

Preservation and development of historical and cultural heritage on the basis of sustainable development (on the Svirzh Castle example, Lviv region, Ukraine)

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Abstract. The article is devoted to the coverage of the Program of sustainable development of the architectural monument of national importance of the Castle, 1484 year in the Svirzh village as a component of the project of restoration and adaptation for the National Cultural and Art Center "Svirzh Castle".

Keywords. Sustainable development, architectural monument, castle, restoration, revitalization, cultural and artistic center, energy efficiency.

1. Introduction

Cultural heritage is an important resource for the strategic development of the state, an important component of the culture of human civilization. The attitude towards cultural heritage is an indicator of the level of development of society and the spiritual maturity of citizens. According to the UNESCO Medium-term Strategy Project for 2014-2021, UNESCO's Strategic Goal No. 7 defines protection, promotion and transmission of heritage to future generations, which contributes to peace and sustainable development.

In 2017, the Law on Energy Efficiency of Buildings was adopted in Ukraine, which defines the legal, socio-economic and organizational principles of activity in the field of ensuring the energy efficiency of buildings and is aimed at reducing energy consumption in buildings. This also applies to objects of historical and cultural heritage.

2. Formulation of the problem

Sustainable development of cities and communities is one of the 17 Global Goals adopted at the UN Summit on Sustainable Development for the period from 2015 to 2030. From the point of view of ecology, the "greenest" house is the one that has already been built. If the house already exists, then there is no need for harmful production and transportation of building materials; there is no need to develop new natural or agricultural lands; historic buildings consume less energy and have less emissions; historical buildings, as a rule, are built from natural materials, and therefore have less negative impact on the environment; historic districts are denser, pedestrian-oriented, and therefore the problem of using harmful emissions can be avoided. Revival of old urban areas with already laid infrastructure allows to save money on the development of new territories.

Historical places reflect our public, national, state identity. Historical heritage reflects the cultural code and identity of the entire nation, a separate region, city, locality.

The work on the preservation of cultural heritage is an active link at all stages of the transformation and restoration of the urban structure: in the context of the revalorization of historical districts, the creation of pedestrian zones, the reconstruction of quarters, the inclusion of new buildings and complexes in the formed development. In each case, a holistic, socially oriented program of transformation into the interrelationship of various directions is important - from restoration and reproduction to radical innovation.

Cultural monuments support the cultural diversity of the world and make a significant contribution to the balanced development of the country and human civilization as a whole, which determines the responsibility of the state to preserve its heritage and pass it on to future generations.

An example of such careful restoration on the basis of established development is the Comprehensive program of restoration and adaptation of the Castle in the Svirzh village under the leadership of the National Union of Architects.

Monument of national importance - Castle in the Svirzh village is one of the brightest examples of palace and defense architecture of Lviv region and Ukraine (Fig. 1), which is of great importance for the development of both the Lviv regional territorial community and the professional architectural community of Ukraine in general.

