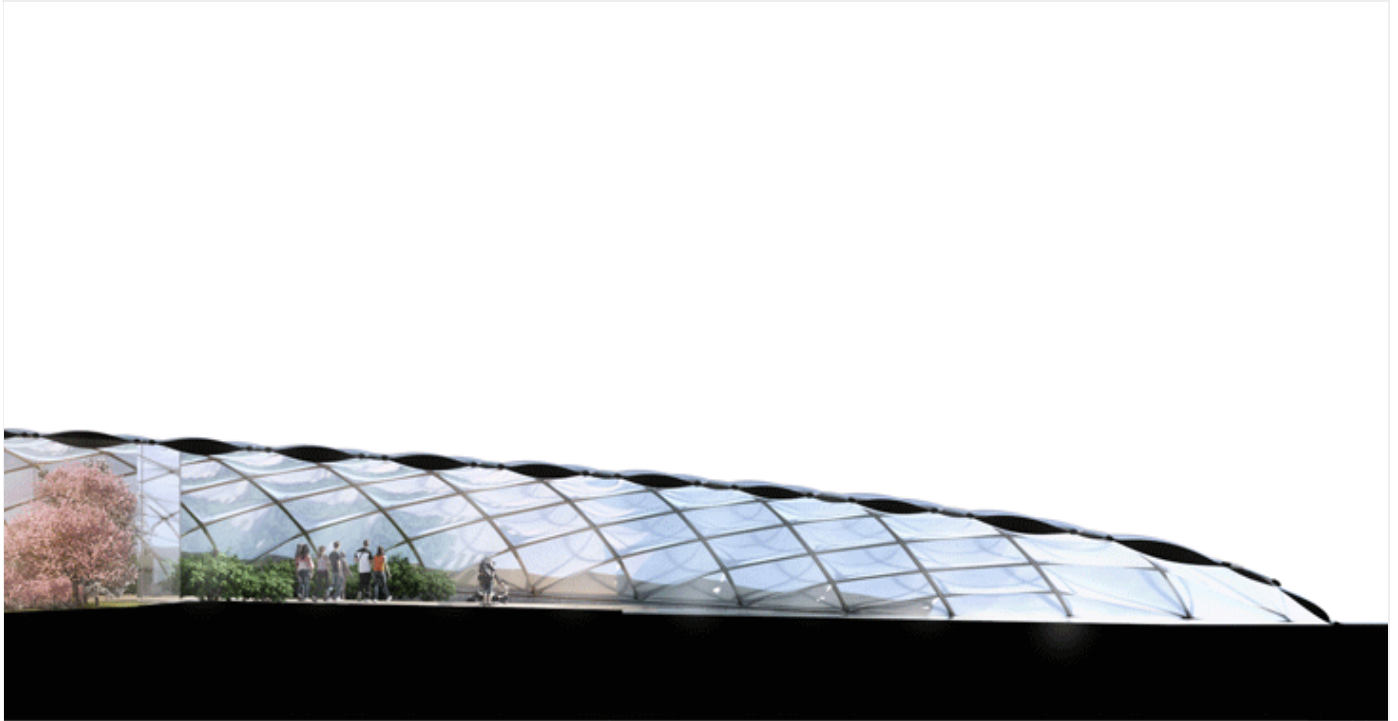


Garden of Four Seasons!

