



UrbanFarm2019

Book Finale Challenge



Curators:

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Herbal Tea Farm

Immersed in the green, in the background the Dolomites, around us few houses. We are in Orzes. We enter the Herbal Tea Farm and immediately we are struck by an aphrodisiac fragrance of herbs, flowers. A staff member welcomes us and offers us a guided tour of the structure. We immediately notice a thick network of pipes that cross the building from the bottom to the top, from right to left, we are intrigued. Here we are in the first point of our tour. Here we remain fascinated by this chain of plants, they look like large shelves where they grow and grow six different types of plants, they explain. They are plants that can grow thanks to water and air, without using land. In this space some employees of the structure are busy picking up grown plants, putting them inside capsules by inserting them in these tubes and are automatically transported to the upper floor. The space is all open space or divided by glass walls, you can see the whole production process in a single glance. The second step of the tour is on the upper floor: the drying of the product. Here there are other employees who take the capsules and place them in the oven. Once ready, the capsules pass into a new network of tubes and arrive in another room. The capsules open in glass containers filled with boiling water: the herbal tea is ready to taste. Here there are sofas and tables. From the windows you can see the mountains. We sit down and enjoy this new product with pleasure. After the tour we have the opportunity to check the different types of herbal teas, in different formats. It's a fun and

welcoming place, perfect for a healthy relaxation with family or friends.

The innovative idea that Herbal Tea Farm proposes, it is a new way of producing herbal teas, from the plant to grow plants (hydroponic and areoponic) to the way of preparing the product. "Tea Pump" is a tube path made of stainless steel. When the plant is ready to be taken from its container where it is planted, it is removed from it and inserted into a capsule. It is made of steel and glass and its size is adjustable, allowing the inclusion of different types of plants. Once inserted, the capsule is hooked to the "Tea Pump" system. The "Tea Pump" is a path of pipes that start from the rooms where hydroponic and aeroponic culture is positioned, passing from the rooms used for drying (essential phase for the production of herbal teas) and finally to the tasting space open to the public. The "Tea Pump" is like a binary for the capsules. Through this system, the whole process is semiautomated. The work of the specialized employees is mainly that of control of the growth of the plants, the first transport in the capsules and hooking in the tracks, cleaning and transport in the drying ovens. Here, the plant is taken out of the capsules, cleaned, inserted in the oven. Once dried it is stored in the capsule, hooked to the track. The capsule, thus, arrives in the tasting room. The capsule automatically opens and the contents are poured into a glass container filled with boiling water. The water is transformed into herbal tea. The glass container is divided into six segments

inside, as the number of types of plants. The goal is to generate products different from those proposed by the market, with a taste, a fragrance qualitatively higher.

The goal is to categorize the Farm as nZEB (nearly Zero Energy Building) using alternative sources: the sun, the wind, biomass (renewable sources) and high performance systems capable of supplying bioenergy to the building for ventilation, heating and cooling of environments and crops, hot water production, water reuse and lighting. Combining the performance of our technologies (passive and active systems) we aim to completely fulfil the energy needs of our building.

PHOTOBIOREACTOR PANEL (PBRs) are used for precise phototrophic cultivation of algae and cyanobacteria. The panels have been placed on the south-facing facade, occupying an area of 60 m², the single panel measures 280x80x8 cm.

BIOGAS CHP PLANT allows the simultaneous production of electricity with 35% efficiency and heat with 50%. The electricity can be used to power the surrounding equipment. Herbal waste is transformed into biogas through a process called anaerobic digestion and then it is used to produce heat and electricity in the CHP unit.

VERTICAL SUBSTRATE FITODEPURATION PLANT consists of a waterproofed basin filled with the filter substrate in which the waste

water is directed to be treated, and in which the semi-macrophyte aquatic plants grow. The combined action of substrate filtration, chemical degradation by the bacterial flora and root absorption is capable of removing the main pollutants present in water.

VENTILATED ROOF AND EXTERIOR INSULATION: we decided to make changes to the casing of the building in order to optimize the well-being for any user and to improve both the appearance and the maintenance of the structure. [Uw] 0,28 W/m²k

Our team consists of four architects, it was interesting to try their hand at disciplines that we had never met. We have discovered the world of hydroponics and aeroponics that we did not know before. We had the chance to explain our ideas differently. Through the videos, the abstracts, the business model. It has been a new experience for all four and we are happy to have been part of it.

Until before we had not thought so thoroughly about our project, coming to decide the part of marketing behind it. We put ourselves to the test and we are satisfied with the result. Although all four architects, we have 4 different variations. Francesco is more tied to the compositional part of the project, while Martina to the sustainable and innovative part, Adriana Isabella to the post production and finally Alessandra to the concept.



Alessandra Bernabei, Francesco Calabretti, Martina Cappellini, Adriana Isabella
Ceravolo

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