REINSTITUTING KNOWLEDGE ON CONSTRUCTION TECHNIQUES AND MATERIALS OF A LATE OTTOMAN IMPERIAL BUILDING: ISTANBUL ARCHAEOLOGICAL MUSEUM

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ABSTRACT

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19th century was the period of westernization of Ottoman Empire. This century involved various social, economic, political and military changes, which also led to advances in architectural technology such as new construction techniques, usage of new materials, new infrastructures and so on. To understand the changes in architectural construction technology and their implications on architectural conservation, it is essential to investigate the historical buildings built in this period. The Istanbul Archeology Museum (IAM) Building is one of the best examples showing these changes because of its architectural features and construction techniques.To this end, this thesis aims to draw a picture of the Ottoman construction techniques in 19th century through closely examining IAM Building, its construction and restoration and repair attempts. IAM has been maintained by the adaptation of new technologies in different decades throughout its lifetime. The thesis summarizes and examines the conservation history of the museum in relation to the technologies of the period of the interventions, which the building has undergone from its construction to the present day. It focuses on the period between 1887 and 1907 and provides a comprehensive presentation of the building's construction history in the light of Republic of Türkiye Presidential State Archives, Alexandre Vallaury's original drawings, and technical data from the restoration process. The assessment of construction techniques was also made by considering the building’s relationship with 1894 earthquake effecting Istanbul and its performance over time.

Keywords: 19th Century Ottoman Architecture, Construction Techniques, Construction Materials, Byzantine Underground Remains, 1894 Earthquake.

ÖZ

GEÇ DÖNEM OSMANLI İMPARATORLUK YAPISININ İNŞA TEKNİKLERİ VE MALZEMELERİ ÜZERİNE BİLGİNİN YENİDEN TESİSİ: İSTANBUL ARKEOLOJİ MÜZESİ

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19. yüzyıl, Osmanlı İmparatorluğu'nun Batılılaşma dönemi olarak kabul edilir. Bu yüzyıl, yeni inşaat teknikleri, yeni malzemelerin kullanımı, yeni altyapılar gibi mimari teknoloji alanında ilerlemelere yol açan çeşitli sosyal, ekonomik, siyasi ve askeri değişimleri içerir. Mimari inşaat teknolojisindeki değişiklikleri ve bunların mimari koruma üzerindeki etkilerini anlamak için bu dönemde inşa edilmiş tarihi yapıların incelenmesi gerekmektedir. İstanbul Arkeoloji Müzesi (İAM) Binası, mimari özellikleri ve inşaat teknikleri nedeniyle bu değişiklikleri en iyi şekilde gösteren örneklerden biridir. Bu doğrultuda, bu tez, İstanbul Arkeoloji Müzesi Binası'nı, inşaatını ve onarım ile restorasyon girişimlerini yakından inceleyerek, 19. yüzyıldaki Osmanlı inşaat tekniklerine dair bir çerçeve çizmeyi amaçlamaktadır. İAM, var olduğu süre boyunca farklı dönemlerde yeni teknolojilerin uyarlanmasıyla korunmuştur. Tez, müzenin koruma tarihini, binanın inşasından günümüze kadar geçirdiği müdahalelerin dönemin teknolojileriyle ilişkili olarak özetlemekte ve incelemektedir. 1887 ile 1907 yılları arasındaki döneme odaklanan çalışma, binanın inşa tarihini, Türkiye Cumhuriyeti Cumhurbaşkanlığı Devlet Arşivleri, Alexandre Vallaury'nin orijinal çizimleri ve restorasyon sürecinden elde edilen teknik veriler

ışığında kapsamlı bir şekilde sunmaktadır. Ayrıca, inşaat tekniklerinin değerlendirilmesi, yapının İstanbul'u etkileyen 1894 depremiyle ilişkisi ve zaman içerisindeki performansı göz önünde bulundurularak yapılmıştır.

Anahtar Kelimeler: 19. Yüzyıl Osmanlı Mimarisi, Yapım Teknikleri, Yapım Malzemeleri, Bizans Altyapı Kalıntıları, 1894 Depremi

To my husband and lovely girls Ada and Lina

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LIST OF ABBREVIATIONS

ABBREVIATIONS

CAMGD: Cultural Assets and Museums General Directorate

IAM: Istanbul Archaeological Museums (*İstanbul Akeoloji Müzeleri*)

IDSM: Istanbul Directorate of Surveying and Monuments (*İstanbul Rölöve ve Anıtlar Müdürlüğü*)

IRCCRLD: Istanbul Restoration and Conservation Central and Regional Laboratory Directorate (*İstanbul Restorasyon ve Konservasyon Merkez ve Bölge Laboratuvarı Müdürlüğü*)

RCCCH: Regional Council for the Conservation of Cultural Heritage (*Kültür Varlıklarını Koruma Bölge Müdürlüğü*)

DBIA: *Dünden Bugüne İstanbul Ansiklopedisi*

GEEAYK: *Gayrimenkul Eski Eserler ve Anıtlar Yüksek Kurulu*

KUDEB: *Koruma Uygulama ve Denetim Müdürlüğü*

TDK: *Türk Dil Kurumu*

CHAPTER 1

INTRODUCTION

Historical buildings constructed in the 19th century offer a striking reflection of the transformation in architectural construction technologies during the late Ottoman Empire. These monumental structures not only showcase the latest innovations transferred from the West and their local applications but also reveal the technological evolution through the repairs and interventions they underwent over time.

In this context, this thesis examines the Istanbul Archaeology Museum (IAM) building as evidence of the technological, political, and social reforms of the late 19th century, a period marked by the Ottoman Empire's intense westernization. Designed by Alexandre Vallaury, an Italian-origin Levantine architect trained at the École des Beaux-Arts, the museum is not merely a building but also a physical representation of this dynamic period of transformation in Ottoman history. A thorough analysis of IAM Building could be only possible by examining the historical context.

One of the significant events that influenced 19th century Ottoman Architecture was the Industrial Revolution. The Industrial Revolution began in Great Britain in the late 18th century and quickly spread to the rest of Europe and North America during the late 18th and early 19th centuries. This period marked a significant transition from hand production methods to new manufacturing processes primarily performed by machines. In many industries, beginning with textiles, machines replaced human labor, enabling the production of goods in larger quantities within shorter timeframes. Key advancements in manufacturing technology during this era included new chemical manufacturing and iron production processes, increased efficiency in waterpower, the growing use of steam power, the development of machine tools, the rise of the factory system, and the shift from wood and other biofuels to coal (Stearns, 1998). These technological advancements facilitated the mass production of goods and ushered in a new era of industrialization.

A significant outcome of the Industrial Revolution for architectural production was the substantial increase in iron production methods. The availability of machine-cast iron had a profound impact on architectural design, influencing both exterior and interior elements. Cast iron began to replace wood in civil engineering applications, such as bridges, aqueducts, and factory construction, primarily due to its superior fire resistance. This influence extended to smaller-scale building components, with lintels and windowsills increasingly being fabricated from iron. Prefabrication techniques further enhanced the economic and temporal efficiency of iron construction. Building components were manufactured in bulk at factories and then shipped to designated sites for assembly. This innovative approach, which allowed for prefabrication and modular construction, facilitated the widespread proliferation of iron buildings.

While these developments were unfolding in Europe, the Ottoman Empire also initiated significant reforms, which appeared in the early 18th century and culminated in the 19th century, particularly due to the *Tanzimat* Edict and the liberal environment it fostered. During the *Tanzimat* Era (1839-1876), various military, administrative, economic, and social adaptations occurred, transforming the urban landscape and city life. The government became more centralized, with its responsibilities expanded to encompass all aspects of Ottoman life. In the subsequent years, new laws based on European models were introduced. Administrative responsibilities, which were once managed by the *kadı'*s, were transferred to newly established European-style ministries. After the Crimean War in 1855, urban administration was reorganized, leading to the creation of the *Şehremaneti* (6th District), a title directly translated from the French model (Z. Çelik, 1993). The duties of the *Şehremaneti* included the provision of basic needs, regulation and collection of taxes, cleaning and embellishment of the city, construction and repair of roads, and the control of markets and guilds.

Increased relations with European states during this period had a profound impact on Ottoman social life. In the 19th century, technologies such as water supply systems, electricity, tramways, and steam power were introduced to the public for the first time. Additionally, the mass production technologies and improved transportation of raw materials made the supply of materials and labor easier than ever before. This era marked a significant phase in the Ottoman Empire's westernization efforts which refers to changes influenced by Western Europe that had social, cultural, and aesthetic effects on the Ottoman Empire (Akyürek, 2011).

During this intense period of change, Ottoman architecture inevitably underwent significant transformations in both style and construction technologies. The 18th century was already marked by the construction of magnificent structures, strong communication with European diplomats, and the mass consumption by rulers, state officials, and members of the imperial household. Members of the ruling class increasingly became involved in architectural patronage (Hamadeh, 2002). Numerous madrasas, masjids, schools, libraries, and more than 300 fountains and *sebils* were donated within and outside the city fortifications (Hamadeh, 2010). New forms, building types, designs, colors, and ornamentation styles emerged in the architecture of this period. Neoclassical, baroque, and rococo styles made their way into the Ottoman architectural landscape. Consequently, hiring European architects to design and build palaces became a common practice.

In the 19th century, as the Ottoman Empire sought to adopt Western standards across all aspects of life, the influence of Western culture became increasingly evident in architectural productions designed by foreign architects. This transformation extended beyond visual aesthetics; buildings in Istanbul also incorporated high-cost technological advancements. A new set of building types emerged, reflecting a modern and Westernized lifestyle. Çelik (1993) notes that the new urban image was shaped by two key components: new building types and new architectural styles. She identifies four major styles of the period, illustrating the multi-dimensional architectural implementation in Istanbul. These styles are Classical Revivalism, Gothic Revivalism, Islamic Revivalism, and Art Nouveau, often accompanied by new building types such as office buildings, banks, theaters, department stores, hotels, and multistory apartment buildings (Z. Çelik, 1993).

The most significant technological change that enabled the architectural repertoire of the 19th century was the widespread use of iron in buildings. With the invention of blast furnaces during the Industrial Revolution, the production of cast iron and pig iron became cheaper and more efficient, leading to an increase in iron production throughout the 19th century. As production grew, wrought and cast iron began to be used more frequently in building and bridge structures (Şengün, 2015). The Ottoman Empire's inability to compete with Europe's iron production led to a rise in the use of imported iron. While the use of iron beams as structural elements began after the second half of the 16th century, these beams were incorporated into jack-arched slabs using imported I profiles after the second half of the 19th century. Although building materials had changed only slightly until then, the technological developments brought about by the Industrial Revolution fundamentally transformed building materials and their methods of production after the 19th century (Yergün, 2002).

The changes in construction techniques for residential buildings in the capital during the late Ottoman period should be examined from a broad perspective, considering both local factors and the dynamics created by innovations and changes in areas such as politics, economy, and technology (Erdal, 2023). In addition to technological changes, developments such as urban crowding due to immigration following wars, shifts in administrative, economic, and social structures, and changes in transportation systems directly or indirectly influenced the emergence of new urban and architectural patterns in the cities of the Ottoman Empire. Beyond the contextual changes occurring in Europe and the Ottoman Empire, there were also local developments that impacted construction practices in 19th century Istanbul. The building codes in use today have their origins in the *Tanzimat* period (1839-1876). 1848 (*I. Ebniye Nizamnamesi)* and 1849 (*II. Ebniye Nizamnamesi)* Building Regulations, 1863 Road and Building Regulations (*Turuk* ve *Ebniye Nizamnamesi)*, and 1883 Building Act, were the first acts and regulations that were published to deal with the emerging urban problems (Güçhan Şahin & Kurul, 2009).

Legal and administrative reforms, as well as natural disasters, had a direct influence on construction practices in the city during this period. Concerns regarding fire safety and the corresponding precautions were significant considering the numerous disasters the city endured until the end of the 19th century. Çelik (1993) notes that 109 large scale fires occurred in Istanbul and Galata between 1633 and 1839. This number increased to 229 between 1853 and 1906, turning the threat of fire into one of the city's most significant problems (Çelik, 1993). There was a prevailing belief that transitioning from wood to stone and brick masonry (*kargir*) as a primary construction material would bolster fire prevention measures. The peninsula, with its dense, wooden residential fabric, was more vulnerable to fires than the Golden Horn, which featured larger-scale masonry buildings.

In addition to the frequent fires in the city, earthquakes were another significant factor influencing residential construction choices in the late 19th century. Situated along the North Anatolian fault line, Istanbul has experienced numerous earthquakes throughout its history. These repeated and devastating earthquakes have physically and socially transformed the city from the days of the Roman Empire through the Byzantine and Ottoman periods, continuing to the present day. Among many large and small earthquakes, those in 1509, 1766, 1894 (Ambraseys, 2009), and 1999 were recorded as the most destructive for Istanbul. These events led to the destruction of numerous buildings and resulted in significant loss of life. All these earthquakes also tested the viability and durability of historical buildings.

More recently, on February 6, 2023, Türkiye experienced unprecedented destruction due to the *Kahramanmaraş* earthquake couple[1]. With more than 50,000 fatalities and extensive structural damage, these earthquakes were recorded as the most devastating in Turkey's history. Many historical buildings were destroyed, while others sustained severe damage. One of the most significant consequences for

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[1] Which struck in *Pazarcık* (Mw = 7.7) and *Elbistan* (Mw = 7.6). (according to *Boğaziçi* University *Kandilli* Observatory)

the field of conservation was the extensive damage to newly restored historical monuments. This situation highlighted the critical importance of thoroughly analyzing the construction systems of historical buildings and ensuring proper intervention techniques. It underscored that the impact of earthquakes must be a key consideration when examining the construction techniques of historical buildings, especially given the expectation of a potential earthquake in Istanbul in the near future. This makes minimizing the potential damage to historical buildings in Istanbul even more crucial. Considering the awareness raised by these earthquakes, Istanbul's population, building density, and the number of historical structures it contains, it is critical to prepare both our historical buildings and new constructions to the potential consequences of future earthquakes, underscoring the urgency and significance of conducting new research.

To understand the changes in construction techniques caused by the contextual and local developments mentioned above in the late 19^{th} century, it is essential to investigate the historical buildings constructed during this period, along with the repairs and interventions they underwent. In this context, the monumental historical buildings built at the turn of the 19^{th} century are particularly significant, as they reflect the latest innovations adapted from the West.

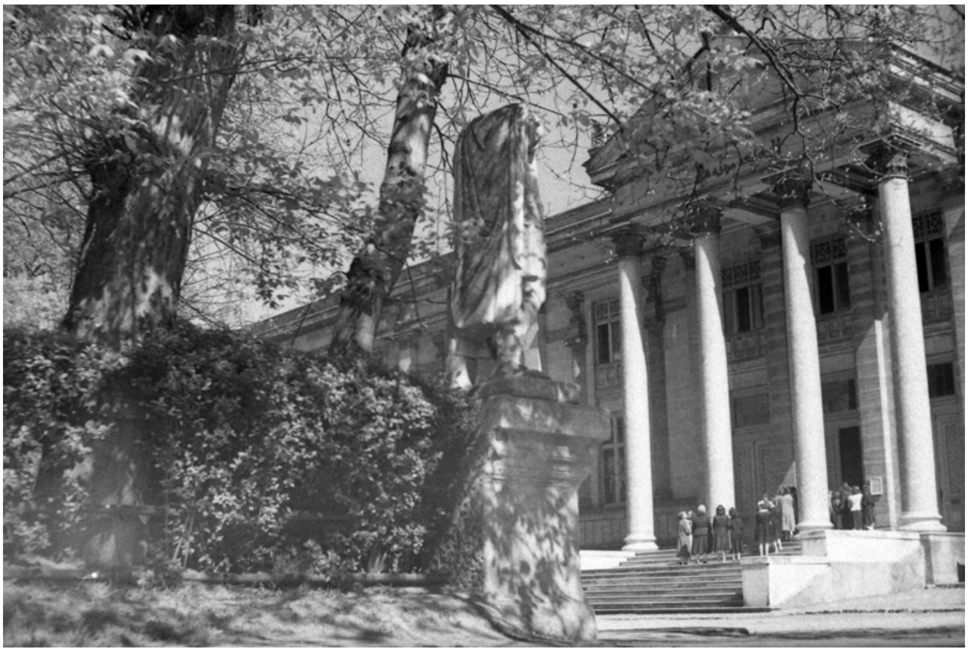

Figure 1. The old Photo of Istanbul Archaeological Museum Building (n.d.)(source: IAM-Photography Archive)

In this dissertation, the IAM Building is critically analyzed as a historical building that utilized all the technological opportunities available in the late 19th century (Figure 1). IAM Building, sprouting in the land wall of *Topkapı* Palace (Figure 2), played a significant role in educating architects during the late Ottoman and early Republican periods.

IAM Building was the first building of *Müze-i Hümayun* which was designed and built as museum at the first hand. Following the conquest of the city, Hagia Eirene—one of the most prominent Byzantine churches—began housing a growing collection of military and reliquary objects. Without the fundamental purpose of exhibition, the collections did not qualify as a museum. Nevertheless, the recognition of value that guided their collection laid the groundwork for the eventual development of Ottoman museums. Without the fundamental purpose of exhibition, the collections did not qualify as a museum. Nevertheless, the recognition of value that guided their collection laid the groundwork for the eventual development of Ottoman museums (Shaw, 2003).

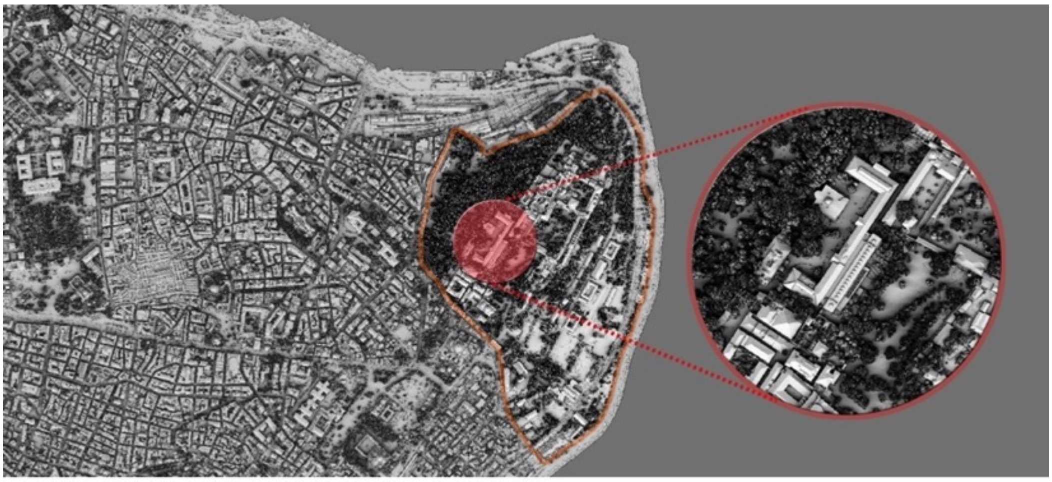

Figure 2. The site plan of Istanbul Archaeological Museum Building (generated by the author on the map retrieved from https://sehirharitasiapi.ibb.gov.tr)

The museum building was constructed in three stages over a period of 20 years: the first phase from 1888 to 1891, the second phase from 1899 to 1903, and the third phase from 1904 to 1907 (Figure 3) (Cezar, 1971).

This building is significant not only because it was erected within a discourse shaped by the technological, administrative, political, and educational changes of the period but also because it experienced the 1894 earthquake during its construction. Just three years after the completion of the first phase, the 1894 Istanbul earthquake struck. The structural concerns that arose from this devastating earthquake led to the examination of new materials and construction techniques at the end of the 19th century. Fire resistance had already been a major consideration in construction projects during the 19th century, even before the earthquake. Additionally, recent restoration and structural reinforcement work have provided the researcher with detailed insights into the building's construction.

Acknowledging the significance of IAM building for 19th century Ottoman architecture, this thesis aims to depict 19th century Ottoman construction techniques by closely examining this building, its construction, and subsequent restoration and repair efforts and whether the threats of fire and earthquakes influenced the construction techniques applied throughout its 20-year construction process (Figure 4).

Since its construction, the building has undergone various levels of repair and restoration interventions at different times, utilizing the technological capabilities of each period, while successfully preserving its museum function and enduring to the present day.

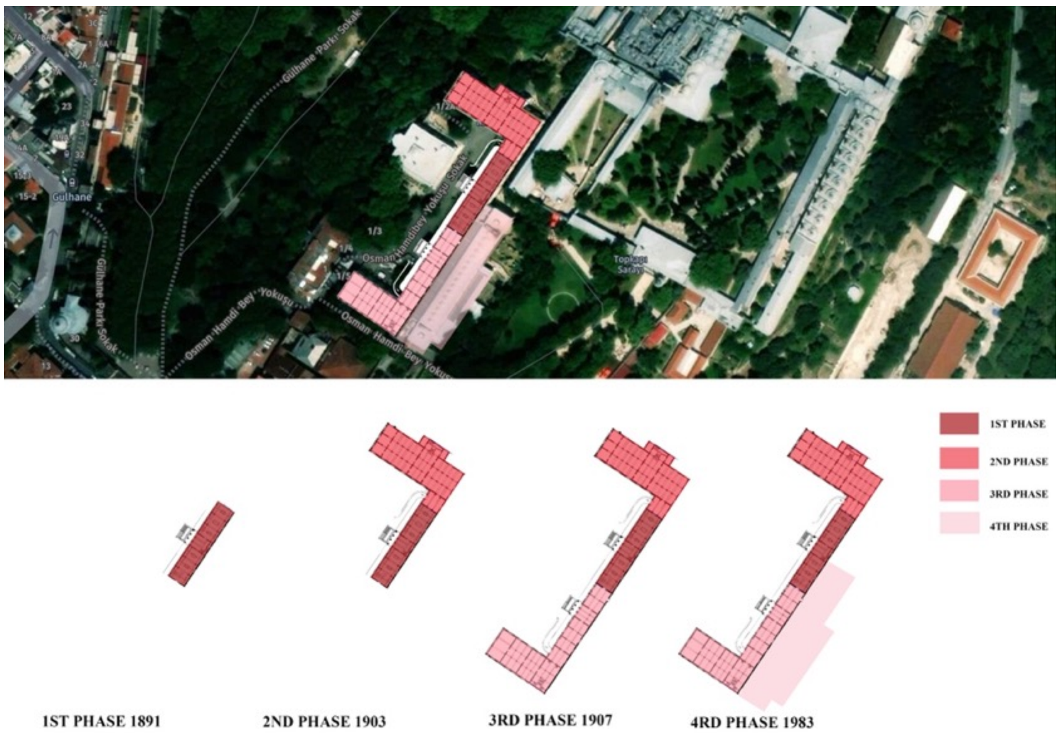

Figure 3. The construction phases of Istanbul Archaeological Museum Building shown on site plan (generated by the author on the map retrieved from Google Earth Image)

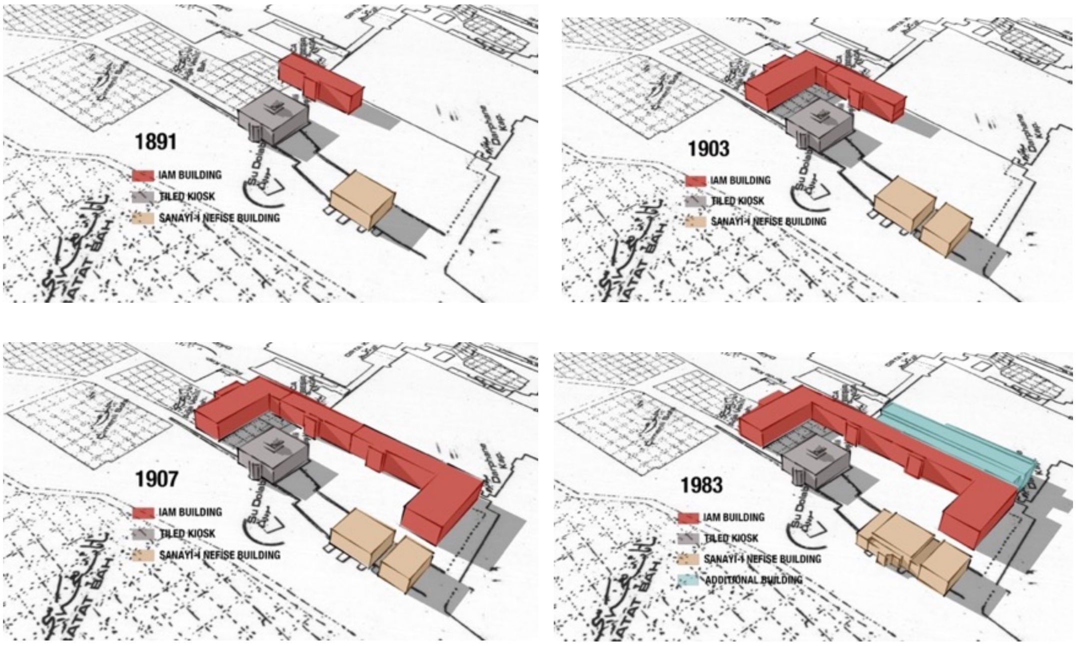

Figure 4. Conceptual 3D representation of the construction phases of Istanbul Archaeological Museum Building (drawn by the author on the 19th century map of Ekrem Hakkı Ayverdi)

1.1 Problem Definition

Architectural conservation gained momentum in the 18th century[2] later evolving into an international institutional base all over the world. The 20th century marked the establishment of key international charters[3], which defined globally accepted principles for conservation, which guide conservation efforts today. These charters not only raised awareness of the historic environment but also underscored the importance of conserving the settings and surroundings of monuments. In recent

[2] Architectural conservation began gaining momentum in the 18th century, initially focused on restoring Gothic churches in poor condition. Figures like Eugène Emmanuel Viollet-le-Duc advocated for interpretive restorations, while critics like William Morris and John Ruskin championed an anti-restoration approach, emphasizing the preservation of buildings' historical authenticity and "voicefulness."

[3] Such as the Athens Charter (1931), Venice Charter (1964), Amsterdam Declaration (1975), and Washington Charter (1987), Nara Conference on Authenticity (1994)

decades, the field of architectural conservation has changed significantly, shifting its focus from the preservation of individual aesthetic and historical artifacts to broader urban-scale conservation that includes both tangible and intangible values.

Venice charter[4] (1964) , (The International Charter for the Conservation and Restoration of Monuments and Sites), is regarded as a pivotal milestone in the field of architectural conservation, reflecting the highest level of awareness achieved in that era. The Charter mentions that the historic monuments, imbued with messages from the past, should be preserved as enduring witnesses to the long-standing traditions of previous generations and by ensuring their transmission with their full authenticity maintained. It articulates that the restoration process should aim to preserve and highlight the aesthetic and historical significance of a monument, adhering strictly to the original materials and authentic documentation. Restoration efforts must cease where speculation begins, and any indispensable additions should remain distinct from the architectural composition while incorporating a contemporary character. Furthermore, it stipulates that replacements for missing elements must blend harmoniously with the overall structure but remain distinguishable from the original, ensuring that the restoration does not misrepresent artistic or historical evidence. The Charter also advocates for a global awareness of conservation, emphasizing the protection not only of historic buildings and monuments but also of their surrounding contexts.

The Nara Document on Authenticity[5] (1994) makes a significant contribution to the field of heritage conservation. Building upon the 1964 Venice Charter, it serves as a conceptual extension of its principles and draws attention to concepts such as

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[4] The Venice Charter (1964) was published in The Second International Congress of Architects and Technicians of Historic Monuments by ICOMOS (International Council on Monuments and Sites) in Venice

[5] The Nara Document on Authenticity was drafted by the 45 participants at the Nara Conference on Authenticity in Relation to the World Heritage Convention, held at Nara, Japan, from 1-6 November 1994, at the invitation of the Agency for Cultural Affairs (Government of Japan) and the Nara Prefecture. The Agency organized the Nara Conference in cooperation with UNESCO, ICCROM and ICOMOS. This final version of the Nara Document has been edited by the general rapporteurs of the Nara Conference, Mr. Raymond Lemaire and Mr. Herb Stovel.

Cultural Diversity, Heritage Diversity, Values, and Authenticity. The documents states that the conservation of cultural heritage, encompassing all its forms and historical periods, is fundamentally grounded in the values ascribed to it. The extent to which these values can be comprehended relies, in part, on the credibility and reliability of the information sources that convey them. A thorough understanding of these information sources, in relation to both the original and later attributes of the cultural heritage and their significance, forms an essential foundation for evaluating all dimensions of authenticity.

In this document, authenticity emerges as a crucial determinant in defining values: it plays a fundamental role in all scientific endeavors related to cultural heritage, as well as in the planning of conservation and restoration efforts. While acknowledging this definition of "authenticity", this thesis values the unique characteristics of each period and does not regard a specific period more important than others. In line with this stance, the thesis examines the development and evolution of IAM Building's structure over time within its own integrity.

As such, merging different periods in its structure, the IAM building has a unique character. Its construction in different periods creates horizontal or vertical stratifications. Therefore, this thesis acknowledges the importance of understanding the conditions specific to each period and focuses on the construction phase. The unique qualities of the period during which the building was constructed reveal the context of that time, the level of knowledge, material choices, and awareness of seismic concerns. Accessing original information has a special value in terms of understanding and interpreting the unique characteristics of that period. The information within the historical structure has been collected, interpreted, and conveyed based on this approach.

This thesis does not prioritize one period over another in terms of authenticity but emphasizes its importance for the level of knowledge it provides about its time. In fact, when the term "authenticity" is used, it is with this purpose in mind.

For a historical structure, the primary aspects contributing to its authenticity and requiring preservation mainly include its construction techniques, original materials, and architectural characteristics. Unfortunately, the authenticity of such historical buildings is not always fully understood, in conservation practice, which often results in the inability to preserve their original qualities effectively. While this approach is significant in theory, its implementation often overlooks the importance of integrating technological advancements in construction techniques and addressing the fundamental structural changes necessary for a building to withstand future disasters. In some cases, the emphasis on preserving original materials and techniques may inadvertently result in preserving the ‘mistakes’ as well.

As emphasized in the *Nara Document on Authenticity*, a proper understanding of the information sources that provide knowledge about a historical structure is essential for evaluating all aspects of authenticity. All archival resources, the macro- and micro-scale events of the period in which the structure was built, the construction technology of the time, the changes in it, and the interventions underwent in subsequent periods must be examined with the same rigor, in a critical and objective way. Failure to do so can jeopardize the preservation of the historic building's authenticity and its transmission to future.

When the IAM Building is examined under these principles, it becomes apparent that, it is not just an architectural masterpiece but also a historical document. It was shaped and developed under the influence of all macro- and micro-scale events and developments of its era, and it has continued to bear witness to history through subsequent interventions. IAM Building have been in use since the construction and have undergone numerous repairs throughout their history. Each intervention serves as a symbol reflecting the technological advancements in construction during its time. Most interventions were carried out using the restoration techniques considered the most advanced of their time, addressing areas perceived as problematic within the structure. Moreover, these interventions provide valuable insights into the building's structural strengths and weaknesses. Consequently, the IAM building itself can be regarded as a primary document, showcasing these transformations and illustrating the technological developments of various periods.

In addition to interventions carried out by users, natural disasters also impact monuments, sometimes causing irreparable damage. Drawing on humanity's past experiences, another critical goal of preservation is not only to address the damage inflicted on cultural heritage by disasters but also to ensure that historical structures are resilient and prepared to survive such disasters. Consequently, natural disasters, such as devastating earthquakes, have prompted a reevaluation of preservation processes for historical monuments. However, in practices, some essential interventions may have been omitted from discussions by conservation boards or architects due to a lack of proper and critical analysis and sufficient level of knowledge of the historical structure, all to adhere to the principle of minimal intervention in heritage conservation. Conducting an in-depth critical analysis, including all its processes and transformations is essential to accurately identify the vulnerabilities of historical buildings, and to transmit them to future generations in a secure and authentic state.

Even if two different historical buildings in the same city, were constructed using the same techniques and materials, this does not necessarily mean that these techniques and materials were applied in the best possible way. Therefore, each building should be analyzed in detail within the context of its own story, utilizing all available resources through field studies and archival research. This has significant implications for the conversation of historical buildings. For instancethe assumption that the construction technique was applied by masters and architects who are well qualified and experienced in their job should be questioned or even abandoned. The available facilities and materials might not be of the same quality in different contexts and at different times. Thus, there should always be a reasonable doubt that the techniques might be applied incorrectly, incompletely or differently. In this respect, preventing the repetition of previous mistakes in the restoration processes is crucial for conservation, knowing what to protect truly and what to improve. However, knowing the construction techniques of historic buildings is not enough to conserve them. What must be done is to assess the construction technique critically and identify any weaknesses. Considering the last earthquakes and seismic danger of Istanbul, the critical assessment of construction techniques is essential to safeguard its cultural heritage.

As a country frequently tested by major earthquakes and bearing deep marks in its collective memory, this is undoubtedly not a new topic of discussion for Türkiye. Both the 1999 Izmit Earthquake and subsequent periods saw increased momentum in the strengthening of historical structures. However, restoration efforts, often undertaken with great urgency and speed, are unlikely to yield different results as long as the same methods and approaches are employed. At the core of this necessary shift in approach lies the critical assessment of practices. Over time, as the memory of earthquakes fades, there is a tendency for these issues to be overlooked. It is essential to conduct extensive research and development studies, as well as methodological investigations, for both restoration projects and new constructions.

To establish a proper critical assessment of the construction techniques based on the authenticity of the IAM Building, this thesis primarily aims to address the following questions:

- What kind of 19th century construction techniques were applied to the building during its construction process (1887-1907)?
- What was changed in construction techniques by the architect after the 1894 Earthquake during the construction process 1888-1907?
- What are the weaknesses and strengths of the original construction techniques of the IAM building?
- What kind of restoration interventions and repairs have been applied to the IAM building since its construction?
- What kind of damages occurred in the IAM building 1894 Earthquake?

1.2 Aim & scope

In the initial steps of this dissertation study, the IAM building, which was originally constructed as a museum, was the subject. The aim was to explore the changes it underwent as a museum over time and the interventions made from a conservation perspective, including the techniques employed. The justification was the fact that the building is interesting not only in terms of its construction history but also its repair history, with an abundance of information available covering all periods.

To this aim, a general categorization of the building's construction and repair history was established. However, the author's role as the control architect during the building's restoration between 2017 and 2021, combined with her direct observation of the findings and access to archival documents (between 2017 and 2021), technical reports, and other resources due to professional responsibilities, was anticipated to provide a significant contribution to the literature by bridging theory and practice. This was because of inaccessibility of restoration documents: though data obtained during the restoration of historical structures are documented, they are often concealed during the restoration process and stored in files, limiting broader access. Yet, such information can be vital in shedding light on the technological context of a particular era.

Utilizing the advantage of her position, the author has chosen to develop a thesis that interprets the building's construction history and phases while providing insights from a conservation perspective. This position granted the author access to institutional archives (between 2017 and 2021), enabling the discovery and scientific analysis of previously unexamined documents related to the building's construction history. The data gathered during the restoration process and subsequent archival research contained critical information about the construction period of the structure. As a result, the study has progressed with a focus on the building's construction phase.

Furthermore, as the study progressed, it became apparent that Vallaury's role during the 1894 earthquake and his subsequent appointment revealed the emergence of new sensitivities in construction techniques. Upon this realization, it was decided to focus on this period and examine it in greater detail, particularly in relation to the construction technology of the time and its connection to the earthquake threat.

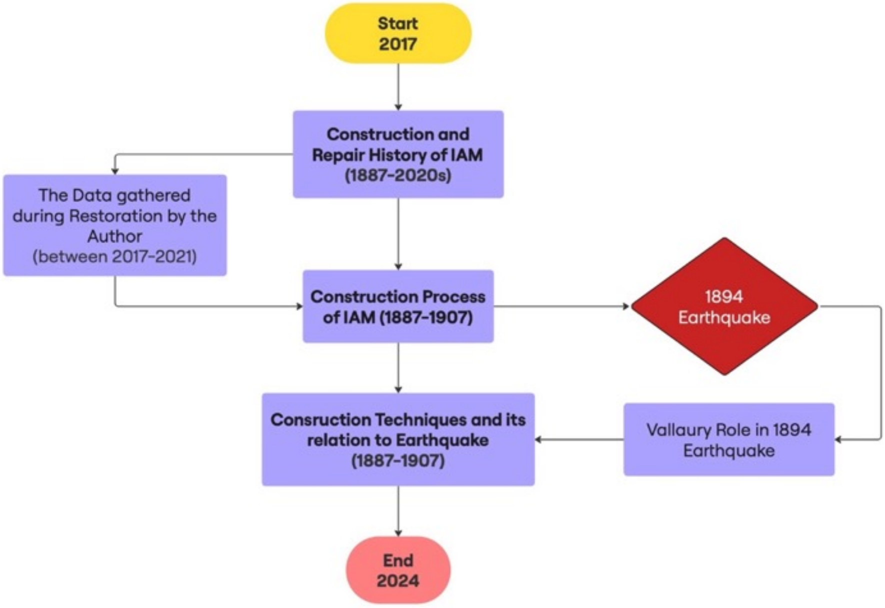

Figure 5. The flowchart showing the evolution of the focus of the thesis. (drawn by the author)

The literature lacks adequate information about the architectural and construction techniques of historical buildings constructed in Istanbul in the late 19th century. Consequently, the focus of this thesis has evolved to concentrate on the construction years of the building to uncover and expand knowledge about its hidden construction techniques (Figure 5). Hence, the primary objective of the thesis is to describe and interpret the characteristics of this structure in terms of the construction techniques and material diversity used in the 19th century.

Although the building was constructed during different periods, understanding the construction details of each period is crucial for comprehending the knowledge specific to that era, evaluating its performance over time, and assessing its relationship with earthquakes. Therefore, the structure has also been examined from the perspective of its seismic resilience and historical context.

Within the scope of this thesis, the construction techniques used in IAM during its construction and afterwards to identify the changes in the Ottoman construction technologies starting in the 19th century and continued by conservation interventions during Republic and reached its climax in 2020's aiming a comprehensive restoration.

This thesis provides information about the various interventions the building has undergone from its construction to the present day. All the interventions carried out since its construction have been utilized to better understand the building's original state.

To accurately analyze the main intervention, its history is divided into seven phases (Figure 6). According to the research, it has been determined that the museum building underwent more extensive and radical interventions during certain periods, while in others, its continuity was maintained through smaller-scale interventions. These interventions are explained in detail in Chapter 3.

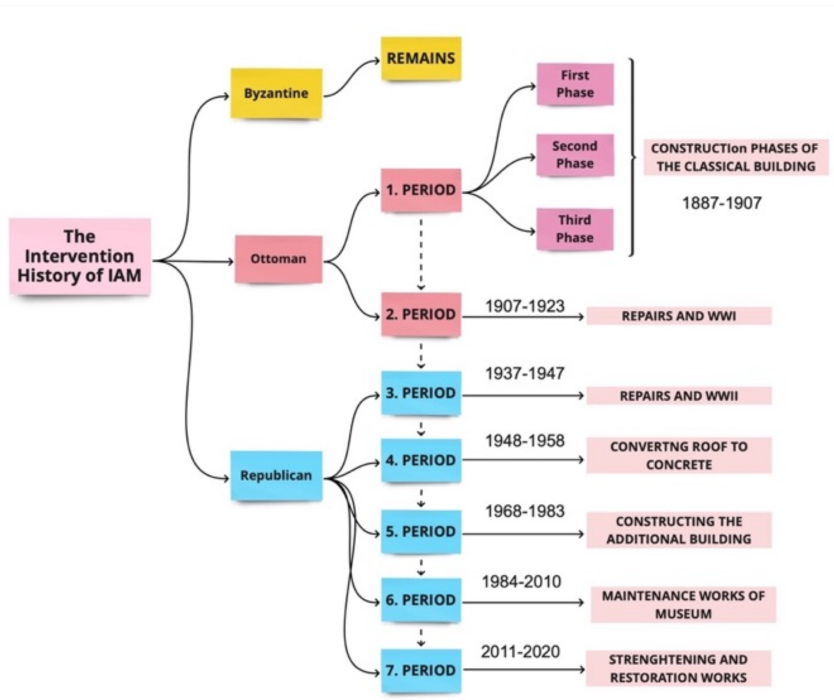

Figure 6. The scheme showing the intervention history of IAM Building (drawn by the author)

Particular emphasis is given to data gathered during the recent restoration work in which the author directly participated under the Ministry of Culture and

Tourism between 2017 and 2021. This work specifically was aimed towards uncovering insights into the structure and construction techniques of the building (Figure 7).

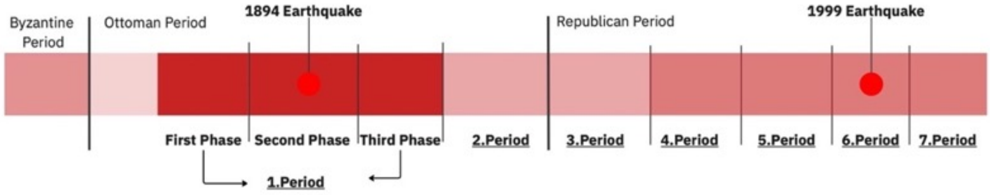

Figure 7. The timeline showing the focus of domain of the thesis according to time periods. The areas marked in dark red represent focus of domain, while the light pink areas indicate regions with less information (drawn by the author)

This thesis aims to bridge the gap between practice and theory, making the knowledge generated during the restoration process accessible to a broader audience. To this end, information from the scraping processes conducted on the building's walls, floors and ceilings claddings during the recent restorations has been included and used to shed light on the building's construction.

However, the scope of this thesis does not aim to describe the strengthening and restoration work performed on the building in detail. Thus, the objective is not to critique the restoration efforts from the perspective of conservation techniques. Instead, it seeks to access the original information revealed during the restorations. Every scraping or dismantling process contributes to uncovering information about the building and, in a sense, serves to reconstruct it.

This study focuses primarily on the IAM building, which also includes structures from different periods, such as the Tiled Pavilion (*Çinili Köşk*) from the Fatih era, the *Sanayi-i Nefise Mektebi* Building constructed in the 19th century, and the annex buildings added between the 1960s and 1980s. To evaluate the obtained data within the context of the surrounding architectural ensemble, the thesis also examines the relationships—both physical and functional—between the museum building and these nearby structures. However, this information is not presented through an in-depth exploration of each structure. Instead, historical documents and information are included only where necessary to enhance the understanding of the museum building. The goal is to interpret the IAM building within its proper historical and spatial context (Figure 8).

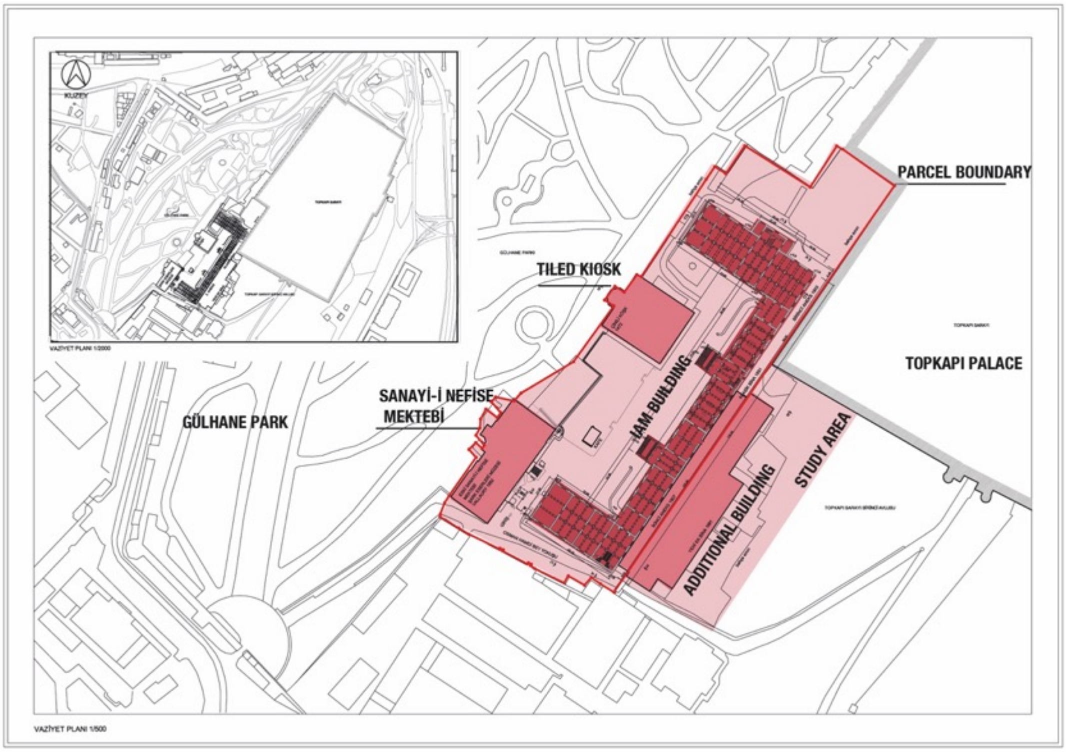

Figure 8. The sitemap showing the focus of domain of the thesis according to the building located on the site. The areas marked in dark red represent regions with extensive information, while the light pink areas indicate regions with less information (drawn by the author) (site plan source: *Seçkin Mimari Hizmetler*, IDSM Archive)

1.3 Methodology & Structure of the Thesis

The thesis utilized all the interventions, which were identified through literature, archival research and on-site observations (2017-2021), to better understand the techniques and materials used during the construction of the IAM building. Particularly during recent restorations, scraping, ceiling, and floor dismantling processes have allowed for a retrospective examination of the building's structure. These efforts, combined with structural restitution analyses, have facilitated the reconstruction of the building's details in a comprehensive manner.

Beyond fieldwork, primary observations, and hands-on experience, this study also integrates urban, architectural, and archaeological data about the building's site, derived from diverse archival sources, to provide a comprehensive understanding of its historical evolution from its initial construction to the present day.

The recent restoration work, initiated under the supervision of the Ministry of Culture, consists of three phases[6]. Within the last decade, the 1st and 3rd construction phases of the building were subjected to significant strengthening and restoration works under the supervision of the Republic of Türkiye Ministry of Culture and Tourism. The author of this thesis worked as a controller architect who was responsible for the restoration work of the building between 2017 and 2021 (2nd Phase of the Restoration Work) in the name of Istanbul Directorate of Surveying of Monuments (IDSM) (*Istanbul Rölöve ve Anıtlar Müdürlüğü*) with the authorization

[6] The first restoration project, titled *"İstanbul Arkeoloji Müzeleri Klasik Bina Güçlendirme ve Restorasyon Projesi"* (The Istanbul Archaeological Museums Classical Building Strengthening and Restoration Project), was initiated in 2011 with sponsorship from TÜRSAB and concluded in 2016. The second restoration project, which serves as a continuation of the initial work, is titled *"İstanbul Arkeoloji Müzesi Klasik Bina Onarımı Teşhir Tanzimi ve Çevre Düzenlemesi"* (Restoration, Exhibition Arrangement, and Landscaping of the Classical Building of the Istanbul Archaeological Museum) and conducted between 2017-2021. Both projects were carried out by *Güryapı İnşaat Taah. ve Tic. A.Ş.,* with technical drawings prepared by the contractor company and submitted to IDSM. The third restoration project, titled " İstanbul Arkeoloji Müzeleri Klasik Bina 3. Etap, Çinili Köşk, Eski Şark Eserleri, Çukurbostan Restorasyon, Teşhir Tanzim ve Çevre Düzenleme işi" (*Istanbul Archaeological Museums Classical Building Phase 3, Tiled Kiosk, Museum of the Ancient Orient, Çukurbostan Restoration, Exhibition Arrangement, and Landscaping Project)* was started in 2022 and currently continue.

of Cultural Assets and Museums General Directorate (CAMGD) (*Kültür Varlıkları ve Müzeler Genel Müdürlüğü)*.

The author did not participate in the 1st and 3rd Phases of the restoration work lasted between 2011-2017 and 2022-still continue. Information regarding these phases was gathered through research conducted on the project documents.

This firsthand involvement ensures that all data and information from this period (2017-2021) are obtained directly. Unless otherwise noted, the construction site photographs from this period were taken by the author. The author's current role as a Restoration Specialist Architect at the IDSM provided access to these archives. Relevant data were used with proper permissions, forming the basis of this scientific research and contributing to the academic discourse by the permission and with help of relevant directories subjected to significant strengthening and restoration works under the supervision of the Republic of Türkiye Ministry of Culture and Tourism.

Additionally, archival records, technical documents, historical photographs, and correspondence were systematically compared, analyzed, crosschecked and interpreted.

Within the scope of this thesis, various architectural education books from that period have been utilized to gain a deeper understanding of 19th century construction techniques. Among these, Ali Talat's *"Kargir İnşaat ve Eşkali"* which was translated to Turkish published by *Koruma Akademisi* in 2022 and *Osman Nuri Bin Ömer Şevki's "Fenn-i İnşaat"* (1904) provide extensive technical information on construction techniques, supported by detailed drawings. These textbooks, designed for educating engineering students at the beginning of the 20th century, covers a comprehensive range of topics, including building materials, foundation and wall construction techniques and calculations, along with plastering and painting methods. The book *"Notes pratiques et résumés sur l'art du constructeur en Turquie"* by Alexandre M. Raymond, written in 1908, is another resource on 19th century construction techniques. It provides insights into the construction market and materials, as well as technical and legal organizations in the Ottoman Empire at the end of 19th and beginning of the 20th century. Moreover, the book of Mustafa Cezar

(1971) *"Sanatta Batıya Açılış ve Osman Hamdi*" contain a holistic and detailed study of the construction process of IAM building which covers most of the Ottoman archival documents. This book was used as the secondary source in this study. This study complements Cezar's work and advances it with new information retrieved from additional sources.

This thesis has also utilized key primary sources that provide unique insights into the development of Ottoman museology and archaeology. Among these, Wendy M. K. Shaw's (2003) book *"Possessors and Possessed: Museums, Archaeology, and the Visualization of History in the Late Ottoman Empire"* offers a critical discussion of the ideological implications of museums in the context of late Ottoman history. Another essential reference is Zeynep Çelik's (2016) book *"About Antiquities: Politics of Archaeology in the Ottoman Empire"*, which examines the evolving politics of archaeology in the 19th century Ottoman Empire and explores the emergence of the first museums within the framework of the Empire's cultural and social dynamics. Additionally, this thesis has benefited from the collective work, *"Scramble for the past: A Story of Archaeology in the Ottoman Empire, 1753–1914,"* edited by Zainab Bahrani, Zeynep Çelik and Edhem Eldem (2011).

The previous studies, *"Displaying Cultural Heritage, Defining Collective Identity: Museums from the Late Ottoman Empire to the Early Turkish Republic"* [Unpublished PhD Thesis] by Pelin Gürol Öngören (2012) and *"Beaux-Arts Kökenli Bir Mimar Olarak Alexandre Vallaury'nin Meslek Pratiği ve Eğitimciliği Açısından Kariyerinin İrdelenmesi"* [Unpublished PhD Thesis] by Seda Kula (Say) (2014); served as the main literature sources for this thesis. Both works provide highly valuable information and documentation about the IAM building and Alexandre Vallaury. This thesis, however, differs from the previous works of Öngören (2012) and Say (2014) in its focus. Öngören's work (2012) examines museums of the Late Ottoman Empire and the Early Turkish Republic, emphasizing their role in shaping collective identities through detailed analyses of their architecture, collections, and display methods. In contrast, Say's study (2014) centers on Alexandre Vallaury, analyzing his career as an architect with a Beaux-Arts background. Her research includes a comprehensive evaluation of Vallaury's design of the Imperial School of Fine Arts and the IAM buildings, assessed through the lens of Beaux-Arts architectural principles.

On the other hand, this thesis is also enriched by research focusing on the construction techniques of 19th-century Ottoman architecture, aiming to expand the existing knowledge in this field. The key sources utilized in this study include Gülsün Tanyeli's (2017) *Hiçbir Üstad Böyle Kar Etmemişdir: Osmanlı İnşaat Teknolojisi Tarihi*, based on her doctoral thesis titled *Osmanlı Mimarlığında Demirin Strüktürel Kullanımı (15.-18. Yüzyıl)*, and Uzay Yergün's (2002) doctoral thesis, *Batılılaşma Dönemi Mimarisinde Yapım Teknolojisindeki Değişim ve Gelişim*. These works provide critical insights and form the foundational literature for this research.

In this thesis, besides a literature survey, the data derived from different archival sources and the site studies were combined and analyzed holistically. This served to recreate the visual and written history of the building.

The primary sources are the original drawings done by the Architect Alexandre Vallaury during the construction of IAM building (1887-1907). These include the original foundation plans and sections done by the architect, and other archival documents like reports, photographs, correspondences and architectural drawings. These sources have been accessed through Istanbul Archeological Museum Library Archive, Istanbul Conservation Council of Cultural Heritages No:4 Archive, and The Ministry of Culture and Tourism, Istanbul Directorate of Surveying and Monuments (IDSM) (*İstanbul Rölöve ve Anıtlar Müdürlüğü*).

The archive of IDSM was examined to picture the history of conservation of the museum. All works related to IAM were listed and analyzed according to their scope and topic. All works were done by the monitoring of IDSM between the years 1972 and 2021[7]. Similarly, documentation, records, and photographs related to the IAM Building, collected during the latest restoration works (between 2011-2017 and

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[7] Since the mentioned archive contains files related to the Museum building starting from 1972, restorations from earlier dates could not be accessed through this source.

2017-2021) supervised by the Ministry of Culture, were also obtained from this archive. As part of the restoration and strengthening works undertaken between 2017 and 2021, the structure of the building and the materials used were observed and documented by the author of this thesis.

Another Archive for primary sources related to the IAM Building is the Republic of Türkiye Presidential State Archive. All correspondences related to the construction process of the IAM Building were selected through searching by the words "*Müze-i Hümayun*". There are more than one hundred correspondences which are transcribed first into Latin and then translated from Ottoman Turkish to Turkish[8]. The correspondences were collected by the author of the thesis during the visits done in 2019, 2021, 2024.

In light of the aforementioned literature and archival sources, this dissertation was structured into six chapters.

The first chapter provides an introduction summarizing the changing environment in Europe and the world during the 19th century, the Ottoman Empire's efforts for change under the influence of internal and external dynamics, the Westernization process, and the impact of these changes on construction techniques in Istanbul. It also presents the significance, aim, scope, and methodology of the study, along with a concise explanation of the IAM Building.

Chapter 2 explores the construction practices in 19th century Istanbul to assess their influence on the IAM Building. This chapter begins by examining the architectural and urban transformations of Istanbul during this period, focusing on Ottoman public buildings. Constructed as a state-funded public structure, the IAM Building both contributed to and was shaped by these broader transformations. Unlike other monumental structures of its time, however, the IAM building did not significantly alter the urban landscape due to its secluded location within the Topkapı

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[8] All translations and transcriptions of Ottoman Turkish included in the thesis have been done by Fuat Recep.

Palace courtyard. Initially modest in scale, reflecting the economic constraints of the state, the museum later expanded, eventually embodying the grandeur typical of 19^{th} century public buildings while retaining a coherent architectural style.

The chapter then analyzes the construction techniques and materials prevalent in Istanbul during this era, focusing on their evolution before and after the Industrial Revolution. This analysis was done to understand the materials and techniques used in the public buildings that transformed the city's silhouette and to explore the network of relationships that influenced their construction. Additionally, it provides a basis for comparing these findings with the technological examination of the IAM building. In the same scope, it also discusses various factors influencing construction practices in 19^{th}-century Istanbul, including contextual changes, legal and administrative reforms, and disasters that shaped building methods during the IAM's construction. Fire prevention became a key priority, prompting the use of fire-resistant materials like iron and stone. However, despite the significant damage caused by the 1894 earthquake, no major legal reforms followed—an outcome contrasting sharply with the strong public focus on mitigating fire hazards.

Chapter 3 focuses on the 1894 Istanbul earthquake, one of the most significant natural disasters that influenced the 19^{th} century building stock and future constructions. It examines the earthquake's effects on masonry public buildings, with particular attention to the IAM building and its surroundings. Noteworthy findings include a cost estimate for repairs to the *Sanayi-i Nefise Mektebi* (Imperial School of Fine Arts), which suffered significant damage, in contrast to the minimal repairs required for the Tiled Kiosk and the *Müze-i Hümayun* (Imperial Museum). It is suggested that movements in the retaining wall during the earthquake compromised the superstructure, leading to severe damage to the *Sanayi-i Nefise Mektebi* Building. This analysis helps explain why the *Müze-i Hümayun*, despite being designed by the same architect, using similar construction techniques, and located within the same courtyard, was not as severely impacted.

Chapter 4 focuses on its architectural characteristics after establishing a comprehensive understanding of the contextual environment and historical background of the IAM Building. The chapter aims to analyze the construction techniques of the IAM Building in detail, down to the smallest components. In Chapter 4, firstly, the site characteristics and volumetric features of IAM are given to define the location of the building in the city and its relationship with its near surroundings. Later, the chapter elaborates on IAM's construction materials and the transportation routes of imported materials. In this chapter, the construction techniques are explained from the foundation to the roof of IAM building. For this purpose, after the foundation system, the masonry wall system, iron beam flooring system, and finally the roof system is analyzed in detail.

This dissertation focuses on the structural system and construction techniques of the IAM classical building, constructed between 1887 and 1907. It provides rare, detailed insights into the structural and construction methods of a late 19th century building, serving as a valuable reference for similar structures from that era. It examines the building's foundation, vertical, and lateral load-bearing systems, enabling a comparative analysis of construction techniques used across its three distinct phases. Although appearing unified in design, the building's 20-year construction process reflects significant technical variations between these phases.

The research reveals that the construction system remained consistent throughout the phases (1887–1891, 1899–1903, and 1903–1907), but details evolved. The vertical structural system primarily used a combination of stone and brick, or brick alone, while the façade walls were clad with imported Marseille stone, connected using clamps and tenons. The choice of imported stone, despite logistical challenges, underscores the well-established networks and infrastructure supporting such practices during the period. Factors influencing the preference for imported materials over local options included material shortages due to high construction activity, rising costs, demand for new technologies, the pursuit of high-quality materials for prestigious projects, and the influence of architects and mediators in the Ottoman Empire.

Building upon the detailed archival and field studies conducted in the previous chapters, Chapter 5 aims to investigate whether any changes in construction techniques or materials occurred between the phases of the building's construction. Where such changes were identified, their potential connection to the 1894 earthquake was analyzed. Therefore, Chapter 5 focuses on mainly on the changes that occurred in the construction technics of IAM Building between 1887-1907 and its relation to 1894 İstanbul earthquake. The structural integrity of the façade was consistently maintained throughout the IAM building's construction. However, notable differences in construction techniques emerged across the various phases. This dissertation highlights these changes, their causes, and their effects, focusing on primary structural elements. The analysis categorizes the changes into four key areas: foundation systems, masonry wall techniques, column sizes and spacing, and jack-arched flooring with iron profiles[9].

One significant observation is that areas with large spans required the most repairs. During the second construction phase, the architect replaced the column-free wide spans of the first phase with a denser column arrangement to improve structural stability. This approach continued into the third phase, with one exception: a single hall was designed with a column-free span to accommodate large exhibits and enhance the visitor experience. However, these areas remain more vulnerable to damage during earthquakes if not properly analyzed. Insights gained from the damage sustained during the 1894 earthquake provide a valuable understanding of the building's weak points and its overall seismic resilience.

Finally, Chapter 6 presents the conclusions of the dissertation, summarizing the findings of each chapter. One significant finding of this study is that while the IAM Building appears traditional and neoclassical from the outside, its construction

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[9] In original documents like official correspondences from 19th century, iron profiles are referred to as *Putrel* or *Potrel*. In Celal Esat Arseven's (2017) "*Osmanlı Dönemi Mimarlık Sözlüğü, Istılâhât-ı Mi'mariyye*," putrel is defined as "an iron beam with flanges on both sides of its thickness". In this thesis, "iron profile" has been used instead of "*putrel*".

incorporates modern techniques. However, the concealed nature of its structural system has often resulted in misinterpretations of its design.

This study emphasizes the importance of critically and objectively analyzing historical buildings from multiple perspectives, moving beyond the assumption that all original features are flawless. It advocates for a skeptical yet comprehensive approach to assessing each element. In addition to examining the artistic and architectural qualities of historical structures, the dissertation highlights the necessity of conducting comparative analyses of their structural systems and construction techniques through scientific methods and on-site investigations.

CHAPTER 2

THE CONTEXT OF THE CONSTRUCTION PRACTICES IN 19th CENTURY ISTANBUL

2.1 The Urban and Architectural Transformation in Istanbul with Reference to Ottoman Public Buildings in the 19th century

Chapter 2 investigates 19th-century construction practices in Istanbul to understand their impact on the IAM Building. It begins with an overview of the architectural and urban transformations of the era, particularly in Ottoman public buildings. The chapter also examines the construction techniques and materials used in Istanbul before and after the Industrial Revolution. This analysis sheds light on the methods and resources shaping the city’s evolving skyline and explores the networks and influences behind public building projects. These findings are later compared with the technological features of the IAM Building.

Furthermore, the chapter addresses factors affecting 19th-century construction practices, such as contextual changes, legal reforms, administrative shifts, and disasters The emphasis on fire prevention led to increased use of fire-resistant materials like iron and stone. However, while the devastating 1894 earthquake caused significant damage, it did not result in substantial legal reforms an outcome contrasting with the strong regulatory focus on fire safety.

In the 18th century, Istanbul underwent significant urban and architectural transformation, with new building forms and spaces reshaping the cityscape alongside its evolving social fabric. The most significant change in Istanbul was the emergence of new settlement areas replacing the historic walled city and the city's expansion, leading to the widening of its geographical boundaries.

Urban development patterns in 18th-century Istanbul reflect an increasing connection between the Bosphorus, the Golden Horn, and the city's central core (Kuban, 1973). Expansion during this period extended toward areas like Kadıköy, Pera, and further north, transforming the capital into a more cohesive and expansive entity that spanned the coastline more prominently than ever before (Figure 9) (Tankut, 1975, p. 250). As part of this expansion, the shores of the Bosphorus and the Golden Horn began to be preferred as new residential areas by the palace community and the administrators of the era. The transformation of the city, both in terms of settlement and architectural expression, led to intense construction activity and an unprecedented level of decoration in the buildings (Hamadeh, 2010, p. 20).

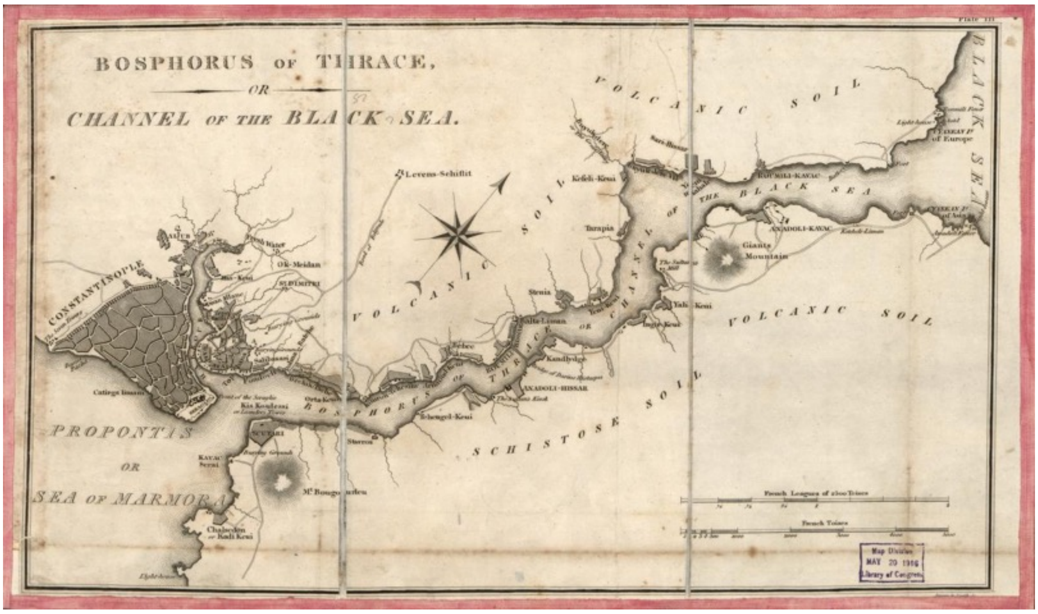

Figure 9. Bosphorus of Thrace or channel of the Black Sea; “Bosphore de Thrace ou Canal de la Mer Noire” - Olivier Guillaume Antoine, 1801 (source: Library of Congress, https://hdl.loc.gov/loc.gmd/g7432b.fi000155)

The transformation of the physical environment of Istanbul, expansion of city borders with new building form, had started with Sultan III. Ahmet and the imperial family from Edirne to *Topkapı* Palace in the early 18th century and it continued with more professional interventions during 19th century (İgüs, 2014, p. 675).[10] With this great return of the dynasty, the city of Istanbul was overhauled and beautified, with the patronage of the palace and the efforts of the new high class around the palace, the monuments were restored, the existing waterways were renewed, new waterways were brought to the city, and the fire brigade was established for the first time to take precautions against the fire disaster the city was facing (İgüs, 2014, p. 675). This new construction program reflects the new patronage; well-paid bureaucrats spent huge amount of money to construct new mansions, palaces and waterside residences (Çokuğraş & Gençer, 2016, p. 184) (Figure 10). The 18th century witnessed the emergence of innovative Baroque ornamental elements, such as wide cornices, undulating moldings, and wall paintings with a sense of perspective. It also introduced dynamic Baroque planning with diagonal vistas and, later, Rococo-style details like 'S' and 'C' scrolls and seashell motifs (Peker, 2011, p. 489).

[10] The second period during which Edirne effectively served as the capital of the Ottoman Empire came to an end with the rebellion that began in Istanbul in 1703, developed against the Ottoman Sultan Mustafa II, who was ruling the empire from Edirne, and his tutor and close advisor, Shaykh al-Islam Feyzullah Efendi, and became known as the "Edirne Incident." The Sultan was replaced by his brother, Sultan Ahmed III.

Figure 10. Melling’s Gravur no 29: “Palais de la sultane Hadidgé, à Defterdar-Bournou” showing Istanbul’ waterside residences in the early 19^{th} century Ottoman Empire from “Voyage pittoresque de Constantinople et des rives du Bosphore” (Melling, 1819 as cited in Kayaalp, 2019)

Starting from 18^{th} century, the royal family and the members of the religious class-built hundreds of palaces in the coast of Bosporus, outside the fortifications. The neoclassical, baroque and rococo styles entered the Ottoman architectural world. Respectively, hiring European architects to build palaces was become a common practice. There were many madrasas, masjids, schools, libraries, more than 300 fountains and *sebils*[11] donated in or out of the fortification (Hamadeh, 2010) (Figure 11).

[11] Sebil: A specially built stone structure, usually adjacent to mosques, where drinking water is distributed for charity without expecting anything in return; fountain (Türk Dil Kurumu Dictionary)

Figure 11. Melling's Gravür No. 22: "*Vue de la place et de la fontaine de Top-Hané*" showing Tophane fountain in the early 19th century Ottoman Empire from "Voyage pittoresque de Constantinople et des rives du Bosphore" (Melling, 1819 as cited in Kayaalp, 2019)

Considering the general urban fabric of 18th century, organic narrow streets and small timber houses were the main element of urban form. While imperial family members or wealthy bureaucrats and *Ayans* could prefer masonry and monumental constructions**,** most of the houses owned by citizens and shapes urban tissue in Istanbul were timber framed buildings (Çokuğraş & Gençer, 2016) (Figure 5). Timber was the popular choice for building houses especially by low-income citizens in this period due to its low cost and availability (i.e. the speed and ease with which structures could be rebuilt if damaged). According to D'Ohsson, the visitor of Istanbul in the late 18th century, most houses were one or two stories tall, with very few reaching three stories. However, these traditional timber buildings appear to have been the city's main handicap for centuries in terms of the frequent fires that occurred in Istanbul. The other important characteristic of the city is that it was composed of different ethno-religious groups that makes the picture more complex and fragile (Çokuğraş & Gençer, 2016).

The use of timber-framed construction, rooted in Anatolian tradition, can be traced back to the aftermath of the 1509 earthquake (known as *Kıyameti Suğra* or the "Great Catastrophe"). According to Arel (1982, p.70) timber-framed construction method was favored for its superior resilience to earthquakes compared to masonry systems of the time (as cited in Şahin Güçhan, 2007, p.842). However, the introduction of fire-prevention measures, such as mandating masonry construction, limiting building heights, requiring shorter eaves, and banning the use of timber elements, suggests a shift in priorities. These legal measures reflect how concerns about earthquakes were eventually overshadowed by the pressing need to mitigate the risks of fire, leading to a greater emphasis on masonry construction systems (Şahin Güçhan, 2007, p. 842).

The effective members of ruler class lead the constructions of building complexes in the city and changed the urban scene of the capital. However, they did not aim to change the urban texture or arrange a new order. These builders constructed the new buildings independent from its surrounding urban environment. Uğur Tanyeli (1992, p. 346) claims that the city was not accepted as a physical reality until the 18th century in Ottoman Empire. It was regarded as only a unit of social organization. In fact, Ottoman city implies the togetherness of neighborhoods (*mahalle*) which were shaped according to the different ethnic religious groups.

As for the 19th century, beside the political and administrative change, the *Tanzimat* period and accompanying reforms had an impact on the transformation of the urban environment. Fire was the most important problem since it was a great threat for urban area behind the reform efforts of planning (Figure 12). The increasing city population, together with the narrow and crowded street pattern of the city were the other important problems (Gül & Lamb, 2004, p. 422). Moreover, there were suggestions for creating clean and hygienic urban areas and conversion of residential buildings from timber to masonry because of the fire threat.

Figure 12. The map showing Istanbul and the neighborhoods damaged by fires dated to 1913-1914 (source : Alman Mavileri (Dağdelen, 2006))

As a result, Istanbul witnessed a series of important reforms in urban planning and management areas (For further details see Chapter 2.3.2). Beside the legislative reforms, Istanbul practiced a series of significant transportation and infrastructure projects such as the initiation of regular ferry services in 1851, the creating of the first telegraph line in 1853, the providing of coal gas for the lighting of some public buildings in 1856, the beginning of first street lighting in 1865 and the building an underground railway line between *Karaköy* and *Pera* in 1875 (Gül & Lamb, 2004, p. 422).

Considering architectural practices, 19th century was the era when foreign architects left the traces of their own architectural style in each part of the city. This change was not limited by the visual realities; the buildings in Istanbul also embodied the high-cost technological advancements. Foreign architect activities during the reign Abdülhamid II period, became more effective in the urban area of Istanbul (Figure 13-Figure 14).

Çelik (1993) puts out that the new urban image was created by two components: the new building types and the new architectural styles. She addresses four major styles of the period showing the multi-dimensional architectural implementation of the capital. These are Classical revivalism, Gothic revivalism, İslamic revivalism and Art Nouveau, commonly accompanied by the new building types such as office buildings, banks, theaters, department stores, hotels, and multistory apartment (Z. Çelik, 1993, p.139). Neoclassicalism was also considered appropriate for the state's architecture and was applied as the favorite style to Pera Buildings. The embassies that competed in monumentality with each other, contributed to the neoclassical ambience of the district (Z. Çelik, 1993, p.139).

Figure 13. The map showing Beyoğlu-Galata Region (source: Alman Mavileri) (Dağdelen, 2006)

Figure 14. “Aerial view of Istanbul from Galata showing the Golden Horn, Topkapı, and *Ayasofya*”, digital file from original (source: Library of Congress)

Some of the most attractive buildings in the capital, built in different styles, are: *Sanayi-i Nefise Mektebi*, *Müze-i Hümayun* Building, Pera Palace designed by Levanten Architect Alexandre Vallaury in the style of Classical revivalism, *Hamidiye* Mosque in *Yıldız* Palace that shows both characteristics of Gothic revivalism and Islamic forms built by Nikogos Balyan's in 1886, *Sirkeci* Train Station, built in 1889 under the supervision of the German architect Jachmund, the tomb of *Şeyh Zafir* which was built in 1903 and designed by Italian architect Raimondo D'Aronco as an example of Art Nouveau architecture. D'Aranco came to the capital to design the 1893 Industrial and Agricultural Exposition. He then starts to work as the chief architect to the imperial court between 1896 and 1908 (Z. Çelik, 1993).

Apart from office buildings, banks, theaters, department stores, hotels, and multistory apartment buildings, the state needed administrative buildings to perform the new services that were either already started or promised by the *Tanzimat* edict (Figure 15). Alongside the buildings produced rapidly in different styles to serve the modern lifestyle, catering to the private sector and financed by private capital, state required new building for administrative purposes, and they were funded directly by the state budget. The institutionalizing Ottoman bureaucracy, aiming to increase central control, utilized many old and new buildings to provide bureaucratic services.

Figure 15. Shops and people on narrow uphill street of steps in Pera, Constantinople, [between 1881 and 1920] (source: Library of Congress)

Monumental buildings modeled after European designs for military, health, infrastructure, transportation, and municipal services were positioned at key points within the city. In this context, many buildings were constructed for various uses, including ministries, universities, hospitals, schools, police stations, post offices, telegraph offices, and observatories. These public service buildings, with their locations in the city as well as their interior and exterior designs, presented the new embodiment of the system between the city, state, and people. Not only the institutions but also the buildings in which these institutions operated contributed to a Western appearance gaining predominance in Ottoman architecture. These structures brought about significant changes in urban spaces.

Figure 16. *The Bâbıâli,* Building Complex, a detail from the photograph taken by Abdullah Freres

Figure 17. La Sublime Porte / Abdullah Frères (source: Library of Congress)

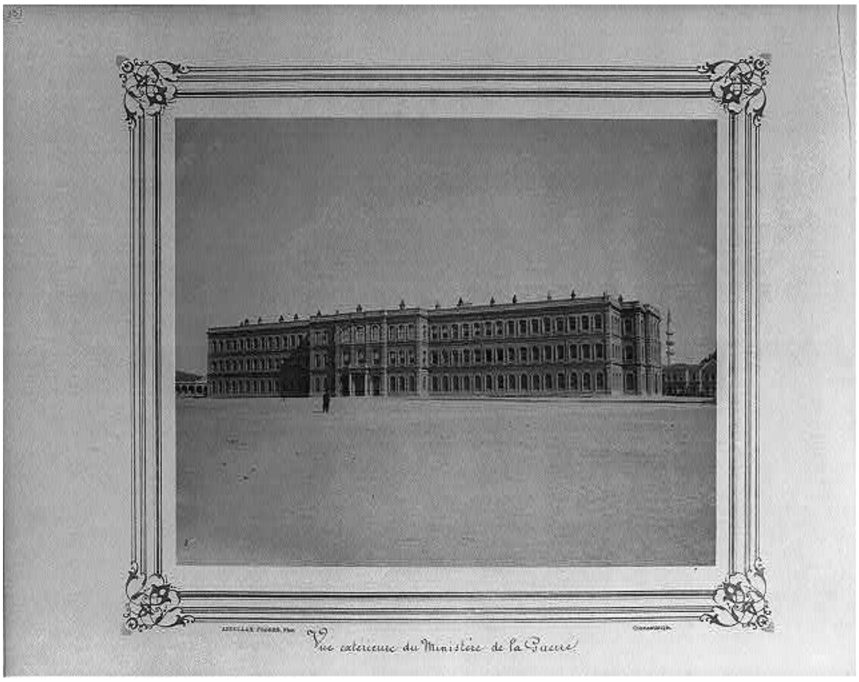

Figure 18. The building of *Bab-ı Seraskeri* (Exterior view of the Ministry of War) / Abdullah Frères, Phot., Constantinople. Abdullah Fréres, photographer [between 1880 and 1893] (source: Library of Congress)

Considering the administrative buildings, *The Bâbıâli* (Figure 16-Figure 17), and the *Bâb-ı Seraskeri/ Harbiye Nezareti* (Figure 18) *and* the *Bahriye Nezareti* are the most significant buildings built in 19th century as official offices created by allocating money from the budget (G. Çelik, 2007)**.** On the other hand, to meet the building needs, previously built large, planned buildings such as masonry and large mansions were used as administrative buildings. During the Tanzimat period, Fuad Pasha Mansion and the I. and II. *Darülfunun* buildings were built for university education. *Darülfünûn* buildings could not be used for their intended purpose and were opened to the settlement of the ministries (G. Çelik, 2007, p. 135).

The structure, which was built to be used as *Darülfünûn* and does not exist today, was in the area between Hagia Sophia and Sultan Ahmed Mosque in the Historical Peninsula. Abdülmecid gave it to the Swiss architect Gaspare Fossati, who came to Istanbul for the construction of the Russian Embassy Building and was also busy with the repair of Hagia Sophia (G. Çelik, 2007, p. 137) (Figure 19). In 1838, the Russian Embassy building in Istanbul, constructed using industrial bricks and commissioned by Russia, received recognition from the *Tanzimat* administrators. As a result, G.T. Fossati, the architect behind the Russian Embassy, was later tasked with designing the "*Bab-ı Serasker-I Hastanesi*" (Military Hospital, 1843) and the "*Darülfünun*" (University, 1845), where imported bricks were used for the first time (Çiftçi & Yergün, 2010).

Figure 19. Top: The facade of *Darülfünûn* Building desined by Fossati near Hagia Sophia (source: Şehbal, 1 Teşrin-i Sani 1325, no 15, 289) (G. Çelik, 2007) Bottom: (source: A.A.E.F.A., Negatif No: R24855) (G. Çelik, 2007, p. 398)

Darülfünun, conceived as a new and civilian school representing the third stage of educational reform, was initially designed to be built as a single example in Istanbul, unlike other educational institutions. Moreover, this school, which would be established to provide scientific education to a civilian student body, was envisioned differently from other schools. Up until that point, the education provided in the *Bahriye* (Naval School), *Harbiye* (Military School), *Tıbbiye* (Medical School), and *Mühendishane* (Engineering School), which had been established by the Ottoman State, was undeniably operational and functional (Akyürek, 2011, p. 69). The idea of founding the *Darülfünun* first emerged in 1846, and a decision was made to proceed with its construction. The school was open to all ethnic and religious groups (Akyürek, 2011, p. 71).

In contrast to the simple structures that housed civilian schools at the time, the architecture of this building was envisioned as a grand and impressive structure, located in a visible area. The final building, which no longer exists today, consisted of two square blocks with a central courtyard and a three-story mass connected by a central entrance hall. Despite retaining the simplicity of the initial design, the building's rear and side façades featured a more ornate and emphasized neo-classical style (Akyürek, 2011, p. 87).

Another group of buildings seen in 19th century Ottoman architecture was the military barracks buildings. While military education was imported from the West, it also brought with it the distinct stone-built military barracks with large courtyards. The construction projects of the Barrack typology are quite varied, encompassing the *Nizam-i Cedid* period at the close of the 18th century and the early 19th century. Among the most notable barracks with Neoclassical facades from this era were the *Mecidiye Kışlası* (*Taşkışla*), *Süvari Kışlası* (*Kuleli* Military Academy), and the *Harbiye* Military Academy (Figure 20). The barracks were designed with a central courtyard layout, including towers at the corners and a central corridor (Erarslan, 2022).

Figure 20. *View from the training grounds of the Imperial Military Academy* / [between 1890 and 1893] Phébus (Studio) (source: Library of Congress)

Another category of buildings that emerged among the new construction typologies of the period is police stations. These police precinct buildings were constructed in accordance with the provisions of the Imperial Edict of Reform (*Tanzimat Fermanı*), which emphasized the protection of life, property, and honor (Erarslan, 2022). In addition to the buildings mentioned above, the impact of mass production and mechanization, which were natural outcomes of the Industrial Revolution, on Ottoman production can be observed through the various factories established for different purposes and in different numbers. It is noteworthy that in the 19th century, alongside fez, uniform, and electricity factories, even brick and steel factories, which are directly related to construction, were established (Figure 21).

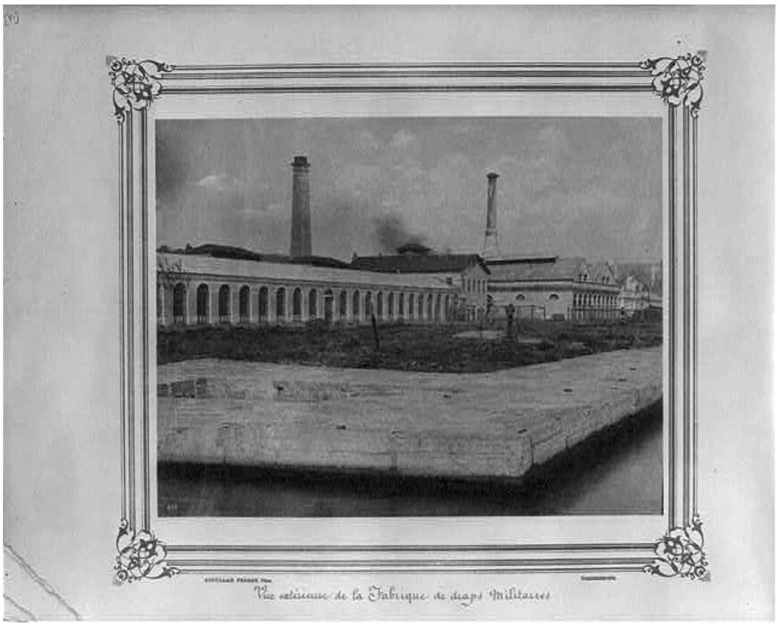

Figure 21. *Exterior view of the Imperial Military Uniforms Factory* / Abdullah Frères, [between 1880 and 1893] (source: Library of Congress)

Çelik (2007) states that within the city, there are innovations in facades; however, while there is a Westernized local character, a new plan typology has not developed. Local features have been preserved and blended with new elements in the design, and the influence of the West is observed on the facades and massing, thus being visible on the surface. When examining the decoration program of administrative buildings, it is observed that while the exterior facade is kept simple, the intensity of decoration increases in the interiors according to the hierarchical order (G. Çelik, 2007, p. 284).