Info & Images: Courtesy Carlo Ratti Associates

Read Time: 2 mins

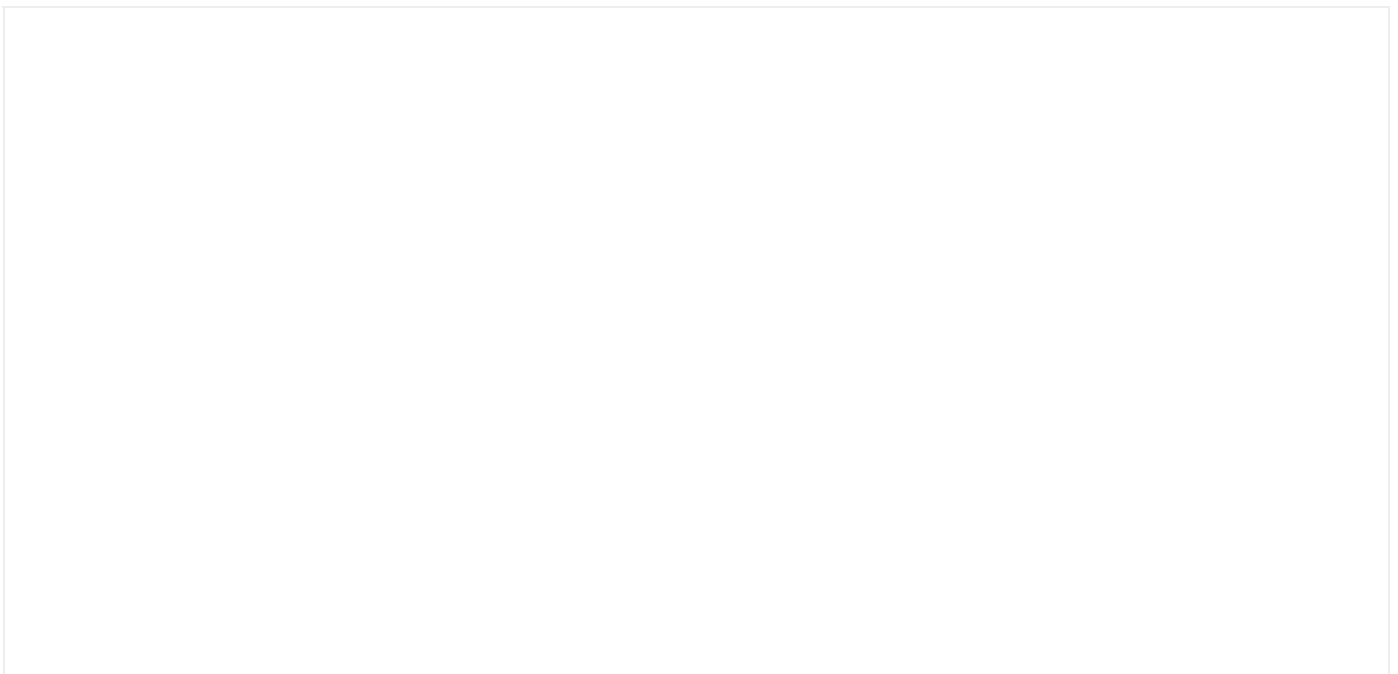


Garden of Four Seasons

International design and innovation office Carlo Ratti Associati, together with property developer Citylife, unveils “Garden of the Four Seasons”, an enclosed garden in Milan, where all four seasons coexist with each other, concurrently, throughout the year.

Based on a concept by Dr. Barbara Römer, founder of the creative consultancy Studio Römer, and inspired by the historical Quattro Stagioni fountain located in the neighbourhood, the project leverages a new system for high-precision climate control, by which incoming solar energy is partially collected through photovoltaics and partially redistributed among the different seasonal areas, with zero net energy consumption. The project aims at reclaiming a closer relationship between urban dwellers and nature’s cycles.

Commissioned by Citylife, a new neighborhood under development in the north-west of Milan, the project is based on a master plan by architects Zaha Hadid, Daniel Libeskind and Arata Isozaki.





Hundreds of vegetable species live in the Garden of the Four Seasons, housed under a transparent, responsive membrane of EFTE that uses sensors to open and close, allowing an accurate regulation of the environmental conditions underneath. By constantly adjusting two key components of plant growth - lighting levels and heat - the system allows plants' metamorphosis to follow the different seasonal cycles.

