A case study on structural assessment and restoration of King Zog's villa in Durres, Albania

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Abstract

The city of Durres is the second largest city and one of the oldest ones in Albania. Its existence dates back to 627 BC. There are found many historical monuments that carry significant importance to the city. The Royal King Zog's Villa in Durres is one of the most interesting structures built in Albania during the Albanian Monarchy period (1928-1939). The villa, located on top of the hill with the height of 98 meters above sea level, was a gift given by the merchants of the city of Durres for King Zog in 1926. The Albanian architect Kristo Sotiri designed it.

During its existence, due to amortization and the lack of maintenance, the structural properties of the villa were weakened and the architectural values were dimmed. In this paper, architectural features and current structural conditions of the villa will be analyzed. The methodology used in this study is based on visual inspection of the current condition of the structure as well as a historical survey about the major changes the villa has passed through during the past years.

INTRODUCTION

The city of Durres is the second largest city and one of the oldest ones in Albania. Its existence dates back to 627 BC. Since antiquity, due to its very favorable geographic position Durres has served as a bridge crossing to the West Europe. The rich archaeological heritage such as the amphitheater, the protective walls, mosaics, rotundas and public baths, Durres shows that there was a very early connection with its western neighbors [1].

Until 1930s, the city had undergone contraction within the walls of the castle and only after 30s in the context of economic and social revival that swept across the country, began to slowly open sea and back roads in the main jetty maritime trade. In 1928, the custom of Durres Municipality, the Italian Royal Geographical Institute in Florence prepared an urban plan. Signatories as Dino Bucidi and others defined the opening of roads: the seaport entrance, the Commercial Street, the road towards Hill Street and the road to Spitalla (Figure 1). In 1934, the municipality approved the plan, and the Colonel Ferrara, engineer Bert and the engineer of the municipality H. Hornickel, performed measurements and calculations [2].

Figure 1. Durres Map 1930s (Italian)

In 1928 - 1934 the Italian experts built the harbor with project implementation and checks in order to perform works. In this period is designed the regulatory plan of the city, which is attributed to the Italian architect A. Brazini. Brazinis plan mostly sustained the road structure of the old city and predicted its expansion in the lowland area by a rectangular grid of roads. The only intervention was the creation of a straight wide road that connected the largest gate of the city with Jalli gate (now the Commercial street). The new ended construction in 1929 and it was named Castle Boulevard [2].

Such urban intervention that planned the demolition of many old houses to give a new urban face to the city was a typical fascist element. Along this road were built new buildings creating a new urban facade that gave a different breath to the city, leaving after the Ottoman system of neighborhoods. Therefore, Durres turned into the strongest node traffic throughout the country. Before 1939, Durres had its city hall, the National Bank, the power plant, port, the King Zog villa (Figure 2) and many mansions of the wealthy families of the city [3].

