Recreational Potential and Spatial Organization of the Winery on the Territory of the Samara Region

I V Zhukova¹, N I Barsukova²

¹Post-graduate student, National Design Institute
Dubininskaya str., 17, p. 2., Moscow, 115054, Russian Federation
ORCID ID: https://orcid.org/0000-0003-1919-6376

²Professor, Doctor of Arts, National Design Institute,
Dubininskaya str., 17, p. 2., Moscow, 115054, Russian Federation
ORCID ID: orcid.org/0000-0001-9222-4885

E-mail: sirius8881@yandex.ru, bars_natali@mail.ru

Abstract. The article examines the recreational possibilities of landscape and architectural projects of wineries located in a natural environment. The features of the spatial interaction of the winery architecture with the surrounding landscape are analyzed. It is proved that landscape and architectural complexes in the natural environment should be integrated into the landscape, so as not to cause damage to nature. The peculiarities of the interaction of the winery with the natural environment from the point of view of identifying the recreational potential are formulated and justified. The recreational possibilities of the natural environment of wineries are considered in the context of the developing enotourism. The experimental part is the development of a project for a multifunctional wine-making complex. The possibility of its implementation on the territory of the Samara region, in the place of the national natural park next to the Volga River, is justified. The idea of an eco-friendly coexistence of the building of the winery «Ammonit» and the surrounding natural environment is consistently carried out.

1. Introduction

The architecture of modern wine-making complexes is distinguished by originality and originality. A characteristic feature of wineries is the location of the main and auxiliary facilities next to the grape plantations. The principle of priority of the natural environment of wineries means that all production processes in their landscape and architectural concepts are focused primarily on the standards of environmental management. This is the complete preservation of the landscape, the replenishability of losses of natural resources, the use of energy-saving technologies and filtration systems. It is necessary to take into account the interconnectedness in natural systems, so when developing environmental measures, all factors are comprehensively evaluated – the characteristics of the territory, resources, flora and fauna. Modern opportunities for the placement of extensive premises of wine-making complexes are primarily their location away from cities with maximum integration into the landscape. In general, the landscape organization depends on the climatic characteristics of a particular region. The location of vineyards is possible taking into account such factors as the climate of the area, the number of sunny days per year, the terroir, water supply, precipitation, terrain and soil conditions.

Russia has all the conditions for the development of domestic wine architecture. The purpose of this
article is to show the possibility of developing winemaking and wine tourism not only in the southern regions of the Crimea and the Caucasus, but also in more northern regions by the example of the concept of a winery in the Samara region. The article proposes for the construction of a winery and the location of vineyards an area of a different climate zone, located on the Volga River on the territory of the Samara Luka Natural National Park. This is a unique place in the middle of the picturesque Zhiguli Mountains, a recreation area for residents of the Samara agglomeration, which is currently being destroyed due to the extraction of chalk and gravel. The natural conditions are very suitable for growing grapes, the terroir of these lands in its composition corresponds to such wine regions as Bordeaux and Champagne in France. The height of the snow, the number of sunny days per year and the proximity of the river create favorable conditions for the development of viticulture and winemaking.

The article analyzes for the first time the recreational opportunities of modern wineries in close connection with the development of wine tourism, which are landscape and architectural complexes. As you know, recreational areas are designed for recreation. There are areas of natural origin that are artificially created in the urban environment – such as lakes, forest areas, and riverbanks. From the point of view of ecology and environmental protection measures, it is more reasonable to arrange organized recreational areas in the natural landscape in order to protect wildlife. One of these opportunities is to make a comfortable recreation area next to the wine complex. An example was the experimental project of the winery «Ammonit», designed in a similar way.

2. Materials and methods

Today, the architecture and design of wineries represent a whole direction in design practice – wineries are designed as a spatial complex in a landscape environment [2]. Modern foreign projects of wineries were formed under the influence of many factors: the development of the author's architecture, a change in attitude to ecology and production, the desire to combine production and non-production functions in one enterprise [5, 7, 14]. They note that the principle of forming an individual architectural image in an industrial building as a work of author's architecture has never been applied before [15]. The architecture of many foreign wineries has been considered in one way or another in the scientific literature [5, 6, 9, 15]. General trends in the design of non-production and auxiliary premises of wineries are investigated [16], new technologies in the design and construction of production premises are considered [17].

