

## **Perspectives on knowledge, conservation and assessment of patrimonial zones in Durres (Venetian Tower)**

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### **Abstract**

The presence of seismically prone areas, like Durres City, always demands greater measures to protect the most important building heritage. During the last few years, since the earthquake occurred in Albania on November 26, 2019, considerable attention and assessment have been given to the recovery of historical, cultural, modern, educational, and environmental buildings. One of the largest cultural heritage programmes funded by the European Union is EU4Culture, implemented by the United Nations Office for Project Services (UNOPS) in close partnership with the Ministry of Culture of Albania, counting 24 Sites and 8 Municipalities targeted by the program.

This research presents an overview of the damages in patrimonial zones in Durres, taken as a strategic value to support the local development and promote new forms of cultural and environmental tourism that allow to reconstruct and recover areas in a harmonious and balanced way, as illustrates the case of the Venetian Tower in Durrës, which was rebuilt in the XV century on Byzantine tower ruins. The restoration and consolidation allow the preservation of this fortification and its safe opening to the public. The renovation works focused on preserving the original features of the building and restoring key components, while fitting into contemporary standards.

Question like: Is the intervention plan realised has reinterpreted the values of the patrimonial zones? follow the study analysis through making a detailed technical qualitative e.g., which were the solving structural problems, which were interventions on the dome highlighted by the simplicity of the volumes and materials, why removing the modern cement layers, why removing inadequate structures, and various other details produced from architectural and constructive components. The urban relationship between the tower and the modern surrounding context remains important; the fortress appears clearly detached but also closely linked with it. The methodology of the study is that of evidential, analytical and comparative description, focuses on and highlights its features and presents further current activities, including returning the Venetian Tower to the first Cultural Heritage Interpretation Centre in Albania. Through the study of the architectural and constructive characteristics of this tower, we want to highlight the signs of permanence and change over time and contribute to generating processes of conservation and revitalization of assets.

**Keywords:** Venetian tower, conservation, architectural materials, earthquake.

## 1. Introduction

Durrës, funded by Ancient Greek colonists from Corinth and Corcyra under the name of Epidamnos around the 7th century BC in cooperation with the local Illyrian Taulantii. Later known as Dyrrachium was the entering gate of the ancient road Egnatia, connecting Rome with Byzantium. Today, it is home to the largest port in Albania and a referring point to cultural heritage landmarks with a lot yet to be discovered.

Durrës and its fortifications have attracted the attention of many researchers, archaeologists and historians. Mentioning here J.G. Hahn, L.Heuzy and H. Daumet, and others. The fortification of the Hellenistic period was well preserved until the first refortification dates back to the time when it was declared the capital of New Epirus (IV century). It started at the end of the V century until the beginning of the VI century. In the period of Anastasios I, the city was equipped with three surrounding walls. In the 4th century, the fortification of Durrës was treated again, reaching the length of the perimeter at 4400m and the height of the walls at 3.5m. From the late antique period, four towers of the south-western wall have been well maintained (A, B, C, D and E), three of them are in good technical condition, while the fourth tower is dilapidated. (Revista Monumentet, 1975).

The Venetian Tower is referred to as Tower A and we can find the explanation regarding it in (Revista Monumentet, 1977) when as mentioned it is the best well-preserved tower of the fortification by that time.

Rey compares this tower with “Gingir” Tower in Thessaloniki, the work of the Venetians in the XV century and other similar towers. By thick walls, low height, great circular circumference and the canon embrasures, show that the tower is by the first sample of fortifications to be built for this type of artillery. These buildings spread on the eastern coast of the Adriatic, by the middle of the XV century as a result of the Turkish threat.