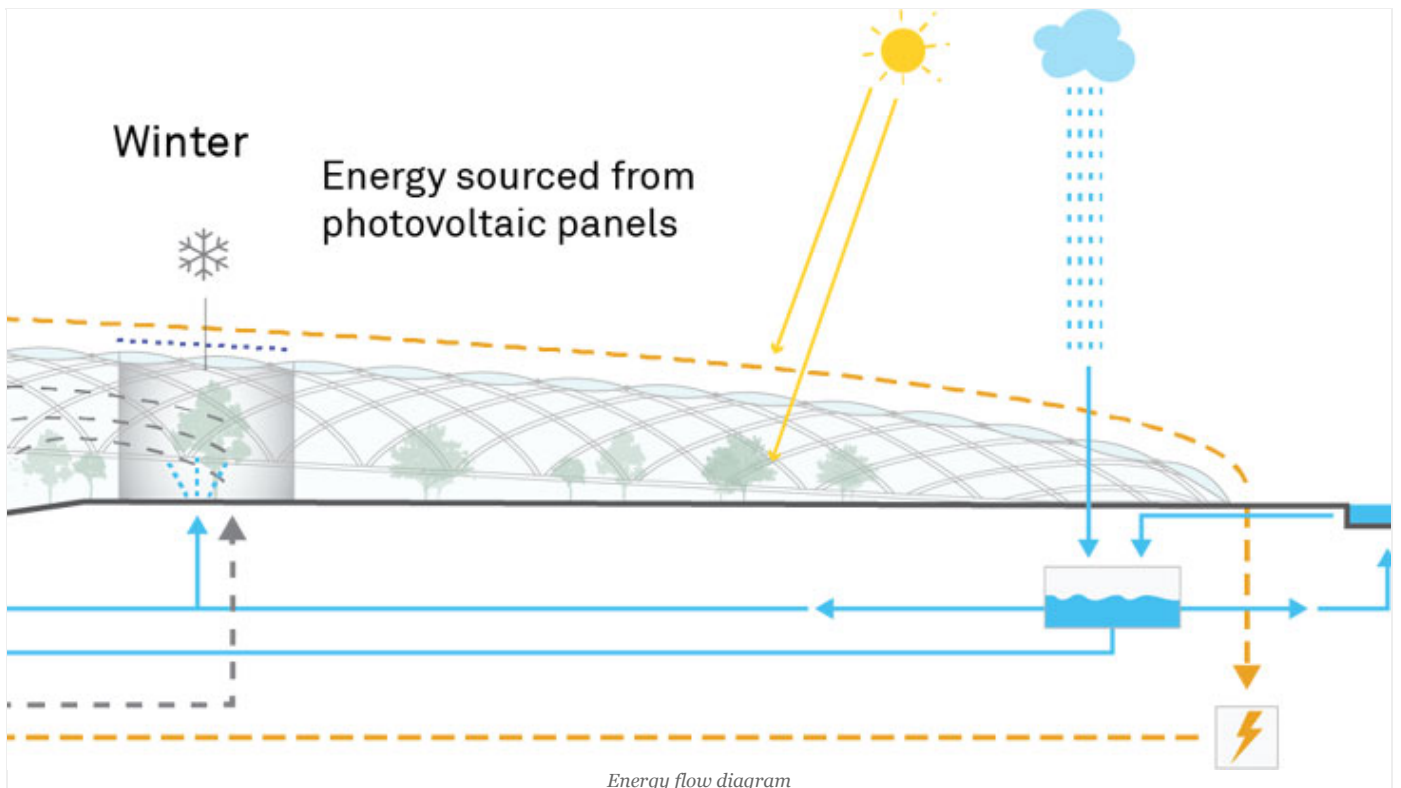
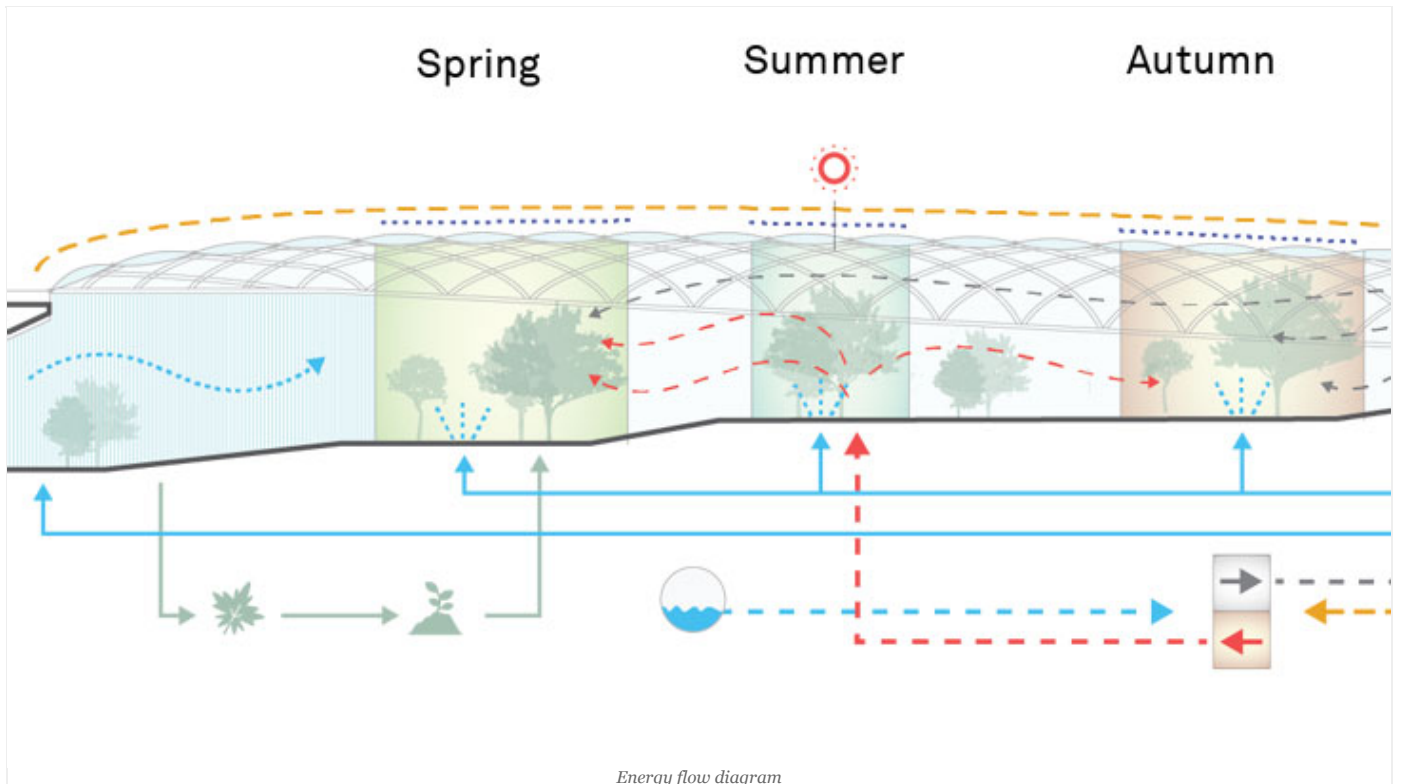
Visitors can walk through four seasonal areas, starting with spring and ending with winter, observing nature's transformation through time, as it unfolds in space. The EFTE membrane structure is covered with photovoltaic cells, permitting an all-year-round production of clean energy. Thanks to a heat exchanger, such energy can be used to cool space in the winter area, or to heat the summer space.



