

CLASSIFICATION OF ORANGE STRUCTURES BY MAIN FEATURES¹**N.Yu. Merzhievskay,**

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Abstract. The article discusses the definition of greenhouse structures for classification according to the main features. The authors give the values of various types of cultivation facilities, from «technological soil» to the climatron. The meaning of greenhouses in the life of people and the prerequisites for their creation are revealed. In ancient culture, botanical gardens were mainly intended for the cultivation of medicinal plants, in the Renaissance they performed scientific, educational and aesthetic functions, later the narrow focus did not justify expectations and in the course of scientific and technological progress, botanical gardens turned into multifunctional complexes.

Therefore, greenhouses have radically changed their appearance and philosophical content, so the authors of the article propose a classification that covers buildings from the end of the 16th century to the present day. The proposed classification takes into account the following main features: the period of construction, the type of location, the role in the formation of the urban environment, the landscape structure of the botanical garden or greenhouse, the functional purpose of the structure, the introduction of the greenhouse structure into a building with a different typology, the architectural and compositional solution, the structural scheme of a unique structure, materials for the bearing structural scheme, the material of the covering of the translucent area of the greenhouse, the type of reproduction of the climatic characteristics in the halls and the source of heating of the building. These characteristics, which help evaluate greenhouse structures, bring the principles of their design to a common denominator. This will help to analyze the foreign and domestic experience in designing greenhouses, find common ground and determine in which direction to move on.

In the modern world, greenhouse buildings play a new role both in the structure of the city and in people's lives. They have turned into urban centers with a wide range of services, becoming a place to come not only on excursions with a class or a group. In world experience, these spaces symbolize the openness of people and society, the transparency of their relationship to each other. The structure, which has become a complex interdisciplinary task, uniting many professionals in the development and construction (in addition to professionals in the construction scientific and practical direction, also biological, environmental, engineering, information technology and many others). Greenhouses - is an example of public ecological construction, affects the collective level of ecological awareness of the society.

Keywords: greenhouses, classification system, cultivation facilities, the role of greenhouses in the urban environment, urban greening system.

Formulation of the problem. Today, environmental problems are acute at many levels and especially at the socio-cultural level. Green construction is a practice of construction and operation of buildings, the purpose of which is to reduce the level of consumption of energy and material resources throughout the life cycle of the building. Another goal of "green" construction is to preserve or improve the quality of buildings and the comfort of their internal and external environment. This practice expands and complements the classic building design concepts of economy, usefulness, durability, ecology of visual perception and comfort in general. Modern greenhouses have changed radically relative to their first typological representatives. The change

in social needs has changed not only the architectural and planning decisions, but also the philosophical significance of the greenhouse in the structure of the city. An updated broad classification of greenhouse buildings from the end of the 16th century to the present day is needed.

Purpose and objectives of the work. The purpose of this article is to study the peculiarities of the formation of greenhouses. To reveal the relevance of greenhouse buildings in the structure of the city as part of urban landscaping. The task of the study is to reduce the diversity of greenhouse structures to the classification by basic characteristics.

The base material and results of research. «Green architecture», which has become a prominent stylistic trend and at the same time the main technological core of modern architecture, is determined by the inclusion of a natural component in the architectural environment. Often the landscape is created by architects on the roofs and facades of buildings, but architecture really becomes «green» when nature penetrates under the roof and into the interior, leveling the «degree of landscaping» outside and inside the building [1]. Also, V.N. Logvinov - architect and publicist noted about the current situation: «The most pressing issue of architecture at the present stage of human development should be the issue of consistent, sustainable development and integration of the biosphere with the artificial environment - the noosphere» [2,3].

Greenhouses are cultivation facilities. First, consider the types that belong to this group of public buildings. N.V. Novikova (Professor, Associate Professor of Architecture of Rural Settlements, MARHI) noted that the buildings of cultivation purposes include: «technological soil», greenhouses, hothouses, greenhouses, conservatories and phytotrons, climatrons and biohouses.