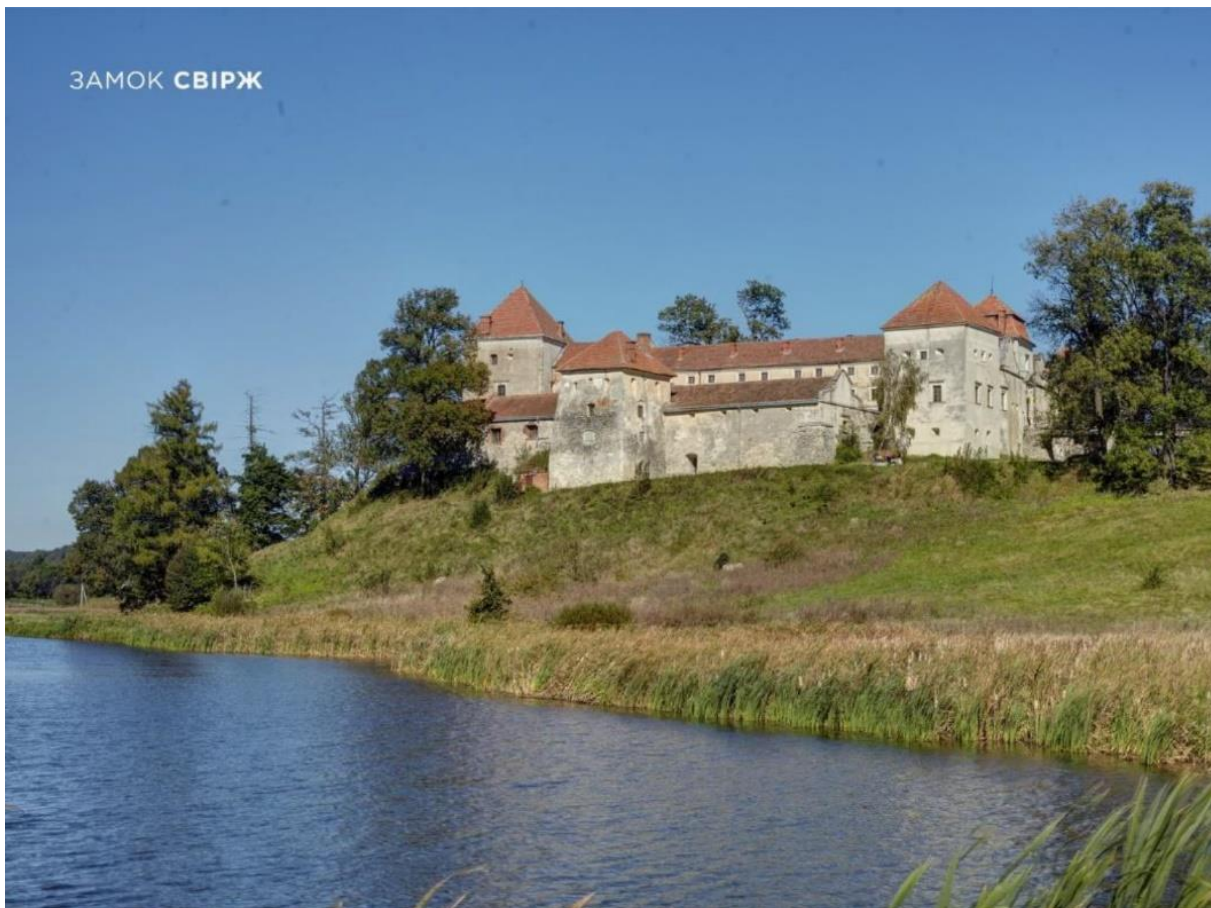


Fig.1. Architectural monument of national importance Castle, 1484 in the Svirzh village, Lviv region, general view. Photographer R. Shyshak.

Today, this monument is under the auspices of the National Union of Architects of Ukraine, and in Soviet times it was planned to build a house of architects art. However, this feature is not relevant today, so the question is: what new future can this monument has? In Ukrainian and world practice, there are several approaches to the revitalization of palace and castle complexes.

First of all, it is museification. That is, the arrangement in such a monument of the museum (art, history, local lore, etc.). There are other approaches, in particular, the researcher Ulyana Andrusyak in her works recommends to place in the palace and park complexes hotels and restaurants with museum and exhibition facilities, or health or recreational facilities for sports [6].

This article offers another solution to the problem. Specifically, it is proposed to create a cultural and artistic center in the castle complex on the basis of preserving the natural environment and using the latest achievements in the field of energy saving and energy efficiency, which is due to both the history of this building and the requirements of today. Because in the current conditions of formation of the new Ukrainian state as an integral part of the European cultural space, there is a need for the development of its artistic infrastructure, which will offer modern progressive institutions of a new format to replace the post-Soviet objects of mass culture.

2.1. History of the castle

The first mention of the castle in Svirzh dates back to 1484, when it was owned by the Svirzki brothers. In 1641 the castle with the town was bought by the Galician castellan Alexander Zetner. He carried out a large-scale reconstruction of the castle and expanded it. The reconstruction was probably carried out by the architect Pavlo Hrodzytsky, known for the construction of the Royal Arsenal in Lviv.

During the turbulent events of the XVII century the castle was repeatedly stormed and destroyed: in 1648 - the Cossack-Tatar army of Bohdan Khmelnytsky, in 1672 - the Turks during the Polish-Turkish War of 1672-1676.

