Winter garden - rest for the soul

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ABSTRACT

The winter garden is a heated room with natural light, designed to accommodate exotic and non-winter-hardy, as well as indoor plants. The winter garden is usually a glazed room with a metal, aluminum, wooden frame or a veranda as a continuation of the living room.

Keywords: Winter garden, lounge, triplex, tempered glass, Singapore Botanical Garden.

Modern urban planning is increasingly using the possibility of introducing elements of natural nature into the interiors of public buildings and structures. Compositions of evergreen, indoor and flowering plants create a special picturesqueness and have undeniable advantages in the design of recreation areas over cold materials.

The parameters of the winter garden, such as its shape, composition, detailing, are determined solely by the imagination of the architect. You can make it both in the form of a large pavilion, and a small veranda adjacent to the house; impressive design of a simple balcony and a majestic gallery: a neat glass ceiling above the kitchen and a small secluded gazebo. The winter garden looks equally expressive both in the city and near a country house.

The Winter Garden, its specifics, purpose The Winter Garden is a room, a structure intended for heat-loving plants. Do not confuse it with a greenhouse. Greenhouses are a modification of industrial greenhouses designed for vegetables and herbs. The winter garden in the house, apartment, solid office performs other functions. This oasis: allows you to admire lush greenery and flowers throughout the year; creates excellent conditions for growing rare plants from different continents; is an ideal place for relaxation, recreation; becomes the main decoration of the house. The main condition for maintaining a winter garden is to maintain the optimum temperature, which is required by heat-loving plants. In the first premises of this kind, a hole was dug into which hot coal was poured. This material smolders for a long time, constantly releasing heat. Stove heating was used to create the required microclimate.

The following types of winter gardens can be distinguished by purpose and type of heating:

1) Buffer type - non-residential, unheated premises. This can be glazing of loggias and balconies, or, for example, an entrance vestibule made as a winter garden.

2) Winter garden - seasonally residential, unheated, poorly landscaped. In particular, our favorite verandas can be attributed to this type of winter gardens.

3) Winter garden - seasonally residential, partially heated, poorly landscaped.

4) Residential winter garden - permanently residential, heated, landscaped

5) Greenhouse - practically non-residential, partially heated, heavily landscaped.

According to the type of its integration with the house, the winter garden can be:

-attached to the house (the winter garden adjoins the house on one side or on the corner - on both sides).

-integrated into the house - a volume penetrating into the building with a glass roof (the winter garden is adjacent to the house from two or three sides).

A typical conservatory gets its flair thanks to the transparent roof and the play of light and shadow associated with it. Changing weather conditions outside are experienced in the winter garden especially emotionally. A transparent roof lives with lightness and a minimum of materials used.

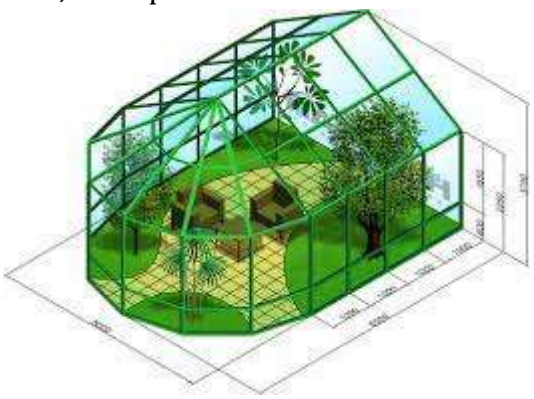
The principle of minimizing materials while working as efficiently as possible is one of the main principles both from the point of view of architecture and from the point of view of construction.

Green plants in the winter garden saturate the dwelling with intense colors and create pleasant aromas of flowering, improving the overall microclimate of the dwelling.

