

## ENVIRONMENTAL TRENDS IN MODERN ARCHITECTURAL DESIGN

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### ABSTRACT

*The article discusses the search for concepts and possible solutions to ensure the sustainable development of cities, as well as the use of phytodesign elements to ensure the environmental friendliness of the interiors of various buildings.*

**KEYWORDS:** *environmental issues, urban planning concepts, smart city, ecologically clean city, phytodesign, landscaping interior, indoor plants, phytocompositions.*

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### INTRODUCTION

In the modern world, the problems of human ecology and the problems of ecological culture are becoming increasingly relevant and discussed. Environmental problems are of great importance in our country. In particular, the Action Strategy for the five priority areas of development of the Republic of Uzbekistan for 2017-2021 emphasizes the importance of "ensuring the environmental safety of human life" in the development of the social sphere.

Restrictive measures in the field of organizing the coexistence of man and the natural environment have long been the main methods in solving the problem of nature protection. However, one of the most important vectors in solving the environmental problem today is the ecological method in design, i.e. the concept of organically incorporating man-made products into the environment.

Design combines spiritual and material culture into a single node that combines artistic, scientific-technical and production-technological cultures. Dizaynerning ijtimoiy mas'uliyatining faoliyati doimo ijtimoiy ahamiyatga ega ekanligini va iste'molchilarga ta'sir qilishini anglashdan iborat. As a psychologist, the designer organizes life processes, social activities, creates the mood of the living environment.

The environment sets for the best conditions for satisfying human needs without disturbing the environmental balance.

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Great attention is paid to environmental issues at all stages of design. The task of creating ecological well-being is solved both at the regional level and at the level of shaping the urban environment (ie at the stage of improving the ecological condition of settlements of different sizes and reducing the anthropogenic burden on natural resources). Eco-design as a current trend of the current stage includes ensuring the environmental friendliness of materials used in construction and decoration, production processes, waste disposal, etc.

The study of the specifics of landscaping of large cities, based on the latest developments in the field, pays great attention to the introduction of eco-frames, eco-infrastructure, eco-micro-districts, eco-business complexes in the planning structure.

Modern resource-saving systems for solar energy and rainwater collection are used in the creation of ecological settlements, as the use of natural resources is not only economically viable, but also increases the ecological quality of the projected facility.

However, in addition to maintaining a healthy ecological status, the existing landscape should also focus on other aspects of the concept of sustainable development. Sustainable development of settlements ensures economic development and social development in harmony with the environment [1].

Despite numerous studies on the problems of settlement, design and reconstruction of settlements, the problem of developing settlements as a sustainable system in modern conditions remains relevant. In response to the problems of our time, various options of urban planning are being created: eco-cities, smart cities, green cities, economic cities, private cities and others.

One solution to the problems of sustainable development could be the concept of a smart city. The concept envisages effective governance and high living standards through the use of innovative technologies.

Many elements of smart city infrastructure are based on the achievements of leading companies specializing in the development of information technology. Many leading IT companies have expressed interest in the idea of creating a smart city. China, South Korea and the UAE are investing in research and development of smart city projects. Currently, smart city programs are being implemented in Amsterdam, Barcelona, Madrid, Chicago, Beijing, some cities in Russia and other cities around the world, as well as the creation of smart rural programs.

However, many cities have achieved very different results. For example, Copenhagen has many parks and electric car exchanges compete with cyclists. Smart cars know where the free parking space is, as well as synchronize with public transportation and always tell you whether it's faster to get there by bus. Achievements in human capital and transport mobility can be seen in Paris. Using the Internet, it is possible to optimize the flow of people and vehicles in the city. Amsterdam is a financially stable and the most "green" city. About 90% of households have bicycles, and an advanced bicycle distribution system can easily solve the remaining 10% of the problem. Singapore is a leader in technology [2].

There are other examples. In 2014, the smart city of Fujisawa emerged in Japan, which uses only solar energy, reduces water consumption by 30 percent, and can only use electric cars, bicycles and scooters as private transportation. The streets are equipped with motion sensors - the lights become brighter as people or vehicles appear on the streets. In the event of an earthquake, the

city will be able to provide its residents with hot water and electricity for three days. All facilities are managed from the Fujisawa SST area complex in the city's main square. Panasonic points out that the main thing in Fujisawa is not high technology at all, but a concern for communication between the environment and people [3].

Songdo City is one of the first turnkey smart cities in South Korea. Defined as the gateway to Northeast Asia, the 1,500-hectare Songdo International Business District is a model for future sustainable urban development not only in Asia but around the world. It is located in Incheon, South Korea's first free economic zone, 64 km from Seoul, and is connected to Incheon International Airport by a 12-kilometer transport bridge.

