

İZMİT SULTAN ABDÜLAZİZ IMPERIAL LODGE: DOCUMENTATION AND ASSESSMENT OF DAMAGES CAUSED BY THE EARTHQUAKE OF 1999

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ABSTRACT:

Sultan Abdülaziz Imperial Hunting Lodge was built in the second half of 19th century during the construction of the Anatolian-Balkan Railway, which played an important role in the urban development of İzmit. This imperial lodge outside the capital city might have been constructed on the foundations of a former palace built during the reign of Murat IV. Due to its location above the İzmit Gulf, it has become one of the most important elements of the urban landscape. Witnessing important turning points in the history of the city, the lodge has been used as the centre of local government and then as a museum. It has been effected by a number of major earthquakes due to its location on the North Anatolian Fault, and following its latest restoration in 1998, it suffered great damage during the Kocaeli earthquake of August 17, 1999. The damage was further aggravated as the building had not been well maintained, had been the subject of inappropriate repair interventions and left exposed to the effects of climatic conditions.

In order to decide on the type, method and techniques of intervention necessary, the level of damage needed to be studied and documented in detail. Various types of deformation and deterioration visible on the building were documented with traditional methods, and the data obtained enabled the definition of appropriate interventions at these points. This paper aims to present the architectural, structural and material characteristics and the post-earthquake structural problems of a formerly unpublished building designed by the Balyan Family through its architectural documentation and damage assessment.



Figure 1. Panoramic view of İzmit at 1910

1. INTRODUCTION

Sultan Abdülaziz Imperial Hunting Lodge, also known as the “İzmit Lodge” or the “Imperial Lodge” is located within a large garden surrounded by high retaining walls on a hill overlooking the Gulf of İzmit. According to various sources, another smaller structure, known as the “Small Palace” and constructed during the reign of Murat IV (1623-1640) was also located in this area. Evliya Çelebi (1314H), who came to İzmit in 1650 described this building, which was destroyed in an earthquake at a later date (Yücel, 1980): “... one of the best ordered of the great palaces is that of the conqueror of Baghdad, Sultan Murad the Fourth; this is a large palace in a garden. It is not possible to describe all of its characteristics or beauty. It is used by the royal family. About two hundred *Bostancı* (gardener) soldiers are employed in its gardens.”¹ Evliya (1314H) also stated that there was an arsenal next to the palace², which indicates that it was probably located at the same location or very close to the present building.

The existing Hunting Lodge dates from the 19th century and was probably constructed for Sultan Abdülaziz, who was

expected to come to İzmit to stay for a few days for the inauguration of Haydarpaşa-İzmit Railroad (Arar 1997; Yücel 1980). However this railroad, the construction of which began on August 4, 1871 (Anon.A. 1933; Taylan 1936) was inaugurated by the prime minister of the period, Rüşdü Paşa, on May 3, 1873 / 5 Rebiülevvel 1290 (İnal 1982). The exact date of construction of the lodge is not known, but the building must have been completed by 1873. Other sources argue that the building was constructed during the reign of Mahmut II (1808-1839) and was reconstructed or completed during the reign of Sultan Abdülaziz (1861-1876) (Anon.B. 1963; Darkot 1968; Öztüre 1981). It was designed by the imperial architect Garabet Amira Balyan (Tuğlacı 1981) and its decorative programme belonged to the painter and decorator Sepon Bezirciyan (Pamukciyan 1961), who was promoted to the post of the imperial decorator (*saray nakkaşı* or *resimcibaşı*) as a result of his success here.

The building is visible in panoramic photographs of İzmit taken in early 20th century (e.g. by G.Berggren *etc.*) due to its prominent location in the urban landscape. It witnessed important incidents in the history of the city. The first of these was Atatürk’s visit to the Kocaeli Group on June 18-22, 1922, when he spent June 18 at the Hunting Lodge. On the following day, he had an interview with the French author C. Farrère at the palace garden (*Tevhid-i Efkâr*, June 19, 1922) and made a historic speech to the citizens of İzmit (Yücel 1980). During the

¹ “...mükellef sarayların en muntazamı, Bağdat fatihi Dördüncü Murad Han sarayıdır ki, bağ ve bahçeli bir büyük sarayıdır. Vâsfinda lisan kısırdr. Halen padişahlara mahsustur. Bahçe üstadı, ikiyüz kadar Bostancı neferi vardır...”

