



Vertical gardens – an ecological art in cities

Ecological art, thermo insulation, air refreshers or habitat for the wildlife in an urban environment – Vertical gardens combine all of the above features. How did the French scientist and botanist Patrick Blanc come up with the idea to create this worldwide phenomenon and what are these living constructions made of?

Inspired by nature

Botanist by profession, Patrick Blanc was observing nature for many years - how plants use to grow on rocks, on trees' bark, on steep slopes without any soil, even in caves. He noticed that it was absolutely normal for plants to grow on vertical surfaces and needed little or no soil, sometimes with little light, as long as they had moisture.

Normally, when plants grow on walls, roots penetrate through the surface, easily damaging them. Patrick Blanc finds out that this can be easily prevented if plants are frequently irrigated – this is how their roots grow only on the surface, leaving the wall intact. With this observation in mind, he gets determined to create the technology to develop a dense plant wall that requires minimum maintenance and could be grown in urban environment.

In 1988, Patrick Blanc creates his first Vertical garden in La Villette, Paris. Since then, he has built more than 150 gardens throughout the world – Paris, Brussels, New York, Osaka, Bangkok, Genoa – working with major names in architecture and design. "The urban garden guru" selects his plant species according to the specific climate conditions of the place where the installation is created.

Not just another plant on the wall

Basically, the Vertical garden consists of three main parts: a metal structure, PVC slabs and felt layer.

The metal frame can be attached to the wall or a stand-alone construction. Its function is to hold the whole composition and to provide air layer, used both as a thermal and audio insulator.

The 1-centimeters waterproof PVC slabs are suspended on the metal frame, covered with a polyamide felt, into which holes are cut for the plants. A small hose, punctured every ten centimeters by tiny holes, runs the length of the top of the wall and a timing device ensures regular, light watering. Trapping a cushion of air, the ensemble can also act as insulation. Another function of the felt layer is to keep the roots from growing through the construction. It has high capillarity, ensuring plants' even water supply, enriched with minerals and fertilizers.

Numerous flora species of different origin can be planted on the surface. The whole "garden" weight is less than 30 kg/m². This is why the technology can be used on every wall, no matter the size. Vertical gardens can be grown on different latitude, both in interior and exterior spaces, even in places with only artificial light, such as parking spaces.

Multiple purposes

Patrick Blanc's Vertical gardens are believed to be an ecological art – not only as vivid and expressive constructions but often as a valuable habitat of wildlife. Uniting functional and aesthetic

purposes, these pieces of art are an excellent way to partially restore the lost nature in cities. Depending on the plants' choice, Vertical gardens can imitate natural wildlife or serve as decorative and graphic platforms.

It is of considerable importance that due to their insulation effect, Vertical gardens can lower to the building's energy consumption. In winter, it protects it from the cold, and in summer it acts as a natural cooling system.

Last but not least, Vertical gardens are an effective way to refresh the air in the cities. Leaves, roots and all microorganisms there are acting as a big "purifying" surface. Once on the felt layer, the polluting particles from the air are gradually dissolved and mineralized before turning into a fertilizer themselves.

Some examples of Vertical gardens

Caixa Forum Madrid (La Caixa) – Madrid's new cultural and social centre, is the latest vertical garden, created by Patrick Blanc. Exhibitions of ancient and contemporary art, music and poetry festivals, multimedia art, debates, social seminars, educational and family-oriented workshops – these are just some of the modern center's activities. Unique accent in the exterior of Caixa Forum is Patrick Blanc's Vertical garden that resembles a color picture. This is the largest implementation of this kind on a façade without gaps, as it has a planted surface area of 460 m², densely populated with more than 15,000 plants from 250 species.

Garden of Peshing Hall is part of a private hotel in Paris and represents a small square space, surrounded by high façades. Due to the high walls, the space looks quite closed and hardly gets any sunlight. In summer, the restaurant's tables and chairs occupy almost all space there and it was difficult to put any plants there. Patrick Blanc and Andree Putman – internationally acclaimed French designer and interior architect – decided to construct a 30-meter high tropical cascade, made by 260 plants, mainly of climbing origin, on one of the surrounding walls. The garden reaches the top of the hotel and can be seen from all floors of the hotel.

Girbaud Vertical Garden is part of a boutique, made with the "human nature" concept, touching the relationship between human beings and the surrounding environment. The purpose of the indoor Vertical garden was to convert the boutique into a living system. To achieve that, the designers (Kristian Gavaille and Patrick Blanc) create a green wall, selecting 250 types of exotic plants, including orchids, moss and fern, with hints of violet, brown and yellow. It is put behind a glass wall, spreading to the boutique's upper floors.