Figure 22. First Phase of The Istanbul Archaeology Museum building (source: IAM-Photography Archive)

Amidst the extensive construction of public buildings in the 19th century, the Istanbul Archaeology Museum building holds particular significance as it was the first museum in the Ottoman Empire specifically designed for this purpose and fully funded by the state (Figure 22). *Müze-i Humayün* (1891) took place in the same courtyard with Sanayi-*i Nefise Mektebi* (1882) and designed by the same Architect with very similar architectural style. Its "Greek and Roman" style, which fits the historical context of the artifacts housed, expressed a "correspondence between the building and its collection". Vallaury, a member of a well-known Levantine family in *Pera*, studied architecture at the École des Beaux-Arts in Paris between the years 1868 -1876, the most prestigious and important architecture school of the era (Say, 2014). He designed many prestigious buildings like Club of *Cercle d'Orient*, General Directory of *Düyun-u Umumiye*, Pera Palas Hotel, *Büyükada* Rum Orphanage, Ottoman Bank, *Selanik* and *Eminönü* Costums Buildings. The other buildings was constructed in these years were *Mekteb-i Tıbbiye-i Şahane* Building in *Haydarpaşa.*

The reign of II. *Abdülhamid* is one of the most striking cases of political and social oppression, with the most striking steps taken in art and education. Sultan *Abdülhamid* became a myth since he was hidden behind the high walls of *Yıldız* Palace. The communication was provided by a world of symbols with his subjects and outside world. Deringil (1999) says that The Sultan's sovereignty was visually affirmed through his monogram (*tuğra*), which was displayed on all public works completed during his reign. *Abdülhamid* II was used the architecture as reflection and transformators of his legitimation of his sovereignty. Clock towers was built in all over Anatolia bearing the imperial coat of arms and other reminders of the authority of sultan became omnipresent (Deringil, 1999, p. 29). It is known that Sultan *Abdülhamid* is always aware of the importance of the display opened to the outside, and thus he supported the Imperial Museum (Eldem, 2010).

Additionally, the Ottoman archival documents reveal that Sultan *Abdulhamid* II granted the necessary permissions for the construction of the museum building and supported Osman Hamdi Bey, as seen in the budget and correspondence regarding the approval of the museum's construction (for further details see Chapter 3.3). From this perspective, it is significant that the first museum building of the Ottoman Empire was designed as a Neoclassical structure by Alexandre Vallaury, a Levantine architect. The coat of arms of II. *Abdülhamid* can be seen on the pediment of the two monumental doors of the museum building.

2.2 The Construction Techniques and Materials in 19th-Century Istanbul

It is widely acknowledged that early Ottoman architecture was influenced by Byzantine and Roman engineering, largely due to geographical proximity, which facilitated an exchange of knowledge between cultures. However, this exchange of ideas reached its peak in the 19th century. To fully understand the changes in construction techniques during the 19th century, following the industrial revolution, it is essential to first analyze the construction methods employed prior to this period.

Considering the early Ottoman Architecture, stone served as the primary material for monumental architecture, with brick, timber, and metal elements used as supplementary materials. In addition to these, *Horasan* mortar[12] was a crucial component of stone masonry. Timber in monumental buildings, primarily utilized within the masonry walls for reinforcement. Typically, thick wooden lintels with square cross-sections were placed in pairs near both outer surfaces of stone masonry walls (G. Tanyeli, 2017, p. 102). Beyond this, timber was also employed in floor and wall constructions together with decorative architectural elements.

In the 14th century, the alternating brick and stone masonry technique was the most prevalent method in Ottoman architecture. This double-walled approach (çift cidarlı) is reminiscent of the Roman *opus mixtum*. In this technique, the outer façade of the walls typically consists of horizontal rows of stones and bricks, while the inner façade is constructed with rough-cut or rubble stone, filled with a mixture of stones, brick fragments, and *Horasan* mortar (G. Tanyeli, 2017, p. 96).

The 15th century saw the continued widespread use of this technique, which evolved into a rich visual form (G. Tanyeli, 2017, p. 96). Additionally, this method was employed as a measure to enhance the earthquake resistance of masonry walls in seismically active regions.

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[12] This material, known since Ancient Rome, typically comprised sand, lime, and brick-tile dust and fragments.

In the 16th century, two additional masonry techniques became prominent: rubble stone masonry and cut stone masonry with adjacent joints. Rubble stone masonry was primarily used in smaller, more modest structures due to its cost-effectiveness, while cut stone masonry with adjacent joints was employed in nearly all prestige buildings (G. Tanyeli, 2017, p. 94). This technique became the standard construction method that Sinan used in all classical Ottoman structures. The distinguishing feature of this method is that the blocks forming the wall are right-angled and placed so closely together that the mortar between them is not visible. Like the alternating masonry technique, the adjacent jointed masonry also involves constructing double walls, with the space between them filled with rubble stone and Horasan mortar (G. Tanyeli, 2017, p. 96).

Since the late 15th century, iron clamps have been widely used to connect the stone blocks in adjacent jointed masonry, with molten lead applied to secure them, providing rigidity that mortar alone could not achieve (G. Tanyeli, 2017, p. 97). Tanyeli (2017) extensively examines the different applications of iron in Ottoman architecture from the 15th to the 19th centuries in her seminal book, *"Hiçbir üstad böyle kar etmemişdir: Osmanlı İnşaat Teknolojisi Tarihi*". According to this work, while the alternating wall system, comprising stone and brick and almost entirely iron free, was prevalent in early Ottoman architecture, the later period saw clamps and tenons become standard materials for structures employing cut stone masonry techniques with adjacent joints.

During this period, iron bars were used as tie beams *(açıklık gergisi)* at the spring line of arches to prevent the structural members from spreading apart, though this was typically reserved for the most important buildings. Over time, additional uses of iron emerged, including iron I-beams and brick vaulted floors constructed with I-beams, tension bars inserted in or surrounding masonry walls, tie bars/beams connecting opposite walls, fasteners, and *furuş*[13] (supporting framework). By the 18th

[13] The term refers to small, carved or plain brackets placed under eaves, balconies, and bay windows, as well as along ceiling edges, for decorative purposes

century, iron beams and bars had become essential elements for preventing structural problems. In this era, timber is no longer mentioned in the documents as a structural component of masonry, except for foundation piles and gratings (G. Tanyeli, 2017, p. 265).

In summary, stone served as the primary construction material for monumental architecture, with brick, timber, and metal elements used as complementary materials. The typical usage pattern in the pre-industrial era adhered to the principle of not using iron as a load-bearing element; instead, iron was employed to address the weaknesses of the primary load-bearing materials (G. Tanyeli, 2017, p. 130). The transition of iron from a supporting element to a main load-bearing component in construction is closely linked to the Industrial Revolution. This process is further detailed in the following section.

Following the announcement of the *Tanzimat* Edict in 1839, along with the strengthening political and economic relations with European states and the influence of the Industrial Revolution, significant changes emerged in Ottoman architecture's design concepts and construction techniques[14]. Numerous new structures were erected using modern materials and imported methods, such as masonry walls made from solid bricks (to Western standards), steel beams for horizontal and vertical supports, and the use of cement and concrete (Çiftçi & Yergün, 2010). The most significant technological shift that enabled the creation of the 19th-century architectural repertoire was the widespread use of iron in

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(source:https://lugatim.com/s/FÜRUŞ)

[14] *Usul-i Mi'mari-i Osmani* (1873) is regarded as the first comprehensive study on the history and theory of Ottoman architecture. Created by a team of Ottoman intellectuals led by İbrahim Edhem Pasha (Osman Hamdi Bey's father), the group included artists and architects. Published by the Ottoman government in conjunction with the 1873 World Exposition in Vienna, the work was intended to serve as a definitive reference for reviving architectural traditions and acted as an official manifesto advocating for the envisioned "Ottoman Renaissance" in architecture (Ersoy, 2000). For further details see Ersoy, A. (2000). *On the Sources of the "Ottoman Renaissance:" Architectural Revival and its Discourse During the Abdülaziz Era (1861-76).*

construction. With the advent of blast furnaces during the Industrial Revolution, the production of cast iron and pig iron became more economical and scalable. By the 19th century, the expansion of iron production continued, leading to the increased use of wrought and cast iron in building and bridge structures (Şengün, 2015, p. 6). Due to the Ottoman Empire's inability to match European iron production, imported iron began to be used in the Ottoman Empire during the 19th century. While the use of iron beams as structural elements began after the second half of the 16th century, by the latter half of the 19th century, the jack-arched floor systems were increasingly made from imported I profiles (Figure 23).

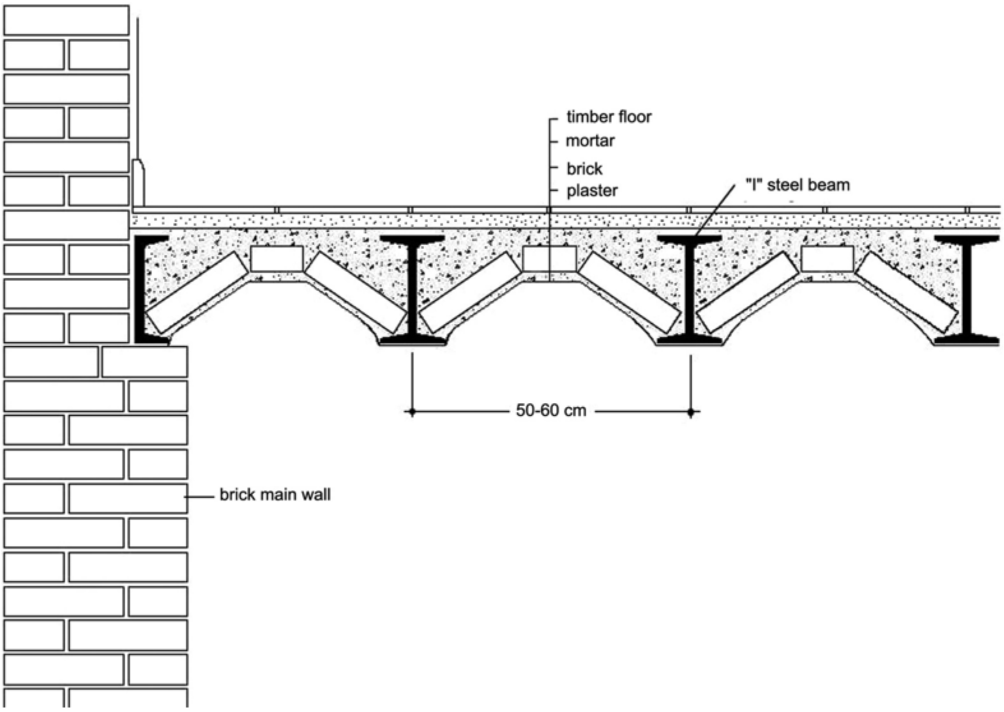

Figure 23. The Jack arched floor system section (Yergün & Çiftçi, 2008)

Steel, another technological innovation of the 19th century, became more affordable and saw a rapid increase in production by 1880[15]. In the 20th century, with the rapid advancement of industry, steel and reinforced concrete began to replace traditional masonry stone systems. Steel was commonly used in the form of I-beams and reinforced concrete. Additionally, the mass production of glass panels led to the replacement of thick stone walls with windows and transparent facades.

Brick, one of the fundamental building materials in Ottoman architecture, was produced using traditional methods until the *Tanzimat* period. However, following the Industrial Revolution, the production of modern bricks increased significantly. In the first half of the 19th century, the traditional method of hand-molding bricks was replaced by mechanized mass production. By the early 1840s, modern bricks had become more prevalent in the local market, making it difficult for local brick manufacturers to compete in terms of price, quality, and standardization. Documents from the Prime Ministry Ottoman Archives indicate that, in the early 1880s, three brick factories were established near Yıldız Palace, in *Sütlüce*, and in *Alibeyköy/Çobançeşme*, funded by the *Hazine-i Hassa,* to meet the state's brick needs (Kaya, 2017).

Timber production techniques were also influenced by the industrial advancements of the 19th century. The introduction of steam-powered wood-shaping machines in timber factories enabled the production of standardized studs, beams, planks, and window and door frames (Acar & Mazlum, 2016). The use of these standardized elements significantly shortened the construction time for houses.

In the 19th century, the wall construction techniques underwent significant changes, like other construction technologies of the time. The alternating brick and stone or cut stone walls, common in Ottoman Classical architecture, evolved in

[15] The first buildings in ˙Istanbul to use the jack arch, as far as can be determined, are the German Embassy (1874–77), the German Hospital (1874–78), the Europe Passage (1874) and the "Cité de Péra" (1874–76) (Yergün, 2002).

character. While brick and stone were still used together in load-bearing walls, stone became more prominent in the visible parts of the building. Additionally, there was a shift in the vertical arrangement of materials, rather than the previously common parallel rows. Stone and brick or purely brick masonry walls covered with stone were common in the 19th century Ottoman architecture.

Osman Nuri Bin Ömer Şevki (1908), in his book "*Fenn-i İnşaat*", first published in 1893, described the use of cladding for walls. He stated that since solid wall construction is often not feasible, walls typically made of brick or rubble stone are decorated to appear as solid walls with minimal expense. This is achieved by covering the surfaces with thin finishing materials such as Malta or Trieste stones, or marble. Occasionally, for the purpose of making highly solid and important large-scale buildings appear even more robust and imposing, it becomes necessary to cover their walls with massive blocks of stone. This is achieved through significant expenditure, using large hewn stone blocks obtained by cutting and shaping substantial logs of stone. He added that the ground floors of the Ottoman Bank in Galata and the Reji Administration buildings were adorned with black stone blocks, while their upper floors were decorated with Marseille stone blocks.[16]

In Ali Talat's book (2022) "*Kargir İnşaat ve Eşkali*"[17] written in 1911, the masonry system and methods for connecting stones are explained in detail. This textbook, written to educate engineering students at the beginning of the 20th century, covers a wide range of topics, including building materials, foundation and wall construction techniques and calculations, as well as plastering and painting methods. The book is significant not only for its comprehensive scope but also because it is a translation of a French text from the same period. As such, it reflects the building technologies of the time from both an Ottoman and a broader, contemporary

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[16] Transcribed by Kadir Ekinci into Latin Alphabet

[17] As the Editor of the book, Damla Acar notes that the chapters, titles, and illustrations in this textbook almost directly correspond to those in J. Denfer's *Architecture & Constructions Civiles, Maçonnerie*, published in Paris in 1891.

European perspective. The fact that Alexandre Vallaury was educated in France suggests that his training likely aligned with the techniques described in the book.

Ali Talat explains why vertically stone-clad walls were preferred. Constructing an entire wall from cut stone would be prohibitively expensive, so only the front faces of the walls were covered with cut stone, while the rear sections were built using brick or rubble stone. This method allowed the facade to achieve the appearance of solid cut stone, enabling architects to create the desired form and design, providing both a strong and aesthetically pleasing structure (Ali Talat, 2022).

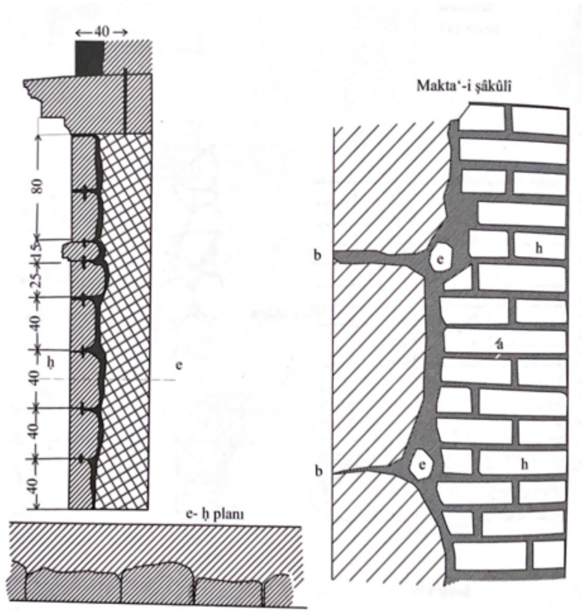

Figure 24. The section drawings of the brick masonry wall with stone cladding applied in 19th century (Ali Talat, 2022)

Talat explains that regardless of the thickness of the wall, it is arranged as threaded as shown in the figure so that the stones connect with the small size material. Stone block heights have no effect on durability and generally vary between 25-50 and 60 cm when necessary, and their thickness should not be less than 10 cm. In other words, if the thickness of the stone, that is, the part that enters the wall, is 10 cm, the thickness of the stone on it must be 15 cm to form a toothed whole (Ali Talat, 2022) (Figure 24).

The most important problem in stone cladding wall construction is how to connect the cladding stone to the rubble stone or brickwork behind it. It is not enough to make a toothed braid alone. Various irons have been used in the walls built with the masonry technique for centuries to ensure the connection of the stones and the strength of the entire wall. The clamps and tenons, which connect the stones with each other, are the most difficult elements to observe in still-standing historical monuments. Because they were embedded in the wall constructions, they could only be identified on the collapsed walls or recorded during restorations. Or, as a result of the corrosion of these irons, it is possible to see the clamps in case of cracks in the wall and material losses. As the exterior walls of the Istanbul Archaeological Museums building are structurally in good condition, the information in Ali Talat's book is very important to get the technical details. Various irons are used to ensure the connection of the stones and the strength of the entire wall.

The most significant challenge in stone cladding wall construction is how to securely connect the cladding stones to the rubble stone or brickwork behind them. A toothed bond alone is insufficient for this purpose (Figure 25). For centuries, various iron elements have been used in masonry walls to ensure the connection between stones and the overall strength of the wall. Clamps and tenons, which connect the stones to each other, are among the most difficult elements to observe in surviving historical structures. Since they were embedded within the wall, they can typically only be identified in collapsed sections or during restoration work. In some cases, due to corrosion of the iron, the clamps may become visible through cracks or material losses in the wall. Since the exterior walls of the Istanbul Archaeological Museum are in structurally good condition, the technical details provided in Ali Talat's book are invaluable. The use of various iron elements to ensure the connection between stones and maintain the strength of the entire wall is particularly noteworthy.

Figure 25. The iron clamps used between brick wall and stone claddings in IAM Building, photograph from 02.10.2012 dated presentation (source: IDSM Archive)

Ali Talat (2022) examines the irons used to connect the stones under 3 headings;

1. *Irons used to connect the upper stone to the lower stone:* This type of iron, called tenon, is produced with a rectangular cross-section and, depending on the type of stone and the importance of the work, in the cross section of 20mmx20 mm or 30x30 mm, and 8-10 cm in length, with a narrow middle part. It is placed on the stone below and fixed with lead or cement. Then the upper stone placed on it and it does not move anyway (translated by the author) (Ali Talat, 2022).
2. *Irons used to connect two stones placed side by side:* These irons, which are called clamps and which are bent 4-6 cm from both ends as seen in Figure 26 *şekil* 129, are produced from 20x5 mm section for soft stones and 30x7 mm or 40x5 mm section for hard stones. The length of the clamps is between 20-30 cm depending on the location. A hole the same size with the surface of the iron is made on the stone and the iron is fixed to the stones with cement so that it does not come out of place. The stones in the corners are connected

with clamps as seen inFigure 26, *Şekil 130*, which provides better durability. (translated by the author) (Ali Talat, 2022)

3. *Irons used to connect the stones to the brick or rubble stone mesh behind:* These clamps, called tail clamps, are made of flat iron of appropriate cross-section and the tip entering the stone is 4-6 cm, and the part that will remain inside the wall is 10-15 cm by bending upwards. Its length depends on the thickness of the wall (Figure 26, *şekil 131*). Sometimes bending part of the clamps inside the wall is downwards, sometimes it is cut into two and one part is bent upwards and the other downwards." (Ali Talat, 2022) (translated by the author)(Ali Talat, 2022.)

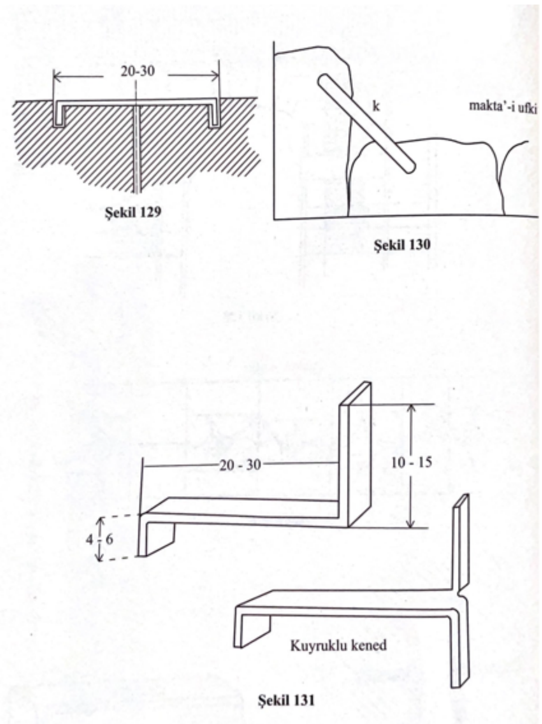

Figure 26. The clamps details; *şekil 129 - şekil 130 - şekil 131* (Ali Talat, 2022, p. 86)

The same type of clamps are observed in the wall system of the tomb of Grand Vizier *Ahmed Cevad* Pasha, which has been restored in 2022 (Figure 27). Grand

Vizier *Ahmet Cevad* Pasha Tomb is located in the courtyard of *Emir Ahmed Buhari* Mosque in Fatih district. *Ahmed Cevad* Pasha (1851-1900) served as grand vizier for 4 years between 4 September 1891 and 9 June 1895 during the reign of II. Abdülhamid. What a coincidence; this period covers the years when the construction of the first part of the Archeology Museum building was started and completed. Some of the correspondences examined within the scope of this thesis was written and signed by him personally. His tomb is the first tomb design of Architect *Kemaleddin*, one of the pioneers of the First National Architectural Movement. The walls are constructed by brick masonry with stone covering and Its dome has iron ribs (Figure 27) and iron pillars can be seen in the entrance section (Figure 31). So that the tomb is an excellent example of its era construction practices, at the end of 19th century and early 20th century. By the end of the 19th century, it is understood from this example of a small tomb structure that iron had even replaced wood. Of course, it should not be forgotten that this tomb belongs to an important grand vizier of the period and is also the work of a prominent architect of the time.

Figure 27. Historical photograph showing the tomb of Grand Vizier Ahmed Cevad Pasha (source: https://archives.saltresearch.org/handle/123456789/205733)

It was noticed in 2021, during a simple restoration project carried out by the Ministry of Culture, that there was plaster swelling on the wall on the right side of the entrance section of the tomb (Figure 28). Upon investigating the cause of the swelling, it was determined that this deformation was caused by an iron clamp inside the wall that had corroded, expanded, and exerted pressure on the plaster layer (Figure 29). Additionally, it was clearly observed that while the exterior of the wall was stone-clad, the interior part of the wall was built with bricks. Another iron clamp was discovered in the portion of the wall that aligns with the exterior (Figure 30). The clamp visible from the interior was placed perpendicular to the wall, while the one visible from the exterior was placed parallel to the wall. In this case, it is understood that the interior clamp is the 'tail clamp' that connects the brick wall to the stone wall, while the exterior clamp connects stone to stone.

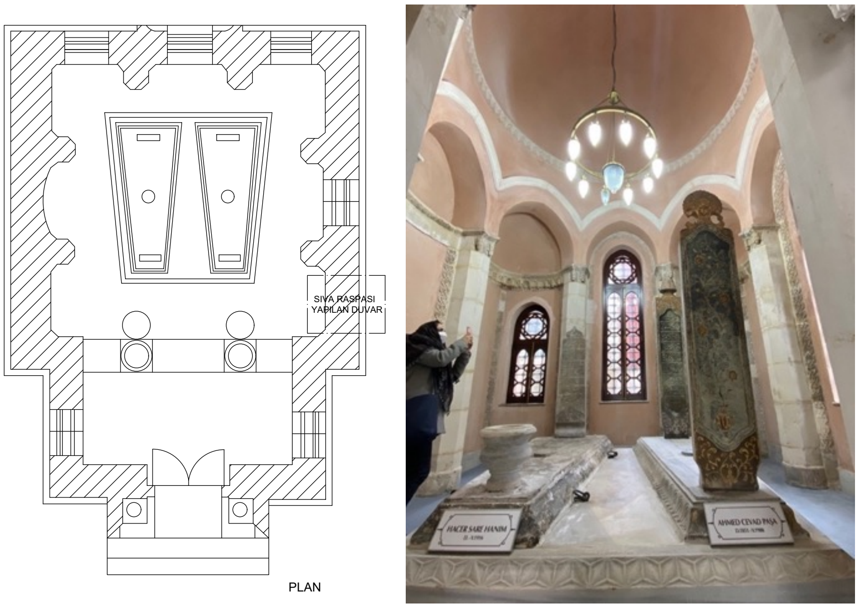

Figure 28. Left: The plan of Historical photograph showing the tomb of Grand Vizier Ahmet Cevad Pasa (source: IDSM Archive) Right: The inner section of the tomb of Grand Vizier Ahmet Cevad Pasha (taken by the author in 2021)

Figure 29. The clamp detail from the inner section of wall of the tomb of Grand Vizier Ahmet Cevad Pasa (taken by the author in 2021)

Figure 30. The clamp detail from the outer section of the wall of the tomb of Grand Vizier Ahmet Cevad Pasa (taken by the author in 2021)

Figure 31. The ceiling of entrance hall of the tomb of Grand Vizier Ahmet Cevad Pasha and the iron profiles (taken by the author in 2021)

Figure 32. *Yeniköy* Military Service Building (*Yeniköy Karakolhane-i Hümayun*)

Another architectural example built using the same technique during the same period is the historical *Yeniköy* Military Service Building (*Yeniköy Karakolhane-i Hümayun*) (Figure 32). According to the t*uğra* marks dated 1900 and 1901 on the eastern and western façades, the guardhouse (*karakol*) was built during the reign of Abdülhamid II in Istanbul's *Sarıyer* district. Located in *Yeniköy*, within a historic fabric of waterfront mansions along the Bosphorus, the *Yeniköy* Guardhouse is designed in a Neoclassical style and features a symmetrical arrangement based on the entrances along the building's axis (Çiftçi, 2004).

During the building's restoration controlled by Culture and Tourism Ministry, it became evident that the walls were constructed using brick masonry with the stone cladding for exterior walls while the brick masonry for inner walls (Figure 33, left). The clamps connecting the stone cladding to the brick sections of the wall were seen obviously in the exterior wall sections (Figure 33, right). The clamps are also an example of the tailed clamp. Another point understood from the image is that this tailed clamp repeats after every seven rows of bricks. Considering that bricks are usually in dimensions of 22-25x11-12x 5.5-10 cm, the height between two clamps should be around 38,5 cm-70 cm with. In addition, it is understood from the repairs on the exterior cladding of the guardhouse building that the window lintels were also constructed with iron elements (Figure 34).

Figure 33. Left: The inner walls of historical *Yeniköy* Military Service Building, inside (source: IDSM Archive) (right) the section of exterior brick masonry wall with stone cladding

Figure 34. The historical *Yeniköy* Military Service Building, façade details (source: IDSM Archive)

2.3 The Developments Affecting the Construction Practices in İstanbul in the 19th Century: Context, Legislations & Disasters

In 19th century, while Ottoman Empire tried to adopt to western standards in every field of life, western influence had become more visible in architectural productions designed by foreign architects. This change was not limited to the visual aspects. The buildings in Istanbul also embodied high-cost technological advancements. The 19th century is remembered as a century of transformation, not only for the Ottoman Empire but also for Europe and, consequently, the world, where significant developments took place. Although the Ottoman Empire could not direct the major technological changes of the time, it made great efforts to adapt and underwent a series of reforms. These reforms altered not only the administrative and military institutions of the Ottoman Empire but also the architectural entity where these services were carried out.

The changes in Ottoman masonry construction techniques were not independent of external influences; the production of new building materials in Europe and their reflections in architecture soon found their place in Ottoman cities (Figure 30). Accordingly, this section evaluates the developments influencing the choice of materials and construction techniques in 19th century Istanbul housing under three separate headings. The first focuses on the large-scale developments that affected material and construction techniques in public buildings in Istanbul, and the second addresses the legal and administrative regulations directly affect the construction practices in Istanbul. The last focuses on natural disasters such as earthquakes. In this title, the 1894 İstanbul Earthquake is also elaborated as it had occurred during the construction of Istanbul Archaeological Museum Building.

The Contextual Changes Affecting the Construction Practices in 19th Century Istanbul

Industrial Revolution, which profoundly impacted the global production system, had paramount impact on the construction practices in 19th century Istanbul. However, for technological advancements to reach the Ottoman Empire and influence the construction sector, several other political and economic conditions had to be established. To comprehend the changes in architectural construction techniques in the 19th century Ottoman Empire, it is essential to first grasp the fundamentals of the Industrial Revolution, which triggered profound technological, commercial, political, and societal transformations worldwide. Another significant development to be discussed in this chapter is the proclamation of the *Tanzimat*, which accelerated the Westernization process of the Ottoman Empire. Likewise, the excavations at Sidon conducted by Osman Hamdi hold significant importance for the museum history; in fact, they can be cited as a key trigger for the urgent commencement of the museum building's construction. The emergence of the museum concept and the construction process are, of course, the result of all the changes that had taken place both in the world and in the Ottoman Empire (Figure 35).

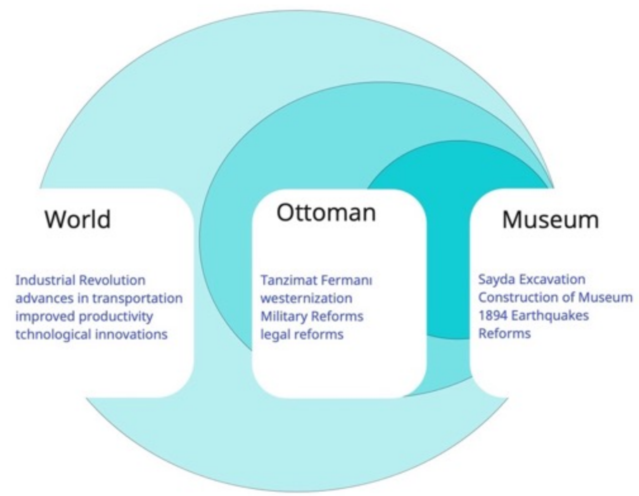

Figure 35. The scheme showing the contextual factors effecting the construction practices in 19th century İstanbul

The Industrial Revolution (1780-1840), which began in Great Britain in the late 18th century, soon spread across Europe and North America during the 18th and early 19th centuries. This period marked a shift from traditional handcrafting techniques to new manufacturing processes largely driven by machines. In numerous industries, starting with textiles, machines began to replace human labor, enabling the production of goods in greater quantities and at a faster pace. Technological advancements during this time included new chemical manufacturing processes, innovations in iron production, enhanced efficiency in waterpower, increased reliance on steam power, the development of machine tools, the rise of the factory system, and a shift from wood and other biofuels to coal. (Stearns, 1998). One of the most significant outcomes of the Industrial Revolution for architectural production was the substantial increase in iron production methods. These technological advancements facilitated the mass production of goods and ushered in a new era.

Although European-origin iron had been introduced to the country in earlier periods, it continued to be utilized in traditional architectural methods. Archival records show a marked increase in the importation of European materials into the Ottoman Empire during the early 19th century, even though the product types remained largely unchanged (Mazlum, 2011, p. 503).

After 1850, the importation extended beyond just iron to include technologies and, more significantly, prefabricated construction materials. The architecture of the Westernization period introduced European innovations to the Empire, such as the use of structural iron. In the subsequent years, the remnants of traditional techniques faded away, with Western methods becoming predominant (Tanyeli, 2017, 267). The materials imported from Europe to the Ottoman ports during the early 19th century included iron, steel, tin, glass, lead and stone (Mazlum, 2013, p. 503) (Figure 36).

Figure 36. Kara-Keui (Galata) and view of Pera, Constantinople, Turkey [between ca. 1890 and ca. 1900] (source: Library of Congress)

Although the 19th century is often regarded as synonymous with the Westernization of the Ottoman Empire and the rise of the nation-state, this process of Westernization cannot be confined solely to the 19th century or the *Tanzimat* era. Ortaylı (1983) argues that Ottoman modernization should not be limited to the *Tanzimat* period; it is a phenomenon with deeper historical roots. Furthermore, Ottoman modernization was not a sudden shock brought on by encounters with Europeans, as the Ottoman Empire had long maintained political and economic ties with Europe throughout its history (Ortaylı, 1983). Every society undergoes continuous change over time, and Ottoman society was no exception to this general rule. Ortaylı defines modernization not as the adoption of characteristics from a developed society by an underdeveloped one, but rather as the transformation of existing elements within a society. The 19th century, in particular, saw a new momentum in this ongoing process of change (Ortaylı, 1983).

Another common belief among prevailing scholars is that modernization in the Ottoman Empire occurred because of external forces. However, Ortaylı (1983) argues that modernization did not happen in the Ottoman Empire solely due to pressure from the changing outside world. Rifa'at A. Abou-El-Haj (1991) also identifies this view as a major methodological problem. This perspective suggests that the 19th century Ottoman reforms were imposed by the West, implying that the existing governance and social organization had ceased to evolve on its own. As a result, the changes during this period are often depicted as sudden and unprecedented. Historians should approach this view with skepticism, as it implies that Ottoman society was static and underwent a complete transformation rapidly and without precedent. This interpretation contradicts the more widely accepted view among historians, which supports the idea of gradual change (Rifa'at A. Abou-El-Haj, 1991, p. 62).

Starting in the late eighteenth century, the Ottoman Empire faced significant challenges, including defending itself against foreign invasions and occupations. Additionally, the internal situation was similarly troubled, as the empire grappled with financial, administrative, and military problems. In response to both external and internal threats, the empire initiated a period of reforms aimed at strengthening the central authority and adapting to international pressures. Throughout the nineteenth century, the Ottoman Empire implemented numerous reforms as part of this effort.

Considering the developments that shaped the reformist environment of the 19th century Ottoman Empire, it is evident that reform efforts began with Selim III (1789-1807) and were continued by Mahmud II, extending through the *Tanzimat* period (1839-1876), which included the reigns of Abdülmecid (1839-1861) and Abdülaziz (1861-1876), and were further redefined during Abdülhamid II's reign (1876-1909) (Barkey, 2008). During Mahmud II's reign (1808-1839), the renewed focus on military reforms led to a decisive confrontation with the Janissaries, resulting in their downfall. Mahmud II restructured the state, creating units modeled after the French administrative system, establishing various ministries and departments, separating the executive and legislative branches, and reformulating the payment structure for state officials (Barkey, 2008, p. 268). Abdülhamid II is the most important and debated figure of 19th century. II. Abdülhamid, the Ottoman Sultan who lived between 1842 and 1918, succeed to the throne in 1876 and was dethroned in 1909 Revolution. The 33-year reign was generally known as a period of despotism and censorship (Eldem, 2010).

The announcement of the *Gülhane Hatt-ı Hümayun (Tanzimat Edict)* marked a pivotal moment for 19th-century Ottoman bureaucracy. The period from 1839 to 1876 is known as the *Tanzimat* era. The *Tanzimat* Edict was declared in 1839 through the deliberate efforts of Foreign Minister Mustafa Reşit Pasha (1800-1858) with the goal of aligning the Ottoman Empire more closely with Western civilization and fostering stronger diplomatic, political, economic, and cultural ties with European nations (Shaw, 2000, p. 19). At the onset of the *Tanzimat* period, the reformers' objectives were clearly articulated in the *Gülhane Hatt-ı Hümayun* decree of 1839. They pledged to protect the life, honor, and property of all the sultan's subjects, guarantee equality under the law, and establish a conscription-based military system. Moreover, they aimed to overhaul the antiquated tax farming system by moving towards a state-controlled, direct taxation system (Barkey, 2008, p. 268). By ensuring the equality of all Ottoman subjects, Ottoman Empire had been trying to conserve the unity of Ottoman territory for its non-Muslim subject. This situation led to something of a concept of common citizenship (*Osmanlılık*) in the early 19th century Ottoman policy. Common citizenship was essential for a representative system applied in provincial and in national councils and finally formed as the first written constitution in Ottoman history in 1876 (Davison, 2016, p. 8).

The proclamation of the *Tanzimat* Edict, which included a commitment that there would be no distinction between Muslim and non-Muslim subjects in terms of rights and responsibilities, is among these developments. With the 1839 *Tanzimat* Edict, practices such as allowing only Muslims to build semi-masonry houses and employing non-Muslim subjects in the production of certain building materials in exchange for tax obligations were abolished; as a result, the choice of building materials and construction techniques in housing was indirectly affected by this change. Similarly, the signing of free trade agreements with certain European states from 1838 onwards and the proclamation of the *Islahat* Edict in 1856 were significant developments. While these did not directly influence the choice of building materials in housing, they were important for laying the groundwork for conditions that would guide the production and supply of building materials (Erdal, 2023).

In addition to the political developments of the 19^{th} century, society and social life were also rapidly changing. Schools providing modern education in medicine, military, and engineering, even architecture were established in Istanbul. The first steamboat takes places at Istanbul Harbor starting beginning of the 19^{th} century. *İstiklal* Street in *Beyoğlu* was illuminated with coal gas for the first time at night. The first official journal, *Takvim-i Vekayi*, was published. Amid this seemingly exciting life, Istanbul faced great disasters, such as the Great Hodja Pasha Fire, the Great *Beyoğlu* Fire, and, by the end of the 19^{th} century, the Great Istanbul Earthquake of 1894. During this time, the *Müze-i Hümayun* (Imperial Museum) found its place in this busy timeline and spurred by *Sayda* excavations, acquired its first building. All the above-mentioned developments help us understand the discourse in which the museum building was constructed (Figure 37). However, the legal and administrative developments produced by this discourse, which directly concern the building, will be examined in the next section.

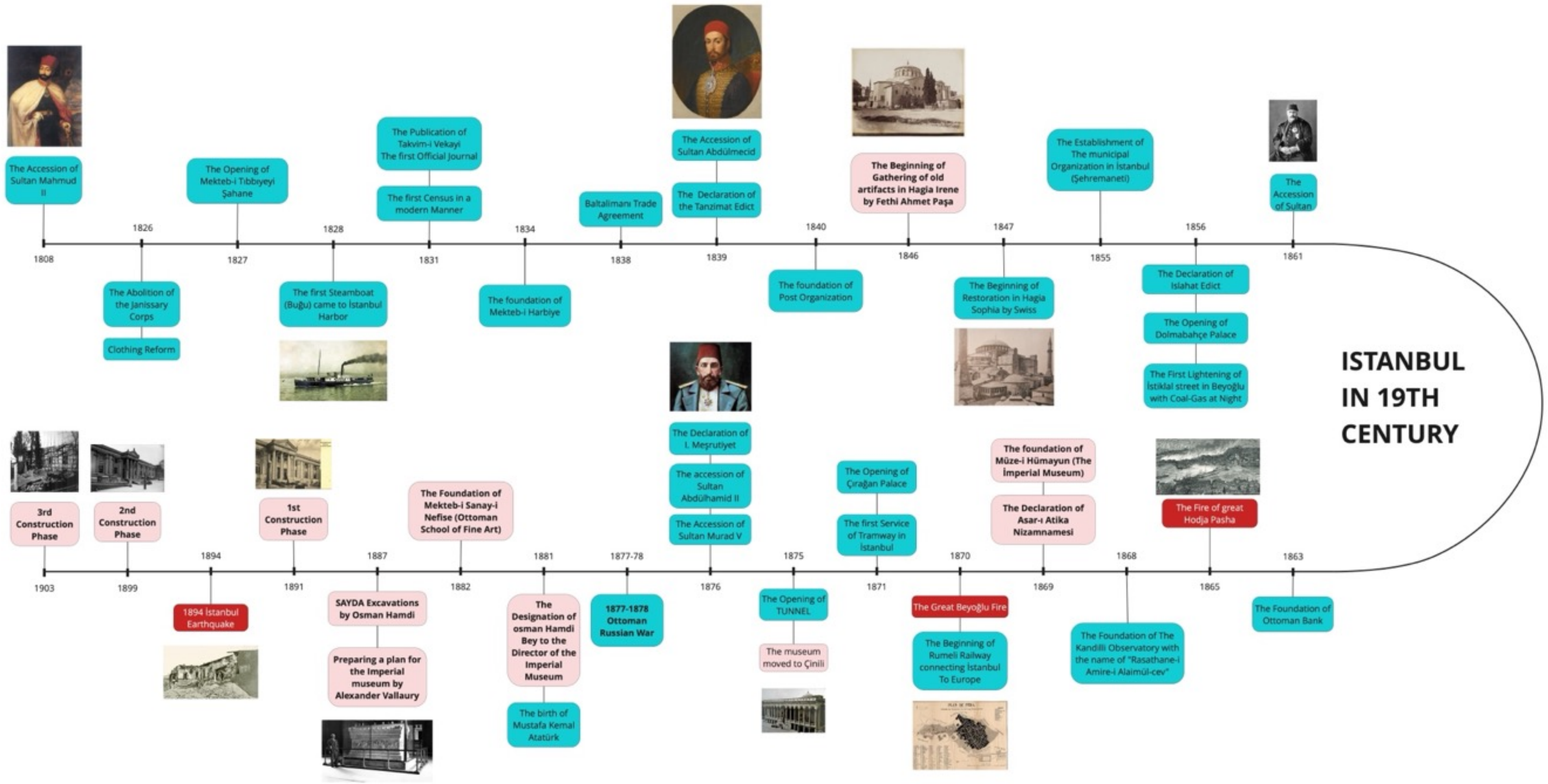

Figure 37. The timeline showing important developments occurred in 19th century Ottoman Empire (drawn by the author)

Legal and Administrative Developments Affecting Construction Practices in 19th century Istanbul

Modern efforts to institutionalize conservation, urban planning and construction techniques trace back to the *Tanzimat* period (1839–1876), a time of significant political reforms in Ottoman state institutions.

Rapid industrialization in Europe disrupted the socio-economic and political structure of Ottoman cities, which had remained stable for centuries. In Istanbul, the challenges of being a capital city were compounded by a population boom, doubling to 873,575 by 1882. Immigration led to housing shortages, while frequent fires—over 100 in the latter half of the 19th century—left many homeless. As a result, urban slums grew, and nearly one-third of the population had to seek shelter in public buildings (Altınyıldız, 2007, 282-287 as cited in Güçhan Şahin & Kurul, 2009, p. 24) 1848 and 1849 Building Regulations, 1864 Road and Building Regulations, and 1882 Building Act, were the first acts and regulations that were published to deal with these emerging urban problems[18]. The meaning system of this period, shaped by these conditions, can be described as focusing on preserving archaeological artifacts and addressing emerging urban issues by creating clean, modern districts away from historic centers (Güçhan Şahin & Kurul, 2009, p. 24).

Although the urban tissue of 18th century Istanbul had evolved organically, there were responsible bodies in charge of buildings' constructions. Before political reforms made by Ottoman Empire in 1839, civil or military constructions were organized and managed by *Hassa Mimarlar Ocagi* which was responsible for carrying out the public works of the Ottoman Empire, was affiliated with the

[18] In addition to efforts to control and institutionalize this new construction process, the 19th century marked the beginning of institutionalization in the field of heritage conservation, with Osman Hamdi playing a significant role in its early stages. This progress was reflected in the publication of conservation legislation, including the first (1869), second (1874), third (1884), and fourth (1906) Ancient Monument Regulations (Asar-ı Atika Nizamnamesi) (Güçhan Şahin & Kurul, 2009, p. 23)

Şehreminliği, one of the four eminences connected to the palace (Ergin, 1995, p. 927). This control mechanism covered every kind of manufacturing, maintenance, repairmen facilities whether it was done by government, *wakıfs* or by individual budget. The decisions might be related on construction technic, material type or even the construction site. In fact, "*Hassa Mimarlar Ocagi*" decided to labor force and the budget for them (Özcan, 2011). The rules on urban life were arranged according to *shariah* before *Tanzima*t Period. The *Kadı* (judge) is the main responsible body, and they took their call according to the customs and traditions and then announced them by *Fermans*. Since there were no municipality service, they were maintained by *Kadılık* system in the range of Islamic Laws. The individual intervention to the urban structure is done by organically by citizens. It is seen sometimes that central government made some interventions to the urban issues like height, colors and construction types of buildings. Moreover, this decision may relate even to the projections, roofs, and eaves of the buildings (Çokuğraş & Gençer, 2016).

In the early years of the 19th century, wooden houses and dense residential structures, seen as the primary causes of fires, were highlighted. In 1818, due to the impossibility of establishing a less dense residential structure, it was made mandatory, as a fire prevention measure, for everyone capable, regardless of whether they were Muslim or non-Muslim, to build a masonry fire wall at a height of 1 *zira* (75.8 cm) above the roof. Additionally, the requirement from the reign of Sultan Selim III that the facades of houses not facing the countryside must be plastered was modified in this edict; it was ordered that all facades of houses must be plastered with pure *Horasan* masonry plaster without any wooden cladding (Erdal, 2023, p. 36) (Figure 30).

During the reign of Sultan Selim III (1789-1807) and Sultan Mahmud II (1808-1839), it is observed that the first edicts issued to protect against fires included measures aimed at limiting the use of wooden materials, just as in the previous period (Erdal, 2023, p. 34).In 1831, the *Hassa Mimarlar Ocağı* and the *Şehreminliği* were abolished, and a more definitive organizational structure was adopted. The functions of these offices were consolidated under a central body named the *Ebniye-i Hassa Directorate* (Ergin, 1995, p. 929).

After the *Tanzimat* Edict of 1839, one of the parameters influencing the choice of construction techniques and materials in the constructions of Istanbul during the 19th century was the edicts, regulations, and laws implemented by the state to promote the widespread use of masonry houses (Erdal, 2023, p. 36). With the formation of the new administrative order, administrative powers were transferred from the *Kadi's* to a series of newly established ministries. *Ebniye-i Hassa Directorate,* responsible for overseeing urban construction activities, was also attached to the Ministry of Public Works (*Nafia Nezareti)* (1838) (Rosenthal, 1980a, pp. 34-35, as cited in Yergün, 2002). During this period, as with all legal regulations, traditional commands and decrees in construction and urban development activities were replaced by systematic and written rules.

The first document marking the transition to the new order was an '*ilmühaber*' issued in 1839 (Ergin 1938, p. 29, as cited in Yergün, 2002). In this regulation, it was stated that, to prevent the damage caused by large fires to the urban fabric, it would be appropriate for anyone who could afford it, whether Muslim or non-Muslim, to build masonry houses within the city. Those who could not afford it were allowed to choose wooden houses, provided they constructed masonry firewalls. Additionally, it was emphasized that low-income individuals wishing to build wooden houses in more remote areas outside the city walls, where there were no settlements, should not be obstructed (Ergin, 1995, p. 1240).

Figure 38. The timber fabric in Istanbul streets source: Library of Congress)

More comprehensive legal regulations regarding the promotion of masonry houses as a measure against fires were enacted consecutively in 1848 and 1849 (Figure 38). The general approach in the first building regulation of 1848 (*I. Ebniye Nizamnamesi)* was not to make masonry house construction mandatory but to encourage it. In the same year as the first building regulation (*I. Ebniye Nizamnamesi)* of 1848, a detailed building declaration (I. *Ebniye Beyannamesi)* was also issued, serving as an implementation guideline that provided detailed explanations regarding the construction techniques and materials that could be used in buildings. According to this regulation, buildings were classified into two groups based on their construction techniques: ***masonry*** and ***wooden*** and the masonry construction was divided into two groups as full masonry (*tam kargir*) and semi masonry (*nim kargir*) (Denel, 1982). Due to the indecisive stance created in practice by the 1848 legal regulations aimed at encouraging masonry house construction, a new regulation was issued in 1849 (II. *Ebniye Nizamnamesi)* to establish clearer guidelines for masonry construction (Erdal, 2023, p. 46). These consecutive urban planning regulations were implemented with the intent of providing definitive solutions to the fire disasters that plagued Istanbul. To this end, measures were introduced to encourage and promote the construction of masonry buildings among the public (Erdal, 2023; Yergün, 2002).

Another event that indirectly affected urban life in the mid-19th century was the Crimean War. With the establishment of close relations with European states during the Crimean War (1853-1856), the number of foreigners coming to Istanbul began to increase, making it necessary to provide municipal services within the city (Toprak, 1994, p. 147 as cited in Erdal, 2023). After the Crimean War, in 1855, the urban administration was reorganized. The Sixth Municipal District, known as "*Galata ve Beyoğlu Numune Dairesi"* was established as a model municipality. Starting in 1857, it began its institutional activities by taking over the duties and responsibilities that were previously under the jurisdiction of the *Şehremaneti* within its administrative boundaries (Toprak, 1994, p. 148 as cited in Erdal, 2023). These duties included the provision of basic needs, regulation and collection of taxes, cleaning and beautification of the city, construction and repair of roads, and the supervision of markets and guilds.

The Road and Building Regulations (*Turuk ve Ebniye Nizamnamesi*), introduced in 1863, was the first urban planning law applicable to all cities of the Empire, addressing various elements of urban space, including buildings, roads, and squares, in an integrated manner (Denel, 1982).

These developments made it inevitable to introduce a new policy regarding the widespread use of masonry houses, which had not been previously considered. Consequently, in 1875, *İstanbul ve Bilad-ı Selase*[19]*'de Yapılacak Ebniye'nin Sûver-i İnşaiyyesine Dair Nizamname* was issued. The most notable decision of it was the division of Istanbul into two zones: the first zone, where masonry houses were mandatory, and the second zone, where timber framed houses were permitted (Figure 39) (Erdal, 2023). However, this regulation did not remain in force for long and

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[19] Istanbul city center and the three surrounding districts (*Eyüpsultan, Galata* and *Üsküdar*)

became invalid with the enactment of the Ottoman Empire's first comprehensive Building Law *(Ebniye Kanunu)* in 1882 (Erdal, 2023).

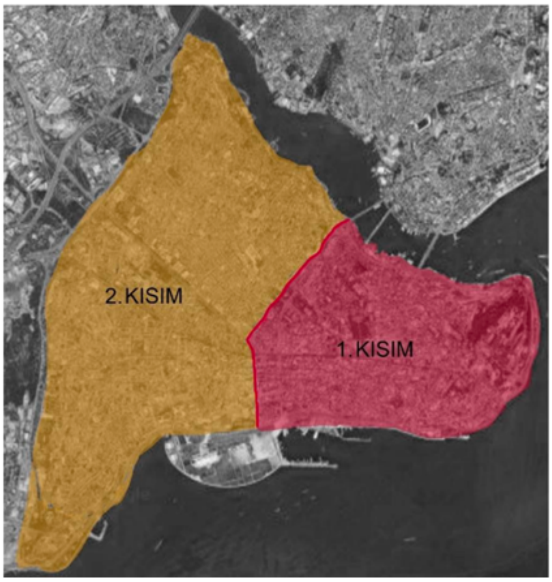

Figure 39. The border between the areas where timber housing allowed and not allowed according to 1875 Building Law. Yellow color shows the area where timber housing is allowed, red color shows the areas where masonry building is mandatory (Erdal, 2023)

After the enactment of the 1882 Building Law, permits for the construction of wooden houses began to be issued at various locations throughout the city, both at the building and neighborhood scales (Erdal, 2023). Despite all these strict regulations and restrictions, the public continued to build timber framed houses (Figure 40). In fact, permits were granted to those who requested them, particularly to those in areas where fire had occurred and where the construction of masonry buildings was mandatory. Legal flexibility was also provided in these cases.[20]Although adding a timber floor on top of a masonry building was not legally permitted, it is understood from official records that in some specific cases, exceptions were made. These exceptions were granted due to the building being outside the designated fire area and because there were other wooden structures in the vicinity[21].

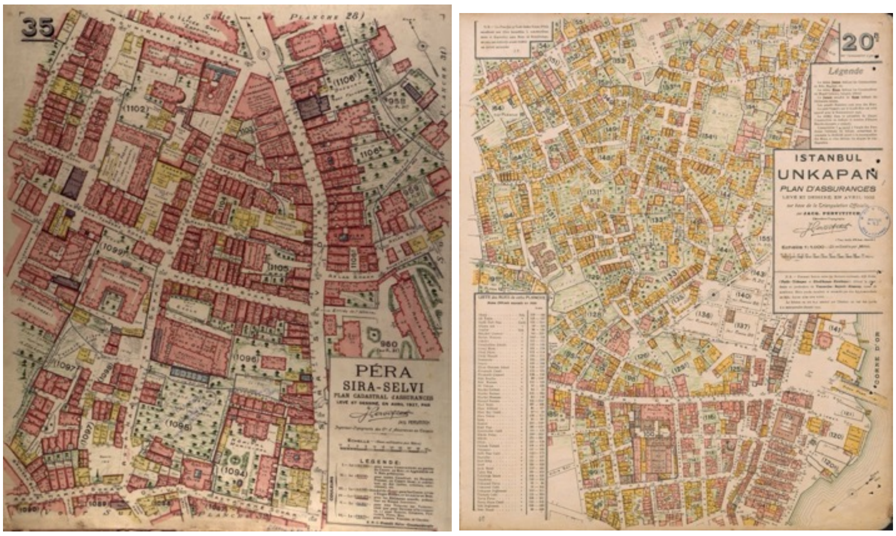

Figure 40. The Pervititch Maps showing *Pera* and *Unkapanı*, yellow was used for wooden houses and red for masonry houses. (Source: https://archives.saltresearch.org/handle/123456789/1824)

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[20] No: 157 Boğaziçi köylerinde ahşab ebniye inşaatına münanaat olunmamasına dair irade-I seniyyeyi mübelliği dahiliye nezareti tezkiresi, 2 haziran 1882 (Ergin, 1995)No: 158 Hasköy harik mahalinde ahşab ebniye inşasına şeref-Taalluk eden irade-I seniyyeyi mübelliğ dahilinde nezareti tezkiresi, 1884 No: 159_*Un kapanı harik mahalline ahşab ebniye inşasına şeref-sadır olan irade-I seniyyeyi mübelliğ dahiliye nezareti tezkiresi*, 1887 (Ergin, 1995) No: 160_*Arnavutköyü harik mahalline ahşab inşaata müsaade itasına ve ahaliyi kargir inşaata tergib ve teşvik edecek bir tarz ve usulün bit-tecrübe bulunarak arz-I atebe ulya kılınmasına dair sadır olan irade-I seniyyeyi mübelliğ dahiliye nezareti tezkiresi, 1888* (Ergin, 1995)No: 161_*Üsküdarda yenimahalledeki harik mahalline ahşab ebniye inşasına dair irade-I seniyye,* 1889 (Ergin, 1995)

[21]No: 162_Kanunen tevsi ve tesviyesi edilmiş olan caddelerde kain kargir ebniye üzerine ahşab kat ilavesine müsaade edilmemesine dair meclis-I emanet kararı, 1893 (Ergin, 1995) No: 163_*Harik Mahalli sahası haricinde bulunan ve etraf ve civarı kamilen ahşab ebniyye ile muhat. Olan mahallerdeki, kargir bir bina üzerine lede'l- Hace ahşab kat ilavesine müsaade edilmesine dair meclis-I emanet kararı, 1893 (Ergin, 1995)*

The 1882 Building Law remained in effect for some time after the proclamation of the Republic but lost its validity with the enactment of Law No. 2290 on Municipalities, Buildings, and Roads (*Belediye, Yapı ve Yollar Kanunu) in* 1933. However, during this nearly 50-year period, there was another Building Law issued in 1891, which was in effect for less than a year (Ergin, 1995).

The primary reason for preparing the Building Law of 1891 was the shortcomings of the existing law. Discussions held in the Council of State revealed that, the timber framed houses had begun to be constructed in many parts of the city, and people were still allowed to build structures using any construction technique and at any height they desired. It was also discovered that some individuals were secretly using timber materials for new constructions or repairs to avoid tax obligations (Ergin, 1995, p. 1060). As a solution, it was decided that houses to be constructed in Istanbul city center and the three surrounding districts (*Eyüpsultan*, *Galata* and Üsküdar) (*Dersaadet and Bilâd-ı Selâse*) would be built using three different construction techniques: fully masonry[22], partially masonry, and timber framed structures surrounded by protective walls. Osman Nuri Ergin notes that it was not feasible to implement these provisions at the time, which is why the law was repealed shortly after its enactment (Ergin, 1995, p. 1714).

Official records from the Divan-ı Hümayun (1495–1882), compiled by Refik (1988), detail fire prevention measures such as mandatory masonry construction, shorter eaves, height restrictions, and bans on timber-building elements like tahtapus(semi-open halls). These regulations suggest that concerns about earthquakes had diminished, with masonry construction preferred due to Istanbul's

[22] For ***fully masonry buildings***, the foundation would be constructed up to the road level, with the surrounding walls built to a thickness of at least one and a half bricks up to the second floor and one brick for the third floor; (*kirişleri putrel demirli ve kiriş araları çimento harcıyla nim-kavs tuğla kemerli* (*volta döşemeli*)), the beams would be iron I beams and t the spaces between the I beams would be filled with half-arch brick vaulting with cement mortar (jackarch flooring), with the roof laid on this same type of flooring and covered with asphalt.

frequent fires. However, despite these measures and later laws (1848–1882) designed to align urban planning with Western norms and limit timber-framed construction, the use of timber-framed systems remained widespread, even in Istanbul.(Şahin Güçhan, 2007, p. 841)

When reviewing the regulations and laws enacted in the 19th century, it becomes evident that the primary motivation was to protect the city from fires. If we consider the construction process of the Istanbul Archaeology Museum, built between 1887 and 1907 in three phases, it appears that the museum's first phase was opened in 1891, the same year the second Building Law, which was in effect for a short period, was issued. Shortly thereafter, the 1882 Building Law was reinstated for the remainder of the construction process.

Research conducted in the Republic of Türkiye Presidential State Archive reveals that the museum administration was instructed in a correspondence that the roof of the building should be constructed with iron rather than wood. The museum administration confirmed that the roof would indeed be made of iron. However, possibly due to economic reasons, it is observed that the roof was ultimately constructed with wood despite the fire risk. In Bab-ı Ali, The Council of Ministers put the idea of constructing a new museum building on the agenda July 27, 1887, dated record and after an evaluation. Although their general attitude was positive, they decided to ask a question to the ministry of Education.[23] It was stated that according to the statement of Education Minister, the new building will be made of wood.[24] However, since the timber construction of such buildings may be dangerous, it has been deemed appropriate to reply to the Ministry of Education in order to be informed about how much the building can be constructed if it is built by on the four

[23] Document 1.05: Republic of Türkiye presidential State. "İ_MMS_00093_003911_003" (6 Zilkade 1304/ July 27, 1887)

[24] Document 1.06: Republic of Türkiye presidential State. "İ_MMS_00093_003911_004" (21 Zilkade 1304/ Agust 11, 1887)

sides of the building as masonry and the roof as iron. After understanding that the building already planned as masonry, probably by verbally, the council of Ministers accept to start to build a new building for *Müze-i Hümayun* written as a note in the same record. After solving this misunderstood, it was decided to allow the construction with the determined budget.[25]

In addition to this, it is known that Istanbul, already struggling to protect itself and undergo urban planning after being devastated by fires, was struck by another disaster for which it was unprepared: a devastating earthquake occurred in 1894, right after the completion of the first phase of the Museum building. As previously mentioned, despite the major earthquake that occurred just three years after the enactment of the short-lived 1891 Building Law, it is evident that the building regulations were not updated until the introduction of the Municipalities, Buildings, and Roads Law No. 2290 in 1933. From a regulatory perspective, it is noteworthy that while efforts were made to implement measures against fires, there was a lack of corresponding legal provisions aimed at addressing earthquake risks.

In conclusion, although the practicality of these measures may be debated, one of the parameters influencing the construction techniques and material choices for housing in 19th century Istanbul was the various decrees, regulations, and laws issued by the state to promote the widespread use of masonry buildings to protect the city against fire disasters.

The Disasters Affecting Construction Practices in 19th century Istanbul

As discussed in the previous section, it is evident that in the 19th century, fire was the most significant disaster for which precautions were taken. However, fires were not the only calamities that plagued urban life in both the 19th century and

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[25]Document 1.07: Republic of Türkiye presidential State. "İ_MMS_00093_003911_005" (16 Zilhicce 1304 / September 5, 1887)

earlier periods. Ottoman Istanbul in the 19th century experienced numerous other major disasters, including earthquakes, floods, plagues, and cholera epidemics. These events played a crucial role in shaping the city's development and urban planning, influencing aspects ranging from building regulations to public health policies. Throughout Istanbul's history, disasters have posed a persistent threat to the urban fabric, and the impact of these events has endured in the collective memory for many year.

Zeynep Çelik (1993) states that 109 big scale fires occurred in İstanbul and Galata between 1633 and 1839. In fact, this number increased to 229 between 1853 and 1906 when the threat of fire turned to the one of the biggest problems of the city. As a result, the fear of fire and precautions for it were so meaningful considering the disasters the city faced until the end of 19th century. The occurrence hundreds of fires over a little more than 50 years suggests that the residents of the city lived their entire lives under the constant threat of fire, and due to its frequent recurrence, fire became a regular part of their daily lives and conversations. On the other hand, although earthquakes were much more destructive and caused significant loss of life, they had the disadvantage of being easily forgotten.

Two major fires that caused the most damage in the 19th century and prompted the state to pursue a comprehensive masonry construction strategy is examined: the 1865 *Hocapaşa* fire and the 1870 *Pera* fire (Erdal, 2023, p. 69) (Figure 41). The 1865 *Hocapaşa* fire caused significant damage to administrative buildings, including bureaucrats' mansions, in a wide area stretching from the Golden Horn to the Sea of Marmara, as well as to the marketplace, which was an important part of the economic activity within the city walls (Erdal, 2023). Galata-Pera region was multi-story masonry construction spread most rapidly in 19th century Istanbul. Although the transformation towards masonry housing construction began in the region after the declaration of the *Tanzimat*, it is observed that wooden and masonry structures coexisted in the neighborhoods where zoning regulations were implemented. In areas without zoning regulations, wooden houses were predominant. After the *Pera* fire, one of these regions would be completely burned, and despite the flexibility in the existing legal regulations, steps would be taken to rebuild the burned area in masonry (Erdal, 2023, p. 78).

Figure 41. The impact of the 1870 fire in Tarlabaşı is noted in the records of the Sun Insurance Company (Akbulut, 2014, p. 251 as cited in Erdal, 2023, p. 80)

Located in the impact area of the North Anatolian fault line, Istanbul has seen many earthquakes throughout history. The repeated devastating earthquakes transformed the city physically and socially from the Roman Empire, Byzantine and then Ottoman periods until todays. Among many large and small earthquakes, the earthquakes that occurred in 1509, 1690, 1766, and 1894 were recorded as the most destructive earthquakes for Istanbul (Ambraseys, 2009) (Figure 42). In these earthquakes, many buildings in Istanbul were destroyed and many people lost their lives.

Figure 42. 1878 İstanbul depremini tasvir eden bir gravür Kozak Collection, Earthquake Engineering Research Center, University of California, Berkeley as cited in Ürekli, 1999)

Between 1766 and 1894 Earthquakes, Istanbul experienced mild to moderate tremors. Among these were the earthquakes of May 29, 1776, July 4, 1790, October 27, 1802, and March 1, 1855, all of which caused only minor damage to the city. For instance, during the 1802 earthquake, some arches in the Grand Bazaar and old houses suffered damage. Similarly, in the 1855 earthquake, two domes of the *Davut* Pasha Mosque collapsed, and some sections of the city walls were damaged (Özkılıç, 2015). The response to these earthquakes focused more on attempting to repair the destroyed buildings. The fact that earthquakes were not addressed as a scientific phenomenon until the 1894 earthquake, and perhaps were seen as an inevitable occurrence, may explain why they did not find a place in legal regulations.

Necipoğlu (2021) states that despite imperial decrees banning the use of timber, the widespread preference for timber and timber-framed traditional architecture remained dominant. Houses were typically reconstructed in their "previous manner" (*vażʿ-i ḳadīm, üslūb-i sābıḳ*), reflecting a tradition that resisted drastic changes while still allowing room for individual creativity. After major fires, Istanbul's fragile vernacular architecture would reorganize itself around the more durable socio-religious complexes made of masonry, rising from the ashes each time, much like a phoenix (Necipoğlu, 2021).

An article published in the newspaper *Tasvîr-i Efkâr* (3 Zilkade 1282 [March 20, 1866]) after the *Hocapaşa* fire clearly illustrates the dilemma between wooden and masonry structures (Erdal, 2023). According to the article, there are three ways to prevent fires. The first is the improvement of fire extinguishing methods; the second is the construction of firewalls between wooden houses, which, due to the strong winds, failed to prevent the spread of the fire. The third method is the construction of all buildings in masonry, with the *Hocapaşa* fire demonstrating that this is the most reliable method (Erdal, 2023). Moreover, the same article mentions three main reasons why people preferred wooden buildings. The first of these is that wood is superior to masonry in terms of earthquake resistance. Although this is a valid reason, the article argues that the primary disaster to be guarded against should be fires, which occur frequently and cause more damage, rather than earthquakes, which happen at longer intervals. The second reason is that wooden houses provide a healthier indoor environment compared to masonry houses, and the third reason is that, considering construction costs, wood is more advantageous (Erdal, 2023).

In other words, it is understood that the belief of the people of Istanbul that wooden houses are more resistant to earthquakes is a notion that perhaps resulted from past earthquakes. However, it appears that the state continued to issue successive regulations focused on fire prevention, overlooking the danger of earthquakes.

Attitudes toward earthquake hazards are shaped more by how disasters are perceived than by their actual magnitude or frequency. Earthquakes in remote villages of developing countries often lead to limited improvements in construction and are quickly forgotten, with little national impact. In contrast, damage to a capital city or critical infrastructure garners greater attention due to its broader effects on the country, although this awareness also tends to fade over time (Ambraseys, 2009).

As a result, although earthquakes had a destructive impact, they did not influence the life in the city as much as fires did. The likelihood of an earthquake occurring multiple times in a person's lifetime was lower, whereas the probability of an urban resident in Istanbul experiencing a fire disaster was much higher due to fires frequently breaking out in various parts of the city.

1984 Istanbul Earthquake and its Effects on Istanbul Archaeological Museum Building

In addition to the frequent fires in the city, earthquakes were another significant factor influencing residential construction choices in the late 19th century. Situated along the North Anatolian fault line, Istanbul has experienced numerous earthquakes throughout its history.

Ambraseys analyzed earthquakes over the past 2,000 years in the Eastern Mediterranean and Middle East regions based on archaeological, epigraphic, and literary sources, presenting a catalog of more than 4,000 earthquakes. According to this study, Constantinople, later Istanbul, experienced hundreds of earthquakes during this period. A chronological examination of these events reveals that, in addition to earthquakes with epicenters in Istanbul, the city was also affected by seismic activity in the surrounding regions. Notably, the most destructive earthquakes occurred in the Marmara Sea region (Ambraseys, 2009).

The Figure 43 shows seismically active regions, as depicted in Mallet's map of global seismicity before 1851. This map identifies Istanbul and Anatolia as among the most hazardous regions. Focusing on the 19th century, it becomes evident that dozens of earthquakes of varying magnitudes occurred during this period. However, the most devastating event was the earthquake that struck on July 10, 1894, at 12:24 p.m. local time. Its epicentral zone extended from Adapazarı in the east, along the Gulf of Izmit, into the Sea of Marmara. The damage, exacerbated by unfavorable foundation conditions, was severe and extended even to areas near Istanbul (Ambraseys, 2009, p. 774)

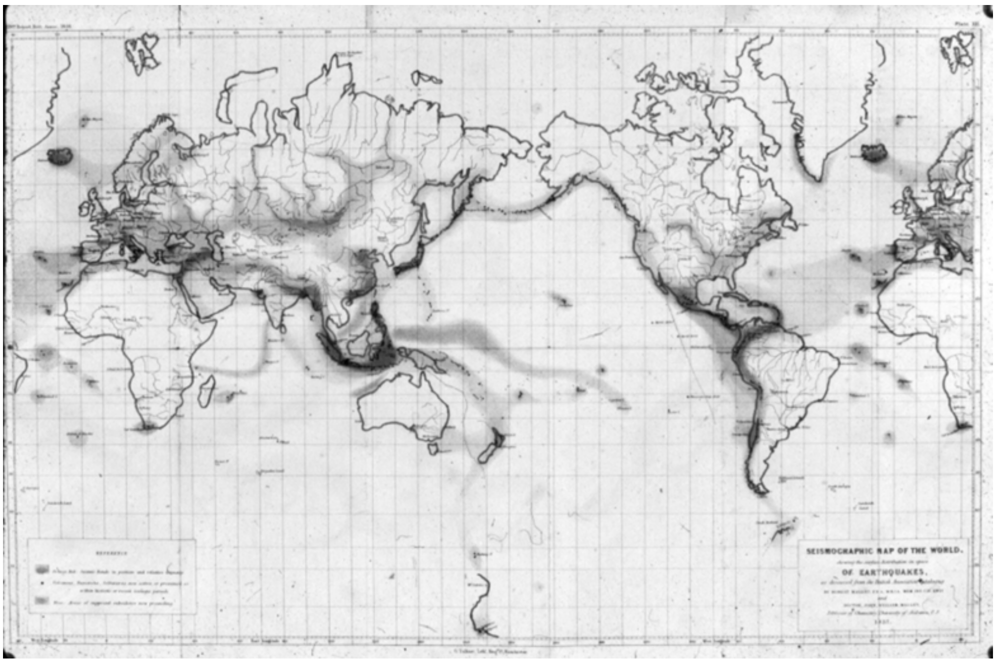

Figure 43. A map of worldwide seismicity before 1851, determined from literary sources by Mallet in 1857 (Ambraseys, 2009)

In various sources, this earthquake is referred to as the "*Büyük hareket-i arz*", "*Zelzele-i Azîme*" or "*Zelzele-i Müthişe*". It was felt over a very wide area and caused severe damage, particularly in Istanbul and its surroundings (Ürekli, 1999). Since it primarily affected the eastern part of the Sea of Marmara, with lesser impacts on its western side, but it caused the most significant destruction in Istanbul, it was also called the "Great Istanbul Earthquake" (Özkılıç, 2015).

The earthquake that struck the Marmara Sea on July 10, 1894 was the most significant and destructive event to hit Istanbul and the eastern Marmara Sea region since the two earthquakes of May and September 1766 (Finkel & Ambraseys, 1997). It has been determined that the epicenter of the earthquake was 8 kilometers from *Yeşilköy*, located in the southeastern part of the Marmara Sea (Sezer, 1997). In this disaster, many civilian buildings and monumental public structures were damaged, and thousands of people lost their lives (Figure 44, Figure 45, Figure 46).

Figure 44. The 1894 earthquake and the damage it caused in Istanbul (source: İstanbul Atatürk Kitaplığı)

The 1894 earthquake, unlike previous ones, marked a turning point in earthquake awareness and scientific studies in the city (Sezer, 1997). Following the earthquake, Sultan Abdülhamid II commissioned scientific research to be conducted. As a result, a report was prepared by Athens Observatory Director D. Eginitis, Istanbul Observatory Director Coumbary, and his assistant Emil Lacoine, and it was presented to the Sultan on August 15, 1894 (Sezer, 1997). Eginitis, Coumbary, and Emil Lacoine began their work by visiting key sites that had sustained damage and could be significant for their investigations. To facilitate and expedite the research and examinations, a special steamship was allocated. Based on field investigations conducted by this team and information received through telegrams from various provincial authorities, a detailed report was prepared regarding the duration and magnitude of the earthquake in different regions and presented to the Sultan (Ürekli, 1999, p. 52). Eginitis' report is recognized as the first scientific study conducted in Ottoman geography (Sezer, 1997).

Figure 45. The 1894 earthquake and the damage it caused in Istanbul (source: İstanbul Atatürk Kitaplığı - https://istanbultarihi.ist/27-bir-sehir-manzarasi-istanbulun-tarihinde-depremler)

Figure 46. *Direklerarası* demaged during the Earthquake (source: İstanbul Atatürk Kitaplığı, “İstanbulda Vuku Bulan Büyük Hareket-i Arz’a aitAlbümler”, Nr.184/2- https://istanbultarihi.ist/27-bir-sehir-manzarasi-istanbulun-tarihinde-depremler)

In addition to the report Eginitis prepared based on his research and investigations, Eginitis also identified the earthquake zones on the relevant section of H. Kiepert's map (Figure 47). The First Zone, as marked on the map on the center, constituted the epicenter of the earthquake and included the areas that suffered the most damage. All the buildings within this zone were destroyed. This central zone extended in a long line, with the major axis running from *Çatalca* to *Adapazarı* and along the Gulf of Izmit, covering 175 kilometers. In the Second Zone, some poorly constructed buildings collapsed, while other buildings developed minor cracks in their walls. In the Third Zone, although the earthquake was strong, it only caused some objects to fall or shift, without causing any damage to buildings (Ürekli, 1999, p. 17).

Figure 47. Earthquake zones identified on H. Kiepert's map source BOA, YEE, Nr. 11/14/126/C (Ürekli, 1999)

In her study, Sezer (1997) published both the original and the Ottoman Turkish translation of the aforementioned report[26] prepared by the director of the Athens Observatory regarding the 1894 earthquake. The following topics, which explain the causes of the damage caused by the earthquake as mentioned in the Eginitis report dated 20 August 1894, are particularly noteworthy:

i. The condition of the land played a significant role in the extent of the damage. For example, half of *Katırlı* village, which was built on muddy terrain, suffered severe damage, while the other half, located on more stable ground, remained unharmed. Similarly, buildings on a farm in Yalova, constructed on sandy soil, were destroyed, while structures on firmer ground remained intact (Eginitis, 1894 as cited in Sezer, 1997).

[26] *The source of the report is cited as Yıldız Esas Evrakı, Carton 11, Document 17.C. in Sezer, 1997.*

ii. The poor quality of materials used in construction, the structural deficiencies of buildings, and the fact that many buildings were concentrated in the central areas contributed to the increased damage in both Istanbul and surrounding villages (Eginitis, 1894 as cited in Sezer, 1997).

iii. Investigations revealed that wooden buildings, as well as well-constructed brick structures reinforced with iron, were able to withstand the earthquake (Eginitis, 1894 as cited in Sezer, 1997).

iv. After timber framed houses, those built with brick were the most resilient. Brick walls, being elastic and strong, do not easily crumble; however, where they lacked proper bonding and support, they collapsed. On the other hand, houses with well-bonded walls and those connected to neighboring buildings only developed minor cracks. For instance, on *Büyükada*, a house built with brick had a stone central section, and it was observed that while the stone part collapsed, the brick portion remained intact. This further proves that houses constructed properly with brick and reinforced with iron are capable of withstanding earthquakes (Eginitis, 1894 as cited in Sezer, 1997).

Sultan Abdülhamid II ordered that a commission be established to conduct detailed inspections and repairs of all military buildings and *vakıf*s (pious foundation) properties, with a particular focus on official government offices. However, the large number of damaged buildings (Figure 48), the responsibility of military institutions for repairing military structures, and the historical significance of certain buildings led to an increase in the number of commissions. Despite this, the inspection and repair efforts after the earthquake were largely coordinated and managed from a central authority (Özkılıç, 2015, p. 150).

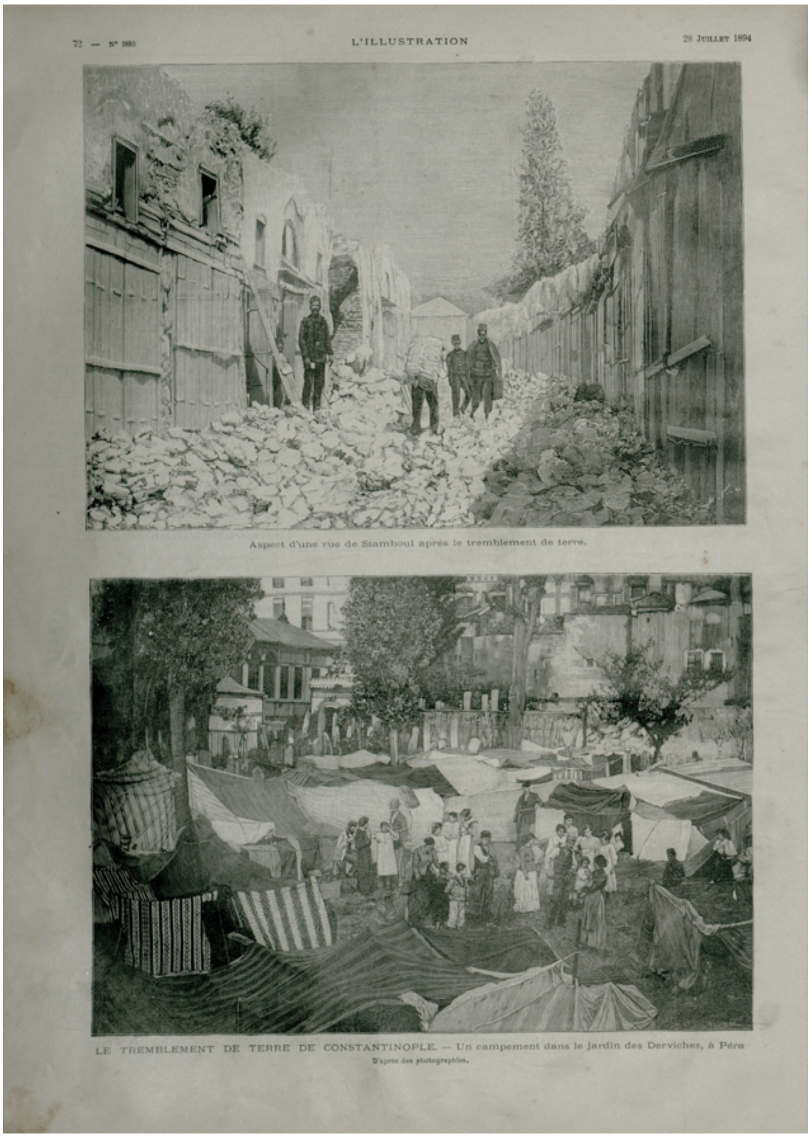

Figure 48. The gravures of 1894 Earthquake published in the journal of L'illustration, 28 July, 1894

The initial efforts to prepare estimated cost books and begin repairing damaged buildings started the day after the earthquake. On the night of July 11, Sultan Abdülhamid II issued a decree instructing the establishment of a commission under the *Şehremaneti* (Municipal Administration) to oversee the repair of public buildings.

To prepare estimated cost books and repair of public buildings damaged in the earthquake, it was decided to establish two commissions under the *Şehremaneti* (Municipal Administration). The first commission, often referred to in documents and in estimated cost books as the "***Heyet-i Fenniyye,"*** included *Architect D'Aronco, Architect Vallaury, Architect Berthier, and Başmimar Sarkis Bey*. The second commission, referred to in some documents as the "***İnşaât-ı Fenniyye Komisyonu"*** or the "***Komisyon-ı Mahsûs***," consisted of *Şehremaneti* Chief Engineer *Mehmet Kemalettin Bey*, *Şehremaneti* Council members Mustafa Bey, Kamil Bey, and Andon Bey, as well as Edhem Bey from the Ministry of Finance, representing the Finance Council (Özkılıç, 2015, p. 155).

Although there were two separate commissions, these two commissions had to work together. After the inspection of all official and social institution buildings damaged in the earthquake was carried out directly by the "***Heyet-i Fenniye***," the repair costs and survey logs indicating the damaged areas were sent to the "***Şehremini***." Here, they were reviewed and approved by the "***İnşaât-ı Fenniyye Komisyonu***" and then delivered to the Babıali by the Şehremini. Following the Grand Vizier's presentation of the situation to the Sultan, a decree was issued, and the repairs on the damaged buildings commenced. "***İnşaât-ı Fenniyye Komisyonu"*** commission was responsible for overseeing the repairs of the buildings (Figure 49). In fact, this commission was authorized to supervise both the foremen assigned to the repairs and the proper use of the funds allocated for the repairs, ensuring that no resources were wasted (Özkılıç, 2015, p. 156).

Figure 49. The repair works in the *Daire-i Umur-i Askeriye* building damaged in the earthquake (source: İstanbul Atatürk Kitaplığı, "İstanbulda Vuku Bulan Büyük Hareket-i Arz'a aitAlbümler", Nr.184/2- https://istanbultarihi.ist/27-bir-sehir-manzarasi-istanbulun-tarihinde-depremler)

One of the architects who played a key role in these commissions was Alexandre Vallaury, a Levantine architect who made a significant impact in late 19th-century Istanbul, particularly with his designs in the capital. Vallaury was renowned not only for his architectural contributions but also for his position as a professor of architecture at the *Sanayi-i Nefise Mektebi*, the foremost fine arts school of the period. Another notable architect who made his mark in the 19th century and contributed to these commissions was Raimondo D'Aronco.

According to Boriani (2007), both Vallaury and D'Aronco were in Istanbul at the time of the earthquake. D'Aronco, who had arrived a year earlier on a commission from the Ottoman government to design pavilions for the second National Ottoman Exposition, saw his original assignment canceled due to the earthquake. Instead, he was assigned to assist with the restoration of damaged structures, focusing particularly on Hagia Sophia and the Grand Bazaar.

Boriani (2007) explains that D'Aronco and Vallaury devised an innovative plan for the restoration of the Grand Bazaar following the earthquake. Their idea involved preserving the existing walls and rebuilding the roofs with new brick vaults supported by a metal framework of small, inclined pillars and pointed arches. However, this proposal was ultimately rejected in favor of a more traditional approach by Armenian architect Sarkis Balyan, the chief architect of the imperial palaces, who opted to reconstruct the collapsed vaults using the original method. Additionally, there was an alternative proposal to demolish the bazaar entirely and rebuild it using iron and glass, following the European market model (Boriani, 2007). Another restoration attempt that Vallaury presented his reffort was dated to twelve years after the 1894 earthquake on the *Edirnekapı Mihrimah Sultan* Mosque. Vallaury prepared a report assessing the damage and outlining potential restoration efforts. In his report, he primarily offered technical recommendations for rebuilding the damaged sections of the structure (Özkurt, 2023).

One of the estimated cost book prepared by the commissions established after the earthquake, mentioned above, holds significant importance for this study. This estimated cost book[27], found in the Republic of Türkiye Presidential State Archive, indicates that the *Sanayi-i Nefise Mektebi* building was severely damaged by the earthquake[28]. *Sanayi-i Nefise Mektebi*, which was the fine arts school of the Ottoman Empire, is still in use today as the Museum of the Ancient Orient and is part of the Istanbul Archaeological Museums complex. Additionally, it was the first building designed by Alexandre Vallaury in Istanbul, constructed in 1882, prior to the museum building. During the years of the earthquake, Vallaury was continuing to teach architecture as a professor of ***Fenni Mimari*** in this building. In short, Vallaury

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[27] Republic of Türkiye Presidential State Archive. "BOA, İ_ŞE_00006_00028_001" (17 Eylül 1310 /September 29, 1894)

[28] In this estimated cost book, there are descriptions of each necessary repairment with their calculations of cost. This calculation is made by multiplying the total area (amount) to be repaired and the unit price, it should be indicate each room individually. Cost estimates provide an approximation of how much money the implementation will cost.

was very familiar with both the building and the area when he prepared the repair report (Figure 50, Figure 51, Figure 52).