² “...Hünkar sarayı yanında Tersane-i Amiresi vardır...”

continuing occupation of the Ottoman capital by the Allied Forces on January 16-21, 1923, Atatürk met the editors-in-chief of various İstanbul newspapers in the great hall located at the ground floor level. This event, known as the “İstanbul Press Conference” (*Tevhid-i Efkâr*, January 18, 1923; Arar 1997; Kemal, undated) was followed by a speech to the people of İzmit on January 21 at the Cinema building (*Tevhid-i Efkâr*, January 21, 1923).

The lodge was used as the centre of the local government following the establishment of the Turkish Republic in 1923 (Yücel 1980) and went through a major restoration in 1958³. It was handed over to the Turkish Ministry of Culture General Directorate of Monuments and Museums in 1965 (Tuğlacı 1981) and was opened to visit as the Museum of İzmit on June 28, 1967 (Yücel 1980; Tuğlacı 1981). The exhibits included 19th century furniture and an ethnographical collection at the upper floor and archaeological finds at the ground floor and in the garden.

The building was registered in 1987 by the decision of the Turkish Ministry of Culture İstanbul No. II Regional Commission on the Conservation of Cultural and Natural Property no. 18.02.1999/5070 as a “first group cultural property”. The palace was restored in 1997 and was opened on November 16, 1998. However, it was severely damaged during the earthquakes of Kocaeli on August 17, 1999 and Düzce on November 12, 1999. The magnitude of the damage due to the earthquake increased as a result of the subsequent smaller quakes and because the building was left partially exposed to the effects of the climatic conditions. Considering this situation, the Governor of Kocaeli requested the preparation of “Repair-Strengthening, Restoration and Re-Use Projects” from İstanbul Technical University.



Figure 2a, 2b. Internal and external views after earthquake.

2. ARCHITECTURAL CHARACTERISTICS

The Hunting Lodge is located in a large garden overlooking the Gulf of İzmit. It is a two-storey high small palace of brick masonry construction over a partial basement. The main entrance is on the south side facing the sea. There are secondary entrances on the east and west facades underneath the upper level balconies. The plan is symmetrical on the north-south axis. There is a large space at the centre with smaller spaces on the sides; the front spaces are living rooms whereas the back ones are reserved for services. There is a monumental marble staircase located on the entrance axis, which starts with a single central flight and then divides into two side arms after the first landing. The central axis that houses the entrance hall at the ground floor level and the large hall (*divanhane*) at the upper floor level is accentuated with a projection on the south facade.

The large window openings create a well-illuminated interior. There are painted decorations (*kalemîşi*) of plant figures in geometrical patterns on the ceilings of all the halls at both floor levels. These ceiling decorations and the oil paintings directly on the walls of the *divanhane* enrich the interior spaces. The exterior facades reflect a monumental order based on double pilasters, composite capitals, window and floor level cornices and decorative medallions.

The brick masonry structure of the building is plastered on the inside and clad with cut stone panels on the outside. The floor and ceiling structures and the roof are timber. There is a certain hierarchy in the employment of materials in the building. The use of Preconessis Island marble is more common on the monumental entrance facade whereas Gölcük limestone and Yalova tuffs (*od taşı*) are used on the others. These natural stone panels were replaced with artificial stone ones during various interventions.

3. STRUCTURAL PROBLEMS

The ageing of the building materials, the use of inappropriate techniques and materials in repair interventions, the effect of the earthquake and the building’s following exposure to climatic conditions, and the lack of maintenance are the major causes for the deterioration of the building. Due to the continuous interaction of these causes, the damage has increased in magnitude. In order to determine the appropriate method of restoration, the types and causes of deterioration



Figure 3a, 3b, 3c. Constructional damages after the earthquake

The most prominent type of deformation in the building is structural and results from the earthquake of August 17, 1999. Inappropriate interventions and lack of maintenance prior to this disaster have intensified its destructive effect. Especially striking is the collapse of the roof parapet in large pieces, which has also brought down the cast iron balcony balustrades with