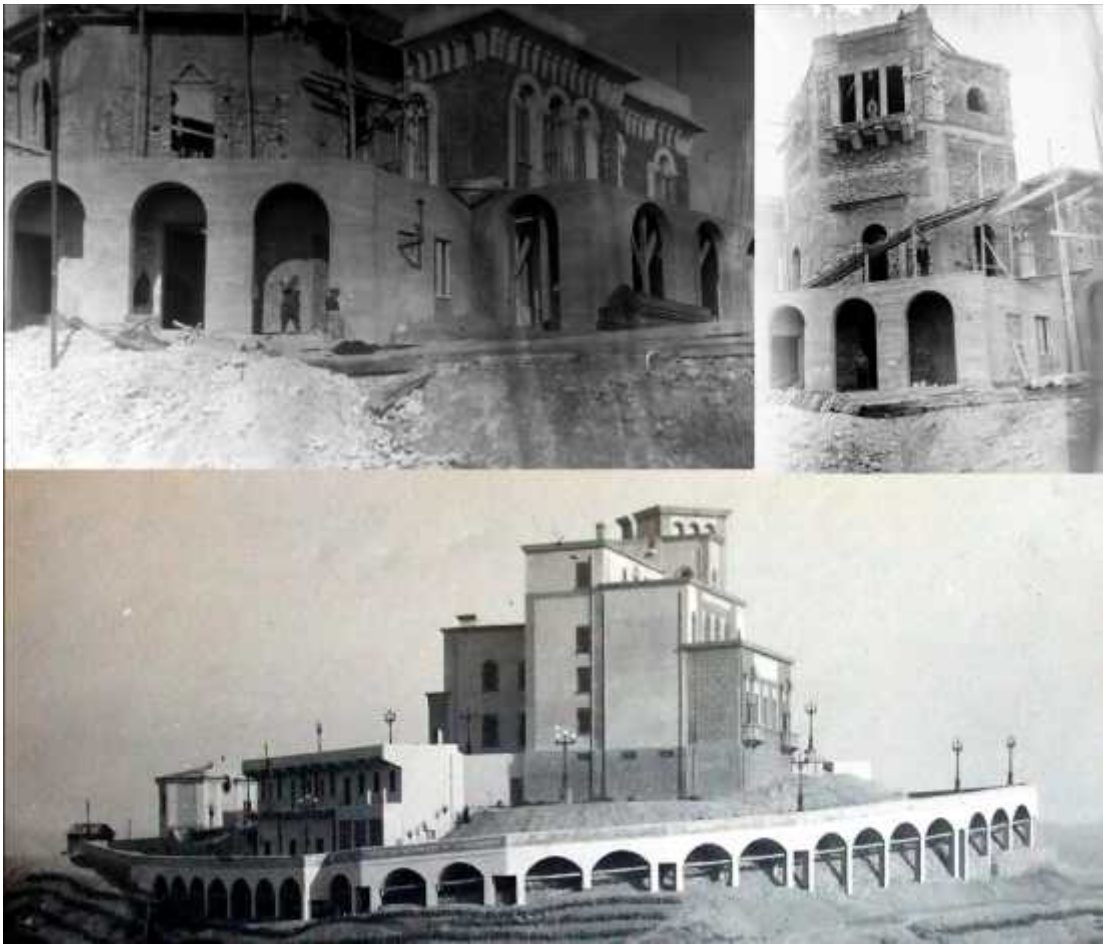

Figure 2. King Zog's villa during construction (above) and after completion

URBAN PLANNING AND ARCHITECTURE OF THE XX CENTURY IN ALBANIA

The period of first half of the 20th century coincides with the Austro-Hungarian occupation, after that with Fan S. Noli's government period, continues with the King Zog's kingdom, and ends of the Italian occupation.

The technology of construction and architectural style after 1930 was entirely under Italian influence. Buildings foundations, columns, beams and floors were of reinforced concrete. Facades' new style was simple and standardized, which resulted in the reduction of costs and construction of buildings in a timely manner. Italian architects reviewed all major cities plans. Architecture and City Planning was rational. Gerardo Bosio, Ivo Ferdinando Lambertini and Poggio have realized the design of the regulatory plans of Tirana, Durres, Vlora, Elbasan, Berat, Petrela, Saranda, etc in which besides rational architecture and urban planning psychology, they respected the tradition of Albanian related to private property etc [2].

KING ZOG'S VILLA

The Royal Villa of Durrës was used as the summer palace by the Albanian Royal family during the reign of the Monarchy and still remains a symbol of the Monarchy in the City. The villa is set on the Durrës hill, 98 m above the sea level. The sea can be seen from three sides of the villa (Figure 3,4). It extends in the form of an eagle. The palace was a gift given by the Durres business community as a sign of prosperity to King Zog. Kristo Sotiri, an architect who graduated from the University of Padova and the University of Venice, Italy, designed the first stage of the villa. The further design and construction was lead by Florestano di Fausto, an Italian architect and civil engineer. The building was finished in 1937, a few months before King Zog married Queen Géraldine Apponyi de Nagyappony. The villa was used after World War II as a government reception building. [2]

Figure 3. Aerial view of the villa (left), main façade (south) of the villa (right)

The villa has 20 rooms and 3 large saloons. In the Royal Villa of Durres everything seems to come in threes. There are three entrances, three floors, and three sides to achieve three views. Banding usually comes in groups of "threes". This simplified ornamentation reinforces aerodynamic concepts of streamline modern. A great way to accent the architectural elements of an art deco building is to paint the banding in a contrasting color. Cantilevered window shades included in the buildings structure look like a "shelf" placed above a window. Eyebrows shade direct sunlight and keep interior cool. Another characteristic of the villa is the stepped pediment and the flat roofs which provide different multileveled flat roofs.