Technological soil is a specially allocated and equipped areas of open ground, designed for highly efficient production of crop products with intensification, mechanization and authorization of the production process [4].

Hotbed are the simplest structures of protected soil, which do not have special heating, but are heated by natural energy - solar, as well as so-called bioheating with manure and compost, which emit heat and biogas during decomposition [4].

Conservatory - the most common cultivation facilities that have special heating and are designed for industrial mass production and crop production - vegetables, fruits, flowers, mushrooms, fodder crops, medicinal plants and plants that are raw materials for further industrial use [4].

A greenhouse is a structure for cultivating plants that are not typical of the area of the greenhouse, the so-called exotics, i.e. exotic plant species. In contrast to greenhouses intended for commercial mass production of vegetable crops, greenhouses grow rare and often expensive plant species. These structures are larger and more complex engineering equipment that provides the necessary parameters of the microclimate [4].

Winter gardens are not independent structures, it is rather a kind of greenhouse. They are part of the structure of residential, public or industrial buildings as a place of recreation and short-term vacation. Winter gardens are much smaller than greenhouses and can be arranged anywhere in residential, social or working conditions [4].

Phytotrons, climatrons, biohouses ... - synonyms of the same cultivation structures created for exhibition, educational and research purposes, which creates an artificial climate identical to a particular climatic region of the globe (humid tropics, dry tropics, subtropics, etc.) with the relevant representatives of the flora and fauna of this area [4].

The classification of urban landscaping includes such a type of garden as botanical. Man has always sought to enrich the natural environment with useful plants from other areas. Even in ancient civilizations, gardens were established in which ornamental plants brought from other countries were grown. In ancient culture, botanical gardens were mainly intended for growing medicinal plants. During the Renaissance, new plants were studied in botanical gardens, they were used in agriculture, as well as to decorate gardens and parks. The narrow focus of botanical

gardens and apothecary gardens was gradually lost. Taking a research and educational character, in the 50-60s of the XX century botanical gardens became museums of wildlife, repositories of the genetic fund of plant varieties. The need to create a variety of plant collections in botanical gardens, contributed to the introduction of plants, which required the construction of greenhouses and hothouses [5,6].

Thus, the article will provide a classification of greenhouses.

At the beginning of its development, greenhouses did not look the way we are used to. They were with stone walls and not transparent roofs, but with large windows (as far as technical possibilities allowed). It is believed that the first greenhouse, the type we are used to seeing, appeared in the late 16th century, in 1599 in the Leiden Botanical Garden. Around the middle of the same century, greenhouses and conservatories appeared in many European countries.

Greenhouses do not leave anyone indifferent, as noted by photographer India Hobson from the duo Haarkon – «This is a fusion of botany and architecture. Strange, but extremely pleasing, combination of nature and engineering thought, which, I think, attracts a wide range of people. For me, it is a universal language, in a sense, a fusion of many cultures and countries under one beautiful glass roof» [7,8]. To date, scientific and technological progress has allowed us to achieve the greatest variety of greenhouses. Modern greenhouse buildings are unique and inimitable projects. Consider the classification of greenhouses from the late 16th century to the present day.

Classification of greenhouses by main features:

- by building period;
- by type of placement;
- the role in shaping the urban environment;
- by landscape structure;
- by functional purpose;
- for implementation in other typology of buildings;
- according to the architectural and compositional solution;
- according to the constructive scheme;
- on the material of the load-bearing structure;
- by coating material;
- by creating a climate;
- by heating source.

Consider in more detail each item of the classification.

1. According to the period of construction of the greenhouse can be divided into the following historical stages:

Stage I - the Age of the Ancient World (7th century BC - 3rd century AD) - greenhouses, hothouses and conservatories have always been associated with imperialism and the reproduction of the elite class. During this period, park art was born, the park architectural ensemble began to form as the main characteristic of landscape architecture. One striking example is the Gardens of Semiarid.

