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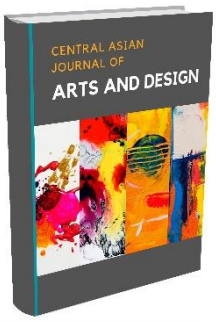

Vertical Greening in the Apartment

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Abstract
Man has always tried to surround himself with nature. Even in the era of total commitment to minimalism, the trend for natural materials has not gone into decline, but, on the contrary, has developed into a completely new direction in space decor. His name is eco-interior, or vertical gardening.

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From the Hanging Gardens of Nebuchadnezzar to the Phytowalls of Patrick Blanc, vertical gardening has come a long way on its path to fame. Today, in the era of the stone jungle and the lack of living spaces, it is experiencing a real boom.

What is vertical gardening? This is a way of cultivating plants with various types of structures arranged vertically. With their help, you can organize a green corner even in the most modest premises, adding a unique lively aesthetics and comfort to the interior.

For the first time, the inhabitants of ancient Babylon learned about vertical gardens. Their king Nebuchadnezzar II, having decided to please his wife, who yearned for her native land, built a four-tiered palace surrounded by exotic trees and flowers. It is known as the Gardens of Babylon - one of the seven wonders of the world.

In the mid-1940s, New York landscape wizard Stanley White invented Botanical Bricks, a structure made from green plants grown on the facade of a building. They started talking about interior phytopanels thanks to the Frenchman Patrick Blanc in the mid-70s of the twentieth century. His collapsible phytocomposition consisted of 30 plant species, fixed vertically.

The demand for vertical gardening is explained by a number of its clear advantages:

- Space saving: suitable even for small spaces,
- Visual interest: phytowalls are aesthetic and spectacular, appropriate in the decor of different styles,

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- Improved air: the concentration of live green matter cleans the air more efficiently, releasing more oxygen,
- Strengthening sound insulation: "green" walls can reduce the flow of external sounds into the apartment,
- Air cooling: refreshing and moistening the air in the apartment, plants provide a pleasant coolness in the hot season,
- Wide choice of design: different designs and types of vertical gardening open up great opportunities for decorating space,
- Ease of care: modern phytoconstructions are equipped with automatic watering, which simplifies the care of plants.

But before you start a vertical garden on the wall, consider its disadvantages:

- Accumulation of dampness: If improperly installed and maintained, the vertical garden of the house can lead to the formation of fungus and mold on the walls.
- Destruction of the wall covering: some plants, during development, cling directly to the walls, breaking its finish. It is important to trim on time.
- Reducing Light: Phytoconstructions fixed to windows or balconies can prevent daylight from entering.
- High price: ready-made modules, equipment and their installation are not cheap, but you can always find affordable home-made alternatives.

There are many ways to create a vertical garden at home. But in general it can be done with:

- ampelous plants: the most traditional and affordable type of vertical gardening, when all sorts of loaches form a green wall.
- floor vertical structures (arches, whatnots, towers, pyramids, lattices), on the shelves of which containers with plants are installed.
- hanging planters or shelves attached to the ceiling or walls: they are zoned, they decorate windows and walls (including kokedama - hanging earthen balls).
- phytowalls and phytomodules: a modern and popular type of vertical gardening, where plants are placed on the wall in felt sheets or modules.

Do-it-yourself vertical gardening in a house is most accessible to master using the first three methods. It is difficult to do without special equipment and skills to create phytowalls and phytopanels. It's easier to trust the experts.

Inhabitants of phytoconstructions can be:

- live plants (indoor, herbs, vegetables),
- artificial flowers (made of plastic, fabric, silicone),
- dried flowers (dried and fixed with wax or varnish plants),
- stabilized plants (impregnated with a special compound based on glycerin).

They can be purchased at the store or made independently according to numerous schemes and recommendations on the network. Design and materials depend on the style of the interior and the

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preferences of the owners. Common designs include:

Carpet cloth: a large (sometimes on the entire wall) mat made of polymer felt with numerous pockets-cells where plants are planted. Due to the flexibility of the canvas, they can decorate surfaces of various shapes.

Modular structures: several ready-made modules made of metal, plastic, textiles with a frame and cellular containers for planting. All elements are assembled into a single vertical one-sided or two-sided structure that can be mounted on a wall or ceiling.