During the Enlightenment, Svirzh Castle gradually became a respectable magnate's residence with all its attributes: an English-style park, greenhouses, terraces and gazebos.

In 1907, its owner was the Austrian officer Robert Lamezan de Salins, who restored the monument, complemented the interiors with works of art from his personal collection.

After the advent of Soviet power, the castle was abandoned by its last owners. In 1949-1954 the castle was used by a local collective farm, until 1956 a school of agricultural mechanization was located here. Finally, in 1978 the monument was handed over to the Union of Architects Ukrainian SSR, after which until 1993 restoration works were carried out here with adaptation for the House of Architects (a set of works was completed by 72%).

During last years, the National Union of Architects of Ukraine, as a user of the monument, has been actively using the castle for summer architectural schools, art events, festivals, eco-picnics, exhibitions, round tables. But in the absence of systematic funding, the monument is gradually collapsing and there are no short-term prospects for development that would correspond to its significance.

2.2. The purpose of the research:

to develop a complex scientifically based revitalization program with adaptation of the architectural monument of national importance Castle, 1484 in the Svirzh village under the National Cultural and Art Center "Svirzh Castle" on the basis of sustainable development and using the latest energy saving trends.

2.3. Analysis of recent research and publications.

The issue of castle development in Svirzh is not sufficiently covered in scientific sources. The most comprehensive work developed in recent years is a study conducted by the National Union of Architects of Ukraine on behalf of the Ukrainian Cultural Foundation in 2018: "Svirzh Castle: Genesis." Development of the concept of revitalization and adaptation of the Castle in the Svirzh village, Peremyshlyany district, Lviv region" (g/d № S-2), project manager - Olena Oliynyk [9]. The authors of the article, as members of the Union of Architects, in recent years are actively working to study the history of the castle and find promising ways to preserve such architectural monuments in Ukraine and

the world [3, 4, 5]. N. Matlashenko [11], A. Shulyar, V. Shulyar [12], O. Godovanyuk [13], as well as Polish scientists T. Spiss [9], A. Czolowski [10] and others also studied the history of the castle (Fig. 2).

In addition to the above-mentioned U. Andrusyak, O. Remeshylo-Rybchynska, M. Bevz, O. Plamenytska, O. Zhukova and many others also raised the issue of revitalization of castle complexes in their research.

The problems of energy saving and sustainable development of historical and cultural heritage were studied in the works of L. Jones [15], Y. Yudelson [16], J. Witelegg [17].

In the works of foreign researchers on the preservation of cultural heritage, a lot of attention is paid to the problems of the development of the modern world and the classical principles of restoration. For example, Professor Boguslaw Shmygin (Poland), analyzing the modern conditions and capabilities of the restorer, states that very often the demands of the investor require the restorer to make serious concessions from the classical foundations of restoration, which can cause the physical destruction of the monument. Therefore, during the adaptation of monuments to modern needs, there is a threat to preserve the authenticity of objects. [18; 19]

Recommendations regarding preservation and protection of objects of historical and cultural heritage are mostly prohibitive and restrictive in nature. As we know, today it is important to direct the efforts of the state authorities not only to preservation and protection, but also to the use, revival and distribution of historical and cultural heritage assets. This will contribute to instilling in the population respect for the historical past of the nation, patriotism and consolidation of Ukrainian society.

