



The Evaluation of The State of Instability of The Historic Monument Construction Villa «Mihail Sutu » - K. Zambaccian Street No.1, Constanta, Located In The Active Area of The Lack Sea's Waterfront

KEYWORDS

Built, waterfront, destructive factors, damages, heritage, monument.

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ABSTRACT Constanta, owns an appreciable background of buildings classified as historical monuments or characterized by valuable composition elements, which accounted the thinking and the creation of engineers, architects, and last but not least of traders over the centuries.

The active area of the waterfront raises complex issues in assuring the resistance and stability of the urban historical area, which led to the adoption of some conservative measures of integrated protection, according to the provisions of the European and national legal framework.

The case study analyzes the evolution of the state of instability for one of the oldest areas built in Constanta county, as well as the elements of structural and artistic value which need to be preserved and rehabilitated, in order to establish the necessary measures.

THE OBJECTIVES WORK OF AUTHORS

This paper analyzes the behaviour during a period exceeding 100 years, a historic building, located in the active area of the coast of the Black Sea.

In this study are highlighted constructive elements and works to protect and stabilize the resistance structure of the historic building, taking into account its location in the seafront area over time subject to risk factors both natural and anthropogenic.

We propose that the objective of this study: highlighting the risk factors that affect the vulnerability of existing buildings for the adoption of minimal measures on the resistance structure, the infrastructure and the foundation ground for commissioning of safety limited.

INTRODUCTION

Villa "MIHAIL U U" is situated in the eastern part of the peninsular zone, on the cliff of port Tomis, in urban space that constitutes the historical centre of Constanta (figure 1).



Figure1 - Photo from the years 1902 – 1903 [2]

In the foreground is visible rock that was founded retaining wall and drainage system for its water intake from the base layer of loess.

In the south of the villa Sutu older building and the retaining wall of the adjacent cliff which was destroyed in the early interwar period due to the instability of the cliff.

ARCHITECTURAL AND HERITAGE VALUE

The building is a valuable architectural object due to compositional component elements well adjusted, well framed volumes in the natural landscape and especially the details of influence of oriental inspiration romantic and post Byzantine falling local traditions of modern architecture in the city. In the current list of protected historical monuments at No. 573, Position CT-II-m-A-02863 is recorded as a goal of national importance "villa Mihail Sutu". [1]

CONSTRUCTION DESIGN AND ACHIEVEMENT

The project was developed in 1898 by architect Grigore Cerchez from Bucharest (figure 4.1, 4.2). On Constanta County Department of National Archives, in the collection of documents of City Hall of Constanta, in case no. 27/1899 [2], will keep demand for obtaining the building permit dated July 29, 1898 accompanied by the original plans and building permit no. 684 from August 1898. There are no known data on the builder or contractor's name. Perhaps, as was customary at the time, work was carried out under the direction of project author, Grigore Cerchez, author of several projects of high buildings that date in Constanta.

Figure 2 [3] [4]

- Building of the Villa (basement, ground floor)
- Wall to stabilize the cliff, changed from the initial design for connection to existing wall in the south
- Paved platform stuffing
- Built-up areas in the years 1880 - 1890, directly affected by cliff instability



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The land where the building was realized is located on the edge of the cliff, whose natural slope was 40°- 45° and was under constant phenomena of collapse, because of the specific geotechnical structure, and the direct action of the sea waves during strong storms from north and north-east (figure 2).

In these conditions, for the stability of the construction of the villa were necessary distinct workouts for protecting and stabilizing the cliff, was built a retaining wall with a slight slope towards to inside, and equipped with inside buttresses and horizontal drains to discharge groundwater and infiltration. This wall was made of half shaped stone on outside, built with cement, with a thickness of 1.00 m at the base, founded directly on the Sarmatian limestone cliff, after being removed from its surface damaged layer (upper layer share of the limestone in this area is approx. 2.5 to 3.0 m above sea level). (figure 3) [9]



Figure 3
Photo from the years 2015. Photo source Artmark Historical Estate [5]

Compared to the initial project, in the conformity with the authorized documentation, the route of protective wall was modified, amended to the need of connection to a similar construction, to protect older homes located in the south of the designed buildings. [2]

Behind the wall was achieved a filling platform on the entire length of the construction's facade. Foundation stone villa was made of varying thicknesses and depths. Foundation soil consists of macro porous loess, sensitive damping, and is part of group "A" sensitivity.

Load-bearing walls are from bricks with 0.48 m thickness for exterior walls, and 0.48 m, 0.30 m and 0.25 m for interior walls. [8]

The floors are from wood. The floor of the terrace is from metallic profile and small keystone of bricks. [2]

The roof of the entire building is built in terraces, probably made of metal profiles «l» and small keystones from bricks. Above the living room (southeast corner of the building) was made a hemispherical dome, probably from bricks, with diameter of 5.00 m. [2]

OPERATION OF CONSTRUCTION

Between the years 1899-1948 the building was used as a summer home. For this period is not conducting information on capital repairs, or any interior or exterior of the building changes.

After 1948, when the building became the property of the state, succeeded more usage: creation house, guest house, diplomatic missions and until recently the Court of Appeal, now no longer any institution that use it, to provide security and maintenance.

In this last period of seventy years, the building has undergone several repairs, inside modifications and maintenance work, but without overhaul. The last major works were carried out under Pr. Nr. 6/1985, developed by the Design Institute of Constanta County. During realization of this project it found that the structure of the building were not recorded consequences of factors more particularly as they were, for example earthquakes in 1901, 1940, 1977, or recurrent events of instability of the cliff.

In recent years, due to malfunction of the sewage system in the area - str. Marcus Aurelius, it was found an increase in moisture content of the land by the emergence of drug dampness in rooms in the basement. Thanks to the strong support wall for the land, have not yet shown the effects of cliff instability, as occurred in the vicinity of the villa, in the interwar period. [6] [7]

Taking into account the age of the building over 100 years is required as urgently to conduct technical expertise of the building, but also of retaining wall of the cliff.



Figure 4.1. Annex Plan to Building Permit no.684 in August 1898. Photocopy of the National



Figure 4.2.

Annex Plan to Building Permit no.684 in

August 1898.

Photocopy of the National Archives Constanta

CONCLUSIONS

Old buildings designed and built by renowned architects and engineers, undergo continuous to destructive natural factors (seismic activity, high winds, erosion waves, saline environment) and destructive factors generated by human activity (delayed implementation of the intervention works, lack intervention works or poor quality of their losses from the pipes conveying water, creating plans due to the nature of the foundation soil slip).

Builded cliffs raises complex problems in ensuring of strength of stability and identifying risk factors and adopting conservative measures to protect integrity becomes a priority.

Only after quantification of risk factors that affect the vulnerability of existing buildings can be highlighted measures to be taken for their conservation and rehabilitation.

Protecting existing buildings of historic urban areas is a debt of honour for each community, an obligation arising from the application of national and international legal framework.

REFERENCES

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- [4] Cadastral plan of the municipality Constanta – 1936
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- [6] HCLM 416 / 21.11.2003 approving Zonal Urban Plan - Constant peninsular area no.3208/11.01.2008 – update;
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