³ Due to its location on the North Anatolian Fault, the building has been damaged as a result of various earthquakes and was repaired thereafter. The first documented repair-work is described in detail in Architect Mehmet Vedat’s cost assessment titled “Mahal-i İnşaat-ı İzmit’te vaki Kasr-ı Hümayün Tamirati” (“The Repair of the Imperial Lodge in İzmit”). During this intervention dated April 7, 1321H / 1905, the building was partially renovated, and plasters, roof parapets and ceiling decorations were renewed. (Dolmabahçe Palace Archive, *Hazine-i Hassa Evrakları* No.727) In 1958, the building was restored according to a 77-item bill of quantities and contract prepared by the Turkish Ministry of Education General Directorate of Monuments and Museums (GEEAYK decision no. 17.05.1958/321); the latest restoration was dated to 1997-8. During this intervention some of the façade cladding panels were changed, the ceiling decorations were repainted, the window frames were changed and all interior wall surfaces were replastered and repainted.

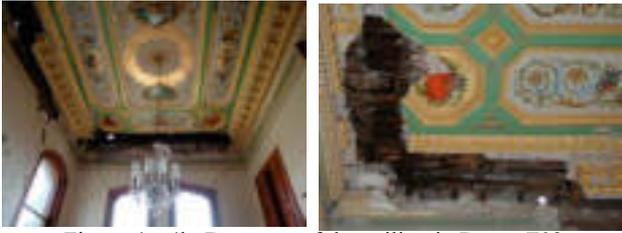


Figure 4a, 4b. Damages of the ceiling in Room Z03

them. The debris of the roof parapet, cornice and brick masonry wall is collected on and underneath the east facade balcony. The corners of the roof parapet are cracked and split as much as 30cm. The exterior and interior walls of the building bear cracks of various shapes in 0-7cm range whereas some lean as much as 10cm from the vertical.

The timber plaster lathing on the ceilings has partially decayed in time; the lack of repair and maintenance and the parts collapsed because of the earthquake have increased the rate of deterioration due to exposure to rainwater, as a result of which the original decoration has been partially destroyed. The roof waters have reached the intermediate floor level as well, causing the swelling of the timber cladding and the loss of decorated plaster on the ground storey ceilings below. The synthetic-based paints used in the latest repair have also caused flaking and loss of the ceiling decoration in large pieces.

decay of various timber elements as well.

The tuff blocks used for the facade claddings are pitted, flaking and deteriorating as a result of the effects of climatic conditions and air pollution. The use of artificial stone panels instead of natural ones in the recent interventions and plaster repairs with Portland cement mixtures on the faces of the less severely damaged natural stone panels have not only destroyed the visual esthetical uniformity of the facades but have also caused further deterioration due to the effects of dampness and water soluble salts.

4. SURVEY AND DOCUMENTATION

The study was initiated with a set of 1:50 scaled survey drawings of the building, which have been prepared following the earthquake. These drawings, would have been acceptable for the purposes of documentation, however they were inadequate for the restoration of a building so intricately decorated and so severely damaged. In order to determine the documentation of the types, levels of damage and their causes was crucial. As a result of these considerations, various high-tech and traditional methods of survey had to be used together for a proper assessment of the damage. These were classified and analysed in terms of material deterioration, structural deformation and causes were sought. The types, characteristics, uses and hierarchy of materials were determined, and the original and repair materials were separately evaluated.



Figure 5a,5b,5c,5d. Damage documentation drawings.