Throughout history, Durres has suffered not only from invaders but also from natural disasters. In the literature, we encounter sequences where powerful earthquakes are mentioned. Durrës region is located on a very active seismotectonic belt, where many strong earthquakes occurred in

the past, as it is reported in several seismic catalogues (Magnani, 1946; UNDP, 2003; Aliaj et al., 2010). Nine strong earthquakes, with magnitude higher than 6.0, occurred at the city of Durrës from 177 B.C. to 1926. These seismic events had a huge impact on the history and the economic life of Dyrrachium (Durrës) in the antiquity. Based on the old chronicles, the historians mention the earthquake of 177 B.C. as the very first earthquake to occur in the city. There are only a few passages written by Plutarch about the earthquake of 1 or 2 May 58 A.D., which severely destroyed the city. Afterwards, the earthquakes of 334 and 345 were chronicled. The earthquake of 506 almost completely destroyed the entire ancient city. Considering the importance of Dyrrachium during the ancient period and being it the birthplace of the Byzantine emperor Anastasios I Dicorus, the city was rebuilt completely by the emperor immediately after that seismic event. The 1 March 1273 earthquake was the hardest one. The city was completely destroyed, hundreds of people lost their lives and the city was abandoned by thousands of people. The earthquakes of 1279, 1869, and 1870 were less destructive and with a lower impact on the life of the inhabitants. (Bollettino di Geofisica Teorica ed Applicata, Vol. 62, n. 1, pp. 33-60; March 2021)

On 26th November 2019 at 03:54, a devastating earthquake, with a magnitude of 6.3 on the Richter scale at a depth of 38 km, hit the country. The epicentre was 22 km from Durres and 30 km from Tirana, where most of the major historically recorded earthquakes have occurred, in the convergent boundary between the Eurasian Plate and the Adriatic Plate. (According to the Albanian Institute of Geophysics, Water and Energy )

In the Cultural Heritage sub-sector, two national museums and three local museums were classified as uninhabitable and were closed to the public, while an additional 23 monuments were classified as high risk and another 30 monuments as medium risk.

Our study focuses in the damages and restoration of the Venetian Tower, part of the fortification in Durrës.



Fig.1- Venetian Tower, Durrës, Albania

## 2. Venetian Tower

Venetian Tower is part of the Durrës Castle, declared a cultural monument of the first category, through official decree no. 586/4874, dated 17.03.1948 / 23.09.1971. After the 90s functionally wise, the tower was converted into a bar, all the while modifying and transforming the tower in several aspects.

### 2.1. The conditions after the earthquake

While studying the conditions and then the interventions on the Tower, it is necessary to tentatively divide in 3 categories;

1. The lack of maintenance over the years
2. Interventions when transforming it into a bar
3. Damages by the earthquake in 2019

#### The lack of maintenance over the years

Presence of patina in the staircase. Presence of vegetation along the entire tower walls. Moss/Dump showcasing along the stone walls due to the patina and the high humidity levels inside the tower. Deterioration of the stone walls-stone decay or stone detachment, due to the weather changes, moisture or vegetation growth along the walls overtime. Deterioration of the plaster layer in certain parts of the interior walls and the dome. Moisture moss present under the stairs and on the exterior walls.

#### Interventions when transforming it into a bar

The interiors have been functionally adapted to the bar, as well as the toilet and a storage room;

added layers of non-original materials on the surfaces, such as: ceramic tiles on the floor; additional parapet on the terrace (concrete); Additional electrical plumbing installations; Cement mortar plastering with high pressure in the niches; installing tiles above the authentic stone walls of the toilet; Facade walls - injecting appropriate material in the cracks. Installation of metallic structures for commercial purposes.

#### Damages by the earthquake in 2019

After the earthquake, in general its condition was structurally good, but there were noticed several deterioration as below: A crack is observed in brick dome.

Cavities and cracks along the walls, which accompanied by the deterioration/partial removal/detachment of the mortar layer from the dome joints lead to instability of the material.

### 2.2. Study of the architectural and constructive characteristics

The Venetian tower is part of the Byzantine fortress of Durrës, (VI century) is considered one of the most powerful fortresses on the west coast of the Adriatic during the Middle Ages.

Architectural elements, as well as indirect historical data, show that this castle was rebuilt in the first half of the 15th century, when Durrës was under Venetian rule.

