

DUOL

GreenDome 

Organic Greenhouse System

www.duolagro.eu

GreenDome[🌿]

Boost organic farming

Duol developed innovative GreenDome - **Wind & Sun optimized greenhouse** which provide **Optimal Growing Conditions**, while **Protecting from Insects** and **Reducing Water Usage**, ensuring conditions for production of **Organic, Healthy food**.



GreenDome, view from inside.



The interest in organic food products has been rising steadily over the recent years. The public is becoming increasingly aware of the potential threats of conventional food as well as the damaging effects of the conventional agriculture on the environment. Concerns about residues of pesticides and other chemicals in food are only a few of many reasons why the consumers are becoming increasingly interested in organic food.

GreenDome[🌿]

Innovative greenhouse system

GreenDome concept is **unique**; it is the world's first wind-assisted, air supported and ventilated greenhouse. Large intake towers capture existing wind, adding it to variable-speed fans to inflate a lightweight, translucent membrane embedded into the ground.



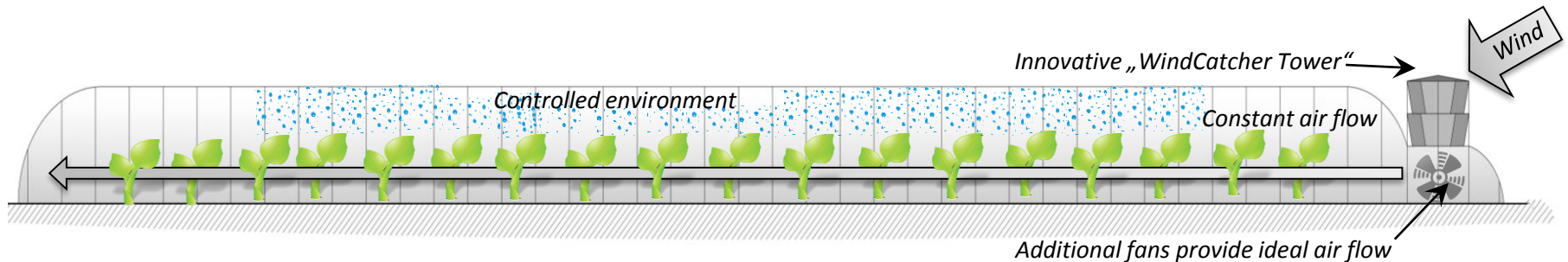
GreenDome, view from outside.

What is ground-breaking is the ability to **increase productivity** by precisely controlling the airflow to optimize growth conditions and plant mineralization. GreenDomes can be programmed to deliver the perfect ventilation scientifically calculated for optimal transpiration and crop mineralization for virtually any crop. GreenDomes provide an optimal growing environment that enable growers to harvest **highly tasty, organic** fruits and vegetables without costly insecticides, pesticides, fungicides and herbicides.

Organic farming with increased production

Air flow is essential for healthy plant growth. GreenDome **optimizes the air flow** to produce healthy plants without the need of organic insecticides and fungicides.

Optimal air flow **maximizes photosynthesis**, while it **minimizes fungal disease pressure**. Air flow is necessary to bring **CO₂** to the leaves and carries away water vapours from the leaves which cools and **remineralizes the leaves**. The additional photosynthesis leads to even greater root development and feeds the plant with more vitamins and minerals. The benefits for the grower is **higher productivity, higher quality, less costs** and **less work**.



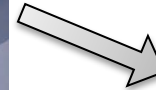
Replace chemical farming with Organic farming



Innovative
„WindCatcher Tower“



All air entering GreenDome passes insect net, which physically blocks insect from entering greenhouse.



GreenDome provides an optimal growing environment that enables growers to harvest fruits and vegetables with more vitamins and minerals, without expensive insecticides, pesticides, fungicides, and herbicides.



The effects of pesticides and artificial fertilizers have been scientifically proven seriously damaging to both the environment and human health. Pesticides do not only kill pests but many beneficial insects too including honey bees, while some are even lethal for small mammals and birds. But their effect on the environment does not end here. Pesticides and fertilizers penetrate deep into the soil reaching the underwater which is the main source of drinking water in many parts of the world.