Concept of touristic recreation and Landscape

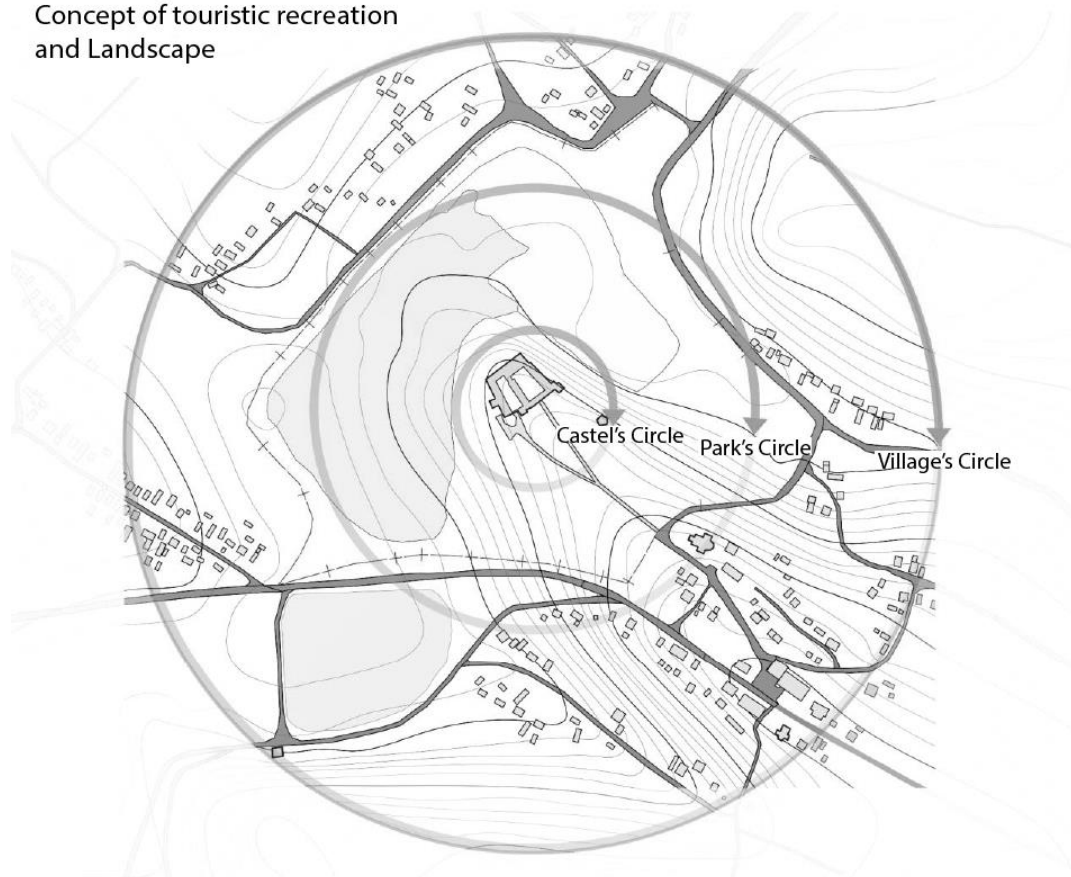


Fig. 2. The concept-project's fragment of revitalization the castle complex in the Svirzh village under the National Cultural and Art Center "Svirzh Castle", 2020, authors: B. Goy, S. Rudetska

3. Main part

Restoration with adaptation to modern needs today is one of the most effective methods in world practice, which provides actualization of the importance of monuments in modern public life, its full integration into cultural life, providing new functions while preserving authenticity and historical and cultural value. (see Table 1)

As a result of scientific research of the authors and their project practice the proposed mission of the monument is to become a cultural and artistic center of all-Ukrainian and international level, a significant tourist, scientific, educational, research, recreational and communication center.

3.1. The proposed model of use of the monument

After the restoration work, it is planned to create a multifunctional complex on the basis of the monument with exhibition, research, scientific-conference, representative halls, places for training and cultural and artistic events with a catering establishment, hostel-residence, sightseeing facility with observation decks, embankment and pond.

Elimination of the state of emergency, preservation, comprehensive restoration and adjustment of the architectural monument of Svirzh Castle, which is a part of the European cultural heritage, will allow to include it in the cultural life of the country, achieve a significant social effect and positive cultural consequences.

And finally, the use and introduction of energy-efficient materials and technologies during the implementation of the project will contribute to the reduction of costs during the further operation of the building. (Fig.3).