INSPECTION AND ASSESSMENT PROCEDURE

In order to perform the inspection efficiently, a simple inspection and assessment form has been adopted from Gülkan [4]. It consists of: general details of the structure (address, rough area, number of story, height), type of roof, material types, condition of load bearing elements, condition of the connections, earthquake hazard level, possible failure mechanisms, etc. At the end, recommendation is given whether to retrofit, demolish or conduct further analysis. Rating of severity levels is from none (contains no structural damage), light, moderate, severe to near collapse (a heavy damaged element or structure).

The outcome obtained from the visual inspection provides a general assessment of the current structural conditions based on the visual "symptoms". Based on the final results, the next step to be taken is suggested. It is essential to choose the most compatible solution regarding the current structural conditions of the building, concerning about preserving as good as possible. This assessment procedure provides a general overview of the current structural conditions of the mosques. It provides the first step in preparing the analytical and computer model [5].

FORM FILLED IN BY / DATE	**17/03/2013**
BUILDING ADDRESS/ GPS LOCATION **ROUGH AGE OF BUILDING [YEARS]**	"Kont Urani" Steet/41.314817, 19.438704/ 87 yrs
STRUCTURAL SYMMETRY	EXISTS IN PLAN / EXISTS IN ELEVATION / NO SYMMETRY
ROUGH AREA COVERED BY BUILDING STRUCTURE [SQ. METERS]	3200
NO. OF STORIES	3
TOTAL HEIGHT OF BUILDING [M]	13
WALL CONSTRUCTION	BRICK / STONE / MUD / OTHER
WALLS ARE LOAD BEARING	YES / NO / EXPLAIN
STRUCTURAL QUALITY OF WALLS	ADEQUATE
TYPICAL WALL THICKNESS [M]	0,25
LATERAL LOAD RESISTING ELEMENTS [BUTTRESSES / RING BEAMS / LINTELS / ETC.]	WALL
CONNECTIONS [WALLS TO ROOF ETC.]	GOOD
ROOF	FLAT ROOF
MINARETS OR OTHER STRUCTURAL APPENDAGES	NO

MORTAR / CEMENTING MATERIAL	CEMENT / REINFORCED CONRETE
DAMAGE LEVEL : WALLS	LIGHT
DAMAGE LEVEL : ROOF	MODERATE
DAMAGE LEVEL : OTHER ELEMENTS	SEVERE
EARTHQUAKE HAZARD LEVEL	HIGH
RECOMMENDATION	RETROFITTING

ASSESSMENT RESULTS

After the inspection it was observed that the structural conitions of the villa are adequate to carry static loads. However, several problems were observed. In the south facade, due to differential settlements vertical diagonal cracks are seen (Figure). These cracks extend along the facade.

Figure 4. Cracks due to settlements

In the current conditions the villa is not functional. There are windows and doors missing (Figure 4). The interior of villa is damaged. Due to improper maintenance, the plaster and render are removed in almost all the rooms (Figure 5,6,7).

Figure 5. Comparison of current conditions and the time when it was built (top right figure)

Figure 6. Comparison of current conditions (left) and the time when it was built (right)

Figure 7. Comparison of current conditions and the time when it was built (right)

CONCUSION

King Zog's villa is one of the best representatives of the Italian Architecture in Albania. For this reason, special attention should be paid to this historic building.

From the assessment point of view, it can be concluded that the King Zog's villa's structural conditions are adequate to carry static loads. However, due to some differential settlements, cracks are observed in the south façade. If left in these conditions, crack propagation during time is inevitable.

The villa is not functional. A detailed restoration project should be conducted preserving the actual materials as much as possible.

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