Modern man is very tired in the conditions of urban bustle, noise, abundance of concrete. Outdoor recreation is very popular. But it is not always possible to go out of town, go on vacation. The winter garden in the apartment, in the house makes it possible at any time to be in the atmosphere of the tropical jungle, to relax comfortably among the lush greenery and flowers. The winter garden provides an opportunity to escape from the bustle of the city.

A modern winter garden is a multifunctional room (it can be a continuation of a living room, a playroom, an office) that meets a number of requirements. These requirements are taken into account when designing a winter garden. The framework of the conservatory must be strong enough to stably support the weight of heavy glazing.

The minimum reasonable size of an attached winter garden is from 12 m2, but it is better to build it with an area of 15 m2. This is due to the fact that, on the one hand, smaller winter gardens will have a very high cost per square meter, and on the other hand, it will be difficult to solve the interior of a "green" living room with a harmonious combination of plants, furniture, free spaces.



The height of the winter garden in its middle part should be at least three meters, while the ideal winter garden from the point of view of building physics and the beauty of the interior has a height of two floors.

The volumetric shape of the attached winter gardens, regardless of the materials used, is a matter mainly of the tastes of the customer and the architect. The winter garden can be from a simple quadrangular shape to polygonal or even round - modern designs provide almost unlimited possibilities for the realization of fantasies. The general pattern says: the smaller the area of glazed surfaces, the smaller the temperature fluctuations in the winter garden, and the smaller the gain in terms of saving thermal energy by the house to which it is attached.

As the main types, an extension of the winter garden can be distinguished on one side of the house or on both sides. In the second case, when the winter garden goes around the house around the corner, the glass areas are maximum.

The orientation of the glass house to the cardinal points can be any, from south to north. However, each orientation option has its own

specifics, and it, among other things, is determined by the customer's intention - the winter garden is intended only for relaxation and communication with nature, or an office or studio will be located there. Of course, the architecture of the house itself and the characteristics of the site on which it stands are of great, if not decisive, importance. South facing offers the greatest benefit in terms of energy savings. In this case, the greenhouse effect is manifested to the maximum. However, when using such a winter garden as a living room, it becomes necessary to install relatively expensive ventilation and shading devices in it, since otherwise this room will turn into a sauna on sunny days, especially in summer.

When the winter garden is oriented to the north, on the contrary, it plays the role of a climatic buffer: the wind and cold do not directly reach the walls of the residential part, and the gain in terms of energy savings is almost the same as with the southern orientation. Due to the uniform diffused light, the north-facing conservatory provides ideal conditions for setting up an office or greenhouse.

The east is the direction of the world for breakfast, as the sun shines here in the early morning. As a rule, a winter garden with an eastern orientation does not experience serious overheating during the day, but ventilation and shading are still necessary for it. And on the contrary, the winter garden, facing west - for long, beautiful evenings. During the day, he collects the heat of the sun, and only in the evening gives it back. How effectively a winter garden works depends on its size, on the ratio of its size to the size of the house, on its orientation and on the slope of its roof. An ideal conservatory should have a roof slope of 30-40 degrees, as in this case it is the best way to "catches" solar energy. The steeper the roof, the better the rain washes away the dirt from the roof, and the better the snow rolls down from the outside, and the condensed water from the inside.

A winter garden can also be arranged in a settled country house. It will look like an extension. In the creation of frame structures, aluminum profiles are mostly used. It can be given any shape. The structure can be: square, rectangular, semicircular, combined, polygonal. Winter garden in the form of a glazed extension The choice depends on the specifics and style of the building. The roof can also be of any shape. One- and two-slope options, domes, etc. are used. The best option for a winter garden is full glazing of the structure. This design guarantees the maximum intake of sunlight, reduces heating costs. There are several requirements for these structures. The design must:

- provide reliable protection from the cold;
- create conditions for high-quality lighting;
- have high resistance to external influences;
- have a long operational period.