Stage II - The Age of Great Migrations (IV century - VII century) - During this period, many events took place, some of which influenced the «proto-greenhouses». One of the phenomena was cooling, and as a consequence of deteriorating yields (this phenomenon was one of the reasons for the resettlement of peoples), which intensified the installation of domestic greenhouses and hothouses. Similarly, in 325 the First Council of Nicaea was held, which defines the basic tenets of Christianity. Therefore, the Church received the right to buy real estate. An example is the Basilica of St. Sabina and Serapina - a historic church located on top of the Aventine Hill in Rome.

Classification of greenhouse complexes by main features			
By construction period:			
Stage I - The Age of the Ancient World			
Stage II - The Age of Great Migrations			
Stage III - The Age of Feudalism			
Stage IV - The Age of Renaissance			
Stage V - The Age of Industrialization			
Stage VI - The era of modern technology			
By role in shaping the urban environment:			
By functional purpose:			
- Research;			
- Exhibition;			
- Educational;			
- Selection (for breeding flowers, vegetables, fruits);			
- Integrated (implemented in other typology of buildings);			
- Multifunctional;			
According to the architectural and compositional solution:			
- Linear;			
- Geometric;			
- Radial;			
- Cross-shaped;			
- Implementation;			
- Mixed;			
According to the material of the structural system:			
- Steel;			
- Aluminum;			
- Reinforced concrete;			
- Wooden;			
- Plastic;			
By coating material:			
- Glass;			
- Fiberglass;			
- Pellicle (polyethylene, polyvinyl chloride, ethylene vinyl acetate)			
By heating source:			
With active form of heating	With passive form of heating		
It is achieved with the help of solar panels, solar collectors, stations, as well as "wind" energy and any alternative sources.	Achieved by heating energy consumption of the Sun, warm water from the nuclear power plant, CHP, GREC and various enterprises, bio heating with compost, etc.		
By location type:			
- In the structure of the city as part of the botanical garden			
- In the structure of the city, without a botanical garden			
- Outside the city with large research site			
- In the structure of a building with a different topology			
By landscape structure:			
Upon introduction into other typological structures:			
- In residential buildings;			
- In administrative and office buildings;			
- In the atrium spaces of public buildings;			
- In monastic and church complexes;			
- In educational institutions of specialized and non-specialized profile;			
By constructive features:			
	Ancient pattern	- Stone building with lots of panoramic windows;	
		Modern design	- Stone building with a glass roof;
			- Fully glass structure with a steel frame and elongated along the side with the greatest sun exposure;
			- Frame systems (span - 4 -24 m);
			- Multi-run cable-stayed greenhouses;
			- Multi-run frame systems (rack-and-beam, -arc, -farm systems);
- Frame arch and frame systems;			
		- Combined systems;	
By creating a climate:			

Fig. 1 Classification of greenhouse complexes by main features

Stage III - The Age of Feudalism (VIII century - XIV century) - the first buildings of this typology begin to be part of palaces and monasteries. If in the previous period open sacred land was usually used for sacred buildings, then in this period it was closed land. They have cultivation and agricultural functions. They grow vegetables and fruits to meet economic needs. Structurally, they do not look like our usual greenhouses, more like greenhouses and hotbeds. Examples are the Benedictine Monastery of St. Gallen in Switzerland, the Monastery in Florence and others.

Stage IV - Renaissance (XV century - XVII century.) - During this period, what we call a modern greenhouse. It is believed that the first official large greenhouse appeared in the late 16th century, in 1599 in the Leiden Botanical Garden. In 1646, similar greenhouses were opened in Rent, Amsterdam, and in 1714 in Paris. Around the middle of the same century, the royal family and nobility of France, Italy, Great Britain and the Netherlands began to build greenhouses with vertical glass panels on the facade so that sunlight fell on the plants. During this period, greenhouses became more secular and spectacular.