Figure 50. The *Sanayi-i Nefise Mektebi*, indicated by the red arrow, between 1883-1892, and the first phase of the *Müze-i Hümayun* across from the Tiled Kiosk (Restitution Report, IDSM Archive)

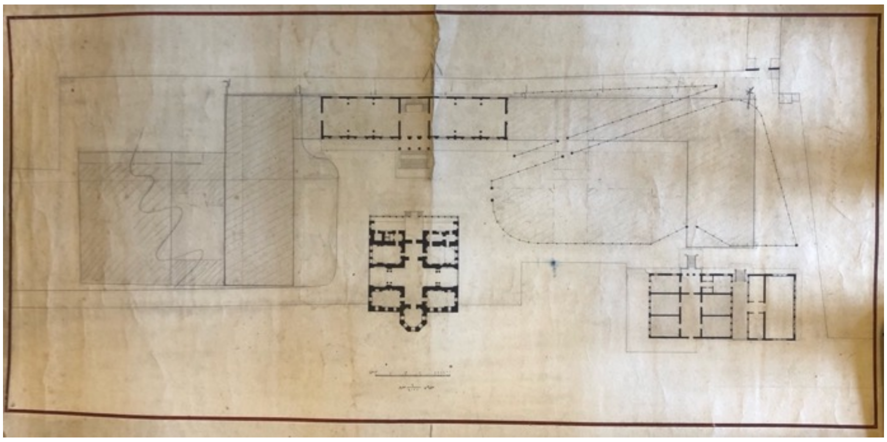


Figure 51. The site plan of *Müze-i Hümayun* showing the plan of buildings during the 1894 Earthquake (source: IAM Archive)

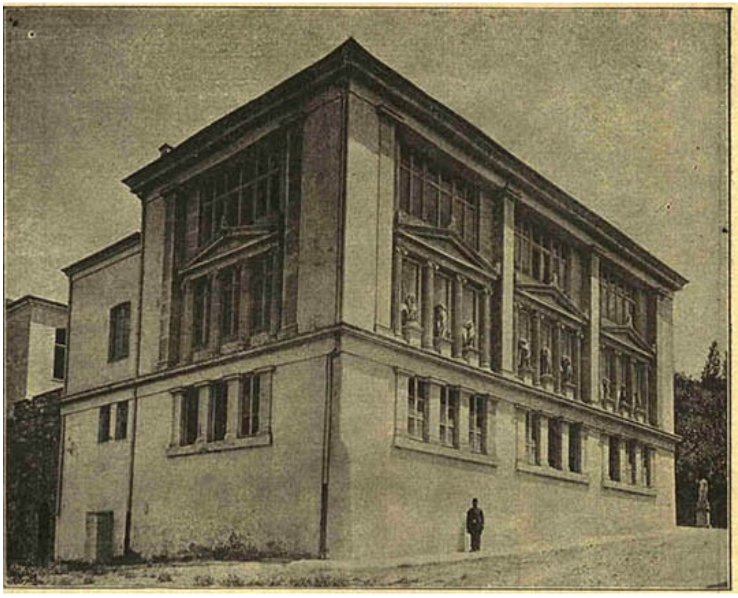


Figure 52. *Sanayi-i Nefise Mektebi* Building, 1900 (source: *Servet-i Fünün*, 1900, no: 494, p.420)

As with all estimated cost books, this document includes detailed lists of the repairs should made, with measurements provided for each specific area (Figure 53, Figure 54, Figure 55). However, although the title of the inspection report reads "*Sanayi-i Nefise Mektebi'nin hareket-i arzdan rahnedar olan mahallerin keşf defteridir*" (estimated cost book of the areas damaged by the earthquake in the *Sanayi-i Nefise Mektebi*), upon closer examination of the individual entries, it becomes evident that the repairs listed actually cover all the buildings that share the same courtyard as the museum and the school. This includes some repairs related to the *Sanayi-i Nefise Mektebi,* Tiled Kiosk and the *Müze-i Hümayun* Building. The likely reason why these two buildings Tiled Kiosk, and the *Müze-i Hümayun* Building are not mentioned in the title of the estimated cost book or in the correspondences is that, while the *Sanayi-i Nefise Mektebi* sustained significant damage from the earthquake, the Tiled Kiosk and the Museum Building only required minor repairs, such as replacing roof tiles and fixing plasterwork. In this case, rather than preparing a separate report for each building, it was likely more practical to combine the repairs of these structures into a single inspection report, which seems to be a very logical approach.

The members of the commission who signed the estimated cost include architects Vallaury, D'Aronco, and another architect named Berit. Their names written as "***Mimar Berit*[29] *, Mimar Daranko, Mimar Valori.*" At the end of the survey, it is noted that the survey was prepared in the presence of the "*Devair-i Resmiye İnşaat Komisyonu*" by the foremen. The "*Devair-i Resmiye İnşaat Komisyonu*" was composed of Esseyyid Mehmed Kemaleddin, Mustafa, Esseyyid Mehmed Kemal, Andon, and İbrahim Ethem (Figure 47).

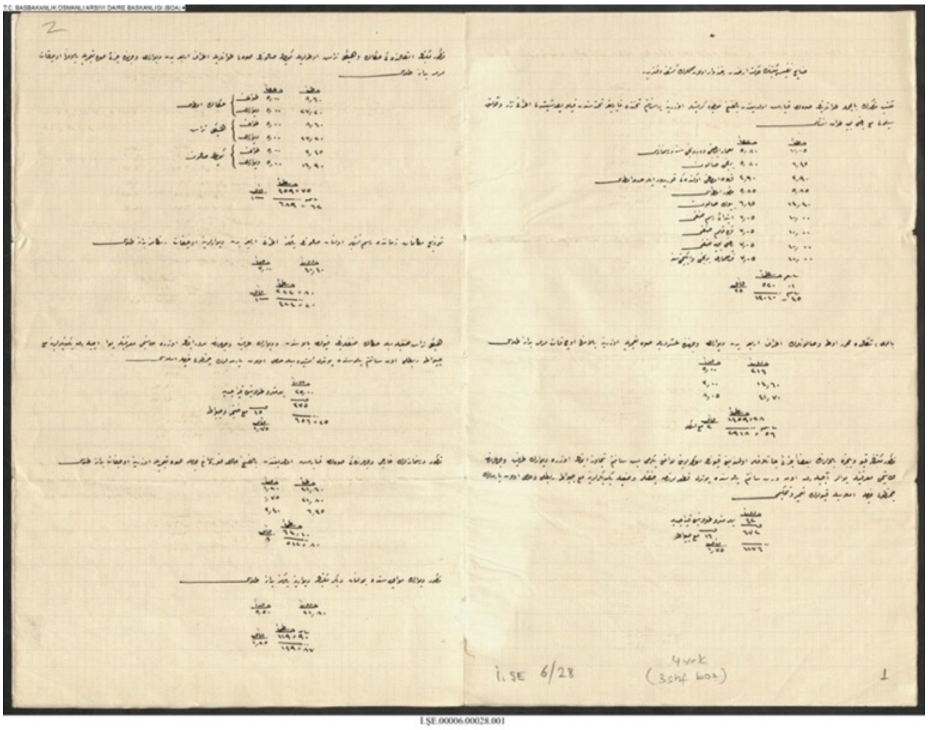


Figure 53. The first page of estimated cost prepared for *Sanayi-i Nefise Mektebi* (source: Republic of Türkiye Presidential State Archive. "BOA, İ_ŞE_00006_00028_001_002" (17 Eylül 1310 /September 29, 1894)

[29] Berthier

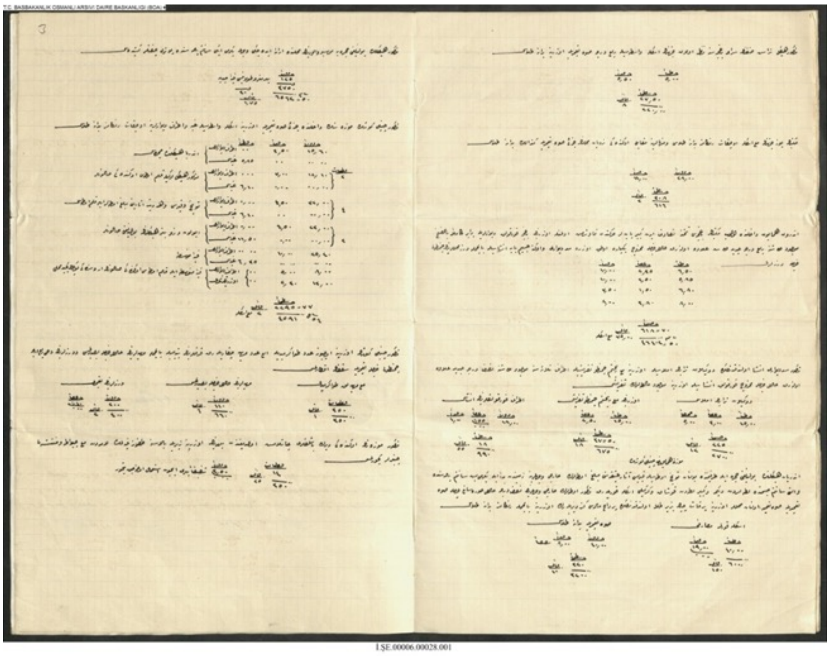


Figure 54. The second page of estimated cost prepared for *Sanayi-i Nefise Mektebi* (source: Republic of Türkiye Presidential State Archive. "BOA, İ_ŞE_00006_00028_001_003" (17 Eylül 1310 /September 29, 1894)

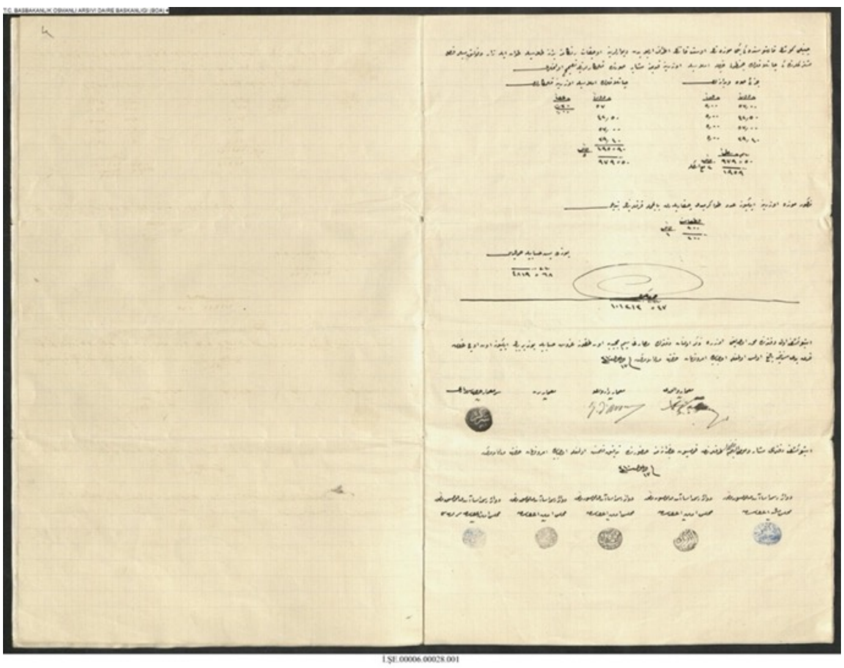


Figure 55. The third page of estimated cost prepared for *Sanayi-i Nefise Mektebi* (source: Republic of Türkiye Presidential State Archive. "BOA, İ_ŞE_00006_00028_001_004" (17 Eylül 1310 /September 29, 1894)

Examining these repairs not only provides insight into which parts of the building were affected and to what extent but also reveals the types of interventions carried out during the repair process, making it a crucial document for understanding the building's post-earthquake restoration. Among the buildings mentioned in the estimated cost book, the *Sanayi-i Nefise Mektebi* building appears to have suffered the most damage, followed by the Tiled Kiosk, with the least damage observed in the *Müze-i Hümayun* classical building. While the first two buildings required reinforcement with iron girders, simple tasks such as painting, whitewashing, and minimal crack repairs were deemed sufficient for the *Müze-i Hümayun*, as is evident from the cost estimates. Below, the works listed in the inspection report is explained separately for each building.

Repairs recommended for *Sanayi-i Nefise Mektebi* Building

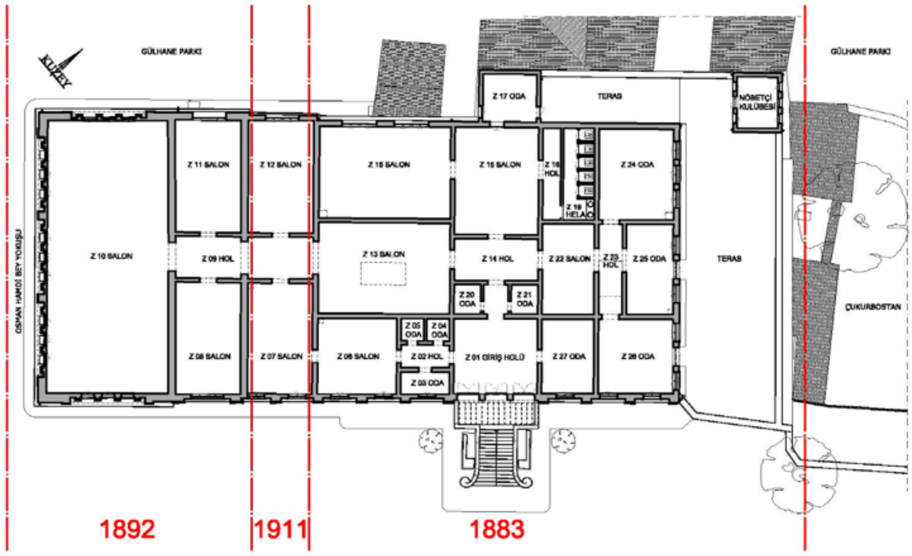
The *Sanayi-i Nefise Maktebi* (School of Fine Arts) shares the same courtyard as the Istanbul Archaeological Museum (IAM) and was inaugurated just a few years earlier by the same architect, Alexandre Vallaury, as his first building in Istanbul. This shared history is further reinforced by Osman Hamdi, who served as both the principal of the school and the director of the museum. The two buildings also exhibit a strong stylistic continuity, contributing to their architectural cohesion.

Given these connections, it is highly probable that the construction techniques used in the *Sanayi-i Nefise Mektebi* Building are similar to those employed in the IAM. Notably, the Sanayi-i Nefise Building was included in the list of structures that suffered severe damage during the 1894 earthquake, and a restoration survey was subsequently conducted. This is a critical point for this thesis, as the building's response to the earthquake, its vulnerabilities and strengths, can offer valuable insights into the structural analysis of the IAM building.

Before discussing the repairs, following 1894 Earthquake damage, it is necessary to provide an overview of the building's construction process to better understand its condition in 1894. Like the Museum building, it was designed by Alexandre Vallaury and constructed in three phases and continued to grow with subsequent additions.

The Museum of the Ancient Orient was originally constructed as the School of Fine Arts (*Sanayi-i Nefise Mektebi*) under the leadership of Osman Hamdi and was opened on March 3, 1883, marking the beginning of its educational mission. Believing in the advantage of having the school close to the Imperial Museum, Osman Hamdi obtained permission for the school to be built on the vacant land to the west of the museum, and construction began. The restitution report prepared by *Seçkin Mimari Hizmetler* divides the construction process of the building into three phases. These phases are described as follows: Phase 1 involves the construction of the initial building; Phase 2 includes the construction of a workshop and exhibition building on the Osman Hamdi Bey Street; and Phase 3 is the unification of the section between these two buildings (Figure 56).

Figure 56. *Snayai-i Nefise Mektebi* güney doğu cephesi ve özgün merdiveni 1911 (Restitution Report prepared by *Seçkin Mimari hizmetler*, IDSM Archive)



Resim 36: Sanayi-i Nefise Mektebi zemin kat planı, 1911.

24

Figure 57. The restitution plan showing the three phases of *Sanayi-i Nefise Mektebi* Building (Restitution Report prepared by *Seçkin Mimari hizmetler*, source: IDSM Archive)

After constructing the first phase, it was soon realized that the building would not be able to meet the needs, leading to plans for its expansion. This building, consisting of a workshop and exhibition hall, was further expanded in 1911 with the addition of two more halls, which were then connected to the old building. In 1916, when the School of Fine Arts moved to its new location in *Cağaloğlu*, the building was incorporated into the Imperial Museum (*Müze-i Hümayun*). Halil Edhem Bey transformed it into a museum to exhibit ancient cultural artifacts from Near Eastern countries. An administrative section was added between 1943 and 1963 (Figure 57). During the renovations led by Prof. Nezih Eldem between 1964 and 1974, the building's layout was altered, and the original entrance staircase was removed[30] (Akpolat, 1991).

Focusing on *Sanayi-i Nefise Mektebi* Building, the estimated cost book[31] (Figure 53, Figure 54, Figure 55) includes following interventions.

i. A new ceiling covering the existing beams with factory-made wooden boards, 1 centimeter thick and wooden cornices should be construct and the ceiling should be paint with oil-based paint since the plaster on all the ceilings of the mentioned school had swollen.
ii. The four surrounding walls of the rooms and halls should be repaired with a tenth-degree plaster restoration, followed by the application of three coats of marble whitewash.
iii. Due to the presence of minor cracks above the doors and windows of the mentioned school, door frames should be repaired and reinforced. Openings should made on both sides of the walls, extending at least 25 centimeters beyond the door frames, by skilled stonemasons. Pairs of iron girders, 14 centimeters wide, should be placed into these openings and bolted together. The resulting gaps should be filled with cement mortar to complete the repair and reinforcement of the doors.
iv. The plastered ceilings and the four surrounding walls of the engraver's and sculptor's rooms, as well as the small hall adjacent to the mentioned school, underwent minor plaster repairs. Following this, three coats of marble-effect whitewash were applied

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[30] However, during display and restoration work in 2000, the entrance staircase was restored to its original state and reinstalled in the building. The building, which began being used as a museum in 1916, underwent various modifications during the period from 1943 to 1963. An administrative section was added on the terrace on the northeast façade, and on the southeast façade, windows were added at the courtyard level, creating new spaces in the basement.(Restitution report, IDSM Archive)

[31] Republic of Türkiye Presidential State Archive. "BOA, İ_ŞE_00006_00028_001_002/003/004" (17 Eylül 1310 /September 29, 1894)

v. The four surrounding walls of the exhibition hall should be given three coats of colorful whitewash.

vi. Above the doors of the sculptor's and engraver's classrooms, and extending through both sides of the wall, openings should be made by stonemasons. Iron girders, 10 centimeters wide, should be placed and bolted together. The resulting gaps should be filled with cement mortar to complete the repair.

vii. Since the plaster on the exterior surfaces of the mentioned classrooms had swollen, the plaster should be removed, and repairs were carried out using pure *Horasan* mortar. Afterward, three coats of whitewash should be applied.

viii. Only a coat of whitewash was applied to the wall of the other school located opposite the mentioned wall.

ix. The side of the mentioned sculptor's classroom facing the palace garden should be repaired using scaffolding, with a quarter-degree plaster application, followed by the application of whitewash.

x. The front façade of the school should be whitewashed with three coats of colorful paint using scaffolding, and the area of the stairs in front of it should be applied minor plaster repairs, followed by the application of whitewash as well.

xi. Located within the Imperial *Enderun*, the large buttresses beneath the school garden had not fully settled due to movement. Therefore, the upper parts, along with the garden's railing walls, were dismantled, and new stone, equivalent to a quarter of the amount of original stone, should be added to the existing stones. The entire structure should be blended with pure (*halis*) mortar to form a solid, unified wall. Additionally, a large buttress should be constructed in front of it, and all the joints were filled with cement mortar.

xii. After the mentioned retaining walls were constructed, the soil that had collapsed should be filled in, and a cement layer should be laid over it. The railing should be built by blending the stones with pure mortar, along with the addition of new stone, equivalent to half the size of the existing stones, on three sides. The existing Malta stones should be placed on top.

As summary, the estimated cost book covers the interventions like the application of oil paint to the ceilings, plaster repair and marble whitewashing (*mermer badana*) on walls and ceilings, Repair and reinforcement of door lintels with 14 cm wide iron profiles, Plaster repair with *Horasan* mortar on the exterior façade and application of three coats of whitewash, Construction of a retaining wall (with one-quarter new stone) and installation of a buttress in front, with joints filled with cement mortar, constructing a railing.

The garden and buttress walls mentioned in the estimated cost book are likely the ones shown in Figure 58 and Figure 59. This suggests that the area, which contains Byzantine infrastructure and where Vallaury is believed to have positioned the first building based on the underlying remains adjacent to the buttress wall, was damaged during the earthquake. The movement in this section may have posed a threat to the superstructure (Figure 60). This situation explains why the *Müze-i Hümayun* building, constructed by the same architect using the same techniques and located in the same courtyard, did not sustain as much damage as the *Sanayi-i Nefise Mektebi building*. Consequently, the decision was made to reinforce these walls by renewing them with one-quarter new stone and adding new buttresses. Another notable intervention mentioned in the survey book is the use of iron girders to strengthen the superstructure (Figure 61).

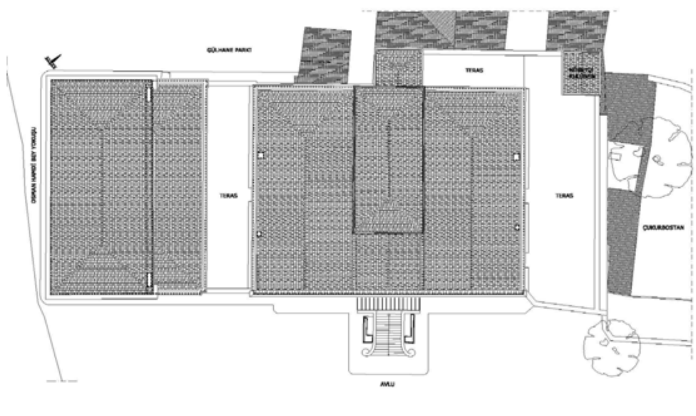

Figure 58. The Roof Plan of the 2nd Phase of *Sanayi-i Nefise Mektebi* Building completed in 1892 (Restitution Report prepared by *Seçkin Mimari Hizmetler*, source: IDSM Archive)

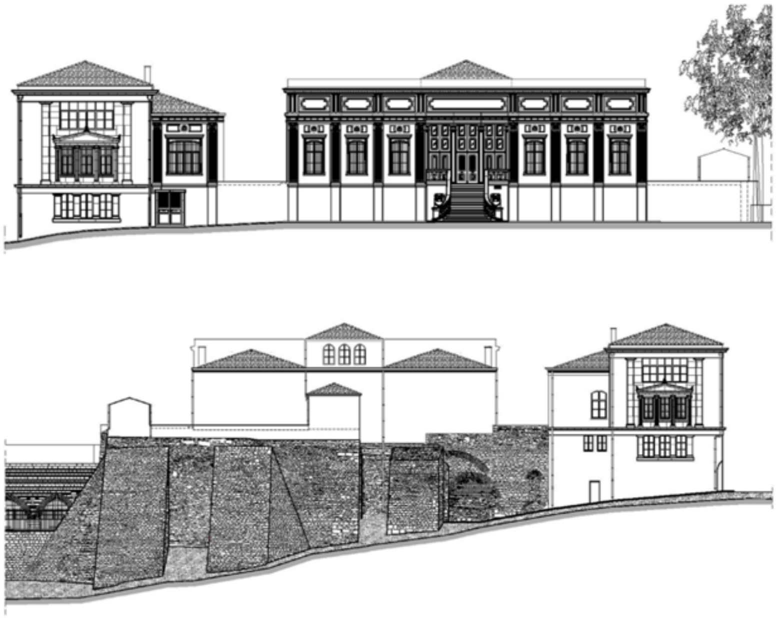

Figure 59. (Top) The southeast elevation and (bottom) the northwest elevation of the 2nd Phase of *Sanayi-i Nefise Mektebi* Building completed in 1892 (Restitution Report prepared by *Seçkin Mimari Hizmetler*, source: IDSM Archive)

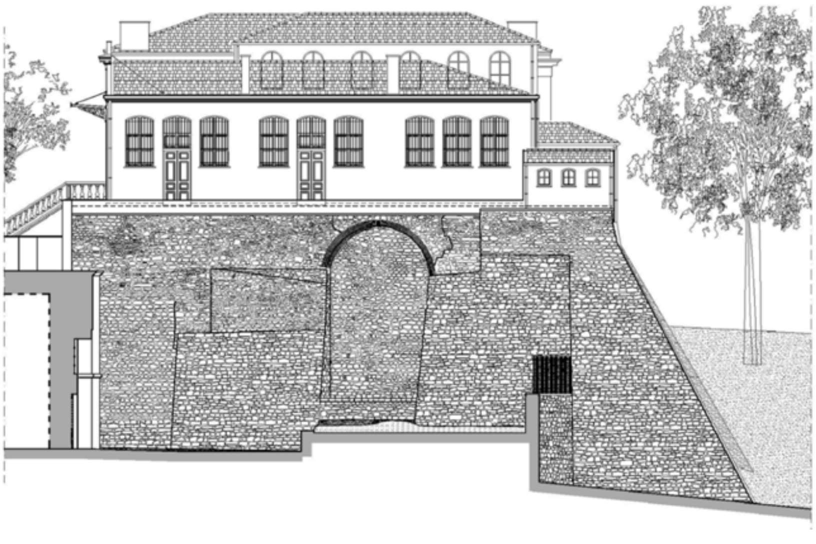

Figure 60.The northeast elevation of 2nd Phase of *Sanayi-i Nefise Mektebi* Building completed in 1892 (Restitution Report prepared by *Seçkin Mimari Hizmetler*, source: IDSM Archive)

Figure 61. The buttresses under the *Sanayi-i Nefise Mektebi* (source: taken by the author in 2021)

Repairs recommended for *Müze-i Hümayun* Building

Focusing on *Müze-i Hümayun* Building (IAM), the estimated cost book[32] ((Figure 53, Figure 54, Figure 55) includes following interventions for the upper floor of the new museum across from the Tiled Kiosk;

i. Application of three coats of colored whitewash to the four exterior walls.

ii. Filling the cracks in the handmade decoration art of the ceiling, cornices, and moldings with cement mortar.

iii. Having the handmade decoration (*kalemkar*) corrected to match the original (in a way that rivals the old).

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[32] Republic of Türkiye Presidential State Archive. "BOA, İ_ŞE_00006_00028_001_002/003/004" (17 Eylül 1310 /September 29, 1894)

iv. Minor plastering and whitewashing repairs.

v. 200 roof tiles will be obtained, and all broken ones will be replaced.

Considering the interventions mentioned above, it can be concluded that the impact of the earthquake was not extensive, and simple maintenance and repair efforts were sufficient for the first floor. In this context, the deterioration in plastering and whitewashing was addressed accordingly. As result, the deterioration in handmade decoration, minor cracks in the ceiling, and damage to the roof tiles can be assumed to be the damages caused by the earthquake.

Repairs recommended for Tiled Kiosk Building

It appears that the situation at the Tiled Kiosk Building (Figure 62) was not as severe as that of the *Sanayi-i Nefise Mektebi.* However, the Fatih Reign Building also requires some reinforcement. intervention using iron profiles for some hall and iron circles for the capitals.

Figure 62. *Photograph of the Tiled Pavilion Source: Deutsche Archäologisches Institut / İstanbul, Photo Archives (Gürol Öngören, 2012)*

The interventions mentioned in the cost estimation[33] (Table 1) are as follows:

i. A scaffold was erected using vertical wooden planks, 25 centimeters wide and 6 centimeters thick, starting from the ground up, with horizontal beams and braces for support, for the exterior surfaces of the rooms housing the statue of Hadrian, the bronze room on both sides, and the rooms displaying the ancient artifacts from Cyprus.

ii. The exterior surfaces of these rooms were repaired by applying a layer of pure *Horasan* mortar. After the plaster repairs were completed, a coat of oil-based limewash was applied, followed by smoothing with a trowel, and finally a layer of colorful whitewash was applied to all surfaces.

iii. A pair of iron girders, 22 centimeters wide, will be placed in the room where the mentioned statue is located, as demonstrated on-site by Monsieur Vallaury.

iv. Inside the Tiled Kiosk Museum, minor plaster repairs were carried out, followed by the application of three coats of colorful whitewash to the surrounding walls using scaffolding.

v. On the Tiled Kiosk, 300 roof tiles and 50 ridge tiles were moved to the roof, and the broken ones were replaced by them. All the tiles were secured with pure mortar, and the joints were repaired with a quarter-degree **cement** mortar. The roof was then re-covered.

vi. Since the capitals of the columns in front of the museum were cracked, metal rings, each weighing nine *kıyye*, along with bolts and hinged clamps, were applied around the top and bottom of each capital

[33] Republic of Türkiye Presidential State Archive. “BOA, İ_ŞE_00006_00028_001_002/003/004” (17 Eylül 1310 /September 29, 1894)

Focusing on the 1894 earthquake and its impact on the IAM building and its surroundings**,** this study reveals some intriguing results. In the cost estimation the *Sanayi-i Nefise Mektebi* building appears to have suffered the most damage, followed by the Tiled Kiosk, with the least damage observed in the *Müze-i Hümayun* classical building. *Müze-i Hümayun* mostly required only minor repairs, such as plastering and whitewashing walls, repairing ceiling cracks, restoring decorative ceiling paintwork, and replacing broken roof tiles.

On the other hand, the recommended repairs for the *Sanayi-i Nefise Mektebi* included more extensive work, such as reinforcing door and window lintels with iron profiles, constructing a retaining wall (with one-quarter new stone), and installing a buttress at the front, with joints filled with cement mortar. This difference in damage levels explains why the *Müze-i Hümayun* building, constructed by the same architect using the same techniques and located in the same courtyard, was not as severely affected as the *Sanayi-i Nefise Mektebi*. It is revealed that Vallaury built the *Sanayi-i Nefise Mektebi* on a Byzantine cistern, and both structures are located on a terrace supported by buttresses. Similarly, the Tiled Kiosk is located as a continuation of this terrace. The movement in this retaining wall supported by this terrace may have threatened the superstructure, leading to significant damage to the *Sanayi-i Nefise Mektebi* in particular. When comparing the estimated cost of repairing the buttresses to the total repair estimate, it becomes clear that the buttress work accounted for nearly half the total cost.

Another notable aspect of the inspection is the consistent use of cement in all types of repairs, regardless of scale. Whether for newly constructed walls, the restoration of decorative painting, the installation of iron profiles, or the repair of tile joints and cracks, both large and small, cement was used as the binding material instead of *Horasan* mortar. This reflects a stronger reliance on the durability of cement.

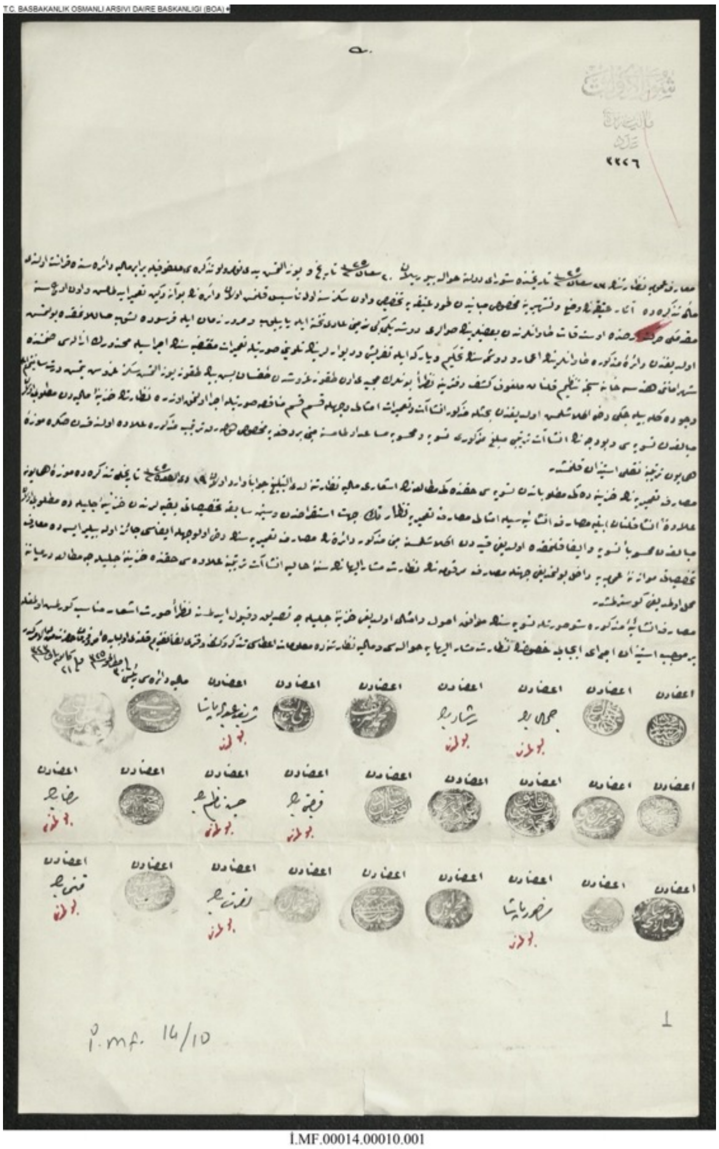
The second document[34] related to the repairment of the museum building after the earthquake dates back to 1908. The official letter from the "*Şura-yı Devlet Dahiliye Dairesi*" was written to secure funding for several renovations planned for the *Müze-i Hümayun*. The summary at the beginning of the correspondence contains intriguing information.

> *Meâl-i tezkirede âsâr-ı atîkanın vaz' ve teşhirine mahsus mebânîden luhud-ı atikaya tahsis ve* ***on sekiz sene evvel tesis kılınmış olan dairenin bu ana değin tamir edilmemiş ve on üç sene mukaddemki hareket-i arzda üst kat tavanlarından bazılarının sıvaları düştüğü gibi zemini adi tahta ile yapılıp ve mürur-ı zaman ile fersudeleşip sallanmakta bulunmuş olduğundan daire-i mezkure tavanlarının imar ve döşemesinin tahkim ve parke ile tefriş ve duvarlarının telvini suretiyle tamirat-ı mukteziyesinin icrasıyla mahzurun izalesi zımnında Şehremaneti Hendesehanesince tanzim kılınan melfuf keşf defterine*** *nazaran bunların Mecidî on dokuz kuruşdan doksan beş bin dokuz yüz altmış sekiz kuruş yetmiş dört santim ile vücuda gelebileceği dahi anlaşılmış olduğundan..*
>
> *(The original text was transcribed into the Latin alphabet by Fuat Recep)*

The correspondence (Figure 63) states that the building, constructed eighteen years ago and never repaired, experienced some damage during the earthquake that occurred thirteen years earlier. Specifically, some of the plaster on the ceilings of the upper floors had fallen, and the wooden flooring, having been made from low-quality materials, had worn out over time and begun to shake. As a result, the letter emphasizes the need to reinforce and repair the ceilings and floors, cover the floors with parquet, and paint the walls. The total cost of these renovations is estimated at *95,968 kuruş and 74 santim, based on a mecidi rate of 19 kuruş.* The letter goes on to discuss the source of the funds necessary for these repairs. In light of this document, it appears that the IAM building did not suffer significant damage in the

[34] Document 3.50. Republic of Türkiye presidential State Archive. "BOA, İ_MF_00014_00010_001_001" (30 Zilhicce 1325/ February 3, 1908)

1894 earthquake, as the repairs were postponed for about thirteen years. In contrast, it is known that the *Sanayi-i Nefise Mektebi* building, also designed by Alexandre Vallaury and his first structure in Istanbul, suffered significant damage in the 1894 earthquake (Özkılıç, 2015).



İ.MF.00014.00010.001

Figure 63. Republic of Türkiye presidential State Archive Correspondence related to repair works of IAM Building (Document 3.50. Republic of Türkiye presidential State Archive. “BOA, İ_MF_00014_00010_001_001” (30 Zilhicce 1325/ February 3, 1908)

This section explores the impact of the 1894 earthquake on the IAM building, with a particular focus on the proposed repairs for both the structure itself and nearby buildings. According to the referenced documents, while the IAM building did not sustain significant damage, the *Sanayi-i Nefise Mektebi* building, located in close proximity, suffered damage due to unstable ground conditions. This event influenced the architect's subsequent decisions, especially regarding the need to reinforce the foundation (For further details, see Chapter 4). Similar to other macro- and micro-scale developments that shaped the 19th century, the 1894 earthquake emerged as a significant factor in the construction and development of the IAM building.

In the subsequent chapter, the analysis will delve deeper into the IAM building, offering a comprehensive examination of the institution itself, its physical context, and the phases of its construction.

CHAPTER 3

THE CONSTRUCTION AND CONSERVATION HISTORY OF ISTANBUL ARCHAEOLOGICAL MUSEUM WITHIN THE CONTEXT OF ISTANBUL

Up to this point, the broader 19th century context that laid the foundation for the creation of the Istanbul Archaeology Museum has been examined. The industrialization, political, economic, and social developments, architectural discourse along with the impact of disasters, wars, and pandemics formed an interconnected web that influenced not only individuals but also every cultural product they created, including the museum itself.

In this chapter, the history of the site, with its Roman and Byzantine roots, are explored, along with the emergence of the idea for the first museum of the Ottoman Empire and the steps taken toward its realization, highlighting the key figures involved in the process. Additionally, a comprehensive account of the conservation efforts from the initial construction to the present day will be provided. In this section, the important stages that important interventions occurred are summarized and examined in relation to the technologies used during the periods of intervention. Finally, the chapter delves into the construction of the building in the 19th century, using sources from the Republic of Türkiye Presidential State Archives.

3.1 The history of the Archaeological Museum's Site within the Context of Istanbul

The Istanbul Archaeological Museums (IAM) are located in the outer garden, adjacent to the first courtyard of *Topkapı* Palace, sharing the same terrace with the

Tiled Kiosk and the Museum of the Ancient Orient (formerly the School of Fine Arts, *Sanayi-i Nefise Mektebi*) (Figure 64).

Figure 64. The complex of Istanbul Archeological Museums Buildings (source: *Alman Mavileri* (Deutsch Syndikat für Staebaliche Arbeiten))

Considering its long, complex, and dynamic history, Istanbul has witnessed significant physical, social, and cultural transformations under the rule of three different empires. The city first emerged as the ancient Greek city of *Byzantion*, before evolving into a Roman, Byzantine, and eventually an Ottoman city.

Istanbul's importance during the Paleolithic era is attributed to its strategic location on the compulsory transit route used by the first human communities as they spread across the world (Özdoğan, 2010). Preliminary archaeological findings suggest that the first settlements on the Istanbul peninsula date back to the late third or early second millennium[35] (Müller-Wiener, 2016, p. 16).

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[35] More recent discoveries, however, indicate that the settlement history of the peninsula extends further back than previously thought. The *Yenikapı* rescue excavations uncovered traces of the

The city's development began in the second half of the 7th century BC with the establishment of Byzantion at the eastern end of the peninsula (Müller-Wiener, 2016, p. 16). The Megarian colonists initially settled on the peninsula's highest point, known as the Acropolis (Figure 65-left). Some scholars believe that topographic evidence indicates this area corresponds to the interior of present-day Topkapı Palace (Kuban, 2010, p. 16). During the Byzantion period, the area between the Acropolis and the sea featured terraces and flat lands, housing temples, a gymnasium, a stadium, and other significant structures (Figure 65-right) (Z. Çelik, 1993; Kuban, 2010, p. 16).

Byzantion became part of the Roman Empire in 146 BC as a "Civitas Foederata." Under the reign of Septimius Severus, the city began adopting a Roman layout. After the city's fortifications and key buildings were destroyed, reconstruction efforts commenced in 197 AD under Septimius Severus (Müller-Wiener, 2016, p. 18).

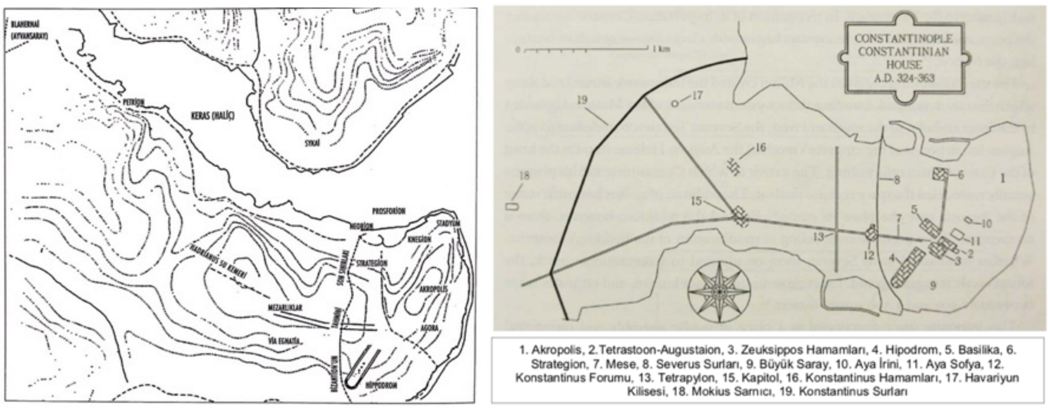

Figure 65. (left) The ancient city of Byzantion (Kuban, 2010), *(right)* The development of the city in Constantine period (Bassett, 2004)

Neolithic period beneath the Theodosius Harbor, a structure from the Byzantine period. This finding provides evidence that the history of the historic peninsula predates earlier assumptions (Kızıltan, 2008, pp. 2-7, as cited in Semiz, 2014).

The Byzantine Empire, as defined by most historians, began with the founding of Constantinople by Constantine the Great (r. 324-337) in 324 and ended with the city’s conquest by the Ottomans in 1453(Mango, 1980). Emperor Constantine I reorganized the empire, established Constantinople as its capital, and legalized Christianity. During the reign of Theodosius I (r. 379-395), Christianity was adopted as the state religion, while other religions, including Paganism, were prohibited. Although Pagan culture initially clashed with Christianity, the two eventually became intertwined, giving rise to a Christian-Greek-Eastern culture known as Byzantium (Vasiliev, 1964, p. 58). Constantinople, the new capital of the Roman Empire, became the center of this emerging culture. Under Constantine's rule, the city saw extensive construction projects, following the foundational layout of the Severan city plan.

During the reign of Justinian I (r. 527-565), the Empire reached its greatest territorial extent. While the city had previously been concentrated around the Acropolis, ambitious construction projects pushed its boundaries further west. The city walls were gradually expanded during the reigns of powerful emperors (Figure 66). By the early 15th century, shortly before the conquest of Constantinople, the city's population had decreased to 50,000 (Z. Çelik, 1993, p. 22). Much of the city's building stock had been abandoned, and it had fallen into a state of neglect. The palace at the Hippodrome was deserted, and the imperial residence was moved to a new palace, Tekfur Saray (the Palace of Blachernae), in the mid-13th century. This palace became the main imperial residence until the city's fall (Z. Çelik, 1993, p. 18).

Figure 66. Computer reconstruction of the Byzantine monuments in İstanbul of year 1200 AD (source: https://www.byzantium1200.com)

After the conquest/fall of Constantinople in 1453, Fatih Sultan Mehmed aimed to use the existing building stock for the new center while declaring the city as the capital (Ar, 2013, p. 31). Thereby, the capital city was rebuilt through the interpretation and appropriation of another. While some religious complexes were demolished for new constructions (e.g., Holy Apostles was replaced by *Fatih* Mosque), others were preserved as buildings with new functions (e.g., Hagia Sofia was turned into a mosque). Kafesçioğlu (2009) says that this selective appropriation of the imperial legacy of Byzantine Constantinople was central to the making of Ottoman Istanbul. The sultan built a Palace, *Saray-ı Atika*, where a monastery had stood on the site of the Forum Tauri, which was built in the reign of the 4th century emperor I. Theodosius (Necipoğlu, 2014). Right after the construction of this palace had finished, Sultan decided to build a new one called *Saray-ı Cedide* (*Topkapı* Palace), in the Acropolis Hill of the ancient city of *Byzantion*. Almost entire structure of the palace was completed between the years 1459-1465 and used until 1856 (Z. Çelik, 1993, p. 26). This location had been the Sultan's residence and the center of the Ottoman Imperial administration for almost 400 years. Necipoğlu (2014) claims that building a new palace in the ancient acropolis region shortly after the old one had finished has a clear symbolic meaning related to this vital location that represents the imperial power. The palace was adjacent to the ruins of the old Great Palace of Constantinople (*Magnum Palatium*) and located on the edge of the peninsula and formed the new silhouette of the city.

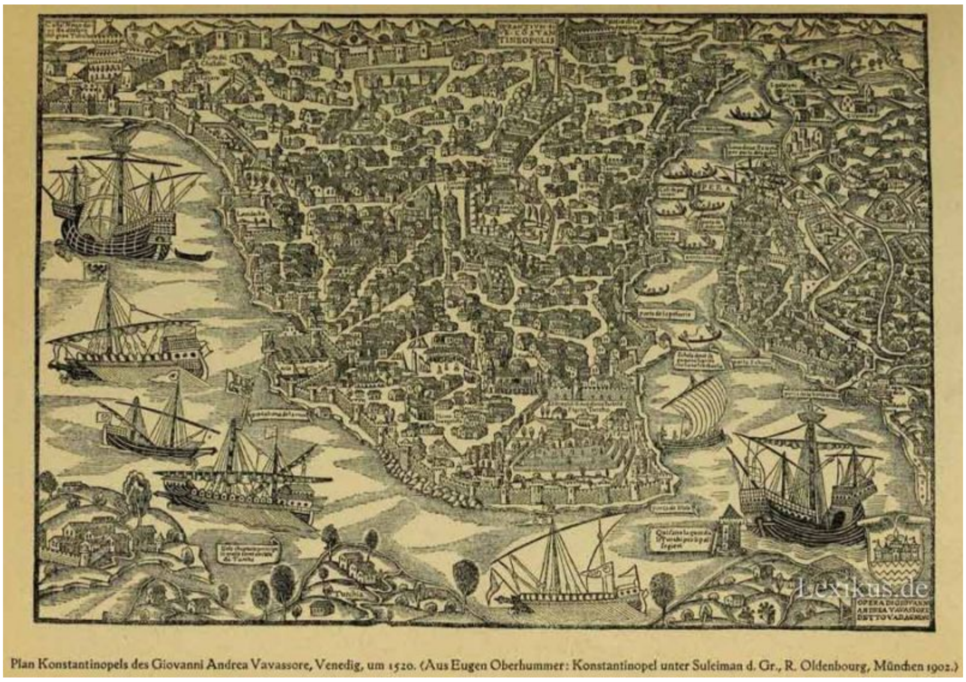

Figure 67. Constantinople, mid 16th century by Giovanni Andrea Vavassori source (Digital Archive of Koç University Library)

According to engravings of the Ottoman period, Topkapi Palace rises above the terraces, counteracting the steep slope that led from the hilltop to the sea (Figure 62). These terraces were constructed and repaired on the original retaining walls of the ancient Acropolis by Fatih Sultan Mehmet (Necipoğlu, 2014, p. 4). The IAM building was located on one of these terraces on the northern side of *Topkapı* Palace (Üstoğlu Coşkun & Şahin Güçhan, 2023).

In the reign of Fatih, the Tiled Kiosk (1472), which is the oldest example of civil architecture in *Topkapı* Palace, was the only building on the museum site (Figure 68, Figure 69). Existing sources indicate that the sultans used the pavilion to watch various sports competitions (wrestling, lion taming) held in the Sand Square in front of the mansion (Necipoğlu, 2014, p. 259). This means the site of the museums was actively used by the Ottomans as an open area that was with the Tiled Kiosk (Üstoğlu Coşkun & Şahin Güçhan, 2023).

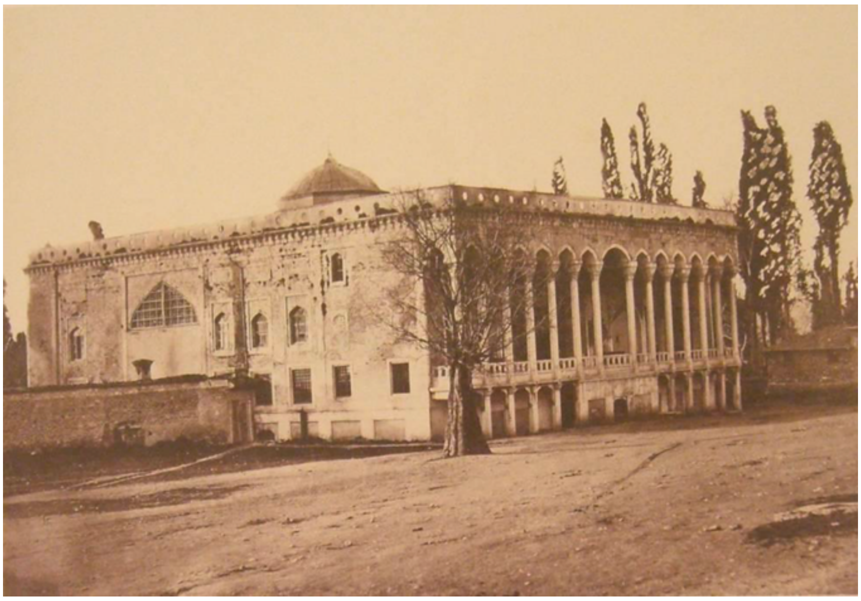

Figure 68. The photograph showing the condition of the Tiled Kiosk in 1863. (source: (Öztuncay, 2003 as cited in Restitution Report of Tiled Kiosk prepared by YD Mimarlık found in IDSM Archive)

Figure 69. After the Tiled Kiosk began to be used as a museum, the new museum building had not yet been constructed (The photograph of Abdullah Freres)

The Istanbul Map published by Ayverdi show the area between 1875 and 1882. This map is the most detailed map of the area created so far (Figure 70) (Ayverdi, 1958). The maps' date corresponds to the years before or during which the museum was moved to the Tiled Kiosk, even before the building of the *Sanay-i Nefise Mektebi* was constructed. On the map, the Byzantine retaining walls and buttresses on which the school was built are clearly visible. "Ağa Deputy Garden" is written for the north of the Tiled Kiosk. A photograph from the same period the map was drawn (Figure 71) indicates that there was no other building around the Tiled Kiosk back at the time. At the end of the 19th century, the first phase of IAM building was constructed. Upon the construction of two extensions, IAM building turned into an area encompassing the Tiled Kiosk (Üstoğlu Coşkun & Şahin Güçhan, 2023).

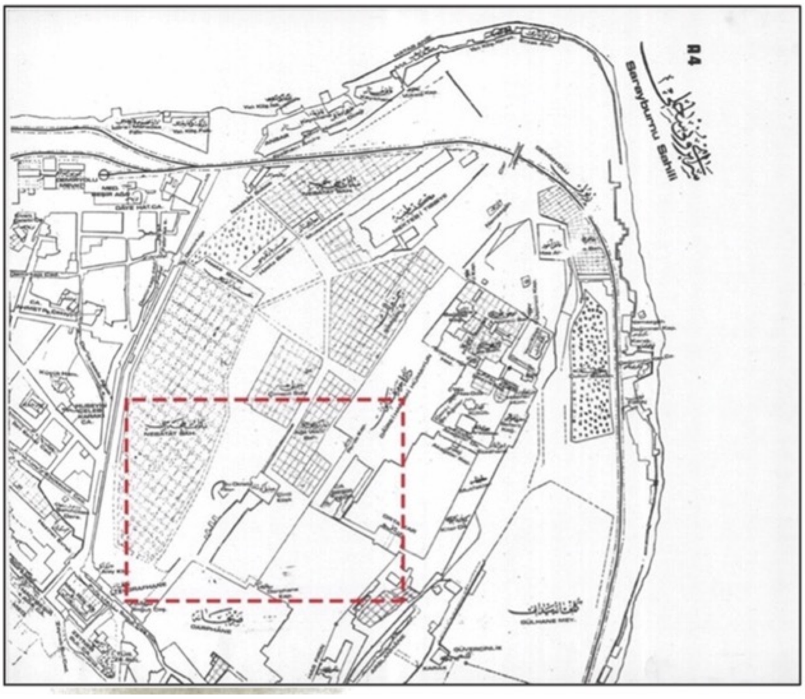

Figure 70. Istanbul map dated to the nineteenth century, before the construction of the Istanbul Archeological Museum Building (Ayverdi, 1958)

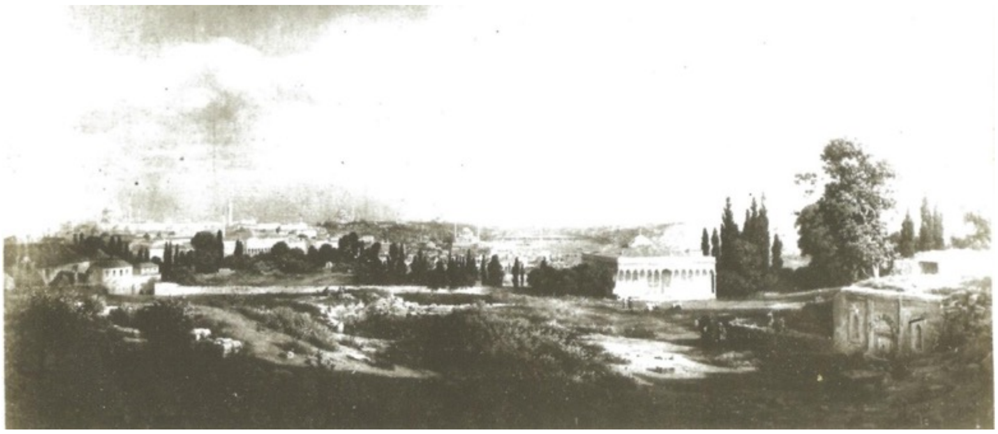

Figure 71.The terrace of Tiled Kiosk before the constructions of Museum Buildings (Source: *Türkiye Turing ve Otomobil Kurumu Belleteni*)

The Remains found in Topkapı Palace and on the Site of IAM

Topkapı Palace consists of modest units lined up around hierarchical courtyards, from public to private, instead of monumental buildings (Figure 72).

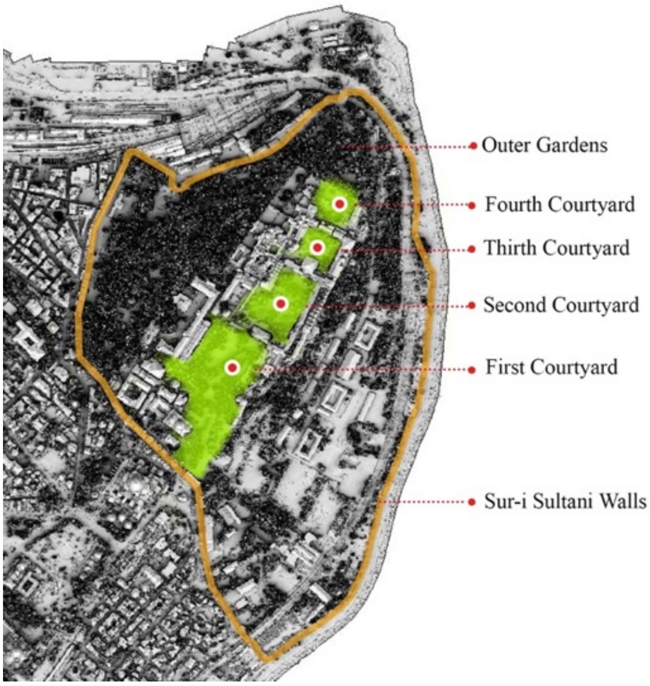

Figure 72. The courtyards of Topkapı Place (genereted by the author)

There are four courtyards, which can be accessed consecutively through three gates along the Acropolis hill. The existing archaeological findings in the vicinity of *Topkapı* Palace are another important source of information on the history of that area. Unfortunately, there are very few archaeological excavations in the *Topkapı* Palace area that have been scientifically done for a purpose (Tezcan, 1989). Still, the partial excavations done by museum directors, and the new constructions or repair works had led to the discovery of some important artifacts (Figure 73). Although the superstructures on them are controversial, the remains give us important information about the structural patterns by looking at their numbers, location, and density (Üstoğlu Coşkun & Şahin Güçhan, 2024).

Figure 73. The photos of the foundation excavation during the construction of the Additional Building (source: The Personal Achive of Nezih Fıratlı, IAM-Archive) (Üstoğlu Coşkun & Şahin Güçhan, 2024)

A chronological analysis illustrates (Figure 69) that the remains on the north-eastern side of the palace, on the shores of the Marmara Sea, were built in the ninth century and later, while other remains and cisterns are mostly located on the acropolis hill and on the west terrace of the palace. These ruins mostly belong to the fifth and sixth centuries (Altuğ, 2013; Fıratlı, 1969; Kızıltan & Saner, 2011; Tezcan, 1989) (Üstoğlu Coşkun & Şahin Güçhan, 2024)

The courtyard of IAM, which is a terrace supported by Byzantine galleries and cisterns underneath, includes the study area of this thesis. The western border of the study area is shaped naturally with the height difference between *Gülhane* Park and the Museum courtyard. There are massive retaining walls and galleries along this border. The study area associated with the group of remains on the rear facade of the Museum Building extends to the first courtyard. The remains found on and around this terrace are dated to the fifth and sixth centuries, and they create a settlement complex (Figure 74).

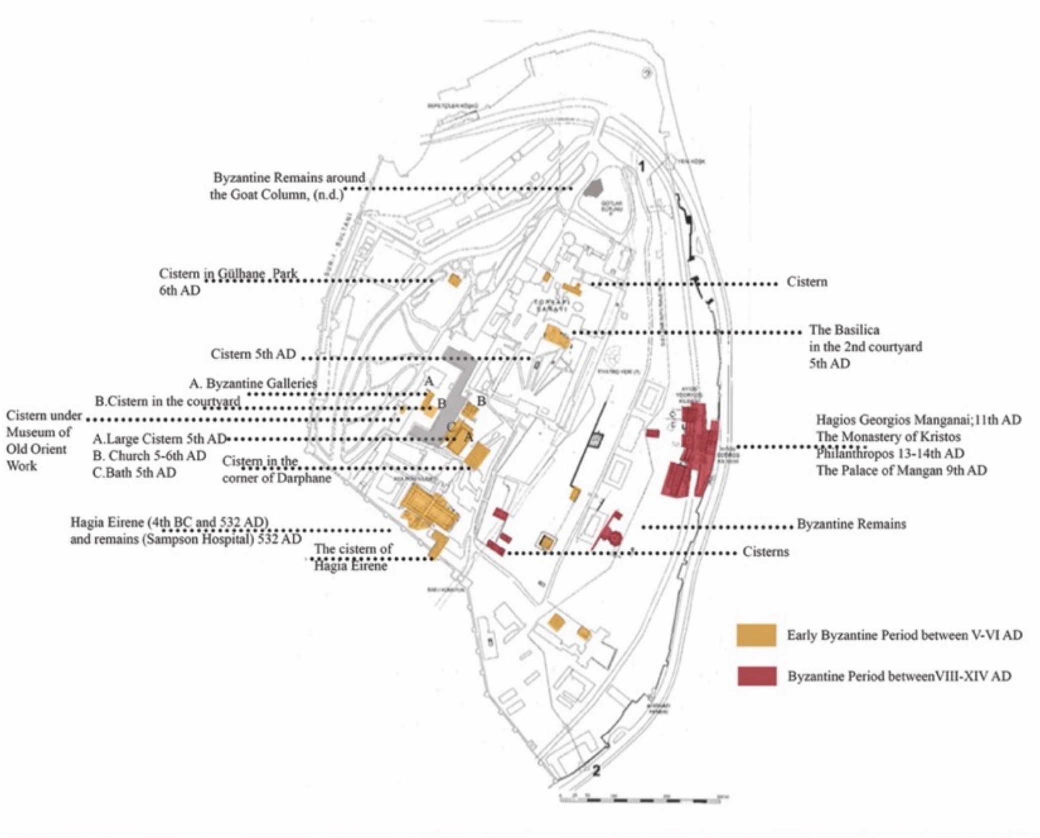

Figure 74. The map showing the remains found in *Topkapı* Palace (source: reproduced by the author based on the maps of Tezcan (1989) and Altuğ (2013) (Üstoğlu Coşkun & Şahin Güçhan, 2024)

The discovered archaeological remains associated with the study area are examined in three groups; The first one is the Byzantine Galleries Between Tiled Kiosk and *Sanayi-i Nefise Mektebi* which are six side-by-side barrel-vaulted galleries from the Byzantine period approximately nine meters below the IAM building. Today, it is used as the storage of the museum building (Figure 75, red color).

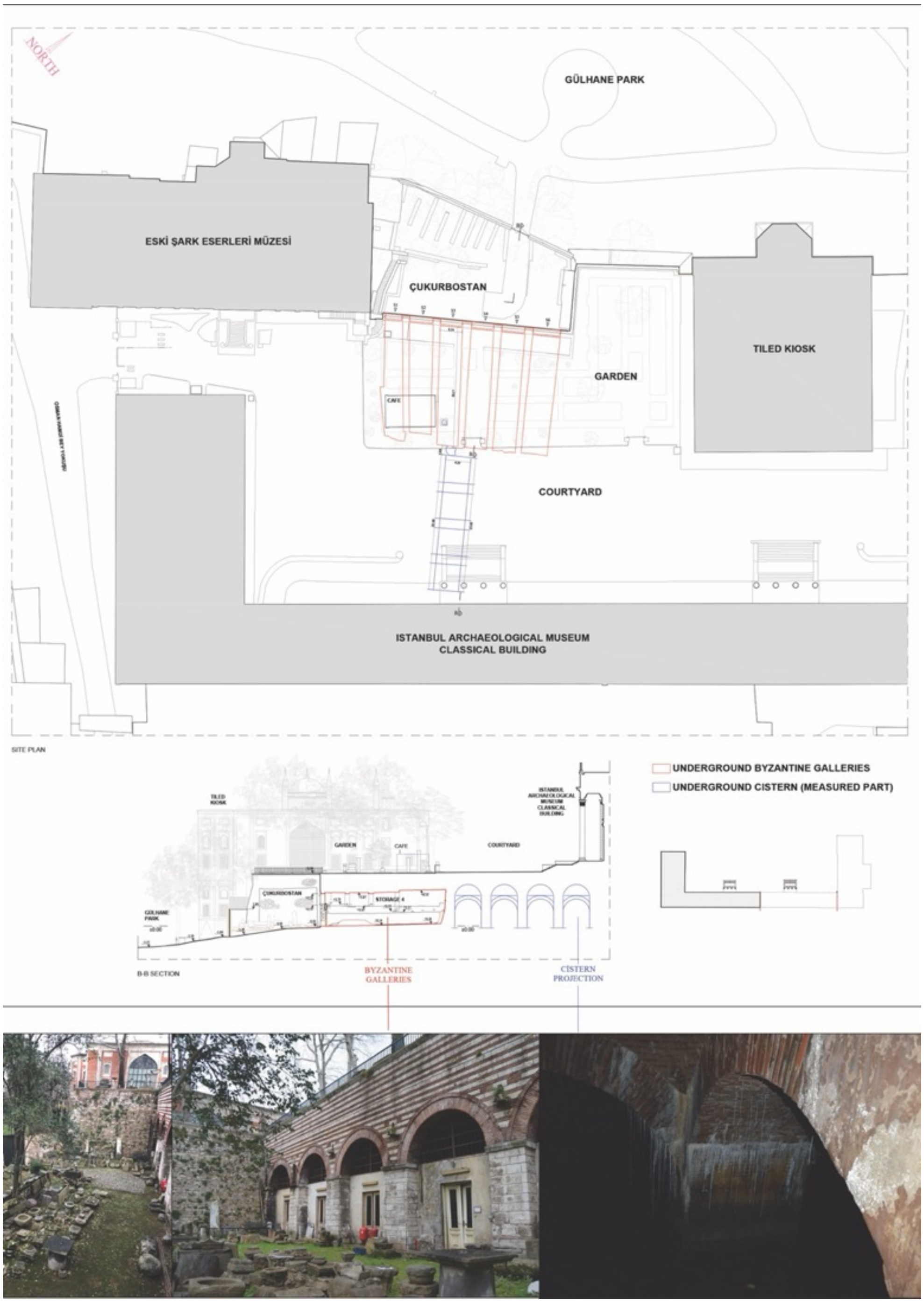

Figure 75. Top: Site plan and site section of the Additional Building of the IAM showing the Byzantine Galleries (left) and the underground cistern (source: *Seçkin Mimari Hizmetleri* 2023, IDSM-Archive) Bottom: The Photographs of the Byzantine Galleries and the Underground Cistern (right) (taken by the author) (Üstoğlu Coşkun & Şahin Güçhan, 2024)

The second one is the cistern in the courtyard of the IAM, which has a cistern with sixteen domes and nine pillars, very similar to the large cistern found during the additional building construction of the Archaeological Museum located at the same height as the galleries (Figure 66, blue color). It appears it had been used and repaired (Tezcan, 1989).

The third one is the remains found during the foundation excavations of the Additional building of IAM (Figure 76, Figure 77). A significant cluster of remains was found in the back side of the IAM courtyard during the additional building' foundation excavation in 1968. These remains belong to a church, a bath, a large cistern, and the ruins of the sewer and road from Byzantine period (Fıratlı, 1969; Kızıltan & Saner, 2011). According to the decision taken by Conservation Council (no: 7414, date:15.09.1973), some remains were removed due to an earthquake beam required for the construction of the last block of additional building, while other were maintained in situ.

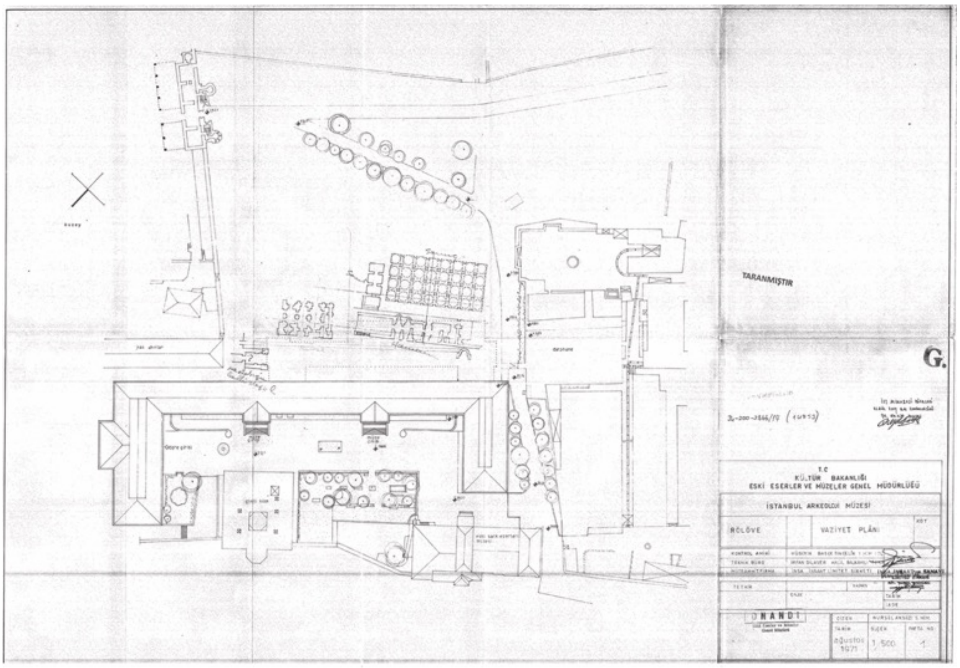

Figure 76. Site plan of Additional Building of IAM dated to 1971 (source: ICCCH-Archive)

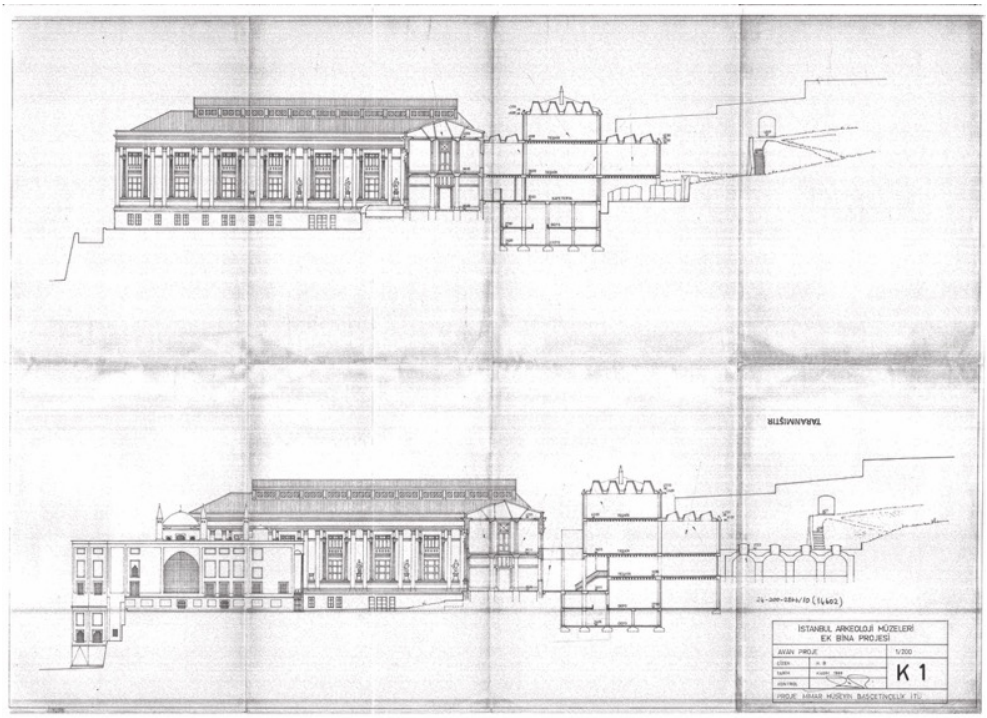

Figure 77. The sections of the proposed project for Additional Building of IAM dated to 1971 (source: ICCCH-Archive)

3.2 Flourishing of the Idea of Istanbul Archaeological Museum and The Actors Behind It

This section focuses on the local level developments and discuss those who laid the institutional foundations of the museum, initiated the construction of a new building to ensure the museum's continued operation, made efforts to achieve this, convinced the relevant authorities, allocated resources, and secured materials and labor in other words, those who played a direct role in the creation of the building. Understanding these aspects will ultimately help us better comprehend the physical embodiment of what we know today as the IAM building.

Following its conversion into the Imperial Armory during the conquest, the former Church of Hagia Irene preserved its symbolic significance, not only through its ecclesiastical architecture but also through the military and reliquary collections it contained. From the early days of Ottoman rule in Constantinople, the Imperial Armory stored valuable items seized during the city's conquest and subsequently became a central repository for war spoils. It also held significant Christian relics inherited from the Byzantine Empire (Shaw, 2003, p. 31). Shaw (2003) states that these relics not only retained their religious importance for Christian believers but also served as a symbol of hierarchical religious authority under the new dynasty.

Hagia Eirene began housing a growing collection of military equipment and weaponry (Figure 78). Renamed *Cebehane*, the building served as an arsenal, safeguarding bows, arrows, armor, and various other weapons up until the 18^{th} century (Necipoğlu, 2014, p. 74). During the reign of Sultan Abdülmecid (1839-1861), Fethi Ahmed Pasha, who was the Marshal of *Tophane-i Amire*, had collected some ancient antiquities in the courtyard of the former Hagia Irene Church.

The first historical document showing Ahmed Fethi Pasha's attempt to collect the antiquities was dated on February 15, 1846 (Eldem, 2010). This document was about the cost of creating a museum behind the Church of Hagia Eirene. Eldem (2010) claims that this place was so far from being a real museum because the forgotten objects that have not been recorded or classified in the dark caverns of Hagia Irene could not be called as a collection.

Figure 78. Old Photo of Hagia Eirene Church, former Military's Storage (*Harbiye Ambarı*) (The photograph of Abdullah Freres)

However, the official date of establishment of the Imperial Museum is accepted on July 8, 1869, when Grand Vizier Ali Pasha named the collection as *Müze-i Hümayun (Imperial Museum)*, and at the same year, the English teacher E. Goold from Galatasaray was appointed as the museum director. According to Shaw (2003), as an "imperial" museum, the institution symbolized the entire empire, with its diverse territories represented through antiquities while the term "museum" carried an educational purpose. It served as a space where the public—primarily the Ottoman elite and foreign tourists—could gain an understanding of state power by appreciating antiquities displayed in a meticulously curated environment (Shaw, 2003, p. 83).

In 1869, the Ottoman government introduced its first regulation on antiquities, predating the more significant laws of 1874 and 1884. This early bylaw, though less impactful, was crucial in shaping the Ottomans' response to Western claims over archaeological artifacts and marked their first explicit acknowledgment of concerns about preserving antiquities within their territories (Eldem, 2011, p. 281).

The year 1875 was another milestone in the history of the imperial museum. The Museum was transported from Hagia Irene to the Tiled Kiosk (Figure 79, Figure 80) to place the hundreds of historical artefacts brought from Cyprus in 1875 (Eyice, 1985). At the end of that year, Dethier (the director between 1872-1881) transported the museum from Hagia Irene to the Tiled Kiosk which is a building belonging to the period of Fatih Sultan Mehmet.

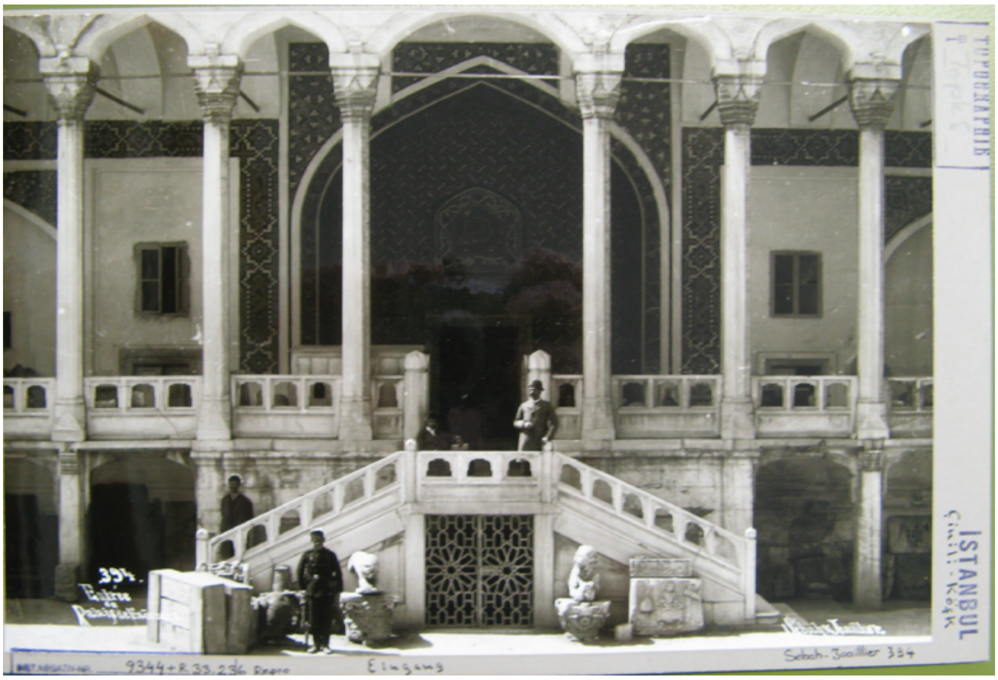

Figure 79. Photograph of the Tiled Pavilion (source: Deutsche Archäologisches Institut / İstanbul, Photo Archives (Gürol Öngören, 2012)

Figure 80. Old Photos Tiled Kiosk first building of *Müze-i Hümayun* (The photograph of Abdullah Freres)

Upon the death of Dethier in 1881, Osman Hamdi Bey was appointed as the museum director in September 11,1881. With this appointment, a new era was opened in the history of the museum. During his directorship, the museum took a new identity, moved towards an institutional structure, and reached an international appearance by the assets coming from different excavations he personally involved. After one year, on January 2, 1882, Osman Hamdi was appointed as the director of Imperial Fine Art School (Cezar, 1971, p. 165).

The School of Fine Arts (*Sanayi-i Nefise Mektebi*) designed by Alexandre Vallaury was opened on March 3, 1883 (Cezar, 1971, p. 452). Believing in the advantage of having the school close to the Imperial Museum, Osman Hamdi obtained permission for the school to be built on the vacant land to the west of the museum, and construction began. Osman Hamdi, who would be the director for these two institutions at the same time, prefer a location close to the Museum, and accepted by the other responsible persons. The establishment of the new school was aimed at conserving the existing artifacts and educating the person who is the expert on these artifacts. Osman Hamdi received approval to establish both a fine arts school and a museum within the courtyard of the Tiled Kiosk, with the goal of creating an interactive hub for art and art education. The project's architect, Alexandre Vallaury, was a graduate of the prestigious École des Beaux-Arts in Paris, where he studied architecture from 1868 to 1876 (Say, 2014).

The 1887 excavations in Sidon, an ancient city in modern-day Lebanon, marked a pivotal moment in Osman Hamdi's career and the history of the *Müze-i Hümayun.* Twenty-one sarcophagi of varying types, sizes, craftsmanship, and significance were transported to the garden in front of the Tiled Kiosk, as they could not be accommodated within the existing museum[36]. This underscored the urgent need for a new building, which was subsequently constructed between 1887 and 1891 (Cezar, 1971, p. 202).

The concept of extending the building to both the right and left sides was considered even during the construction of the first museum (Ogan, 1947). Shortly thereafter, two extensions were added to the museum as the initial structure quickly proved insufficient. The first extension, known as the second phase of the Istanbul Archaeological Museum (IAM) or the First Annex, was constructed to the north between 1899 and 1903. The second extension, referred to as the third phase of IAM or the Second Annex, was built to the south between 1904 and 1907 (Cezar, 1971, p. 203) (Figure 81).

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[36] Republic of Türkiye Presidential State Archive. "BOA, MF.MKT.00094.00112.001.001" (5 Zilkade [1]304 -July, 26 1887)

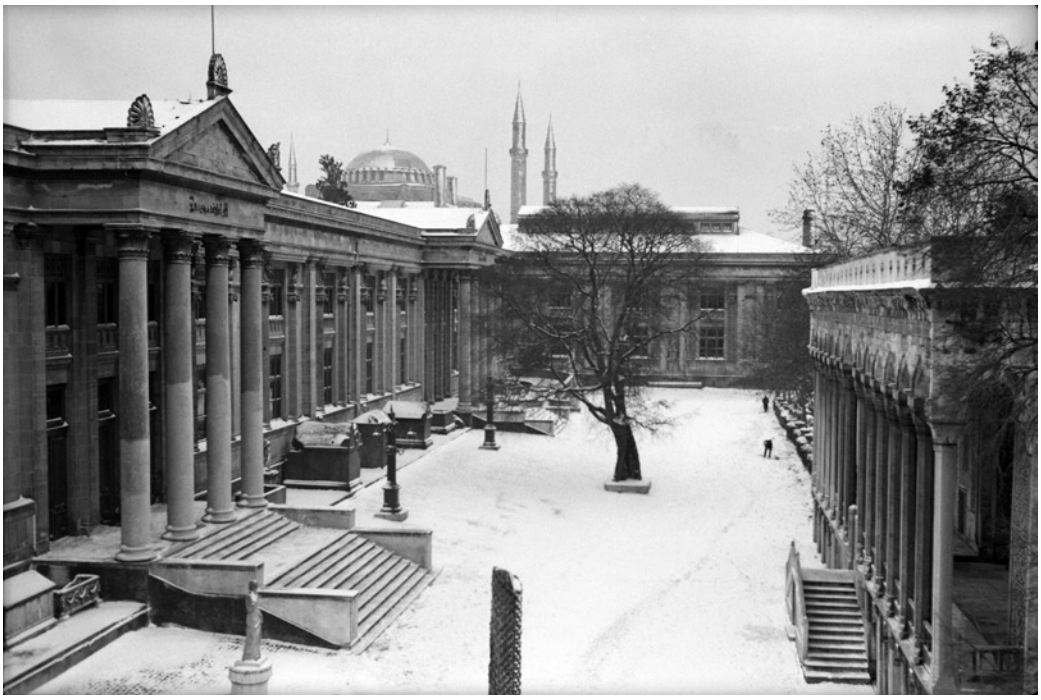

Figure 81. The Garden of IAM building complex (source: IAM-Photography Archive)

Despite the challenging circumstances of the period, construction progressed steadily due to Osman Hamdi’s efforts and the support of Sultan Abdulhamid II. These three sections were designed as a unified whole and are collectively referred to today as the Classical Building. The museum's expansion continued over the years, culminating in the addition of a structure to its rear façade between 1969 and 1984. This expansion also uncovered underground heritage hidden beneath the grounds of the Istanbul Archaeological Museum (Üstoğlu Coşkun & Şahin Güçhan, 2024)

Osman Hamdi (1842-1910) is undoubtedly the most significant and well-known character due to his pioneering role in the field of art and archaeology in the Ottoman Empire. He made invaluable services for 1) developing *Müze-i Hümayun*, the first Royal Museum of Antique Works in İstanbul, by collecting many archaeological pieces around the empire, 2) attending in various excavations personally and 3) establishing the legal basis of heritage conservation by rearranging

The Law of Antiquities in 1884 and 1906. By this rearrangement, the law prohibited exporting Ottoman heritages. He not only enlarged the collection of the museum by collecting antiquities but also created many invaluable paintings, which came into prominence from his contemporaries and were exhibited today in museums. There are many studies examine the curious and versatile characteristics of Osman Hamdi as an Ottoman intellectual. It can be said that he was a successful administrator, archeologist, museology expert and artist. Among these versatile personal characteristics, this thesis focuses on the administrator side of Osman Hamdi. It is aimed to make a proper reading on his activities and contributions to IAM.

Osman Hamdi (Figure 74) was born in 30 December 1842 in İstanbul. He was the son of five children of İbrahim Edhem Pasha (1818-1893) (Koç, 1993) who served as the head of embassy, minister and grand vizier to Ottoman Empire in nineteenth century (*Dünden Bugüne İstanbul Ansiklopedisi*, 1993).