Central Park Songdo is a multifunctional oasis for the international business district. The master plan of the city is designed to reach any point in more than 15 minutes on foot or by bicycle. The construction of the Songdo building was carried out in accordance with Korean environmental standards. A pneumatic system is provided to eliminate waste, LED lights are used to reduce energy consumption, and solar energy is also used. Bicycles and electric vehicles are used as transportation.

At present, the city of Songdo has not yet reached the expected level of employment, and the city seems to be much more deserted. Although the project was innovative, it turned out to be utopian. The reason for this is that people do not want to settle in a new settlement. After all, history shows that all major cities that are attractive to people are naturally developed.

Another ecological direction in design is the artistic design of the aesthetic appearance of interiors using plants, phytodesign.

Phytodesign has many functions: ecological - cleaning of buildings, cleaning the air from dust and gases, humidification of buildings and creating an aesthetically pleasing and comfortable environment.

The desire to decorate their homes has existed among people since ancient times. Historical descriptions show the creation of the first greenhouses and winter gardens in 17th century Europe. However, after the deterioration of the ecological situation, many studies on the beneficial physiological properties of indoor plants have emerged, as a result of which it is advisable to use plants to increase air humidity, reduce chemical pollution of the indoor environment. Currently, enclosed spaces with landscaping elements are considered as compensatory measures to improve the environmental background of the interiors of buildings.

However, the inclusion of plants in the interior of buildings not only eliminates the unfavorable microclimate and physical factors, but also helps to create a comfortable visual environment. Thus, industrial interiors often create so-called homogeneous areas - smooth surfaces with almost no visible elements or, conversely, an aggressive visible environment with a large number of identical elements. This increases the negative impact on a person's visual perception of the environment and his or her psychological state.

The choice of plants for the formation of the composition depends on many factors, such as the purpose of the room, the style of interior decoration, the possible placement of plants, the desired effect. Plants can be conditionally divided according to their functional purposes: healing - has

specific antimicrobial activity and therapeutic effect; protection - air purification and noise reduction; aesthetically pleasing - decorative and flowering.

It is advisable to place large plants in rooms with high ceilings and large windows, in rooms of the production type - plants with high gas-absorbing activity; therapeutic and health-improving species - plants with phytotherapeutic effect, in children's institutions - have a therapeutic and healing effect.

It is important in the formation of the interior: the correct placement of plants, taking into account environmental conditions (light, temperature), well-formed compositions and the appropriate combination of colors and shades, taking into account their decorative qualities. When creating compositions for the interior, different types of indoor plants are used: decorative foliage, decorative flowering, decorative fruits, ampel and curly (with a hanging and vertical curling shape). The role of plants in the overall composition should be taken into account: emphasis - the most striking and beautiful flowering; background - floor covering, creating a green background; structure - the basis of the compositional group, usually medium or large plants; fillers - plants that play a supporting role.

Among the traditional methods of placing plants can be distinguished: in ceiling structures (ampel plants), on the floor (large ribbons), on the wall (climbing plants), in window openings (plants that can withstand temperature changes), on stands (plants with spreading leaves). Many other technologies are currently used in the field of phytodesign. Thus, plant compositions in the form of living walls create an original interior to zoning the room, creating the effect of a park zone and improving the microclimate. This is achieved by planting the plants in a special structure that may require minimal maintenance with a proper automatic irrigation system and phytolamp lighting. This style is often used in offices, shopping and entertainment centers, restaurants and recreation areas.

Also, one of the modern trends in interior design is floral paintings that combine green plants and mosses, flowers, as well as various decorative elements in harmony. To decorate such paintings are used specially processed stabilized plants that artificially slow down the drying process. However, such phytocomposites no longer have a therapeutic and healing effect, although they look very aesthetically pleasing.

Thus, the analysis of the impact of phytodesign elements on the interior of various buildings shows that plants increase the artistic expressiveness of the interior, become the center of the architectural composition of the interior, making it unique, environmentally friendly and livable.

In conclusion, there is no single recipe for creating an ideal, eco-friendly, comfortable city. The city is a living organism. Using a large number of concepts, the search for an optimal solution to the problems of sustainable urban development still continues, because in each case the good outcome of urban planning depends on the competent solution of social, economic and environmental problems.

## REFERENCES

1. Nekrasov MA, Krestinina NV. Modern information technologies for the development and visualization of mef-design projects. Moscow, 2008.

2. Salimovich ES, Shamilevich ST, Iskandarovna KD, Ziyodullayevna SU. Methods of Improving Green Walls on the Territory of Uzbekistan. *Annals of R.S.C.B.*, 2021;25(4): 1253–1260
3. Dobronravova EA, Vetlugina AV, Gadaeva ShB. Medico-ecological phitodesign in landscape design. *Design Engineering*. 2021;8:3205–3212.