Stage V - The Age of Industrialization (XVIII century - XIX century) - this era is associated with the development of metal structures. There are economically favorable conditions for the industrial possibility of obtaining sheet glass in sufficient quantities. These factors led to the emergence of a new direction in architecture, where the main elements were metal structures and glass as the main material of enclosing structures. Examples include the Palm Greenhouse in Vienna, the Palm Greenhouse in Shernburn, the Greenhouse Botanical Gardens Complex in Kew, the Royal Greenhouses in Brussels, the Fomin Greenhouse in the Botanical Garden, Kyiv, Ukraine, and others.

Stage VI - The era of modern technology (XX century - to this day) - «Crystal Palace» became the first truly large-scale building of this type. It was built under the direction of Joseph Paxton in England in 1854. The fashion for such buildings quickly spread throughout Europe and beyond. Nowadays, the symbiosis of the latest technologies, methods of forming facades and spatial solutions, the use of alternative energy sources have allowed to reach a new level in the design of greenhouse complexes. One example is the Greenhouse «Eden» (St. Austel, UK); California Academy of Sciences (USA), Gondwana Tropical Biome (Leipzig, Germany), Marina Bay South Greenhouse (Singapore), Amazon Spherical Greenhouse (Seattle, USA) and many more.

2. By type of greenhouse location there are:

- in the structure of the city as part of the botanical garden;
- in the structure of the city, without a botanical garden;
- out of town with a research center;
- in the structure of the building with a different typology.

Most often, greenhouse buildings, especially before, were located as part of the botanical garden and not far from the city center or outside the city. This is more typical of "proto-greenhouses" on many principles. Modern examples are often located outside the city and with a large surrounding area, and the greenhouse is becoming a research and experimental center. So there is a type which on principles borders with winter gardens, it is the embedded greenhouse structures in the building of other typology.

3. According to the role in the formation of the urban environment, greenhouses can be divided into:

- background buildings;
- accent;
- dominant.

According to typological features, this type belongs to the unique buildings, but among them you can also select the background, accent and dominant greenhouses. Figure 1 clearly shows the difference. As tolerantly inscribed greenhouses (this is more true of greenhouses of the IV stage, the Renaissance, when they were a transitional type between a separate winter garden and a greenhouse). Dominant-type greenhouses tend to fit harmoniously into urban development,

but attracting attention and creating new tourist destinations. The accent can be considered greenhouses, which dissolve in the landscape, do not draw the whole view of themselves, but look most characteristic in combination with landscape architecture.

4. According to the landscape structure can be distinguished:

- greenhouses with the structure of the «Italian Garden» (with a bright relief);
- greenhouses with the structure of the «French Garden» (regular, geometric);
- greenhouses with the structure of the «English Garden» (picturesque, natural).

Landscape art has evolved over the centuries, reflecting the philosophy and culture of its time. There are two main areas in landscape art. The first direction is related to the subordination of nature to order and geometric lines, the second is the inclusion of artificial structures in the curves of the natural landscape [10]. There is a clear dependence of the structure of greenhouses on the existing types of landscape art. The main basis for the development and creation of modern greenhouses was the English park. Due to its flexibility, picturesqueness and affinity with the natural landscape, it has entered the modern park and landscape culture.

5. According to the functional purpose, we distinguish the following groups:

- Research;
- Exhibition;
- Educational;
- Selection (for breeding flowers, vegetables, fruits);
- Integrated (implemented in other typology of buildings);
- Multifunctional.

We will consider integrated greenhouses in more detail. This type involves the introduction of greenhouse structures in buildings of a different typology, to date, such greenhouses have become widespread. They can be integrated into the architectural and planning structure of residential buildings, educational, administrative and office buildings, can be combined with zoos and terrariums, can be part of sacred complexes.

