

## heliiodomi photovoltaic production facility

Located on the edge of an industrial park in northern Greece, this solar module production facility challenges the ecological shortcomings of the typical factories that surround it. Both the building and the main parking lot are covered by a planted roof that emerges directly from the ground.

Translucent photovoltaic (PV) skylights cut into this terrain to provide power and daylight for the production areas. Heat gain from the skylight is more than offset by the high insulation value of the earth roof. The structural system and the building layout are clearly and simply planned to minimize material usage. By covering the parking area with a planted roof, the environmental consequences of its paving – stormwater runoff and thermal pollution – are eliminated.

**The Client:**

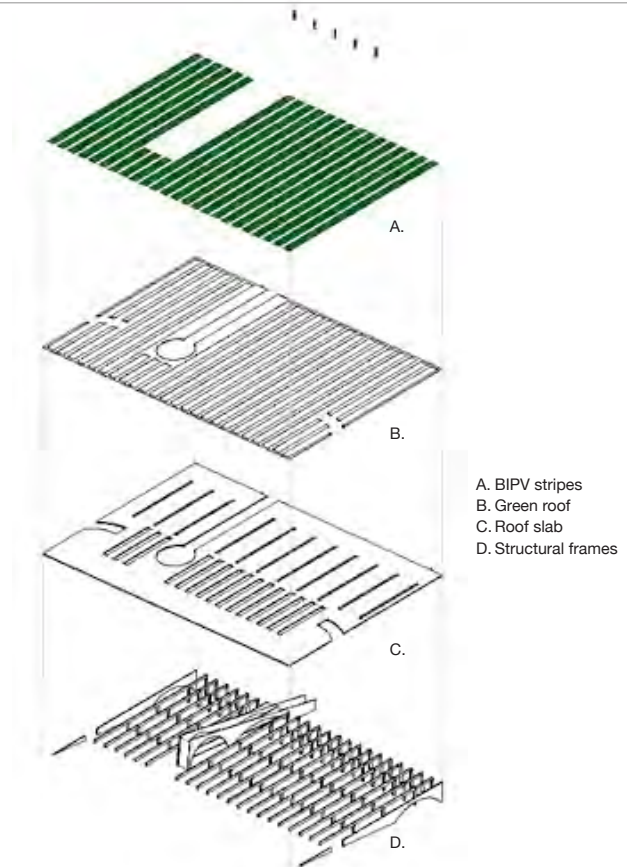
Heliiodomi, S.A.

**The Team:**

Kiss+Cathcart, Design Architects  
Parnos Panetzos, Architect of Record

**Project Details:**

\$24,000,000  
120,000 sf  
Construction underway 2008





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## Site

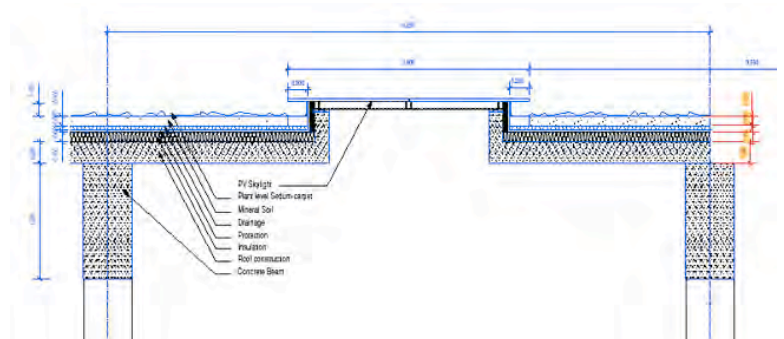
The site is at the northern end of an industrial park in Kilkis, Greece, about 50km north of Thessaloniki, and 20km south of the Macedonian border. The countryside is predominately agricultural, with greener vegetation than is typical of the southern parts of the country.

## Landscape

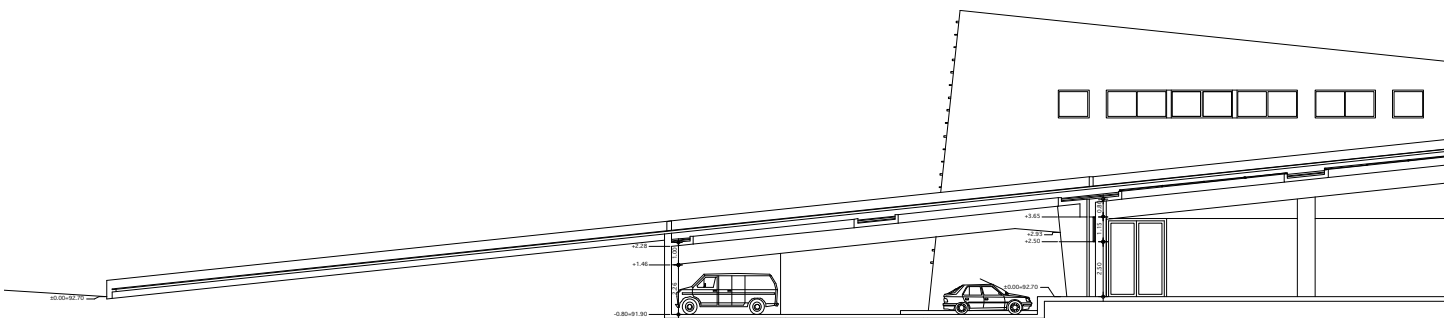
The design seeks to mediate between the industrial and rural landscapes, blending with the poppy fields in the foreground, and the mountains in the distance. A sloping concrete roof rises from the ground, forming a shallow south facing hill, which will be covered by a combination of photovoltaic panels and a green roof landscape.

At the north end of the building where the roof is highest, there are two stories of shops, offices, and lab spaces, most of which simultaneously overlook the production area to the south, and the fields and mountains to the north. To the south of the offices are the high clearance spaces of the production lines and storage areas, and to the south of those, where the roof is lowest, is sheltered parking.

By putting the parking lot below the green roof we are seeking to minimize the impervious footprint of the site, reducing stormwater runoff and pollution and the urban heat island effect. In terms of environmental impact, we have removed the parking lot from the site.



Section through typical bay at green roof/BIPV skylight.



## Energy

Zero energy: the client, a manufacturer of photovoltaic panels, wished to maximize on site renewable energy production while integrally minimizing consumption through passive means. BIPV (Building Integrated PV) modules will be semitransparent skylights over entire parking area and 20% of enclosed space, to provide daylighting.

Excepting the energy requirements of the production equipment, the building generates all the energy it uses from the 400kW PV roof array. In some places, the PVs are BIPV skylights; in others, they are supported over the concrete roof.

The green roof and PV layer provide extra insulation for building, and the sloping roof form encourages natural ventilation within.

## Water

The very large green roof area, and the effective elimination of the parking area, reduce the water impact of the project to the point that there will be no stormwater discharge in all but the most severe storms.

