



DESERTIC GREENHOUSES WITH HYDROPONIC SYSTEMS FOR THE PRODUCTION OF FRUIT AND VEGETABLES



An integrated project for the development of agricultural centers, to be carried out in areas with extreme heat and drought for long periods or subject to heavy rain and flooding.

The following innovative project can involve some constructions consisting of a special greenhouses with a botanical laboratory and production of flowers, fruit and vegetables, another one also intended for a community center for young people where training in Agronomy takes place in collaboration with some Italian Universities.

The innovative project we are presenting allows, through new cultivation methods in an area produced by innovative technologies such as air humidity or contaminated water protected from adverse weather conditions, to obtain natural "super-food" with advanced technologies, such as the production of irrigation water and drinking water produced by innovative technologies such as air humidity or contaminated water, and the need for energy electricity from renewable energy.

All technologies are produced in Italy and certified in Europe.





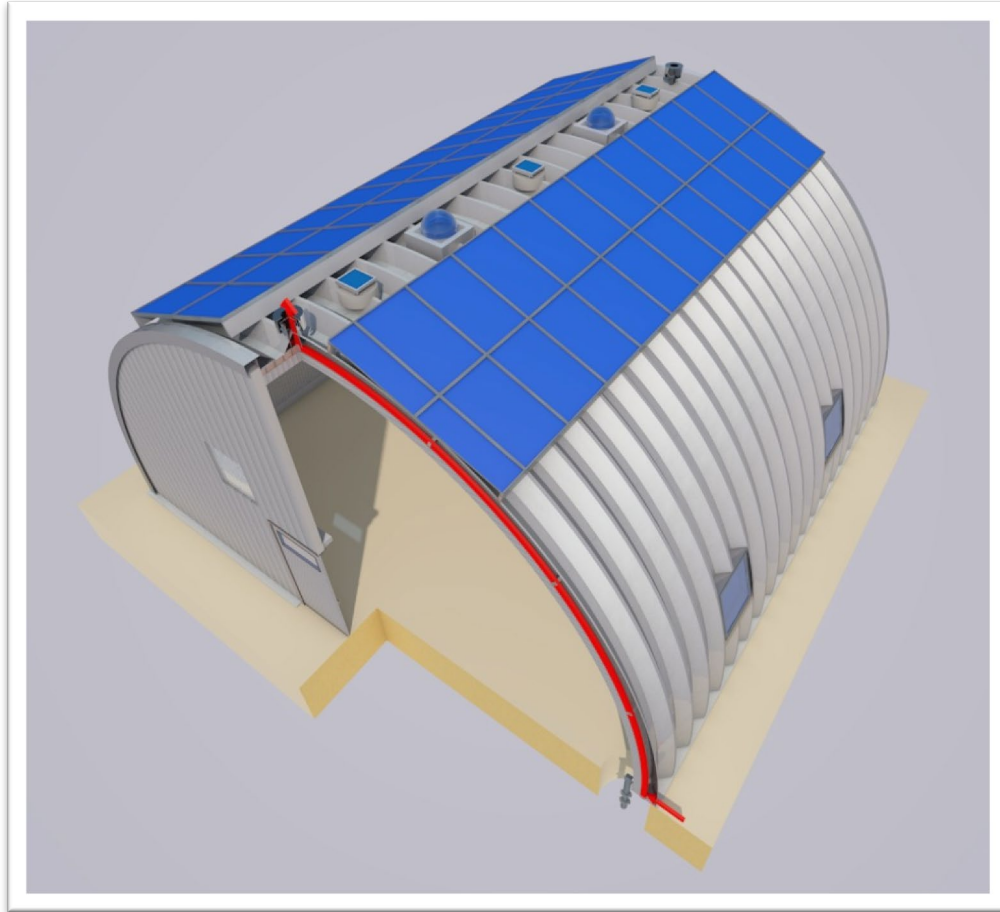
***GREENHOUSE COMPLETELY INSULATED
FOR VERTICAL CULTIVATION IN A
CLOSED ENVIRONMENT AND
DECONTAMINATED FROM PATHOGENIC
BACTERIA.***

Description of components for the desert greenhouse (made in Italy)



Here we show you the base module This building has a covered area of 800 (20mt x 40mt with 5-storey vertical hydroponics for a total of approximately 2800 m2 cultivable) square meters, the internal environments have suitable technologies to maintain the temperature of 25 ° C all year round, where the natives can carry out agricultural activities in a place protected from atmospheric conditions, or production of vegetables, fruit, flowers, and also for super-food.