The circular tower (Torra), was built in the XV century, on top of the Byzantine tower. This is evidenced by the presence of blocks from the previous fence, architectural fragments and ancient forms.

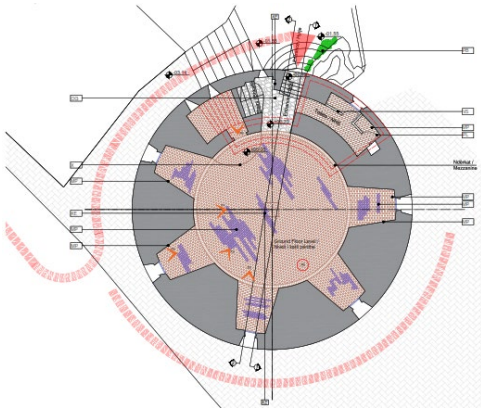


Fig.2- Existing situation, ground floor plan

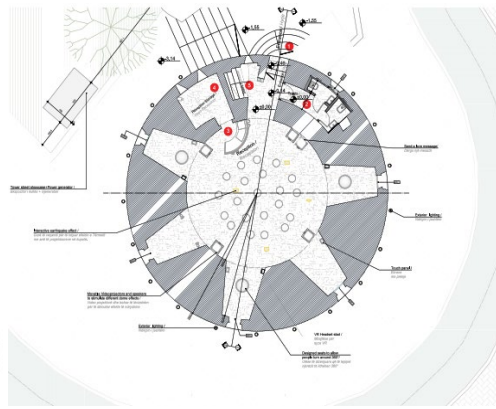


Fig.3- Ground floor plan, (current interventions)

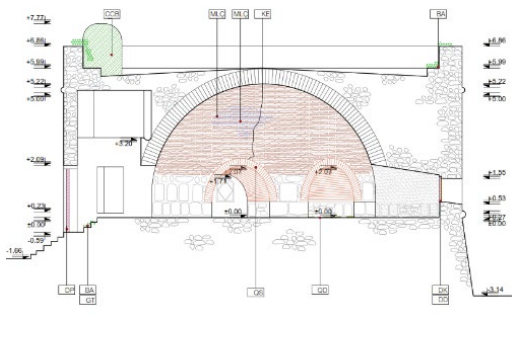


Fig.4- Existing situation, section 1-1 and facade



Fortifications during the Middle Ages followed their basic principles step by step, accompanied by the advancement of the art of fortification, which was conditioned by the development and improvement of the means and methods of attack.

A good example, in the same circumstances, according to historical sources, is the renovation of bell tower in Santa Maria a Vico, Caserta, which was constructed in the half of the fifteenth century, declared in the giornale Girocitta, il patrimonio/1, Tesori rinnovati, Rivive il campanile. The structure was badly affected by the earthquake of 29 November 1732 that caused deep cracks along the bell tower. Restoration and consolidation works continued until 1749. The last renovation of the bell tower dates back to 1927. The consulting services for the seismic retrofitting also included a series of dynamic tests, aimed at providing the dynamic characterisation of the building, divided into two

main stages. Design and implementation of dynamic test and identification of natural frequencies and mode shapes.

### 2.3. Interventions by EU4Culture Project

Removal of inappropriate layers such as: ceramic tiles on the ground floor, toilets and terrace. Removal of cement mortar in the niches.

Removal of the entire surface of the concrete slabs on the terrace. Removal works for electrical and plumbing installations.

Cleaning of the entire surface of the masonry from vegetation and moss. Facade cleaning with carbon sand compressors. All degraded mortar mechanically cleaned by removing and replacing detached stones or bricks. Restoration of cracks in the stone wall with the injection technique.