Figure 82. Osman Hamdi on the cover page of *Servet-i Fünun* (year: 1897, no: 348)

Osman Hamdi (Figure 82) was one of the rare Ottomans who learned the western language in the 19th century in one of the western countries, just like his father. İbrahim Edhem Paşa, who was adopted by Hüsrev Paşa (1756- 1855) sent to Paris in 1830 with permission from Mahmud (Koç, 1993). During the reign of II. Mahmud (1808-39), selected students were sent to Europe in order to transfer western developments and innovations to their own country. Osman Hamdi's father had studied in Europe in a time when foreign language speaking ottomans were so rare. He also sent his son to Europe for education. As a result, they had turned to home country with their westernized life view. İbrahim Edhem Bey was married to Fatma Hanım in 1841. From this marriage in 1842, the first son of the couple Osman Hamdi was born. They had 5 sons named; Osman Hamdi (1842), İsmail Galib (1847), Mustafa Mazlum (1851), Abdullah (1858) and Halil Nesib (Edhem) (1861) (Koç, 1993).

Osman Hamdi, the elder son, went to *Mekteb-i Maarif-i Adliye* in 1856 (Onad, 1937) When his father Edhem Pasha went to Belgrade as an Ottoman officer in 1858, he took his son with him (Ogan, 1937). He sent him to Vienna, where he was able to see the museums and fine works of art. Osman Hamdi was interested in these art works during his journey (Ogan, 1937). In 1860, İbrahim Edhem Bey sent his son to law school in Paris (Koç, 1993). Osman Hamdi had attended the painting classes in École des Beaux Arts in Paris, "Imperial Fine Art School " while continuing his law education. He took painting courses from Jean-Leon Gcrome and Gustave Boulanger. In the same years, he attended the 2nd World International Exhibition. During her studies in Paris, he married Marie, a French girl. He had two daughters from this marriage.

In 1869, he returned to Istanbul and served in various government services. In 1869, when Midhat Pasha was the governor of Baghdad he took Osman Hamdi with him (Ogan, 1937). He went to Baghdad and started to work in the *Umur-ı Ecnebiye Müdürlüğü*. During his service there, he continued painting and observed the locals. Osman Hamdi returned to Istanbul in 1871. After a while, he was appointed to the Foreign Affairs Directorate (*Hariciye Müdürlüğü*) due to his competence in French (Ogan, 1937). In 1873, he attended Vienna Exhibition as the first commissioner of Ottoman's State. There, he met with another French girl, Marie, whom she later changed her name to *Naile*, leaving her first wife and marrying her (Ogan, 1937).

Until 1881, he had undertaken many different state duties. However, the real turning point of his life took place on September 4 in 1881 when he was appointed as the director of the Imperial Museum after the death of previous director. P. Anton Dethier. He rearranged and developed the museum, which was placed in Tiled Kiosk at the time. In 1882 he was appointed as the director of the Fine Art School (*Sanayi-i Nefise Mektebi*). He had got a building approval for the school. Following this, education started in the new building on 2 March 1883. He gave importance to a modern structuring in the field of fine arts education, which was very novel at the time (Mansel, 2013).

Osman Hamdi is also known as the first Turkish archaeologist. During his Museum directorship, many excavations had started in the land of Ottoman Empire (Pasinli, 1993). The excavations carried out at Sidon (an ancient city located on today’s Lebanon) in 1887 were of great importance for Osman Hamdi’s career and the fate of the *Müze-i Hümayun* (Figure 83).

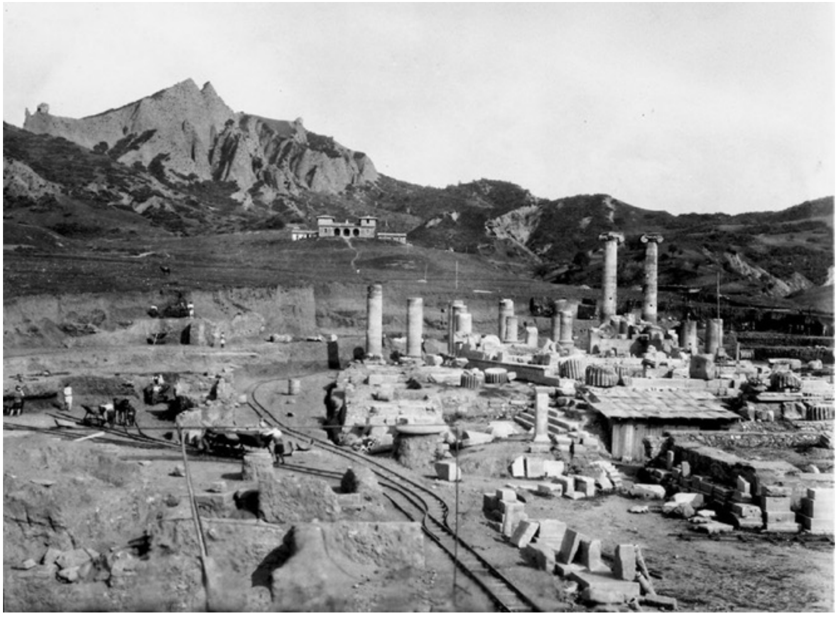

Figure 83. Sardis (in Sidon) general view with the field house (Z. Çelik, 2016)

The other important actor behind the sprout of *Müze-i Hümayun* is Alexandre Vallaury (1850-1921), who was born in 1850 as son of a well-known Levantine family in Pera. His father, *Francesco Vallauri*, was a pastry chef, respected by the palace as well. Contrary to popular opinion that they were French, Vallauries were actually Italian and this fact is supported by the document of archives published in recent studies. The name "Vallauri" could be seen as "Vallaury" as French script. This creates another confusion about the origin of the family. In fact, Francesco Vallauri migrated to İzmir from Pinerolo, Torino on 11 March 1800, as he declared while he was registered to Sardinya Consule in 1842 (Sardinya Konsolosluğu, İzmir, 1842, as cited in (Say, 2014) There is another document making this argument stronger. Kula Say (2014) says that the oldest document, the register books of "Società Operaia", shows the years between 1887-1888. The architect was registered by the number 123 as 'Alessandro Vallaury" and Torino was written as the home country (Società Operaia üye kayıtları, t.y. as cited in Say, 2014)

Francesco Vallaury, met Hélèna Moro Papadopulo and married with her. They had 6 children named as Pietro, Victoria, Alexandre, Edouard, Élise ve Henry. Alexandre Vallauri had married to Maria Constantia Scuro on 25 November1883 in İstanbul. They had a son named Antoine. The couple divorced on 31 May1901 according to the church registers. Alexandre Vallaury had his second marriage with a French woman Marie Mathilde Chavin Scuro on 26 October 1901 in İstanbul (Marandet, 2012 as cited in Say, 2014).

On the other hand, a letter written by Istanbul French Consulate to Gilberto Vallaury (brother of Francesco Vallaury), indicates that the transition process of nationality to French had started on 10 April 1897 (Consulat General de France, 1987 as cited in Say, 2014). After that nationality change, the architect had started to use 'Alexandre Vallaury'[37] instead of "Alexandre Vallauri" Vallaury probably consciously developed a strict relation with French language and culture since his childhood. In fact, in the top of his career he was Ottoman subject he changed his nationality with spending great effort. In his retirement he prefer to stay in France at the end (Say, 2014).

Vallaury studied architecture at the most famous and important architecture school of the era the École des Beaux Arts in Paris between the years 1868 -1876. After he turned to Istanbul he started to participate in some exhibition with his various architectural drawings of monuments. Alexandre Vallaury exhibited his works at the first exhibition of the *Elifba* Art Club, which was thought to have been founded between 1879-1880, in September 1880. Considering that the works of

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[37] The name of the architect is used as "Vallauri" in Italian in some records and as "Vallaury" in French in some others. Like his name, origin and nationality of Alexandre Vallaury has also been a controversial issue. Kula Say (2014, 19) states that the architect was actually Italian and he passed from the Ottoman subject to the French subject. After that date, he has started to use his name as 'Alexander Vallauri' as 'Alexandre Vallaury'. Moreover, the architect signed original drawings of IAM were signed as A. Vallaury ("IAM-Archive 56-G2/R4/24",1899, "İAM Archive 41-G2/R4/24",1899). Considering all these information, "Alexandre Vallaury" is used in this study. For more information look: Say, S. K. (2014). *Beaux Arts Kökenli Bir Mimar Olarak Alexandre Vallaury'nin Meslek Pratiği ve Eğitimciliği Açısından Kariyerinin İrdelenmesi* (Doctoral dissertation, Fen Bilimleri Enstitüsü).

Osman Hamdi and Alexandre Vallaury were exhibited in the same exhibitions like Elifba Exhibitions in1880 and 1881, Alexandre Vallaury and Osman Hamdi might have found a chance to create a good ground for the full cooperation in their future work.

The exhibitions in İstanbul were not the only intersection point for their life. Their shared history started in École des Beaux in Paris, which might make them close to each other. In 1860, İbrahim Edhem Bey sent his son to law school in Paris (Koç, 1993). Osman Hamdi had attended the painting classes in École des Beaux-Arts in Paris, "Imperial Fine Art School" while continuing his law education. Even whether they met in Paris, they had shared the same educational background, and they were both influenced by the same artistic movement dominant in Europe in the field of art and architecture. This situation might have influenced their personal and professional life.

Sanayi-i Nefise Mektebi (1882) was one of his first works in İstanbul. Osman Hamdi made great effort to open that building (Figure 84). The other important building was *Müze-i Humayün* (1891), which designed nearly the same years with *Sanayi-i Nefise Mektebi*, however it could not be open since the economic struggles. Vallaury foundation *Sanayi-i Nefise Mektebi*, School of Fine Arts, the architect was appointed with architecture department of the school. He lectured as "*fenn-i mimari muallimi*" for 25 years and thought tens of architects for the future of architecture in Ottoman Empire and New Republic of Türkiye. In 1896, he was awarded the French order Legion D'honneur. He attended many commissions dealing with the urban and architectural problems of Istanbul and worked with the famous architect D'Aronco.

Figure 84.Teaching Staff and Students of the *Sanayi-i Nefise Mektebi* in 1906 Alexandre Vaullary second person from front left side, Osman Hamdi the third person from left side (IAM - Photograph Archive)

The *Müze-i Hümayun* building was one of the first works of Alexandre Vallaury, and it was carried out in three stages between 1887-1907. Contrary to its later works, the building does not contain Ottoman motifs and offers a European appearance in accordance with the neoclassical style prevalent in that era. The design principles of the École des Beaux-Arts are clearly prominent in the building. The school has concentrated on the necessity of finding more reasonable interpretations of eclecticism, which was very popular in Europe also. It is argued that the plan layout of the buildings, its facades and function should be handled with a holistic approach. The architects tried to design the buildings with authentic architectural characteristics appropriate to the context. In the second half of the nineteenth century, two following design features were emphasized in the École des Beaux-Arts architecture education. The first was to organize the plans symmetrically. The second was to design the structures with the appropriate architectural character. Considering the characteristics of the École des Beaux Arts, *Müze-i Hümayun* was an example of that movement.

He designed many prestigious buildings like Club of *Cercle d'Orient*, General Directory of *Düyun-u Umumiye, Pera Palas Hotel*, *Büyükada Rum Orphanage, Ottoman Bank, Selanik and Eminönü Costums* Buildings. In 1889 Paris exhibition, he prepared the Tabacco Regie pavilion (Say, 2014). Between 1900-1904 Vallaury also build huge residences for Ottoman elites and members of the court and palace and administrators. The other buildings was constructed in these years were *Mekteb-i Tıbbiye-i Şahane* Building in *Haydarpaşa* and *Osman Reis Camii*. Alexandre Vallaury, resigned from the duty in *Sanayi-i Nefise Mektebi* started in 1883, in 10 Agust 1908. Alexandre Vaullary combined the traditional Turkish architecture and discipline Beaux-Arts and interpreted in the current conditions considering social, cultural and aesthetical needs of the era (Dünden Bugüne Istanbul Ansiklopedisi, 1993).

3.3 The History of the Construction of the New Building for IAM 1887-1907 within three Phases in the Light of Ottoman Archival Documents

The aim of this section is to trace the construction history of the museum building through official correspondences found in the Republic of Türkiye Presidential State Archives, thereby uncovering new information and avoiding the repetition of details commonly found in the literature. Official correspondences, due to their clear dates and involved parties, are considered among the most reliable sources. However, it is important to acknowledge that institutions may seek to protect their own interests, making it unrealistic to expect complete objectivity. Not everything that occurs real time is recorded, and it is natural for the documented details to adhere to procedural concerns. Since these documents primarily involve the preparation of cost estimation, allocation of funds, and the subsequent execution of the project, a chronological analysis and comparison with other archives and literature can shed light on different aspects of the topic. The book of Mustafa Cezar (1971) "*Sanatta Batıya Açılış ve Osman Hamdi*" presents a holistic and detailed study which contains most of the Ottoman archival documents. This book is used as the secondary source in this study. This study complements Cezar's work and advances it with new information retrieved from additional sources.

All correspondences related to the construction process of the museum building were identified through a search using the term "*Müze-i Hümayun*." A total of 128 correspondences were selected, transcribed into the Latin alphabet, and translated from Ottoman Turkish into modern Turkish (see Appendix A for the complete list of correspondences related to construction process of IAM). These documents to reconstruct the construction history of each section of the IAM buildings.

The documents examined were arranged chronologically and grouped under the construction phase to which they pertain. In this case, it was understood that 21 documents were related to the 1st construction phase, 54 to the 2nd construction phase, and 53 to the 3rd construction phase (Appendix A). Reading all the correspondences together has allowed us to understand both the role of the Museum and the Ministries and the Sultan in the construction of the Museum, as well as to analyze the bureaucratic tradition prevailing during the period in which these communications took place.

3.3.1 The Construction of 1st Phase (1887-1891) of IAM Building in the light of Ottoman Archival Documents

In 1887, the construction of a new museum building became an urgent necessity due to the arrival of valuable sarcophagi from the ancient city of Sidon (modern-day Sayda, Lebanon) at the museum's garden. The sarcophagi's journey began on a ship off the coast of Sidon and concluded in the exhibition hall of the museum's newly completed section in 1891 (Figure 85), during the museum's official opening, with the contributions of architect Alexandre Vallaury and director Osman Hamdi Bey. Prior to this, the museum had been housed in the Tiled Kiosk, a civil structure from the reign of Sultan Mehmed the Conqueror, which had become inadequate as the museum's collections expanded daily.

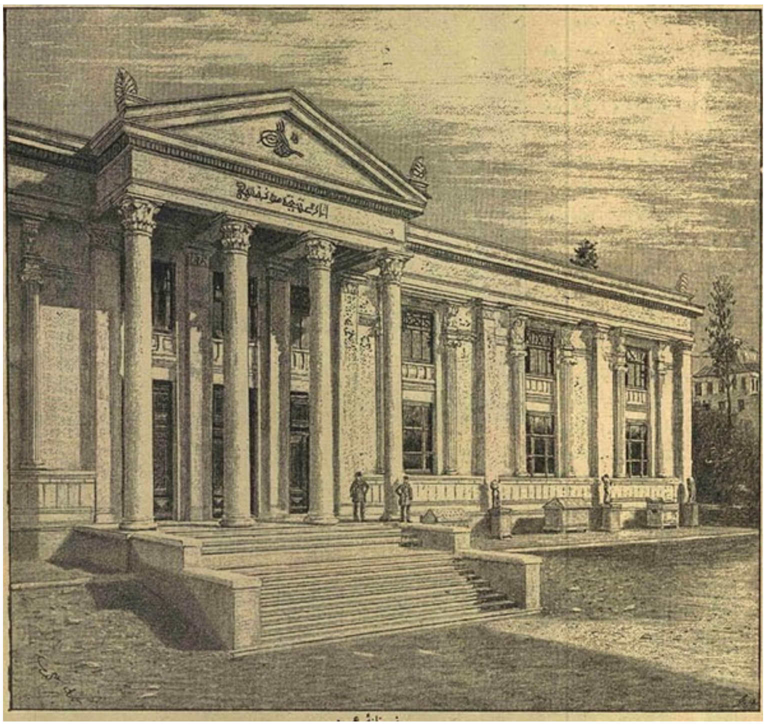

Figure 85. The engravings published in Journal of *Servet-i Fünun* showing the 1st Construction phase of IAM (year: 1900, number: 494)

In the scope of this study, 26 correspondences related to the first construction phase of IAM building were examined. The institutions involved in these correspondences include the Ministry of Education, the Ministry of Finance, the Prime Ministry, and, ultimately, the Sultan (Figure 86). Every step in the process required the Sultan's approval.

Figure 86. The bureaucratic hierarchy between the state's institutions

A chronological analysis of the documents reveals three key themes. The first is obtaining *the Sultan's permission for the construction of the new building*. The second theme is the need to *add an additional storey* to the existing structure and the financial challenges associated with this expansion. The third theme addresses *broader financial issues,* particularly the difficulty in securing additional budget allocations for the new building.

The first correspondence related to the construction a new building for the museum, Document 1.01[38], dated July 26, 1887, written by Osman Hamdi Bey to the Ministry of Education, contains several important details. In this letter, he outlines the reasons for the necessity of a new building, discusses the selection of the architect, describes some of the architectural features of the proposed building, and provides an estimate of the construction costs.

> *Maarif-i Umumiye Nezaret-i celilesine*
> *Devletli efendim hazretleri*
> *Bu kere Sayda'da zuhur edip saye-i muvaffakiyet vâye-i hazret-i padişahide Asir Vapur-ı Hümayununa tahmilen Dersaadet'e gönderilen ve bi-mennihîte'âlâ salimen karaya çıkarılıp Müze-i Hümayun pişgâhındavâki' bahçeye nakl edilen mermerden masnû' gayet cesim ve ağır ve sanat ve nefâsetçeadîmü'l-misl on bir aded mezar taşlarının Müze-i Hümayun'aidhali gayr-i kabil olduğundan bahisle bunlarla ba'demâkeşf ve nakl edilecek bu misillüâsâr-ı mühimme ve nâdireye mahsus olmak üzre Müze-i Hümayun'un karşısına müceddeden bir bina inşa ve ilavesi lüzumu gerek zat-ı hazret-i Vekâlet-penâhîye ve gerek zât-ı âlî-i cenab-ı nezaret-penâhîlerine şifahen arz olunması üzerine bir proje tertib ve tanzimine müsaade buyurulmuştu.*
> *Sanayi-i Nefîse-i Şahane Mektebini inşa eden ve el-yevmmekteb-i mezkurda fenn-i mimari tedris ve talim etmekde olan Valori Efendi'nin muhtasaran tasavvur ettiği bina altmış bir metre tûlünde ve on üç metre arzında oldukça müzeyyen bir cesim salondan ibaret olup mevzû'bahs olan mezarların yerlerine yerleştirilmesi masarıfı dahil olduğu halde dahilen zemine mermer ferşi ve her bir mezarın altına yine mermerden bir kâ'idevaz'ı için iki bin adedlirâ-yı Osmânî sarfı lazım geleceği inde'l-muvâzene tahakkuk etmiş olduğundan ve mevsim-i şitâ hulûl etmezden*

[38] Document 1.01: Presidency of the Republic of Türkiye Directorate of State Archives "MF_MKT_00094_00112_001" (5 Zilkade 1304/July 26, 1887)

evvel emr-i inşaata mübaşeret olunmadığı takdirde işbu mezarların muhafazasına ne kadar itina edilse yine bozulacakları melhuz bulunduğundan iktizâ eden muamelât-ı resmiyenin bir an evvel icra ve ifası himem-i âsifânelerinemenut bulunmuş ve muma-ileyhValori Efendi tarafından tersîm edilen plan leffen arz ve takdim kılınmış olmağın ol babdaemr u ferman hazret-i men lehü'l-emrindir.

Fi 5 Zilkade [1]304 ve fi 13 Temmuz [1]303
Müze-i Hümayun Müdürü Hamdi[39]

(The original text was transcribed into the Latin alphabet by Fuat Recep)

Osman Hamdi stated that eleven sarcophagi, which were immense in size, weight, and unique in terms of artistic value and beauty, were brought to Istanbul aboard the ship *Asir* with the Sultan's approval. Due to the impossibility of placing these large sarcophagi inside the existing Museum, they were temporarily stored in the garden in front of it. He further explained that a project to construct a new building to house these rare and significant works had been approved, following verbal discussions with both the Ministry of Education and the Prime Ministry (*Sadaret*) office. It is evident that Osman Hamdi had held verbal negotiations with the Ministry of Education and the Prime Ministry, and as a result of these discussions, he succeeded in obtaining their consent to initiate the design process for a new museum building. The primary justification was the necessity of erecting a structure in front of the existing Museum to properly house these extraordinary artifacts.

The document also provides details regarding the architect and the financial requirements for the new building. It states that the building was designed by Vallaury Efendi, the architect responsible for the School of Fine Arts, where he also

[39] Document 1.01: Presidency of the Republic of Türkiye Directorate of State Archives “MF_MKT_00094_00112_001” (5 Zilkade 1304/July 26, 1887)

taught architecture. The proposed building features a large hall measuring 61 meters in length and 13 meters in width, adorned with marble decorations. Additionally, it was noted that 2,000 Ottoman *lira* would be required to place the sarcophagi on permanent marble bases (Figure 87).

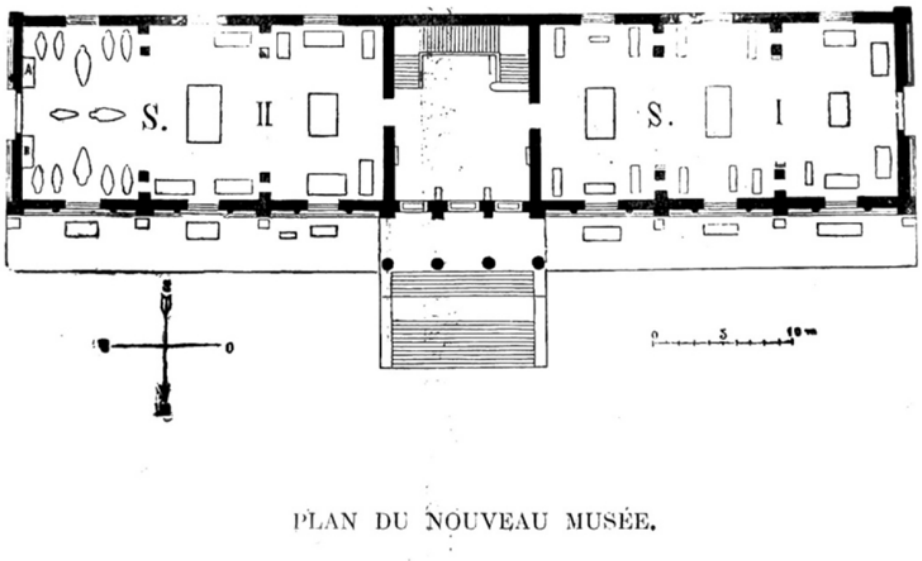

Figure 87. Plan of the First Museum Building (Mendel, Gustave. 1912) (source: (Gürol Öngören, 2012)

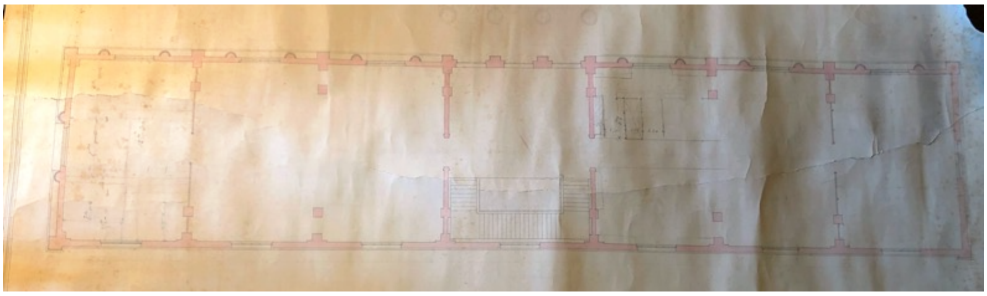

Figure 88. The original plan of first stage drawn by Alexandre Vallaury (source: "IAM Archive, 2, G1/R1/2" (n.d.))

The plan drawn by Vallaury (Figure 88) was attached to the document and is believed to be the same one housed in the Istanbul Archaeological Museum Library archive. This is the only known drawing related to the first stage of the museum's construction, with all other surviving plans belonging to the second and third stages.

When the necessity for a new museum building was officially declared by Osman Hamdi, the only remaining requirement was the Sultan's official permission. To obtain this, a series of formal correspondences began. The permission was granted in a very short time. It is clear from the records that, in order to reach the Sultan, one had to follow a specific protocol: the request first had to be submitted to the Ministry of Education, which would then forward it to the Prime Ministry. At the Prime Ministry, the Council of Ministers would assess the matter, and based on their report, the Prime Minister would present the request to the Sultan.

Despite this multi-step process, the requests from the *Müze-i Hümayun* were evidently handled with urgency. The initiation of the construction process can be traced back to the first correspondence (Document 1.01), written by Osman Hamdi to the Ministry of Education. This letter set the process in motion, as the Ministry of Education promptly informed the Bab-ı Ali (Prime Ministry) of the situation.

The second correspondence (Document 1.02), written by the Minister of Education, Münif Pasha, to the Bab-ı Ali on July 26, 1887, affirmed that the Ministry of Education had also approved the idea of constructing a new building. The letter noted that, in addition to the education budget, the construction costs were expected to be covered by the Treasury. It further emphasized that the construction needed to begin before the onset of winter, and for this, the approval of the Prime Ministry (Sadaret) was awaited.

At the *Bab-ı Ali* (Prime Ministry), the Council of Ministers discussed the matter on July 27, 1887. While their general stance was positive, they decided to seek clarification from the Ministry of Education (Document 1.05)[40]. The Council noted that, according to the statement from the Minister of Education, the new building was to be constructed of wood. However, due to the potential hazards associated with timber construction for such buildings, they deemed it necessary to inquire about the costs if the building were constructed with masonry on all four sides and an iron roof. This inquiry was sent to the Ministry of Education (Document 1.06)[41], requesting details on how much the building would cost under this revised plan.

The same document includes the Ministry's response, dated August 14, 1887, which states: "The order from Your Excellency the Prime Minister has been understood. According to the subsequent review, the proposed building will indeed be made of masonry, and as previously mentioned, it can be constructed for 2,000 liras. Therefore, your permission is required to proceed with the necessary actions." (Document 1.06)[42].

The fear of fire and precautions for it were so meaningful considering the disasters the city faced until the end of 19th century. It was believed that the conversion of the built fabric from wood to *kargir* (stone or brick) would enhance fire prevention. The reforms in urban environments on a large scale, in architecture on a smaller scale took place in 19th century beside the institutional reforms resulted the Tanzimat Charter. The peninsula consisting of the dense, wooden residential fabric were more vulnerable to fires than the Golden Horn consisting large scale masonry buildings (Z. Çelik, 1993, p. 49).

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[40] Document 1.05: Presidency of the Republic of Türkiye Directorate of State Archives "İ_MMS_00093_003911_003" (6 Zilkade 1304/ July 27, 1887)

[41] Document 1.06: Presidency of the Republic of Türkiye Directorate of State Archives "İ_MMS_00093_003911_004" (21 Zilkade 1304/ Agust 11, 1887)

[42] Document 1.06: Presidency of the Republic of Türkiye Directorate of State Archives "İ_MMS_00093_003911_004" (21 Zilkade 1304/ Agust 11, 1887)

After solving this misunderstood and understanding that the new building already to be made masonry in the determined budget, the Council of Ministries prepared a *Mazbata* declaring their decision. After reading the writing of Education ministry and evaluation of the plan of the building, it was decided to allow the construction with the budget two thousand Ottoman Liras which will be provided from the education allowances as the construction of this building is deemed necessary for the preservation of old artifacts. Finally, the permission of the Sultan was obtained for the construction of the apartment in 06 September1887 (Document 1.07).[43]

Until now the documents were related by the issue of informing the state and Sultan and take their permission. After that point other topics appeared in the scene like the necessity additional storey and the financial problems. Another significant information coming from the documents is that the building was designed or at least the government departments informed by single storey, while the construction Osman Hamdi recommend adding one more storey to the building for the reason of the building will require more stories in the future.

According to the document dated March 31, 1888, written by the Education Commission to the Private Office (*Özel Kalem*), it is written that due to the insufficiency of the museum buildings in terms of space, the additional structure, which was commissioned by the Sultan's order to expand the museum, also proved to be inadequate. Since further expansion would be necessary in the future, it was proposed, based on the museum director's description, that an additional floor be added immediately in compliance with the Sultan's decree. The proposal was submitted to the council for review (Document 1.10)[44]. A correspondence

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43 Document 1.07: Presidency of the Republic of Türkiye Directorate of State Archives "İ_MMS_00093_003911_005" (16 Zilhicce 1304 / September 5, 1887)

44 Document 1.10: Presidency of the Republic of Türkiye Directorate of State Archives "MF_MKT_00098_00078_001" (18 Receb 1305/March 31, 1888)

(Document 1.11)[45] dated to 6 May 1888, written by ministry of Education mentioned the order of the Sultan to add one more floor to the building since the current construction will not enough and eventually be expended in the future. The budget estimate and the plan were requested from the museum Directorate. From these correspondences, it is understood that the building was planned to be built single story. However, in time by suggesting of Osman Hamdi additional story take on the agenda and started to be constructed in 1888 when the first floor was finished[46].

The final subject concerns the financial resources and budget required for the additional storey of the building. After receiving official approval and the initial cost estimate, economic challenges became increasingly significant as construction progressed, necessitating additional funds. Once the decision was made to construct the building with two storeys, the required funding increased accordingly, leading to the preparation of a second cost estimate book. However, since this new estimate was significantly higher than the original budget, a series of extensive correspondences was required to secure the necessary funds. In this point the Ministry of Finance attended to the circle of correspondence of state.

Previously, while Osman Hamdi tried to convince the responsible bodies for a new building, he claims that the money needed for this was 2000 Ottoman Liras. However, after a new story addition, the amount of money was increased. In the Document 1. 12[47] dated 30 June 1888 written by Ministry of Finance to Ministry of Education stated that the remaining cost of 280,000 *kuruş* for the buildings to be constructed at the Museum cannot be covered by the Treasury. Therefore, this

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45 Document 1.11: Presidency of the Republic of Türkiye Directorate of State Archives “MF_MKT_00098_00078_002” (24 Şaban 1305 /May 6, 1888)

46 Document 1.14: Presidency of the Republic of Türkiye Directorate of State Archives. “MF_MKT_00101_00045_001_001” (22 Zilhicce 1305/Agust 30, 1888)

47 Document 1.12: Presidency of the Republic of Türkiye Directorate of State Archives. “ “MF_MKT__00099_00056_001” (20 Şevval 1305/June 30, 1888)

amount has been allocated from the 1304 fiscal year budget of the Ministry of Education, with the expectation that it will be funded through the general revenue collection of *Aydın* province for the specified year[48].

While the construction getting process and the money tried to be found, Osman Hamdi want second estimated budget officially from Ministry of Education in 30 August 1888[49]. He states that the construction of the lower floor of the building, whose budget estimated previously done by the Municipality, was completed. The construction of the second floor was started. For this second floor, it is requested to notify the municipality to prepare the second budget estimated be made as soon as possible.

After the 2nd estimated budget was made, it was stated that this building could be made with the money of 730.604 *kuruş* with 26 *para* (*Mecidi 19 kuruş*). It is reported that when the money of 352.427 kuruş 24 para as the first estimated deducted from the second one, the need Money was 378177 *kuruş* 2 *para* for the construction of some decorations and cabinets to complete the building[50]. Osman Hamdi was called to Council of State (*Şura-yı Devlet -Danıştay*) to give detailed information about the issue budget when the Ottoman government was experiencing a resource shortage. According to the statement of Hamdi Bey, a total of 402.427 *kuruş* was spent with the order of Sultan; 352.427 *kuruş* 24 *para* as required for 1st estimated cost book and 50.000 *k*uruş for additional storey. However, the completion of the building according to the later estimated budget because of some decorations and cabinets to be made in the construction, there is a need to spend more than

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48 Document 1.13: Presidency of the Republic of Türkiye Directorate of State Archives. " "MF_MKT__00099_00061_001" (20 Şevval sene 1305/June 30, 1888)

49 Document 1.14: Presidency of the Republic of Türkiye Directorate of State Archives. "MF_MKT_00101_00045_001_001" (22 Zilhicce 1305/Agust 30, 1888)

50 Document 1.15: Presidency of the Republic of Türkiye Directorate of State Archives. "İ_ŞD_00095_005683_001_001" (29 Cumadelahıre 1306/March 2, 1889)

328.177 *kuruş*. The construction is planned to be completed with as little expenditure as possible, and at the end, the building is planned to be completed in accordance with the procedures and the Ministry of Education is required to complete the construction of the 328.177 *kuruş*. The subject presented to Sultan on 2 April 1889 and the Sultan gave his approval for the budget on 6 April 1889 (Document 1.16). [51]

The opening of the new building was held on June 13, 1891, with the approval of the sultan. As the main hall of this building, which was planned as a large hall, was laid the sarcophagi here, the new building was called a museum of sarcophagi (Pasinli, 1993).

Considering entire process of correspondences, it can be concluded that Osman Hamdi bey created a good communication network between state' departments with his personal abilities. The Sultan' attitude was also positive. The documents show that the permissions and the financial sources was granted in a short time to help the museum. The documents give us some detailed information about the architectural characteristics, the architect and the budgetary issues. Any request was transmitted to the responsible bodies until the Sultan. This situation will continue for the other two, and third stage of the museum building.

3.3.2 The Construction of 2nd Phase (1899-1903) of IAM Building in the light of Ottoman Archival Documents

In this section, 54 correspondences from the Republic of Türkiye Presidential State Archives have been examined. The primary focus of these correspondences is to address financial issues. The common underlying concerns across all correspondences include conducting the construction survey, obtaining the necessary

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[51] Document 1.16: Presidency of the Republic of Türkiye Directorate of State Archives. "İ_ŞD_00095_005683_002" (1 Şaban 1306 /April 2, 1889)

permissions, securing funds, and conducting secondary estimated cost for additional work, which in turn required further funding. However, since each correspondence often summarizes the preceding process, they also convey a wealth of historical information.

The ground-breaking ceremony of the second construction phase of IAM was done in 1899 [52] (Document 2.01). The museum opened on November 7, 1903 (Cezar, 1971, p. 203). In this correspondence dated 1899 (Document 2.01), which was written by Osman Hamdi and addressed to the Ministry of Education, it was announced that in addition to the current buildings of the museum, the Sultan's approval had been granted for the starting of the construction of the new building, on the terrace opposite the Tiled Kiosk. Accordingly, the start date for the construction was chosen to coincide with the day of the Sultan's accession to the throne. On Thursday, after sacrifices were made and prayers were offered, work on some parts of the construction began (Figure 89).

Matters related to buildings to be constructed on behalf of the state by way of *emanet usulü*[53], such as this one, are customarily referred to a commission for discussion and implementation, as well as for the review and approval of construction expenses. In fact, the museum administration already had a permanent commission consisting of Assistant Director *Halil Ethem Bey* as chairman, Chief Secretary *Halil Bey*, Director of Internal Affairs Kadri Bey, and Director of Fine Arts

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[52] Document 2.01: Presidency of the Republic of Türkiye Directorate of State Archives. "Document 2.01, MF_ MKT_ 00475_ 00045_001_001" 28 *Rebiüahire* 1317/September 5, 1899)

[53] The "*emanet usulü*" is an method of tender which is still used and applies to urgent or specialized construction and repair works where it is deemed unsuitable or impractical to conduct a tender process through bidding or negotiation. Under this method, the work is carried out without involving a single contracting firm for the entire project. Instead, it is managed and finalized by responsible and authorized committees established by competent authorities. The work can be assigned by the direct administration committee to various subcontractors. Alternatively, the materials can be supplied by the institution, with the labor carried out based on unit prices or daily wages. (source: mevzuat.gov.tr)

Internal Affairs *Oskan Efendi*. It has been deemed appropriate for Museum Architect and Professor of Architecture at the School of Fine Arts *Valori Efendi* to oversee the technical aspects of the work in this commission, and for Museum Accountant *Recep Efendi* to be responsible for financial matters. Thus, it is suggested that the specified construction be carried out by this commission. Later, it is understood from the correspondence that a member from the Ministry of Education was added to this commission[54].

Figure 89. *Müze-i Hümayun* during the construction of 2nd phase 1899 -1907 (source: CAMGD Archive)

Cezar (1971) notes that although Vallaury designed each museum building, the construction of the Second Phase was supervised by architect and painter Philippe Bello (Cezar, 1971, p. 206). The presence of Vallaury as an architect

[54] Document 2.01: "MF_MKT_00475_00045_001_002" (28 Rebiüâhire [1]317/September 5, 1899)-Document 2.02: "MF_MKT_00475_00045_002_001" (24 C 1315 /November 29, 1899)

member on the commission mentioned in this document, along with the numerous original drawings related to the second and third phases of the Museum building found in the archives of the Istanbul Archaeology Museums, some of which carry Vallaury's signature (Figure 107), indicate that Vallaury personally supervised the construction and that the decisions regarding the Museum were made with his approval. This suggests that Vallaury played a significant role in the decision-making process. Given Vallaury's duties at the *Sanayi-i Nefise Mektebi* and his intense architectural productivity in the 19th century, it is plausible that Philippe Bello's assistance was limited to technical matters, such as preparing drawings and overseeing the construction site and workers. However, his name was not seen in the drawings or correspondences.

Like the first building, the second building was initially planned on a smaller scale and was later expanded during construction, as evidenced by documents from the Ottoman archives. It is understood that the plans and facade design of the Second Phase were changed and enlarged after the construction started within the knowledge and approval of Vallaury. This explains the presence of numerous different designs (Figure 90, Figure 91), varying in the number of floors and architectural details, found in the archives of the Istanbul Archaeology Museums.

Figure 90. Left: Alternative Elevation drawing looking *Gülhane* Park “IAM Archive, 20, G2/R3/2” (n.d.), Right: Alternative Elevation drawing looking inner courtyard “IAM Archive, 28, G2/R3/10” (n.d.)

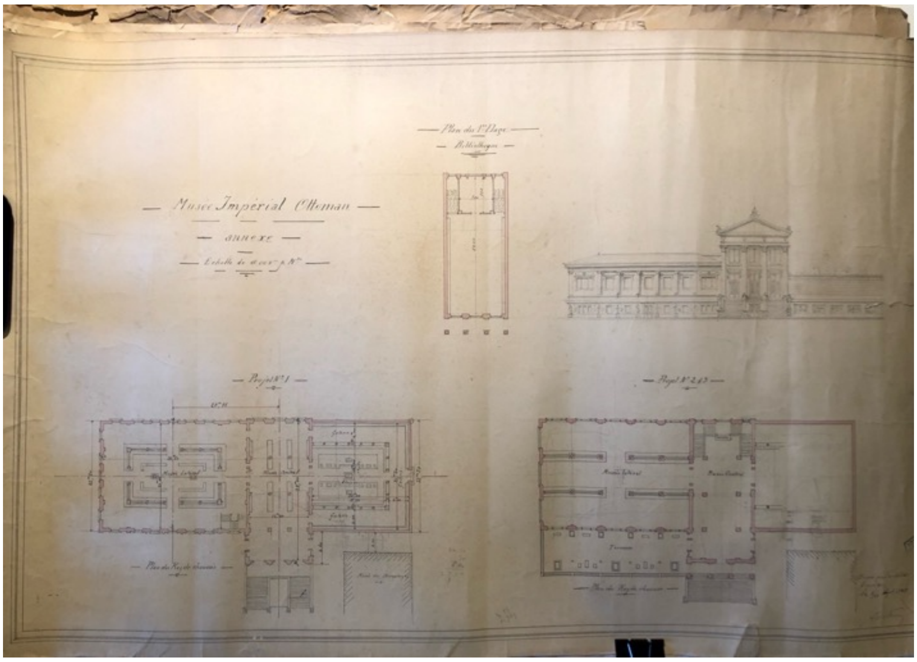

Figure 91. The alternative plan and elevation drawings signed by Alexandre Vallaury dated to 1899 (source: "IAM Archive, 56, G2/R4/24")

A document retrieved from Republic of Türkiye Presidential State Archive and written from Ministry of Education to *Şehremaneti* order a new estimated cost book since the commission consisting of museum directors and architect Vallaury had decided to repair and expand the museum building because it would not be sufficient to exhibit even partially the old artifacts that were unearthed as a result of excavations made by the Ottoman Government and foreigners (Document 2.10)[55].

After a few months, another correspondence[56] dated 19.03.1901, from the Ministry of Education to the Sublime Porte, addressing how to cover the budget deficit arising from the expansion of the structure, included some noteworthy details.

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[55] Document 2.10: Presidency of the Republic of Türkiye Directorate of State Archives. "MF_MKT_00528_00014_001" (11 Cemazeyilahir 1318 /October 6, 1900)

[56] Document 2.13: Presidency of the Republic of Türkiye Directorate of State Archives. "MF_MKT_00528_00014_002" (28 Zilkade 1318 /Mart 19, 1901)

The letter states: 'In the excavations carried out at the ruins of the ancient temple in the Milas District of *Aydın*, very valuable ancient artifacts were uncovered. These artifacts were to be exhibited in the new building, for which the Sultan had granted construction permission. According to the initial estimate, a total of 528,791.5 *kuruş* was to be spent on the construction, and the Sultan had allowed this amount to be expended. Upon the order issued in the Grand Vizier's correspondence dated 29.08.1899, construction began. However, it has become apparent that the building constructed according to the first estimate will not be sufficient even for the partial exhibition of a collection of exquisite ancient artifacts that have been excavated through the great efforts of both the Ottoman Government and foreigners in various locations and subsequently transported to the Museum where they are stored in crates in different places. The proper preservation and exhibition of these exquisite ancient artifacts, which are of great importance in the field of archaeology and will contribute significantly to the Museum's wealth, artifact count, and reputation, is essential. Therefore, in response to the Museum Directorate's expressed need for some extensions and additions to accommodate the aforementioned ancient artifacts, a notice was sent to the *Şehremaneti* requesting a new estimate (Figure 92). In response to this notice, an estimate book was submitted along with the reply, detailing the necessary extensions and additions. According to the contents of this book, including the original estimate costs, the total required expenditure has reached 1,957,001 *kuruş* and 25 *santim.* After deducting the expenses of the previous estimate, it was determined that the construction costs for the mentioned expansions and additions amounted to 1,428,209 *kuruş* and 20 *para*. This amount was found to be excessive by the ministry. To prioritize the most essential needs and adhere to frugality rules, a new estimate was requested. As a result, the construction costs were reduced to 1,750,000 *kuruş* in the new estimate prepared by *Valori Efendi,* the Professor of Architectural Science at the School of Fine Arts, which is attached here to, calculated at a rate of 20 *kuruş* per *mecid*.'

As a result of this enlargement (Figure 93, Figure 94), the Second Phase was designed as four stories unlike other phases of IAM, which were designed as two stories and completely reserved for exhibition purposes. The Second Phase of IAM contains two basement floors under the exhibition floors thanks to the topography. The first basement, which was reached through a small and modest door from the museum courtyard, was designed for the administrative units. The second basement, which were called *mahsen,* was designed for storage functions.

Figure 92. Revised alternatives of Alexandre Vallaury for 2nd construction phase of IAM Top: Elevation drawing looking *Gülhane* Park “IAM Archive, 19 G2/R3/1” (n.d.), Bottom: Elevation drawing looking inner courtyard “IAM Archive, 27 G2/R3/9” (n.d.)

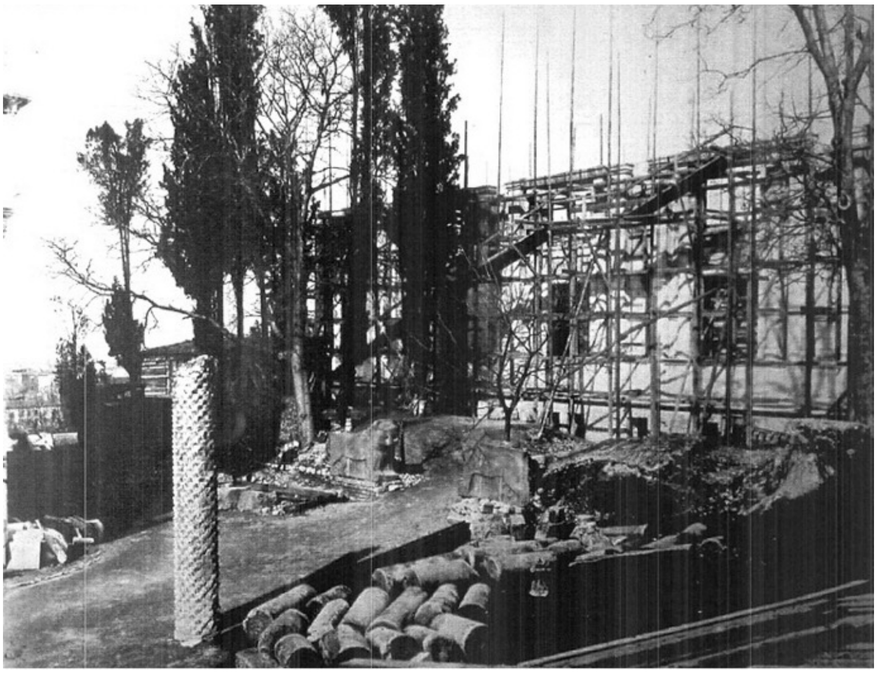

Figure 93. *Müze-i Hümayun* during the construction of 2nd phase 1899 -1907 (Mansel, 2013)

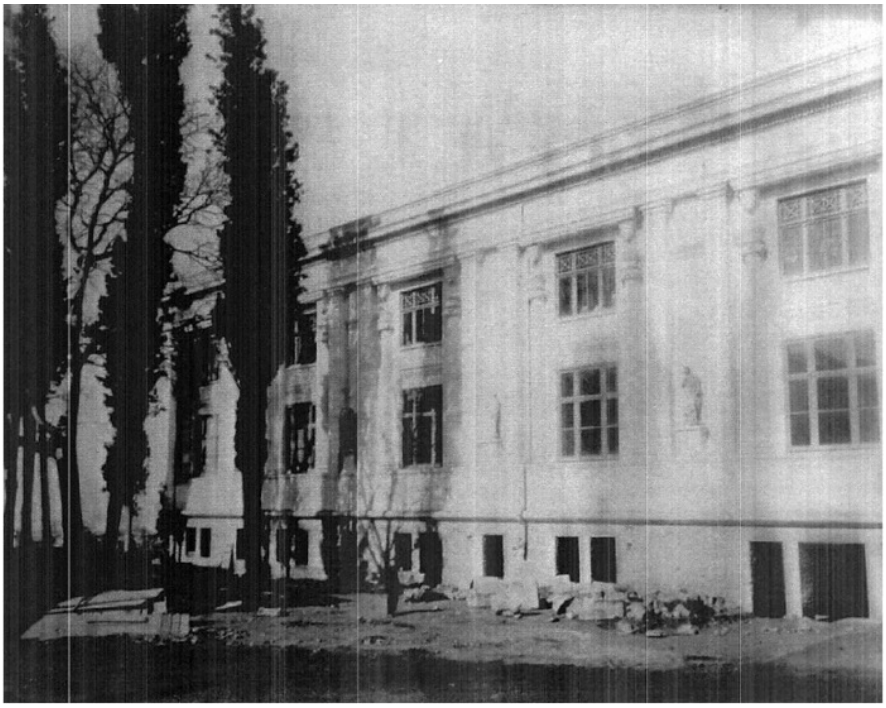

Figure 94. *Müze-i Hümayun* during the construction of 2nd phase 1899 -1907 (Mansel, 2013)

In an official correspondence (Document 2.07)[57] written by Osman Hamdi to the Ministry of Education, it was mentioned that the budget for the new building was planned to be financed by the Ministry of Finance through the taxes collected from various provinces, including Beirut, *Diyarbakır, Elazığ*, Aleppo, Mosul, and the Jerusalem Sanjak (*Mutasarrıflığı*). However, the letter also notes that the expected tax revenues from these provinces were not collected, and it was reported that no taxes would be paid by the province of Beirut.

Subsequently, since tax collection from the Beirut province proved impractical, the funds initially allocated to Beirut were redirected to other provinces where collection was feasible. It was decided that the portions corresponding to the provinces of *Aydın,* Edirne, *Hüdavendigar*, *Salonika, Ankara, Adana, Sivas, Aleppo, Syria, Monastir, and Konya* would be paid, in lieu of their contributions to the *Dersaadet* assistance share from their educational funds *(Eğitim sandığından Dersaadet yardım hissesine mahsuben),* through the local administrations of the *Düyun-ı Umumiye* (Public Debt Administration) on behalf of Museum Director Osman Hamdi (Document 2.09)[58].

As the building was expanded, as mentioned above, the budgetary requirements increased threefold, leading to extensive correspondence between Osman Hamdi, the Ministries of Finance and Education, the Sublime Porte, the Supreme Council, and the Public Debt Administration (*Düyun-ı Umumiye*) for each new phase of the project. At this juncture, Osman Hamdi's personal connections, including his relationship with the Sultan and his administrative skills, became particularly prominent.

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[57] Document 2.07: Presidency of the Republic of Türkiye Directorate of State Archives. "MF_MKT_00526_00002_001" (29 Ağustos [1]316 /September 11, 1900)

[58] Document 2.09: Presidency of the Republic of Türkiye Directorate of State Archives. "MF_MKT_00526_00002_002" (18 Cemazeyilevvel 1318 /September 13, 1900)

In another correspondence addressed to the *Sadaret*, Osman Hamdi summarized the situation by stating that; In order to commence construction as soon as possible, the responsibility for collecting funds from these allocations was assigned to the *Düyun-ı Umumiye* officials in the provinces. In return, I initiated efforts to secure a loan for the Museum from the Central Administration of *Düyun-ı Umumiye*. The Board of Directors of *Düyun-ı Umumiye* approved this during their meeting on November 30, 1899. The specified amount was handed over to the Ministry of Education in the form of official warrants, and the funds were gradually drawn from the *Düyun-ı Umumiye* Treasury to continue construction. In 1317 (1901), following a new official inspection, an additional sum of over 1,021,000 *kuruş* was allocated for the construction of the new section, with the Sultan's approval, once again drawing from the same provincial funds. Subsequently, upon the suggestion of former Prime Minister Halil Rıfat Pasha to the Chairman of the *Düyun-ı Umumiye* Board, it was decided that these new allocations would also be collected by the *Düyun-ı Umumiye* officials. (Document 2.18)[59]

In several correspondences, it is noted that Museum Director Hamdi offered to donate his salary to facilitate the completion of the museum's construction[60].

By July 1902, it is evident that preparations for the museum's opening had begun. Correspondence indicates that, following the allocation of funds for the final decorative work and the transfer of artifacts, the Museum Directorate reported that the official opening of the aforementioned section was proposed to coincide with the

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[59] Document 2.18: Presidency of the Republic of Türkiye Directorate of State Archives. "BEO_001770_132693_003" (12 Ramazan 1319 /Aralık 23, 1901)

[60] (Document 2.17: Presidency of the Republic of Türkiye Directorate of State Archives. "BEO_001770_1326931_001_001" (17 Ramazan 1319 /December 28 1901), Document 2.18: Presidency of the Republic of Türkiye Directorate of State Archives. "BEO_001770_132693_003" (12 Ramazan 1319 /Aralık 23, 1901))

Sultan's accession day on August 19 (September 1, 1902) (Document 2.29).[61] However, it appears that things did not go as planned, as the opening was ultimately postponed to 1903.

Although the construction of the museum building and the arrangement of the exhibition were completed, a series of correspondences[62] reveals that landscaping work still needed to be carried out in the museum garden. However, this landscaping was not a typical garden arrangement (*bahçe tanzimi).* The term "garden arrangement" refers not to simple landscaping but to the removal of the large amounts of soil and rubble that extract from foundation of the new section and had accumulated around it during construction. Additionally, it was discovered that part of the funds allocated by the *Hazine-i Hassa* for the urgent repair of the water channels flowing to *Topkapı* Palace was used for the restoration of water channels (*suyolu)* damaged during the construction of the museum's new section. These pathways, running beneath the museum section, required immediate repair and reconnection to the external main water channels. The repair of these water channels

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[61] Document 2.29: Presidency of the Republic of Türkiye Directorate of State Archives. "İ_MF_00008_00024_002_001" (11 Rebiülâhire [1]320 /July 18, 1902).

[62] Document 2.37: Presidency of the Republic of Türkiye Directorate of State Archives. "MF_MKT_00622_00012_007_001" (11 Şaban 1320/November 13, 1902)-Document 2.40: Presidency of the Republic of Türkiye Directorate of State Archives. "MF_MKT_00622_00012_005_001" (13 Mart 1319/March 26, 1903)-Document 2.41: Presidency of the Republic of Türkiye Directorate of State Archives. "İ_MF_00009_00020_002_001-2" (18 Muharrem 1321/April 16, 1903)-Document 2.42: Presidency of the Republic of Türkiye Directorate of State Archives. "BEO_002027_154260_001_001" (4 Safer 1321 /Mai 2, 1903)-Document 2.43: Presidency of the Republic of Türkiye Directorate of State Archives. "İ_MF_00009_00020_001_001" (5 Rabiulevvel 1321/June 1, 1903)-Document 2.44: Presidency of the Republic of Türkiye Directorate of State Archives. "İ_MF_00009_00020_003_001" (29 Rebiulevvel 1321/June 25, 1903)-Document 2.45: Presidency of the Republic of Türkiye Directorate of State Archives. "MF_MKT_00622_00012_008_001" (28 [Haziran sene 1319/July 11, 1903)-Document 2.46: Presidency of the Republic of Türkiye Directorate of State Archives. "MF_MKT_00622_00012_009_001" (28 [Haziran sene 1319/July 11, 1903)-Document 2.47: Presidency of the Republic of Türkiye Directorate of State Archives. "MF_MKT_00622_00012_010_001" (7 Cumadelula sene [1]321 /August 1, 1903)-Document 2.48: Presidency of the Republic of Türkiye Directorate of State Archives. "MF_MKT_00622_00012_011_001" (Fî 3 Ağustos 1319/August 16, 1903)

was promptly carried out in accordance with the Sultan's directive, and, given the detailed information provided, it was determined that any delay in this work was not feasible. Therefore, the necessary work was already completed.

Finally, in November 1903, it was announced by the Museum Directorate that the halls in the new museum wing had been filled with exquisite antiquities, achieving a status truly comparable to European museums in terms of both content and arrangement. The museum was set to open to visitors on the *auspicious day of the Sultan's birthday*, who is credited with the salvation of the state and nation (Document 2. 49)[63].

3.3.3 The Construction of 3rd Phase (1904-1907) of IAM Building in the light of Ottoman Archival Documents

The ground-breaking ceremony of the third construction phase of IAM occurred on September 1, 1904, and the construction was completed in April 1907. The plan for this phase was implemented by the supervision of Osman Hamdi’s son, architect Edhem (Cezar 1971, 208). Osman Hamdi mentioned in one correspondence dated 1907 (Document 3.25)[64] that the new building of the museum, which has been completed and stands as an excellent example of beauty and architectural art, was successfully constructed by the Museum Architect, Edhem Bey, who also contributed greatly to the construction of the main wing, completed two years ago. Due to the invaluable and exquisite artifacts that he unearthed during various excavations on behalf of the museum, which now adorn the museum, it is necessary to increase his salary in recognition of his work and dedication both in construction and in tasks related to ancient artifacts. Considering that he has also been entrusted

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[63] Document 2.49: Presidency of the Republic of Türkiye Directorate of State Archives. “Y_MTV_00252_00294_001_001” (10 Rebiülevvel [1]320 /November 3, 1903**)**

[64] Document 3.25: Presidency of the Republic of Türkiye Directorate of State Archives. “MF_MKT_00994_00083_001_001” (9 Rebiülevvel 1325/April 22, 1907)

with organizing the new museum, and that the 400 *kuruş* salary he has been receiving for the past five years since July 1, 1902, is quite low, he kindly requests the assistance in advocating for a salary increase of 1,100 *kuruş*, raising it to 1,500 *kuruş*, to further encourage his enthusiasm and alleviate his financial hardship. This correspondence proves that the son of Osman Hamdi who is an architect worked for the 2nd and 3rd phases of IAM building. This situation proved the signature on original drawing showing the iron beams amount and sizes owned to Osman Hamdi's son Edhem[65] (Figure 95).

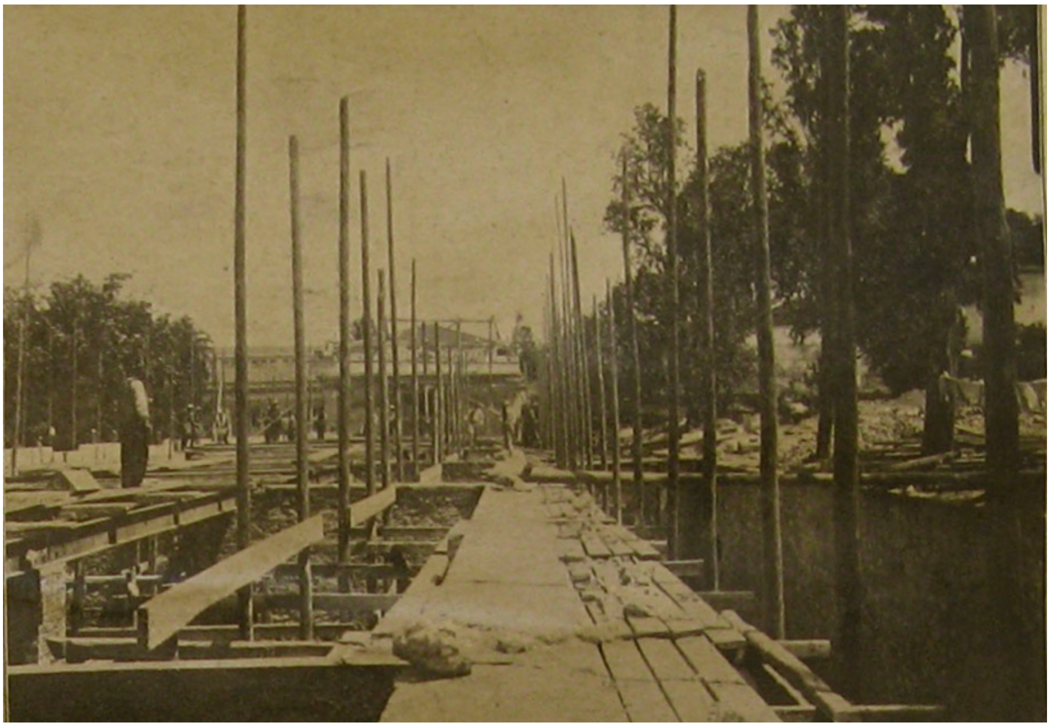

Figure 95. Old Photograph of the Construction of 3rd Phase of IAM (Gürol Öngören, 2012, p. 154)

[65] The name of the brother of Osman Hamdi also **Halil Edhem**. Since he was working as wise director of the museum and in fact the next museum director after Osman Hamdi's death, there is a possibility that the drawing signed by Halil Edhem

The first correspondence dated to August 25, 1903, before the openings of the 2nd construction phase of the museum building (Document 3.01).[66] From this, it can be inferred that even before the second section was opened, the museum administration had already begun efforts to secure a budget for the third section. Considering how problematic it was to secure funds and that Osman Hamdi even offered to donate his own salary to ensure the completion of the construction, this move can be seen as a very logical step. The aforementioned document indicates that a letter, along with a survey report and drawings, was sent from the Museum Directorate to the relevant authorities, proposing the construction of a new additional building at a cost of over 14,500 *lira* to house the artifacts that had been uncovered but left in their original locations due to the insufficiency of the museum's existing sections, as well as for those that would be discovered in the future.

Although the Sultan's approval had been obtained for the construction of the final section to be financed from the Ministry of Education's budget, it was determined that the ministry's construction and repair funds were insufficient to cover the cost. Therefore, it was decided that this amount would be provided by the Treasury, offset against the education revenues received (Document 3.02-04).[67] Additionally, due to the necessary and unforeseen increase in the project's cost, the Sultan granted permission for the additional expenses to be covered by the funds owed to the Ministry of Education by the Treasury for the fiscal years up to 1319, to be added to this year's repair budget for the museum (Document 3.15)[68].

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[66] Document 3.01: Presidency of the Republic of Türkiye Directorate of State Archives. "BEO_002150_161201_001_001" (1 Cumadelâhire 1321/Agust 25, 1903)

[67] Document 3.02: Presidency of the Republic of Türkiye Directorate of State Archives. "BEO_002270_170182_001_001" (21 Zilkade 1321 / February 8, 1904) - Document 3.04: Presidency of the Republic of Türkiye Directorate of State Archives. "BEO_002354_176536_001_001" (8 Rebiülâhir 1322 / June 22, 1904)

[68] Document 3.15: Presidency of the Republic of Türkiye Directorate of State Archives. "MF_MKT_00958_00016_001_001" (12 Cumadelula [1]324 / July 4, 1906)

A correspondence[69] from the Ministry of Education to the Museum Directorate inquired about the reasons behind the significant increase in the initial cost estimate for construction, which had risen from 14,500 lira to 1,826,088 *kuruş* 46 *santim*, requiring an additional budget of 335,596 *kuruş* 96 *santim*. In response, the Museum Directorate provided a detailed explanation, which offers valuable insights for analysis[70].

According to the Directorate's reply, the initial cost estimate was based on a surface area calculation of 1,820 square meters. However, during construction, the facade had to be extended to 1,988 square meters. This adjustment was necessary due to the discovery of a large cistern, 9 meters deep, uncovered during the excavation for the foundation, which made it impractical to build the structure as originally planned. Additionally, two more cisterns from the Byzantine period were discovered during the expansion process. To address these challenges, 25 arches (vaults) were constructed over the cisterns to reinforce the foundation, with the building's foundations placed on these arches.

Furthermore, the original design positioned the grand gate of the Müze-i Hümayun at the center, maintaining symmetry with the Tiled Kiosk and other museum buildings. However, the gate's location had to be modified due to the building's extension. As noted in the correspondence, a second large door, of similar size and featuring massive columns and marble stairs, was constructed to address this issue (Figure 96, Figure 97) (Üstoğlu Coşkun & Şahin Güçhan, 2024).

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[69] (IAM Archive, Cartoon 45/2, File: 504, 2 Rabiulevvel 1324- April, 26 1906)

[70] (IAM Archive, Cartoon 45/2, File: 504, 18 Nisan 1322- May, 1 1906)

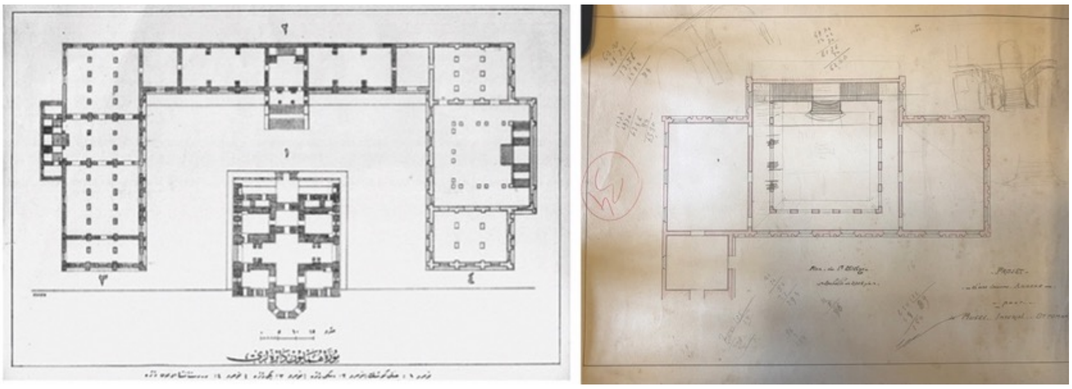

Figure 96. (Left) The Imperial Museum, plan showing the proposal for the third construction phase of IAM (Servet-i Fünun [Year 13]26, no. 676 [25 Mart 1320/April 7, 1904] as cited in Çelik 2016) (Right) The original drawings of one the first proposals for the Third Construction Phase of IAM ("IAM-Archive 79-G3/R1/6"

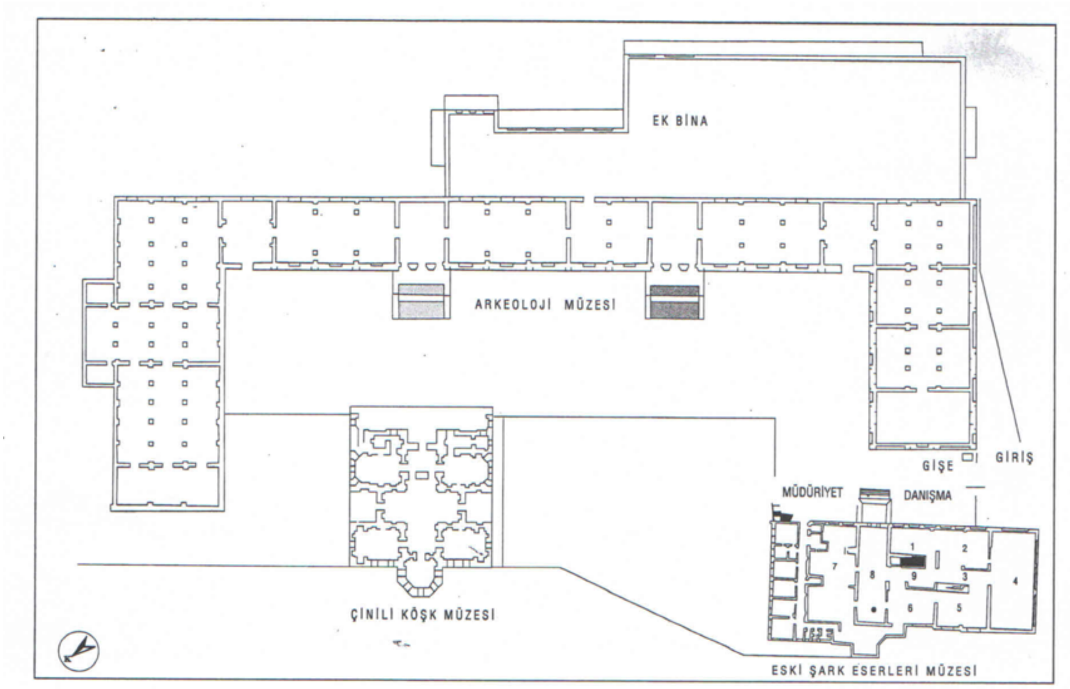

Figure 97. The site plan of Istanbul Archaeological Museum Buildings (Pasinli, 1993, p. 310)

Two official correspondences (Document 3.13)[71] on the same matter are found in the Presidential State Archives. It appears that the information obtained from the museum and Osman Hamdi Bey's detailed explanation were forwarded by the Ministry of Education to the Council of State. The report prepared by the Council of State was then submitted by the Sublime Porte to the Sultan to obtain approval for the necessary budget increase. The mentioned report also states that "*a 180-meter-long and 3-meter-deep water channel wall, along with an additional 1,000 square meters of roadway, was constructed.*"

The foundation plan from the third construction phase, along with a sketch of the remains preserved in the IAM Archive, indicates the presence of two distinct underground structures, marked in blue (Figure 98). Another key primary source, a foundation plan obtained from the Republic of Türkiye Presidential State Archive (BOA, PLK.p.01372), provides a more detailed and scaled depiction. This plan illustrates the two cisterns beneath the third phase of construction, as well as a large cistern located in the courtyard (Üstoğlu Coşkun & Şahin Güçhan, 2024).

The plan shown in Figure 99 includes notes in Ottoman Turkish. For the structures beneath the third construction phase of the IAM, the term *"Atik su hazineleri"* (old water reserves) is inscribed, indicating that these underground structures were once used as cisterns. Additionally, the cistern in the courtyard is marked as *"El yevm kullanılmakta olan"* (still in use). Tezcan (1989) observed that the courtyard cistern had been used and repaired during the Ottoman period, likely when the third construction phase of the IAM was underway (1904–1907) following the cistern's discovery. This suggests that, contrary to the common belief that the Ottomans avoided using stagnant water sources, the courtyard cistern was utilized into the 19th century.

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[71] Document 3.13: Presidency of the Republic of Türkiye Directorate of State Archives. "İ_MF_00012_00042_001_001" (4 Cumadelula 1324 / June 26, 1906)

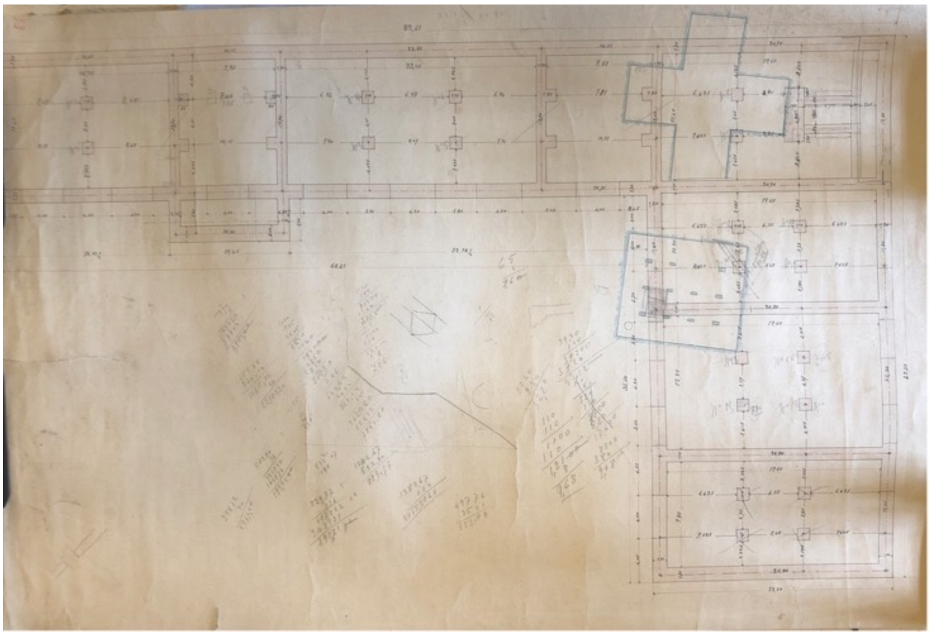

Figure 98. The original foundation plan of the third construction phase of IAM with a sketch of the remains found during construction (“IAM Archive, 78, G3/R1/5”, n.d.)

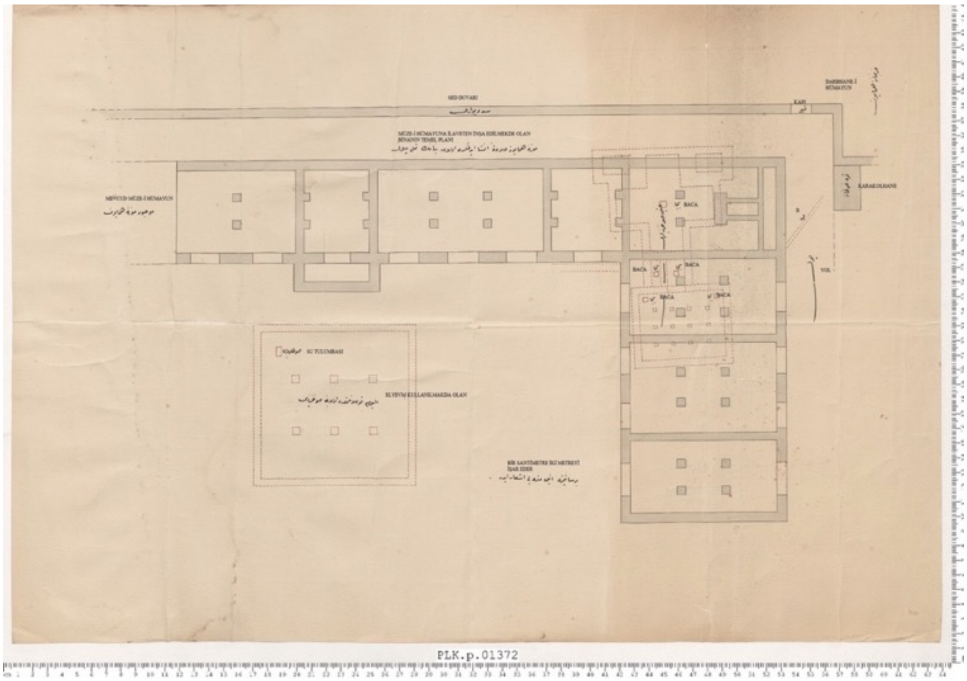

Figure 99. The foundation drawing of the third construction phase of IAM with remains found in the Republic of Türkiye Presidential State Archive (Boa_plk.P.01372).

The two foundation plans referenced earlier confirm the existence of two underground structures beneath the 3^{rd} construction phase of the IAM. Although the plans depict the same substructures with similar outlines, their exact positions vary slightly (Üstoğlu Coşkun & Şahin Güçhan, 2024)

The three cisterns are particularly significant in understanding the interaction between the IAM and the Byzantine-period remains. The design modifications during the second and third construction phases of the museum, which included enlarging the building and adding an additional, non-functional entrance, have been previously discussed by Akpolat (1991) and Çelik (2016) (Figure 108). These scholars noted that the initial site plan envisioned the Archaeological Museum as a symmetrical U-shaped structure encircling the Tiled Kiosk (Figure 14, Top, left). Akpolat (1991) linked this design change to the increasing number of artifacts unearthed during excavations (Üstoğlu Coşkun & Şahin Güçhan, 2024)**.**

On the other hand, the realization of such a long-term construction plan, which continually required expansion, necessitated the consistent provision of financial resources. The third phase of construction process stands out for its extreme efforts to maximize economic resources and expedite the work. So much so that imperial approval was obtained to clear and organize the terrace located next to the museum and across from *Darphane* building, transforming it into a garden, with the stones removed from this area to be used in the construction of the new building (Document 3.06).[72] The area in question is rich in Byzantine remains, and both during the construction of the third section and the annex building completed in the 1980s, Byzantine remnants were encountered, which caused significant delays in the construction. The density of the remains in this area will be detailed in Chapter 4.

[72] Document 3.06: Presidency of the Republic of Türkiye Directorate of State Archives. "DH_MKT_00887_00032_002_002" (7 Cumadelâhire 1322 / August 19, 1904)

Furthermore, the impact of economic constraints and available materials on construction techniques will be evaluated in Chapter 4.

Correspondence between the Ministry of Education and the *Aydın* Governorship reveals that additional taxes were imposed to secure funds for the continuation of the museum. It appears that, to complete the work necessary to preserve the exquisite historical buildings and maintain the museum's operations, additional taxes were requested from municipal offices in both Istanbul and other the provinces. Specifically, it was proposed that increased taxes be levied on construction foremen and laborers involved in building projects. However, the correspondences indicate that there were issues in implementing this policy. In his letter dated October 13, 1906, *Aydın* Governor Mehmet Kamil B. Salih expressed concerns, stating that an additional tax of five percent of the "*tezkire*" fee for every type of construction and repair, large or small, was already being collected for the Hejaz Railway Line, and as long as these taxes continue to fund the railway, there is hesitation in implementing the proposed measures as described.[73]

In another correspondence dated 1907, the details of which tradespeople and laborers would be subject to the additional taxes collected on behalf of the museum are thoroughly outlined (Document 3.30).[74]According to this document, the additional taxes were to be levied on masters, polishers, carpenters, joiners, planers, carvers, masons, bath attendants, metalworkers, stonecutters, finishers, boat builders, blacksmiths, decorators and painters, sawyers, sewer workers, dockworkers, cage makers, lead workers, brick and tile kiln and display owners, as well as their employed masters and laborers; on the masters and laborers working in lime and

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[73] Document 3.12: Presidency of the Republic of Türkiye Directorate of State Archives. "MF_MKT_00969_00063_002_002" (8 Zilkade 1323/January 4, 1906)- Document 3.23: "MF_MKT_00969_00063_001_001" (24 Şaban 1324 / October 13, 1906)

[74] Document 3.30: Presidency of the Republic of Türkiye Directorate of State Archives. "DH_MKT_02612_00063_001_001" (17 Receb 1325 / August 26, 1907)

chalk kilns; on the masters and laborers working in stone quarries; on local and Italian marble masons and apprentices, and those working in stone workshops; on the masters and laborers in mosaic factories, including those working on steps, ablution areas, and other related tasks; on the masters and laborers, as well as factory owners, producing plain and floral tiles; on the masters and laborers in factories and workshops working on frames, doors, flooring, ceilings, moldings, and other construction needs; and on blacksmith masters and apprentices working in factories and workshops.

Another issue reflected in the correspondences is the collection of additional taxes and the request for tax exemptions for the museum. Since these correspondences related on request for tax exemptions for the construction materials such as Like the 120 tons of iron, 500 cubic meters (equivalent to 1,000 tons) of Marseille stone, and 200 tons of cement ordered from Europe and The 2,300 cubic meters of parquet flooring received from Budapest provide evidence of the use of imported materials, and directly related with construction techniques, they will be examined in detail in Chapter 4 [75].

3.4 A Short Summary on Phases of Intervention and Conservation History of IAM Building

Before delving into the construction techniques used in the IAM Building at the end of the 19th century, it is important to summarize the entire construction history up to the 2020's.

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[75] Document 3.09: Presidency of the Republic of Türkiye Directorate of State Archives. "MF_MKT_00817_00057_001_001" (25 Ramazan 1322/December 3, 1904)
Document 3.10: Presidency of the Republic of Türkiye Directorate of State Archives. "İ_RSM_00021_00015_001_001" (22 Zilhicce 1322/February 27, 1905)-
Document 3.16: Presidency of the Republic of Türkiye Directorate of State Archives. "İ_RSM_00025_00011_001_001" (16 Cumadelâhire 1324/July 28, 1906)

Although historical and field research is generally conducted as a basis for restitution efforts in the conservation practices of cultural heritage structures, the sequence of interventions that have taken place over time is often not sufficiently detailed. Temporary or partial interventions made in recent history are either unknown or overlooked. This oversight hinders the development of reliable and realistic restoration or reinforcement projects for these structures. The main problem lies in focusing conservation research on specific periods solely for the purpose of preparing restitution projects, rather than restoration projects.

However, when it is considered that the broader picture, these interventions actually deserve more thorough examination, as they represent solutions to problems encountered during the usage of the structures, based on the technology and conservation approaches of their time. Frequently, unresolved issues reemerge in subsequent periods. To find a lasting solution, it is essential to address the root cause of the problem. At this point, the structure should be examined in detail up until the day the restoration and reinforcement projects begin, and its strengths and weaknesses should be analyzed and reflected in the project. This is particularly important because it influences the architect's decision to reverse a past incorrect intervention or to preserve a correct one.

Although the construction period of the building is well-documented in the literature, there is a significant lack of sources detailing the changes it has undergone since then. Therefore, this section aims to answer the question: "What kinds of restoration and repairs have been applied to the IAM Building since its construction?"

This overview of construction history will provide insight into the building's the interventions made to the construction techniques and reason behind them. By tracing the conservation interventions, it is possible to identify both the shortcomings and strengths of the historical buildings. Apart from that, the transfer of existing technologies and the integration of new technologies into traditional construction practices will be explored through the process of conservation of the IAM Building.

Presenting the preservation history of this public building is crucial also for understanding the evolution of conservation approaches and methods in Turkey.

The data obtained from various archival sources (Figure 101) and site studies are integrated and analyzed holistically to recreate the visual and written history of the building. The primary sources consulted for the museum building include the following:

i. The Republic of Türkiye Presidential State Archive: This archive provides crucial information about the construction period (1887-1907). Correspondences retrieved from this archive are thoroughly analyzed in the next chapter.

ii. Museum Annuals from the Istanbul Archaeological Museum Library: These annuals represent the main archival source consulted for this research.

iii. The Archive of the Istanbul Directorate of Surveying and Monuments: This archive, under the Ministry of Culture and Tourism, was examined to trace the conservation history of the museum. The directorate, responsible for the restoration of historical buildings, conducted several works related to the Istanbul Archaeological Museum (IAM) between 1972 and 2020. All relevant projects have been listed and analyzed based on their scope and subject.

iv. Photographs and Drawings: Finally, the data is supported by photographs and drawings accessed through the Istanbul Archaeological Museum Library Archive.

To accurately analyze the main intervention through its history, it is practical to divide its history into **seven** phases (Figure 100). According to the research, it has been determined that the museum building underwent more extensive and radical interventions during certain periods, while in others, its continuity was maintained through smaller-scale interventions. Dates for which no data are available have been excluded from the categorization of interventions. The years in which the museum is known to have undergone interventions have been grouped according to the scope and timing of the interventions.