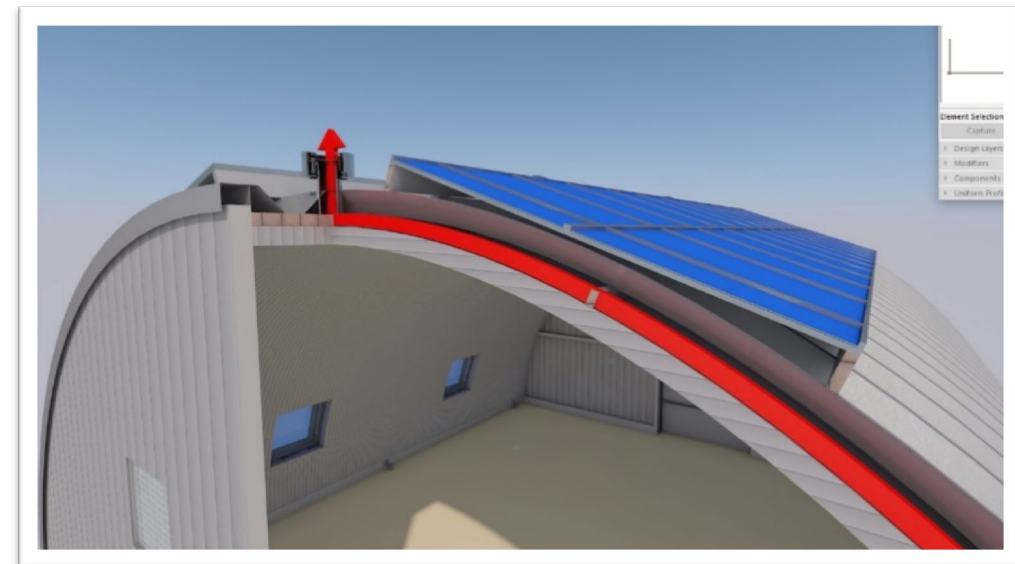
In case of absence of a power line a Photovoltaic systems installed on the roofs with materials suitable for high temperatures with ecological batteries allows supplies the energy necessary for all activities and to have drinking water. All this, of course, the project is able to guarantee complete energy independence at equatorial latitudes. With the fundamental remote assistance of an Italian Institute and the University of Agronomy, to study the best solutions for special plants and algae with the latest technologies. This innovative project is modular, the best solution will be studied for each place. Also included are solar energy systems that produce hot air, suitable for drying vegetables, fruit, flowers, mushrooms. It is known that the millennial use of the sun to dry meat, fish and agricultural products destroys many organoleptic properties, much better drying in a dimly lit environment with the relative opportunities to store and market products, as well as the production of precious essential oils. .



Supporting roof structure in self-supporting arches of certified hot-dip galvanized steel assembled with the use of bolts between the arches, the arches connect to reinforced concrete foundations. or by helicoidal screws in the ground or sand.

Description of the insulating elements

Insulating structure consisting of curved panels on the roof and straight panels on the facade. The request of temperatures of the project needs 23 cm thick panels. obviously these panels may have smaller thicknesses.





Example of vertical farm greenhouses where agricultural production takes place completely indoors like clean rooms.







Hydroponic cultivation with special led lamps (made italy)

In the vertical farm we use high quality Italian production LED lamps specific to this type of cultivation. The hydroponic system always produced in Italy develops in height with 5-6 floors depending on the needs and crops.



*Plants like it purple
Give the right light to your plants*



AE100 The Italian-made LED lamp for professional use

AE100 is designed to be highly energy efficient as the light is emitted inside the visible light spectrum in the photosynthetic active region. The lamp enhances the growth of plants and is a perfect replacement to conventional HPS lamps used today in the horticultural industry. AE100 has been fully designed and developed by Ambra Elettronica and is entirely manufactured in Italy, with the highest-quality materials. AE100 is built in compliance with the strictest regulations and standards, ensuring a safe and practical use. AE100 is designed to withstand the harsh environment of modern production greenhouses and to sustain a long-term heavy-duty working cycle. AE100 is specially developed to be resistant to moisture, temperature fluctuations and dust.