Phyto-pictures and phyto-panels: a single canvas based on a dense frame, mesh or plastic cells, framed with a baguette. Plants are grown on the basis of hydroponics and equipped with automatic watering.

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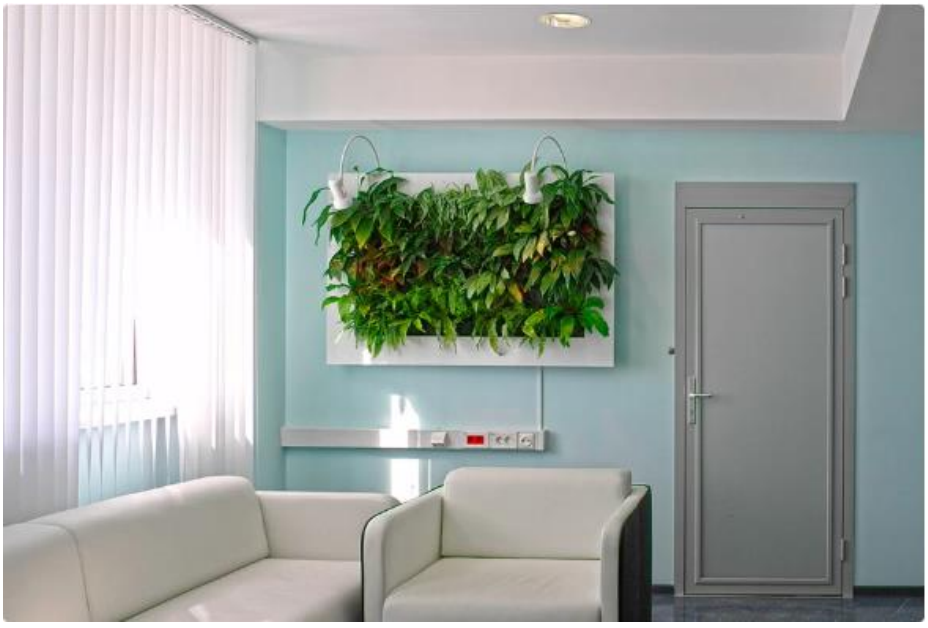

Stands and crates: vertical wall supports in the form of a lattice or rack with shelves or holders for pots with plants. There are different shapes and materials.

Actually, everything is the same as for ordinary room flora: you need to take into account the level of lighting, humidity and air circulation. The best option is the walls opposite the southwestern and southeastern windows, where the sun looks almost all day. In the north or northwest, moisture from plants will take a little longer to evaporate, which can cause mold and fungus on the walls.

When placing ready-made systems with automatic watering and phytolamps, they take into account the proximity of the outlet and the possibility of connecting to the water supply. The easiest way is to organize a green corner in an apartment with artificial plants - there are no restrictions for them: be it a dark bathroom or a hallway. Phytowalls with dried plants are also not afraid of shade, but it is better to keep them away from moisture.

By and large, there are only two types - with and without soil. The first includes natural types of soil. They are affordable, hold moisture well, are easy to care for, and are suitable for novice gardeners. But for phytowalls, they can be too heavy and impractical.

The second type is artificial substrates (coconut chips, mineral wool, perlite, sawdust, sphagnum moss, expanded clay). They are associated with the hydroponics method - the most advanced and popular for vertical gardening. Its main advantages:

- the ability to control the state of the root system,
- fast and point access of nutrients to the roots,
- saving water and space,
- lightweight design and ease of movement.

But hydroponics is not suitable for all types of plants and does not forgive mistakes. Delivery of fertilizers to the plant is faster than in ordinary soil, and if the dosage is incorrect, the green pet may die. There is also a danger of overheating: at temperatures above 35º C, the roots of plants begin to die. Another disadvantage of hydroponics is the high price of equipment, including electricity costs.

Suitable plants. When choosing them, you need to proceed from the size of the wall, the type and strength of the structure, the degree of illumination in the room. For large-scale phytowalls in large

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supermarkets, even tree-like specimens can be used. But plants for vertical gardening in an apartment are more compact. It is best if they have:dense and decorative crown, small but strong root system, short or curly stem, resistance to changes in temperature and humidity.

The inhabitants of vertical gardens can be both indoor exotics and miniature vegetables, garden greens, and herbs. It is important that the plants are well combined with each other and do not interfere with the development of each other.

