

ANALYSIS OF FOREIGN EXPERIENCE IN THE USE OF LOW AND MULTI-STOREY BUILDINGS

Usmonov F.B

Associate Professor of the Department of Construction of Buildings and Structures, Bukhara Engineering Technological Institute.

Yakhshiev Y. G

Assistant of the Department of Construction of Buildings and Structures of the Bukhara Engineering and Technological Institute.

Usmonova G.F

Assistant of the Department of Architecture, Bukhara Engineering Technological Institute

ABSTRACT:

A literary analysis of the world experience of using the roofs of a building in the Faroe Islands, Babylonian Hanging Gardens, the Villa of the Mysteries in Pompeii, etc. has been carried out. Structural solutions of roofs providing the required operational strength characteristics have been studied.

Key words: roof, green roof, straw, reed, garden, hanging garden.

INTRODUCTION:

As an example of a green roof, people of the primitive system can leave caves and bring themselves trunks and branches of trees, tents built of grass, and habitats. For years, people have covered the roofs of their homes with thatch and thatch to keep the inside warm. In hot weather, they formed a green environment on green roofs. The construction of such roofs was common in Scandinavia. Such buildings can be found today in the old villages of the country, like the houses of the peasants.



Fig-1. Houses with green roofs in the Faroe Islands.

In the Middle East, building gardens on buildings with flat roofs is a long tradition. The birthplace of such events is Babylon and Syria. In these countries, the Hanging Gardens of Babylon, built 600 years ago, are considered the seventh miracle.

Excavations of a hill 45 meters high on the left bank of the Euphrates River, the opening of the terrace and its hydraulic structures, water supply systems testified to the existence of legendary terraced gardens in these territories in ancient times. Terraced gardens can be seen as an ascending pyramidal system in the form of a staircase, built as a constructive solution to ensure timely and even distribution of loads on the foundation. A smaller terrace garden was built on top of the terrace garden, and a smaller terrace garden

(staircase) was built on top of it, and the tallest garden was located 25 m above the ground. The entire garden faces south. In such gardens, equipped with a special water supply system, the plants are the same as in nature: on the upper terraces there are air purifiers, wet fountains, on the upper terraces there are fast-growing mountain trees, on the lower ones, slowly growing trees, plants and fountains grow on terraces, overcome obstacles, collect and cool the environment on their way down (see Fig. 2) [1].



Fig. 2. Babylonian Hanging Gardens.
Reconstruction by F. Crishen.

Archaeologists have reconstructed the constructive solution of the roof. It turned out that the roofing consisted of flat hewn stones, on top of which lay two rows of bricks and lead plates to protect from moisture. Reeds impregnated with bitumen above the slabs covered it with fertile soil. The presence of pipes in the body of the columns and through them the water of the Euphrates River was delivered to the highest level of the terrace. Later, Eastern culture moved to Greece, where roofs and balconies were decorated with flowers and potted trees, and joined the worship of Adonis, which was celebrated in Rome.



Fig.-3. Remains of the ancient roof gardens of the Villa of the Mysteries in Pompeii.

Excavations at Pompeii completed the roofs of the villas, often with green terraced terraces. Traces of such solutions were observed on the roofs of the arched structures surrounding the Villa of the Mysteries (Fig. 3). In the 28th century BC, evergreen trees and shrubs grew on the circular terraces of the Mausoleum of Emperor Augustus in Rome. In the 5th century, many Byzantine emperors created luxurious gardens on the terraces of the upper floors of palaces, and one of Justinian's poets Isaiah wrote that he recited poems (poems, gazelles) praising the wonderful blue sea among gardens protected from wind and sunlight. Correspondence about Byzantium of the XI-XII centuries, the proclamations read in the divine services, describe the beauty of the gardens, landscape, the prevalence of such gardens. Over time, the creation of green roof gardens moved to the northern regions of Europe. In 1487, a green garden with fruit trees, vineyards and flower beds was laid out in the southern part of the castle of the German emperor Frederick III in Nuremberg. A similar garden was built by Archduke Ferdinand in the Ambras castle in Tyrol. Later in Germany, flowerbeds, bushes and potted trees were planted on the roof of the palace of Archbishop Johann-Philip. Also known are the green gardens on the roofs of Karls Castle.