The known periods of intervention for the museum are as follows (Figure 100):

1st Period: The Design and Construction Process of IAM (1887-1907)
2nd Period: Small Repairs and World War I (1907-1923)
3th Period: Small Repairs and World War II (1937-1947)
4th Period: The Conversion of the Roof from Timber to Concrete Structural System and covering the ceiling of the sarcophagi hall with wooden planks (1948-1958)
5th Period: The Construction Process of Additional Building and Strengthening of Sarcophagus Hall' Ceiling with Steel Beams (1968-1983)
6th Period: The Maintenance Works of Museum (1984-2010)
7th Period: Comprehensive Strengthening and Restoration Process (2011-2024)

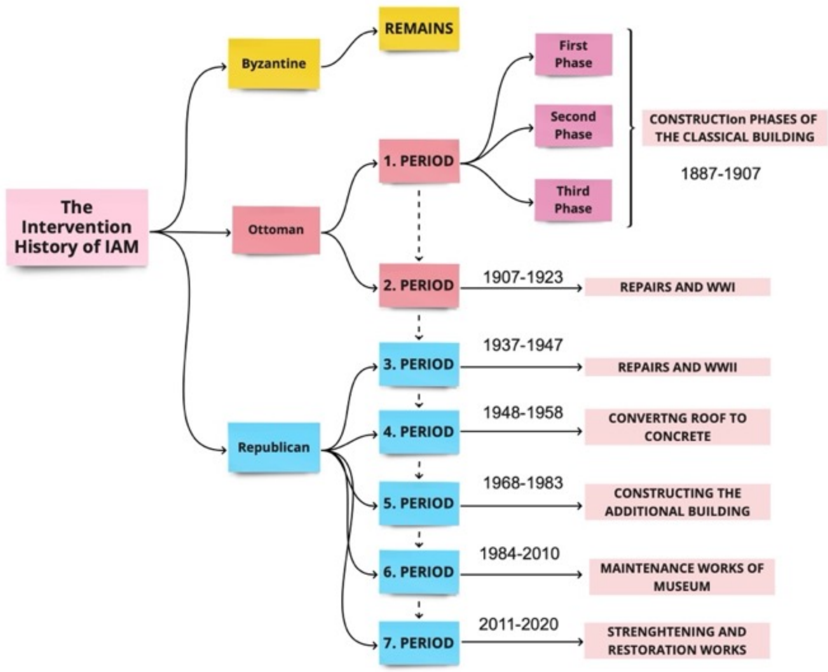

Figure 100. The scheme showing the intervention history of IAM Building (drawn by the author)

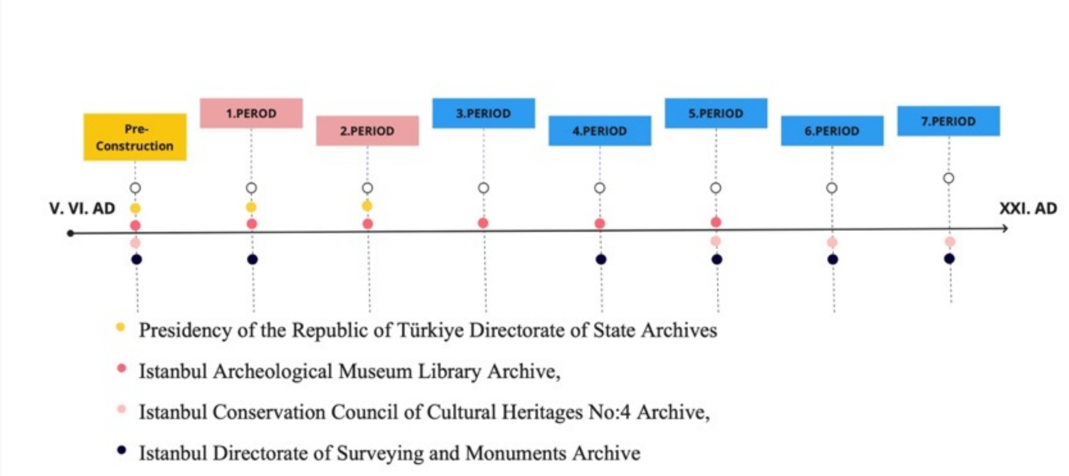

Figure 101. The source map showing the different sources for each conservation period of IAM building (drawn by the author)

1st Period: The Design and Construction Process of IAM in between 1887-1907

The new museum building was constructed by 3-phases construction program that spanned across 20 years (1887-1907). These include the main building (1887-1891), 1st phase (1899-1903) and 2nd phase (1904-1907). These three parts were designed as a whole and called Classical Building today (Figure 102). The museum building, which reaches a length of 192 meters with the added sections, covers an area of approximately 9000 square meters. The construction process is presented in detail through Archival documents in the following sections[76]

[76] (3.4 The History of the Construction of the new Building for IAM 1887-1907 within three Phases in the light of archival documents and Chapter 4 The Construction System And Techniques Of Istanbul Archaeological Museums' (Iam) Classical Building Between 1887-1907 will be reserve the architectural and constructional details of that period.)

Figure 102. *Müze-i Hümayun* Building (source: *Atatürk Kitaplığı)*

Archival documents reveal that, due to the 20-year span required to complete the museum building in its entirety, repairs became necessary for the 1st Section while the 3rd Section was still under construction. This need for repairs arose not only because of the long gap between the start and completion of the project but also due to an earthquake that struck shortly after the completion of the 1st Section.

The cost estimate prepared immediately following the earthquake in 1894 for the *Sanayi-i Nefise Mektebi* building includes several items related to the repairs of both the Archaeology Museum and the Tiled Kiosk (as discussed in detail in section 2.3.3.1). This estimate, dated September 17, 1310 (Islamic calendar), was signed by members of the commission, including architects "*Mimar Berit, Mimar Daranko, and Mimar Valori*"[77]. The report provides a detailed information of the repairs

[77] Republic of Türkiye Presidential State Archive. "BOA, İ_ŞE_00006_00028_001_004" (17 Eylül 1310 /September 29, 1894

conducted, with specific measurements for each area. For the *Müze-i Hümayun* building, the cost estimates cover work such as plastering, whitewashing, restoration of decorative ceiling paintings and cornices, repairing ceiling cracks, and replacing broken roof tiles (Figure 103).

Figure 103.The hall of Sarcaphagy, the first wooden flooring of 1st Construction Phase of *Müze-i Hümayun* (source: IAM Photography Archive)

It is likely that the Tiled Kiosk and Museum were not explicitly mentioned in the title of the cost estimate book or correspondence because the earthquake primarily damaged the *Sanayi-i Nefise Mektebi* building, while the repairs required for the Tiled Kiosk and Museum were minimal, involving only minor tasks such as roof tile replacements and plaster repairs. Other repairs done in 1907 according to official correspondences. In a correspondence written by the Ministry of Education to the Sublime Porte dated September 28, 1907[78] it is stated that the rooms designated for the display of antiquities had not been repaired since they were constructed 18 years ago. It mentions that some of the plaster on the upper floors and ceilings had fallen during the earthquake 13 years ago, and the floors, which were made of ordinary wood, had deteriorated over time and started to become unstable. It is noted that a cost estimate book prepared by the *Hendesehane* was sent to the relevant authorities to request the necessary repairs, including the restoration of the ceilings, strengthening of the floors, covering them with parquet, and painting the walls to address the issue. Permission was requested for the necessary funds to be transferred to the Museum for these repairs (Figure 104).

[78] Document 3.32: Presidency of the Republic of Türkiye Directorate of State Archives. "MF_MKT_01018_00067_002_002" (20 Sha'ban 1325 / September 28, 1907)-Presidency of the Republic of Türkiye Directorate of State Archives. "İ_MF_00014_00010_001_001" (30 Zilhicce 1325 / February 3, 1908)- Presidency of the Republic of Türkiye Directorate of State Archives. İ_MF_00014_00010_002_001 (14 Muharrem 1326 / February 17, 1908)

Figure 104. The first wooden flooring of 1st Construction Phase of *Müze-i Hümayun* (source: *İstanbul Üniversitesi Nadir Eserler Kütüphanesi*, IDSM Archive)

Considering that one of the most striking earthquakes of Istanbul experienced in 1894, first section of the building needs to be repaired in Ottoman Period. Aftermath in 1907, for the maintenance of the building and exhibition display, certain amount of money spent as understood from the *archival* documents of Presidential state archive.

2nd Period Small Repairs and World War I: 1907-1923

2nd Intervention Period covers simple repairs and World War I intervention done for the protection of the museum and its artifacts against air attacks (1918)**.** There is no information in the archives indicating that any significant changes were made to the Museum between 1907 and 1918. However, it is noted that some correspondence traffic took place during World War I between Ministry of War and the museum directorate.

During World War I, the museum was at risk from aerial bombings, and as a result, a number of protective measures were implemented primarily to safeguard the artifacts. The repeated attacks by enemy aircraft on Istanbul, particularly targeting military equipment and ammunition ships as well as the train station and other military facilities in the *Sarayburnu* area, have clearly demonstrated that the museums, which house such a vast collection of treasures and valuables, are under significant threat. Therefore, Museum Directorate asked a military committee be sent to the museum to assess the buildings, check their structural integrity, and determine the necessary protective measures. It is requested that the Ministry of War be informed immediately of the need to dispatch such a committee to the museum without delay[79].

In order to mitigate the dangers faced by the Museum, the matter was promptly discussed with architects following the report submitted by the military technical committee sent by the Ministry of War (Ministry of Defense), and a cost estimation book was prepared. Since there are no funds available in the Ministry of Education's budget, permission is requested for this amount to be provided as an additional allocation. It is stated that if this is not possible, it has been suggested by the Deputy Director of Museums that efforts should be made, through a neutral government, to appeal to our enemies—similar to actions taken by some warring nations—to ensure that these locations and institutions, such as museums and Topkapı Palace, which house so many historical and valuable artifacts, are not

[79] Document 4.01: Presidency of the Republic of Türkiye Directorate of State Archives. "MF_MKT_01236_00052_001", 5 Şevval 1334-August 15, 1916).

targeted by enemy forces[80]. The report[81] prepared by the expert committee outlines the necessary measures to be taken in the Istanbul Archaeology Museum's Classical Building, which include the following interventions:

1. Since the floor of the first storey, which forms the ceiling of the main hall, is constructed with iron profiles (*putrel*) and concrete, it is quite solid, and thus, there is no need to relocate the artifacts on the lower floor. However, all valuable artifacts and the library located on the upper floor, which can be moved, should be transferred to the Tiled Kiosk storage and other storage areas, and the upper floor should be vacated (Figure 100).
2. Although the floor appears to be solid, it is necessary to protect the most distinguished sarcophagi and similar valuable artifacts on the lower floor against all possible threats, particularly the possibility of direct hits by large and high-explosive bombs. To achieve this, it is recommended to cover the areas above these artifacts on the upper floor with train tracks, steel girders (putrel), or beams of 15/20 cm in cross-section and sufficient length, as shown in the first figure in the attached plate. Additionally, on the lower floor, small boxes should be constructed and filled with sand as per the second figure. If there are additional materials available, it would be very beneficial to apply this method to all valuable items (Figure 105, Figure 106, Figure 107, Figure 108, Figure 109).

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[80] (Document 4.02: Presidency of the Republic of Türkiye Directorate of State Archives. "MF_MKT_01236_00052_010" (2 Teşrinievvel 1332/October 15, 1916)

[81] (Document 4.04: Presidency of the Republic of Türkiye Directorate of State Archives. "MF_MKT_01236_00052_005" (27 Ağustos 1334/August 27, 1334)

Figure 105. The interventions done the first floor of IAM during World War I (source: Salt Photography Archive)

Figure 106. The Interventions done for the protection of the museum and its artifacts against air attacks during World War I (source: IAM-Photography Archive)

Figure 107. The Interventions done for the protection of the museum and its artifacts against air attacks during World War I (source: IAM-Photography Archive)

Figure 108. The sarcophagus of Alexandre the Great after taking the Interventions done for the protection of the museum and its artifacts against air attacks during World War I (source: IAM-Photography Archive)

Figure 109. The sarcophagus of Alexandre the Great after taking the precautions for the protection of the museum and its artifacts against airel bombardments during World War I (source: IAM-Photography Archive)

3th Period: Simple repairs and World War II in between 1937-1947

During the early years of the Republic, the most important information about what was happening at the Museum comes from the annual reports published by the Museum itself. The first Museum annual report was printed in 1934. Repairs carried out at the Museum are mentioned in the third annual report, published in 1949. The fact that the previous two reports do not include any mention of repairs suggests that no significant restoration work was conducted during that period. In this third annual report (Istanbul Museums Yearbook, No:3, 1949), the repairs described under the section "Repairs Conducted Between 1937-1947."

It mentions that the roofs of the Archaeology Museum and the Museum of Ancient Oriental Works were repaired, the terrace wall (*ihata duvarı*) of the rear garden of the Archaeology Museum was rebuilt, and the walls of the large halls known as the Sidon Halls (rooms 8 and 9) were whitewashed, with new marble floors installed. Additionally, it reports that the heating system was repaired, and tiles were laid in the boiler room.

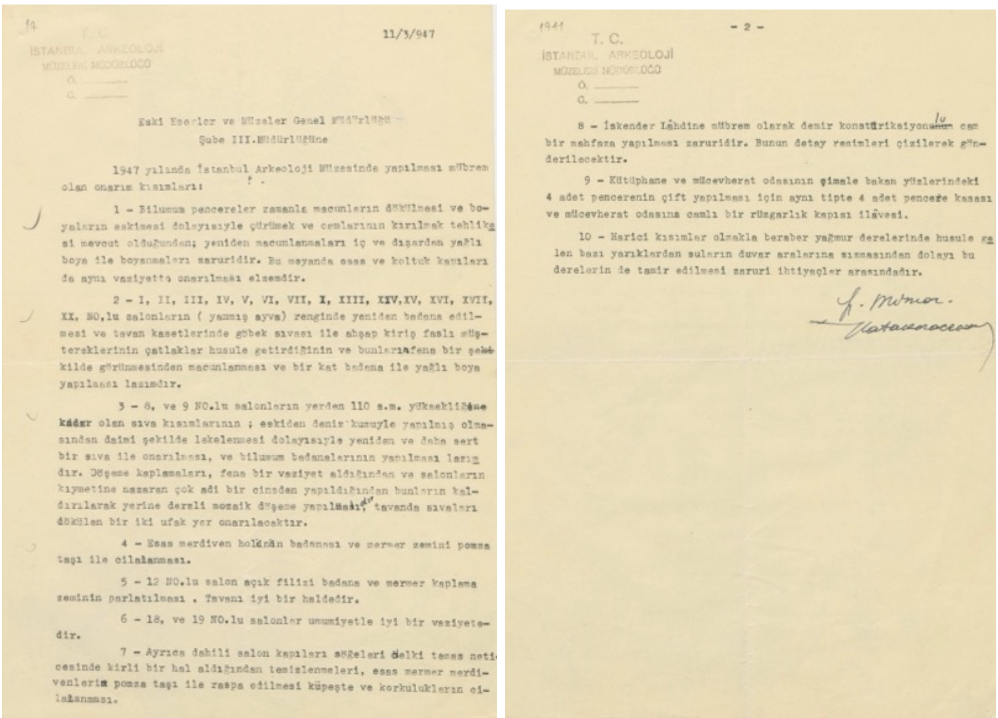
These years also coincide with the period of World War II. Although Turkey did not participate in the war, these were times when precautions were not neglected, and the threat of war was still strongly felt in both the economy and societal life. Aziz Ogan, director of the Istanbul Archaeological Museum between [1931-1953], states that the museums had been closed during World War II. In the Museum of Antiquities, the exhibition galleries on the ground floor were rearranged and opened to the public on April 23rd , 1948 (İstanbul Arkeoloji Müzeleri Yıllığı, 1950). From this, it is understood that repairs were carried out while the museum was closed, and efforts were made to make use of the time for restoration.

Another report, found in the Salt Archive and dated to 1947, provides proof of these repairs and gives detailed information about them. This report, prepared for the Directorate General of Antiquities and Museums, lists the essential work that needed to be carried out in 1947 (Figure 110). The report briefly states:

1. All windows and doors should be maintained, repaired, and painted with oil paint.
2. The walls of some halls in the ground floor should be repainted in the color "burnt quince," and the plaster of the ceiling coffers, along with the joints between the ceiling's wooden cornices, should be covered with one coat of whitewash and oil paint.
3. In halls 8 and 9, the plaster up to 110 cm high from the floor needs to be redone. The existing plaster, made with sea sand, has permanent stains and must be repaired with a harder plaster, and all the walls should be repainted.
4. The floor coverings in halls 8 and 9 have deteriorated and, given the importance of these halls, the current low-quality material should be

replaced with jointed mosaic flooring. Additionally, a few small areas of damaged ceiling plaster should be repaired.

5. The main staircase hall should be whitewashed, its marble floor polished with pumice stone, and the handrails and balustrades varnished.
6. A glass case with an iron framework must urgently be constructed for the Alexandre Sarcophagus.
7. Four windows on the northern side of the library and jewelry room should be doubled, and four identical window frames should be made. A glass vestibule door should also be added to the jewelry room.
8. It is also mentioned that although they are external parts, the rain gutters have developed some cracks, allowing water to seep into the walls. These gutters should also be repaired.



T.C.
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Ö. ______
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11/3/947

Eski Eserler ve Müzeler Genel Müdürlüğü
Şube III.Müdürlüğüne

1947 yılında İstanbul Arkeoloji Müzesinde yapılması mübrem olan onarım kısımları:

1 - Bilumum pencereler zamanla macunların dökülmesi ve boyaların eskimesi dolayısıyle çürümek ve camlarının kırılmak tehlikesi mevcut olduğundan; yeniden macunlanmaları iç ve dışardan yağlı boya ile boyanmaları zaruridir. Bu meyanda esas ve koltuk kapıları da aynı vaziyette onarılması elzemdir.

2 - I, II, III, IV, V, VI, VII, X, XIII, XIV, XV, XVI, XVII, XX, NO,lu salonların (yanmış ayva) renginde yeniden badana edilmesi ve tavan kasetlerinde göbek sıvası ile ahşap kiriş faslı müştereklerinin çatlaklar husule getirdiğinin ve bunların fena bir şekilde görünmesinden macunlanması ve bir kat badana ile yağlı boya yapılması lazımdır.

3 - 8, ve 9 NO.lu salonların yerden 110 s.m. yüksekliğine kadar olan sıva kısımlarının ; eskiden deniz kumuyle yapılmış olmasından daimi şekilde lekelenmesi dolayısıyle yeniden ve daha sert bir sıva ile onarılması, ve bilumum badanalarının yapılması lazımdır. Döşeme kaplamaları, fena bir vaziyet aldığından ve salonların kıymetine nazaran çok adi bir cinsden yapıldığından bunların kaldırılarak yerine derzli mozaik döşeme yapılması, tavanda sıvaları dökülen bir iki ufak yer onarılacaktır.

4 - Esas merdiven holünün badanası ve mermer zemini pomza taşı ile cilalanması.

5 - 12 NO.lu salon açık filizi badana ve mermer kaplama zeminin parlatılması . Tavanı iyi bir haldedir.

6 - 18, ve 19 NO.lu salonlar umumiyetle iyi bir vaziyetedir.

7 - Ayrıca dahili salon kapıları söğeleri elki temas neticesinde kirli bir hal aldığından temizlenmeleri, esas mermer merdivenlerin pomza taşı ile raspa edilmesi küpeşte ve korkulukların cilalanması.

- 2 -

T.C.
İSTANBUL ARKEOLOJİ
MÜZELERİ MÜDÜRLÜĞÜ
Ö. ______
G. ______

8 - İskender Lâhdine mübrem olarak demir konstürüksiyonlu cam bir mahfaza yapılması zaruridir. Bunun detay resimleri çizilerek gönderilecektir.

9 - Kütüphane ve mücevherat odasının şimale bakan yüzlerindeki 4 adet pencerenin çift yapılması için aynı tipte 4 adet pencere kasası ve mücevherat odasına camlı bir rüzgarlık kapısı ilâvesi.

10 - Harici kısımlar olmakla beraber yağmur derelerinde husule gelen bazı yarıklardan suların duvar aralarına sızmasından dolayı bu derelerin de tamir edilmesi zaruri ihtiyaçlar arasındadır.

Figure 110. The report, found in the Salt Archive and dated to 11.0 3. 1947 prepared for the Directorate General of Antiquities and Museums

Figure 111. The photograph dated 1937-1947 after changing the flooring to marble (source: IAM-Photography Archive)

In Figure 111, it is clearly visible that a glass display case was built for the Alexandre Sarcophagus, and the previously square mosaic flooring was replaced with new marble. Even if other items were completed, they may not have been mentioned in the annual reports due to their technical nature, or perhaps they were not completed due to budget constraints.

4th Period: the Conversion of the Roof from Timber to Concrete in between 1948-1958

This period covers The Conversion of the Roof from Timber to Concrete (1948-1956) and covering of the ceiling of the sarcophagi hall with wooden planks (1958).

The biggest repair ever made since the construction of the museum was the conversion of roofing floor and roof lanterns to reinforced concrete to prevent the danger of fire in between 1948 and 1956. It can be assumed that this transformation in 3 phases by looking at the repair information in the Museum Annuals.

In Istanbul Aziz Ogan, (1931-1953) the director of the museum says that the roof of the Museum is being rebuilt of concrete: in 1949 the part covering the North wing, which includes the Department of Coins and Medals, the Library, and the Ceramic Rooms, has been completed (Istanbul Arkeoloji Müzeleri Yıllığı, 1950). In the same museum annual, architect Fikret Yücel, describes the work of transforming the ceiling into concrete with details under the title General Activity in Archaeological Museums in 1948 and 1949 (*1948 ve 1949 senelerinde arkeoloji müzelerindeki umumi faaliyet).* He says that a comprehensive repair work had been started in the building to prevent fire. In this context, the lantern and ceiling parts of the administration block are converted into reinforced concrete (*İstanbul Arkeoloji Müzeleri Yıllığı*, 1950) (Figure 112, Figure 113).


Figure 112. The photographs that were taken during the Conversion of the Roof of IAM from Timber to Concrete (1948-1956)

Figure 113. The photographs that were taken during the Conversion of the Roof of IAM from Timber to Concrete (1948-1956)

In addition to this information, the article written by Fikret Yücel (*İstanbul Arkeoloji Müzeleri Yıllığı*, 1950) details how this process was carried out. This is important because the skylights and the ceilings above the stairs of the building are covered with wooden decorations built in a coffered system. Since wooden cornices were used as decorative elements throughout the ceilings of all floors, converting the roof system to concrete without damaging them is not an easy task.

Yücel (1950) says that this section of the building (second phase) was meticulously crafted by engraving antique motifs onto the wood. In reality, covering this 3000 square meter wooden surface without compromising the building's interior décor, while constructing a reinforced concrete roof base over it, and thereby encasing it in a masonry shell to prevent fire hazards, was the chosen approach. After the roof dismantling began, it was discovered that some of the wooden posts supporting the skylight, which rested on the columns, had rotted. At the same time, since these wooden posts were positioned directly on the center of the brick columns, it was realized that it would not be possible to build additional reinforced concrete columns or even a concrete belt encircling the posts for the skylight. Therefore, the decision was made to preserve the decorative capitals, moldings, and ceilings while completely dismantling the skylight portion and reconstructing the coffered ceiling with reinforced concrete (Figure 114, Figure 115). In this way, while the ceiling was converted to concrete, the building's original interior appearance was preserved. The decorated ceilings at the stair landing and in the hall opposite it were also left intact. The only changes were limited to the intricately designed wooden fillings continuing after the architrave and the flat painted ceiling portions. (İstanbul Arkeoloji Müzeleri Yıllığı, 1950). In Istanbul Museum Yearbook No. 7 (1956) it is written that within this three-year period, the concrete work of the last section of the Museum of Classical Works was completed.

Figure 114. The conversion of roof floor and roof lanterns to reinforced concrete in 2nd Construction phase of IAM (source: IAM-Photograph Archive)

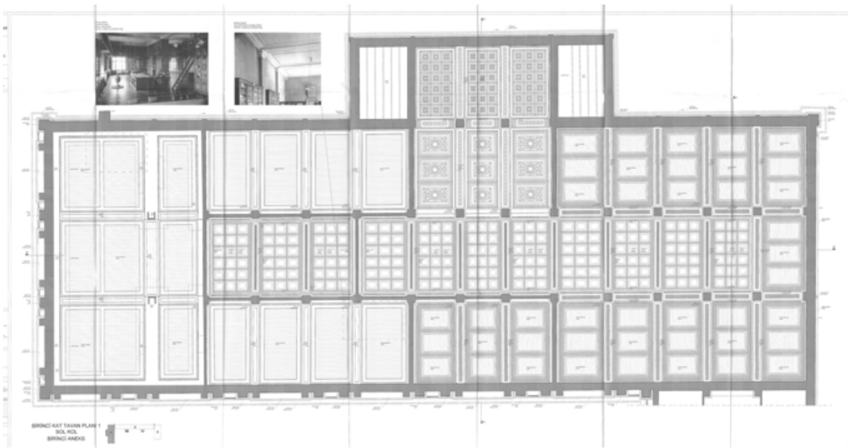


Figure 115. The restitution ceiling plan of 2nd Construction Phase of IAM (source: *Seçkin Mimari Hizmetleri*, IDSM Archive)

During the restoration in 2017, when the wooden cornices on the Second construction phase of IAM were removed, a very interesting details were encountered in order to strengthen the ceiling (Figure 116). In the photograph, it can be clearly seen that the forms of the reinforced concrete beams behind the wooden cornices are amorphous and not uniform. In other words, a new mold was not created while the beams were being cast in concrete. It looked as if the concrete had been poured directly onto the wooden cornices, which were used as decorative elements for the lower floor. The photographs taken from the third Phase of construction of IAM while Fikret Yücel mentions on Second Phase of construction of IAM. Since the second and third phase lanterns should be symmetric, they should apply the same technique for all ceiling of IAM building. Why did they not remove the cornices and create a new mold was not understanding. This may be caused by economic or time limitation problems.

Figure 116. The reinforced concrete beams of 1^{st} floor of 3^{rd} Construction phase of IAM (source: taken by the author in 2018)

It is stated that in *İstanbul Arkeoloji Müzeleri Yıllığı* (1958) that the interior repairs of the Sidon Sarcophagi halls were completed during this period, and the protective wooden covers that had been over the artifacts for a long time were removed, restoring the halls to their former state. During the two-year period, the *Bağdadi* ceiling of the Sidon Sarcophagi hall, which had deteriorated over time, was dismantled, and wooden panels were installed (Figure 117, Figure 118).

Figure 117. Sarcophaguses on Display in the Museum Building Source: Deutsche Archäologisches Institut / İstanbul, Photo Archive (Gürol Öngören, 2012)

Figure 118. Left: Painted wooden panels in Sidon Sarcophagi hall in 1993 (source: Dünden Bugüne Istanbul Ansiklopedisi) Right: Painted wooden panels in Sidon Sarcophagi hall before 2017 restoration (source: IDSM Archive)

5th Period: The Construction of Additional Building and Strengthening of Sarcophagus Hall' Ceiling with Steel Beams in between 1968-1983

One of the radical interventions to the building was adding a structure to its rear facade between 1968-1983. This addition led to the exploration of the underground heritages hidden in the land of the İstanbul Archeological Museum (Figure 119, Figure 120, Figure 121). Although this construction is very controversial, it caused an excitement due to the Byzantine ruins exposed during the excavation. The construction of additional building completed and opened to the public in 1983. This repair process will be examined based on the archives of Museum' expert archaeologist Nezih Fıratlı, Cultural Heritage Preservation Board and Istanbul Directorate of Surveying and Monuments.

Figure 119. The Photos of bath remains found during the construction of Additional Building (source: The Personal Achieve of Nezih Fıratlı, IAM Archive)

Figure 120. The Photos of Roman street found during the construction of Additional Building (source: The Personal Achieve of Nezih Fıratlı, IAM Archive)

Figure 121. The Photos of the construction of Additional Building in the excavated area (source: The Personal Achieve of Nezih Fıratlı, IAM Archive)

Existing structures was insufficient despite the use of the Old Orient Works and Tiled Kiosk museums. Thus, a new structure was needed, especially in terms of the spaces required for modern museum functions. The site plans in Museum archives show that the location of the last building was considered different from the current location Fikret Yücel (*İstanbul Arkeoloji Müzeleri Yıllığı*, 1950) described exactly this place for a new structure in his report in Museum Annual Number 3 in 1948. He proposes that a block was considered to be added right into the building in the direction of the stairs ladder in Sidamara sarcophagus room due to extra space required for storing new antiquities. (Rare Façade of the 2nd construction Phase) He said that the upper floor of the new block could be used as a showroom and the other could be used as storage. However, at the end, the new structure was built on the east side of the 3rd phase of construction; the east side of classical building, rather than in the direction of the North in 1984 (Figure 122, Figure 123).

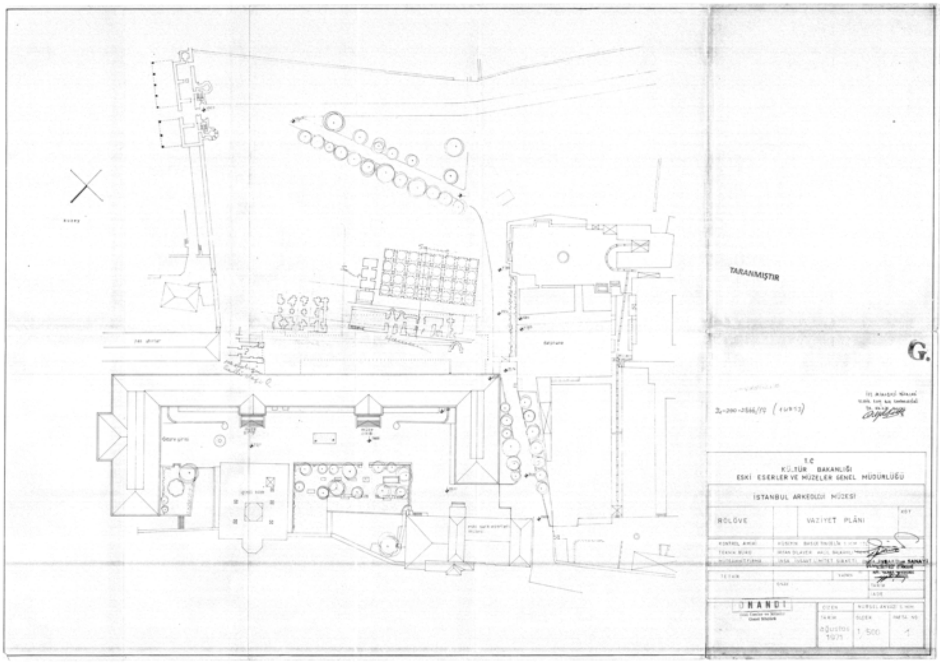


Figure 122. The plan of Additional Building dated August 1971 and signed by Hüseyin Başçetinçelik (source: IDSM Archive- Istanbul No. 4 Regional Council for the Conservation of Cultural Heritage)

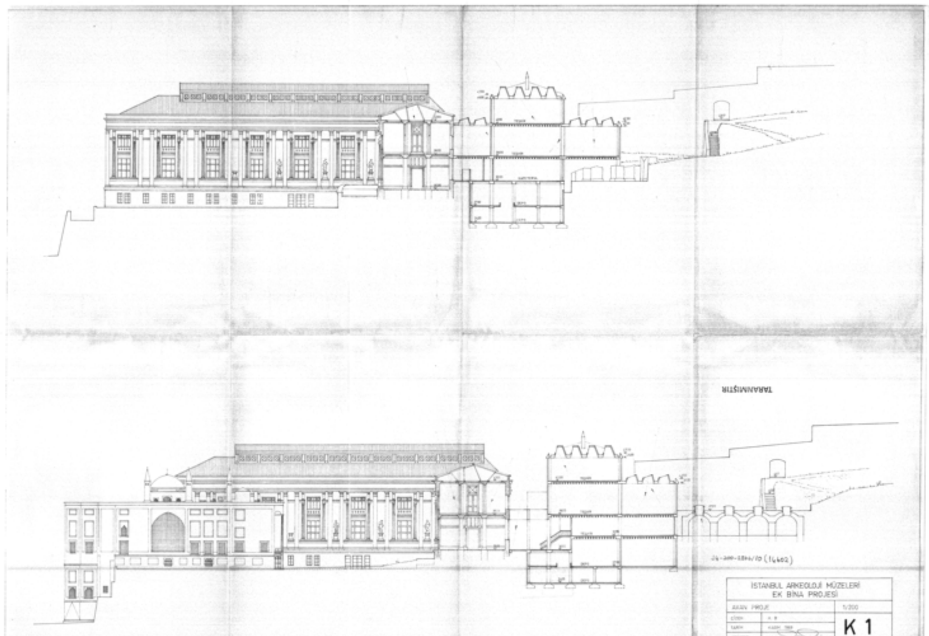


Figure 123. The sections of Additional Building Dated November 1969 and signed by Hüseyin Başçetinçelik (source: IDSM Archive- Istanbul No. 4 Regional Council for the Conservation of Cultural Heritage)

Because of the Byzantine remains uncovered during the foundation excavation of additional building, the construction took 15 years to complete. At the time of its construction, there were even protests that made it into the newspapers. Due to necessary council processes, archaeological excavation work, the documentation of these findings, and the need to revise the structure to be built according to these records, the construction had to be halted for a long period. However, despite everything, it was eventually completed at the planned location. It is possible to trace this process through the decisions of the Istanbul IV. Regional Council for the Conservation of Cultural Heritage.

The archive of the Istanbul IV. Regional Council for the Conservation of Cultural Heritage (*İstanbul 4 Numaralı Kültür Varlıklarını Koruma Bölge Kurulu*) Müdürlüğü) provides information on previously unknown details regarding the construction of the additional building (Figure 118-119). Firstly, it is evident that the Council placed particular emphasis on the building's scale and its relationship with both *Topkapı* Palace and the Archaeology Museum. At the project stage, it was predominantly decided that there was no objection to constructing an additional building within the specified area. This decision outlined that the northern side of the site should maintain a five-meter distance from the enclosing wall of *Topkapı* Palace, and the parallel section to the Archaeology Museum should approximately align with the height of the Imperial Stables (*Has Ahırlar*). On the side facing the Mint (*Darphane*), it was required that the new structure not obstruct the *Darphane* Pavilion and maintain an approximate thirty-meter distance from the Archaeology Museum[82].

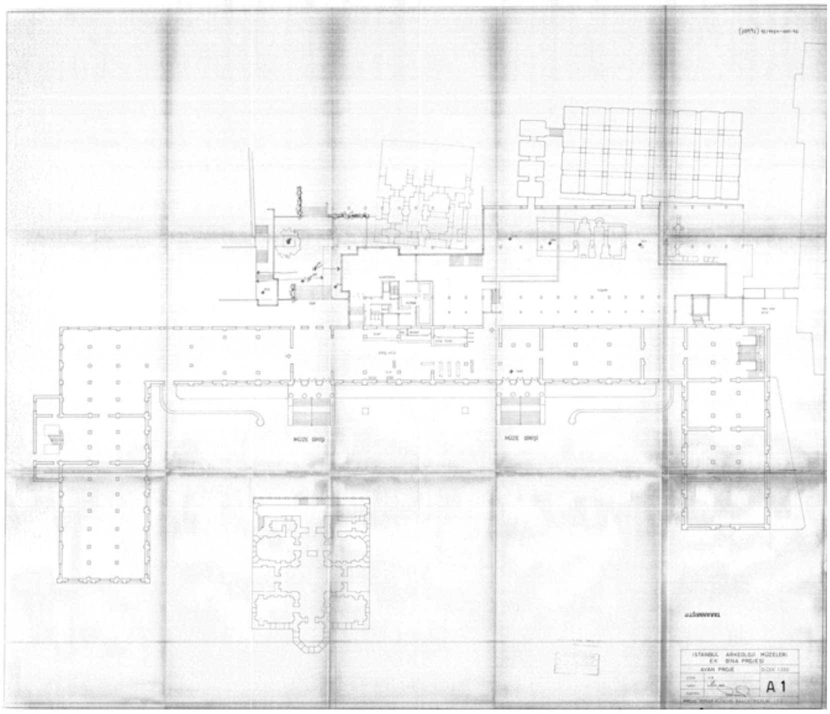
In the decision numbered 4631, dated 25.05.1969, the *Gayrimenkul Eski Eserler ve Anıtlar Yüksek Kurulu* (GEEAYK) determined that the remnants found on the site of the Archaeology Museum's additional building were historical artifacts that needed preservation. It was deemed appropriate to preserve these remains in

[82] The decision number 2583, dated 11.10.1964 by GEEAYK

their existing locations beneath the new building, and the cisterns outside the additional building were already planned to be preserved and utilized. Additionally, other remains were to be incorporated and preserved within the museum building, as indicated in the preliminary project. It was stipulated that work could proceed provided that the preliminary project, prepared according to these principles, was approved by the Council.

Regarding the fate of the remains on the site, it was determined that due to structural requirements, some of these remains would need to be removed to accommodate the earthquake beams necessary for constructing Section C of the building. Consequently, a decision was made to preserve all other remains within the building, except for those affected by the columns and earthquake beams. Unfortunately, due to this structural necessity, permission was granted for the removal of the Late Byzantine apse and the associated bath wall located between the D and H axes[83] (Figure 124, Figure 125).

[83]The decision number 7414, 15.9.1973 dated by GEEAYK



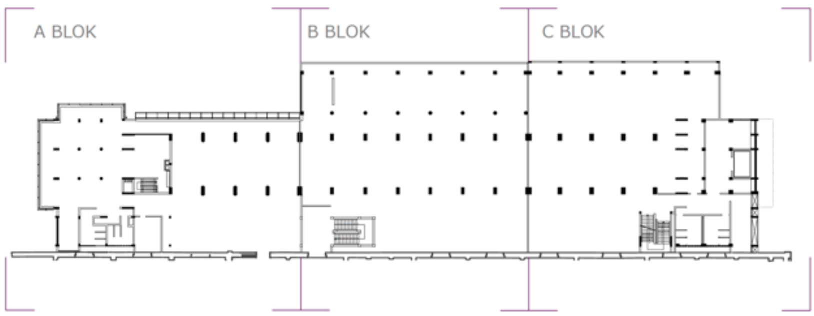


Figure 124.The preliminary project of Additional Building signed by Hüseyin Başçetinçelik (source: IDSM Archive- Istanbul No. 4 Regional Council for the Conservation of Cultural Heritage)

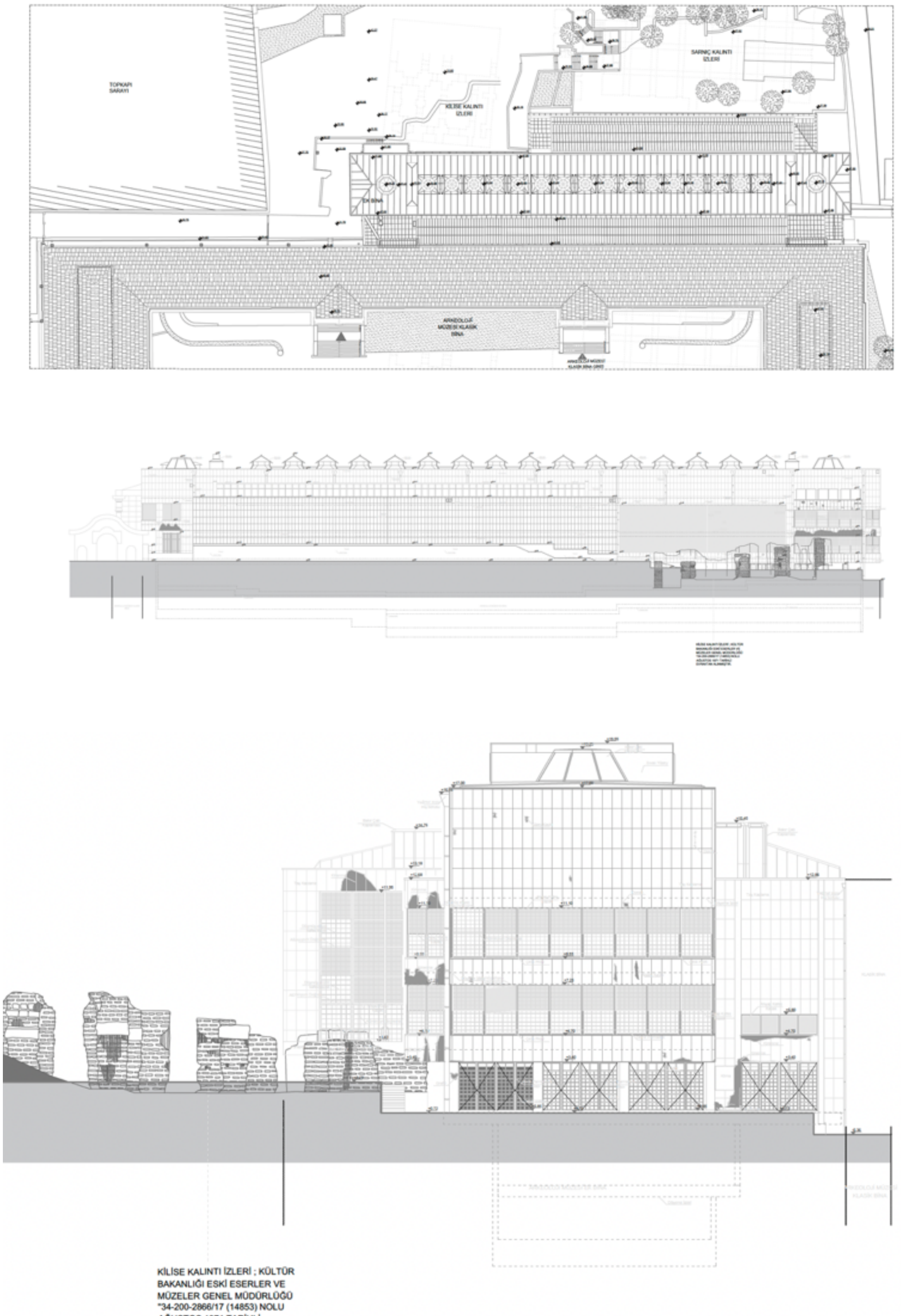


Figure 125. (Top) The key plan of Additional Building (Middle) The south elevation of Additional Building (Bottom) The east elevation of Additional Building (drawn by *YD Mimarlık* source IDSM Archive

The approved projects related to decisions made about IAM provide the following information:

i. The survey project for the Classical Building of the Istanbul Archaeology Museums Directorate was approved by Istanbul no:I RCCCNH *(Regional Council for the Conservation of Cultural and Natural Heritage)* with decision number 1097, dated 10.08.2005.
ii. The restoration and reinforcement project were approved by the Istanbul no: IV RCCCNH with decision number 4543, dated 11.04.2011.
iii. The implementation project for the display arrangement of the first section of the Istanbul Archaeology Museums was approved by İstanbul no:IV RCCCH *(Regional Council for the Conservation of Cultural Heritage)* with decision number 2958, dated 05.11.2014.

Two decisions[84] of GEEAYK from 1980 and 1981 concerning the IAM building are important for shedding light on the interventions made to the structure during this period. In the first decision (numbered 12444, dated 13.12.1980), by the High Council of Immovable Antiquities and Monuments), it was determined that there would be no objection to raising the terrace roof above the stairs leading to the library of the old building of the Istanbul Archaeology Museum by 1 meter and constructing it as a wooden hipped roof, with the space underneath designated for use. The second decision[85] (numbered 12664, dated 14.3.1981, by the High Council of Immovable Antiquities and Monuments) states that there was no objection to the removal of Late Ottoman remnants encountered in the tunnel being opened to connect the Classical Art Section of the Archaeology Museums with the newly constructed building, as these remnants obstructed access to the museum's storage areas.

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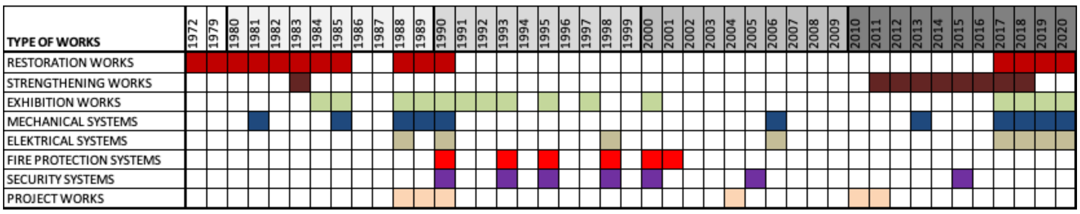
[84] Decision number 12444, date 13.12.1980 by GEEAYK
[85] Desicion number 12664, date 14.3.1981 by GEEAYK

6th Period: The Maintenance Works of IAM in between 1984-2010

From 1984 until 2010, no major intervention was made to the building. However, since it is a museum, regular maintenance, repair, security, fire hazards were made by the Ministry of Culture. The archive of Istanbul Directorate of Surveying and Monuments which is responsible of all repairment on the historical building and museums under the Ministry (Cultural Heritage and Museums General Directorate, The Ministry of Culture and Tourism) is scanned to picture the history of conservation of the museum. The all works related to Istanbul Archaeological Museums are listed and analyzed according to their scope and topic. All works are done by the monitoring of the Istanbul Directorate of Surveying and Monuments between the year 1972 and 2020.

The works are analyzed and tabulated in Table 1 according to subject and scope of the interventions. Since the data in this table includes files of projects conducted under the Ministry's oversight and supervision, it should be noted that interventions carried out by other institutions or through sponsorships are not included.

Table 1.Repair works between 1972 and 2020 (generated by the author, source: IDSM Archive)



Based on a review of the IDSM Archive, the table covering projects from 1972 to 2020 indicates that the building underwent structural reinforcement interventions in 1983 and between 2011 and 2018. In 1983, the ceiling of the sarcophagus hall was reinforced with additional profiles, while the reinforcement work begun in 2011 covered 1st Construction Phase and 3rd Construction Phase, which will be detailed in the following section. It is also observed that during the years 2009, 2010, and 2011, the structural reinforcement, survey, and restoration projects were prepared and approved by the relevant Conservation Board. Following this process, the implementation work gained momentum.

An examination of the restoration efforts reveals that the work was most concentrated in the 1980s and 2000s. In the early 1900s, separate projects were frequently tendered for fire and security measures, and it appears that exhibit arrangement efforts continued during these years. The fragmented, smaller contracts with relatively low bid amounts may reflect the available funding and budget allocations.

Work included in the restoration encompasses roof repairs, interventions on wooden doors and windows, façade repair work, the addition of reinforced concrete lintels above certain exterior windows, and painting. Notably, documentation from 1988, 1989, and 1999 mentions the removal of aluminum window frames, indicating that these windows had been previously replaced with aluminum. In the most recent restoration, all windows were converted back to wooden frames. Given the lack of detailed documentation for each project, the works mentioned above are based solely on the available archival records.

From 1968 to 1982, ***Hüseyin Başçetinçelik*** is listed as the Controller Architect for IAM projects in Istanbul Directorate of Surveying and Monuments. Hüseyin Başçetinçelik played roles both in the additional building projects and as a supervisor. After 1982, Hüseyin Başçetinçelik appears in records as a director of IDSM, while ***Nevzat Özinanç***, who had previously been part of the supervisory organization, assumed the role of Controller Architect. Contractor names frequently appearing in contracts from these years include;

- ***Insa İnşaat Taahhüdü Ticaret ve Sanayi Limited Şirketi*** (Archaeology Museums, Section VI Construction, 1979),

- ***Tacettin Başer*** (Istanbul Archaeology Museums, 1981, Section VIII Construction – Istanbul Archaeology Museum 1985 Restoration and Display Arrangement),
- ***Demirhan Akyüz*** (Istanbul Archaeology Museums, Old Oriental Artifacts Museum 1982 Roof Repair – Istanbul Archaeology Museum 1984 Restoration and Display Arrangement, 1983 Construction and Display Arrangement)
- ***Güryapı İnşaat İnş. Taah. A.Ş.*** (Istanbul Archaeology Museum Classical Building Restoration, Display Arrangement, and Landscaping, 2017 – Istanbul Archaeology Museums Classical Building Reinforcement and Restoration Project, 2011).

Reports prepared by the Commission of Controller in the IDSM Archive indicate that, after the construction of the additional building, drainage issues affected the second basement floors of both the classical and additional buildings. The additional building, constructed adjacent to a Byzantine cistern, preserved certain remnants uncovered during the excavation. The building has faced persistent water issues due to inadequate rainwater and groundwater drainage. This issue is detailed in a report by Nevzat Özinanç, then serving as Controller Architect. Consequently, a geotechnical report addressing the causes and solutions for moisture and water leakage was commissioned from the Faculty of Civil Engineering at Istanbul Technical University (İTÜ).

The report from İTÜ attributed the water leakage seen on the second basement floor of the additional building to groundwater levels rising above the basement level in the area where the building was constructed. The moisture issue observed on the ground floor of the classical building was determined to stem from capillary water movement in the lower level of the walls. Correspondence mentions that a project addressing the water issue was prepared in 1985. Despite drainage efforts over the years, the water problem in the basement of the additional building persists today, requiring occasional interventions. (Figure 126).

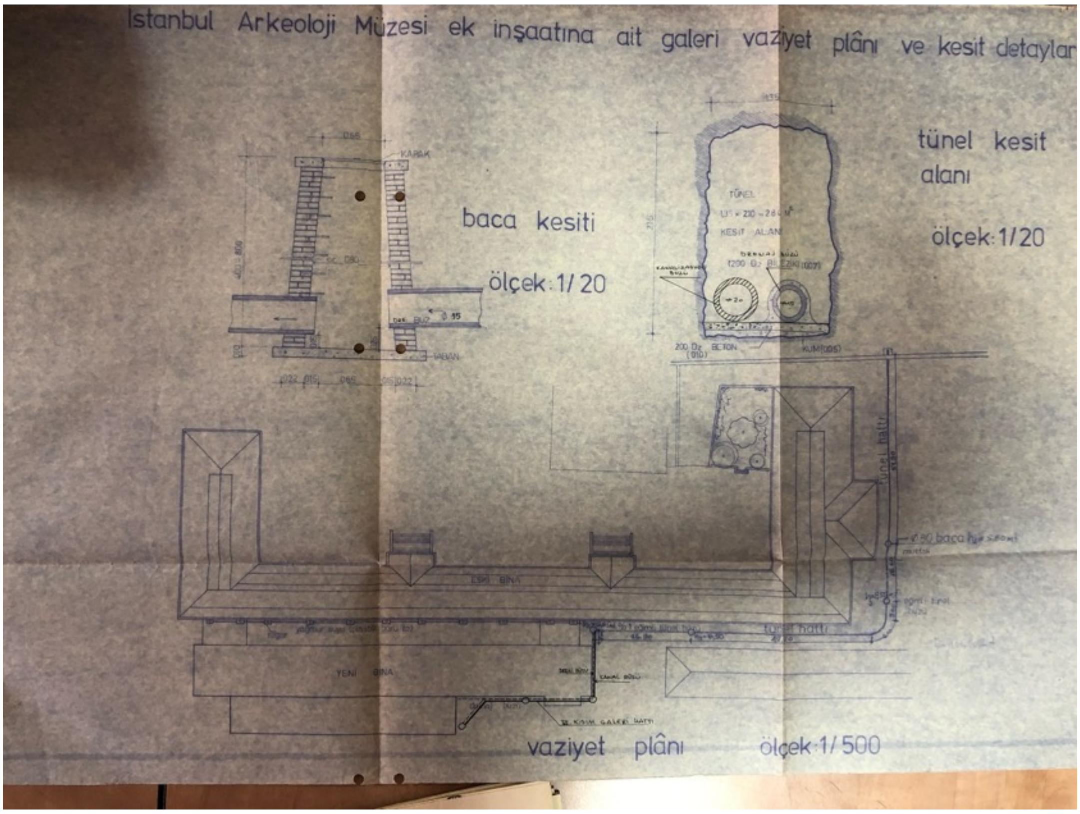


Figure 126. Drainage plan of the additional construction for the Istanbul Archaeology Museums (source IDSM Archive)

Although there is no document Istanbul Directorate of Surveying and Monuments Archive which show that the structural repair done to the building during this period, a report done by *Güryapı Restoratiın Inş. Taah. A.Ş.* during the restoration states that the ceiling structure of Hall 20 of 3rd construction phase reinforced by using additional iron elements in 2007. There is no detail except from the company reports showing the survey of the ceiling, since the work is not managed by the Culture and Tourism Ministry. Most probably the work done by sponsorship during the decoration work of Conference Hall in 2007.

7th Period: The Comprehensive Strengthening and Restoration Process in between 2011-2024

The building underwent a major intervention in the 2010s. Within the scope of the state's policy of strengthening public buildings, the Museum building was also strengthened. The static projects for strengthening of the Istanbul Archaeological Museums were prepared by the IPKB (*İstanbul Valiliği İstanbul Proje ve Koordinasyon Birimi*) supported by World Bank fund. The tender and contract for the work of "*İstanbul Arkeoloji Müzeleri Klasik Bina Güçlendirme ve Restorasyon Projesi*" was signed on 08.08.2011 by sponsorship of TURSAB) In 09.12.2016 due to the lack of budget of sponsor, the work had to be stopped.

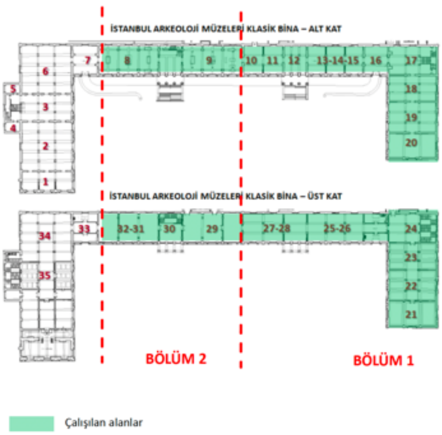


Figure 127. The places worked during the 2011 and 2017 Restoration Works (Source IDSM Archive)

As part of the 2011 work on 1st and 3rd Phases of the IAM building (Figure 127), the following interventions were carried out: Removal of marble cladding on the ground floor, removal of wooden cladding on the upper floors, scraping of plaster in areas designated for reinforcement plates on the walls, installation of reinforcement plates on walls and columns, drilling of anchor holes for steel plates, placement of anchor bolts, excavation of foundation footings in load-bearing walls, strengthening of column footings, construction of reinforced concrete beams for the foundations of load-bearing walls, Installation of reinforcement cables on the vault flooring, repairs to wooden door frames and panels, reinforcement of lintels above windows, cleaning of darkened areas at the roof level on the courtyard façade using pure water spray and various roof-related works (Figure 128, Figure 129).


Figure 128. Photographs that were taken during Reinforcement and restoration works on columns and walls, Left: Hall 13-14-15 Right: Hall 25 (source: IDSM Archive)


Figure 129. Photographs that were taken during Reinforcement and restoration works on ground floor, Left: Hall 28, Right: Hall 19 (source: IDSM Archive)

After the implementation of strengthening equipment to the structure in 2017, the restoration efforts started in accordance with the approved restoration project. The contract for the new work of "*İstanbul Arkeoloji Müzesi Klasik Bina Onarımı Teşhir Tanzimi ve Çevre Düzenlemesi"* was signed by Istanbul Department of Surveying and Monuments on 19.10.2017 contract was signed.

As part of this work, structural reinforcement for Phases 1 and 3 of the IAM building was completed, and the interior decoration and display arrangement were finalized, allowing the museum to reopen to visitors (Figure 130). The following tasks were carried out as part of this work: Installation of drywall (*alçıpan*) wall cladding, restoration of original ceilings with handmade decorative painting on them, reinforcement of floors and bases in areas housing heavy artifacts, works related wooden doors and windows, Installation of marble flooring on the ground floor, works related original and new wood parquet flooring for the first floor, mechanical cleaning of the building façade, Installation of fire, security, lighting, and climate control systems, production of display cases according to the exhibition project. The third restoration project, titled "*İstanbul Arkeoloji Müzeleri Klasik Bina 3. Etap, Çinili Köşk, Eski Şark Eserleri, Çukurbostan Restorasyon, Teşhir Tanzim ve Çevre Düzenleme işi*" (Istanbul Archaeological Museums Classical Building Phase 3, Tiled Kiosk, Museum of the Ancient Orient, Çukurbostan Restoration, Exhibition Arrangement, and Landscaping Project*)* was started in 2022 and currently continue.

Figure 130. The Photograph taken after latest restoration works (taken by the author)

When examining the period from the initial construction of the Istanbul Archaeological Museum to the present day, it becomes evident that the building has consistently been used for the same purpose. As a result, routine maintenance and repair work, as well as occasional structural reinforcements when deemed necessary, have been carried out without compromising the fundamental features of the structure. Interventions beyond this were generally limited to minor activities, such as painting and whitewashing, to ensure the continued use of the building. However, over this extended period, some original materials, such as window frames and floor coverings, have been replaced.

It is understood that reinforcement work has been conducted in the Sarcophagus Hall and Hall 21, which feature the widest spans. There may also have been interventions carried out using alternative resources, such as sponsorships, that were not documented within the scope of this study, but these are presumed to be of limited scope. The most extensive intervention the building underwent appears to have occurred after 2010. However, as these interventions were divided into phases, certain parts of the building have been reinforced while others are still considered to be under reinforcement efforts.

In recent years, it has been observed that the building has been equipped with mechanical and electrical systems in line with modern museology practices. Considering the entire process, a historical structure equipped with modern facilities to meet contemporary needs has been built upon the heritage of Byzantium. Today, the Istanbul Archaeology Museum building has been transformed into a modern museum that integrates 21st-century museum construction and exhibition technologies, reinforced with contemporary techniques.

CHAPTER 4

THE STRUCTURAL SYSTEM AND CONSTRUCTION TECHNIQUES OF ISTANBUL ARCHAEOLOGICAL MUSEUM BUILDING BETWEEN 1887-1907

The rapid changes experienced in every aspect of city life in the 19th century Ottoman Empire were reflected in the architectural field, particularly through the construction techniques and materials used in new buildings. The production of new building materials increased significantly, making them more affordable and accessible. Both foreign and local architects utilized these materials, applying new construction techniques alongside traditional methods to adapt them to the local context. As a result, the construction methods proposed and applied by prominent architects needed to be integrated with traditional techniques.

Aiming to better understand and evaluate the effects of these contextual changes, this chapter focuses on the Classical Building of the Istanbul Archaeological Museums (IAM), a historical structure that serves as an excellent example for examining the new construction techniques and the use of modern materials in 19th century Ottoman architecture (Figure 131). The chapter aims to reveal and introduce the previously unknown system details and connection solutions that combine traditional and modern materials such as timber and iron**.**

The sources utilized for this purpose, including system details, material analysis, reports, and photographs from reinforcement implementations, were all obtained from the Istanbul Directorate of Surveying and Monuments (IDSM) (*Istanbul Rölöve ve Anıtlar Müdürlüğü*) Archives and Istanbul Restoration and Conservation Central and Regional Laboratory Directorate (IRCCRLD) (*Istanbul Restorasyon ve Konservasyon Merkez ve Bölge Laboratuvarı Müdürlüğü*) and they all presented here for the first time considering construction system as a whole. These sources shed light on the hidden and often invisible construction details of the IAM building.

Figure 131. IAM Building (source: IAM-Photography Archive)

Besides, all information related to construction techniques of IAM is considering the context of the 1894 Great Istanbul Earthquake. As mentioned in Chapter 3, the IAM building was constructed in three stages over a period of 20 years (1887-1891 / 1899-1903 / 1904-1907), and just three years after the first section was completed, the 1894 earthquake struck Istanbul. It is possible that the devastation caused by this significant earthquake, along with the redirection of resources to repair the city, delayed the start of the second building's construction until 1903. At the end of the 19^{th} century, structural concerns intensified due to the earthquake, leading to the exploration of new materials and construction techniques. In fact, fire resistance was a crucial issue in Ottoman city construction projects, even before the earthquake. Therefore, this chapter aims to investigate whether the threats of fire and earthquakes influenced the construction processes during the 20 years construction period.

In this study each hall of the museum is called by its hall numbers (from 1 to 35) correspond to those still used to identify the museum's exhibition halls (Figure 132These codes were assigned solely to the exhibition halls, beginning from the north wing (2nd Phase of construction) on the ground floor and continuing clockwise toward the south wing of the building (3rd Phase of construction). The same numbering order was used on the first floor. Spaces without hall numbers are specified separately, with details on their function and floor level.

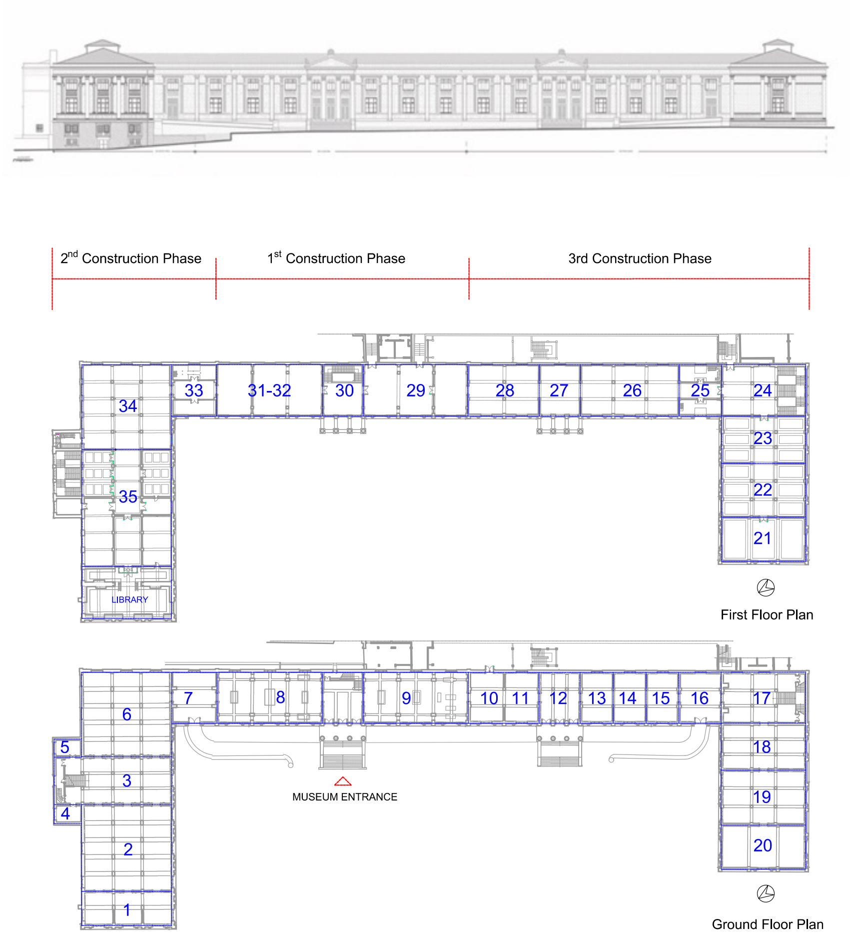


Figure 132. The Hall Numbers of IAM Building (generated by the author based on restoration project drawn by *Seçkin Mimari Hizmetleri* source: IDSM Archive)

The chapter begins by shortly portraying the site characteristics and architectural features of the IAM to remind the building's characteristics and location within the city and its relationship with its surroundings. Following this, the chapter elaborates on IAM's construction materials and the transportation routes for imported materials. Subsequently, the construction techniques are explained from the foundation to the roof. To be able to that the structure analyzed into two titles; the substructure of the museum with interventions done to site during foundation excavations; the superstructure covering vertical and lateral load bearing systems of the museum and the roof system are separately given.

4.1 Architectural Features of Istanbul Archaeological Museum Building

The museum was constructed in three phases between 1891 and 1907, located in Istanbul Province, *Fatih* District, *Cankurtaran* Neighborhood, *Sultanahmet* District, on island number 2, plot numbers 38-41. The museum' plot situated in the outer garden of *Topkapı* Palace looking *Gülhane* Park. The western boundary of the museum plot is naturally defined by the elevation difference between *Gülhane* Park and the museum courtyard, where massive retaining walls and galleries are situated along this border. The IAM is located in the western outer garden of the first courtyard of *Topkapı* Palace, adjacent to *Gülhane* Park, which also served as an extension of this garden.

Today, it is possible to access the IAM from both the *Topkapı* Palace courtyard and *Gülhane* Park via Osman Hamdi Bey Street. Although the museum complex, excluding the Tiled Kiosk, adhered to the architectural style of the late 19th century, it did not contribute to Istanbul's urban image in the same way as its counterpart museum buildings (Z. Çelik, 2016). This was largely due to its location within the palace gardens, making it inaccessible to the public. The quiet and isolated setting created a unique perception of the museum. However, the opening of Gülhane (Sarayburnu) Park changed this dynamic, allowing citizens to visit the complex through the west and south entrances in the outer gardens of Topkapı Palace. The park, organized under the leadership of Istanbul city manager Cemil Pasha (Topuzlu), was transformed into a public park in 1912, and since then, the IAM has been open to the public.

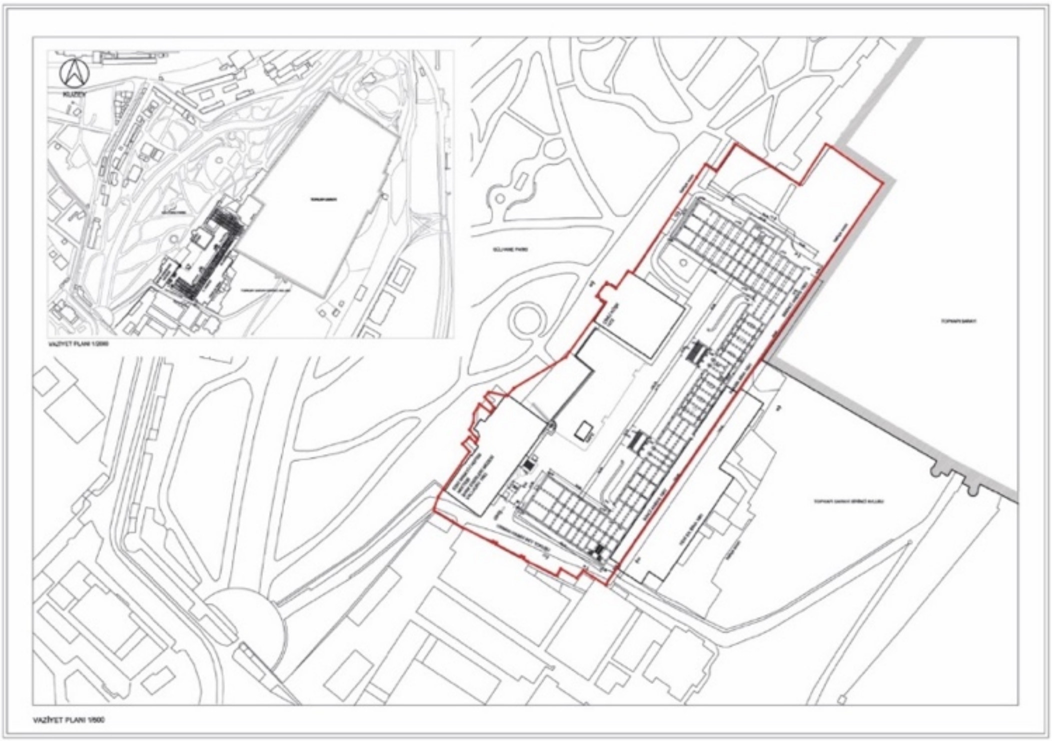


Figure 133. The site plan showing the plot borders of IAM and its courtyard (source: *Seçkin Mimari Hizmetleri*, IDSM Archive)

The Classical Building of the Istanbul Archaeological Museum is one of the earliest works of Alexandre Vallaury. Vallaury's design adhered to a very classical plan scheme, with a strong Neo-Greek influence (Batur, 1993, p. 310). The building features pure, geometric forms. Çelik (2016) notes that its "*Greek and Roman*" style, which aligns with the historic context of the building, creates a “correspondence between the building and its collection.” Unlike Vallaury's later works, this building does not incorporate Ottoman motifs, instead offering a European appearance that reflects the neoclassical style prevalent at the time. The design principles of the École des Beaux-Arts are clearly evident in the building, and it is argued that the plan layout, facades, and function should be approached holistically (Figure 134).

Figure 134. The IAM Building Palace (IAM-Photography Archive)

During the late Ottoman period, the imperial power sought to forge a unified Ottoman identity by reinterpreting Greco-Roman and Byzantine heritage and displaying artifacts unearthed in lands under Ottoman control. Gürol (2008) suggests that to protect its authority against the potential threat of independence movements among its diverse religious and ethnic communities, the imperial power viewed the Imperial Museum as a communicative tool to demonstrate how the Empire embraced various cultures (Gürol, 2008, p. 123). Thus, the Imperial Museum, designed to rival European museums, would showcase artifacts found within the Ottoman Empire's territories to emphasize its imperial power. The Imperial Museum offered a space where the entire empire could be seen as a unified whole through the juxtaposition of its various parts. Archaeological discoveries were especially well-suited for this purpose, as they not only represented the provinces but also reinforced a sense of centralized patriotism in response to European incursions on Ottoman territory, exemplified by the presence of European archaeologists (Shaw, 2011).

When considering the appropriate architectural style for the first Imperial Museum, two small-scale alternative plans and facade sketches[86] found in the Museum Archive offer valuable insights into the museum's underlying architectural concept. These sketches indicate that two distinct architectural styles were initially considered, or at least discussed, for the first Ottoman Imperial Museum: one rooted in traditional elements and the other with stronger European influences. Ultimately, it appears that the neoclassical architectural style was chosen.

While we lack specific evidence regarding the roles played by the architect, the museum director, influential bureaucrats of the time, or the sultan in this style selection process, it is likely that an agreement between the architect and the state—as the client—was reached, potentially shaping the final stylistic decision.

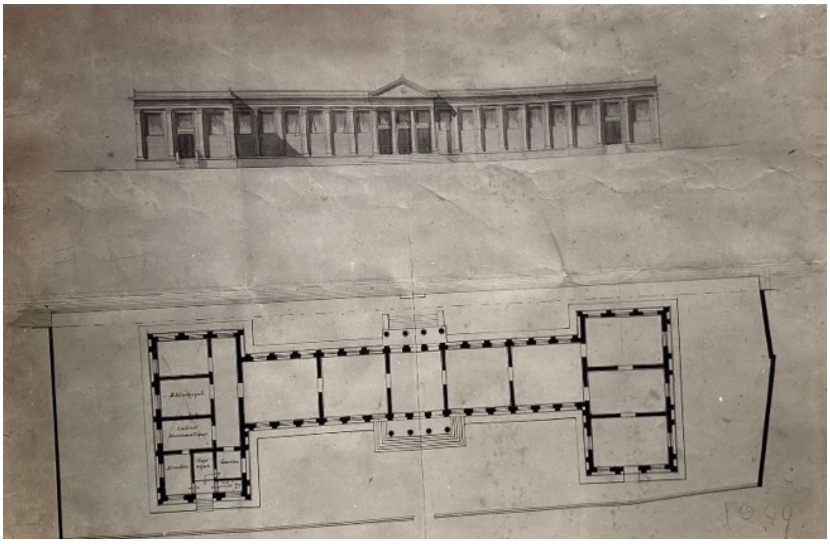


Figure 135. An alternative conceptual plan and elevation drawing with Neoclassical motifs, found in the IAM-Photography Archive

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[86] There is no references numbers on the sketches which found in IAM Photography Archive

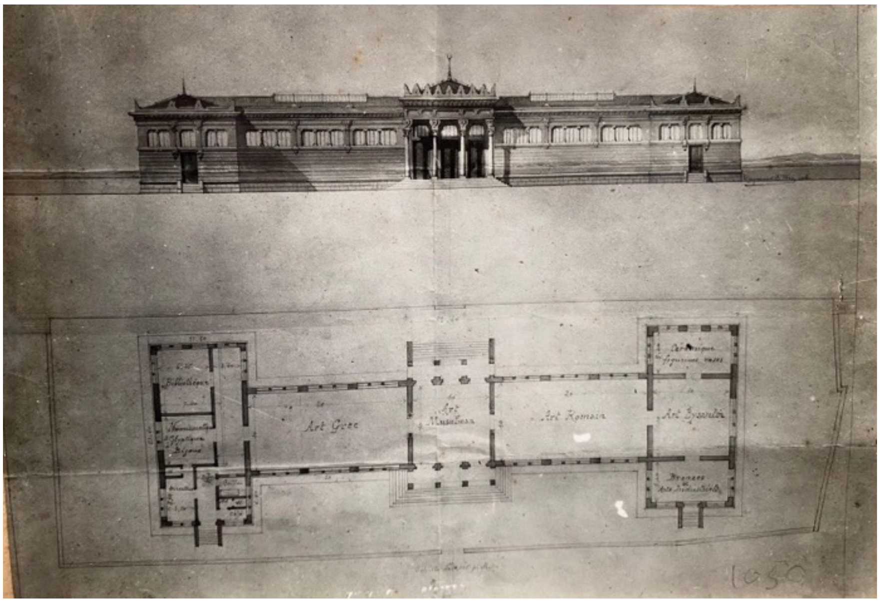

Figure 136. An alternative conceptual plan and elevation drawing with traditional motifs, found in the IAM-Photography Archive

Another intriguing aspect is that both sketches share common elements with the final design of the Archaeological Museum Building, suggesting that they may represent the museum's initial conceptual designs. For example, both the realized plan and the conceptual sketches feature symmetrical layouts with monumental central marble staircases supported by large columns, similar to those in the IAM building. Additionally, in both plans, the left side is designated for the library and service units, as seen in the IAM building. The most notable difference from the IAM building is that both sketches (Figure 135, Figure 136) include two side staircases, providing access from both the front and rear facades, which may suggest they were intended for a different location or a flexible site.

Figure 137. The architect's signature “Raymond C. Péré" on the conceptual plan and elevation drawing with traditional motifs, found in the IAM Archive

In one of these drawings, there is a signature on the right side that, though not entirely legible, seems to read “Raymond C. Péré" (Figure 134) Raymond Charles Péré (1854-1929) was a French architect who worked for Sultan Abdülhamid II and is best known for designing the Izmir Clock Tower. Interestingly, Péré continued his career working mainly for clients in Izmir not in İstanbul, particularly Levantine and Catholic communities (Berkant, 2005). There are maps, plans, and architectural drawings of buildings belonging to a certain Catholic sect prepared by the architect. These drawings were commissioned to the architect for the documentation and illustration of structures associated with this sect (Berkant, 2005). The architect's signature is located in the lower right corner of these drawings which are very similar to the signature on the IAM' sketches. It remains unclear, however, how these sketches came to be housed in the museum archive or who might have placed them there.

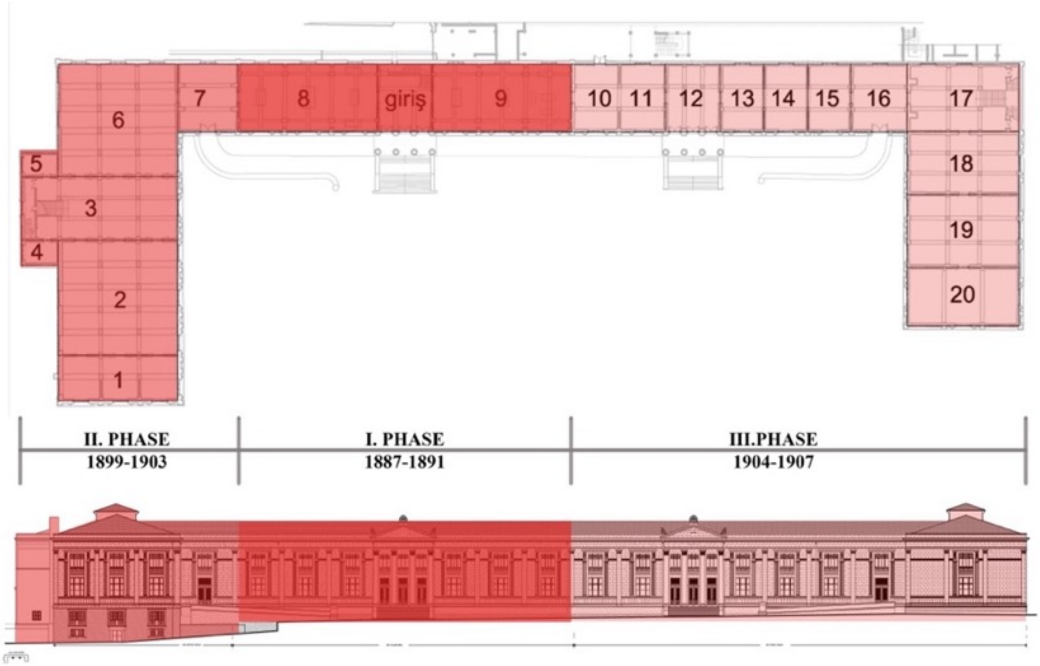

Figure 138. The plan and elevation of IAM building showing the construction Phases with color (generated by the author on the restoration Project drawn by *Seçkin Mimari Hizmetleri*, source: IDSM Archive)

As detailed in Chapter 3, the new IAM building was constructed between 1887 and 1891. Although the main building was initially planned as a single-storey structure, the idea of adding additional stories was introduced at the suggestion of Osman Hamdi. Due to the new building's insufficiency, two extensions were quickly added. The first extension, built to the north between 1899 and 1903, is also known as the first Annex (2nd Phase of IAM). The second extension, constructed to the south between 1904 and 1907, is referred to as the second Annex (3rd Phase of IAM)(Cezar, 1971, p. 203). These three sections were designed as a cohesive whole and are now collectively known as the Classical Building (Figure 138). The museum's expansion process continued over time. It is possible that, to present a lower budget given the difficult economic conditions and to secure the Sultan's approval, each building was initially proposed as a single-storey structure. Once construction began, authorities were informed that the space would be insufficient, leading to permission being granted for additional stories as construction progressed.

Alexandre Vallaury designed the museum with a series of consecutive halls, ensuring that the general circulation pattern remained uninterrupted even with the construction of extensions. The circulation scheme in the new extensions sought to maintain continuity with the existing façade layout. Although the building was constructed in three stages and further modified internally, it is almost impossible to discern these phases from the exterior facades. This unity of style also extends to the overall plan scheme.

The first building consisted of an entrance section and two main halls housing sarcophagi brought from Sidon. In the hall, entered after passing through the propylon and aligned with the Tiled Kiosk, a single-armed staircase leads to the upper floor. On either side of the entrance hall, around 20 sarcophagi discovered during the excavations in Sidon, including the famous Alexander Sarcophagus, are displayed. Above the lintels of the doors between the exhibition halls, the architect left space for four mini-columns adorned with Ionic-order decorative elements, providing an interesting solution that ensures continuity between the spaces (Batur, 1993) (Figure 139, Figure 140). The height of the second floor is slightly less than that of the ground floor.

Figure 139. The original alternative drawing showing the design above the lintels of the doors between the exhibition halls (source: IAM Archive 16, G2/R2/3)

Figure 140. Applied design solution above the lintels of the doors between the exhibition halls (taken by author in 2024)

The 2nd Construction Phase was carefully integrated with the first phase, maintaining the architectural elements, concept, and forms both inside and outside. This section has four stories; the ground floor is reserved for administrative units, while the other two floors are used for exhibitions. Additionally, there is a partial basement on the *Gülhane* Park side used for storage. On the second floor of this section, there is a library accessed by a double armed staircase. The staircase features a monumental arrangement: a Medusa figure is placed at the landing, flanked by a pair of roaring lion statues. The library, with its wooden interior stairs and mezzanines, contrasts sharply with the other monumental halls of the museum in terms of material and proportions (Batur, 1993).

The third construction phase was originally intended to be symmetrical with the north wing (the second construction phase). However, due to the discovery of a cistern beneath the garden, the additional section was kept wider, as mentioned earlier. It is believed that Vallaury intended to create a symmetrical U-shaped plan surrounding the Tiled Kiosk, but he was unable to do so due to the presence of two cisterns in the courtyard (IAM Archive, Cartoon 45/2, File: 504, 18 Nisan 1322-Mai, 1 1906) and the growing needs of the museum over time (explained in Chapter 3.3.3). To address these challenges, the architect had to add another large door of the same size, featuring massive columns and marble stairs. Despite these changes, the building's "unity of style" remained intact. To maintain symmetry, the museum was designed with two main entrances; the south wing was integrated with the *Sanayi-i Nefise Mektebi* building. This part of the building is two stories tall, with all floors dedicated to exhibition space. As in the second construction phase, a double-armed monumental staircase was also included (Figure 141).

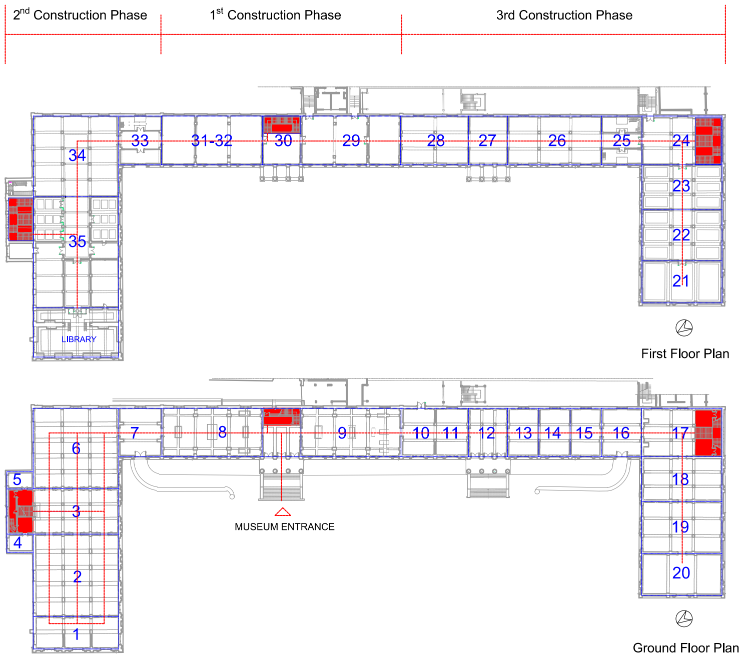

Figure 141. The circulation plan of IAM building for ground and first floor (drawn by the author on the restoration Project drawn by *Seçkin Mimari Hizmetleri*, IDSM Archive)

Figure 142. Façade elements of IAM building (taken by the author)

Considering the façade features, the initial conceptual elements that define the façades, such as the triangular pediment, acroterion, colonnaded entrance portico, and sculptures are consistent with the museum design templates of the period, and the building's exterior reflects its intended function (Figure 142) (Say, 2014, pp. 124–

125). Despite all the ornamentation on the front, the rear façades have been left quite plain, with no decorative elements applied, nor was stone cladding used on the rear façades (Figure 143).

Figure 143. Rare Façade elements of IAM Building (source: Restoration Project drawn by *Seçkin Mimari Hizmetleri*, source: IDSM Archive)

According to the generally accepted view, the "Sarcophagus of Mourning Women" (Figure 144) significantly influenced the architectural concept of the museum[87]. The composition of this sarcophagus, with its emphasis on classical architectural elements such as Ionic columns and a pediment, is indeed powerful enough to serve as a source of inspiration. However, it can be argued that Alexandre Vallaury was more interested in the classicist ideals evoked by the work rather than

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[87] See Ogan, A. (1947). *Türk Müzeciği'nin 100. Yıldönümü*. Türkiye Turing ve Otomobil Kurumu, for different perspective see Özkaya, B. T. (2014). The British Museum, Müze-i Hümâyun and the travelling "Greek ideal" in the nineteenth century. *New Perspectives on Turkey*, *50*, 9-28.

merely replicating its intriguing formal elements (Batur, 1993). In fact, common decorative details seen on most of the sarcophagi like the Sarcophagus of Alexander the Great (Figure 145) discovered in the Sidon Excavation are also evident on the museum's façade. Moreover, these motifs from the sarcophagus decorations were already in use in contemporary European buildings where the Neo-Greek architectural style was prevalent, as they are rooted in the art and architectural products of the classical age. Considering that Alexandre Vallaury received his architectural education at the *École des Beaux-Arts* in Paris, it can be assumed that the architect was not unfamiliar with the architectural style of the period.

Figure 144. The Sarcaphogy of Mourning women (taken by the author)

The architectural element that draws the most attention, after the two monumental entrance gates with columns and acroteria on their pediments, is the two-story high window module flanked by pilasters, which is repeated across all façades of the building. Notably, there is no floor cornice separating the first and second floors. In the third phase of construction, additional sculptures were placed on the façade. The contrast between the front and rear façades is striking; the rear façade is much simpler and unadorned, as it is out of the visitors' view.

Figure 145.(Left) The Sarcophagi of Iskender the great (Right) the detail from another sarcophagi of Sidon

For façade decoration, the architect chose to use palmette and lotus patterns, which were common in the early Ottoman period. These motifs are also present on the building's exterior and on the ancient sarcophagi exhibited in the museum. Palmette and lotus ornaments were selected as vegetal and floral patterns, while meanders and stars were used as geometric patterns (Figure 146).