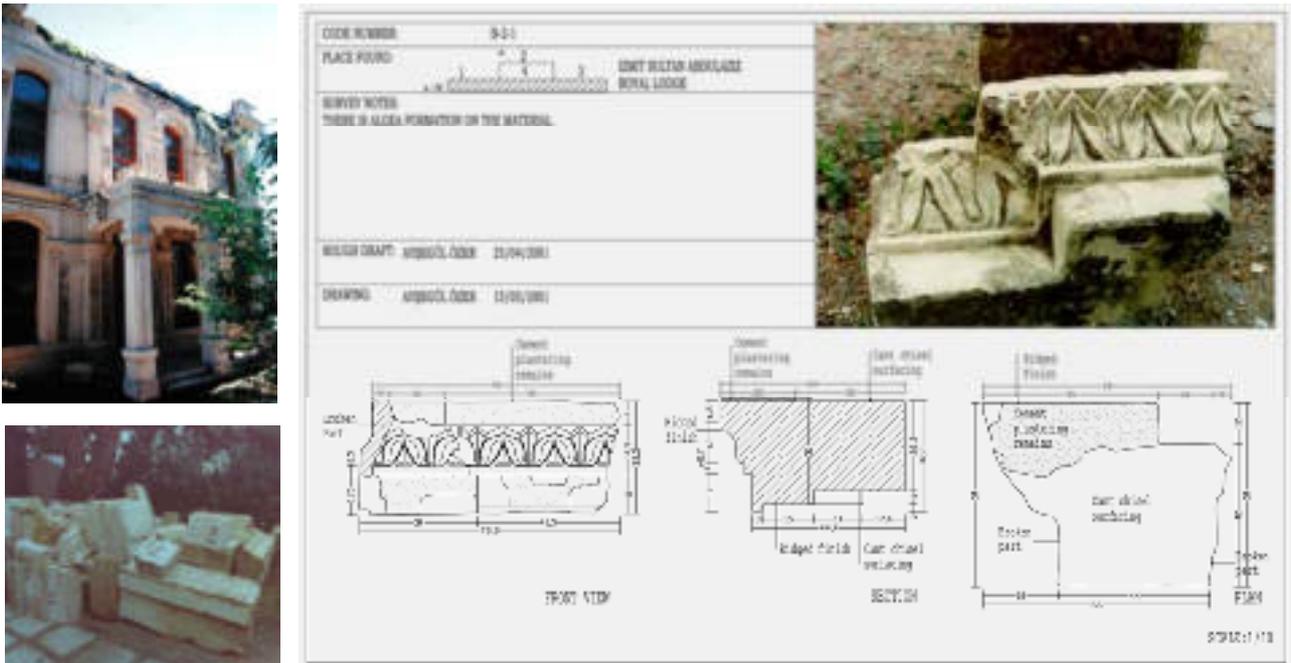


Figure 6a, 6b, 6c. The view of the east facade with collapsed debris of the cornice at roof level parapet and collected fallen pieces in the garden which were classified, numbered and then documented in 1:10 scale detail. A sample of the inventory fiches that were prepared for each of fallen pieces.