6. For implementation in other typology of buildings:

- in residential buildings;
- in administrative and office buildings;
- in the atrium spaces of public buildings;
- in monastic and church complexes;
- in educational institutions of specialized and non-specialized profile.

This type involves the introduction of greenhouse structures in buildings of a different typology, to date, such greenhouses have become widespread. They can be integrated into the architectural and planning structure of residential buildings, educational, administrative and office buildings, can be combined with zoos and terrariums, can be part of sacred complexes.

7. According to the architectural-compositional decision allocate:

- Linear;
- Radial;
- Geometric;
- Cross-shaped;
- Implementation in other structures;
- Mixed.

8. On construction grounds.

Old pattern:

- stone building with many panoramic windows;
- stone building with glass roof;
- full glass structure with a steel frame and elongated along the side with the greatest sun douching.

Modern design:

- frame systems (span - 4 - 24 m);

- multi-row cable greenhouses, with a film coating (is the most economical solution for a single-storey greenhouse structure);
- multi-run frame systems. As bearing flat and spatial elements use, rack-and-beam, -arc, -frame systems.
- frame arch and frame systems;
- combined.

The design of cultivation facilities must provide the necessary biological conditions for growing plants, helping to obtain the maximum volume of products at minimum labor costs, meet all operational requirements, including working for a long time in an aggressive environment. For example, in greenhouses for growing vegetables, the microclimate parameters favorable for growing plants are: high humidity, reaching 95%, large temperature differences from +6 to +33 degrees Celsius, high content of carbon dioxide and nitrogen oxides in the air [4].

9. According to the material of the structural system can be distinguished:

- steel;
- aluminum;
- reinforced concrete;
- wooden;
- plastic.

The load-bearing systems of greenhouse structures are made of the above materials. In this case, metal structures must be protected from corrosion. Steel structures are usually galvanized, wooden ones are antiseptic, and plastic ones are protected from destruction by so-called solar radiation. After all, they have to withstand a fairly aggressive environment.

10. According to the material of the coating is divided into three major groups, using:

- Glass. Advantages - durability, environmental friendliness, imitation of proto-greenhouses, the creation of the necessary climatic regime (which is the most important technical condition). Disadvantages include high cost, heavy weight and sufficient fragility.
- Fiberglass. Advantages - high strength at low weight, high corrosion duration, the required level of ultraviolet transmission and protection of plants from overheating. Disadvantages - a lower level of environmental friendliness compared to glass.
- Pellicle. Polyethylene (high light transparency, low cost, service life of about two years). Polyvinyl chloride (PVC) (high light transparency, longer service life, higher cost). Ethylene vinyl acetate (low light transparency, long-term).

Each of the coating materials is used under certain conditions and the necessary criteria. Glass and PVC coatings are mostly used in large greenhouse complexes. Glass - a symbol of greenhouses of the ancient design, polyvinylchloride - the modern design. Films as a coating material are more used in small home greenhouses.

11. By creating a climate, we highlight:

- halls with identical climate;
- halls with partial climate transfer;
- halls with a combined climate.

Halls with identical climate, respectively, identically repeat the flora and fauna of the climatic zone. Halls with partial climate transfer create a close climate to which plants can adapt. Halls with a combined climate are used when different types of plants are collected under one «sky», but with similar climatic characteristics, so they create a generalized comfortable climate.

12. According to the heating source, there are greenhouses:

- with an active form of heating;
- with a passive form of heating.

The active form of heating is achieved through the use of solar panels, solar panels, stations, wind energy, etc. And the passive form of heating includes the use of sunlight, warm water from nuclear power plants, CHP, GREC and various enterprises, bioheating with compost.

Conclusions. Considering the classification, we see an increase in the versatility of architectural-spatial and planning-constructive solutions, especially after the V stage of development - the Age of Industrialization (XVIII century - XIX century) - a period of active manufacture of metal structures. It is these factors that led to the emergence of a new direction in architecture, where the main elements were metal structures and glass as the main material of enclosing structures.