The system works much like a refrigerator would do, with cold coming out from one side, and heat from the opposite one. Further heat transfer between pavilions, when necessary, allows each pavilion to achieve the desired intermediate environmental conditions.

The Garden of the Four Seasons touches upon the issue of climate control and remediation, an issue that Carlo Ratti Associati has explored in several projects over the last few years – including Cloud Cast and Sun & Shade.

“As climate change might become more extreme, the importance of envisioning strategies for climate remediation will increase dramatically”, says Carlo Ratti, professor at the Massachusetts Institute of Technology (MIT) and founding partner at Carlo Ratti Associati: “This was our inspiration behind the ‘Four Seasons garden’- in which we usher in a technique for a sustainable and emphatic Internet of Plants.”



In the garden, people can interact with nature in many ways - from working within nature, to eating al fresco during Milan’s cold winters, to celebrating a wedding in the Eternal Spring area. Furthermore, a series of digital sensors measures the quantity of water, temperature, humidity and nutrients needed by each vegetable species. This information is then made visible in real-time - as “tweets” coming from the plants about their status.

“Our aim was to create a symbolic parallelism with the past, projecting the old theme of the four seasons into the future, thanks to the adoption of new sustainable technologies”, says Andrea Cassi, Project Manager at Carlo Ratti Associati.

The project extends over an area of more than 2500 square meters. It is located within Citylife’s new park.

Fact File:

A project by Carlo Ratti Associati for Citylife

Team: Andrea Cassi, Peter Magnus, Chiara Borghi, Gary di Silvio

Based on a concept by Barbara Römer

Environmental sustainability: Ai (Carlo Miccono e Giulia Guglielmo)

Construction consultancy: Studio Ceruti