Organic Food is More Nutritious

Organic food from GreenDome is not only **healthier** because it does not contain residues of any synthetic chemicals but also due to the fact that it is **more nutritious**.

Organic fruit and vegetables contain **40% more antioxidants** (cut the risk of heart disease and cancer) compared to non-organic food. There were also higher levels of other beneficial minerals such as iron and zinc.



GreenDome[🌿]

Locally produced Healthy Food

Our innovative GreenDome promotes sustainable, local, and **fresh, flavorful food production**. This is particularly important because fresh fruits and vegetables start to lose nutritional value the same moment they are harvested. Locally produced food also taste better than produce that has been frozen, shipped, and transported across long distances.



GreenDome promotes coexistence in peace and **prosperity with the local community**. This includes effective use of unused farmland and promotion of local employment. GreenDome delivers agricultural system where local community can actively participate.

GreenDome[®]

Environmental Safety

GreenDome is environmental safety solution. It avoids the use of all synthetic chemicals, therefore it does not pose any risk of soil and underground water contamination like conventional farming which uses tons of artificial fertilizers and pesticides.



GreenDome[®]

- Innovation: Wind&Sun optimized greenhouse system
- Organic farming, protecting from insects. Planting without expensive insecticides, pesticides, fungicides, and herbicides
- increase productivity by precisely controlling the airflow to optimize growth conditions
- Higher quality fruits and vegetables with more vitamins and minerals
- Maximize water efficiency
- Fast return on investment
- Sustainable, local food production, reduced transportation costs and promotes more stable local economies and societies



GreenDome technical information

PRE-REQUIREMENTS

- Level land
- Municipal utility power supply

POWER REQUIREMENT

- Power consumption: maximum 10 kW per 2.000m²; minimum less than 5 kW per 2.000m²
- Heating power (if required): 650 kW

BASIC SPECIFICATION

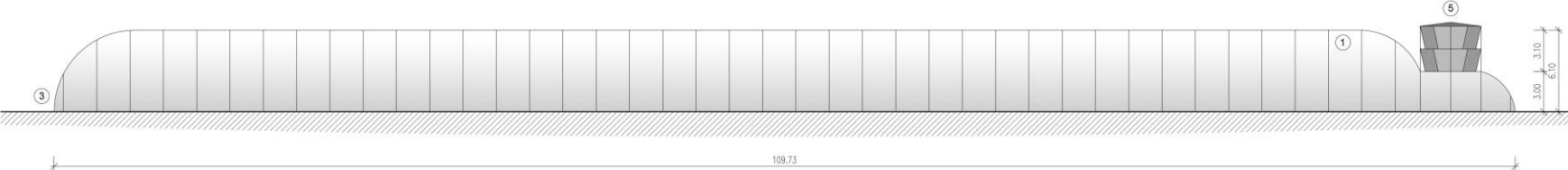
- Dimension: 100 x 20m (standard dimension)
- Material: HDPE foil, coated with LDPE, single layer
- Reinforcement: Steel cables
- Anchoring: Soil anchoring and helical / ground anchors
- Doors: Roll up system

FEATURES & ACCESSIBILITY

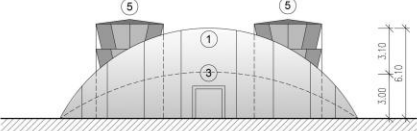
- Hands off operation
- Peaks of 6m to 7,6m and greater allow for easy movement of personnel and large equipment
- 3,6m Wide x 4,9m Tall Exhaust and Access Door
- 1,8m Wide x 2,4m Tall Access Door
- Ventilation capacity of 340.000 m³/h per 2.000m² – 100% air exchange every minute
- Fully controlled exhaust stays warm in the winter and cool in the summer
- Designed and field tested for snow and winds up to 36m/s