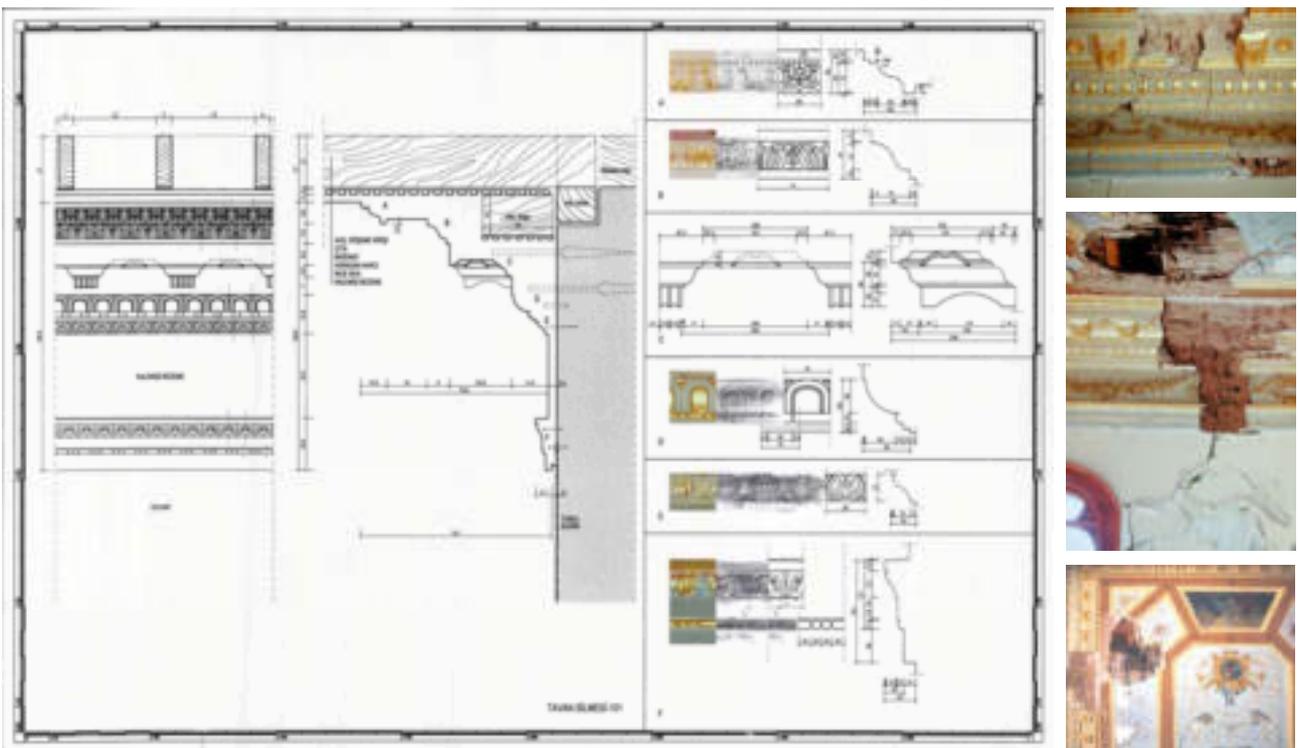


Figure 7a, 7b, 7c. The profiles of the three-dimensional projecting cornices of the interior walls in Room 101. These cornices were documented in 1:10, 1:5 and 1:2 scale. The photos show the severe damage on the cornices and the ceiling.



Figure 8a, 8b. Field survey and documentation.

4.1 Detailed Documentation and Damage Assessment

The cracks, collapsed sections and the types of deterioration are indicated on the existing 1:50 scaled survey drawings in mapping format. As a restoration project was required, the defined types of damage were not only indicated on the interior faces visible in the sections but also on additional drawings showing all of the interior wall surfaces. There were cracks of various sizes on the exterior faces and the facade claddings beginning from the roof level parapet and continuing down to the sides of the window openings at different levels. There were additional cracks on the interior walls extending from the ceilings down to the floor levels. As the determination of the size of the cracks would enable the definition of the appropriate type of intervention for their repair, the width, length and depth of all of the visible cracks were measured and indicated on the drawings.

4.2 Photographic and Photogrammetric Documentation

Painted decorations (*kalemişi*) on the ceilings that are directly attached to a timber lath subsurface on decaying timber floor beams, would have to be repaired and partially reproduced due to the damage they have suffered during the earthquake. In order to carry out this intervention in the appropriate manner, the ceilings had to be documented in detail with photogrammetric methods. Firstly, ceiling surfaces were photographed with metric cameras in the sense of digital close range Photogrammetry and these images were scanned at high resolution. Secondly, digital models were created using triple images on the computer environment and evaluated with photogrammetric methods and finally the rectified plan images for each ceiling were produced. In addition to 1:20 scaled general rectified photographic plan images, the baroque paintings inserted within this scheme were documented in detail of 1:1 scale with the same methods. This survey was carried out by Assoc. Prof. Dr. C. İpbüker and Dr. Ş. Kaya from the Department of Geodesy and Photogrammetry Engineering of the Faculty of Civil Engineering at Istanbul Technical University.

4.3 Material Analyses

Gypsum and lime-based mortars, plasters, finishes and natural stones used in the building have been sampled for laboratory