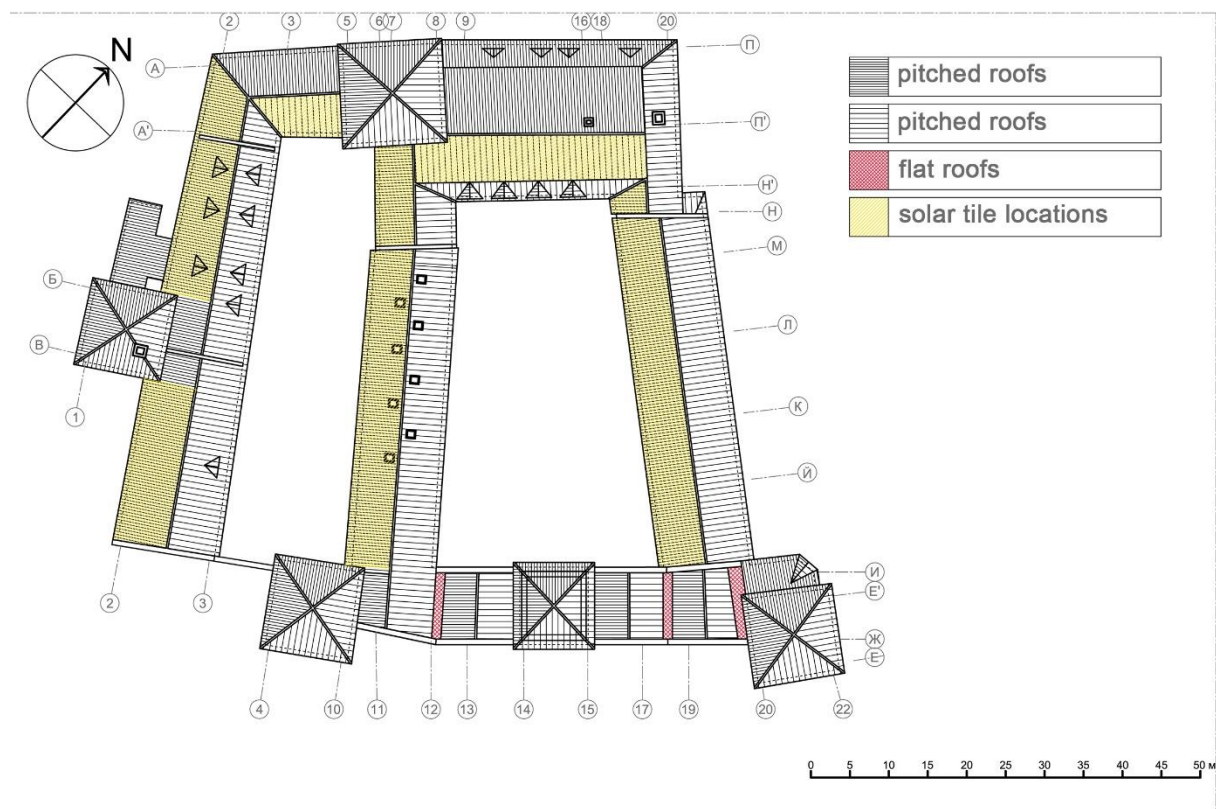





Fig. 3. The plan of roof with the recommended locations of solar tiles.
 Authors O. Oliynyk, N. Blazhievskya, proposal 2018.

Table 1. Examples of revitalization of historic buildings and complexes based on the principles of sustainable development for a cultural and artistic function in world practice

Name / general view	General information	Modern purpose	Principles of energy saving
Montjuic Castle 	Type of building: bastion fortress Location: Barcelona, Spain Construction time: 18th century Last restoration: 2020	PUBLIC INSTITUTION OF CULTURE AND LEISURE	THERMO- MODERNIZATION
Hvar Arsenal 	Type of building: historic arsenal Location: Hvar, Croatia Construction time: 13th century Last restoration: 2019	CULTURAL CENTER FOR VISITORS AND THE LOCAL COMMUNITY	MODERNIZATION OF ENERGY GENERATING SYSTEMS
Horst Castle 	Type of building: historic castle Location: Sint-Peters-Rode, Belgium Construction time: 14th century Restoration: going	SPACE FOR DEMONSTRA- TION OF CONTEMPO-RARY ART	MODERNIZATION OF HEAT NETWORK SYSTEMS
Banffy Castle 	Type of building: historic castle Location: Transylvania, Romania Construction time: 4th century Restoration: going	SPACE FOR FESTIVALS AND CONCERTS	MODERNIZATION OF HEATING AND HOT WATER SUPPLY SYSTEMS
Pinhel Cultural Center 	Type of building: historic palace of the bishop Location: Pinhel, Portugal Construction time: 8th century Last restoration: 2014	CULTURAL CENTER	INCREASING THERMAL TECHNICAL INDICATORS THROUGH THE USE OFF SUN PROTECTION SYSTEMS
Maria Center 	Type of building: historic quarter Location: Holte, Denmark Last restoration: 2014	CULTURAL CENTER	USE OF RENEWABLE ENERGY SOURCES PRODUCED AS A RESULT OF COGENERATION