Regarding the building's overall decoration program, it can be concluded that the museum features simple ornamentation that complements its architectural unity. There is a harmony and balance between the interior and exterior of the museum. The patterns seen on the façade, such as stone carvings or stucco, are repeated in the interior decoration through painted motifs on the cornices.

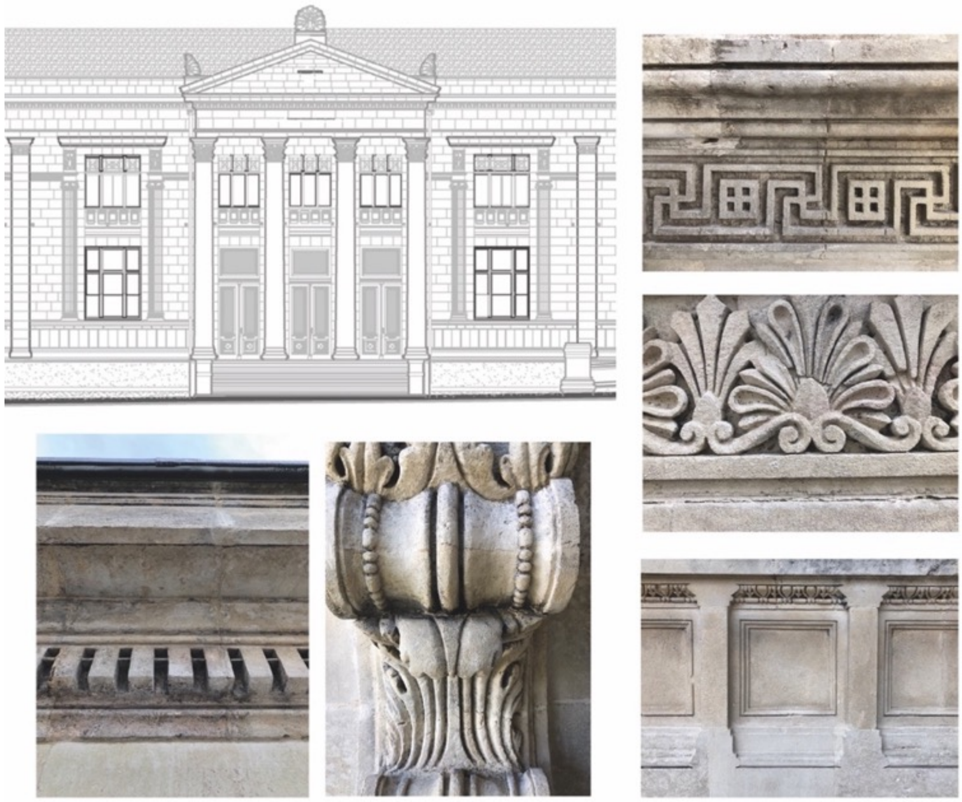

Figure 146. Façade elements of IAM building (elevation drawing; *Seçkin Mimari Hizmetleri*, photographs; taken by the author in 2018)

In the IAM building, hand-drawn painted decoration *(kalem işi) on wood* and *painted decoration on plaster* are the most commonly applied methods throughout the structure (Figure 147). In these painted decorations, patterns are applied to materials such as plaster, stone, wood, and leather using paint and brushes, and sometimes with the addition of gold leaf. Each material requires different techniques to produce ornamental paintwork.

The painted decoration on plaster is known as *kalemkari*, and the ceiling of the first construction phase of the IAM, which houses the antique sarcophagi, is adorned with *kalemkari*. How this decorated ceiling was applied to iron beams will be explained in the construction technique section. The painted decoration on wood is called *Edirnekari* in Ottoman art.

In the Ottoman Empire, the most used technique after painted decoration on plaster is painted decoration on wood. In the second and third construction phases are decorated with *Edirnekari* on ceilings' wooden cornices that divided the ceiling into rectangular spots. Furthermore, wooden decoration applied in the ceilings above the stairs and skylight that designed as grid with wooden paneling.

Figure 147. (Left) The photograph taken from ground floor of 1st Construction Phase of IAM (Right) The photograph taken from second floor of 3rd Construction Phase of IAM (source: IAM-Photography Archive)

During the restoration of the building, which began in 2017, painted decorations were discovered on the ceiling cornices beneath the Bordeaux paint in halls 8A and 9, the halls housing the sarcophagi (Figure 148). The restoration revealed an anthemion pattern, where palmette and lotus motifs are painted together on the ceiling cornices, with an egg-and-dart sequence beneath the anthemion line. The frieze, which uses anthemion, lotus, and palmette motifs as decoration, reflects a style frequently used in Greek art and architecture, particularly within the Ionic order. Given that palmette and lotus figures are also common in Islamic architectural ornamentation, this choice integrates elements of Islamic and Greek art in a neoclassical building that primarily houses Hellenistic and Classical artifacts.

Similar decorations were observed on the wall cornices of the staircase landing on the second floor of 1st Phase. However, this time, it is noted that shades of gray were preferred instead of the red, black, and white color scheme (Figure 149).

Figure 148. The photograph taken from ground floor of 1st Construction phase of IAM Hall no:8 and Hall no:9 (taken by the author in 2018)

Figure 149. Hand made decoration traces on the second floor of 1st construction phase, Hall no: 30 (teken by the author in 2018)

During the restoration work conducted in 2017, samples of colors and plasters were taken from the original cornices in Hall 8A and Hall 9 by the Istanbul Restoration and Conservation Central and Regional Laboratory Directorate (IRCCRLD). The necessary analyses were performed, and a detailed report was prepared. Advanced technical analyses were conducted using Raman spectroscopy to determine the structural components of the layered paint samples (Figure 150). As a result, in the Raman spectroscopy measurement performed on the bluish-gray background color of the paint layer taken from the 8A-2 coded area, peaks corresponding to white lead carbonate (PbCO3), linseed oil, and isinglass were detected in the spectrum. Additionally, in the measurement of the black paint used to create patterns on the surface of sample 8A-2, carbon (C), yellow lead (Pb2SnO4), and white lead carbonate (PbCO3) were identified.

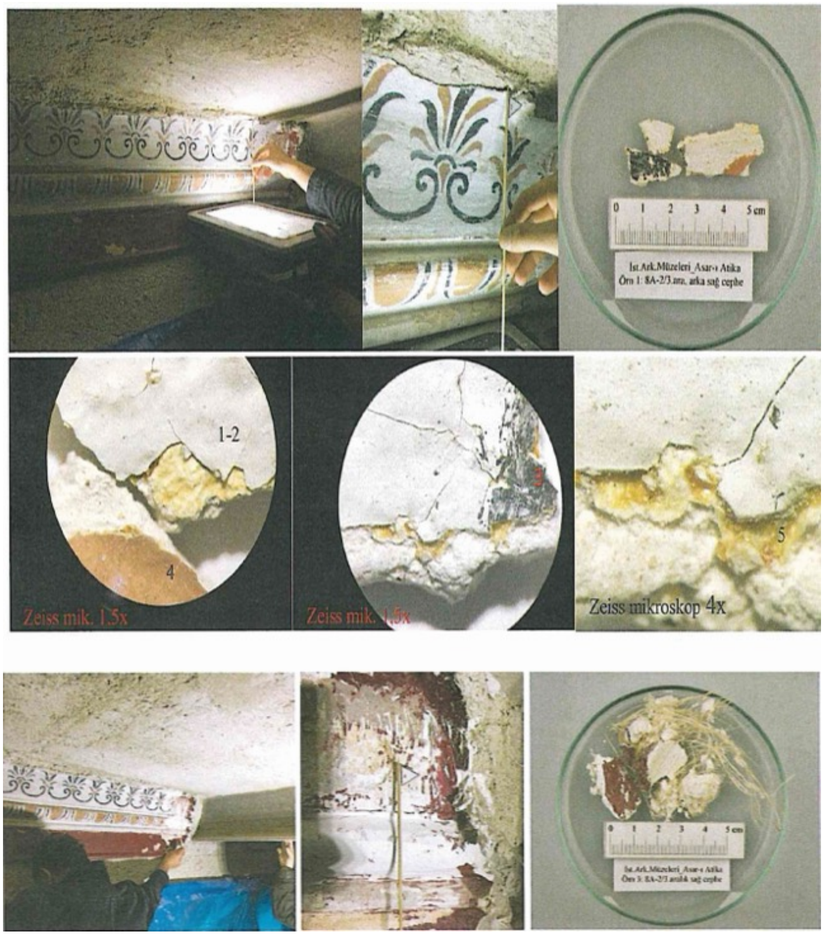

Figure 150. The samples of colors and plasters were taken from the original cornices in Hall 8A and Hall 9 (IRCCRLD report dated to 01.06.2018, prepared by Ismet Ok, Eftal Kiraz, source: IDSM Archive)

In light of all these analyses, the conservation work for the discovered decorative paintings on the ceiling cornices has been carried out. The ceiling paintings, which cover the entire ceiling and were documented in old photographs and the restoration project, were reapplied to the ceiling of the sarcophagus hall using the original construction techniques (For further details Chapter 4.3.2.2.) To distinguish them from the original decorative paintings, they were rendered in lighter tones (Figure 151).

Figure 151. (Left) The decorative ceiling Hall no: 8 after restoration, (Right) The decorative ceiling of Hall No: 30 after restoration (taken by the author in 2024)

4.2 Locally and Import Supplied Materials for Istanbul Archaeological Museum Building

In 19th century Istanbul's multicultural setting, new constructions involved diverse processes, from tendering to material sourcing and on-site implementation. Although buildings often looked traditional, they were constructed with a mix of local and imported materials, sometimes under the design of a Levantine or foreign architect. Local craftsmen, supervised by these architects, used modern techniques suited to contemporary materials. A Neoclassical building with European elements became a symbolic Ottoman structure through the collaboration of the employer, architect, mediators, and workers. Constructing in the neoclassical style meant reinterpreting past architectural styles with modern materials to fit a different social context. These new materials were crucial in achieving a classical appearance, even when traditional methods weren't used. In this point, the use of modern materials necessitated innovative solutions to achieve the desired neoclassical appearance.

Various documents from The Republic of Türkiye Presidential State Archives reveal that the widespread import and use of European origin building materials began in the Ottoman provinces as early as the 18th century (Mazlum, 2013, p. 502). The changing production technology in Europe during the 19th century influenced architectural changes in Istanbul, particularly in terms of construction materials available on the market. The Ottoman Empire became a market where construction materials from many European countries, especially France, were sold (Şenyurt, 2011, p. 201). In addition to locally produced materials sold in Istanbul, a wide variety of materials were imported from Europe (Mazlum, 2013, p. 502). In this context, it is evident that even basic building materials such as stone, brick, and wood, which were traditionally produced domestically, were manufactured abroad in the 19th century. It is also known that small Turkish and non-Muslim producers manufactured construction materials during the Empire's war-torn period, while others imported materials from abroad (Şenyurt, 2011, p. 76).

By examining the locally sourced and imported materials used in the construction of the Classical Building of the Istanbul Archaeological Museum, this study aims to explore the broader context of the building industry in Istanbul. Within this framework, the following questions are addressed:

i. What kind of local and imported materials were used in IAM's Classical Building?
ii. How were the imported construction materials transported to Istanbul?
iii. Why were imported construction materials preferred in 19th-century Istanbul rather than the local one?

Figure 152. Istanbul Archeological Museum (source: IAM Archive, 69, G2/R5/10)

In general, in terms of its structural system, the Istanbul Archaeological Museum’s Classical Building was constructed primarily using masonry, with brick walls clad in stone for the exterior and jack arch flooring supported by iron beams on the first floor (Figure 152). The exterior walls were built with brick or stone masonry (the technique changes from phase to phase), while the foundation was constructed using stone masonry. The large entrance columns, as well as the interior columns, were built from bricks masonry technique. The ground floor slab was made of concrete screed, a material that was both appropriate and commonly used during this period. Regarding the finishing materials, timber, lead, tiles, and wooden parquet (Table 2) are the most prevalent materials found in the building.

Table 2. The Construction Materials used in Istanbul Archaeological Museum Building

Construction Materials	Finishing Materials	Import materials
• Stone • Brick • Iron Profiles • Cement	• Timber • Lead • Wooden Parquet • Cement Tile	• **Stone** • **Iron** • **Cement** • **Wooden Parquet**

While there is ample information about the materials imported from abroad, unfortunately, data on locally supplied materials is limited. The absence of mentions in official correspondences related to tax exemptions suggests that these materials such as bricks, lead, cement tiles, marble, and structural timber were likely sourced locally. Firstly, the locally supplied materials used in the IAM building will be discussed, followed by a detailed explanation of the imported materials, including why they were preferred in the domestic market and how they were sourced.

In the 19th century, traditional construction techniques and the classical bricks of Ottoman architecture were gradually replaced by Western-style bricks and modern construction techniques, which were produced in a fabricated manner and according to standard specifications (Yergün, 2002, p. 345). Yergün (2002) analyzed the emblems, signs, and brands on bricks found in ten different buildings, with construction dates ranging from 1845 to 1918, identifying twenty-five distinct bricks bearing such marks. The dimensions of 20-25/10-14/5.5-7.5 cm, derived from the evaluation of these bricks, became a standard measurement used by various manufacturers across Europe and within the Ottoman Empire. These bricks were produced in industrial settings with modern methods (Yergün, 2002). The emblems, signs, and brands indicate that the bricks were often imported from major brick and tile production centers in Europe, specifically Marseille in France and Livorno in Italy (Yergün, 2002, p. 345).

In this context, modern dimension brick material, which began to be used in architecture during the Westernization period from the 1840s onward, was initially imported from European production centers until the last quarter of the 19th century. After this period, brick production shifted to factories established by Levantine and non-Muslim communities, particularly along the shores of the Golden Horn and in the districts of *Büyükdere* and *Beykoz*. These locally produced bricks then began to be used in buildings from that period (Yergün, 2002).

The *Büyükdere* ridges, where brick kilns had been located since the Byzantine period, and the *Piripaşa* and *Karaağaç* districts along the shores of the Golden Horn became important centers during the industrial production period. The *Camondo Brick-Tile Factory* was established in the *Karaağaç* district in 1874, and the *Pietro Salomone Brick-Tile Factory was* founded in *Büyükdere* in 1876 (Mori, 1906, p. 54 as cited in Yergün, 2002). Additionally, brick-tile factories continued to operate in *Büyükdere*, *Beykoz*, *Fener*, and *Kağıthane* districts along the Golden Horn shores as late as 1913, as evidenced by insurance maps from that period. Furthermore, a 1910 contract between the employer and the architect of the Sant' Antione church reveals that the machine-made solid bricks branded "*Dimitripulo*" or "*Şahbaz*" and the machine-made perforated bricks branded "*Mirifitto*," used in the building, were produced in *Büyükdere* (Yergün, 2002, p. 345).

The 1894 Ottoman trade yearbook identifies key brick manufacturers of the time, including "*J. Camando*" in Göksu, "*Mustafa et Cie*" in Galata, "*Pasquale Rossi"* in *Feriköy*, and "*M. Pierre Salomone*" in *Büyükdere*. Additionally, various factories were established in specific locations and years: the "*Pedotti*" factory in *Tuzla* in 1913 (Göğer and Sandalcı 1997 as cited in Çiftçi and Yergün, 2010), the "*Şahbaz Agia*" factory in *Sütlüce* in 1882, the "*Paşabahçe*" factory in 1910, the "*Haznedar*" factory in *Merter* in 1918, and the "*Topser*" factory in *Büyükdere* in 1951 (Köksal and Ahunbay 2006, Koçu 1963 as cited in Çiftçi and Yergün, 2010).

Figure 153. The *şahbaz* brand machine made bricks found in IAM building (source: *Güryapıİnşaat* Company, IDSM Archive)

The construction dates (1887-1907) of the IAM building align precisely with the period when modern-sized bricks began to be produced in local factories. It is known that two types of bricks were used in the museum: solid bricks and perforated bricks (bricks with six holes). The solid bricks were used in the load-bearing walls, while the perforated bricks were utilized in the jack-arched flooring systems and columns on the first floor. The name of the brick is not mentioned in the official correspondence related to the museum building. However, during the 2013 restoration of the museum, a brick bearing an emblem was discovered. The inscription, written in Ottoman script, reads *"Şahbaz"* which was a brick brand that produced machine-made bricks commonly used in 19th century buildings in Istanbul (Figure 153). During the building's restoration, solid bricks with the number "3" written in both the Latin and Ottoman alphabets were found on the partition walls that were removed as required by the approved project. Unfortunately, no information about the brand of these bricks was encountered (Figure 154).

Figure 154. A solid brick example used in IAM building taken from a partition wall added to the building in later periods (taken by the author in 2018)

Continuing with local construction materials, wood was another commonly used material in the building. Primarily utilized in the ceilings, floors, doors, and Windows (Figure 155), it also played a structural role and provided necessary surfaces for decorative elements. Woodwork was crucial in integrating with the steel flooring structure. The construction details of the IAM building were carefully designed to incorporate timber, creating surfaces needed for decoration. For instance, timber framing was used for the cornices, a timber grid structure supported the wooden parquet on the first floor, and "*bağdadi*" techniques provided a flat surface beneath the iron beams for hand-drawn ceiling ornaments. In this context, it is crucial to understand how the architect integrated timber construction with the iron jack-arched flooring system. The solutions for combining timber and iron beams will be explained in detail under the heading of construction techniques (Chapter 4.3.2.2). This approach enabled the architect to create a traditional appearance for the building.

Figure 155. (Left) Exterior wooden door (Right) interior wooden door detail (taken by the author)

The lack of data suggesting that wood used in hidden constructions was imported implies that it was locally produced. However, archival documents indicate that the wooden parquet and timber cornices decorating the ceiling were imported from Budapest. These materials and correspondences will be discussed in detail as imported materials in the following paragraphs.

Another building material used in the ground floor flooring of the Istanbul Archaeological Museums and worth mentioning is ceramic tile made of cement, also known as *"karomozaik"* or *"karosiman"*(Figure 156). Decorative floor tiles produced in France in the mid-19th century found a place in Ottoman architecture, becoming a decorative element that complemented architectural designs through the influence of Levantine families. Initially used in cities such as Istanbul, Izmir, and Mersin, where the Levantine population preferred to live, these tiles quickly became fashionable and left a lasting mark, being used in almost all buildings constructed between the mid-19th and mid-20th centuries (Uçar, 2013).

Figure 156. View from the interior of Sidon Sarcophagi Hall (source: IAM-Photography Archive)

France, the homeland and first producer of cement tiles used in many European countries, established its first cement factory in the 1850s, which also became the first producer of cement tiles. Known as "*careaux de ciment*" (later adopted in Turkish as "*karosiman*"), these floor tiles not only enhanced the beauty and elegance of spaces but also protected buildings from moisture, created easy-to-clean sanitary environments, and were quickly and inexpensively produced. For these reasons, they initially spread through trade to Mediterranean countries and eventually throughout the world (Koçarslan, 2018).

An interesting detail emerged during the restoration of the IAM building, as it became necessary to relocate certain Sidon sarcophagi in the Sarcophagus Hall as part of the new exhibition Layout Project. Under a sarcophagus that had been moved in Hall 9 for flooring work, traces of the old cement tile pattern, visible in earlier photographs, were discovered. The presence of cement tiles was already known from historical photos of the museum (Figure 156). Although marble replaced the original floor claddings in the building's first phase, the original cement tiles were still visible on the basement floor in the second phase[88].

On the reverse side of the tile, an embossed inscription, likely a brand mark, was clearly visible on the cement surface (Figure 157, Figure 158). This finding confirms the presence of both cement and cement tiles on the ground floor of the building. It is known that relatively smaller sarcophagi, which could be moved, were relocated within the exhibition area after the museum's opening. This situation must have contributed to concealing some traces in the flooring, which eventually evolved into a marble surface in time.

Figure 157. Cement tile "*karo mozaik*" traces written "*Constantinople Kalafat Yeri*" found under one of the sarcophagi in the Sarcophagus hall which was covered by marble later on (taken by the author in 2018)

[88] According to the restitution project, the ground floors of the first and second phases were covered with cement tiles, except for the staircases, which were finished in marble, while the ground floor of the third phase featured concrete tile.

Figure 158. The Cement tiles "*karo mozaik*" in the 2nd phase of IAM (taken by the author in 2024)

In the case of the Istanbul Archaeological Museums, when we mirror the photo of the cement tile with an inscription visible on its base layer, the text becomes more legible. The back of the cement tile reads "***Constantinople Kalafat Yeri***" (Figure 154). Although it was generally thought that such tiles were brought into the country through Levantine connections, it appears that the cement tiles used in the museum in the 19th century were locally produced. The term "*Kalafat Yeri*" might seem confusing at first, as "kalafat" is defined as "*the process of caulking and sealing the spaces between a ship's planks with oakum and pitch to make it watertight*" (TDK) (Figure 159).

First, it is necessary to examine the areas referred to as "*Kalafat Yeri*" (Figure 156) in Istanbul and the types of activities carried out there. The exact boundaries and contents of the *Kalafat Yeri* can be found in Charles Edward Goad's 1905 Constantinople Insurance Maps. When maps 24 and 26 are combined, it can be seen that *Kalafat Yeri* extends from *Yeni Kapı* Street in the west-east direction along the coast, reaching *Kürkçü Kapı* (Figure 159, Figure 160). The north-south boundaries mainly extend from outside the city walls to the shore. Inside the walls, there are only a few scattered *Kalafat Yeri* structures close to the walls. Among these structures, foundries *(dökümhaneler*) constitute the majority. Other buildings include open and closed construction material warehouses, marble warehouses, lumber yards, carpenter shops, iron workshops, a cement and tile factory adjacent to the northern facade of Sokullu Mosque, and a Government Maritime Workshop near its southern facade (Goad Maps 24, 26)[89]. In Goad Map No. 24, there is a street named "Kalafat Yeri," which was likely named due to the high number of blacksmiths in the area (Figure 161).

Figure 159. "Kalafat Yeri" location in Charles Edward Goad's 1905 Constantinople Insurance Maps, maps no: 24 and no:26

[89] kulturenvanteri.com.tr

Figure 160. The shoreline of *Azapkapı* Albert Louis Gabriel 1930 (source: https://kulturenvanteri.com/en/yer/kalafat-yeri/#16.7/41.024196/28.969963)

Figure 161. The location of, a street with a concentration of blacksmiths was named "*Kalafatçılar*" in in Charles Edward Goad's 1905 Constantinople Insurance Maps, maps no:24

The connection between cement tiles and the *Kalafat Yeri* becomes clear when we delve into the production technology of cement tiles. At this point, the presence of foundries and iron workshops in *Kalafat Yeri* is significant. The Industrial Revolution (18^{th}-19^{th} centuries), driven by new inventions and steam-powered machines, accelerated production and increased capital accumulation in Europe. During this period, the use of iron presses and the inclusion of cement as a building material replaced handcrafted tile production with decorative elements that were economically and easily mass-produced (Figure 162). Wooden frames and molds used in medieval tile production were replaced by metal frames and molds, and clay was replaced by Portland cement. In this period, floor and wall tiles were manufactured by pouring clay dough into a metal frame within a metal frame and compressing it under a press (Koçarslan, 2018).

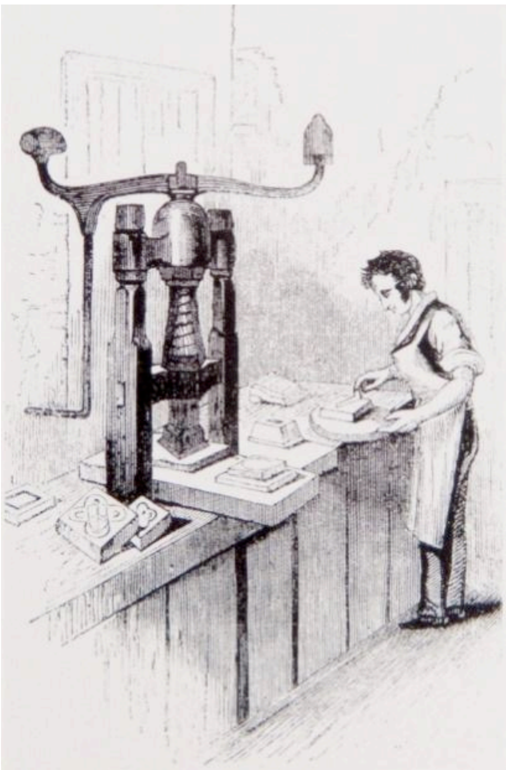

Figure 162. The illustration depicting tile production featured in the February 1843 issue of Penny Magazine (Graves, 2002 as cited in Uçar, 2013)

Import Supplied Materials for Istanbul Archaeological Museum Building

In July and August of 1804, the number of European ships entering the Port of Istanbul (Figure 163) reached 60, carrying materials such as marble from Livorno and Trieste; steel from Trieste; stone from Malta; glass and nails from Venice; lead from Spain, England, Malta, and Saxony; and dye pigments from Livorno, Venice, and England. These imports must have significantly influenced the development of the Ottoman capital's port (Mazlum, 2013, p. 506). The port of Istanbul was primarily an import-oriented port. The products imported into Istanbul, which hosted the largest population of the empire, included items intended to meet the populace's needs, such as flour, livestock, sugar, coffee, tea, colonial goods, manufactured goods, hardware, ironmongery, (*manifatura, hırdavat, nalburiye*) perfumery, and construction materials (Uygun, 2016, p. 156).

Figure 163. Istanbul port in 19th century (Uygun, 2015b)

The names of construction materials can be traced through the cost estimate books, revealing that materials brought from abroad were often referred to by their place of origin, such as French marble, French tile, Marseille tile, Trieste stone, Maltese stone, and *Nemçe kalası*. Even today, historical materials are still identified by the names of the countries from which they were sourced. Sometimes, the country of origin was emphasized to highlight cost differences (Şenyurt, 2011, p. 202).

The most important instruments of European expansionist policies after the Industrial Revolution were steam shipping companies. Uygun notes that in the 19th century, steam shipping companies held a privileged position in the development of Ottoman-European relations. These companies were the agents and representatives of European states' expansionist policies within the Ottoman Empire and globally (Uygun, 2015a, p. 122).

England, which led in steamship technology, and Austria, which leveraged the Danube basin and the Adriatic Sea, became the states that secured the largest share of Eastern Mediterranean trade in the first half of the 19th century, thanks to the steamship companies they established. France, which had held a dominant position in Eastern Mediterranean trade since the 16th century due to the capitulations it had obtained, lost its superiority to England and Austria in the 19th century. The primary reason for this decline was France's inability to make sufficient progress in steam shipping and ship technology due to the political, social, and economic turmoil it experienced at the beginning of the 19th century (Uygun, 2015a, p. 138).

Considering these relationships and innovations, it seems meaningful to address and try to answer the following questions. Which construction materials were imported for construction of IAM building and why were some imported construction materials preferred by responsible builders even if equivalent materials were produced and sold in the local market?

From a broader perspective, the preference for imported construction materials in 19th century Istanbul can be attributed to various factors, including the *increasing demand* for *expectations of superior quality, aesthetic concerns*, *architectural compatibility, economic incentives*. These considerations collectively made imported materials essential for achieving the desired aesthetic and structural standards of modern, Neoclassical buildings like the Istanbul Archaeological Museum.

Despite the state's economic difficulties, it is natural that the new building for the Istanbul Archaeological Museum, with state support, was intended to benefit from the best resources available, as it symbolized the power of the state as an institution. Considering that it was the first museum building, the desire to construct it with the finest resources was certainly present. Examining the main reasons for the increased use of foreign materials in the 19th-century architecture market reveals various local factors as well.

One reason for the preference for imported materials in the 19th century was the ***increasing demand for modern, grand, and distinctive structures***, which local sources could only partially satisfy.

In Ekinci's (2019)study examining the *Keşf-i Sâni* (second cost estimation) book of the *Darülaceze* buildings, interesting details are presented regarding the stones considered for import. The *Darülaceze* buildings, whose foundation was laid in 1892 and opened for service in 1896, served not only to meet the needs of those in need but also functioned as an orphanage, nursing home, hospital, and vocational training center (Ekinci, 2019). During the same period, the construction of the Galata Dock—begun around the time of the *Darülaceze's* construction and continuing after its completion—faced significant challenges in sourcing the necessary stones. Although the company responsible for the dock rented all the stone quarries in Istanbul and opened new ones, difficulties persisted (Örenç, 2016; *Servet-i Fünun*, 1893 as cited in Ekinci, 2019). This issue also impacted the *Darülaceze* construction, and to resolve the problem, the import of stones from cities like ***Trieste*** and ***Marseille*** was considered as an alternative to those specified in the "contract" (construction specifications) and the initial cost estimation but could not be obtained locally. Tests on strength and cost comparisons concluded that these imported stones were suitable for use, though their *high prices* limited their application (Ekinci, 2019). This high price was also a result of additional taxes on imported materials. In the case of the Marseille stone used for the IAM building, the cost was deemed acceptable.

The construction of the *Darülaceze* building began in 1892, while the first phase of Museum building was constructed in between 1887-1991. Considering that the Galata Dock was constructed between 1892 and 1895, it seems unlikely that the Museum building would have been affected by a shortage of stone supply in the market. However, it is clear that the increasing construction activities, along with the scale of the projects, put pressure on the market and on the availability of stone. In such cases, sourcing stone from abroad as an alternative likely helped to strengthen the stone supply network.

The production and supply-demand balance in the market became increasingly critical, especially during ***extraordinary circumstances such as wars and earthquakes,*** which further strained the availability of local materials. Local entrepreneurs, operating small factories, struggled to maintain their activities in such challenging environments. Despite the presence of these small manufacturers, contractors continued to purchase materials from Europe, often inspecting them on-site before making decisions (Şenyurt, 2011, p. 202). Extraordinary situations also had a significant impact on material prices on the market. For example, Vasilaki Ioannidis, the contractor for *Darülaceze*, was unable to manage the rising costs of construction materials following an earthquake and subsequently requested additional funds from the state. Moniteur Oriental reported on July 21, 1894, that there were substantial increases in construction material prices after the earthquake (Batur, 1993; Şenyurt, 2011).

Another reason for the preference for imported materials was the ***growing demand for new technological advancements***. The increase in iron production and the subsequent decrease in its market price fueled the demand for this material. Expert architects, who were well-versed in these technological developments and active in the Ottoman architectural environment, likely facilitated the import of iron from abroad. In the 19^{th} century, large-scale projects required the expertise of numerous architects and engineers. The use of new technologies was not merely a preference but a necessity, especially when addressing challenges such as weak ground conditions encountered in dock projects (Say, 2014). As a result, these architects and engineers often established representation and supplier relationships, particularly with foreign companies, to meet the demand for innovative materials and technology.

On the other hand, ***architects and engineers*** in the 1890s enjoyed considerable economic freedom due to the high demand for their expertise, the diversity of well-capitalized employers, and the availability of various job opportunities. These included roles as local representatives and consultants for foreign companies that supplied both materials and technology, in addition to offering architectural design services (Say, 2014). Consequently, ***the intermediaries*** with whom architects interacted played a significant role in the preference for imported materials. These factors collectively contributed to the increased use of imported materials. Considering the prestige of the building, the Istanbul Archaeological Museum capitalized on the best opportunities the 19th century had to offer.

In short, the preference for imported construction materials in Ottoman lands could be influenced by several factors, including the lack of material supply due to intensive construction activity, extraordinary situations impacting material production and prices, the demand for new technologies, and the role of architects and intermediaries in selecting imported materials for their buildings.

In the light of the information provided above, examination of the materials which brought from abroad for the IAM building becomes important in this point. For listing IAM' import construction materials, the most reliable information comes from official correspondences written by the Museum Directorate to relevant state institutions requesting *customs duty exemptions*. In the 19th century, using imported materials imposed an additional financial burden on contractors, as it was mandatory to pay customs duties to bring these materials into Ottoman lands. However, if a contractor obtained permission for duty exemptions from the state, it became easier to use imported materials without incurring extra costs. Therefore, securing customs duty exemptions could significantly influence the decision-making process regarding the use of imported materials. Since customs duties were very high, imported construction materials were primarily used in buildings constructed by the state or elite groups. Duty exemptions were possible only for certain structures (Şenyurt, 2011, p. 202). For example, while a decision was made to import construction materials for the Italian Embassy with a customs duty exemption, a similar request by Vasilaki Kalfa for materials imported from Europe for the *Darülaceze* building was rejected (Şenyurt, 2011, p. 202).

In one of The Republic of Türkiye Presidential State Archives documents dated on 03.12.1904, which is written by Museum Directorate to Ministry of Education and to the Prime Ministry (*Babıali*), import material needed for custom duty exemption were listed. In this correspondence, Osman Hamdi's request for the museum to be exempt from customs duty for ***120 tons of iron profiles, 500 cubic meters (approximately 1000 tons) of Marseille stone, and 200 tons of cement*** ordered from Europe for the new building is significant. This document is particularly important as it provides a detailed list and quantity of the imported materials arriving from Europe. The date of this correspondence, 1904, aligns with the construction period of the 3rd construction phase of Museum (1903-1907).

> *Maarif Nezaret-i celilesine*
> *Devletli efendim hazretleri*
> *Bâ-irade-i seniyye-i hazret-i padişahi Müze-i Hümayun devair-i mevcudesine ilaveten inşasına ibtidar olunan daire-i cedide için Avrupa'ya sipariş edilen* ***yüz yirmi tonilato demir potrel ile beş yüz metre muka'abı yani bin tonilato Marsilya taşı ve iki yüz tonilato çimentonun*** *Müze-i Hümayun hakkında her zaman lem'a paş olan inâyât-ı me'âlî-i gayât-ı cenab-ı tacdariye bir zamime-i faika olmak üzre gümrük resminden afvvi zımnında vesatat ve delalet-i celile-i cenab-ı nezaret-penâhîlerinin şayan buyurulması bilhassa müsterhamdır ol babda emr u ferman hazret-i men lehü'l-emrindir.*
> *Fi 25 Ramazan [1]322 ve fi 20 Teşrinisani sene [1]320*
> *Müze-i Hümayun Müdürü Hamdi*[90]

[90] Document 3.09: Presidency of the Republic of Türkiye Directorate of State Archives. "MF_MKT_00817_00057_001_001" (25 Ramazan 1322/December 3, 1904)

According to mentioned correspondence, the Ministry of Education submitted the request to the Sublime Porte 10 days later, on 13 December 1904. Two months later, on 18 February 1905, the Prime Ministry forwarded the Museum's request to the Palace[91]. According to the note dated 7 March 1905 at the bottom of this correspondence, the Sultan's order was issued as proposed, clearly indicating that the Sultan granted permission for a tax exemption on the materials, including iron beams, Marseille stone, and cement.

Another correspondence from the *Rusumet Emaneti* (Tax Office), also dated 1906, was written to request a customs duty exemption for ***2,300 cubic meters of parquet*** coming from Budapest, imported construction material used for the Museum's floors cladding. It is mentioned that the Grand Vizierate (*Sadaret*) was notified that the 2,300 cubic meters of parquet, arriving from Budapest on behalf of the museum, would be allowed to be transported tax-free as like the others. This issue was conveyed from the Grand Vizierate to the Palace through another correspondence signed by Prime Minister Ferit, requesting the Sultan's approval[92] The same document notes that the Sultan's order was obtained. This is proven by the parquet removed during the restoration on-site, which had stamps bearing the brand name and the country of origin (Figure 164).

Figure 164. The original wooden parquet, marked with its brand name and country of origin (source: *Güryapıİnşaat Company*, IDSM Archive)

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[91] Document 3.11: Presidency of the Republic of Türkiye Directorate of State Archives. “İ_RSM_00021_00015_002_001” (23 Zilhicce 1322 /February 28, 1905)

[92]Document 3.17: Presidency of the Republic of Türkiye Directorate of State Archives. “İ_RSM_00025_00011_002_001” (23 Cumadelâhire 1324 /August 14, 1906)

The parquet flooring in question was used on the first floor of the entire Museum Building. During the restoration and reinforcement work, one of the pieces was found bearing a stamp that read, ***'Neuschloss Ödön és Marcell,*** Budapest.' This stamp not only confirms that the parquet was manufactured in Budapest but also identifies the company that produced it. The Neuschlosz brothers, Ödön and Marcel, were descendants of a family with a long-standing tradition in timber and woodworking spanning several centuries. Their company was highly reputed and contributed to many prominent buildings in Budapest[93].

From the second half of the 19th century, the importation of wooden materials began to increase. A significant level of standardization can be observed in the catalogs prepared for consumers during this period. By the early 20th century, wood, which was initially marketed by Vienna-based companies, transitioned from being primarily used as a structural element to being offered as a finishing material for surfaces (Şenyurt, 2011; G. Tanyeli, 2017).

The building material mentioned in the document[94], about which we have the least information, is the cement used in the building. No cement was found in the samples taken from the original mortar during the building's restoration. Additionally, cement was not used in the volta flooring. The most likely area for the use of cement is the the ground floor. Although this raises questions about whether the existing cement found in that area is original due to periodic interventions to the flooring, the presence of traces of cement tiles in this section suggests that cement was indeed used in the original ground floor of the building. In conclusion, it is

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[93] Source: https://szentistvanterem.hu/en/node/12

[94] Document 3.09: Presidency of the Republic of Türkiye Directorate of State Archives. "MF_MKT_00817_00057_001_001" (25 Ramazan 1322/December 3, 1904)

understood from the aforementioned document that 200 tons of cement were used in the construction of the ground floor.

When looking at the history of cement, it is noted that in 1812, Louis Vicat in France produced the first artificial cement. Following the production of artificial cement in France, efforts to develop cement accelerated as its usage spread across Europe to England. Among these efforts, the most significant was the development of Portland cement in 1824 by the Englishman Joseph Aspdin, which became the raw material for many construction materials (Koçarslan, 2018).

In the contract prepared by Vallaury for *Hezaren Han* (1902), which will be explained in detail in the next section related Marseille stone, it states that the basement floors will be made of artificial Portland cement, and the entrance hall and store floors will be of marble or Venetian mosaic laid on hydraulic lime concrete. In another clause, it states that the flooring iron profiles will be supported by vaults made of cement mortar and perforated bricks. From this, it can be inferred that Portland cement was part of Alexandre Vallaury's repertoire (Altan, 2007).

Following this, the Marseille stone and iron profiles mentioned in the same document will be discussed in detail, as intriguing information about these materials has been found in the archives.

Marseille Stone

Reconsidering the materials mentioned in the correspondences (120 tons of iron beams, 500 cubic meters (approximately 1,000 tons) of Marseille stone, and 200 tons of cement ordered from Europe), perhaps the most intriguing is the ***Marseille stone***. While cement and iron profiles were primarily produced in Europe, stone was one of the easiest materials to find and process in Istanbul and its surroundings.

It raises curiosity why stone was imported from Marseille, despite the region being rich in quarries, especially those known for the extensive use of *Küfeki* stone. For centuries, the same techniques were used for extracting stone in quarries, and

Europe was not technologically or industrially behind in this regard. It is curious why such a heavy and economically burdensome material was imported when there was a local equivalent available in the domestic market.

The reference to "**Marseille stone**" in the documents also prompts further questions. At this point, it is essential to investigate the availability of imported stone in the Ottoman construction market and the countries from which they were sourced. Unlike Trieste or Malta, Marseille is not widely known for its stone. In fact, Marseille is more famously associated with brick tiles, even today, which makes the situation more intriguing. Considering that Istanbul had many stone quarries, why would people go to the trouble of shipping stones from overseas? It is likely that similar reasons mentioned earlier in this section apply to the stone supply process as well. To recall; the lack of material supplies due to intensive building construction, extraordinary situations impacting material prices, the demand for new technologies, the desire to use high-quality and distinctive materials in prestigious buildings, and the role of architects and mediators (commissioners) could have influenced the preference for imported construction materials in Ottoman lands.

Having look at the educational books of 19th century, it is seen that the Marseille Stone is mentioned in the book *Fenn-i İnşaat*, written by *Osman Nuri Bin Ömer Şevki* and published in 1893. In Article 47, where cladding walls are described, the author, who wants to give an example of cladding walls, mentions the Ottoman Bank building and Tobacco Regie. Osman Nuri Osman Nuri Bin Şevki (1908) says that for some important buildings, which built of bricks or rubble stone, it is necessary to cover the surfaces of the walls with large blocks of stone (*tomruk*) by cutting and carving large blocks, taking the risk of spending more money to make them look more solid and durable. In Galata, the first floors of the Ottoman Bank and Tobacco Regie Building' ground floor were covered with black stone blocks and the upper floors were covered with *Marseille Stone* blocks. This is an interesting information since it was stated in different sources that the Ottoman Bank building was constructed by **Malta** Stone (Servet-i Fünun, 19 August 1892, volume:3, no:75).

However *Marseille Stone* are whiter than Malta Stone, and at first glance its texture is not similar to it.

> ***Article 47.***
>
> *Sometimes, in order to emphasize the strength and robustness of a structure, even those made of brick, and to present them as being beyond their inherent durability, it becomes necessary to cover the surfaces of their walls with large stones (tomruk taşlar). These are produced by cutting and shaping massive blocks of stone, despite the considerable expense this entails. (In Galata, the first floors of the Ottoman Bank and the Régie buildings are clad with black stone blocks, while the upper floors are decorated with Marseille stone blocks. (the original text transcribed by Kadir Ekinci into Latin Alphabet and translated to English by the author)*

The Ottoman Bank and Tobacco Regie buildings (Figure 165) are significant as they were also designed by Vallaury. For this reason, it is not surprising to find the same materials used in buildings designed by the same architect. The construction of the Ottoman Bank Building, designed by Vallaury for the Ottoman Bank and the Tobacco Regie, began in 1891, the same year the Istanbul Archaeology Building was inaugurated. Vallaury, therefore, supervised the construction of both buildings simultaneously and may have employed the same subcontractors and similar material supplies. The ground floors of the Ottoman Bank Building are clad with rustic stones, while the upper floors, facing Voyvoda Street, feature triangular pediments, classical-style column capitals, and an elaborate decorative program. However, a different architectural style is evident on the facade overlooking the Golden Horn (Altan, 2007, p. 22).

Figure 165. Ottoman Bank and Tobacco Regie Building (taken by the author in 2024)

Another text book of 19th century period, "*Notes pratiques et résumés sur l'art du constructeur en Turquie "* written by Alexandre M. Raymond in 1908 is one of the most important source to see the list of materials and technics of Ottoman architecture in the end of the century. In this book; in the section where information is given about the unit prices and specific gravity of various materials used in construction in the Ottoman Empire, **Trieste** and **Arles** stones are also mentioned (Raymond, 1908, p. 61) It is understood that in Istanbul's construction market, along with local products, Western materials such as Marseille bricks and tiles, stones brought from **Arles, France,** and floor tiles are also offered for sale (Mazlum, 2013, p. 502). Arles is a city located very close to Marseille and known for its stone quarries dating back to the Roman period. Therefore, it is quite possible that the expression Marseille stone used in official correspondence is used for stones transported in the port of Marseille and extracted from Arles.

Arles is a coastal city in the south of France, serving as a subprefecture in the *Bouches-du-Rhône* Department within the *Provence-Alpes-Côte d'Azur* region. Both Arles and Marseille are located in the same region and department, sharing coastal lines and ports (Figure 166, Figure 167). Arles is uniquely positioned along the Rhône River, which connects the city to the sea, providing a strategic advantage for transportation of stones from the queries to the intention ports.

Figure 166. The location of Marseille on the map of France (source: Google Earth image taken on 2024)

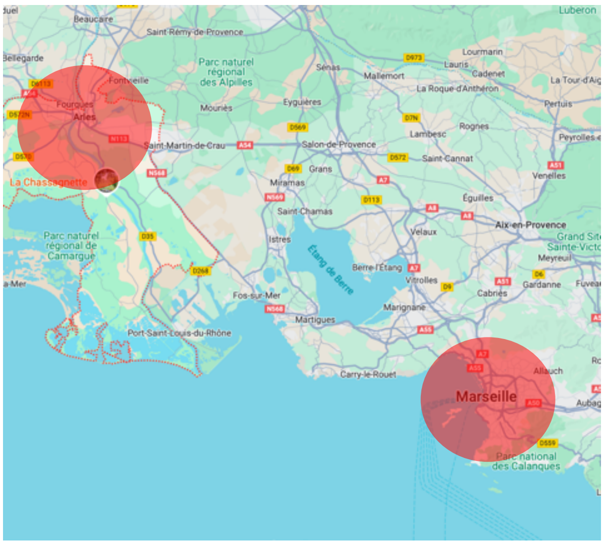

Figure 167. The location of Arles and Marseille (source: Google Earth image)

Conducting the research with a focus on Arles stone reveals yet another building designed by Vallaury. The construction of the Hezaren Han building was decided through a contract signed on June 20, 1902, between the Ottoman Bank and Vallaury. The Ottoman Bank building is another of Vallaury's works located on the same street, Voyvoda Street (Altan, 2007). This construction coincided with the period of 2nd Phase of the Istanbul Archaeological Museum building (1899-1903). Notably, the *Hezaren* Han building has a contract prepared and signed by Vallaury himself. This contract is particularly significant as it provides detailed descriptions of the building materials and construction techniques from a first-hand source. The contract and its attachments offer valuable information on cost estimates, construction methods and materials, and the prices of materials at the time the building was erected. The contract specifically recommends *Arles* stone for facade cladding and Trieste stone for floor coverings (Altan, 2007, p. 66)

Figure 168. *Hezaren* Han building designed by Alexandre Vallaury (taken by the author)

The contract of *Hezaren Han* (Figure 168-Figure 169) building signed by Vallaury gives important information related to the construction techniques of the building. According to contract.

i. The foundations will be placed on solid ground, and the construction up to the first-floor level of the rear retaining wall, the basement wall, and the side adjoining walls will consist of rubble stone reinforced with brick courses at 1-meter intervals. The columns of the ground floor and the interior and exterior walls of the upper floors will be made of solid or six-hole perforated bricks, and all this masonry work will include hydraulic lime and Tuzla sand mortar.
ii. 'The entire main façade is planned to be made from ***Arles stone,*** which is a soft stone, or a stone with similar characteristics. The cornices, moldings, and window lintels of the rear façade will be made of soft stone, while the plain, undecorated walls will be protected with hydraulic lime plaster.'
iii. In the contract, Vallaury pledges to complete the building within 5 months for a sum of 3,500 Turkish Liras. The contract was drawn up as a single copy on June 20, 1902, in Istanbul.

Figure 169. Jack Arched Flooring detail of Hezaren Han Building (Altan, 2007)

Another notable building designed by Vallaury is the Pera Palace, which bears a strong resemblance to the Ottoman Bank Building, the *Hezaren* Han, and the Istanbul Archaeological Museum (IAM) in terms of Neoclassical appearance. However, there is no evidence to suggest that the stone used for the Pera Palace was sourced from Marseille. In fact, Pera Palace, considered the most technologically advanced building of its time, demonstrates how well Vallaury kept pace with technological innovations and his pioneering role in integrating these advancements into Ottoman architecture. Given that the Pera Palace was built in 1895, four years after the completion of the first construction phase of the Museum building and one year after the 1894 Istanbul Earthquake, it can be inferred that Vallaury refined the techniques he initially employed in the Museum. While iron beams in the Museum building were primarily used as horizontal load-bearing elements, they were later employed as vertical load-bearing elements in the Pera Palace.

The common factor among these buildings—the Istanbul Archaeological Museum Building, the Ottoman Bank Building, the *Hezaren* Han, and the Pera Palace—is their architect, Alexandre Vallaury. This suggests that the same supply chain and its associated networks, which had already been established, were utilized in the construction of these different buildings.

From this point onward, an in-depth analysis of the research findings related to the stones used specifically on the façade of the Istanbul Archaeological Museum (Figure 170), along with comparative studies conducted in Marseille, will be presented.

Figure 170. Stone blocks on the garden of the museum from the 3rd construction phase of the museum (source: CAMGD Archive)

Apart from the correspondences found in Presidency of the Republic of Türkiye Directorate of State Archives, there are other significant primary sources giving scientific data related to the stone used in the IAM building. A laboratory report on the building's stone, conducted by the Istanbul Restoration and Conservation Regional and Central Laboratory Directorate in collaboration with Istanbul University, provides extensive information. In 2012, necessary tests were conducted by authorized institutions using stone samples that had broken off from the façade facing *Osman Hamdi Bey* Street due to the corrosion of the iron clamp within the walls of the museum's third construction phase (Figure 171). The objective was to determine the type of stone and recommend an appropriate replacement for stone in the necessary part of the facade. The report includes the results of various analyses, including an acid test, sieve (particle size) analysis, chemical spot analysis, and calcination analysis of the stone sample. Additionally, thin section and XRD tests were performed on the stone. The stone's surface and cross-section were photographed using a Micro Capture USB microscope, allowing for a detailed observation of the stone surface and the presence of dirt.

Figure 171. The places of stone samples that broke off from the façade looking to Osman Hamdi Bey Street as a result of the corrosion of the iron inside the wall (source: 26.01.2012 dated IRCRCLD Report prepared by İsmet OK, IDSM Archive)

According to report[95], the stone is an example of limestone. The stone is yellowish bone color, has a distinct particle size, has a sandstone texture, its recrystallized particles are visible, is porous, has oxidized particles in some places, has a soft texture, crumbles easily with a hammer blow, is covered with a layer of black soot on its surface open to the atmosphere, and is black gypsum in some places.

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[95] source: 26.01.2012 dated IRCRCLD Report prepared by İsmet OK, IDSM Archive

The thin section prepared in Istanbul Restoration and Conservation Regional and Central Laboratory Directorate was sent to the Geology Department of Istanbul Technical University in 2012, where it was examined and photographed under a Polarizing Microscope. During the examinations, *Bryazon* and *algal nummulite* were detected in the limestone (Figure 172, Figure 173). Looking at these fossil types according to Prof. Dr. Sinan Öngen, it has been stated that the stone is from the *Tertiary Eocene* period (Thrace formation - *Çatalca* Region) and gives the impression that it was formed in a shallow sea in a warm environment.

Figure 172. Micro Capture USB Microscope Viewed from cross-sectional surface. There is plenty of bryazone, diatomite and a few nummulites. (source: 26.01.2012 dated Istanbul Restoration and Conservation Regional and Central Laboratory Directorate Report prepared by İsmet OK, IDSM Archive)

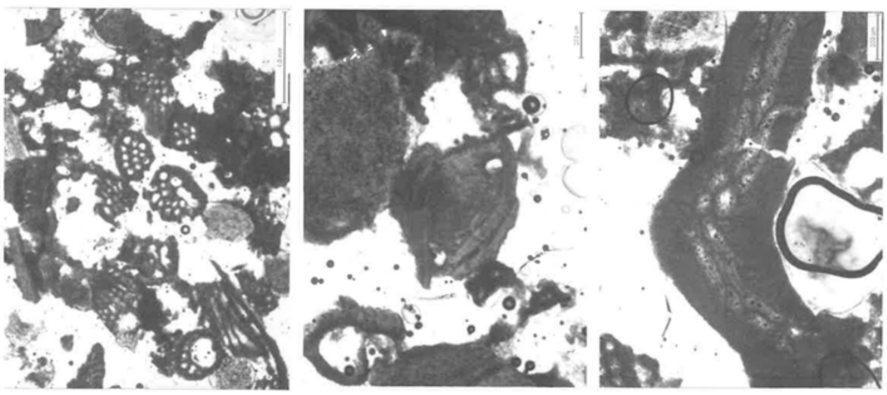


Figure 173. Thin section examination under polarizing microscope: algal nummulite and bryazone appearances (diatomites are present) (source: 26.01.2012 dated Istanbul Restoration and Conservation Regional and Central Laboratory Directorate Report prepared by İsmet OK, IDSM Archive)

İsmet Ok (2012), expert working in IRCRCLD states in her report that when the thin section of the stone is examined under a microscope, the photographs reveal the presence of various types of fossils. Based on these fossils, along with the results from calcination and acid tests, it is determined that the stone is a fusillate limestone, closely resembling the Tertiary Eocene Period Thrace (*Kırklareli* Formation) limestone from the *Çatalca* region. However, it cannot be conclusively stated that the stones used on the façade of the Archaeological Museum were sourced from the *Çatalca* region of Thrace. She continuous as follows and mention another important document dated 1901. She states that the research conducted in the Istanbul Archaeological Museums Archives indicates that the materials used in the construction of the building were generally sourced from abroad. In official correspondence dating back to the museum's construction period (1890-1900) (Halil Bey – 1901-to M.O. O Giraud), Marseille stone is mentioned in the Museum Building construction files. It is noted that this stone was transported to the museum from *Sarayburnu* (Figure 174) by ferry and unloaded using the cranes of the Military Warehouses (circa 1900). This stone is referenced in several documents; however, due to the absence of a cost estimated book (*keşif defteri*), it is not possible to determine exactly where these stones were used. Additionally, the documents refer to the cost estimated book that was sent to the Ministry of Education and the municipality[96].

[96] 26.01.2012 dated Istanbul Restoration and Conservation Regional and Central Laboratory Directorate Report prepared by İsmet OK, source: IDSM Archive

Figure 174.The place of *Sarayburnu* IAM building and Military Warehouses (source Google Earth Image, 2024)

The report concludes with a recommendation: the stone to be used in the new repairs must match the original in color, texture, porosity type, mechanical strength, and tensile strength. To achieve this, it is suggested that, if possible, archival research should be completed to ensure that the original stone is sourced from the same location, and that the stone used for the facade should ideally come from the same source.

Subsequently, in June 2012, another report was prepared by the Istanbul Technical University, Faculty of Mining, Department of Geological Engineering (authored by Serkan Angı and Yılmaz Mahmutoğlu). This report includes the results of tests performed on cladding stone samples removed from the North, South, and West facades of the Istanbul Archaeological Museum Classical Building. In the final section of the report, a preliminary evaluation is provided regarding suitable stone options that can be used in place of the original stone for restoration work.

Thin sections prepared from natural stone samples of the facade cladding were examined under a polarizing microscope. Accordingly, the rock; It is called **"biomicritic limestone"** consisting of foraminiferal shells.

From the chemical analysis of the tested sample, it was understood that the components were almost the same as a typical "fossil limestone". In the preliminary evaluation, it was determined that the original stone tested was similar to the stones known in the commercial market as *Sazlıbosna* Stone, *Pınarhisar* Stone and *Soğucak* Stone in terms of color and appearance. Studies to be carried out on stone samples obtained from these quarries should be compared and the one that best matches the original stone should be determined during the restoration of the building (Angı & Mahmutoğlu, 2012).

Table 3. Chemical analysis results of natural stone sample of facade cladding

Bileşen	İçerik (%)
SiO_2	0.30
Al_2O_3	0.11
Fe_2O_3	0.08
CaO	55,14
MgO	0.35
K_2O	0.02
Na_2O	0.02
LOI (Ateşte Kayıp)	43.80

In light of the data mentioned above, quarry companies still active near Marseille were investigated as part of this study. On April 4, 2024, a visit was conducted to a quarry located in the Arles region. Although not numerous today, the closest active quarry to Arles was selected for this study. The company operating the quarry, named *Carrieres de Provence*, manages three quarries in the region: The *Estaillades* quarry, La carrière de *Fontvieille*, and The *Pont-du-Gard* quarry. Despite being located in the same area, the stones extracted from these quarries differ from one another.

i. The Estaillades quarry, situated in the heart of the Luberon region, is one of the largest stone quarries in Europe. Estaillades stone is a white limestone that has been used in Luberon villages such as Gordes, Lacoste, and Bonnieux.

ii. The Pont-du-Gard quarry, located in the Gard region, produces the internationally renowned Gard stone, easily recognizable by its straw-gold color. (Figure 175 Left).

iii. The Fontvieille quarry, located in Bouches-du-Rhône, yields Fontvieille stone, a white limestone with blond highlights (Figure 175 Right).

Figure 175. (Left) Stone sample from Pont du Gard Quarry; (Right) Stone sample from Fontvieille quarry (taken by author)

Among these quarries, the *Fontvieille* quarry is the closest to *Arles* and has a stone color very similar to that used in the IAM and other buildings designed by Vallaury in Istanbul. However, the stones imported in the 19th century might have come from other quarries in the area or even more distant ones, depending on the intermediaries and the architect's choices at that time. Nevertheless, a visit was conducted to provide a general understanding of the physical and visual characteristics of the stones of the region. For this reason, as part of this thesis, a visit to the *Fontvieille* quarry and the historic *Val D'Enfer* quarry (Figure 176), now a museum, was conducted on April 4, 2024, with stone samples collected from the former (Figure 177).

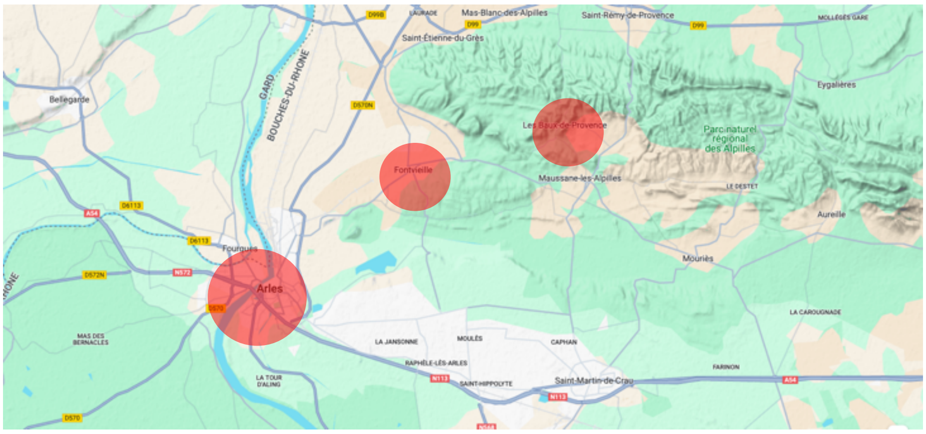
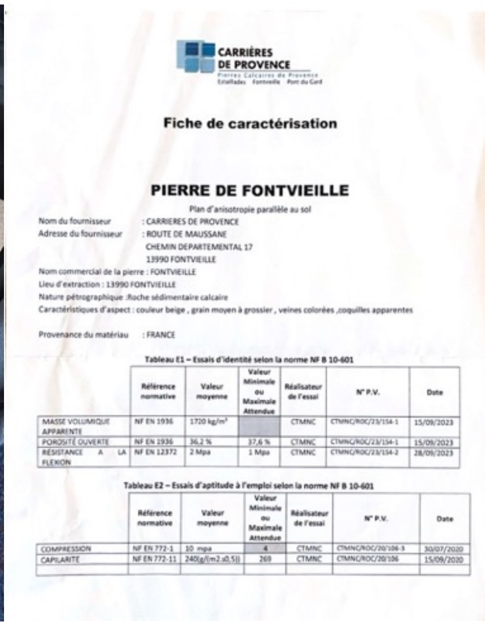


Figure 176. The locations of Arles, *Fontvieille* quarry and *Val D'Enfer* quarry (generated by the author on Google Maps Image)

Figure 177. A view of the *Fontvieille* quarry (taken by the author in 2024)

No samples were collected from the *Val D'Enfer* quarry, located in *Les Baux de Provence,* as it is no longer in operation despite being active in the 19th century and known for its white limestone. Today, it is open to visitors as the Carrieres des Lumieres Museum. Situated in the heart of the Alpilles Regional Park, the *Val D'Enfer* quarries were used for industrial purposes until 1935. Known since the 2nd century BC for their easily extracted, white limestone, these quarries supplied materials for the construction of Glanum near Saint-Rémy-de-Provence, the medieval village of *Les Baux-de-Provence*, and its castle.



CARRIÈRES DE PROVENCE
Pierres Calcaires de Provence
Estaillades Fontvieille Pont du Gard

Fiche de caractérisation

PIERRE DE FONTVIEILLE

Plan d'anisotropie parallèle au sol

Nom du fournisseur : CARRIERES DE PROVENCE
Adresse du fournisseur : ROUTE DE MAUSSANE
CHEMIN DEPARTEMENTAL 17
13990 FONTVIEILLE
Nom commercial de la pierre : FONTVIEILLE
Lieu d'extraction : 13990 FONTVIEILLE
Nature pétrographique :Roche sédimentaire calcaire
Caractéristiques d'aspect : couleur beige , grain moyen à grossier , veines colorées ,coquilles apparentes

Provenance du matériau : FRANCE

Tableau E1 – Essais d'identité selon la norme NF B 10-601

	Référence normative	Valeur moyenne	Valeur Minimale ou Maximale Attendue	Réalisateur de l'essai	N° P.V.	Date
MASSE VOLUMIQUE APPARENTE	NF EN 1936	1720 kg/m³		CTMNC	CTMNC/ROC/23/154-1	15/09/2023
POROSITÉ OUVERTE	NF EN 1936	36,2 %	37,6 %	CTMNC	CTMNC/ROC/23/154-1	15/09/2023
RÉSISTANCE A LA FLEXION	NF EN 12372	2 Mpa	1 Mpa	CTMNC	CTMNC/ROC/23/154-2	28/09/2023

Tableau E2 – Essais d'aptitude à l'emploi selon la norme NF B 10-601

	Référence normative	Valeur moyenne	Valeur Minimale ou Maximale Attendue	Réalisateur de l'essai	N° P.V.	Date
COMPRESSION	NF EN 772-1	10 mpa	4	CTMNC	CTMNC/ROC/20/106-3	30/07/2020
CAPILARITÉ	NF EN 772-11	240(g/(m2.s0,5))	269	CTMNC	CTMNC/ROC/20/106	15/09/2020

Figure 178. (Left) Stone samples supplied by the Carrieres de Provence company (Right) Some characteristics of stones extracted from the Fontvieille quarry

Even if the samples were taken from the same quarry as the stones used in the IAM, it should be kept in mind that the stones extracted 120 years ago may have different physical properties than those extracted today. Since provenance studies could not be conducted, a direct comparison within the scope of this study is not possible. However, the test ((Petrographic Analysis, Acid Loss Analysis, Loss on

Ignition Analysis (Calcination) and 0,5 hour SEM-EDX) results conducted by *Istanbul Büyükşehir Belediyesi KUDEB Restorasyon ve Konservasyon Labaratuvarı* (*Koruma Uygulama ve Denetim Müdürlüğü*) on the samples (Figure 179,Figure 180, Figure 181, Figure 182) taken from the stones at the Fontvieille quarry are as follows.

In light of the chemical analyses (Petrographic Analysis, Acid Loss Analysis, Loss on Ignition Analysis (Calcination)) (Table 4) and instrumental analyses of the rock sample sent to the laboratory, it has been determined that the sample is a type of limestone (biomicritic) containing, on average, around 7% clay (7.27% in the analyzed section) and 0.58% magnesium carbonate (Table 5), with variations depending on the location.

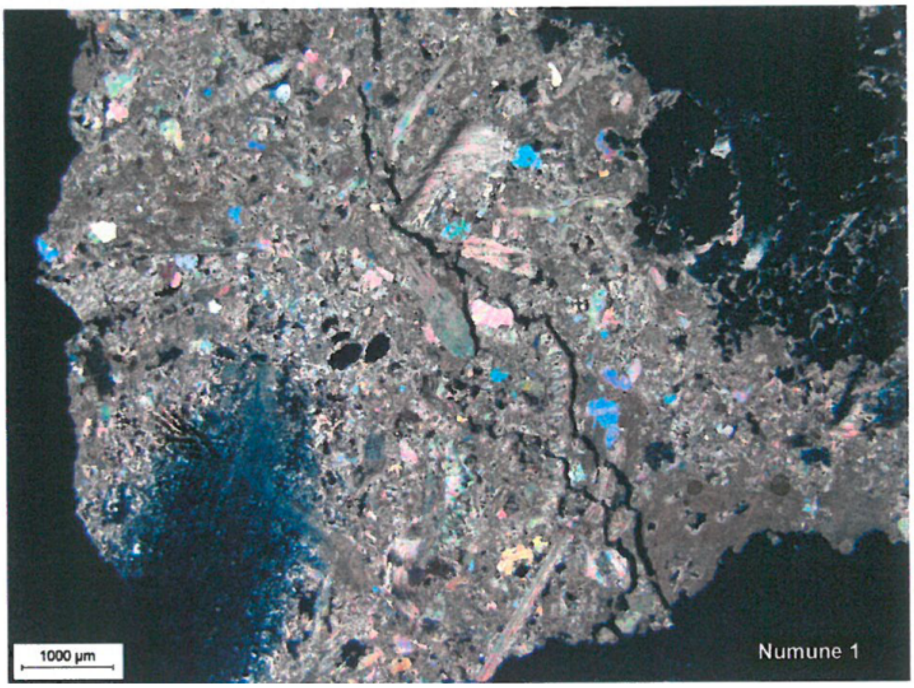


Figure 179. The thin section of the stone sample image produced by Istanbul Municipality KUDEB

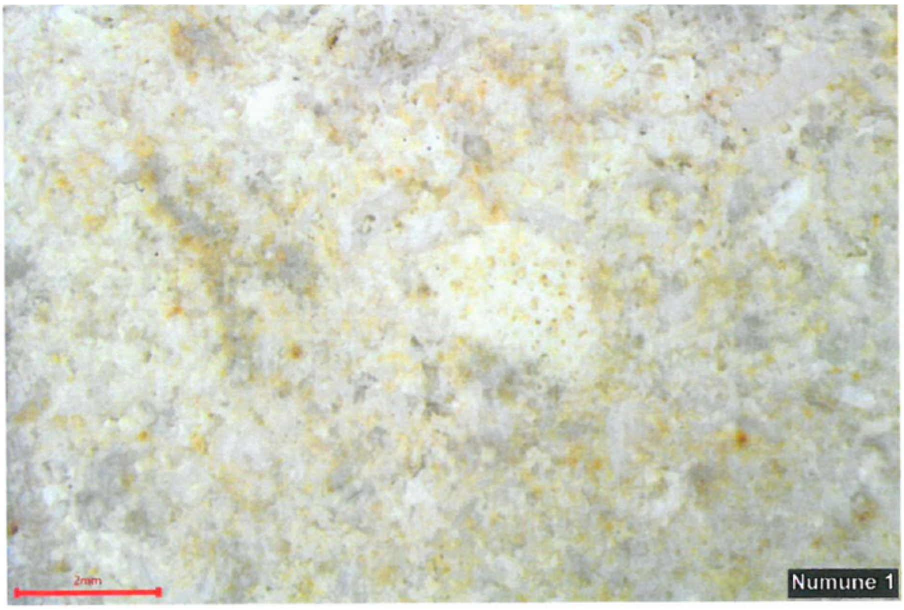
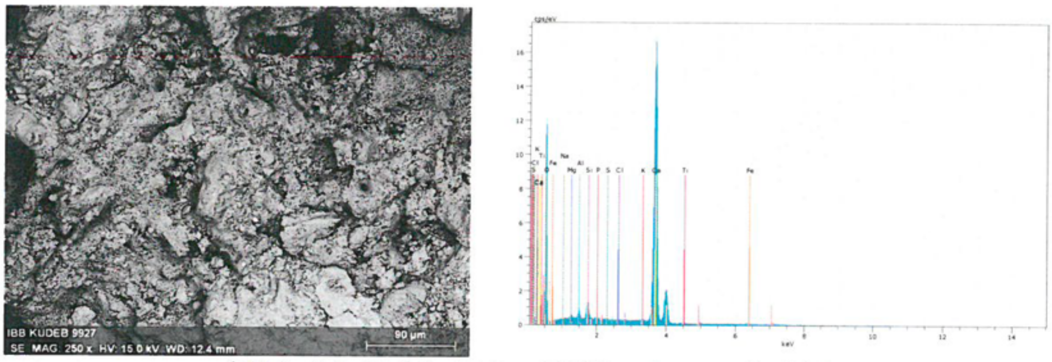


Figure 180. Thick section image of the stone sample produced by Istanbul Municipality KUDEB

Table 4. A table showing the results of loss on ignition, acid loss, and sieve analysis

Numune No	Kızdırma Kaybı (%)			Asit Kaybı (%)		Elek Analizi (%)							
	Nem	550 °C	$CaCO_3$	Kayıp	Kalan	5000 µ	2500 µ	1000 µ	500 µ	250 µ	125 µ	63 µ	<63 µ
1	0,17	1,63	94,59	98,26	1,74	Taş numunesi olduğundan elek analizi yapılmamıştır.							

Figure 181. (Left) Stereo Microscope Image, (Right) Polarizing Microscope Image produced by Istanbul Municipality KUDEB



SEM görüntüsü (solda) ve EDX spektrumu (sağda)

Figure 182. (Left) SEM image and (Right)EDX spectrum produced by Istanbul Municipality KUDEB

Table 5. Percentage distribution of the elements detected in the EDX analysis and their oxides, if present.

Spectrum

Element	norm. C [wt.%]	Atom. C [at.%]	Compound	norm. Comp. C [wt.%]
Oxygen	29.51	50.77		0.00
Magnesium	0.35	0.39	MgO	0.58
Aluminium	0.72	0.74	Al2O3	1.37
Silicon	1.66	1.63	SiO2	3.55
Calcium	65.69	45.11	CaO	91.91
Iron	0.83	0.41	FeO	1.07
Phosphorus	0.01	0.01	P2O5	0.02
Sulfur	0.00	0.00	SO3	0.00
Chlorine	0.00	0.00		0.00
Titanium	0.00	0.00	TiO2	0.00
Sodium	0.16	0.20	Na2O	0.22
Potassium	1.06	0.75	K2O	1.28
Total:	100.00	100.00		

It was determined that the sample contained a very high amount of calcium, with significantly smaller amounts of silicon, aluminum, potassium, iron, magnesium, sodium, and phosphorus (Table 5).

Figure 183. The photograph of IAM building (taken by the author in 2024)

While Marseille stones were used as facade cladding, it is unlikely that they were used in the foundation and load-bearing walls of the building. According to another archival document, written from the Prime Ministry to the Ministry of Internal Affairs, the Sultan approved the cleaning and organizing of the retaining wall adjacent to the Museum and across from the *Darphane* Buildings, with the intention of converting it into a garden and using the stones removed from the garden for the new construction of the Museum[97]. This approach appears to be both economically and labor efficient. As for the rear facades of the building, which are much simpler and not visible to visitors, it is not possible to make any definitive statements, as these facades have been covered with plaster and paint.

[97] "DH_MKT_00887_00032_001_001", Fi 24 Cumadelâhire [1]322 - Fi 23 Ağustos [1]320 / 10 Eylül 1904

Structural Iron Profiles

The most widely used and imported building material in the 19th century was iron beams. Metal elements, particularly, held significant importance among imported building materials, as jack-arched flooring was a common construction technique of the period. Information on the various sizes of iron profiles used in the jack-arched flooring system can be found in "*Notes pratiques et résumés sur l'art du constructeur en Turquie*," written by Alexandre M. Raymond in 1908. In this source, iron beams are classified as "*German profiles*" and "*Light profiles*" with their measurements provided (Altan, 2007, p. 66).

Aside from screws and nuts, Ottoman architectural iron technology during the 18th century and the first half of the 19th century remained largely disconnected from developments in Western Europe. While Western Europe experienced a revolution in the use of iron in architecture, this revolution manifested in the Ottoman Empire primarily as iron imports (G. Tanyeli, 2017). The most significant change observed in Türkiye during this period was a notable increase in the use of iron for structural purposes and a corresponding decrease in the cross-sectional dimensions of iron elements (G. Tanyeli, 2017).

Although iron of European origin had entered the country in earlier periods, it continued to be used in a traditional manner within architecture. After 1850, not only iron but also technologies and, more significantly, prefabricated construction elements like windowsills began to be imported. The Empire recognized at the beginning of the century that iron produced by traditional methods was not suitable for modern needs and made attempts to improve production. Mid-century, an iron factory was even established in *Zeytinburnu* (*Zeytinburnu* Iron Factory). However, despite these efforts, neither production nor domestic architectural iron technology could compete with that of Europe (G. Tanyeli, 2017).

During this period, European technology entered Türkiye through various channels. European iron reinforcement details were likely introduced into the country by architects who had studied abroad, while the materials required for implementing these details were imported. Additionally, the contributions of foreign experts who had been working in various Ottoman institutions since the 18th century should not be overlooked (G. Tanyeli, 2017).

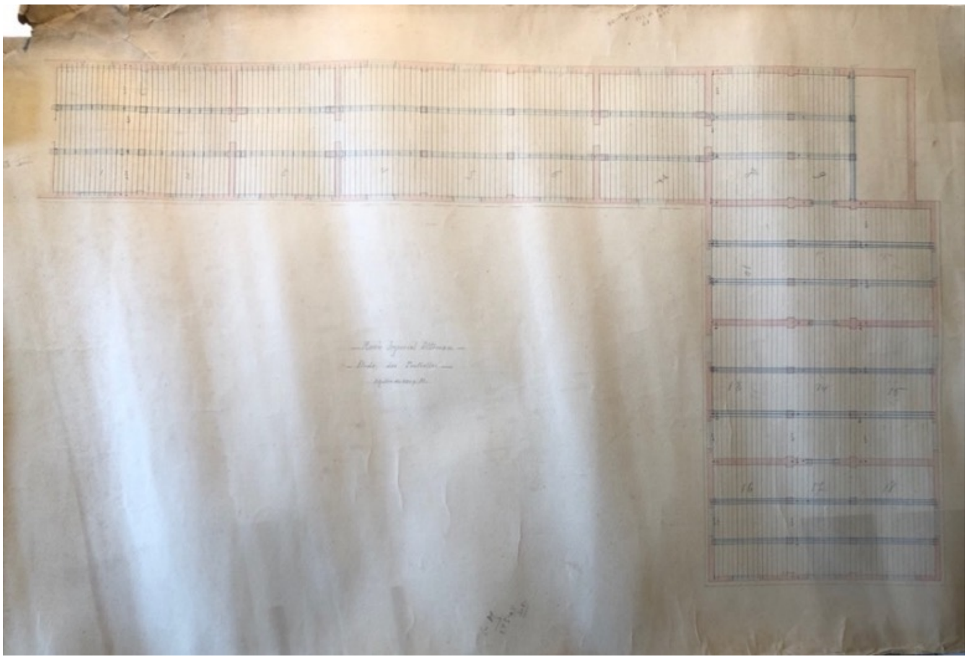


Figure 184. Vallaury period original plan of IAM building showing the iron beams places colored by blue (source:IAM Archive “98 G3/R3/9”)

During research conducted in the IAM library, original plans from the Vallaury period were discovered, showing the placement of iron beams (Figure 184), as well as drawings prepared for the iron ordering process (Figure 185). These original drawings, created for the purpose of ordering iron, detail the number of iron beams, their prices, lengths, and even the locations of bolts. In fact, this drawing carries a signature reading "*Edhem*" and a date of 1905, indicating that the iron orders were made for the final, or third, phase of the IAM construction (Figure 186). Looking carefully, additionally, another name and signature on the top of the drawing draw attention. The drawing contains the following expression:

«Commandes a la maison H. Essayan Freres & Cie.»

Translation: House Orders from H. Essayan Freres & Cie

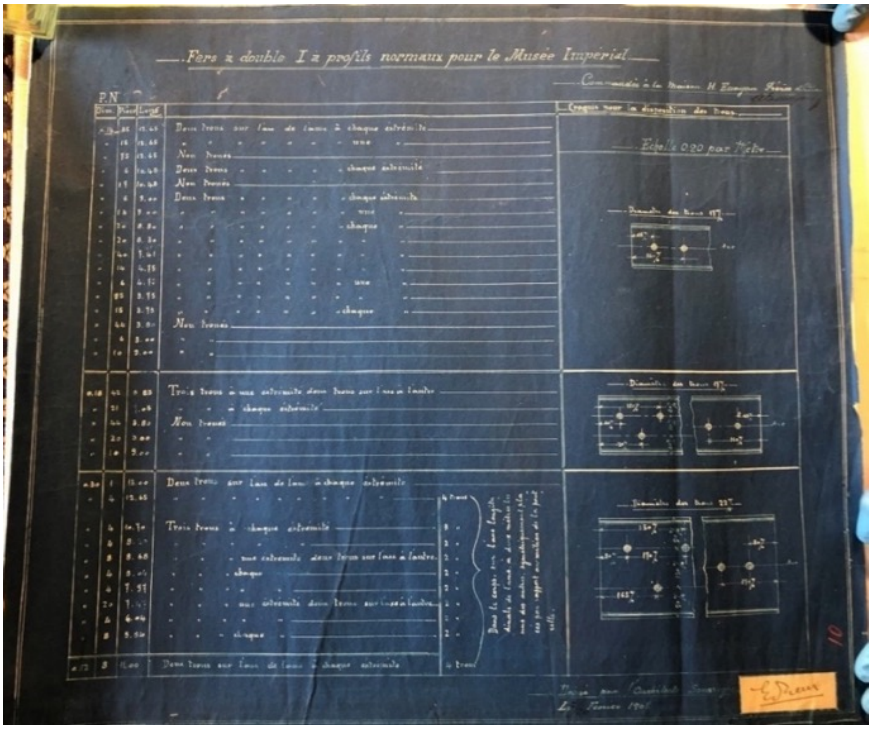


Figure 185. Vallaury period documents showing the exact amount and sizes of ordering of iron beams (Source: "IAM Archive, 98, G3/R3/9")

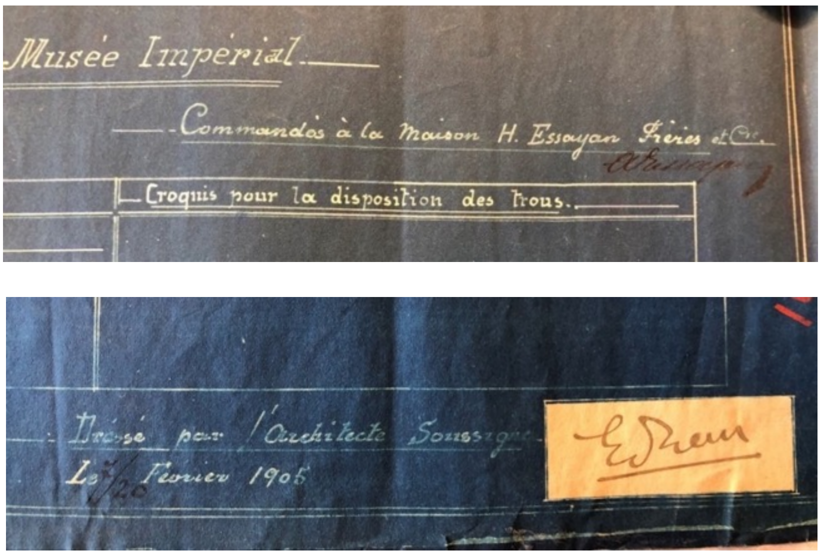


Figure 186. Top: note containing the name of the iron supplier on the original drawing Bottom: The signature of "*Edhem*" on the original drawing

Although there is no information about where and how the iron was imported, it is seen that iron structural materials were provided by ***Hagop Esseyan et Freres.*** In 19th century, the trade of building materials coming from Europe is also carried out by European or non-muslim (*zımmi*) traders (Mazlum, 2013, p. 502). Moreover, the name *Esseyan* is encountered in the list of commodity and passenger suppliers of the steamship company ***Compagnie des Messageries Maritimes*** (1851-1977), the first largest private steam shipping company that played an important role in French-Ottoman relations, operating on the France Marseilles Istanbul line (Figure 187) (Uygun, 2015a). Catholic Armenians were employed by the *Compagnie des Messageries Maritimes* and other French companies, they also became merchants and entrepreneurs, many of whom traded in cooperation with French companies (Uygun, 2015b). A significant portion of the staff employed by the Messageri Company's agencies in Ottoman cities and the mediators who provided goods and passengers to the company's agencies were Catholic Armenians (Uygun, 2015a). *Esseyan* may be one of these mediators, with whom Vallaury preferred to work, may also have played a role in other material supplies for the Museum Construction and maybe for his other projects.

Figure 187. The unsubsidized free trade routes of the Messageries Maritimes steamship company in the Mediterranean and Black Sea in 1895 (AFL. 1997 002 5205) (Uygun, 2015b)

Moreover, the name *Esseyan* appears in the French Trade Yearbook of 1911, where the profession of the company Hagop *Esseyan* et Freres is listed as "*fer*" (iron), with its address given as *Sirkeci*, 8. It is even possible that Marseille stone was transported between Istanbul and Marseille through this company and the *Esseyan* corporation.

4.3 The Structural System and Construction Techniques of Istanbul Archaeological Museums Building Between 1887-1907

The Classical Building of the Istanbul Archaeological Museum was constructed employing traditional masonry techniques and jack arched flooring system which was also very common in the era in Istanbul. The load-bearing walls on the ground floor were predominantly composed of a combination of brick and brick-stone masonry, while those on the first floor were built exclusively of brick masonry. Most of the exterior walls, with few exceptions, were clad in stone to enhance the building's monumental and imposing visual presence. The columns at the monumental entrances, as well as those within the interior, were constructed from brick masonry and later coated with plaster. The flooring of the first floor was designed using jack-arched construction supported by iron beams, a method widely used in 19th century architecture (Figure 188).