Thus, greenhouses become the dominant structure of botanical gardens and nature parks, maintaining a balance between nature, technology and the endless creative possibilities of architects and engineers in creating unique greenhouse complexes. Therefore, their classification needs to be studied and supplemented, because grand and innovative projects continue to be created, bringing new criteria for evaluation and analysis.

A greenhouse is an example of a public ecological building that influences the collective level of environmental awareness of society. We need greenhouse structures in any manifestation, whether it is a small living room in the office, or a large airport lobby, or a separate greenhouse in the botanical garden. They create the necessary balance between the city and nature.

References

- [1] Pavlova, V.A. & Kashitsyna, A.A. (2019). Zelenyye tekhnologii i priroda vnutri zdaniya. *Arkhitektura i sovremennyye informatsionnyye tekhnologii*, 3 (48), 200–216 [in Russian].
- [2] Logvinov, V.N. (2019). *Priroda i arkhitektura. Put' integratsii*. Moskva: Glasnost' [in Russian]
- [3] Gnedovskiy, S.V. (2019). *Arkhitektura, integrirovannaya s prirodoy. Smena paradigmy. Retseziya na knigu V. Logvinova «Priroda i arkhitektura: put' integratsii»*. Moskva. URL: <https://archi.ru/almanac/92012/prirodointegrirovannaya-arkhitektura-smena-paradigmy-recenziya-na-knigu-vn-logvinova-priroda-i-arkhitektura-put-integratsii> (date of the massacre: 12.02 .2021), [in Russian].
- [4] Novikova, N.V. (2006). *Arkhitektura teplits i teplits*. Moskva: Arkhitektura [in Russian].
- [5] Teodoronskiy, B.S. Bogovaya, I.O. (2003). *Ob"yekty landshaftnoy arkhitektury: Uchebnoye posobiye dlya shkol'nikov*. Moskva: MGUL [in Russian].
- [6] Iordan, T.A., Kozlova, L.N. (2016). Sovremennyye teplitsy - eto ob"yekty nauchnoy i obrazovatel'noy deyatel'nosti. *Elektronnyy nauchnyy zhurnal «Mezhdunarodnyy studencheskiy nauchnyy vestnik»*, 2. URL: <http://www.eduherald.ru/ru/article/view?id=16622> (date of access: 04.27.2021) [in Russian].
- [7] Vita est mirum. (2019). *Duet fotografov puteshestvuyet po miru, snimaya botanicheskiye sady, teplitsy i oranzherei*. URL: http://mirum.ru/news/world_trend/raznoe/duet_fotografov_puteshestvuet_po_miru_snimaya_botanicheskiye_sady_oranzherei_i_templitsy/(date of the massacre: 03.04.2021), [in Russian].
- [8] Khobson, I., Edmondson, M. (2018). *Ekskursiya po teplitse v Kharkon*. Pavil'on Knizhnaya Kompaniya [in Russian].
- [9] *Zimniy sad - eto istoriya vozniknoveniya kak arkhitekturnogo sooruzheniya*. KOMPAS - grupp. Stat'i. URL: <https://kompas-grupp.com.ua/blog/articles /istoriya-zimnego-sada/>. (date of the beast: 20.03.21), [in Russian].
- [10] *Osnovnyye stili sadovo-parkovogo iskusstva - landshaftnyy dizayn*. URL: http://proekt.gotoviydom.ru/landshaftnyj_dizajn/osnovnyye_stili_sadovoparkovogo_iskusstva (date of the beast: 20.03.21), [in Russian].
- [11] MacFarlane, By Key (2018). TEPLICHNYY EFFEKT. Mute. URL: <https://www.metamute.org/editorial/articles/greenhouse-effect> (date of the beast: 19.03.2021), [in Russian].