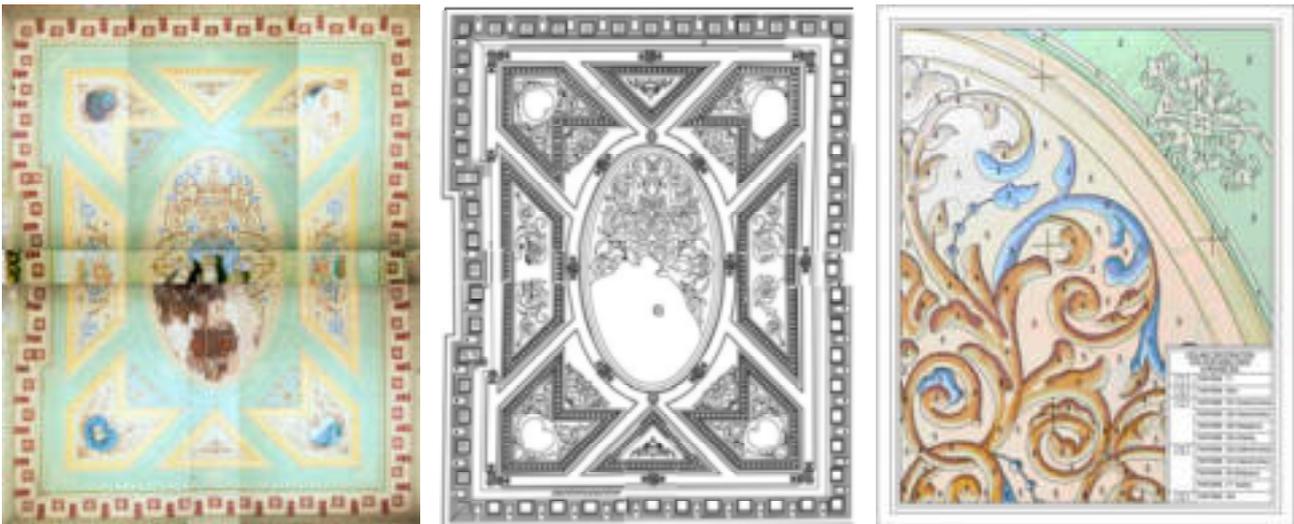


Figure 9a, 9b, 9c. Rectified photographic plan image and the drawing of Room Z03. A sample of colour analyses for Room Z03

The collapsed debris of the cornice from the east facade roof level parapet was collected in the garden. These pieces were classified, numbered and then documented on inventory fiches in detail, showing such characteristics as shape, size and materials, dowel holes and cracks, *etc.*, with the aim of understanding how they could be re-fitted and identifying those which may be re-used in the restoration.

The profiles of the three-dimensional projecting cornices on the corners of the interior walls and ceilings, which have been severely damaged and were probably to be reproduced were surveyed and documented in detail at 1:10, 1:5 and 1:1 scales, and the decorative elements on them were traced. Their reproduction according to their original shape, size and decorative patterns would be possible depending on this data.

analyses that would determine the characterisation of the traditional materials used in the building. The original materials and those dating from later period repairs used on the facades were mapped on survey drawings. Imitation stone panels used in former repair-work have destroyed the originally designed facade polychrome as their colour is different from those of the natural stone ones. Also the artificial stone panels, which were attached to the wall faces with mortar, have mostly collapsed during the earthquake causing further damage to other parts of the building. The broken panels would have to be replaced with new ones, paying due consideration to the original facade composition and colour scheme. Other in-situ natural stone panels with superficial deterioration had been repaired with Portland cement-based mixtures, which blocks the natural ventilation of the building walls, causing further problems related to dampness and the destructive effect of water-soluble salts as well as disturbing the visual integrity of the facades.

The layers of dust and soot on the stone panels resulting from atmospheric pollution were also indicated on the survey drawings to determine the method, area and locations of stone cleaning necessary.

4.4 Colour Analyses

Colour analyses had to be carried out in order to determine original colours used in the painted decorative programme (*kalemişi*) on the ceiling surfaces. PANTONE Process Colour System and PANTONE Colour Specifier catalogues were used to determine the colours of the existing decorations and were indicated on the 1:1 scale survey drawings for restoration.

5. RESTORATION METHODOLOGY AND EVALUATION

The aim of the evaluation of the data obtained through the survey and documentation process was the undoing of the damage due to the earthquakes of Kocaeli on August 17, 1999 and Düzce on November 12, 1999 through a minimal intervention focusing on structural strengthening, preserving the original architectural, structural and material characteristics of the building. The suggested method of restoration would not only reinstate the original appearance of the building, which has been changed through a series of inappropriate interventions following major earthquakes but would also enable it to survive future earthquakes with minimal damage. Following its restoration, the building must be re-opened to the public with an undemanding function that would enable lengthening its life span through proper maintenance.

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