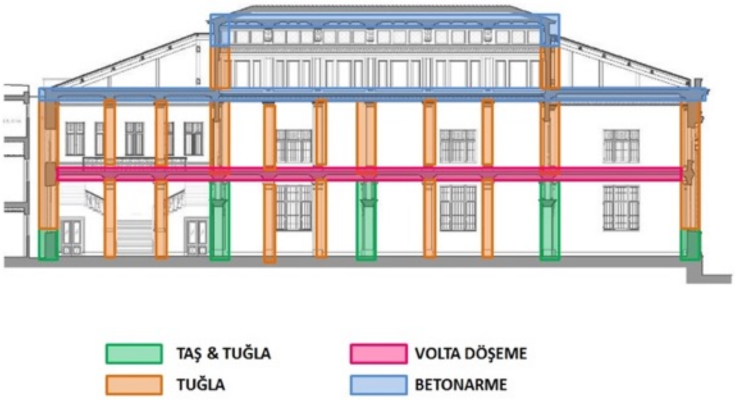


Figure 188. The main construction techniques of 3rd phase of IAM; green color stone and brick; orange color symbolizes brick; pink color symbolizes jack arched flooring; blue color symbolizes reinforced concrete (drawn by Rabia Şentürk on behalf of *Güryapı İnşaat Taah. ve Tic. A.Ş.)* (Source: IDSM Archive)

This section aims to explore the structural system of the Istanbul Archaeological Museum in two distinct categories: the substructure and the superstructure. The first part focuses on the substructure, which comprises the underground level, the foundation, and any interventions implemented to reinforce the building's base. The second part examines the superstructure, addressing all elements above ground level, including walls, columns, floors, and the roof system. In this part, the vertical and lateral structural elements, as well as the roof system, will be analyzed separately. Finally, the roof of the building is defined. The superstructure encompasses all components of the building visible above the foundation

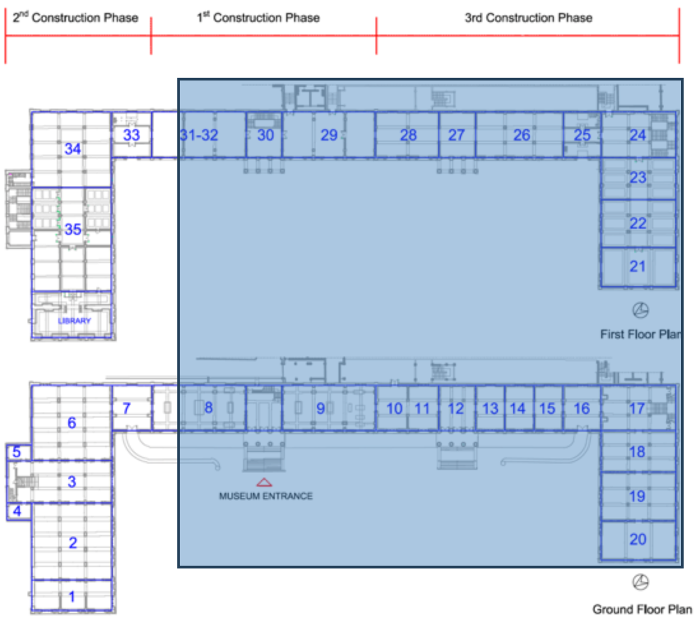


Figure 189. The sections that already restored by *Güryapı İnşaat Taah. ve Tic. A.Ş.* in between 2011-2020

Most of the sources for this section are gathered from the archives of the Istanbul Directorate of Surveying and Monuments, specifically the work files of the projects conducted between 2011-2017 and 2017-2021. These restoration efforts focused on the 1st and 3rd Construction Phases of the museum building, which are the only parts restored to date (Figure 189). Consequently, the detailed information available from the restoration process is limited to these phases. Since the museum's restoration and strengthening efforts began with the 3rd Construction Phase due to maintenance considerations, a significant portion of the available drawings and photographs pertains to this phase, particularly those detailing the jack-arched flooring system.

4.3.1 The Substructure of Istanbul Archaeological Museums Building

The foundation systems of historical buildings are often the least understood, especially if they have not undergone specific foundation strengthening. Without such interventions, obtaining information on a historical building's foundation can be challenging. In the case of the IAM, while the exact foundation system and its interaction with the ground remain largely unknown, some insights were gathered from the restoration work carried out between 2011 and 2016.

The floor pavement of museum was originally made of with cement tiles (*karosiman*) on the ground floor and timber parquet on the upper floors. However, the cement tiles visible in old photographs were later replaced with marble. When the marble was removed, approximately 10 cm of cement slab was observed underneath. It is known that the screed was imported from abroad, but this does not necessarily prove that it was part of the original construction. At this point, a photograph (Figure 190) taken from the first section confirms that the original cement tiles flooring was laid over screed.

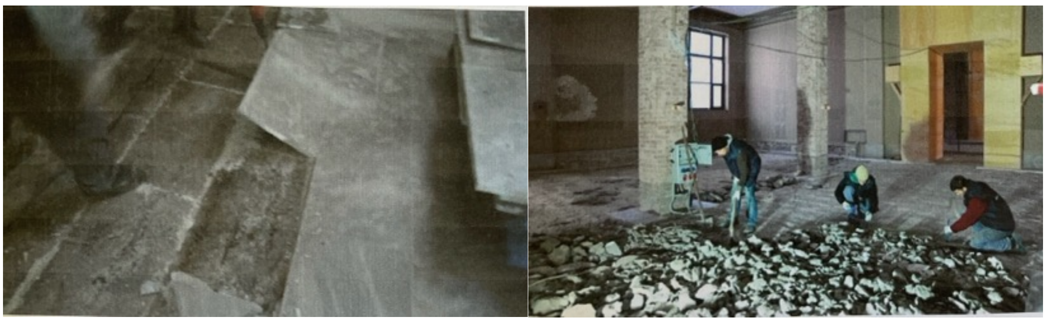


Figure 190. The removal of marble and cement layer from the ground floor of 3rd phase of IAM building.

As mentioned in Chapter 4.2.1, cement was one of the construction materials imported for the museum, for which a tax exemption was requested. It is recorded that 200 tons of cement was brought in. In the museum building, aside from the sub-flooring of the ground floor, there is no other place where cement was used. Cement was not applied in the plastering of the walls and ceilings.

As part of the restoration (2011-2017), the ground and the load-bearing walls were strengthened. According to the static project, the area around the columns and adjacent to the load-bearing walls at the ground level was reinforced with concrete. For this purpose, excavations measuring 50 cm in length and 41 cm in depth were undertaken along the load bearing walls of the 1st and 3rd construction phases of the museum. It was discovered that the thickness of the foundation walls is 27 cm greater below ground level compared to the walls on the ground floor (Figure 191, Figure 192).

The difference in thickness observed when the area around the walls was excavated was not seen around the columns. Since the excavation was only carried out to a depth of 41 cm, it could not be determined how far the foundation extends downward or whether it thickens at a lower level.

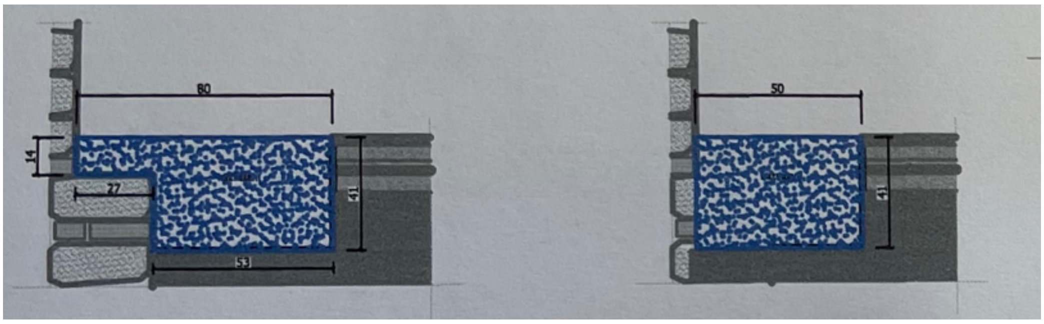


Figure 191. The partial section of load bearing wall (left) and the column (right) on the ground level of 3rd Construction phase of IAM (source: IDSM Archive) blue color shows the area had to be excavated

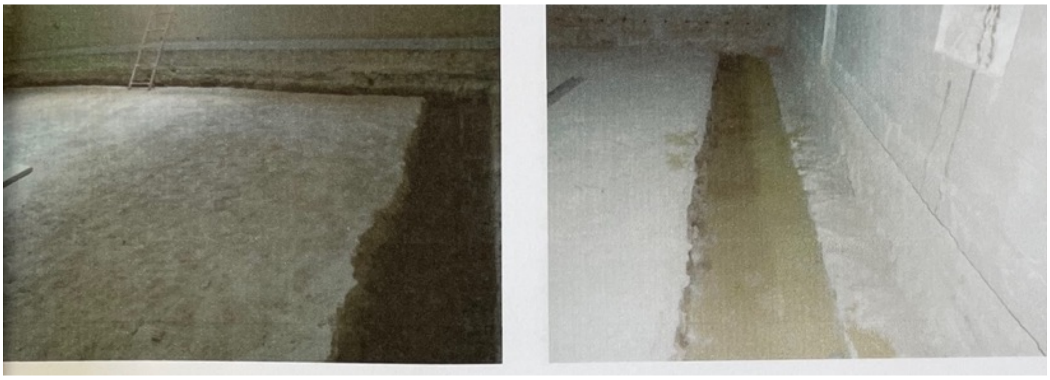


Figure 192. The photographs of the excavation along load bearing walls the ground level of 3rd Construction Phase of IAM (source: IDSM Archive)

Unfortunately, the information observed regarding the foundation during the restoration is limited to this. On the other hand, the Museum library archives provided original and unique information about both the underground structure system and the remains found surrounding and under the building. This section focuses on the underground system of IAM's classical building.

During the second tender of strengthening and restoration works between 2017 and 2020 with the authorization of the Republic of Türkiye Ministry of Culture and Tourism, new information regarding the construction techniques of the building and the existence of the remains under the building was explored. In 2018, during floor reinforcement works, an underground chamber was discovered after cutting a hole in the concrete floor. Upon this discovery, the restoration work was paused. This case was reported to the Istanbul Regional Conservation Council of Cultural Heritage (IRCCCH). The Council demanded the utilization of a non-destructive survey method to better understand the building’s understructure. Both ground-penetrating radar and drilling reports confirmed that there remain and empty spaces under the building.

This chapter evaluates the remains found during the foundation excavations of the second and third construction phases of the IAM Building and the interventions done to these buildings in between 1899-1907. For this purpose, the results of the ground penetrating radar (GPR) and drilling reports (2018), which show that there are remains and empty spaces under the building, are examined. Then the analysis of the interventions is assessed with the help of the thirteen original drawings drawn during the Vallaury period and correspondence taken from the IAM-Archive. Some of these interrelated primary sources are original and presented here were published in 2024 as a journal article before (Üstoğlu Coşkun & Şahin Güçhan, 2024).

The Interventions Made to the Substructure of IAM During the 2nd Construction Phase of IAM (1899-1903)

Among the original drawings analyzed, there are six foundation drawings drawn in the Vallaury period (one plan and five sections) that belong to the Second Phase of IAM. The most important drawing was named "*Plan Indicateur des Profils des Foundations"* (Figure 192, Top). This drawing includes a key plan for the section lines (trenches) and a site section showing the situation of the site before the excavation. When the building's measured survey plan is juxtaposed with this key plan prepared for the foundation, it is seen that there is an exact match with the current design of the building. The foundation sections are crossing each load-bearing foundation walls in horizontal and vertical directions.

To make a detailed and accurate analysis, the photographs of the drawings were transferred to the digital environment by the author, and the original drawings were superimposed with the existing superstructure's plans and sections. To make it clear, each section is renamed by a code number like S1, S2, S3 (Figure 193, Bottom). This method was selected as it provided many important architectural information beyond those explained in the drawings. Moreover, it provides insight into how Vallaury prioritized the construction of the building in response to the 1894 earthquake.

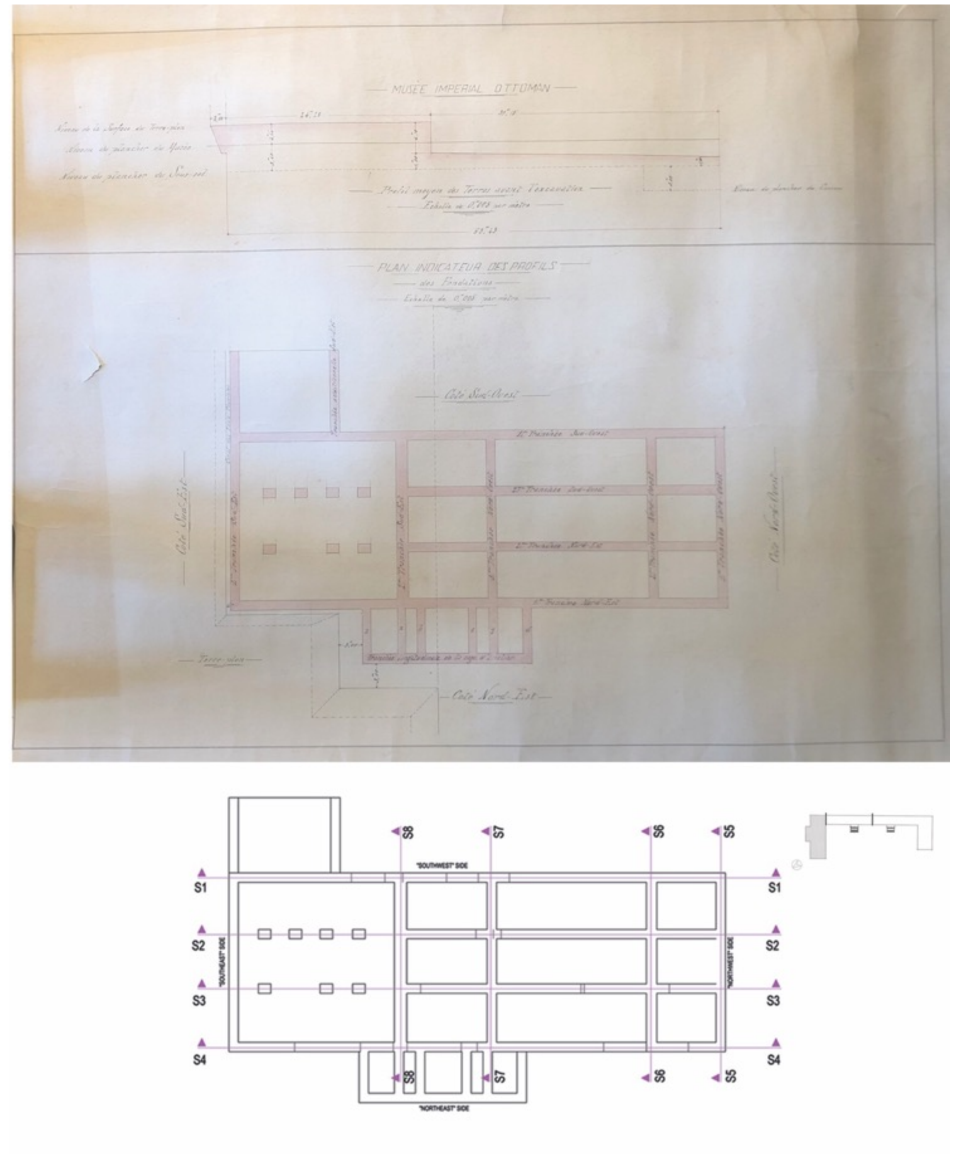


Figure 193. (Top) The original drawing of the key plan for the foundation sections of the second construction phase of IAM buildings dated between 1899 and 1903, (source: "IAM Archive, 6, G2/R1/4" n.d.) (Bottom) (left) the key plan for the foundation section produced by the author based on original plan (drawn by the author), (right) the key plan for the position of second construction phase of IAM.

The sections were named as “Tranchée “according to their orientation, like “First Tranchée Sud-Ouest” (First Trench of Southwest). Since trenches are written in the key plan for the foundation sections, it is assumed that Vallaury and his team ordered to open trenches along the foundation walls prior to the construction of the foundation of the Second Phase. Considering the original drawings, in the sections; the pink-colored areas are accepted as cutting lines of earth, while the pink-colored areas with hatching are accepted as the remains of walls. So, the original section drawings indicate that there were architectural remains under the Second Phase of IAM.

Looking at the original foundation plan of the Second Phase (Figure 194, Top), an interesting feature reveals itself. In this plan, there are continuous loadbearing walls on the south-east and singular column footings on north-west. While there should be eight column footings that continue in the upper floors as well, on the west side of the building, one of them was deliberately skipped and only seven column footings were drawn. This odd decision becomes more meaningful when the cross section passing through this direction is examined. In the S3 section (Figure 194, Middle) there are just three (3) column pits. A stone pattern was drawn in the place of missing footing. This pavement, which seems to be the remains of the understructure, might have served as a solid structure to carry the column. Another reason might be to protect the remains and take advantage of their existence.

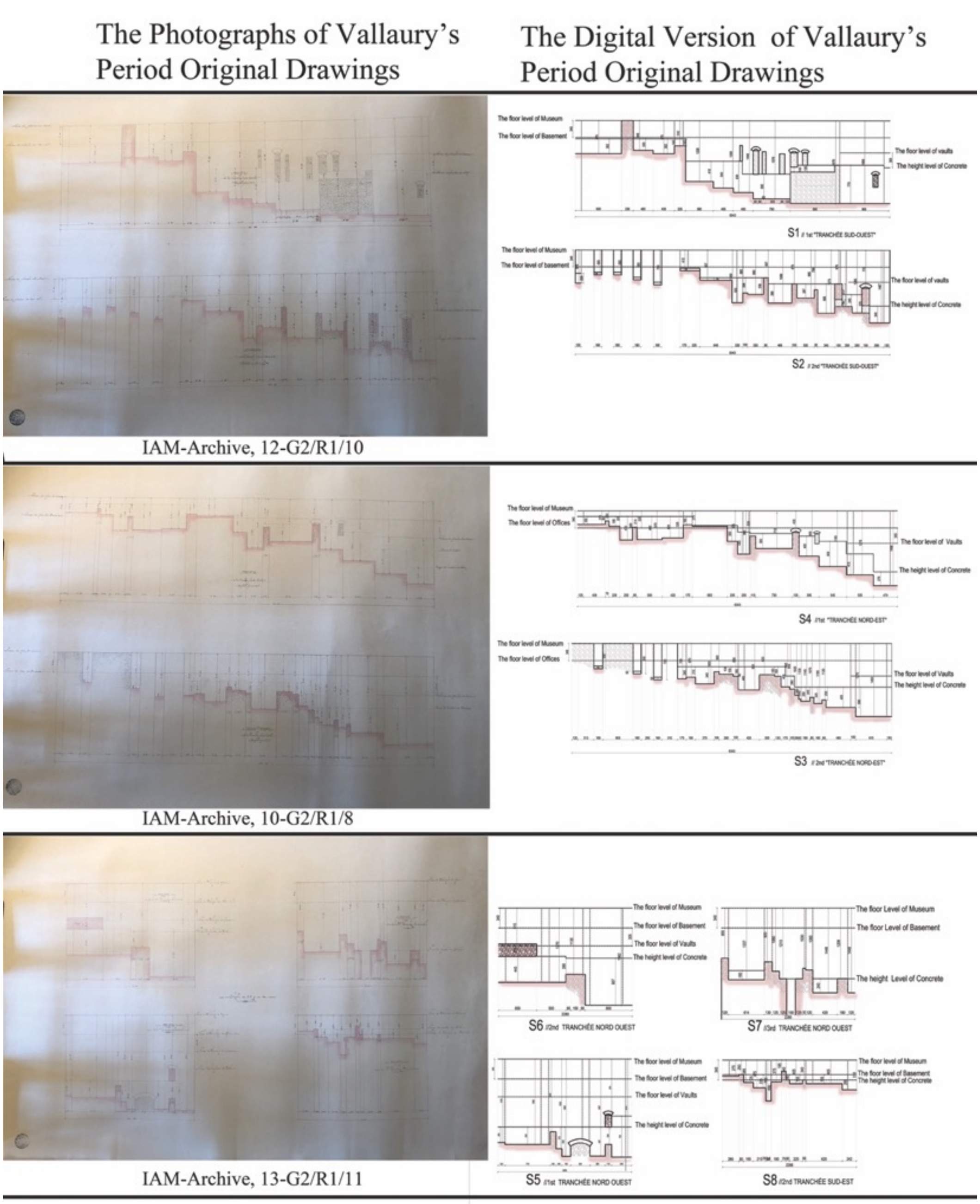


Figure 194. Original drawings (on left) and digital superimposed drawings (on right) (produced by the author based on their original drawings).

Looking at the original section drawings (Figure 195), it seems that each section strikingly displays the important levels related to the superstructure of the Second Phase and the remains under it. The purpose was probably to locate the foundation walls of the building in reference to the remains and, as a result, to construct the foundation on a secure and solid base. It is understood that the vertical levels in the original section drawings, which were drawn by dashed lines, are the projections of the columns or shearwalls. They were and are still important for evaluating the load-bearing capacity of the ground.

The horizontal levels defined in the original drawings are: the museum floor level (Niveau du plancher du Musée); the basement floor level (Niveau du plancher du Sous-Sol); The vault floor level (Niveau du plancher du Caveau); The concrete floor level (Niveau du plancher du béton). From this deduction, it becomes clear that Vallaury arranged the height of the stories and floor plans according to the remains under them. The museum floor level is derived from the main building, which was constructed first, because museum floor level serves the purpose of a continuous exhibition experience for the visitors through each phase of the museum.

To examine these levels more clearly, the foundation sections of Vallaury (S2) of Second Phase of IAM and the survey section of the building were superimposed in reference to the museum level shown in both drawings (Figure 195, Top). According to this section, it seems that the museum floor level, the basement floor level and the vault floor level correspond to a great extent with today's building floor heights.

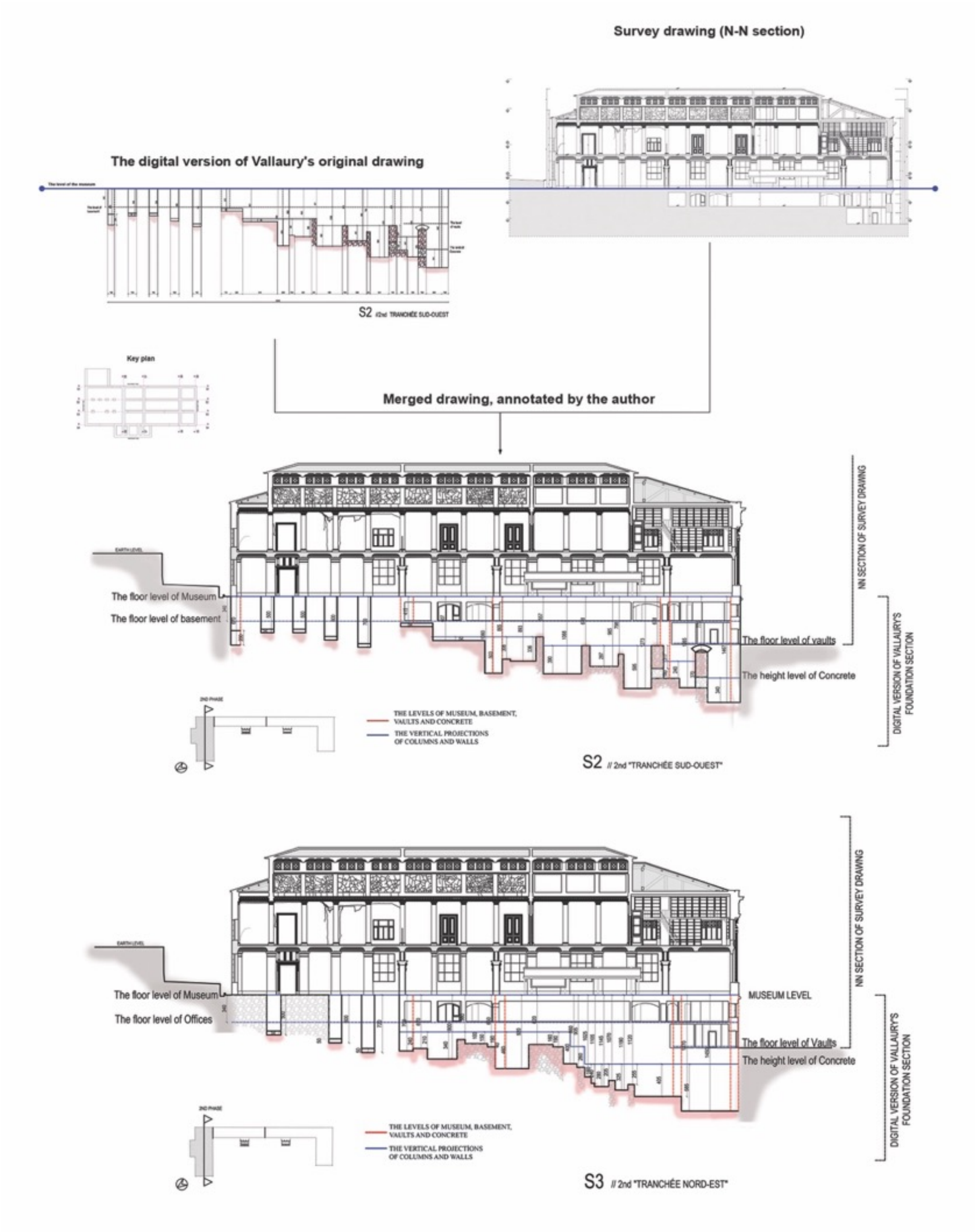


Figure 195. (Top) The superimposed drawing of the foundation sections of the Vallaury period (S2) and the measured survey section of the second phase of IAM (produced by the author, section's source: IDSM-Archive) (Bottom) The superimposed drawing of the foundation sections of the Vallaury period (S3) and the measured survey section of the second construction phase of IAM (produced by the author, section's source: IDSM-Archive).

The existence of the “vaults” and “concrete” levels in the sections makes the drawings even more interesting, indicating the possibility of applying vault and concrete under the foundation. Unlike other levels, the concrete floor level (Niveau du plancher du béton) does not follow a fixed and continuous line. It was shaped according to the height of the remains or earth level (Figure 195, Bottom). This reminds us that before construction, a concrete slab was applied by leaving a certain distance to the ruins below. It is known that a concrete slab, which was common in the period, was implemented during the construction of the building on the ground floor.

As for the Vault Floor Level (Niveau du plancher du Caveau), it can be inferred from the section drawings that this level corresponds to the second basement floor. The original drawings recently derived from the IAM Archive in December 2021 (IAM-Archive, 132- G4/R2/18) help understand what is meant by the vault level, and more importantly, they confirm the existence of the vaults on the east side of the second phase of the Museum Building (Figure 196).

The most important feature of this drawing is that an elevation, a partial section, and a partial plan of the outer wall of the underground structure were drawn together in the same drawing. Another interesting aspect is that there are no lines indicating the presence of the remains. Only a vault system built for the understructure is seen in the drawing. Accordingly, arches with a radius of 2.25 m appear on the top of huge pillars with a height of 4,80 m. There is no holistic plan that might help us understand whether the vault or arch system continues through the whole building or not. It is seen that the foundation structure becomes narrower and reaches the dimensions of the superstructure of the building.

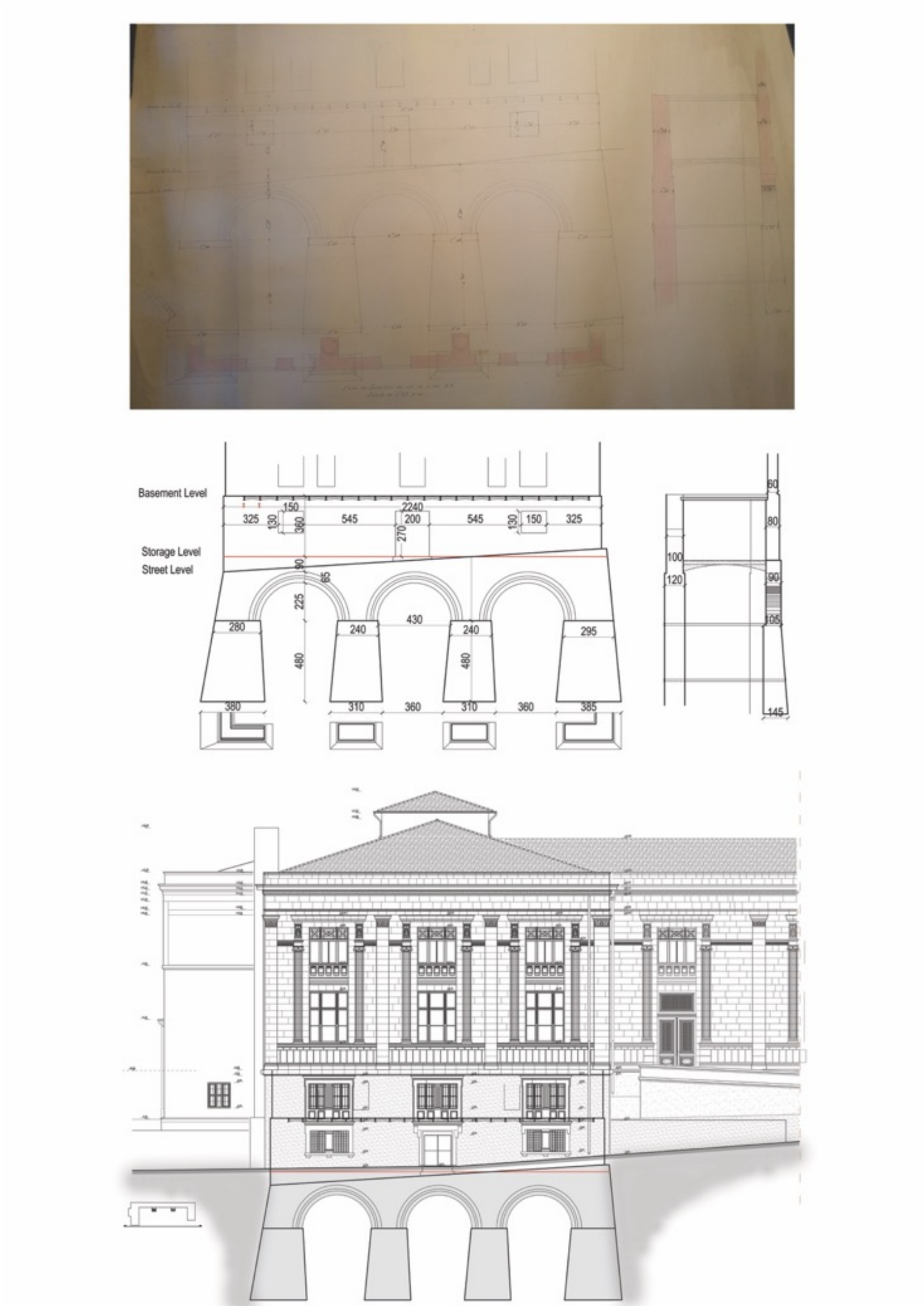


Figure 196. (Top) Underground east elevation of second construction phase of IAM, drawn in the Vallaury period (“IAM-Archive 132-G4/R2/18”, n.D.) Middle: The digital superimposed drawings of underground East Elevation of Second Phase of IAM (produced by the author) (Bottom) The superimposed drawing of the Underground East Elevation of Vallaury period and the Elevation of the Second Phase of IAM (produced by the author, elevation’s source: Restoration Project prepared by Seçkin Mimari Hizmetleri IDSM-Archive).

Lastly, to be able to see the distribution of remains on the site in the original drawing of the Vallaury period, each wall, which was hatched with stone texture in each section, was marked on the foundation plan (Figure 197). At the beginning of the study, the researcher had only sections of the land that were known to belong to the building. In order to draw a meaningful conclusion from these, it was aimed to transfer the lines of height differences and hatched areas, which are assumed to be wall remains in the section, to the plan. While doing this, the aim is not to draw the exact plan of the remains, but to create a hypothetical distribution map. While the areas painted pink indicate possible remains, the areas hatched pink indicate hypothetical wall remains, fictitious lines drawn to hypothesize a possible continuity where the remains are very close (Figure 197).

This could not present an outline of an architectural understructure since the excavation done in trenches along the planned foundation walls of the Second Phase of the IAM. However, it affirms that there were remains in different height and quantity. Looking at the proposed plan of remains, it is seen that the remains are scattered under the museum building. Still, they are grouped along the side of Gülhane Park. The height difference on the site reaches up to 14,70 m in the north-west direction, which is remarkable. The original section drawings S1 and S2 show that the remains were concentrated in that area; approximately at the height of Gülhane Park. This may be interpreted as meaning that these structures could be connected to Gülhane Park and have entrance in this direction.

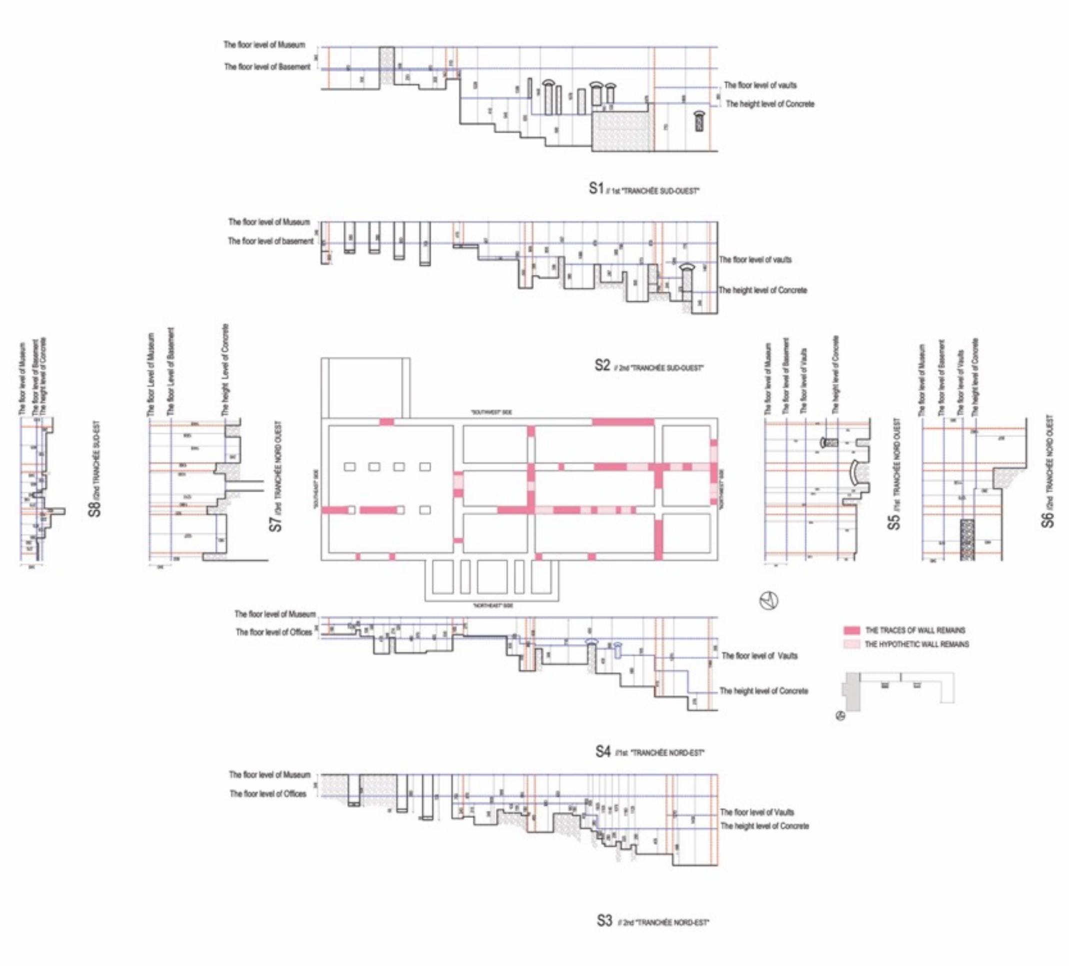


Figure 197. The remains plan of the second construction phase (source: produced by the author based on the original drawings of the Vallaury period in IAM-Archive).

The Interventions Made to the Substructure of IAM During the 3rd Construction Phase of IAM (1904-1907)

Among the original drawings analyzed, it is discovered that four of them are related to site excavations of the third construction phase. The purpose and style of drawings are similar to those related to the second phase, although they were prepared at least 5 years later than the drawings of the second phase. These are i) the foundation plan of the third construction phase (Figure 198), ii) two partial plans; the elongated entrance and short façade of the third phase (Figure 199, Top and Bottom), iii) two longitudinal sections of outer walls (Figure 199, Middle). However, this time, the drawings are less detailed. They include neither a title nor dimensions. They display only some codes (numbers and letters) referring to other drawings. The drawings, which include a partial plan with sections together (Figure 199, Top and Bottom), allowed the researcher to create a more reliable map of remains for this phase. This plan showing the exact location of the remains also proved the accuracy of the method that was carried out at the beginning of the study.

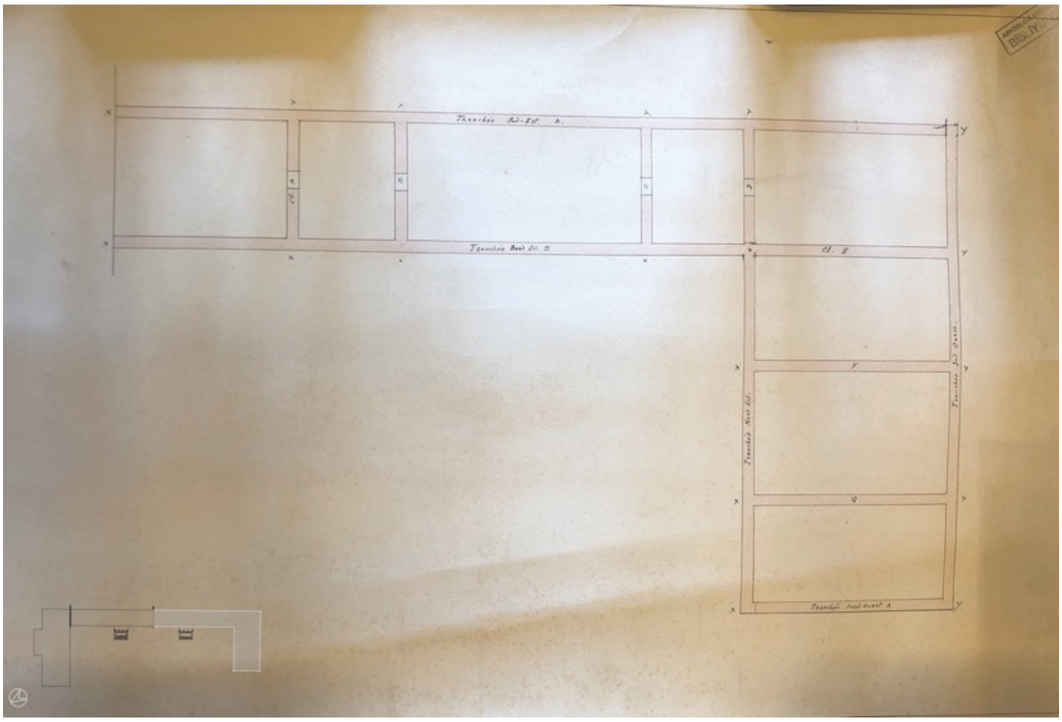


Figure 198. Key plan for foundation sections of the third construction phase of IAM buildings (“IAM-Archive, 102, G3/R3/13”, n.d.).

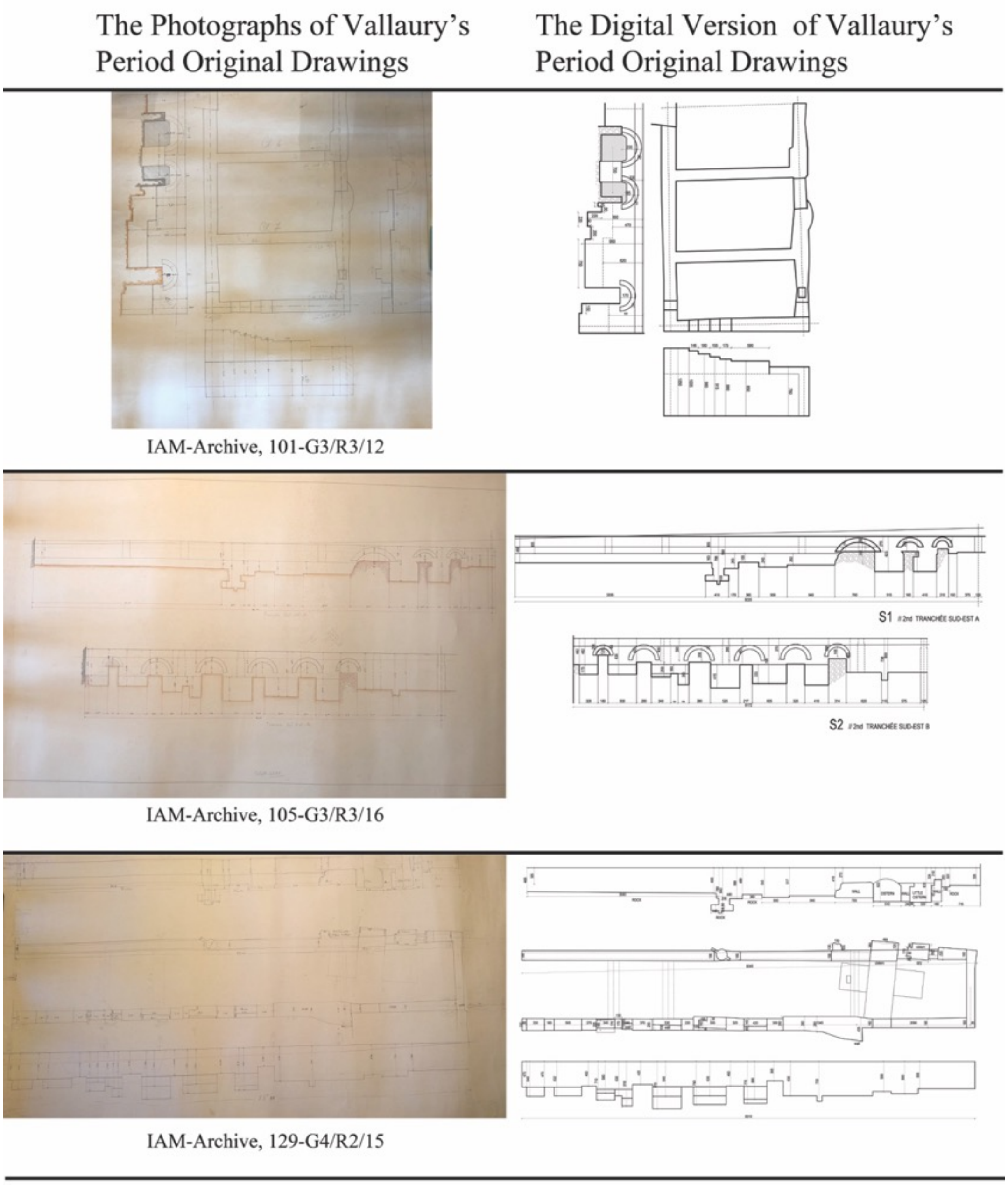


Figure 199. (Top) Partial plan of the south wing of the third construction phase of IAM ("IAM Archive, 101, G3/R3/12", n.d.) Middle: Longitudinal foundation sections of IAM' third construction phase ("IAM Archive, 105, G3/R3/16", n.d.) (Bottom) Partial plan of the south wing of the third construction phase ("IAM Archive, 129, G4/R2/15", n.d.)

The partial plan in IAM-Archive, 129-G4/R2/15 (Figure 199, Bottom) is one of the most important drawings analyzed within the scope of this study. It shows the elongated entrance façade plan of the museum. The traces of the remains have been processed on this plan. In addition, there are sections on the lower and upper sides of the plan that pass through the outer walls of the building. In these sections, the remains are clearly visible. The handwritten notes on the plan also provide additional information. The expression petite cisterna (little cistern) was used for the place coinciding with the remains drawn in the upper section of the plan. The thick walls seen in the plan, which is drawn at the intersection of the entrance facade and short wing, are noted as mur (wall). The lines in the plan and the section corresponds to each other exactly. This proves that the method the authors utilized to create the remains plan from the sections of foundation walls is correct.

The foundation sections of the third phase of IAM also support these correspondences and confirm the construction of new vault systems on top of the remains under the building. In fact, it appears that these vaults were not only built on the cisterns but also applied to the entire foundation of the third construction phase. In the light of this new information about underground structures, sections of foundation walls can be analyzed better. There are two long sections of third phase of IAM. The most striking feature is the repeating arches or vaults seen in the northeast section, passing through the foundation wall of the front facade. Looking at the vault drawings, the contours of these vaults are precisely drawn; they were not hatched or colored, unlike the depiction of remains, and they were not supported with any columns; they seem to be floating in the air.

Looking at Figure 200, Top (S1-S2 sections), it can be seen that the inner foundation walls and columns coincide with the space between the vaults, rather than above them. Furthermore, it is not clear what the rectangular shapes under each vault drawings represent and for what purpose they were drawn. The stone hatching technique used to draw the remains was not used here. It is also not clear where the bases of these vaults are. These unclarities cannot be resolved with the existing drawings.

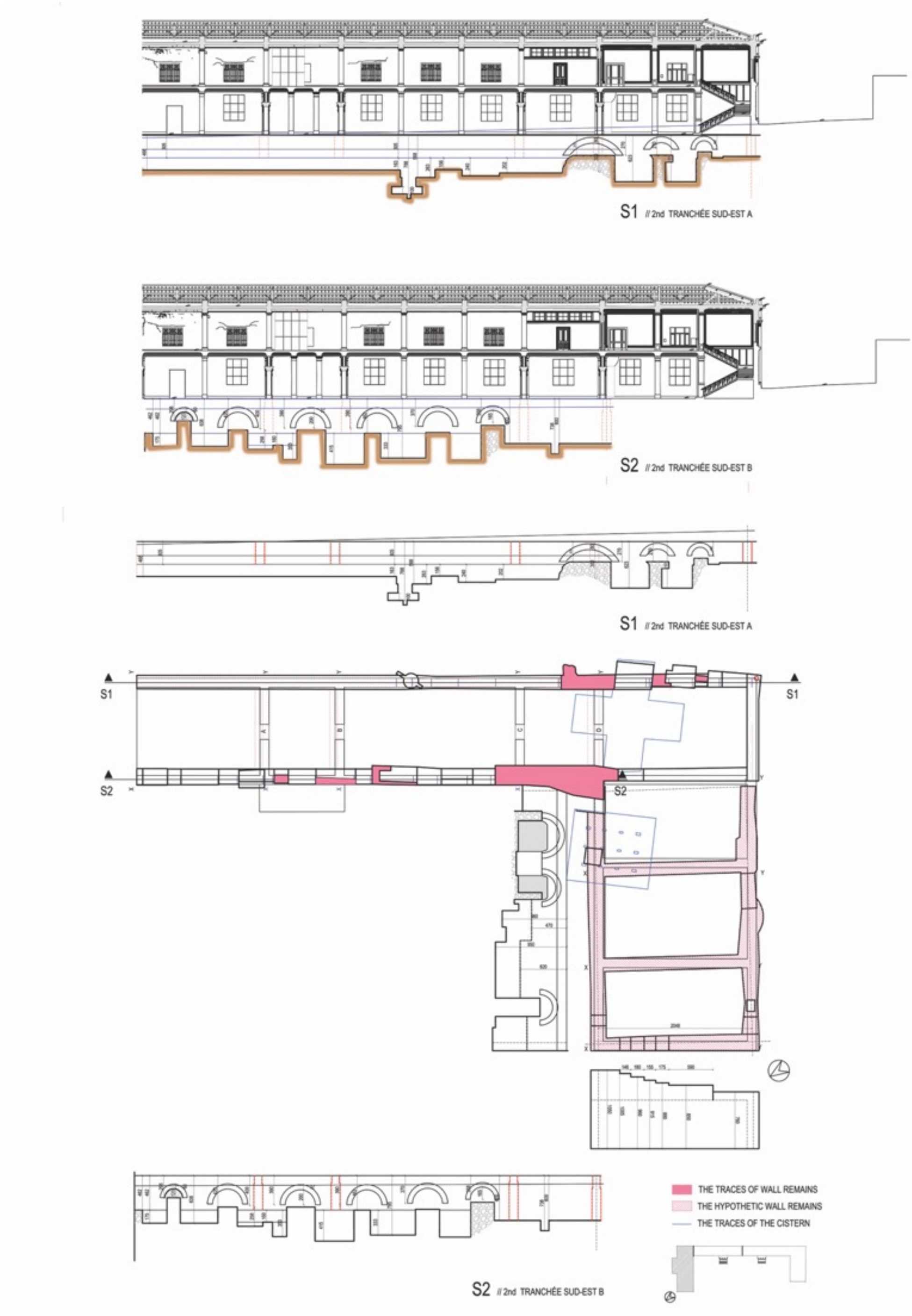


Figure 200. (Top) The superimposed drawing of the foundation sections of the Vallaury period (S1-S2) and the measured survey section of the third construction phase of IAM (produced by the author, section' source: IDSM-Archive) (Bottom) The Remains' plan of the third construction phase of IAM (produced by the author based on the original drawings of the Vallaury period in IAM-Archive).

Closely looking into the partial plan of the third construction phase, it seems that there are two vaults above some remains, which were hatched as stone and colored in gray (Figure 200, “IAM- Archive, 101- G3/R3/12”, n.d.). Even though the cisterns were not drawn in the partial plan, which is highly interesting, these remains should be the walls of the cistern with a square shape shown in Figure 200. When the whole foundation plan of the third phase of IAM, the plan with the sketch of the remains and this partial plan are superimposed (Figure 200), it becomes clearer that the place of the vaults matches the place of the cistern and that the walls are thicker than the walls of the foundation of the third phase of IAM. The uneven and amorphous walls may be interpreted as the remains of a pre-existing underground structure. The new building corresponds exactly to the thick walls of existing understructure so that a solid basement is ensured for the foundation walls.

In conclusion, even though the characteristics of these drawings and plans make it difficult to accurately interpret the purpose of vaults, combined with the information in the correspondences, they might be used to argue that the vaults were built on top of the cisterns in order to support the foundation of the third construction phase of IAM. Kula Say states that the architect examined the ground, underground and the building remains to fit the building firmly to the existing and historical underground structures composed of arches, cisterns and building parts (Say, 2014, p. 139). On the other hand, it is understood from the original drawings that the openings were reduced and a special effort was made for the reinforcements, especially in the museum’s additional buildings dated after the 1894 Istanbul earthquake; here Alexandre Vallaury must have tried to meet the demands for strength (Say, 2014, p. 140) and structural stability at the foundation level.

The existence of an understructure was also proved during the restoration works of the Classical Building in 2018. By the demand of the Conservation Council (ICCCH No IV), the georadar survey and Drilling Reports were prepared. According to the result of the georadar report, there are intense remains at levels of 2,5 and 3,5 m below earth’s level. They made 4 drilling pits up to 6.50 m.

The Ground Penetration Radar (GPR) was executed to determine the possible archaeological elements in the 780-square-meter section that surrounds the chimney (Appendix C, Plans). During the GPR, 20 cm. thick earth fill was detected at the top level. A 40-50 cm thick brick etc. layer was found below that level. The earth fill layer was detected up to 1.80-1.90 m in depth. Most significantly, probable archaeological element or texture indications were observed at an average of 2.0-4.50 m depth in the entire study area. According to the speed analyses made, an average of 4.50-5.0 m. geological units (Sandstone-Claystone layer) start (GPR Report prepared in 2018 IDSM-Archive) (Appendix C, Sections).

As suggested in the conclusion of GPR report, four drilling pits up to approximately 6.50 m. were applied. (The exact places of drillings and the materials are shown in the Appendix D)

- Drilling pit no SK-1: The empty space is detected between -2.5m and -5 m
- Drilling pit no SK-2: The empty space is detected between -4m and -6 m
- Drilling pit no SK-3: The empty space is detected between 0m and 2 m
- Drilling pit no SK-4: No empty space was detected.

Drilling Pit no SK-3 is located next to the area where the hole was noticed during the restoration of the building. As a result of the drilling SK-3, at the bottom of the empty space 0m—2m, Khorasan mortar, brick fragments, sandy pebbles were detected between 2 m and 4 m, and a soft-consistent, sandy crud unit (fill) was detected between -4 and -6 m (The Drilling Report derived from IDSM-Archive).

Coming back to the void found during the restoration work that inspired the writing of this section, it is highly likely that this void was actually one of the vaults that were likely to have been built between 1904 and 1907 to support the building.

A Restitutive Site Plan About the Original Setting of IAM

As mentioned above, this section aims to analyze the reciprocal relationship between the superstructure and substructure of the IAM building by using a method that involves cross-checking and superimposing the archival and secondary research with in-situ investigations on site. This method allowed the authors to construct a restitutive site plan for the original setting of IAM. Still, there are issues further discussion while presenting some unclear aspects.

The restitutive site plan about the original setting of IAM covers all data coming from primary and secondary sources mentioned in previous sections with the intention of revealing some original drawings for the first time and paving the way for future studies on the history, archeology, architectural history, and conservation of cultural heritage of IAM and its surroundings.

Looking at this map (Figure 200, Bottom), it can be seen that the structures extending in the same direction, most of which belong to the fifth and sixth centuries, are predominant in the area and colored brown. Although there is conflicting information about the location of the cistern in the courtyard, i.e., the number of pillars and domes are different in two respective drawings, the site plan of the Byzantine Galleries obtained in 2023 from IDSM Archive (drawn by *Seçkin Mimari Hizmetleri)* provides certain information about the exact location and the size of the cistern. The author completed the whole cistern plan using this drawing as a reference in this case, the cistern was depicted parallel to the fifth and sixth century buildings and the Byzantine gallery (Figure 201).

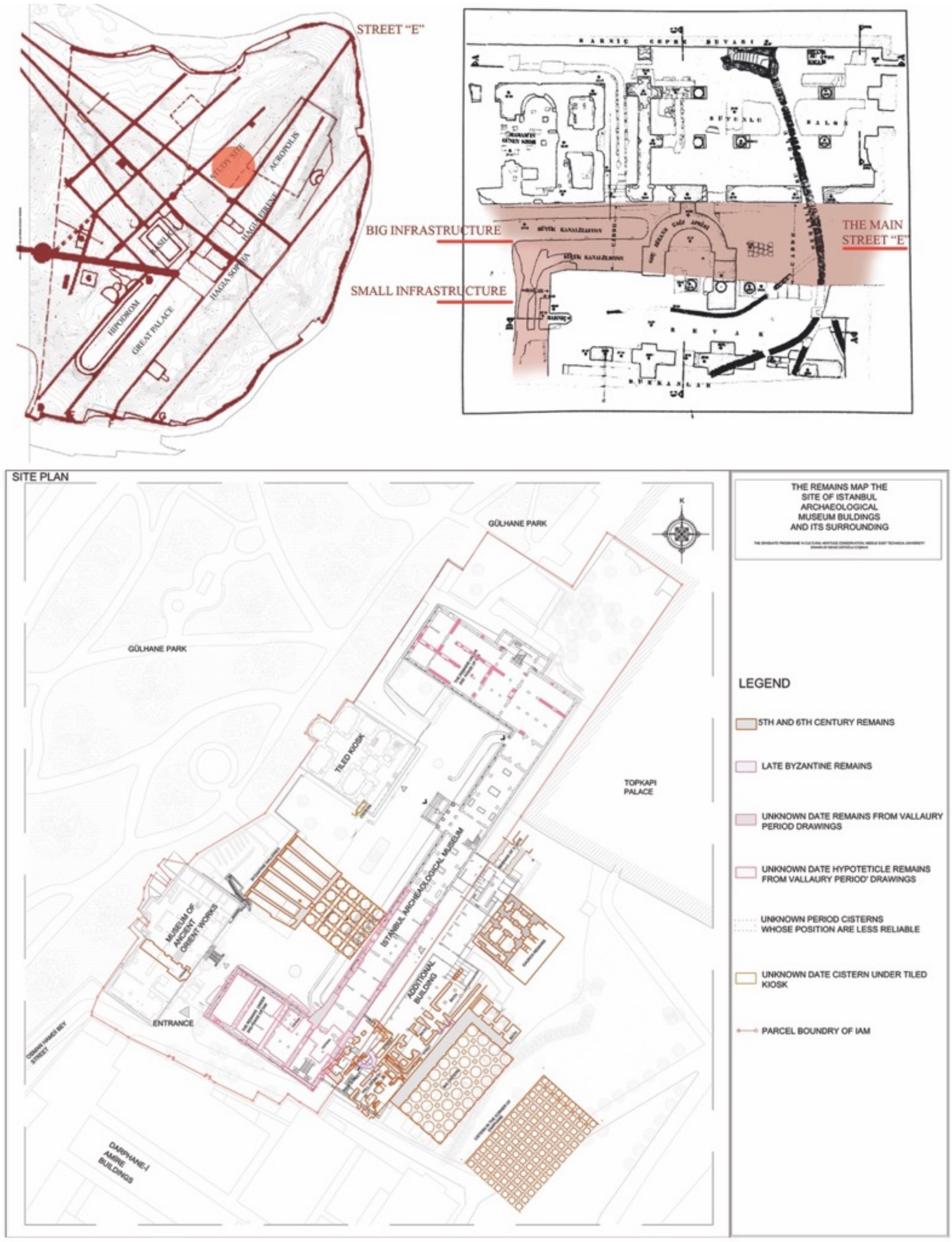


Figure 201. Top: (left) the Reconstruction of Early Byzantine city prepared by Albrecht Berger (2000) TOP: (right) Detail drawing of the remains of the bath found during archaeological excavations in the site of additional building of IAM (Kızıltan & Saner, 2011) (both images are reproduced by the author from the original sources) Bottom: The Remains Map of Istanbul Archaeological Museums and its surrounding (drawn by the author after; sources of remains: ICCCH-Archive, Site Plan dated to 1971 (Kızıltan & Saner, 2011); (Tezcan, 1989) ,(Altuğ 2013); IDSM Archives; IAM Arhives).

As a result of the analysis of drawings belonging to the Vallaury period, the places with possible remains are indicated in pink and marked as "the period is uncertain" because they are underground. In these drawings, the location of the two cisterns found under the third phase of IAM is shown with dots, as their positions seems slightly different in two archival sources. The Original foundation plan of the Third Phase of IAM with a sketch of the remains is accepted as more reliable for this study.

The cisterns under the third construction phase of IAM follow the contours of the superstructure that it carried (square-shaped and cross-shaped cisterns). If the cisterns are built as a building understructure, they have the outline of the structure they carry on the top (Altuğ, 2013). It is reminiscent of the Byzantine Greek-cross-plan church, with a square central mass and four arms of equal length. The cross-shaped structure is likely to be a church, where an apse from the late Byzantine period (1204-1453) is visible (Kızıltan & Saner, 2011). The street, shown in the drawing of archaeological excavation done during the additional building foundation excavation (Figure 201, Top, Right), on which the apse was built, must have lost its function over time. This street coincides with the street system proposed by Berger (2000) for early Byzantine Constantinople. Berger draws a street layout of Byzantium and early Constantinople in reference to the entrance of the monuments, the gates, and the topography of the city (Berger 2000) (Figure 200, Top, Left).

The excavation drawing (Figure 201, Top, Right), which includes the bath structure and the 5-meter-wide street, reveals that there are shops with porticoes in front of the bath. A second narrower street, which is 3 meters wide, separates from this street is in the north-west direction. This second street is important for the prepared land restitution because the cisterns drawn under the third construction phase of IAM extends parallel to this street. In addition, when the road is extended, it reaches the stairs next to the Byzantine galleries. This is the usual situation for fifth- and sixth- century Constantinople. Berger claims that the streets extend along the slopes or perpendicular to them (Berger 2000). As a result, they were either flat or very steep and completed with stairs, and not always exactly parallel (Berger

2000). In the Berger Street plan, Street E passes through the back facade of IAM and parallel to the Topkapı palace interior walls.

The place of the gate in the walls, so-called *Fil Kapısı*, the "Door of the Elephants", may be the location of gate remains found in the northern side of the IAM during the foundation excavation of the Additional Building. There was a terrace wall (sed), at the point where Berger proposed as a street (E) during the Ottoman period. This wall is shown in the Presidential State Archive document (BOA_PLK.p.01372). The continuation of this wall, today the Kozbekçiler gate, which provides access to the palace's first courtyard, is still standing. In addition, Fıratlı and Başçetinçelik (1969) says that the sections and plan of the wall, which was made of cut stone, repaired in different periods at the location close to Topkapı Palace, and demolished during the foundation excavation of the museum's additional building, were not sent.

Another striking point about the remains is the different angles they have. The buildings on both sides of the same street extend in different directions with a slight deviation, even though they belong to the same time period (Figure 201). With all this construction, there is another group of remains from Vallaury's drawings parallel to the classical building. This group is in line with the street proposed by Berger (2000) and the Ottoman sed wall too. Therefore, it may belong to a large building group built in a different period from the fifth and sixth centuries (Figure 202).

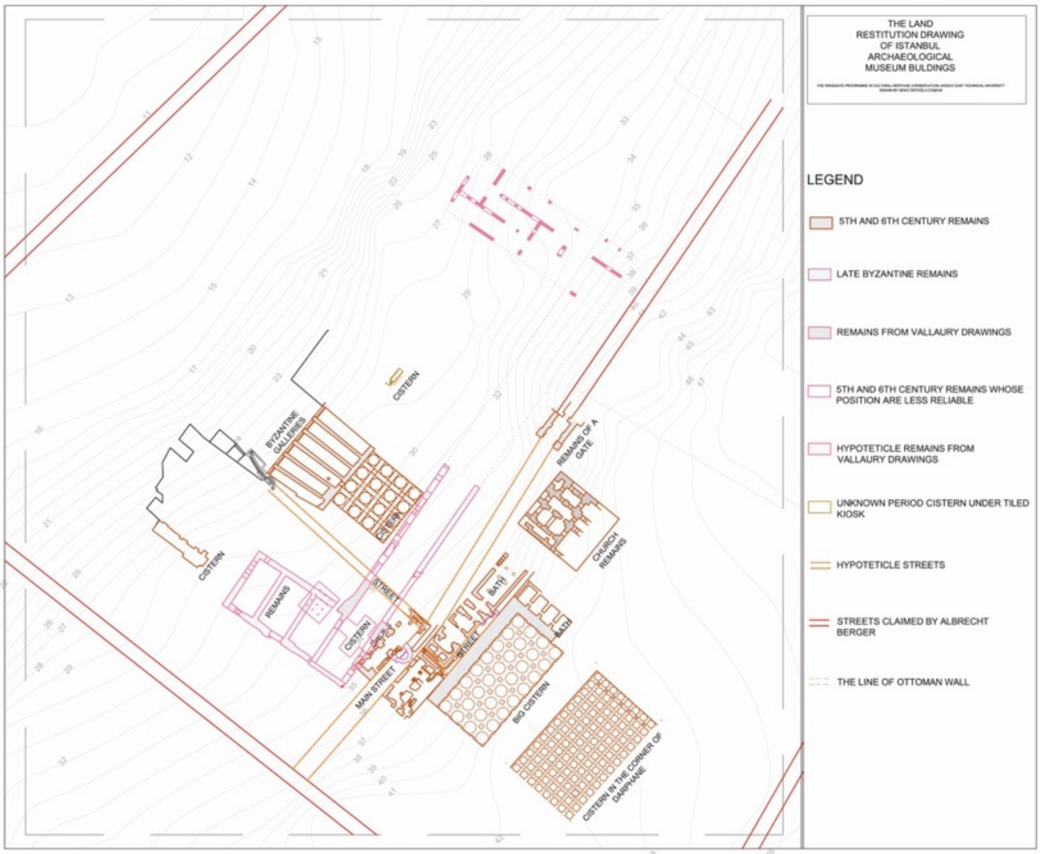


Figure 202. The restitutive site plan of Istanbul Archeological Museums and its surrounding (drawn by the author after; sources of remains: ICCCH-Archive, Site Plan dated to 1971 (Kızıltan and Saner 2011); (Tezcan 1989) (Altuğ 2013); IDSM Archives; IAM Arhives) (Üstoğlu Coşkun & Şahin Güçhan, 2024)

4.3.2 The Superstructure of Istanbul Archaeological Museum Building

In this section, the superstructural elements will be categorized under two headings: Vertical Load-Bearing Structural Components and Lateral Load-Bearing Structural Components. The first category addresses elements such as columns, walls, and piers, which transfer vertical loads from the structure to the foundation. The second category focuses on components like beams, slabs, and roof systems, which distribute loads horizontally across the building.

The Vertical Load-Bearing Structural Components and their Construction Techniques

The load-bearing structural components of the Classical Building of the IAM consist of columns and walls that transfer loads vertically from the structure to the foundation. These components were primarily constructed using stone, a combination of stone and brick, or brick alone. The entire exterior walls are clad in Marseille stone (as discussed in Chapter 3). Vallaury's detailed drawings in Figure 203 further illustrate this wall technique. As shown in his drawings, stone is used as cladding on the exterior, while brick serves as the primary material on the inner side of the wall. It can be inferred that the area below the flooring level, marked in pink, consists of stone masonry.

The materials and methods used in the masonry walls vary in each phase, and these will be explained in detail in subsequent sections. The sketch is so similar to the current application (Figure 203, Figure 204), however it is also not known for which specific phase it was drawn. Upon examining the discrepancies, no iron beams were found during ground reinforcement work on-site, while a 10 cm high cement-based slab was identified beneath the marble cladding. Iron beams are present on the first-floor slab. In fact, a closer look at the drawing reveals that the iron beams shown in gray are lightly marked over in pencil, which could be interpreted as an indication of a change in the architectural decision.

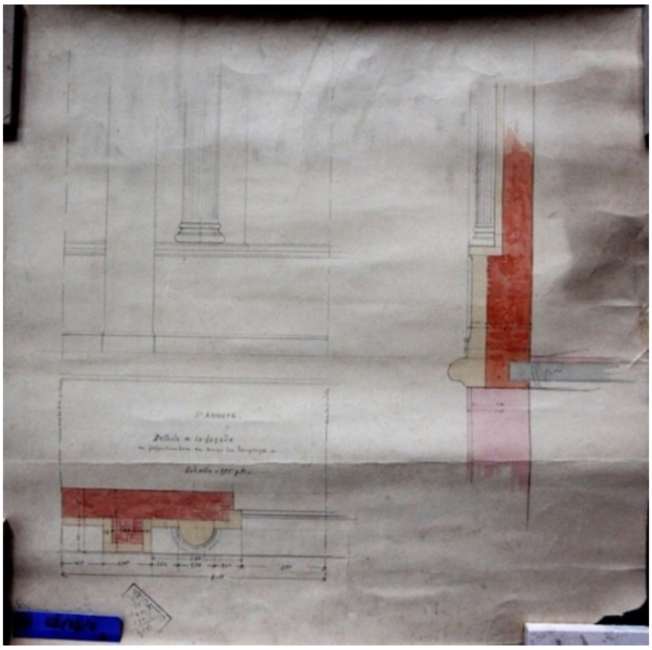


Figure 203. The detail sketches of wall section of IAM drawn by Alexandre Vallaury in (Say, 2014)

Figure 204. The details from the Facade of IAM building (taken by the author İN 2024)

During the reinforcement work (2011-2017), the paint and plaster layers were only partially removed in necessary areas rather than across entire surfaces, meaning much of the information about the building's internal structure comes from historical photographs. In the restoration and reinforcement process, plaster scraping was limited to the sections where reinforcement elements were to be installed, ensuring the surface was prepared for the necessary applications. Since the building was constructed in three phases, each with different craftsmanship and technological advancements, each phase will be analyzed separately. In this section, particular attention will be given to tracking the changes in construction methods and decisions across the phases between 1887-1907, keeping in mind 1894 Istanbul Earthquake happened after completing the 1st Construction Phase of the building. The most information available pertains to the 1st and 3rd Construction Phases, as restoration work began in those areas, and detailed drawings of the iron beams were prepared for these parts. The least information exists for the 2nd Construction Phase, as comprehensive strengthening and restoration work had not yet begun on this section as of 2024.

The Vertical Load-Bearing Structural Components of 1st Construction Phase of IAM (1887-1891)

Although the archival data available concerning the initial section of IAM is limited, it is possible to obtain information from photographs taken during restoration process. The first construction phase is the oldest part of the building. For this reason, many techniques will be continued in subsequent phases, and it is likely that the architect has made changes to several aspects as well. Considering the wall techniques and its dimension, the restitution and survey drawings drawn by *Seçkin Mimari Hizmetleri* are quite helpful to gain some technical information about the building.

The 1st Construction Phase features a monumental, four-columned entrance accessible via stairs, and a staircase shaft within the entrance hall providing access to the upper floors. On either side of this staircase shaft, two large rooms entirely dedicated to sarcophagi stand out. Vallaury, in order to accommodate and display the large sarcophagi, including the Alexandre Sarcophagus, preferred to position the columns as close to the walls as possible, rather than dividing the rooms with them (Figure 205)

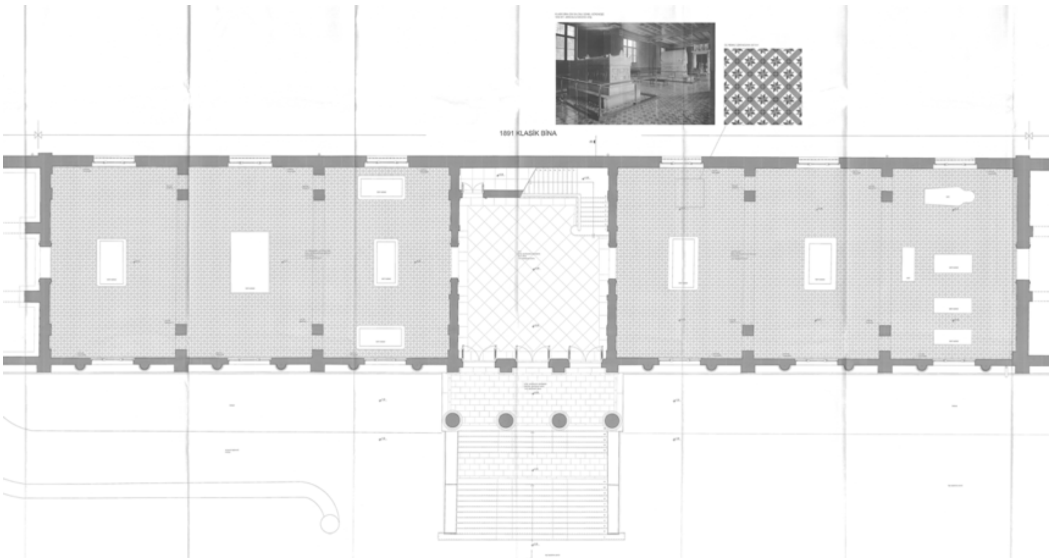


Figure 205. The restitution project of Ground Floor of 1st construction phase of IAM drawn by *Seçkin Mimari Hizmetleri* (source: IDSM- Archive)

Restoration photographs indicate that the load-bearing wall construction system is based on brick masonry (Figure 206, Figure 207). Analyzing the construction technique of the columns reveals that solid bricks were used on the ground floor, while perforated bricks appear on the upper floor. However, this may not apply to every column, as no technical drawings detailing the construction techniques and their precise locations on the plan have been found in the archives (Figure 208). Additionally, it remains unknown whether vertical iron elements are present within the columns, as a ground-penetrating radar (GPR) survey has not yet been performed.

Figure 206. The photo showing brick masonry walls of 1st phase of IAM taken during strengthening work in between 2011-2017 (source: *Güryapıİnşaat* Company, IDSM Archive)

Figure 207. The photo showing brick masonry walls of 1st phase of IAM taken during strengthening work in between 2011-2017 (source: *Güryapıİnşaat,* IDSM Archive)

Figure 208. The photo showing brick masonry columns of 1st phase of IAM taken during strengthening work in between 2011-2017, left ground floor right: 1st floor (source: *GüryapıİnŞaat,* IDSM Archive)

According to restoration project, the thickness of the external wall of the building's entrance façade is 40 to 45 cm on the ground floor and 35 cm on the first floor. The thickness of the external wall of the building's rear façade is 65 to 80 cm on the ground floor and 40 to 45 cm on the first floor. As for the column dimensions, the independent columns are 65 cm by 110 cm on the ground floor, decreasing to 60 cm by 60 cm on the first floor; the columns adjacent to the wall are 65 cm by 50 cm on the ground floor, decreasing to 60 cm by 45 cm on the first floor. The largest span between the columns is 8.55 m. These values will also be prepared for other phases and compared one by one with the drawings in Chapter 5.

Based on these data, it is understood that in 1st Phase, the wall thickness and column dimensions decrease as the upper floors are reached, and although the rear wall of the structure is not stone-clad, it was constructed 25 to 35 cm thicker than the front wall (Figure 209).

Figure 209. (Top) Key plan of the section (Bottom) BB section of survey drawing drawn in 2009-2010 (source: Geometrical Survey Drawing prepared by OSM Engineering, IDSM Archive)

The Vertical Load-Bearing Structural Components of 2nd Construction Phase of IAM (1899-1903)

As the 2nd Construction Phase of the IAM has not yet undergone extensive restoration, the available direct information from the building is limited. Consequently, the technical data from the restitution project (Figure 210) and historical photographs taken during the construction process gives some information about its construction techniques.

This phase consists of two basement floors, a ground floor, and a first floor. The architect Vallaury has once again placed the stairwell along the central axis of the structure. Solutions similar to those in the 1st Construction Phase have been applied on the ground and first floors, with the masonry wall and column system continuing. However, some changes are noticeable this time. At first glance, the building's plan reveals that, compared to the first phase, the columns are positioned closer to the center of the structure and are spaced more densely (Figure 210). The ground and first floors are entirely dedicated to exhibition functions (with a library also located on the first floor), while the first basement floor serves administrative functions, and the second basement floor caters to technical needs (Figure 211).

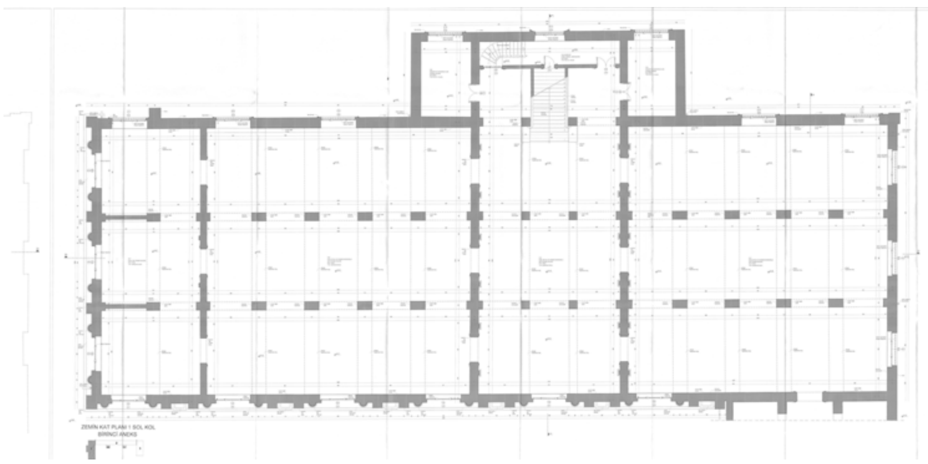


Figure 210. The restitution project of First Floor of 2nd Construction Phase of IAM drawn by *Seçkin Mimari Hizmetleri* (source: IDSM Archive)

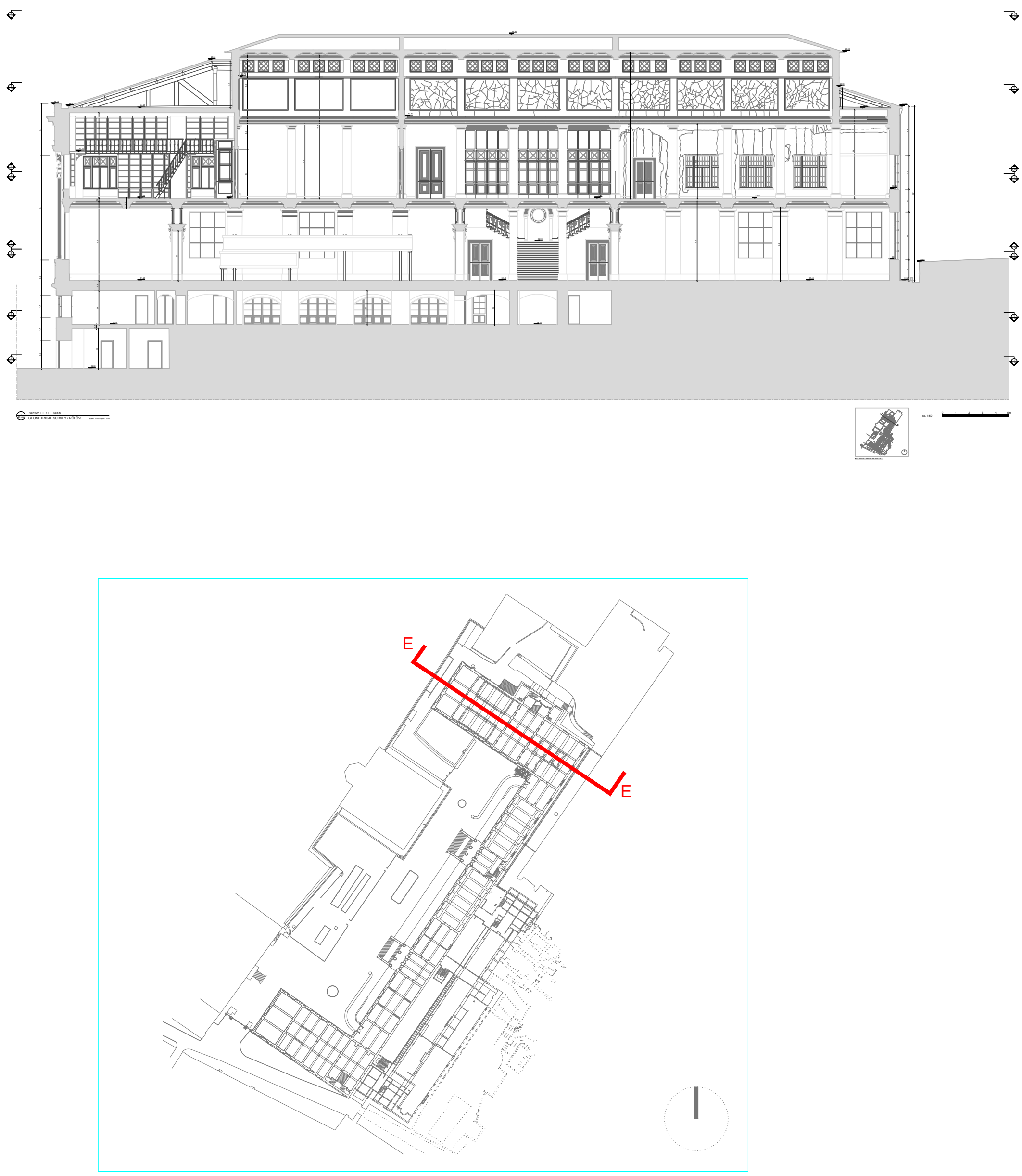


Figure 211. (Top) EE section of survey drawing drawn in 2009- 2010 (Bottom) Key plan of the section (source: Geometrical Survey Drawing prepared by OSM Engineering, IDSM Archive)

While the photograph (Figure 212) obtained from the IAM archive provides valuable insight into the building's construction, its distant perspective makes it challenging to observe finer details. Upon closer inspection of the photograph, the left side of the ground floor appears to feature a rubble stone wall with clearly seen brick beams. However, this pattern does not seem to extend to the right side of the photograph, where the structure appears to consist entirely of brick masonry. This is evidenced by a photograph taken from inside the same area (Figure 212), as the exposed inner section of the wall, where the plaster has fallen off, reveals that the masonry is composed of brick (Figure 213, Figure 214). This area includes staircases and service spaces raising the question of whether brick masonry was used exclusively here due to the planned expansion in this part of the building, as suggested by the layout plans.

Figure 212. The old photo of rear façade of 2nd construction phase of IAM (source: Restitution Report of IAM prepared by *Seçkin Mimari Hizmetleri*, IDSM Archive)

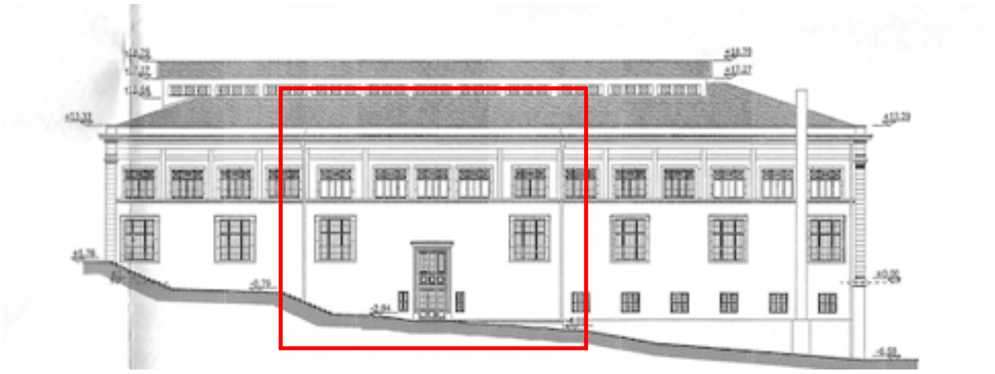


Figure 213. The restitution of rear facade 2nd Construction Phase of IAM drawn by *Seçkin Mimari Hizmetleri* (source: IDSM- Archive) red color symbolize the brick masonry part of the façade, stairwell section

Figure 214. The inside view of the stairwell exterior walls of 2nd Construction Phase of IAM (taken by the author in 2024)

The measurements taken from the restitution and the restoration project prepared accordingly are shown in Table 8 below. According to this, the thickness of the external wall of the building's entrance façade is 60 to 65 cm on the ground floor and 60 to 65 cm on the first floor. The thickness of the external wall of the building's rear façade is 80 to 85 cm on the ground floor and 80 to 85 cm on the first floor. This dimension decreases 70 to 75 cm in rear facade constructed without stone cladding. As for the column dimensions, the independent columns are 110 cm by 62 cm and 64 to 62 cm on the ground floor, decreasing to 64 cm by 62 and 62 to 62 cm on the first floor. The largest span between the columns is 4 and 7 m.

Based on these data, it is understood that in 2nd Construction Phase of IAM, the wall thickness does not change in ground floor and first floor. However, the column dimensions decrease as the upper floors in some columns.

The Vertical Load-Bearing Structural Components of 3rd Construction Phase of IAM (1904-1907)

This phase features an L-shaped layout that extends both north and south. It consists of two stories, which have been designated for exhibition purposes. Additionally, a second monumental gate was added to the museum building to maintain symmetry in both the plan and façade.

The construction phase with the most available information is the third and last phase. In addition to a photograph taken during the construction of this section, numerous construction documents and reports are accessible due to it being the first part where restoration work began in 2011. The details identified in the old photographs are confirmed by the construction site reports[98].

This section states that the ground floor columns, as well as the first-floor columns and walls, were constructed using solid brick masonry. However, it is noted that perforated bricks were used in the wall and column located between Rooms 22 and 23, as shown in the diagram below.

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[98] Report named Bölüm - Birinci Kat Salon 21-22-23-24' Te Döseme Kaplamasi Sökümü Sonrasi Ortaya Cikan Volta Döseme Sistemleri, Subat-2012, drawn by Rabia Şengün/İnşaat Mühendisi in behalf of Güryapıİnşaat Company" from IDSM Archive

Figure 215. A photograph taken inside the 3rd Construction Phase of the building, across from the main staircase in Hall 16 (source: CAMGD-Archive)

In the Figure 215, the marble stair steps, brick columns, and wall construction system are clearly visible. Upon closer inspection of the wall system, the wall on the left side of the photograph is the external load-bearing wall, while the wall on the right is an internal wall that separates two rooms. However, this internal wall is also load-bearing, as evidenced by its thickness and the original foundation plan. At first glance, both walls appear to be rubble stone construction with a mix of stone and brick. Embedded columns are visible on both walls, indicating they were constructed using the same technique. While the stones are clearly distinguishable, it is difficult to ascertain whether there are brick courses between the stone layers. To clarify this, further analysis of a second photograph is required.

