

of electricity and water consumption. 95 % of the materials of the former headquarters of the committee were used in the construction of the new building. The windows are designed to allow the maximum amount of light inside the room, rainwater is used for toilets, and solar panels are installed on the roof.

Design and urban ecologies are always changing, but ecological architecture brings these two together, protecting and enhancing both. Ecological architecture has changed drastically since its beginnings with the first cities, and even since its contemporary beginnings in the 1960s.

The relationship between environment and architecture is now being tested by expanding cities and increasing threats of climate change. Mainstream architecture in the 21<sup>st</sup> century is damaging the Earth to such a degree that contemporary ecological architecture is now invaluable as an alternative. Luckily, cities around the world are embracing ecological architecture, both through their city planning guidelines and implementing features like living walls and green roofs.

The future of ecological architecture will hopefully include a further rise in popularity, as well as positive effects on urban ecosystems.

#### **References:**

1. <https://www.homely.com.au/advice/building/top-advancements-in-building-and-construction>
2. <https://www.intelligentbuildings.com/technological-advancements-in-smart-building-design/>
3. <https://wfmmedia.com/future-facades-advancements-in-technology-materials/>

## **FEATURES OF CHINESE GARDEN LANDSCAPE**

IEVGENIYA ZHMURKO, student

MARYNA S. KOLIENKINA, Associate Professor, PhD in Agricultural Sciences, Scientific Adviser

OLENA V. NAZYMKO, Associate Professor, PhD in Psychology, Language Adviser

*O. M. Beketov National University of Urban Economy in Kharkiv*

In modern ecological conditions, landscaping is of great importance in the improvement of the city. Chinese Garden is a landscape garden style that has evolved over three thousand years. They reproduce idealized miniature landscapes that express the harmony that should exist between man and nature. The main ideological line of the Chinese garden is copying famous natural landscapes.

A typical Chinese garden is surrounded by walls. In each park an important place is occupied by reservoirs, which significantly enrich the

landscape and give it naturalness. Architectural structures, trees, fast-moving clouds are reflected in the smooth surface of reservoirs. As a rule, all reservoirs are of artificial origin.

One of the oldest parks in Liuyuan was built in the middle of the Ming era around 1600. In terms of planning, the park is clearly divided into several parts. Liuyang Garden is divided into four parts: central, eastern, western and northern, which corresponds to the architectural style of buildings. In the eastern part there are the main park structures, which form a separate compact group with a symmetrical layout. The central part of the park is occupied by a small reservoir with cut shores, to the southern side of which a terrace descends the pavilion, and the northern shore is occupied by hills. In the northern wall of the park are thickets of evergreen bamboo, willow, grape-covered gallery. In the western part – a kind of "mountain landscape" with two gazebos. The walls have a large number of holes that have different shapes. Some of them are taken away by bars with unique drawings of geometric shapes, plant motifs or whole paintings on various subjects. Architectural structures have a great variety of types - gazebos, small park pavilions, terraces and large buildings.

All four parts of the garden and the main attractions are connected by a 700-meter covered corridor with elegant carved frames. Numerous galleries of the park either connect individual pavilions or, located along the walls and adhering to all its breaks, protect visitors from rain and sun, allowing them to admire the park in any weather. Courtyards in the parks, located in front of the building, allow you to perceive it separately from others from the best point of view, serve as the front of the open pavilion. The gallery in front of the pavilion connects the room even more closely with the outside space. Small courtyards are located between the pavilion and the wall, ending the corridors, they have openings. They serve as stores of light and air, give the parks even more lightness and elegance. They plant bamboo, one or more trees, shrubs, stones.

The central part of Liuyuan Park is the most saturated mining and water "point". Stone through structures with many openings and cells, which pass into each other, "flow" into a small courtyard "Gumujiange", separated by a wall from the pavilion Liuin. To the west is another small courtyard of Huabusyaozhou. The courtyards are separated by a wall in which the door is made. Opposite the Huabuxiaozhou courtyard, there is an open Liuin pavilion by the water.

To the west of the pavilion through the Bantin gazebo - the transition to the pavilion Minsheilou. This is a two-story building, the first floor is called "Qiakhan", the second - actually "Minsheilou". The surrounding landscape is very clean, bright and quiet. The relief in this place is flat, but due to the shape of the pavilion, resembling a boat, you can see an interesting outline of the overall picture. Further west is a high pavilion called "Hanbishangfan". It is the main building of this part of the park.

In the eastern part of Liuyuan Park from the Ufansyangguan Pavilion, there is a gallery with a hole in the wall, made in the shape of the moon. The

gallery leads to the gazebo of Jifenxuan. In the courtyard of this gazebo there are lake stones imitating a forest; they are surrounded by a gallery combined with a gazebo. The gazebo is an open house on one side, the other three walls of which have huge carved windows, through which a beautiful view. Carved windows serve as frames for landscape paintings outside the window.

Houses in gardens and parks are airy, light and elegant. They are closely connected with the surrounding space, open or on all four sides, like gazebos, or at least two. The walls are cut through by windows. The main colors used in the south - black, white, brown, gray. Gray tiles, white walls, brown wooden shades of various shades, pillars, black stone panels with hieroglyphs do not create a bright range, do not stand out from the environment, do not argue with the splendor of nature. Greens play an important role. In large quantities it forms a landscape, whole paintings, in small ones it serves as a decorative or compositional element, important for certain parts of the park, pavilions. Sometimes greenery forms scenes, forcing to pay attention to a certain object and closing everything else. The parks have many flowers, including lotuses, a favorite annual flower of the Chinese, a symbol of purity, beauty and nobility.

Thus, the features of planning Liuyuan Park comprise gazebos, small park pavilions, terraces and large buildings are airy, light and elegant; division of the park into parts. Therefore, the park is very popular and eye-catching, and remains a major tourist destination.

#### **References:**

1. Lazaryev H.Z. pid redaktsiyeyu Prybytkova A.M. (Vidp. Red.), Veymarna B.V., Hlukharevoy O.N. Zahal'na istoriya arkhitektury [General history of architecture]. Tom 9. Arkhitektura Skhidnoyi i Pivdenno-skhidnoyi Aziyi do seredyny XIX stolittya [Architecture of East and Southeast Asia to the middle of the XIX century] / Arkhitektura Kytayu ser. XVII – ser. XIX st. Sady i parky [Architecture of China mid. XVII - mid. XIX century Gardens and parks]. – Moskva, Stroyzdat, 1971
2. <http://www.dkd.ru/landscape/book>
3. <https://www.chinatrips.ru/suzhou/attraction/the-lingering-garden.html>

## **TECHNOLOGICAL DESIGN OF BUILDING PROCESSES**

YURII ZLOBIN, student

OLENA Ye. POMORTSEVA, Associate Professor, PhD in Engineering,  
Scientific Adviser

RADUL G. MAKOVIEI, Senior Teacher, Language Adviser

*O. M. Beketov National University of Urban Economy in Kharkiv*

Technological design of building processes is the definition of the most optimal organizational and technological solutions for carrying out construction processes that ensure the release of sound construction products with minimum technical and economic specifications: cost, duration and labor intensity.