Technical data

Supply Voltage	90 + 305 Vac 50/60 Hz	Universal range Voltage Supply
Power consumption	125 W	
Power Factor	PF>0.96/230VAC	The lamp ensures no loss of energy
Photon flux PAR output	240 + 280 μmoli/s	Very good flow of photons per second
PAR efficiency	1,9 + 2,4 μmoli / J	Number of photons per second per Watt consumed
Working temperature	0 + 45°C	
Dimensions	1500 x 68 x 36 mm	
Protection grade	IP65	High protection against ingress, water and dust
Weight	5 Kg	
Protections	short circuit, over current, over voltage,	
Emitted light	Blue 450 nm, red 630 nm, red 660 nm, Far red 735 nm	

Applications: greenhouses, Vertical Farming, growth chambers, supplemental lighting, research projects, botanic gardens, ...



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Hydroponic cultivation with special led lamps (made italy)

To increase the daily production capacity we use high quality Italian production LED lamps specific for each type of cultivation, made to last and give maximum yield.

In this case they are installed on a single level for cultivation



For each greenhouse, a sanitization tunnel is planned and installed to eliminate any pathogenic bacteria harmful to agricultural crops and for the production of drinking water.





ENERGY SAVING WITH THE NEW SUN-REFLECTING PAINT (made in Italy)



On the outside surface, we apply a solar reflective coating with nano glass particles to keep the structure cooler on the inside.

- The reflection of sun light and ultraviolet radiation is increased by 80%.*
- High impermeability to agents (water, contamination, bacteria, molds, salt, algae, dirt).*
- High breathability.*
- Decrease in internal temperature of 5-8 °C ; 41-46,4°F*

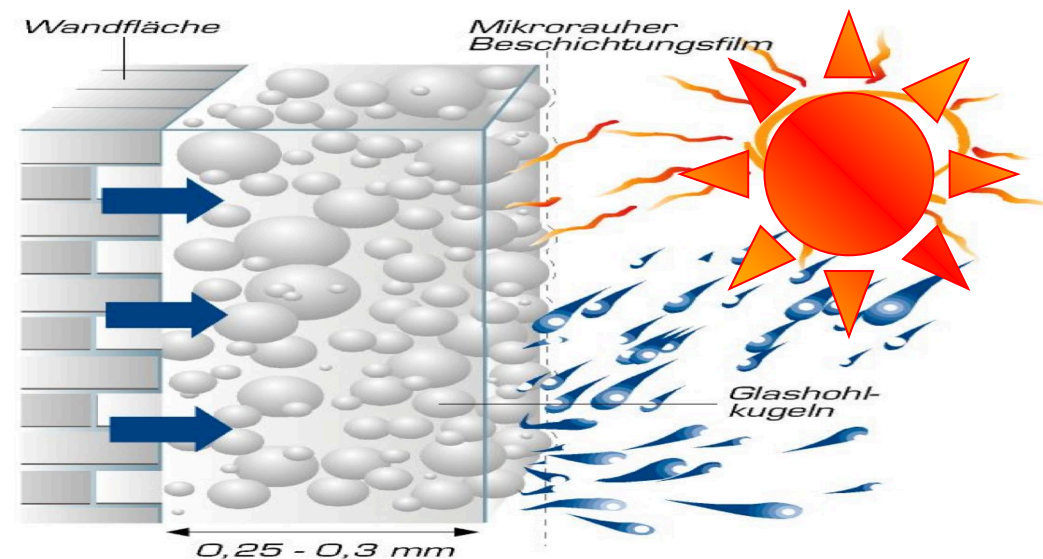
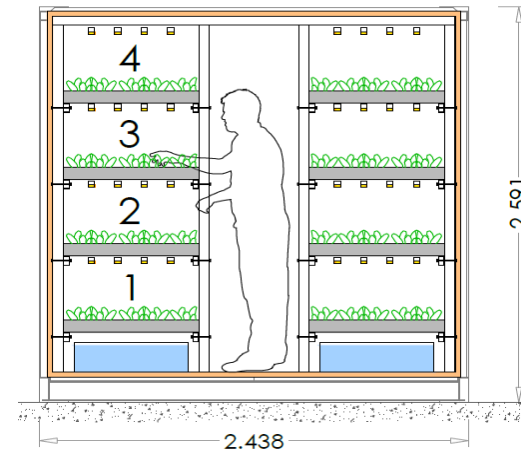