The following options for using the monument are provided:

1. Arrangement of a cultural center with appropriate energy-efficient engineering networks and equipment.
2. Opening of an educational center with classrooms equipped with multimedia equipment, where an art school will function, master classes, lectures, video screenings, etc. will be held.
3. Art gallery and exhibition halls, which will be equipped with the latest exhibition equipment, protective equipment and equipment for optimal microclimatic conditions.
4. An interactive conference hall for conducting scientific and practical conferences, round tables, public discussions, presentations, artistic events, concerts, as well as meetings with scientists, artists, political and public figures of Ukraine and the world.
5. Particular importance is attached to the use of the object for educational purposes, which will positively affect the social activity of children and youth (including persons with special needs), their involvement in the achievements of history, culture, art, as well as national and patriotic education.
6. The functioning of important institutions of cultural and tourist infrastructure will significantly increase the flow of tourists and guests of the region, increase its attractiveness for investment and residence, new institutions of basic cultural and social infrastructure and workplaces for the inhabitants of the village will be created in the restored and adapted premises of the Svirzh Castle and the town of Bibrka.

The use of the principle of energy efficiency in a monument of national importance, aimed at reducing energy consumption, and most importantly - its appropriate use, will make this object not only unique for Ukraine, but will also become a vivid example of judicious use of energy (natural resources) for the world community as well.

The implementation of the project involves the use and implementation of the latest technologies during the restoration, which will contribute to the improvement of the environmental impact due to the energy efficiency of the building during further operation. In particular:

- heat supply to the facility through the use of heat pumps (air and geothermal);
- electricity supplies due to the involvement of renewable energy sources: solar systems;
- use of solar energy in the form of solar panels on the roof and solar collectors on the territory;
- use of heat energy accounting nodes;
- use of modern equipment with higher heat generation efficiency;
- optimization of hydraulic regimes of heat networks;
- use of systems of local regulation of heating devices;
- installation of water uses accounting devices;
- installation of automatic water flow regulators, aerators, sensor sensors;
- maximum use of daylight, increase in reflective capacity;
- optimal placement of artificial light sources and increasing their light output;
- installation of intelligent distributed lighting control systems, use of lighting control devices (motion sensors, acoustic sensors, light sensors, timers, remote control, dimmers);
- introduction of an automatic dispatching control system for outdoor lighting;
- carrying out thermo sanitization of the roof;
- insulation of pipelines to reduce heat energy consumption;
- installation of modern air recovery systems;
- implementation of energy-saving mechanisms, which will lead to saving of energy resources and, accordingly, will have a positive environmental effect.

4. Conclusion

As a result of the practical project work of the authors and the conducted scientific research, the results of which are covered in this article, we can be concluded that the proposed idea of sustainable development of the ancient castle in modern conditions as a cultural and artistic center is a promising area of the revitalization of historical monuments of Ukraine. And after the implementation of the

restoration project and the creation of the National Cultural and Art Center "Svirzh Castle", the following goals can be achieved:

Goal 1. Preservation of a unique architectural monument of national importance - the Castle in the Svirzh village

Goal 2. Ensuring the functioning of a new type of institution - the National Cultural and Art Center on the basis of sustainable development with the wide implementation of energy efficiency principles.

Goal 3. Use of the monument and its territory for cultural, educational and recreational needs that meet the requirements of protection, popularization and transfer of architectural heritage to future generations to ensure sustainable development of society

Goal 4. Formation of a high-quality model of use and introduction of the latest technologies in the building being restored to improve its impact on the environment

Goal 5. Use of energy efficiency principles aimed at reducing energy consumption in the architectural monument, which will serve as an example for other similar historical buildings in Ukraine and the world.

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