Structures with a metal frame with an anti-corrosion coating comply with these requirements. These can be anodized aluminum profiles, steel rolled metal treated with powder dyes. Structures with a large glazing area are provided with the required strength, resistance to loads with the help of metal trusses. The metal framework is steady against external influences In creation of winter gardens the strong, reliable triplex, tempered glass is used. These materials are highly resistant to stress, safety. It is difficult to break such glasses. But if this happens, the risk of injury is eliminated, as the material crumbles into small pieces. Triplex glass is highly resistant to loads. The winter garden attached to the house can be built from polycarbonate. This material is now very popular. It has several significant advantages: high transparency; minimum weight; low cost; load resistance; durability. Winter garden from polycarbonate Used in the creation of structures and double-glazed windows with metal-plastic, aluminum, wooden profiles. The advantages of the systems are ease of installation, reliable protection from the cold. The range of products includes energy-saving, multifunctional glasses. Representatives of the flora grow in these structures and premises, which have special requirements for air temperature. In the summer, a glazed building will naturally maintain the desired climate. But with the onset of cold weather, additional heating of the room will be required.

Today we can show an example of a huge winter garden that was built in Singapore. Winning the prestigious World Architecture Festival 2012 award, the Singapore Winter Gardens are recognized as the best building in the world. Wilkinson Eyre, together with Grant Associates, Atelier One and Atelier Ten, is the lead architect for this project. The complex is represented by two buildings located in the heart of the new Gardens by the Bay park complex on the shore of the bay, covering an area of 101 hectares. The project is based on the government's strategy to transform Singapore into a "city in the garden". Huge greenhouses are a combination of modern design and innovative technologies in the field of climate control. The permanent exhibition of the Winter Gardens includes numerous plants from the Mediterranean and semi-arid tropical regions. The design of the Winter Gardens is striking in its apparent lightness and fragility. They are made of specially designed glass that absorbs excess sunlight. Moreover, a special retractable sail is installed on the roof of the dome, which creates a shade for plants if the temperature exceeds the maximum allowable. Special pipes with cold water are hidden in the floor of the structure, keeping the refreshing air masses below, while warm air rises to the top of the dome. And a special solar power plant generates the necessary amount of energy. Thus, the plants feel great regardless of weather conditions. The Singapore Botanic Garden, as if through a kaleidoscope, shows all the luxury, richness and diversity of the island's flora. The garden tour is part of a memorable experience in Singapore. The garden is located near the city on a large area of 52 hectares. Beauty lovers have at their disposal hundreds of deaf paths among a real tropical forest and well-groomed alleys leading from pond to pond, original “open-air exhibitions” - the Ginger Garden and Palm Valley, Swan Lake with its graceful inhabitants. Since all plants are equipped with illuminated nameplates, here you can at the same time repeat the basics of botany.

Today, there is a noticeable increase in interest in the construction of winter gardens and greenhouses. The atmosphere of green interiors has a positive effect on visitors, allows them to relax and tune in a positive way. Plants are one of the main elements of the environment that can qualitatively improve the ecological situation indoors. They purify the air, fill it with useful substances - phytoncides, increase the humidity of the air, and create a favorable microclimate. In addition, plants increase the aesthetics of the room and improve its emotional background. A person needs to periodically switch his attention to the “green” living spot in his interior, which is why people tend to put a flower pot on the windowsill, and once a week to get out to the country, to nature. The winter garden today is not just a luxury item, but a necessity, especially in a city where there is a catastrophic lack of nature.

References

1. Ожегов С. И. Словарь русского языка. — М.: Русский язык, 1986.
2. Дубынин Н. В. Балкон или лоджия // Жилищное строительство. 2007 г.
3. Усов Я.Ю. Формирование архитектурно-планировочной структуры биоклиматических жилых зданий: Автореф. дис. ... канд.

архитектуры: 05.23.21. – М.: МАРХИ, 2013.
4. https://masterok.livejournal.com
5. http://www.pro-landshaft.ru
6. http://pro-dom.com.ua/