Photo of the coating applied on structures (made in Italy)



Machines for the daily production of drinking water from the humidity of the air. for the **Hydroponic Growing System**



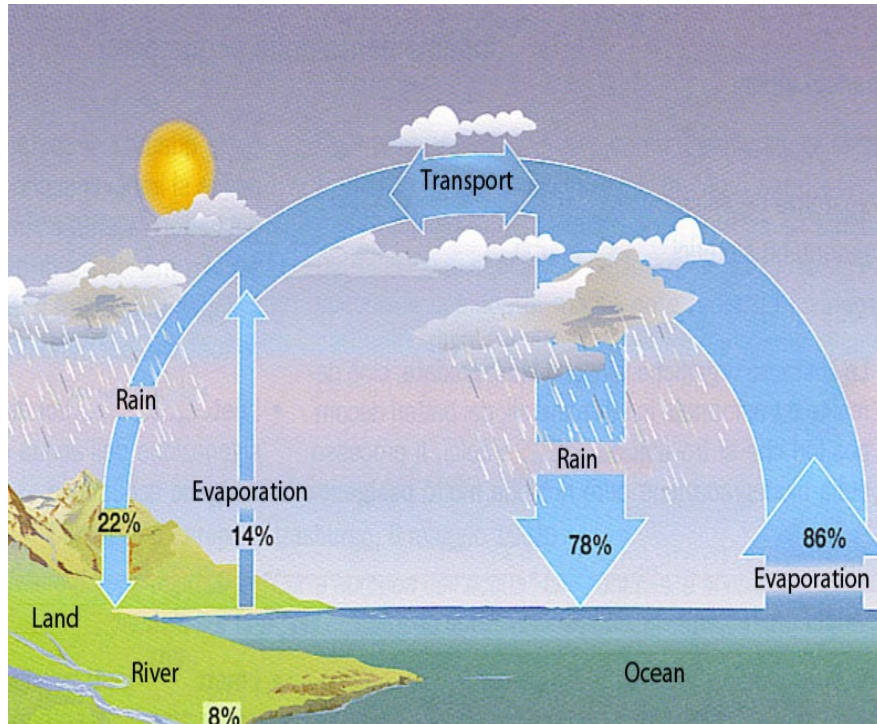
Feasibility study for the production of drinking water in Abu Dhabi

Two machines are installed in each greenhouse for the production of fruit and vegetables, which are capable of producing an average of 350/400 liters per day per greenhouse sufficient for this type of project. In total, 2 machines are used for agricultural production. Furthermore, we reuse the fresh air from the heat exchange to produce water and return it to the greenhouse to cool the environment. We have many cubic meters of fresh and dry air with 10°C lower than the outside temperature. This allows us to cool the greenhouses and maintain a constant temperature all year round.



SOLGREEN can propose to solve the problem of lack of water with its own technologies called "AIR TO WATER", that is to produce water from the air, for drinking and for agriculture where it is necessary and in a short time.

Water Treatment Configuration



- The vapor is an inexhaustible source, with a fast and immediate recycling.
- The **22% of vapor** falls on the earth, giving excess water in some areas and leaving scarcity in several populated areas

□ BASIC

- ✓ Purified water suitable for irrigation, washing, industrial purposes, **zootechnical** technical use, etc.



□ DRINKING

- ✓ Perfectly Pure and Tasty drinking water for Superior Quality human consumption. The custom mineralization could provide special taste and water features.





PHOTOVOLTAIC SYSTEMS FOR POWERING GREENHOUSES. (Optional)



The energy produced is guaranteed by a latest generation high-performance photovoltaic system to power all the needs necessary for the proper functioning of the structure in a green and ecological way.