Identifying the advantages of architectural solutions of wineries, created taking into account certain landscape preferences, is a matter of a separate deep scientific research. However, within the framework of this article, it is necessary to note their common feature – wineries are designed as a spectacular object, as a building - a brand that defines the corporate identity of the winery as a whole [20]. The problems of designing wineries taking into account branding and corporate identity formation are also noted [17]. Considerable attention is paid to the recreation areas on the territory of production facilities, the design of the plots surrounding the wineries [2, 15]. Along with tasting and branded shops at the factories, without which it is already impossible to imagine a winery, there are increasingly examples of restaurants, hotels, wine SPA centers, and even stores of "wine" cosmetics from production waste [16].

Thus, the idea of forming a recreational area next to the winery is actually prepared by rethinking many of the functions of the production interiors and synthesizing the main and auxiliary buildings with the landscape. The interpretation of the landscape in any culture carries a huge mental significance and forms a modern aesthetic attitude to it. There are several tasks that the design practice solves at the expense of the landscape: decorative, aesthetic, environmental, protection from dust and noise. The article for the first time explores the topic of preserving the existing landscape and creating a recreational zone in the wine-making complex, i.e., an additional, recreational task is set.

Environmental issues are also noted in the works of researchers [4]. In particular, architecture and design emphasize the need to correlate the concepts of structural shaping and visual ecology [11]. Taking into account the development of modern design practice in this direction, it can be established that architecture is now perceived not only as a static object in a shell, but more and more as an ergonomic transformable system that adapts to the needs of its consumers [18].

Along with the traditional main and auxiliary technological areas for wineries, such as cellars, wine
storage, laboratories, areas with canopies, etc., wineries now include representative premises with new, not typical functions for them-shops, bars, tasting rooms, hotels [19]. Production processes are now open to the public, contemplation and familiarization, and complex hybrid forms of business, creative or entertainment environments are created on their basis [3].

In the context of this problem, the recently built modern winery Gai-Kozdor, located in the south of Russia near Anapa in the village of Gai-Kozdor, is of interest [2]. The principle of priority of the natural environment forms a new image of an industrial enterprise, first of all, as a multifunctional object in the natural environment, which also gives new opportunities for interaction with the environment, and for the layout of industrial premises [5, 6, 9].

These ideas were positively received by us for our own project of a winery on the territory where they had not previously been engaged in winemaking. The recreational and tourist potential of the region is noted in the literature [7, 12]. In modern cities, due to the growth of urbanization, there is an acute shortage of recreational areas. The reduction of urban plantings and the degradation of vegetation both in the city and in the suburbs leads to a deterioration of the ecological situation. The lack of comfortable recreation areas in the cities of the Samara region (Tolyatti, Zhigulevsk) and the stylistic neutrality of the urban environment make us look for additional funds and opportunities to create recreational areas in the immediate vicinity. The simplified geometry of architectural volumes and spaces, gray and white as the main colors of the urban environment indicate a lack of identity [8].

The result of the study was the design of the experimental winery «Ammonit». It is presented in the form of a spatial form created on the basis of the associative method as a process of transformation of natural forms [1]. Such forms, which additionally perform semiotic functions, enrich the landscape [10].

3. The results of the study and project proposals

The experimental part of the article is related to the creation of a conceptual project of the wine production «Ammonit» using environmental design.

![Figure 1](image-url). The idea of the concept of forming the winery «Ammonit». Author: Irina Zhukova.

Its architectural solution is made in accordance with the world trends in this direction. Original design, design of multifunctional premises focused on wine tourism, connection with nature. The winery is located on a high point of the plot with a beautiful view of the vineyards and the man-made landscape park. The main idea of the project is to connect with the surrounding nature.

The concept was based on the idea of expressing space through the symbol of the ammonite (Fig. 1). The prototype of the project image was a model of the fossil mollusk ammonite, because on the territory of the Samara region there are land layers in which the remains of ammonites, belemnites and other ancient artifacts are found.

The symbol of ammonite emphasizes the special structure of the soil on which vineyards can grow, rich in special trace elements and the special bionic heritage of the region, as well as the business that is reorienting towards ecological production. The complex space-planning structure of the object consists of two main volumes connected together (Fig. 2 a).
Figure 2. a) b) The concept of the winery «Ammonit» on the territory of the Samara region. Author: Irina Zhukova.