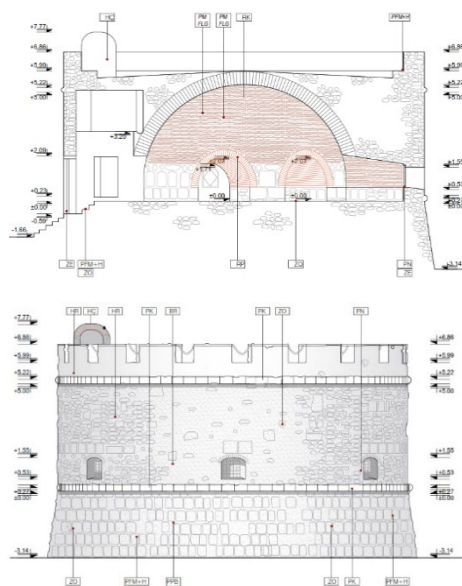


Fig.5- Current Interventions, view of section 1-1, and facade

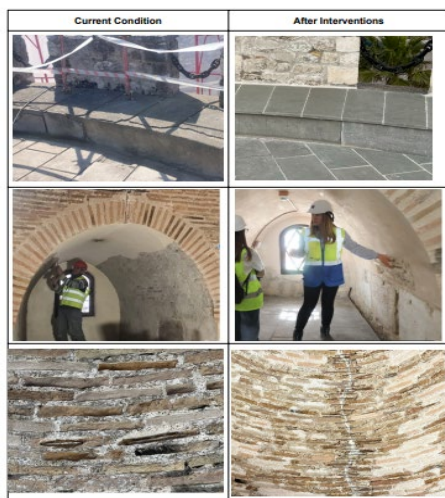


Fig.6- Current interventions by EU4Culture

Installation of waterproofing and evaporating membranes. Gutter installations. Cement free layer luster and lime. Installations of stone tiles.

Restoration of wooden doors; windows and the handrail on stairs. Restoration of decorative metal grills on windows and the entrance door.

Toilet reconstruction works.

The reinforcement with steel bars will be done after the evaluating if the crack is enlarging.

Monitoring of the crack should be done for a period of at least 1.5 - 2 years.

## 2.4. Transforming the Venetian Tower to the first Cultural Heritage Interpretation Centre in Albania

The scope of this project was not only the restoration of the damages caused by the Earthquake but also to give the Venetian Tower a significant position with its revitalization by transforming it in the first Cultural Heritage Interpretation Centre and a starting point for local and international tourists visiting the city. The centre will provide different types of history interpretation activities through modern digital and multimedia storytelling tools highlighting the most important events and milestones of Durres ancient history. The visitors will be able to explore Durres history through multimedia dome projection, immerse in the ancient past through virtual and augmented reality experiences, get information about Durres history through an app, on-site tablets and audio guides in five languages. While Periscopes in the Terrace of the Tower, in different height, suitable also for children. 1 toward the sea, the Royal Villa, Old Walls and toward the port and the southern coastline. It is important to emphasize that all the necessary installations on this regard are reversible and the authentic layers underneath are preserved and separated with geotextile layer.

## 3. Conclusions

In another stage, works can be focused on apart from the main conservation, due to the revitalisation of the function and usage of the building, the design intervention envisages also a new contemporary structure bridge to connect the tower with the castle walls. The ancient walls shall be restored and consolidated. In that prospect, the connecting bridge shall only be a possibility if this implementation happens, hence the bridge is only as a proposal, as it needs to be detailed and implemented in second phase, depending on the conditions of the walls project.

Through the study of the architectural and constructive characteristics of this tower, (design and implementation of dynamic test and identification of natural frequencies and mode

shapes), we want to highlight the signs of permanence and change over time and contribute to generating processes of conservation and revitalization of assets.

After post-earthquake phase, only a deep knowledge of the building, of its historical transformations, its tradition to improve seismic performance over the centuries, that make it now peculiar and unique together with constant,

minimal maintenance plays an essential role in reducing the loss of build heritage in seismic zones.

This research presents a strategic value to support the local development and promote new forms of cultural and environmental tourism that allow to reconstruct and recover areas in a harmonious and balanced way.

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