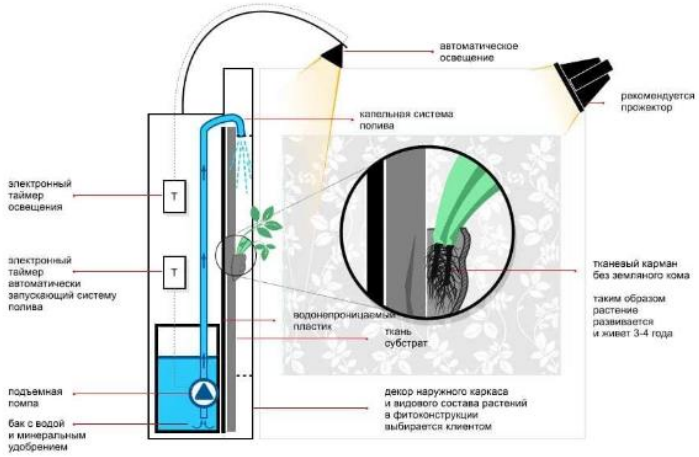
Place	Houseplants	Vegetables, herbs
In the shadow	Aglaonema, philodendron, violet, fern, saline, ivy, arrowroot.	Mint, sorrel, lemon balm, Thai basil, marjoram, wild garlic.
Penumbra	Scindapsus, asparagus, spathiphyllum, chlorophytum, pothos, phalinopsis.	Lettuce, arugula, green onion, basil, parsley, dwarf. cabbage, cilantro
Sun	Succulents, cacti, hoya, fuchsia, geranium, dieffenbachia, bromeliad.	Arugula, spinach, purslane, lavender, sage, thyme, cherry tomatoes, ornamental peppers, tarragon.

Thinking through the design of a vertical garden, they take into account not only aesthetics and spectacular forms. The design should be convenient for watering and caring for plants. Plant them tightly, but not back to back, to give them more air and not allow them to overwhelm each other.

The bottom row in a phytopanno is, as a rule, thicker and more magnificent than the top row. Place plants that are more drought tolerant at the top of a vertical garden, as moisture evaporates faster at the top.

Equipment for vertical gardening. It depends on the chosen design and method of caring for plants. For a small green corner (shelves with plants, hanging planters), an ordinary watering can, a mixture of fertilizers and daylight may be enough. In the presence of complex modular compositions and volumetric phytowalls, special equipment is indispensable.

Irrigation systems. Many ready-made phytoconstructions are already equipped with a drip irrigation system. It can run on mains or battery. Its key components are a pump, a water tank or faucet connection, micro-drip hoses, and a water purification filter. At the bottom of the phytowalls, a tray is installed for excess water, which is returned to the system.



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For watering plants in large phytowalls, it is convenient to use remote-controlled systems. In the case of a small vertical garden, automatic watering can be made independently.

Green wall lighting. It is selected individually, based on the size of the structure and interior design. Small phytopanels can be decorated with tendril lamps (5W), track spotlights (34-40W) located 60-70cm from the wall are suitable for larger compositions. They are easy to direct for uniform illumination.

If you do not want to immerse the room in the red-pink light from greenhouse phytolamps, use fluorescent and metal halide lamps. They have good light output and a balanced color spectrum. Their power and quantity are selected according to the size of the structure and the needs of plants.

Living wall maintenance. Much depends on the variety of plants and the type of vertical structures. But in most cases, in the list of mandatory events:

- timely manual watering or automatic watering control,
- removal of dried and diseased parts of plants (if necessary, replacement of plants with new ones),
- keeping the structure clean
- control of water discharge from the drainage system and cleaning of the automatic watering filter,
- pruning plants if necessary,
- timely application of fertilizers.

References:

1. Дробченко Н.В., Курбанова М.К. Основные композиционные приемы проектирования ландшафтных объектов //Международный журнал по интегрированному образованию. – Т. 4. – №. 4. – С. 241-244.
2. Xusanovna S. M. LOYIHALASHDA DIZAYN USULLARIDAN FOYDALANIB, MILLIY VA ZAMONAVIY BEZAKLARNI QO'LLASH //INNOVATIVE ACHIEVEMENTS IN SCIENCE 2022. – 2022. – Т. 1. – №. 9. – С. 229-231.
3. Karimov, E. B., and D. E. Karimova. "Distinctive Features of Modern Styles in Interior Design." *International Journal on Integrated Education* 4.11 (2021): 21-24.