The winery has a symmetrical system. The separation of the public and industrial parts of the building is made thanks to the mirror superimposition of the prototype form of two ammonites. This made it possible to improve the ergonomics, maintain the dynamics of the composition and design two entrances to the building – the presentation and production ones. Communication between the upper floors and the underground, where the cellar is located, is carried out by means of a circular staircase and an elevator in the center of the building.

Shaping and functional solution: the shaping of the building is based on the principle of radial balance with the use of load-bearing columns built around its perimeter based on a progressive rhythm around the circumference. The structural and technological solution of the building structure is multi-level. This is due to the economy of building materials in the part of the building that is intended for receiving visitors. For production purposes, the height of the walls depends on the size of the winery equipment. When installing fermentation tanks, a large room height is required.

The project uses the principles of «green architecture»: collection of rainwater and snowmelt; use of alternative energy sources, etc. A building with a single-pitched roof, which allows the snow not to linger in the winter and smoothly split its descent in the direction of the pattern protruding on the roof surface, and in the summer to receive a directed rainwater runoff. There are also fragments of the roof with thermo-solar cells that convert solar energy for heating and lighting the farm.

The design took into account the basics and standards for construction design proposed by E. Neufert regarding issues related to the basics of size and proportions, visual perception, the basics of designing stairs, lighting, freight yards, roads, streets, parking lots, landscape design, utility rooms, including a wine cellar, standard rules for organizing places of mass gathering of people, general provisions for the design of public catering enterprises, toilets, shops and warehouses [13]. For example, in the layout of the walls of the winery, an alternation of supporting rectangular pillars is used. This gives a perspective view of the relief composition, decorated with wood trim. The naturalness of the texture of the walls separates the cold and identical plane of the facade of the winery (Fig. 2 a, b).

The main plastic techniques used to solve the interior of tasting rooms include: demonstration of load-bearing structures, stairs and entrance groups, creating illusions of embedding and mutual penetration of spaces due to panoramic «seamless» glazing.

The composition of the spatial solution of the territory of the winery is solved taking into account the real situation and reflects the overall concept of the project, forms the surrounding space. On the side of the production part of the winery, parking is offered for official vehicles and mechanisms. Under the canopy adjacent to the roof of the winery, it is proposed to place a summer restaurant and install an open-air museum exhibition next to the winery to familiarize tourists with the history of winemaking (Fig. 3). It is possible to expand the function of the canopy, using it as a guide bridge for precipitation runoff.
The multifunctional environment of the wine complex includes bionic guest houses for enotourists. Wine tourism is becoming very popular, its purpose is to get acquainted with the wine traditions of a particular region. Therefore, the winery can become a place where you can not only get acquainted with the peculiarities of winemaking, taste drinks, but also stay for a few days to relax in the natural environment. The houses consist of an entrance hall, a corridor, a bedroom with panoramic windows, a dressing room, a bathroom, a kitchen and a dining room. Under the protruding roof canopy, you can hide from the sun and rain, as well as store bicycle transport or arrange sun loungers. The roofs of the houses visually merge with the surrounding landscape due to the greening of their roofs. The guest houses are located at a distance of 13 m from each other and about 57 m from the winery building. Dimensions of the residential part of the houses 10 by 10 m. The area of the premises of the house is 51 m² (Fig. 4 a, b).

The main areas of the premises are: entrance, dressing room and reception area of about 177 m²; production rooms and warehouses of 662 m²; presentation rooms (shop, cellar) of 1213 m²; offices and laboratories of 494 m². The configuration of the building can serve as a logo used on labels with wine products, identifying them in the market.

Integrated design of the interior of the winery is possible if the architectural, technical, functional and socio-cultural aspects are taken into account. Focusing on these aspects creates a visual image of the winery, supported by its specific conceptual principles that help in building the image of the selected design solution.
4. Conclusion
This article attempts to attract the attention of the business community to the reorientation of the «destructive» business that destroys the nature of the Samara region. The creation of a number of wineries in the region using new modern resource-saving technologies for the conservation and conversion of energy and water resources would help to preserve the ecosystem of a unique place. The design concept of the modern wine-making complex «Ammonit» on the territory of the Samara region has been developed. Important tasks have been set and outlined – landscape and architectural complexes in the natural environment should be integrated into the landscape so as not to cause damage to nature. The principles of «green» architecture and eco-friendly implementation and maintenance of production in the surrounding nature should be applied. The spatial organization of the winery has a bionic form that best suits the local landscape. The winery exists as a multifunctional environment with additional recreational areas and the possibility of additional recreation on the territory of the complex.

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