Structural design

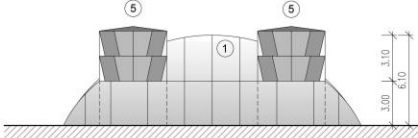
SIDE VIEW



FRONT VIEW



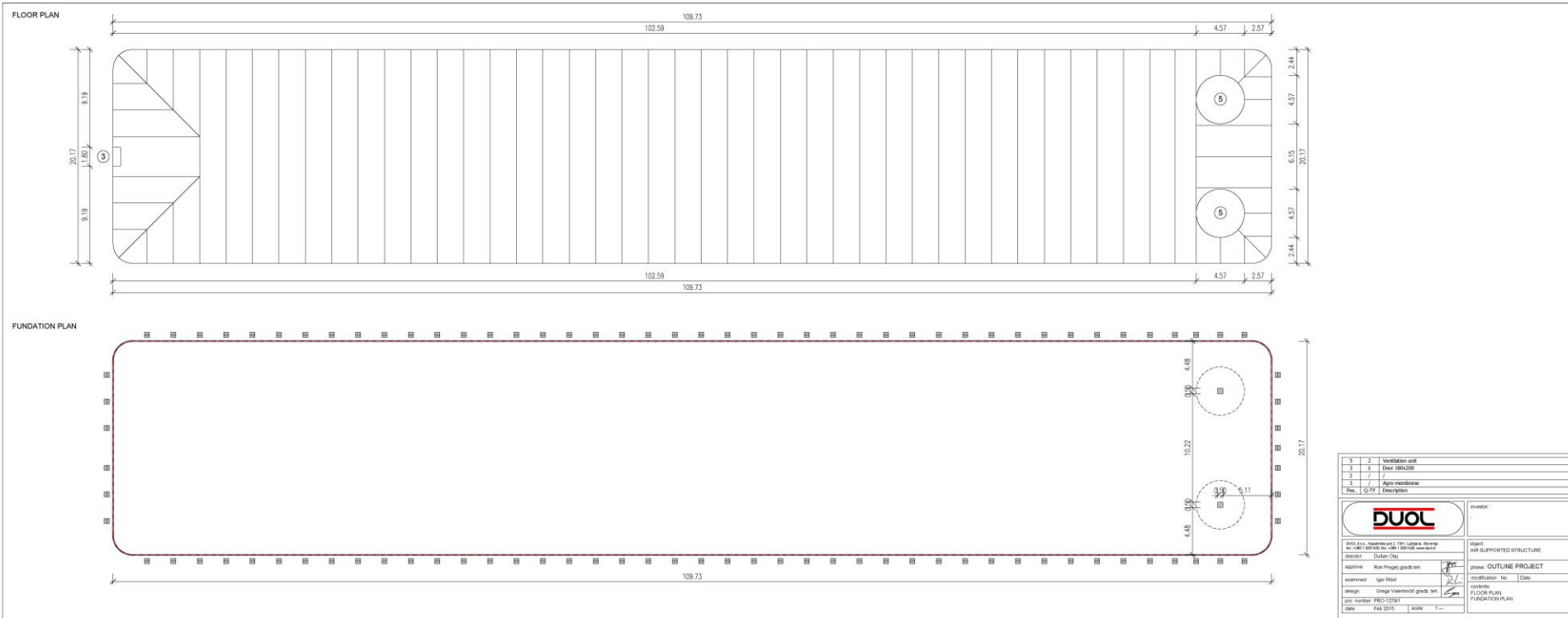
BACK VIEW



5	2	Ventilation Unit
3	1	Door 180x280
2	/	/
1	/	Agro membrane
Pos.	QTY	Description

		investor:
DUOL s.p.a. Krasnina ul.2, 1381, Ljubek, Slovake tel: +421 367015 100, fax: +421 367015 1000 director: Dusan Ota		object: AIR SUPPORTED STRUCTURE
approve: Rik Prigelj gradb. inž.		phase: OUTLINE PROJECT
examined: Igor Rabič		modification: No. / Date:
design: Olega Valentinčič gradb. inž.		orientation: FRONT VIEW FRONT VIEW BACK VIEW
pro. number: PRC-12782	date: Feb 2015	scale: 1---

Structural design



GreenDome^{leaf}



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