analyzed by

existing houses and the prototype in order to measure the energy reduction effect.

Accordingly, the roof and windows should be protected from intense solar radiation during the summer period. Roof shading elements in combination with window shading can reduce the cooling load by up to 50 per cent. However, they should be removable or specifically designed to allow the winter sun to penetrate the building.

*Keywords:*

*Shading, energy simulation, Mediterranean climate*