Green roof on a school building (26th High School)

Thessaloniki, Greece

IN A NUTSHELL

The Municipality of Thessaloniki is committed to designing and implementing pilot projects of urban regeneration based on the local bioclimatic characteristics, in order to adapt to climate change impacts.

Background

The lack of green spaces is a common and well-established belief for the city of Thessaloniki, combined with densification and compact city development. The high-rise buildings, the increased traffic and the excessive use of air conditioners for heating and cooling, add to the drastic degradation of the urban environment thus creating a variety of environmental and social impacts.

Picture 1: Aerial view

The school building where the green roof is being constructed is a T shaped building surrounded by high density housing blocks of flats (Pictures 1 & 2). The building is located in a neighborhood with the lowest percentage of green areas per inhabitant. The greenery that dominates the area are the trees on the existing sidewalks and some green islands on vacant lots between the buildings. Furthermore, the

Picture 2: Surrounding buildings

operation of the school with more than 580 students is energy consuming in order to achieve thermal comfort conditions.

Interventions of the project

Bearing in mind the structural capacity of the building and the need for reducing energy consumption, the project entails the construction of an extensive green roof covering an area of 1510 sq.m. on the existing roof of the building with a 10 cm thickness of planting medium. Extensive roof system is more appropriate for application on an existing building due to less burden on the roof structure with large loads. Approximately 95% of the roof is covered with vegetation including succulents such as: *Sedum acre*, grasses (*Festuca Gantieri*) and aromatic plants such as *Thymus praecox, Salvia officinalis* and *Hellichrysum italicum* (Pictures 3,4) with low growth height, rapid spreading and fibrous roots that have high drought tolerance.

Pictures 3 & 4: Views of the green roof

Benefits

The installation of a green roof has many benefits at economic, ecological and societal levels. A green roof provides a rainwater buffer, purifies the air, reduces the ambient temperature, regulates the indoor temperature, saves energy, extends roof life and encourages biodiversity in the city. Green roofs are part of climate-proof construction. Furthermore, the green roof will be visible by the inhabitants of the higher neighboring buildings, providing a more pleasing view.

Financing the project

The project's budget amounts to 408.000 Euro and is financed by the National Strategic Reference Framework 2014-2020 in the context of the Regional Operational Programme of Kentriki Makedonia.