КЛАСИФІКАЦІЯ ОРАНЖЕРЕЙНИХ СТРУКТУР ЗА ОСНОВНИМИ ОЗНАКАМИ

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Анотація. У статті розглядається розподіл оранжерейних структур на класифікацію за основними ознаками. Автори наводять значення різних видів культивацийних споруд, від «технологічного ґрунту», до кліматронів. Розкривається значення оранжерей в житті людей і передумови їх створення. В античній культурі ботанічні сади в основному призначалися для вирощування лікарських рослин, в епоху Відродження - виконували науково-просвітницьку та естетичну функції, згодом вузька спрямованість не виправдала сподівань і в ході науково-технічного прогресу, ботанічні сади перетворилися на багатофункціональні комплекси.

Отже, оранжереї в корені змінили свій вигляд і філософське наповнення, тому автори статті пропонують класифікацію, яка охоплює споруди від кінця 16-го століття до наших днів. Пропонована класифікація враховує такі основні ознаки, як: період забудови, тип розміщення, роль у формуванні міського середовища, ландшафтну структуру ботанічного саду чи оранжереї, функціональне призначення споруди, впровадження оранжерейної структури в будівлю з іншою типологією, архітектурно-композиційне рішення, конструктивну схему унікальної споруди, матеріали для несучої конструктивної схеми, матеріал покриття світлопрозорої обласні оранжереї, вид відтворення кліматичних характеристик у залах та джерело обігріву споруди.

У сучасному світі оранжерейні споруди відіграють нову роль як в структурі міста, так і в житті людей. Вони перетворилися в міські центри з великим спектром послуг, стають місцем, в яке приходять не тільки на екскурсії з класом або групою. У світовому досвіді ці простори символізують відкритість людей і суспільства, прозорість їх ставлення один до одного. Оранжереї - є прикладом громадського екологічного будівництва, яке впливає на колективний рівень екологічної усвідомленості суспільства.

Ключові слова: оранжереї, система класифікації, культивацийна споруда, роль оранжерей в міському середовищі, система міського озеленення.

КЛАССИФИКАЦИЯ ОРАНЖЕРЕЙНЫХ СТРУКТУР ПО ОСНОВНЫМ ПРИЗНАКАМ

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Аннотация. В статье рассматривается определение оранжерейных структур на классификацию по основным признакам. Авторы приводят значения различных видов культивационных сооружений, от «технологического ґрунта», до климатрона. Раскрывается значение оранжерей в жизни людей и предпосылки их создания. В античной культуре ботанические сады в основном предназначались для выращивания лекарственных растений, в эпоху Возрождения – выполняли научно-просветительскую и эстетическую функции, впоследствии узкая направленность не оправдала надежд и в ходе научно-технического прогресса, ботанические сады превратились во многофункциональные комплексы.

Итак, оранжереи в корне изменили свой вид и философское наполнение, поэтому авторы статьи предлагают классификацию, которая охватывает сооружения с конца 16-го века до наших дней. Предлагаемая классификация учитывает следующие основные признаки: период застройки, тип размещения, роль в формировании городской среды, ландшафтную структуру ботанического сада или оранжереи, функциональное назначение сооружения, внедрение оранжерейной структуры в здание с другой типологией, архитектурно-композиционное решение, конструктивную схему уникального сооружения, материалы для несущей конструктивной схемы, материал покрытия светопрозрачной области оранжереи, вид воспроизведения климатических характеристик в залах и источник обогрева здания.

В современном мире оранжерейные сооружения играют новую роль как в структуре города, так и в жизни людей. Они превратились в городские центры с обширным спектром услуг, становятся местом, в которое приходят не только на экскурсии с классом или группой. В мировом опыте эти пространства символизируют открытость людей и общества, прозрачность их отношения друг к другу. Оранжереи - является примером общественного экологического строительства, влияет на коллективный уровень экологической осознанности общества.

Ключевые слова: оранжереи, система классификации, культивационные сооружения, роль оранжерей в городской среде, система городского озеленения