During the Renaissance, the hanging

gardens that belonged to kings, dukes and other celebrities became more luxurious, with foreign teachings, especially such gardens were famous in Italy, in Florence in the 15th century, exotic ornamental trees were planted in terraced gardens on the roofs. In Mantua, a large hanging garden was built on the roof of Gonzaga Castle. Cardinal Andrea del Valais built a museum in the form of a "hanging garden" in Rome in 1530, and in Verona, Count Mafarey built a very beautiful picturesque garden of various flowers and trees on the roof of his palace [2]. In the XVI th and XVII th centuries, hanging gardens were created on the terrace of the castle on the cliffs of Isola Bella, surrounded by the waters of Lake Maggiore in northern Italy, which became an example of park art in later development. Above is an ensemble of several underground caves under beautiful terraced trees and terraces, collected from flowers around the world, which served as a refuge for people on hot summer days (see Fig. 4). It was very expensive to build such terraced gardens, so such gardens could be found in the homes of very rich, famous people.



Fig.- 4. Hanging Gardens on Isola Bella.

At the beginning of the 18th century, the German traveler Johann Volkmer wrote: "In Venice and Genoa, magnificent gardens are in the air over the settlements. In Genoa, most of the buildings are built on rocky ground that can support the weight of fertile soil with a roof for

plant growth".

Soon, houses with roof gardens appeared not only in Italy, but also in relatively northern countries, such as the wealthy German cities of Nuremberg and Augsburg and even England. In England, a large area was planted on the roof of the Wiltons' house, which belonged to the Earl of Pembroke, and fountains were installed.

In the 18th century, the famous scientist and builder Paul Marnerger recommended the widespread use of roofs of buildings and structures under construction for domestic needs and recreational purposes. In this sense, he advocated the construction of buildings with flat roofs rather than sloped roofs, and proposed replacing buildings with sloping roofs with flat roofs. Half a century later, the idea of building flat roofs was again promoted by Karl Rabitz. The famous builder and inventor Karl Rabitts, together with the civil scientist Marnerger, developed several fundamentally new designs of connected flat roofs. In particular, the influx of reinforced concrete in the construction of both French Le Carbyuze and American F.L. Thanks to the influx of renowned architects and urban planners such as Wright, in the late nineteenth and early twentieth centuries, designs for large-area flat-roofed gardens were created.

Le Corbusier has developed a series of projects in which pitched roofs make green roofs an integral part of architecture, from small villas to large residential complexes. Simultaneously with Le Carbuze, similar projects in many other countries were designed and implemented by other architects, which manifested itself as a new wave. For example, the Perret brothers designed and built a terraced apartment building in Paris in 1903, a green rooftop restaurant in Walter Gropius' office building in Cologne in 1914, and a green roof restaurant in Frankfurt, Lloyd Wright, Chicago. 3]. Since the twenties of the last century, new technical solutions for new pitched

roofs began to appear. The construction of such covered buildings has spread to many countries.

In the 1930s. R. on Kensington Heath Street, London. From Hancock's side, a six-story residential building project was developed, on the basis of which Europe's largest garden complex Derry and Tomz, covering an area of 0.6 hectares, was built. To this day there are Tudor Victorian, Spanish and English landscaped gardens built in different styles (see Fig. 5).



Fig.- 5. Derry and Toms Park in London

Currently, 10% of all roofs in Germany are green, and many European countries, including Austria, Italy, the Netherlands, Norway, Sweden, Switzerland and the United Kingdom, are actively promoting the idea of green roofs. Green Gables are also popular in Canada and the United States, although there are not as many of them as in Europe.

The analysis shows that the creation of microclimate conditions for people on the upper floors of buildings has long been an important factor in the design of high-rise buildings and structures. By transferring the green world to the upper floors of the building, they somehow solved the problems of humidity, fresh air, protection from solar radiation, its efficient use, efficient use of rainwater. Terrace gardens, plant species in them are selected based on lifestyle, customs, climatological indicators of the

local population. Such green roofs should be designed for the central cities of the Republic of Uzbekistan, which are growing day by day with their skyscrapers, but when making decisions, it is important to take into account our national mentality, flora, sunny days and its indicators.

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