System also with accumulation for integrated solutions

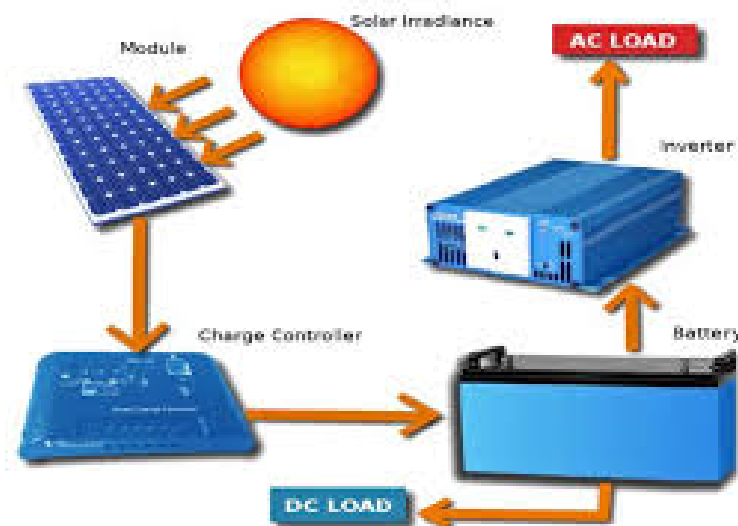
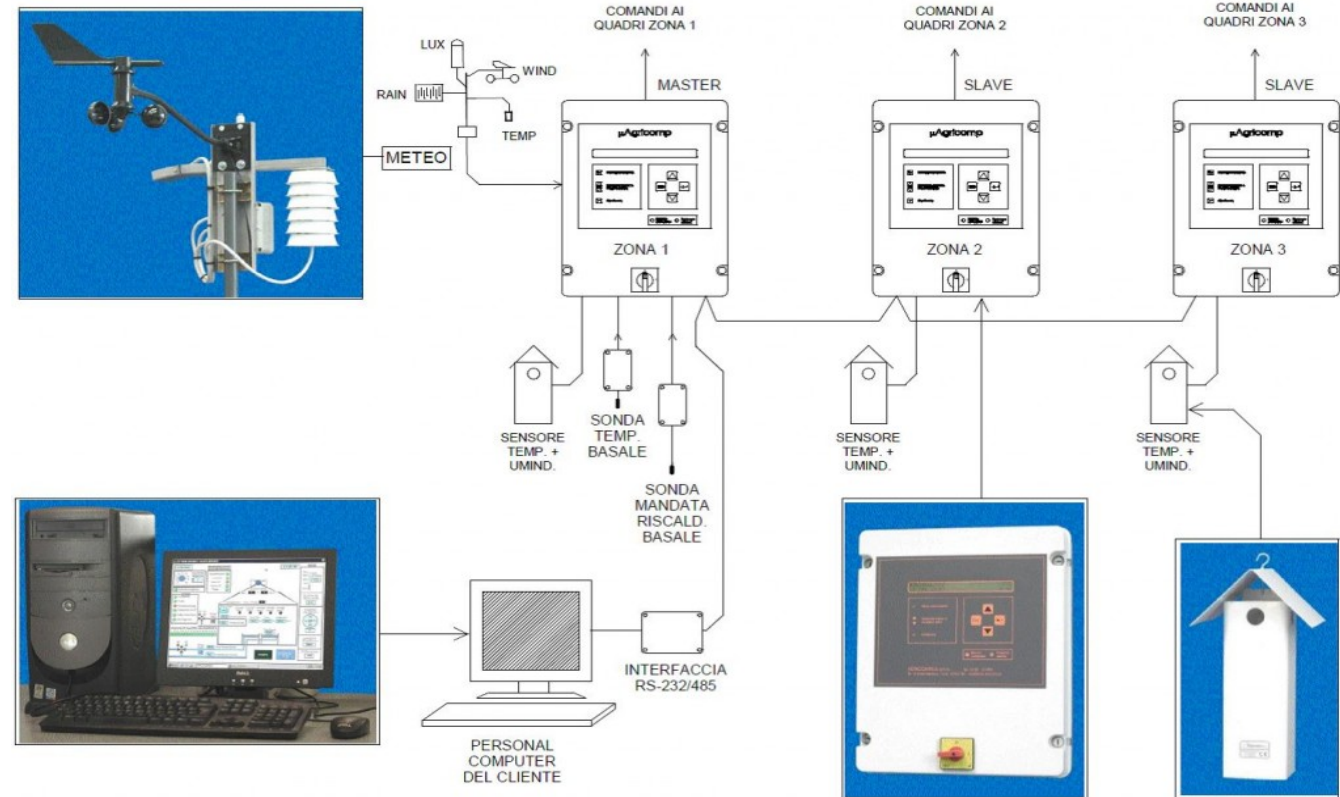


Fig. 1. Layout of an off-grid PV system.



Automated control systems for temperature, humidity and led lamps.





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