

ENERGY SAVING APPLICATIONS ON THE OLD BRICKS AND TILES FACTORY “TSALAPATAS”

The buildings comprising Tsalapatas factory complex were renovated using bioclimatic techniques, incorporating natural lighting, temperature control and photovoltaic panels on the roofs.

A range of low energy technologies is applied in the project. Firstly the entire retrofitting process is designed to optimise the use of solar energy. The relative position and dimensions of windows and roof are designed to maximise the penetration and diffusion of natural light during winter and to provide shade during the summer. The orientation of the roof is adjusted to optimise direct incident solar radiation in order to host photovoltaic panels. The glazing applied is designed to enhance solar gains and lightning, for example by installing glazed walls with glass bricks. Thermal insulation capacity is also enhanced by installing energy efficient glazing and by thoroughly insulating roofs, floors and to some extent, the walls. The old chimneys are rehabilitated into solar chimneys in order to enhance natural ventilation, and solar water heating collectors installed on them. Lastly installing electronic light modulators reduces the electricity demand.

The periodic energy checks have shown a major effect at the effort of energy conservation. These applications resulted to partial energy savings of up to 70% compared to the initial state of the buildings.

Specifically, through the energy project THERMIE the following applications were realized:

1. In the kiln → exposition hall and restaurant.
 - Insulation of the roof and of the floor
 - Construction of roof windows to enhance direct solar thermal gains and lighting
2. In the old brick drying rooms → cinema, library and video wall room
 - Rehabilitation of the old chimneys to solar chimneys to enhance natural ventilation
 - Installation of solar water heating collectors on the old chimneys.
 - Installation of double glazed sidewall windows to enhance direct solar gains.

- Insulation of the floor and of the roof.
3. In the new brick drying rooms → handcraft shops
- Installation of glazed wall, with glass bricks, to enhance direct solar gains and natural lighting.
 - Insulation of the whole shell of the building and of the floor.
 - Installation of electronic light modulators.
 - Adaptation of a solar atrium connecting the old and the new brick drying rooms.

CHIMNEY PRIOR RENOVATION



SOLAR CHIMNEY TODAY



The total cost of the energy saving interventions was about 750 thousand Euros and was funded by the THERMIE programme (32%) and by the Municipality of Volos (68%).