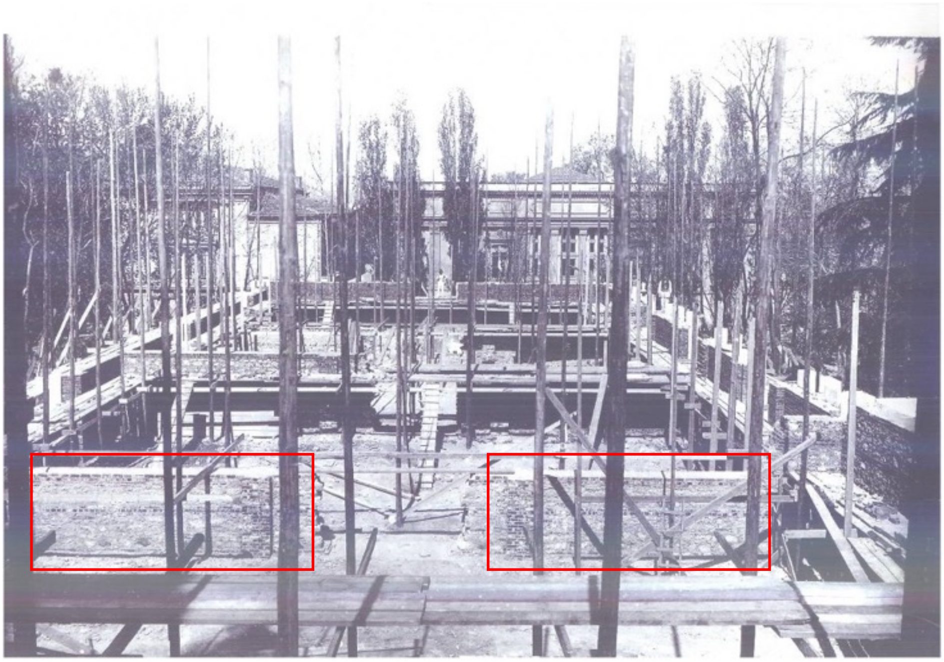

Figure 216. A photograph taken during the construction of 3rd phase of IAM (source: Restitution Report of IAM prepared by *Seçkin Mimari Hizmetleri*, IDSM Archive)

The second photo was taken from outside, facing the *Sanayi-i Nefise* Building (Figure 216). This image provides a more detailed view of the ground floor construction. From the photo, it is clear that facade scaffolding has been erected on-site and that the load-bearing walls have been built up to a certain height. A closer inspection reveals additional important details.

The detail shown is from the left side of the photo (Figure 217, Figure 218) It reveals the presence of repetitive brick beams within the internal load-bearing wall. If we assume the height of each brick is 10 cm, the brick courses appear to be spaced approximately 60 cm apart. Additionally, an embedded column is visible in this image, constructed entirely of brick. However, it is unclear whether the brick beams consist of one or two courses within the wall. The same situation seems to apply on the right side of the wall. In this section, however, it can be concluded that the brick beams in the internal load-bearing walls are likely composed of two courses.

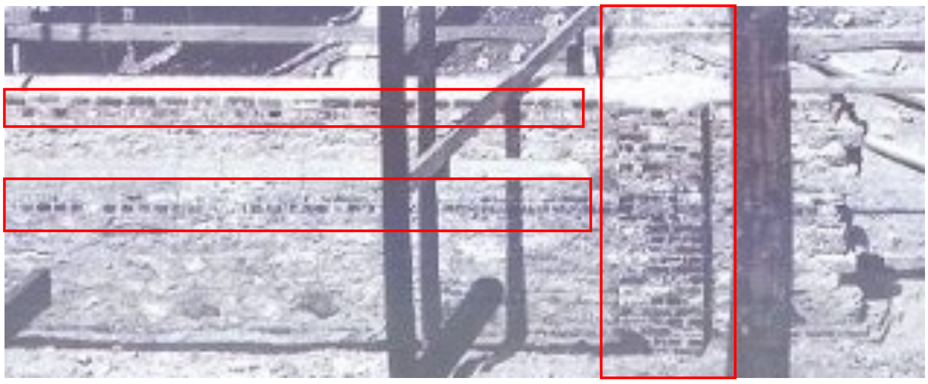

Figure 217. Detail from the left of Figure 171 show the brick beams and stone masonry in load bearing wall system of 3rd construction phase of IAM (source: Restitution Report of IAM prepared by *Seçkin Mimari Hizmetleri*, IDSM Archive)

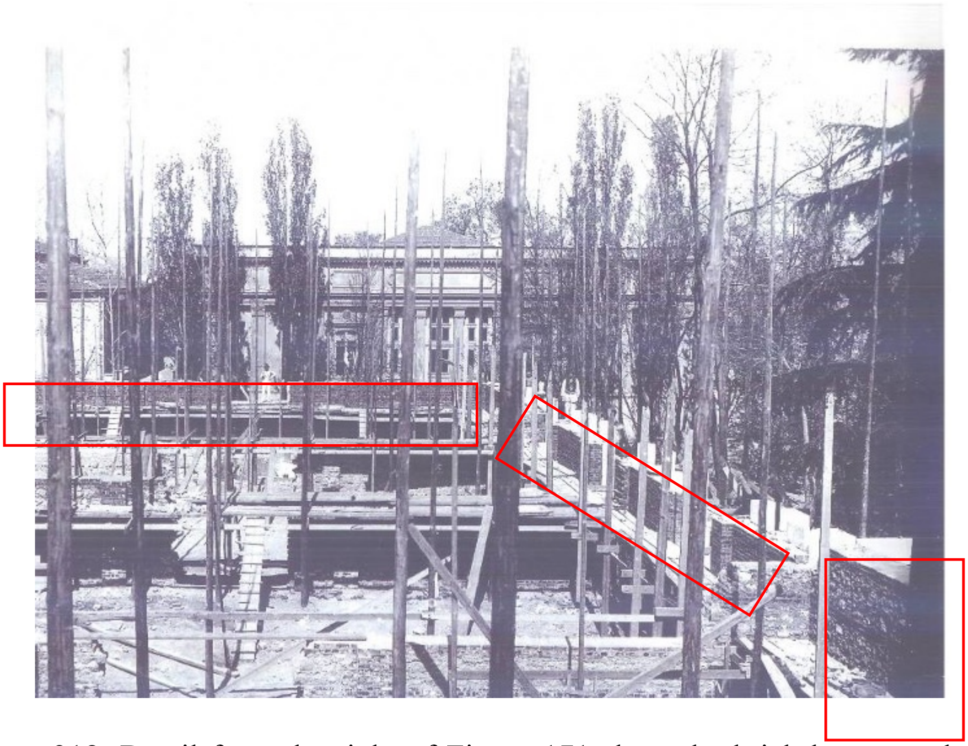

Figure 218. Detail from the right of Figure 171 show the brick beams and stone masonry in load bearing wall system of 3rd construction phase of IAM (source: Restitution Report of IAM prepared by *Seçkin Mimari Hizmetleri*, IDSM Archive)

This analysis allows us to make predictions about the 3rd construction phase. As a result, it can be concluded that: The columns and engaged columns were constructed from brick. The internal load-bearing walls were built with stone masonry, incorporating two rows of brick beams across the full thickness of the wall. The external load-bearing walls were constructed with stone masonry up to the window level, and brick walls above that level. The columns on the first floor were made of hollow brick with six holes.

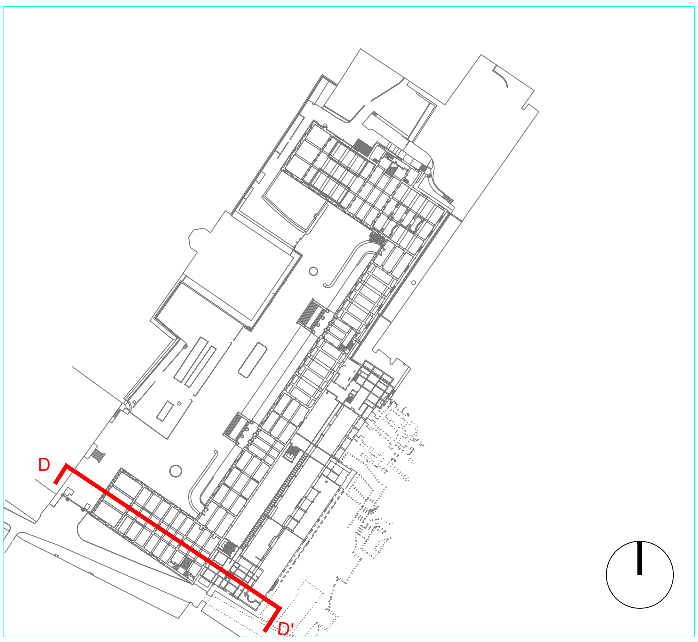

Figure 219. (Top) DD section of survey drawing drawn in 2009-2010 by *Seçkin Mimari Hizmetleri* (Bottom) Key plan of the section (source: Geometrical Survey Drawing prepared by OSM Engineering, IDSM Archive)

According to the survey drawing of the museum building, the thickness of the external wall on the front façade is 55 to 60 cm on both the ground floor and first floor. The thickness of the external wall on the rear façade varies, measuring 75 to 80 cm on the ground floor and 55 to 60 cm on the first floor. This thickness decreases to 65 to 70 cm on the ground floor of the rear façade, where there is no stone cladding. Regarding the columns, the independent columns throughout the building measure 60 to 65 cm in width. The largest span between columns is 8 meters. Based on this data, it can be observed that, in the 3rd Construction Phase, the wall thickness remains consistent between the ground and first floors, except for the rear façade, where it reduces from 75-80 cm to 55-60 cm. However, the column dimensions remain unchanged between the two floors.

Doors and Windows Details from 3rd Construction Phase of IAM

Upon examining the construction of doors and windows, it appears that while the same modular design is maintained in appearance, it is probable that the details differ across each phase of the building's construction. Detailed drawings based on actual site measurements are only available for the third construction phase of IAM. The report[99] prepared following the plaster scraping work conducted in 2012 for 3rd Construction Phase contains the following information.

The doorway between Rooms 21 and 22 on the first floor was spanned using two iron girders, each measuring 6.5 cm by 14 cm, placed parallel to each other with a 26.5 cm distance between their axes (Figure 220). The space between the girders was filled with a single row of bricks. Additionally, the detail reveals that, instead of a door, a shutter system was originally installed to close the opening. This shutter system is similar to the shutters used on the doors in the library section of the

[99] Report name "Bölüm - 1. Kat Salon 21-2 Geçis Kapi Lento Mevcut Durum Detay Rapor Yazi 36 Ek-1, Yazi 36 Ek-1, Subat-2012 drawn by Rabia Şengün/İnşaat Mühendisi in behalf of Güryapıİnşaat Company" from IDSM Archive.

Classical Building, which was part of the second construction phase. It is believed that the door was replaced during repairs and is, therefore, not original. The wall containing the doorway is an internal load-bearing wall, and the accompanying photograph in the drawing shows that this wall is made of brick. All exterior and interior walls, as well as the columns on the upper floor, are also constructed of brick.

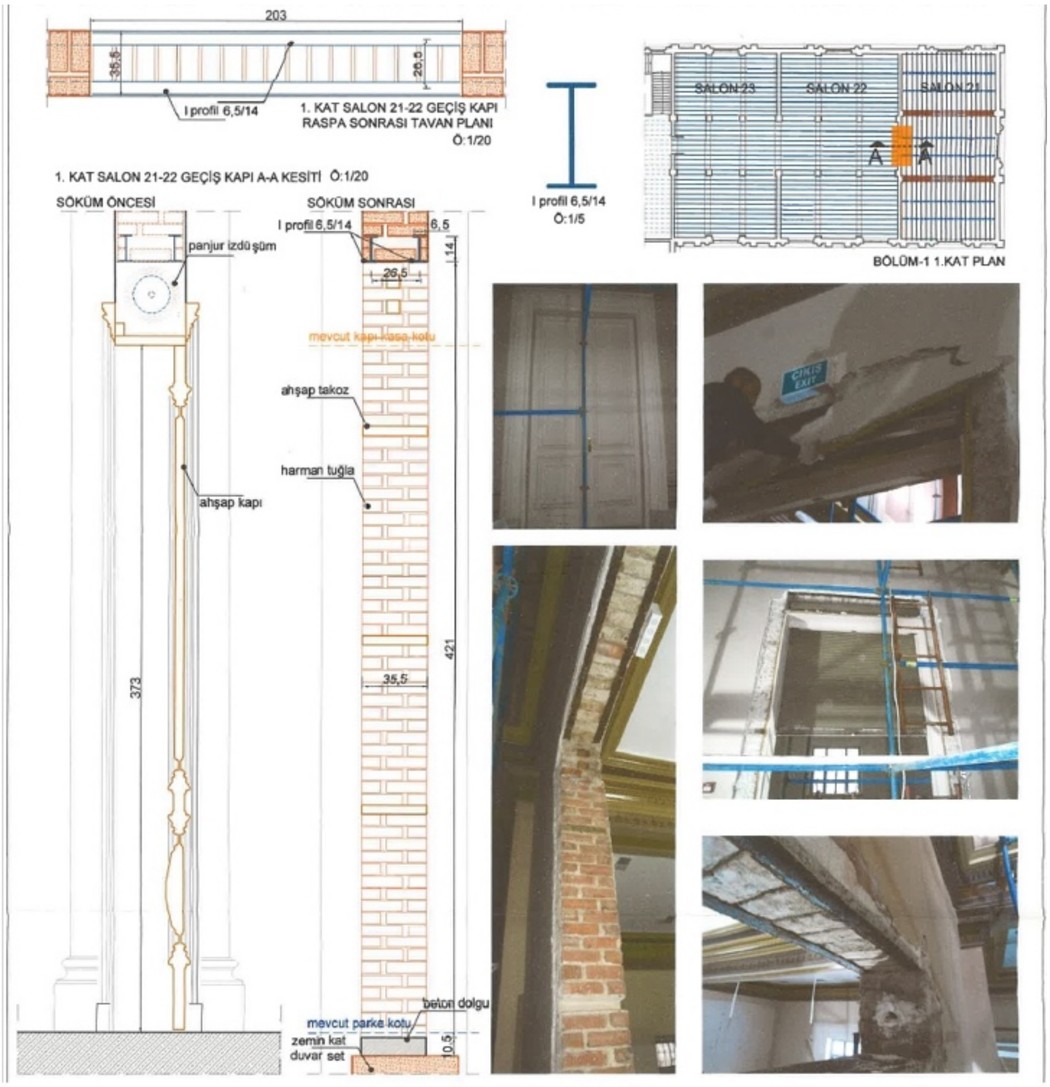

Figure 220. First floor Door (between 21-22 Hall) Sections details of 3rd construction phase of IAM (source: The Report of *Güryapıİnşaat* Company, Subat-2012, drawn by Rabia Şengün, IDSM Archive)

Considering the window details, based on the research and scraping conducted on the ground and first-floor windows, lintels were identified, as shown in the drawings (Figure 221, Figure 222). According to these drawings, the windows on the ground floor contain 2 I-beams, each measuring 8.5 cm by 18 cm, placed parallel to each other with a 24.5 cm spacing between their axes. The space between the beams is filled with perforated bricks. It was observed that on the opened edge, the I-beam extends up to 25 cm into the wall at the window opening. Lead cladding was applied to the windowsill.

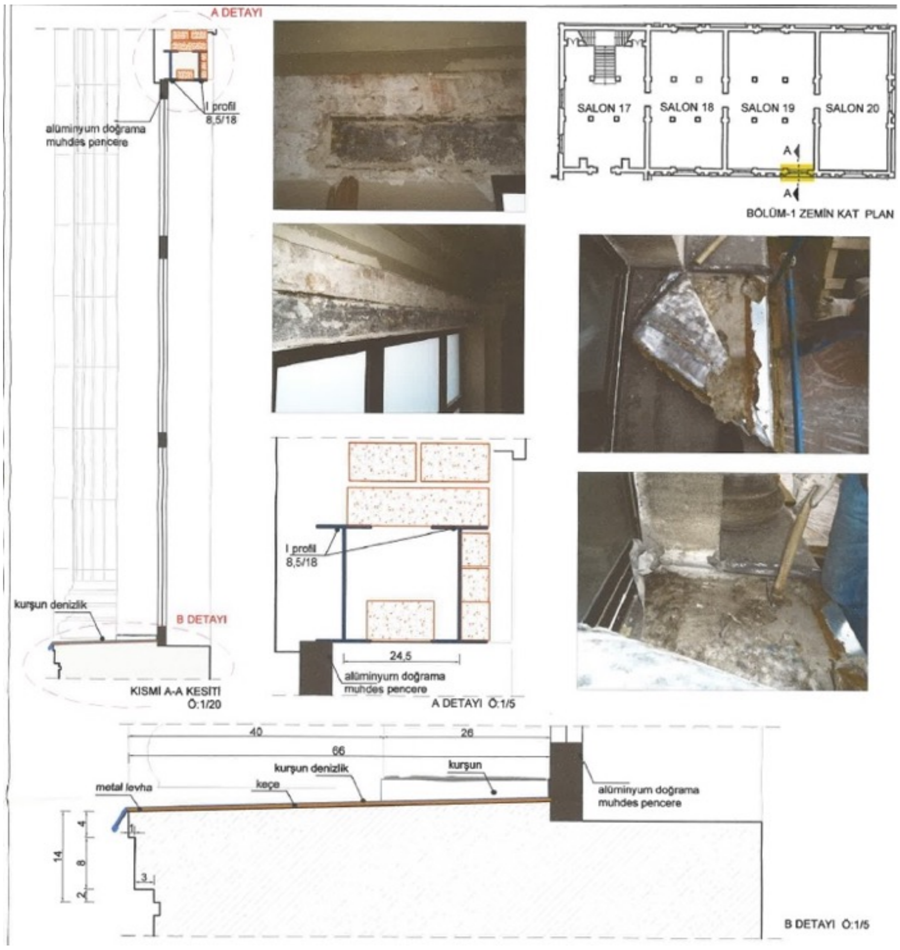

Figure 221. The ground floor window section drawing of 3rd construction phase of IAM (source: The Report of *GüryapıİnŞaat* Company, Subat-2012, drawn by Rabia Şengün, IDSM Archive)

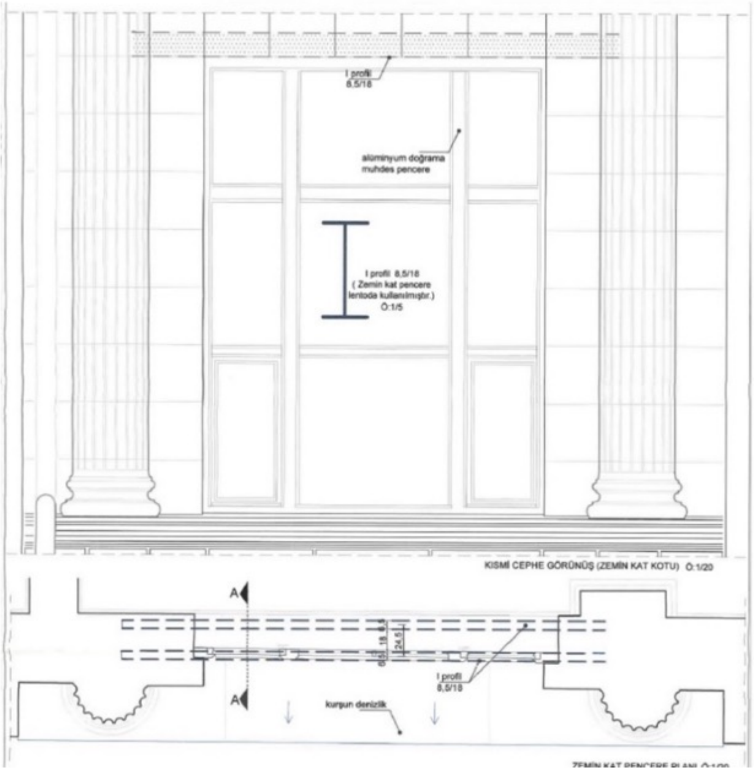

Figure 222. Ground floor window elevation drawing of 3rd Construction Phase of IAM (source: The Report of *GüryapıİnşaatCompany*, Subat-2012, drawn by Rabia Şengün, IDSM Archive)

On the first-floor windows, two I-beams, each measuring 6.5 cm by 14 cm, were placed parallel to each other with a 24.5 cm spacing between their axes, with the space between them filled with perforated bricks. Along the cornice sections on the exterior façade of the window, square profiles measuring 5 cm and 7 cm were placed along the line. Lead cladding was applied to the cornice above the first-floor window. It is believed that the lead was replaced during repairs, as it does not extend into the wall. The report says that the profiles used in the windows, similar to those in other sections, have been found to suffer significant corrosion and rust. Moreover it is stated that in some areas, the beams exhibit surface flaking. It was also observed during the restoration that no anti-rust material was applied when the profiles were installed.

Upon examining the window detail in room 19 on the ground floor, which faces the courtyard, it is understood that, similar to the doorway, the opening was spanned using two iron girders measuring 8.5 x 18 cm each. Additionally, lead was chosen for the windowsill. When we examine the window appearance on the first floor, it is observed that two box profiles (5x5 and 7x7) and two iron girders were used (Figure 223, Figure 224).

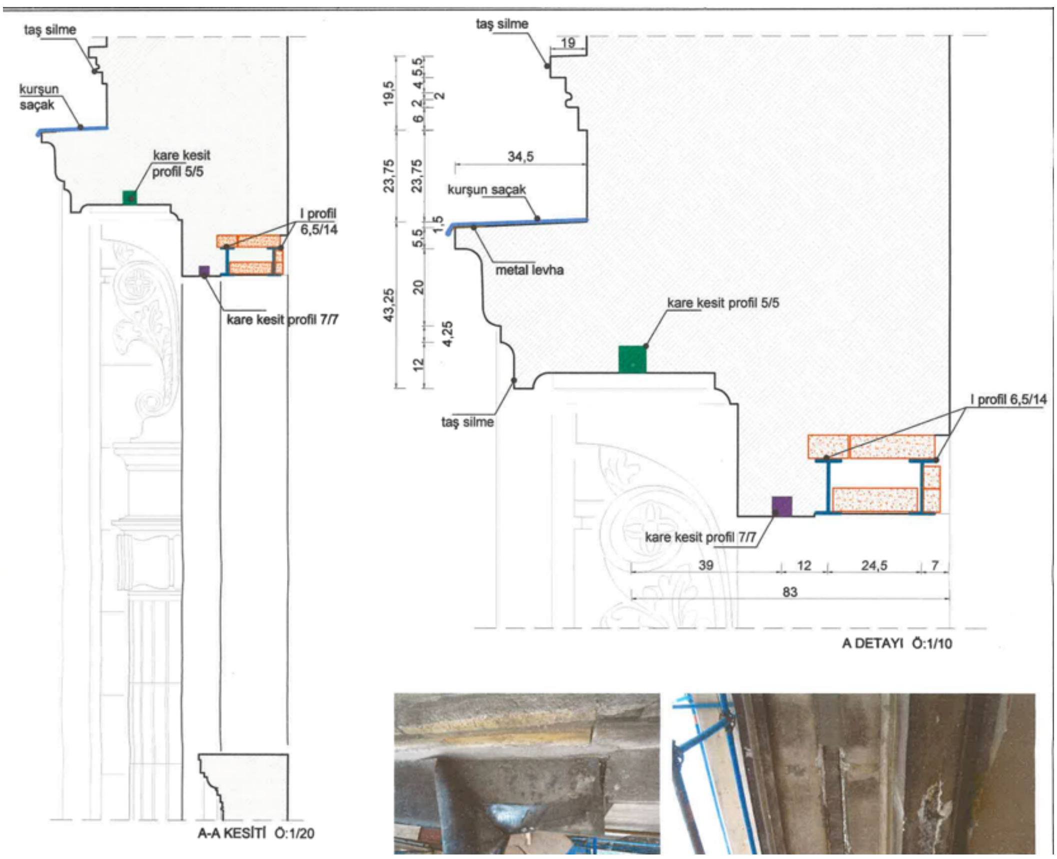

Figure 223. First floor window section drawing of 3rd Construction Phase of IAM (source: The Report of *GüryapıİnŞaat* Company, Subat-2012, drawn by Rabia Şengün, IDSM Archive)

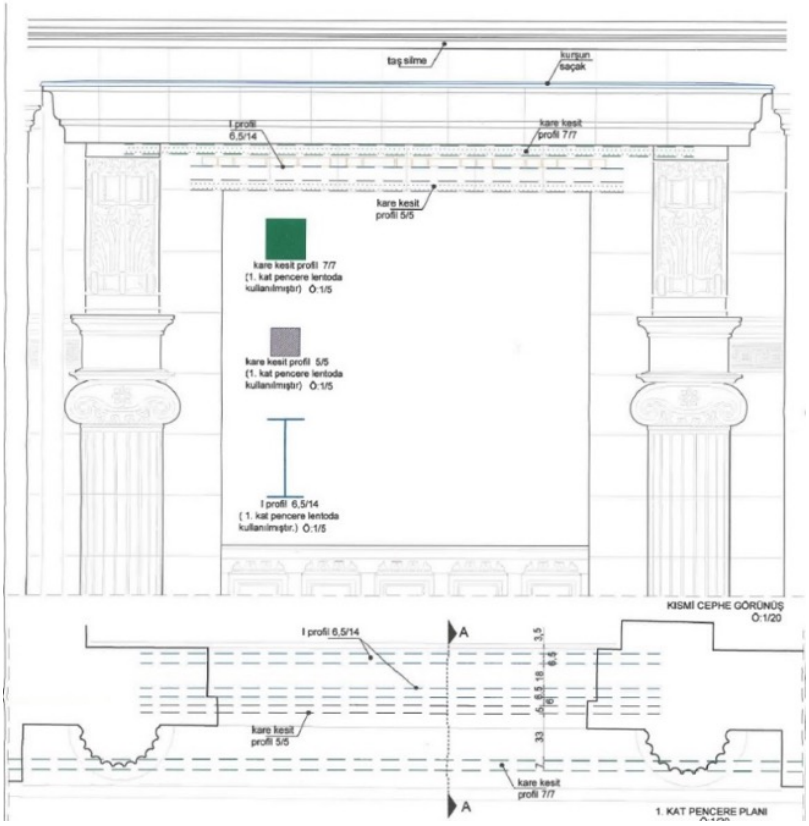

Figure 224. First floor window elevation detail of 3rd Construction Phase of IAM (Report of *GüryapıİnşaatI* Company, Subat-2012, drawn by Rabia Şengün from IDSM Archive)

Lateral Load-Bearing Structural Components and Construction Techniques

The main lateral load-bearing structural components of IAM Building are the I Beams and 'arched flooring system' on it. Following the mid-19th century, advancements in iron production technology and manufacturing capacity led to the introduction of iron profiles as primary structural elements in construction. From that period onward, vertical structures continued to be built using masonry techniques, while horizontal structural elements were constructed using a new method known as the ***'arched flooring system'*** (this technique also called the *jack-arched flooring system*). This technique offered greater fire resistance, making it particularly suitable for Istanbul, where fire was a prevalent concern during that time. The Jack Arched

Masonry Flooring System is composed of several closely spaced, parallel steel or iron I-beams with shallow brick arches spanning the gaps between them. The spaces above these arches are then filled to form a level floor surface (Maheri et al., 2012).

The process began with the removal of the parquet flooring on the first floor, during which a significant amount of information was gathered (Figure 225). This information came from structural system surveys conducted during the dismantling process and from the drawings and measurements of the iron beams stored in the museum archives. As previously mentioned, the restoration work was implemented only in the 1st and 2nd Construction Phases of the building.

Figure 225. The removal of wooden parquet from first floor of 3rd Construction Phase of IAM (source: *Güryapıİnşaat Company*, IDSM Archive)

The restoration effort between 2011 and 2017 began with 3rd Phase, primarily due to the management of artifacts relocation. Therefore, the 3rd Construction phase of the building, constructed between 1903 and 1907, provides the most information regarding the iron beams and the horizontal load-bearing system. In contrast, 2nd Construction Phase is less documented, as it is impossible to observe the connection details of the iron beams and the jack-arched flooring. For this reason, details from the 3rd Construction Phase will be presented first. Rabia Şengün, the site manager at the time, meticulously documented the dismantling stages, uncovering previously unrecorded information. Similar work was also carried out in the 1st phase of the building, but detailed drawings for this section were not found in the Istanbul Archaeological Museums' archives. Therefore, information regarding the iron beams for the first phase will be derived from construction site photographs.

Figure 226 shows original drawings from the IAM Library Archive that depict the placement of iron beams used during the third construction phase of the IAM building. The only deviation from the implemented plan of IAM is observed in the southernmost hall of the third construction phase. Vallaury initially planned to add four columns aligned with the existing building columns axis. However, it appears that he later reconsidered and opted to design this hall without columns, likely to accommodate the display of large stone artifacts exhibited in this space. This results to change the direction and amount and size of iron beams used in this hall.

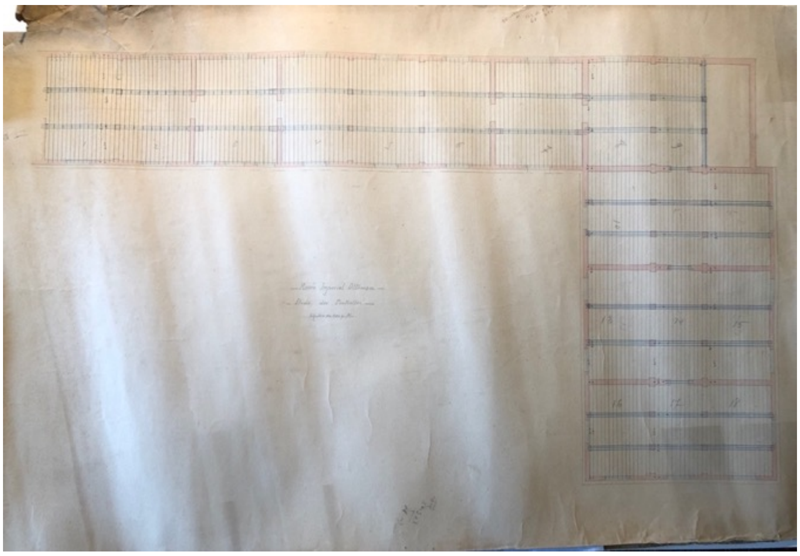

Figure 226. The iron profiles placements of Jack arched flooring system planned for 3rd Construction Phase of IAM (source: "IAM Archive, 98, G3/R3/9" (n.d.))

Additionally, there are drawings that appear to have been prepared for ordering the iron profiles, showing their dimensions and quantities, as well as detailed drawings illustrating the holes and bolt connections on the profiles (Figure 227, Figure 228).

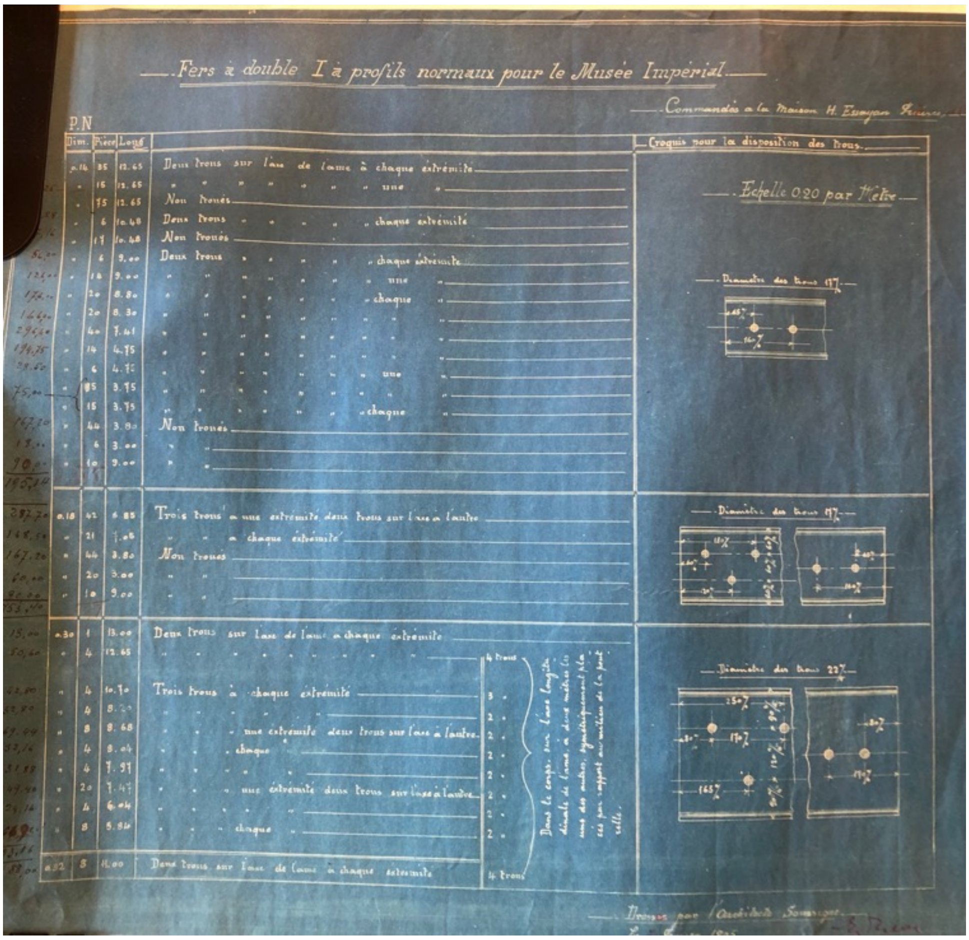

Figure 227. The order for Iron profiles with the detail drawings showing the holes placements on them for 3rd Construction Phase of IAM (source: “IAM Archive, 94, G3/R3/5”)

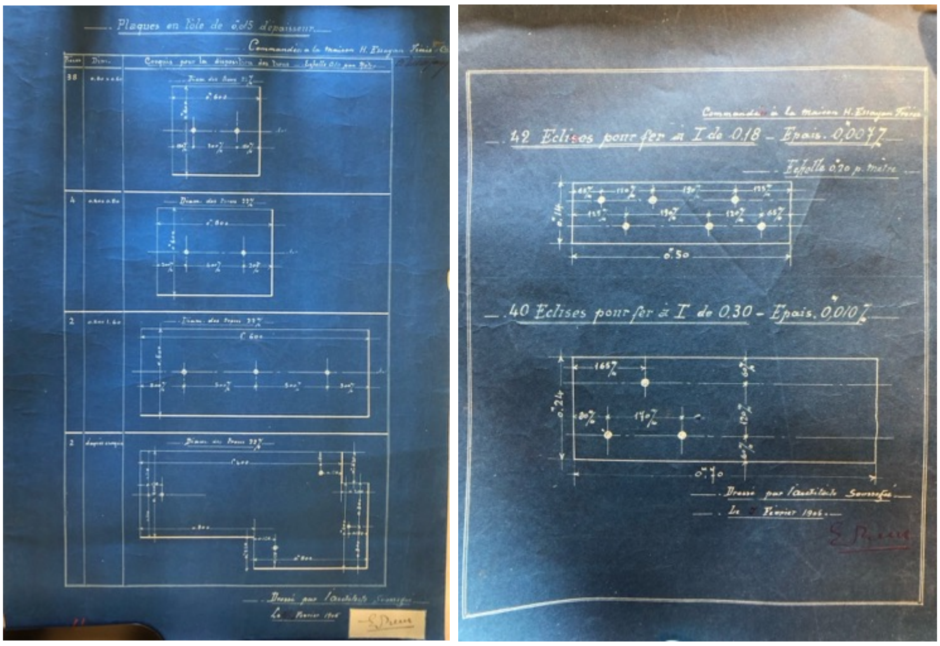

Figure 228. The iron sheet plate drawings showing the holes placements on them for 3rd Construction Phase of IAM (Left source: "IAM Archive, 96, G3/R3/7") (Right source: "IAM Archive, 95, G3/R3/6")

During the works conducted in the 1st and 3rd construction phases, as part of the Istanbul Archaeological Museums Classical Building Reinforcement and Restoration Projects (2011-2016), the removal of the wooden cornices revealed the current condition and positioning of the main iron beams and the beams supporting the brick arches. The drawings prepared by the contractor (Figure 229), containing the latest data obtained from the site between 2011 and 2015, show the locations, numbers, and dimensions of the beams. This reinforcement work provides significant insights, including the dimensions and connection details of the horizontal and vertical structural systems on the first floor.

Although comprehensive restoration and reinforcement work has not yet begun for 2nd construction Phase, it can be observed in Figure 229 that iron profiles have been integrated into the floor beneath the library section of 2nd Phase. This situation likely stems from the data obtained during prior research and partial repair efforts known to have been conducted in that area, which were subsequently incorporated into the plan.

The drawings prepared by the contractor, containing the current data not only depict the original structural system of the building but also show the structural interventions that had been made up to that time. From the perspective of these interventions, it is evident that the initial part of the building underwent the most modifications and was reinforced with a bidirectional steel system. It is evident from the drawings that the entire 1st Phase, consisting of Halls 8 and 9, was reinforced with additional iron beams. The later-added iron structures are also noted in the restoration projects. According to the approved restoration project (drawn by *Seçkin Mimari Hizmetleri)* the extra iron profiles were added in 1983. However, there is no detailed information available regarding the reasons for the 1983 intervention. However, this hall is the section with the widest span and the columns positioned farthest apart. At the same time, it is the first constructed section and houses the Sidon sarcophagi, making it likely that deformations have been observed in the flooring.

Another area that underwent intervention is Hall 20, where it was previously mentioned that the plan to install four columns was abandoned. The reports indicate that additional structural elements, primarily consisting of iron plates, were installed in 2007. In the assessments conducted before the 2011 works began, it was noted that this hall had the most significant sagging and that the iron structure had deteriorated. Nevertheless, from the restoration plan, it is initially understood that, in the 1st and third phases the directions of iron beams changed.

When the profiles known to have been added later are removed from the plan showing the placement of iron profiles in Figure 229, the building's original iron-profiled vaulted flooring system is revealed. This allows us to achieve a restitution of the building's horizontal iron structure for the sections of the ceiling that were exposed during the study (Figure 230).

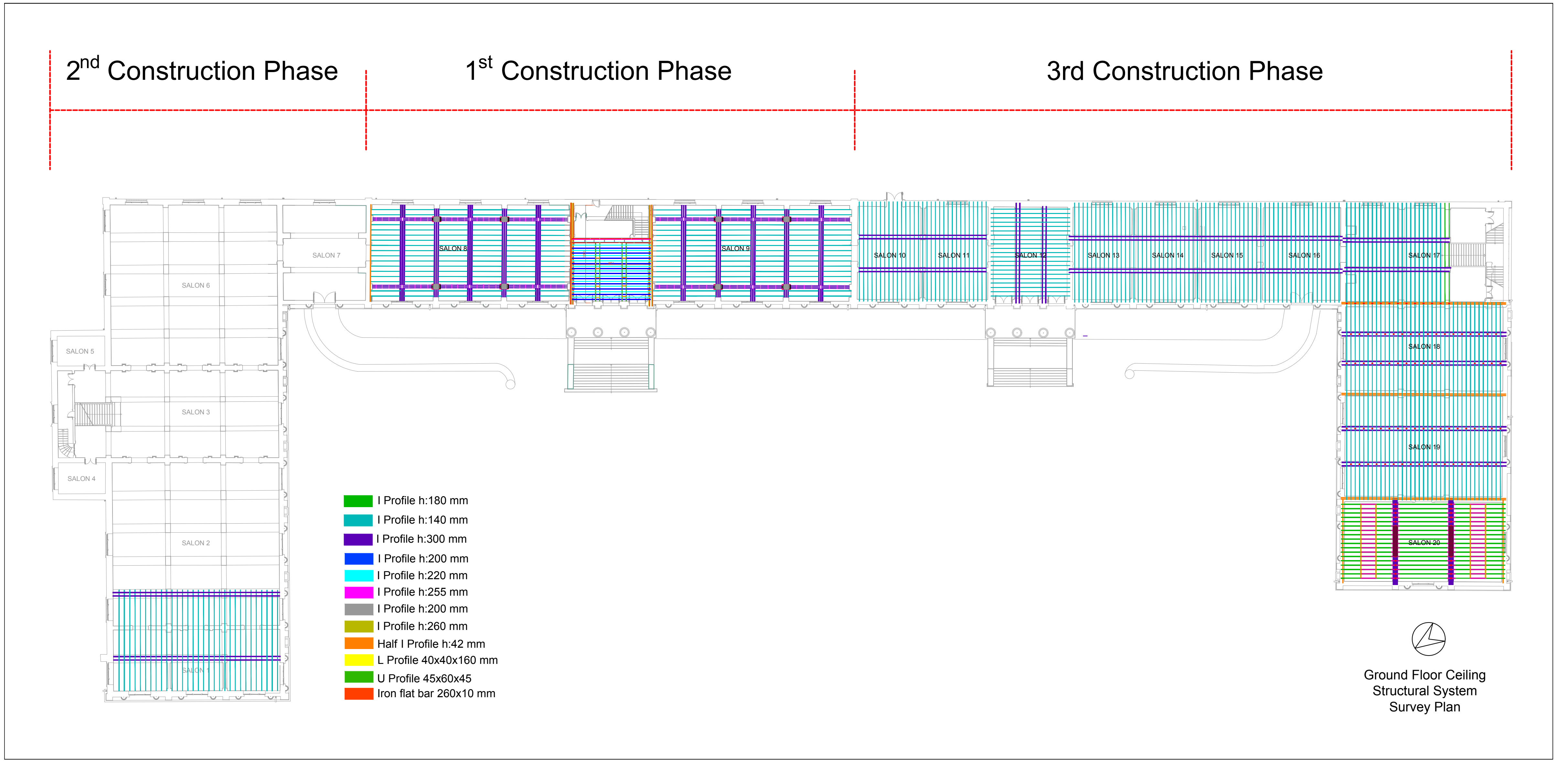

Figure 229. The survey plan of iron beams found after removal work done in 1st, partially 2nd and 3rd construction phase of IAM (AutoCAD drawing prepared by *GüryapıİnŞaat* Company, IDSM Archive)

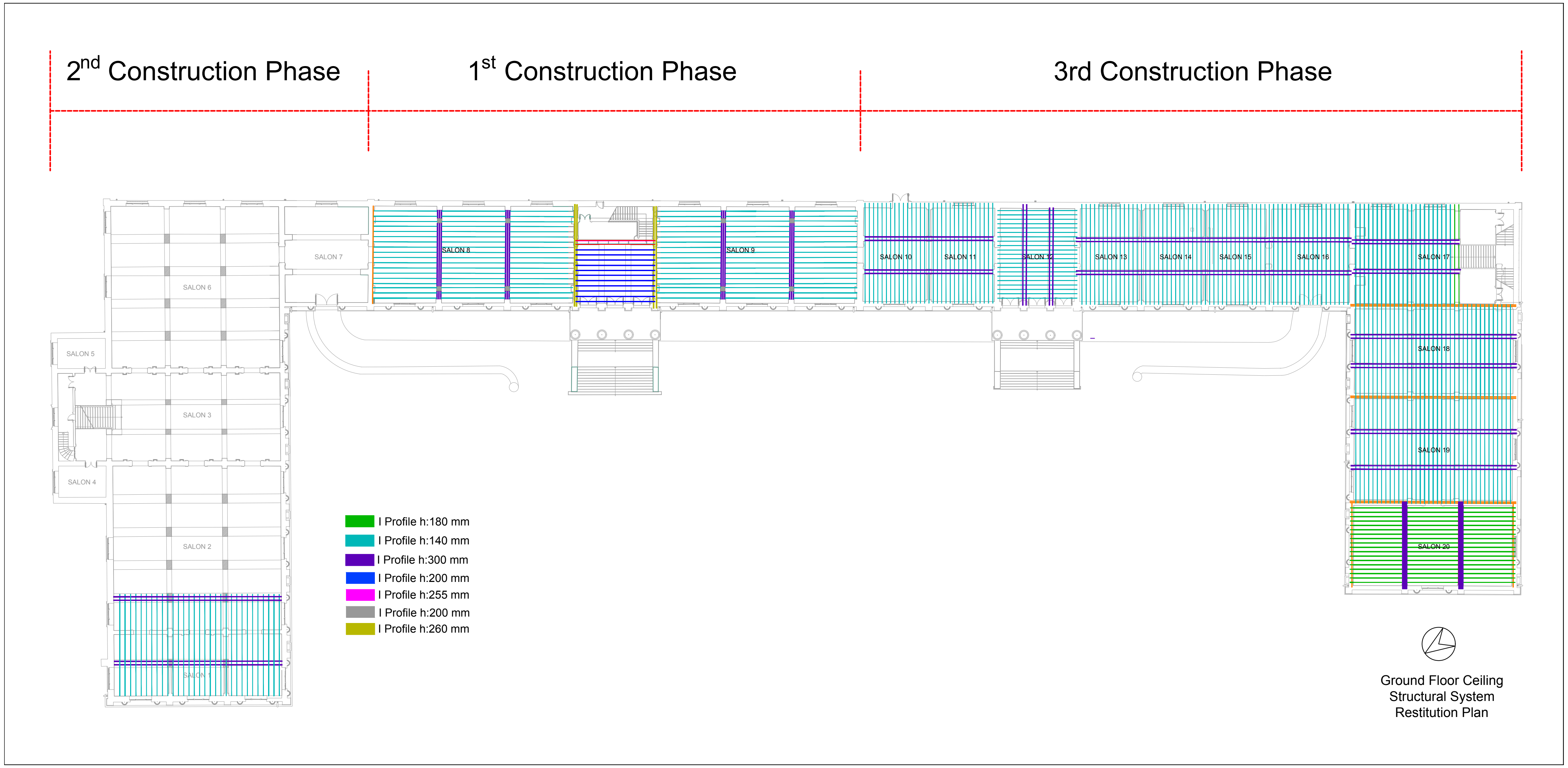

Figure 230. Restitution drawing of iron beams found after removal work done in 1st , partially 2nd and 3rd construction phase of IAM (source: Autocad drawing prepared by *GüryapıİnŞaat* Companys, IDSM Archive, redrawn by the author)

In the construction of the IAM, across all three phases, a combination of masonry walls and a jack-arched flooring system was employed. In the first construction phase, the jack-arched floors are supported by substantial I-beams, each approximately 250 mm in height. The architect chose to implement these load-bearing beams in only one direction. There is no detailed information available regarding the second construction phase.

In the third construction phase, the jack-arched floors are again supported by substantial I-beams, this time approximately 300 mm in height, with the architect maintaining the approach of placing the beams in only one direction. However, the orientation of the iron profiles differs from that of the first construction phase. Except for Hall 20, the beams are constructed using two 300 mm iron profiles for each beam. These main iron beams are supported by both the walls and the columns. In Hall 20, the architect opted to change the direction of the profiles once more. To achieve a wider span, each beam is constructed using four iron profiles, each 300 mm in height. (Figure 229).

Subsequently, the details of the jack-arched flooring are examined more closely. The discussion begins with information about the first construction phase, followed by details of the third phase. However, since the second construction phase has not yet been restored, it is not analyzed using construction drawings and photographs like the other two phases. Instead, a general assessment of the second phase is presented based on archival records and the available project plans.

The construction of the 1st Construction Phase took place between 1887 and 1891, and just three years after its opening, it experienced the 1894 earthquake as mentioned before. As shown in Figure 228, the first-floor flooring of the building was reinforced in the 1980s by adding steel profiles. However, there is no information about the calculations used during this period to determine the addition of these profiles. It is also seen that extra I profiles were added beneath the existing main load-bearing beams as support, and additional profiles were placed perpendicularly, aligning with the window axis. In this case, as understood from

Vallaury's drawings, old photographs of the building, and on-site assessments, the beams shown in Figure 230 are the original beams.

In Halls 8 and 9, it has been determined that three I profiles with 250 mm height were used for each girder, and during the 1983 repair, three more I profiles with 200 mm height were welded beneath them (Figure 231, Figure 232, Figure 233). Additionally, three I profile with 300 mm height were added at the midpoints of the window alignments, and the hall was further supported with girders working in the opposite direction.

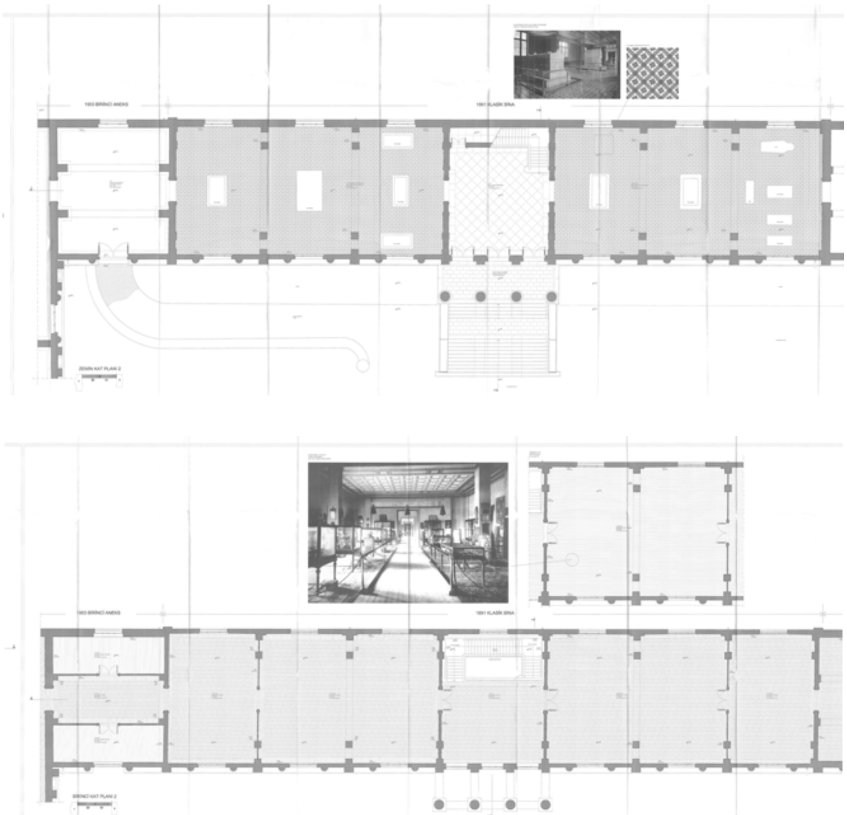

Figure 231. The ground and first floor restoration plan of 1st Construction Phase of IAM drawn by *Seçkin Mimari Hizmetleri* (source: IDSM Archive)

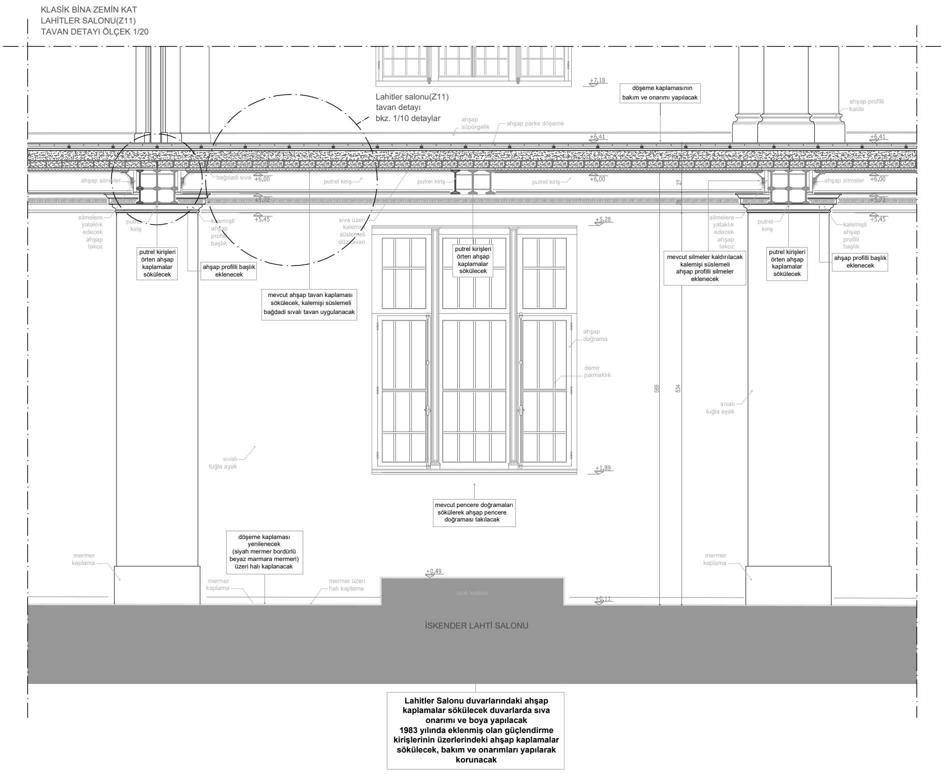

Figure 232. Partial section from restoration project drawn by *Seçkin Mimari* Hizmetleri shows the placement of iron beams on the columns (source: IDSM Archive)

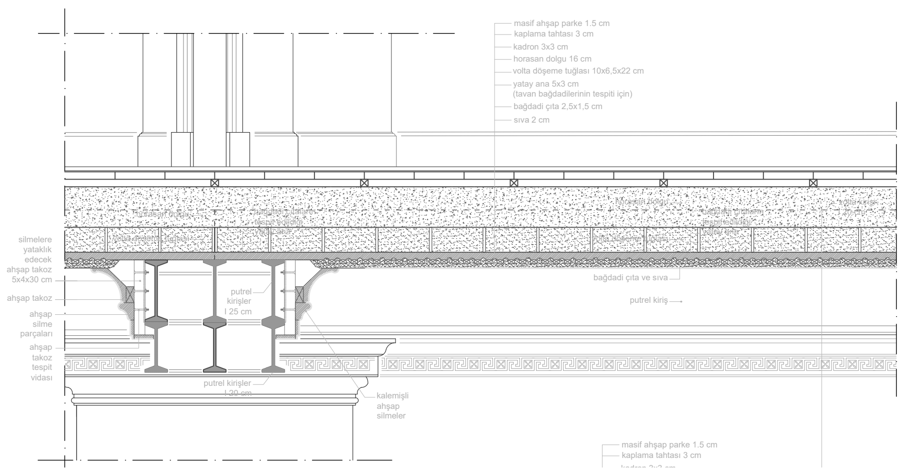

Figure 233. Detail section from restoration project drawn by *Seçkin Mimari Hizmetleri* showing the original and later addition iron profiles (source: IDSM Archive)

The IAM Building features a restrained ornamental program consistent with its Neoclassical façade and overall plan. The desired Neoclassical effect was achieved through hand-painted decorations applied to the ceilings and ceiling cornices within the interior spaces. Upon examining the restitution plans and historical photographs, it becomes evident that the most elaborate decorations are found in the 1st Construction Phase, the earliest section of the building designed to house the sarcophagi. Unlike the subsequent phases, the 1st Phase includes hand-painted decorations on the ceilings of both the ground and first floors. The upper surface of the vaulted flooring was covered with wooden parquet laid over a gridal wooden substructure (Figure 235). The underside, which served as the ground-floor ceiling, was finished according to preference with plaster featuring decorative hand-painted ornamentation (Figure 234).

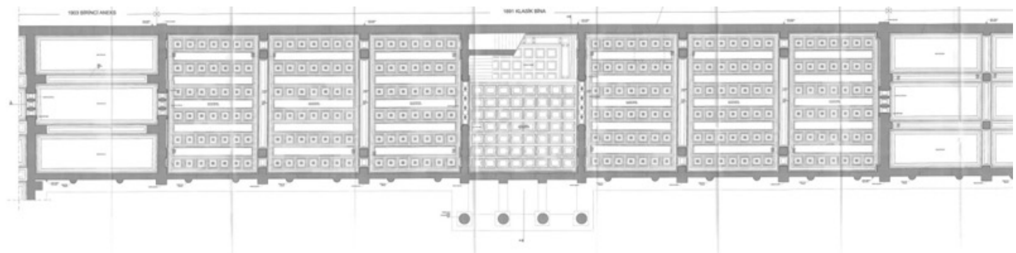

Figure 234. The restitution ceiling plan of ground floor of 1st construction phase of IAM, drawn by *Seçkin Mimari Hizmetleri* (source: IDSM Archive)

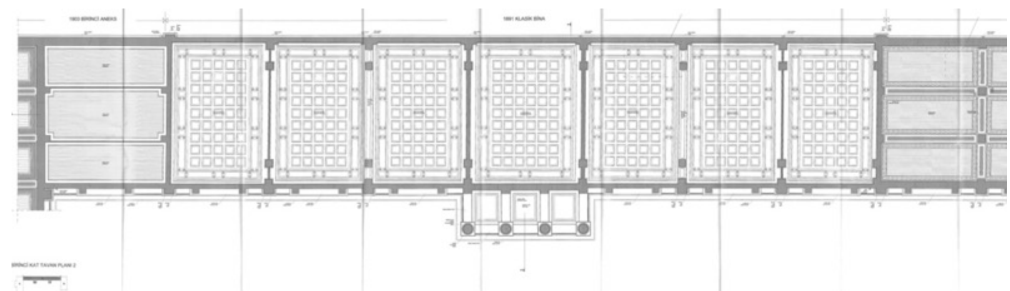

Figure 235. The restitution ceiling plan of first floor of 1st construction phase of IAM, drawn by *Seçkin Mimari Hizmetleri* (source: IDSM Archive)

During the second-phase restoration, which began in 2016, investigative scraping conducted on the plaster cornices in Halls 8 and 9 revealed hand-painted decorations beneath the layers of paint (Figure 236). These decorations were determined to be original patterns, remnants of the decorations that once adorned the entire ceiling. As part of the restoration project, cleaning and consolidation work was carried out on these hand-painted details. Additionally, the ceiling decorations, known to have existed, were reconstructed in accordance with the original designs and restoration principles. First, the *Bağdadi*[100] framework was rebuilt, followed by the application of plaster layers in the proper sequence, culminating in the completion of the hand-painted decorations. This raises a key question: how were these hand-painted ornaments integrated into a structure built primarily with iron, stone, and brick masonry?

Figure 236. The photographs taken during the removal of painting layer from the cornice decorations (source: taken by the author in 2018)

To apply hand-painted ornamentation to a ceiling, a suitable flat surface must first be prepared. This can be achieved using various methods, such as canvas or a flat surface created with the wooden '*Bağdadi*' technique. In the case of a *Bağdadi*

[100] Constructed by applying plaster onto laths nailed to wooden posts (used for walls or ceilings) (source:TDK)

ceiling, a smooth surface for detailed decorative work is achieved by applying layers of rough plaster, fine plaster, and a finishing layer of '*nefaset*' [101] plaster. On the ground floor of the Archaeology Museum, it is clearly visible how this hand-painted ornamentation was successfully incorporated into the building's construction.

Attaching the "*Bağdadi*" (Figure 238) framework to the steel beams supporting the jack arch flooring is a complex process. Wooden wedges are placed inside of I profiles to achieve this (Figure 237). Long, thin timber pieces are then positioned perpendicularly to the wedges and secured with nails, creating a flat surface beneath the jack arch flooring. Once this surface is prepared, a layer of rough plaster (Figure 239 Left), followed by fine plaster with a lime binder, is applied. Finally, a coat of "*nefaset*" (Figure 239 Right) plaster is applied as the finishing layer, providing the smooth surface necessary for the hand-painted ornamentation.

Figure 237. The construction system under the ceiling (taken by the author in 2018)

[101] A fine topcoat plaster made with lime binder and marble aggregate

Figure 238. *Bağdadi* techniques under the Jack arched flooring (taken by the author in 2018)

Figure 239. (Left) Plaster over the *bağdadi* techniques and (Right) *nefaset* fine plaster over it (taken by the author in 2018)

Since the strengthening work began in the 3rd Construction Phase' south end, the most information and detailed drawings were found in the area referred to as Section 1 in the reports prepared by the responsible firm, which covers Halls number 21, 22, 23, and 24 (Figure 240).

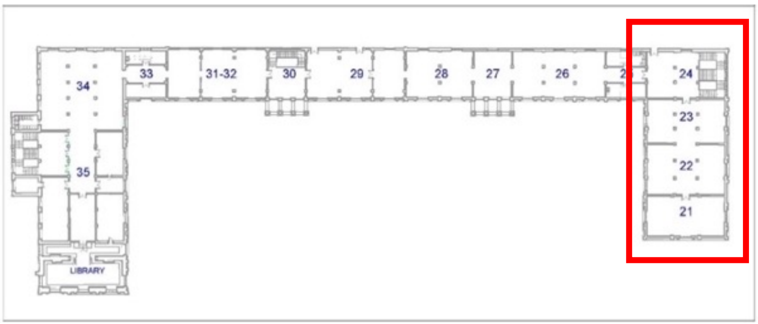

Figure 240. The key plan for first floor plan shows the "Section 1" which composed of Halls number 21, 22, 23, and 24

In the *Güryapı İnşaat* report dated November 2012, the original beams and subsequent reinforcements are shown in different colors for the first section where restoration work initially began. In the drawings, the original 300 mm high load-bearing iron profiles are depicted in blue, the 140 mm high original jack-arched floor iron profiles in light green, and the 180 mm high jack-arched floor iron profiles in light blue. Additionally, the original 60x10 mm iron plates in the connection details are shown in orange.

The yellow color represents the 60x10 mm L profiles visible at the top of the load-bearing and partition walls. Furthermore, the 80x10 mm plates added during the 2007 strengthening work are shown in pink, the 220x20 mm plates in brown, and the 55x55x10 mm I profiles in yellow (Figure 241).

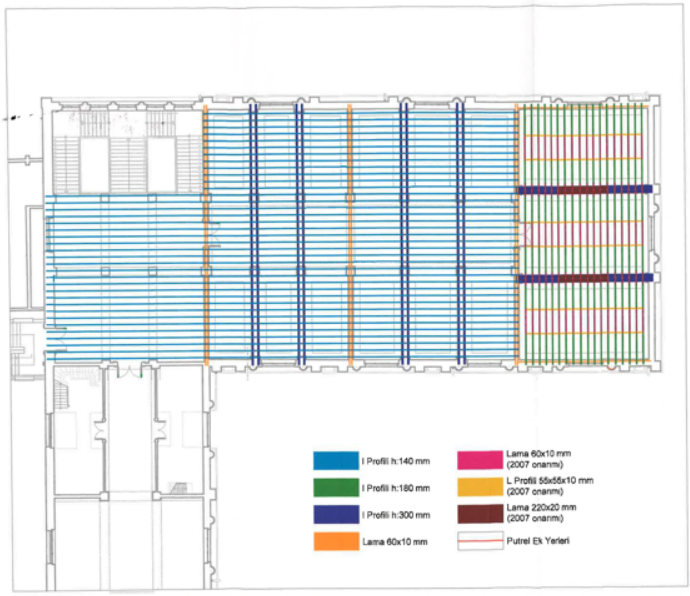

Figure 241. The survey plan of iron beams found after removal work, 3rd construction phase of IAM "Section 1" (Report of *Güryapı İnşaat* Company dated to November, 2012, IDSM Archive)

After the removal of the wooden coverings, the current conditions, locations, dimensions, and connection details of the first floor' jack arched floor system were examined on-site, and this data is stated as follows. In Halls 22 and 23, there are two I profiles in each beam, and in Hall 21, there are four I profiles in each beam. These profiles are connected to each other with **flat bars** and **bolts**. (Gürsoy Group Construction Site Report, November 2012)

When the wooden moldings on the surface of the ground floor beams from the third construction phase were removed, it was observed that the space between the two I-beams that made up a single beam was filled with bricks. While initially surprising from the perspective of structural functionality, as shown in Section BB, this appears to have been a deliberate design decision. The brick infill contributed both to the interior decorative scheme of the building and to achieving the desired neoclassical appearance by facilitating the attachment of wooden cornices to the iron beams (Figure 242Figure 243).

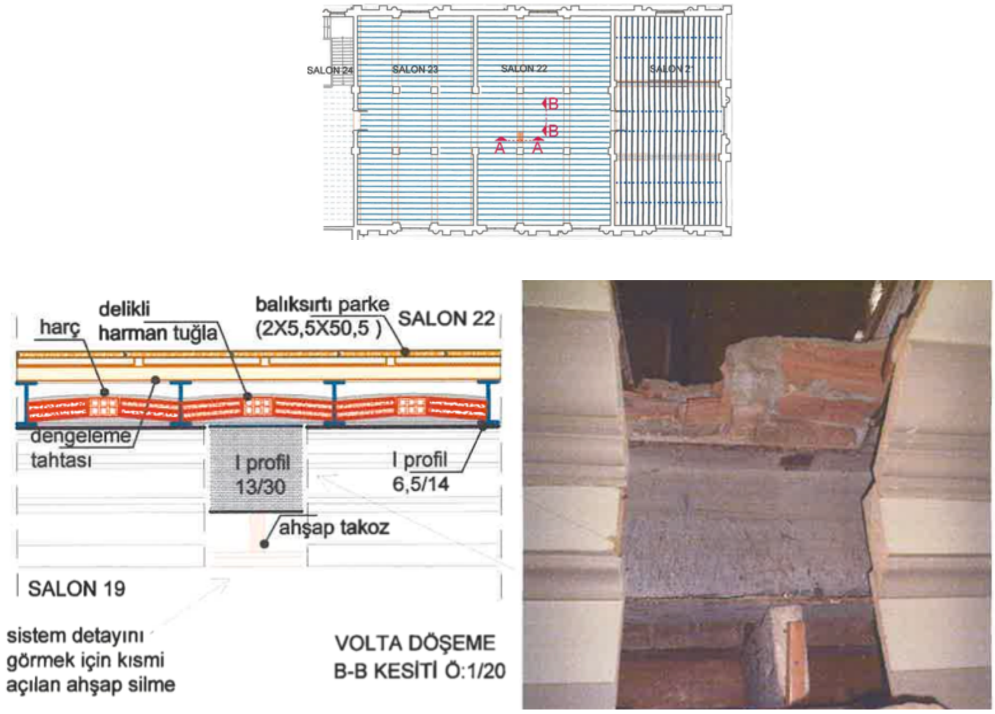

Figure 242. Section AA of jack arched flooring in the Hall 22 (3rd Construction Phase of IAM) (Report of *Güryapı İnşaat* dated to February, 2012, IDSM Archive)

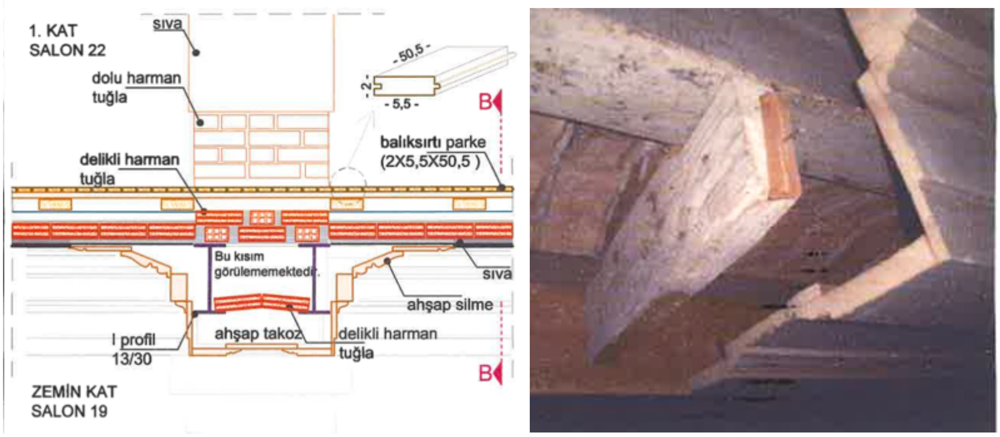

Figure 243. Section BB of jack arched flooring in the Hall 22 (3rd Construction Phase of IAM) (Report of Güryapı İnşaat dated to February, 2012, IDSM Archive)

Creating a classical aesthetic on a modern skeletal structure, particularly connecting iron and wood elements, was likely one of the most challenging aspects for the architects. It is evident that they devised innovative solutions for this purpose. The cornices were attached using wooden wedges, secured both to the bricks filling the space between the beams on the underside and to the bricks forming the vaulted flooring on the other side.

It appears that in Hall 21, to avoid the installation of the additional four columns, each beam was constructed using four I-beams, whereas in other halls, the load-bearing beams were formed with only two I-beams (Figure 244, Figure 245). Additionally, while the beams supporting the jack-arched floors in other halls measure 140 mm, in Hall 21, 180 mm beams were chosen. This allowed for larger spans to be covered without columns. However, despite these precautions, it seems that some issues arose, leading to intervention in the load-bearing system in 2007, when additional iron plates and L profiles were added to strengthen the structure. Detailed drawings and notes for the rooms mentioned in the report will be provided below.

In the southern wing of 3rd construction Phase, referred to as "Section 1" in the restoration work, the main beams and the I-profiles within them belonging to Halls 21, 22, and 23 were revealed after dismantling and have been documented in the projects as shown in Figure 243. In Halls 22 and 23, the beams contain two I 300 mm profiles each, while in Hall 21, the beams contain four I 300 mm profiles each. These profiles are connected to each other with flat bars and bolts. In Halls 22 and 23, the main iron profiles with 300 mm height rest on 60x60 mm sized and 14 mm thick iron flat bar elements placed on columns. (*Güryapı İnşaat* Construction Site Report, November 2012).

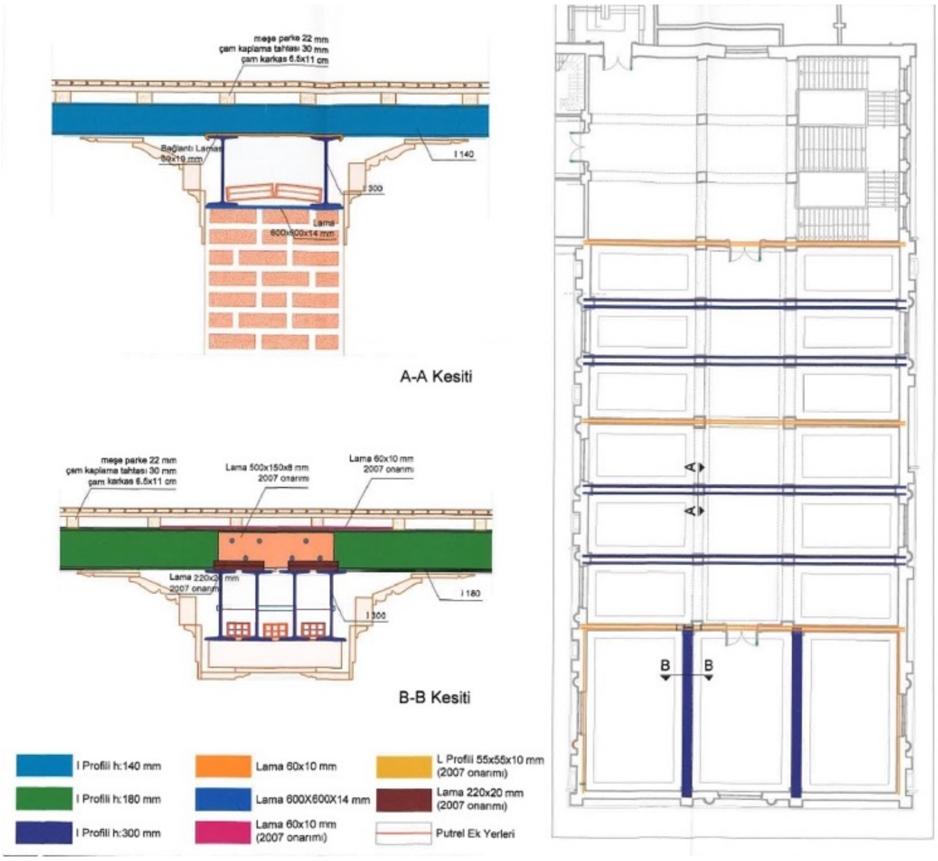

Figure 244. Construction sections drawn during restoration process from Hall 21and Hall 22 (*Güryapı İnşaat* Construction site report, November 2012, drawn by Rabia Şengün, IDSM Archive)

Figure 245. (Left) The photograph of AA section of Hall 22 jack arched flooring detail (Right) The photograph of BB section of Hall 21 jack arched flooring detail (*Güryapı İnşaat* Construction site report, November 2012, drawn by Rabia Şengün, IDSM Archive).

In Figure 245, it can be seen that the spaces between the profiles in both 2-profiled and 4-profiled beams are filled with bricks, a labor-intensive and time-consuming application. The photographs clearly show that wooden wedges were attached to these bricks. Using these wooden wedges, a wooden construction was created, resulting in stepped, decorative, and hand painted surfaces that served as the base for wooden cornices.

The construction site report from November 2012, housed in the IDSM Archive, offers critical technical insights into the jack-arched floors of Halls 21, 22, 23, 24, 25, and 26. It details their connections to the masonry walls and to each other. Each hall is examined separately, with the information from the report summarized as follows:

The Construction Details of Hall 21 jack arched Floor:

Table 6. The technical information related iron beams of Hall 21

Hall 21			
Type	**Amount**	**Span**	**Dimension of hall**
I 180 mm	1*18	55 cm	10,32 mx19,95 m
I 300 mm	4*2	7,05 m	

- The 180 mm profiles of jack arch floor are bolted to each other on 300 mm main beams (Figure 246).
- I 180 profiles sit freely on I 300 profiles, but there is brick filling between them.
- I 180 profiles are placed on a continuous iron flat bars of 60 mm x10 mm size, which placed along and inside the Wall (Figure 247).

- I 180 profiles continue inside the wall until the facade cladding stone (it sits within the wall for approximately 40 cm) and are fixed into the brick wall with a sword (*kılıç ile sabitlenmiştir*) at the end (Figure 248).
- During the 2007 repair, 60x10 mm flat iron bars were welded on the I 180 profiles located between the wall-beam and beam-beam connections, as shown inFigure 249.
- In Hall 21, on arch floor system, there is a timber frame made of 5x5 cm pine timber, with 20 mm thick pine plywood covering and 22 mm thick oak parquet covering.

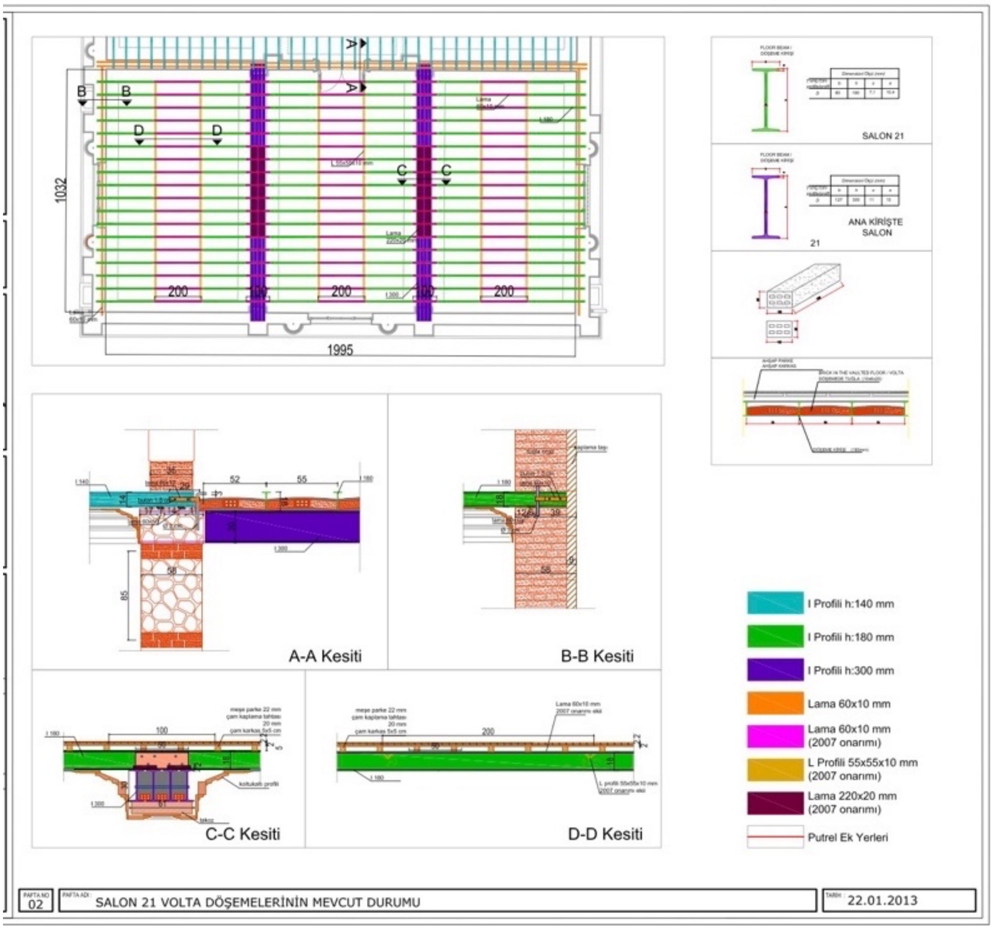

Figure 246. The survey drawing of Hall 21 jack arched flooring (*Güryapı İnşaat* AutoCAD file, drawn by Rabia Şengün, IDSM Archive).

Figure 247. The Photographs of AA section drawing of Hall 21 jack arched flooring details (*Güryapı İnşaat* Construction site report, November 2012, IDSM Archive).

Figure 248. The Photographs of BB section drawing of Hall 21 jack arched flooring details (*Güryapı İnşaat* Construction site report, November 2012, IDSM Archive)

Figure 249. The Photographs of CC sections drawing of Hall 21 jack arched flooring details (*Güryapı İnşaat* Construction site report, November 2012, IDSM Archive)

The Construction Detail of Hall 22 Jack Arched Floor:

Table 7. The technical information related iron beams of Hall 22

Hall 22			
Type	**Amount**	**Span**	**Dimension of hall**
I 140 mm	1*37	55 cm	12,85 m x19,95 m
I 300 mm	2*2	4,5 m	**Column size**
Column	4		60x60 cm

- The 140 mm profiles of the Jack arch floor are joined end-to-end without any connecting element over the main beams.
- The 140 mm profiles located within the wall are connected by bolts to each other.
- The 140 mm profiles rest freely on the 300 mm main iron beams, but brick infill is present between them (Figure 250).
- The 140 mm profiles sit on two continuous iron elements, each measuring 60x10 mm, that extend along the wall line inside the wall (Figure 251).
- In Hall 21, along with the change in the direction of the Jack arch floors, the 140 mm profiles continue along the wall (they rest approximately 60 cm within the wall) and are anchored to the brick wall at the joint.
- Above the Jack arched flooring in Hall 22, there is a timber frame made of pine timber with a cross-section of 6.5x11 cm, 20 mm thick pine timber cladding, and 22 mm thick oak parquet flooring.

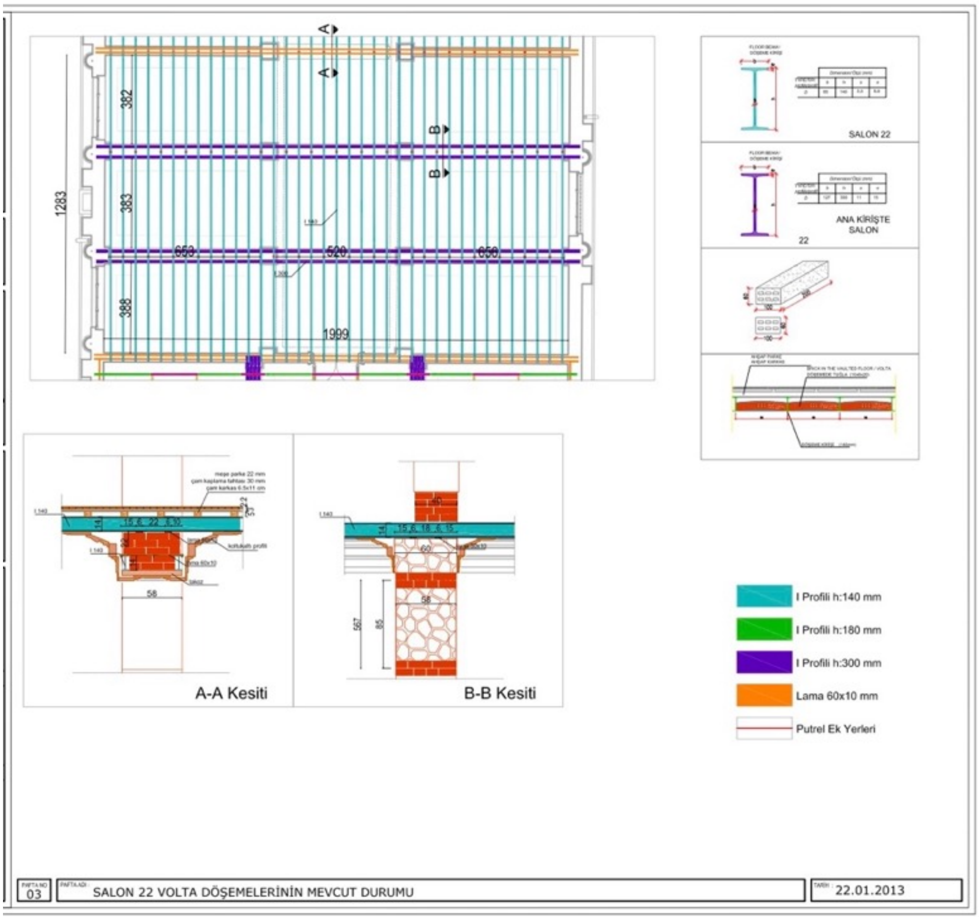

Figure 250. The survey drawing of Hall 22 jack arched flooring (Güryapı İnşaat AutuCAD file, drawn by Rabia Şengün, IDSM Archive)

Figure 251. (Left) The Photograph of AA section drawing of Hall 22 jack arched flooring details (Right) The Photograph of BB section drawing of Hall 22 jack arched flooring details (*Güryapı İnşaat* Construction site report, November 2012, IDSM Archive).

The Construction Detail of Hall 23 Jack Arched Floor:

Table 8. The technical information related iron beams of Hall 23

Hall 23			
Type	**Amount**	**Span**	**Dimension of hall**
I 140	1*37	55 mm	11,20 m x19,95 m
I 300	2*2	3,75 m	**Column size**
Column	4		60x60

- The 140 mm profiles of the Jack arch floor are joined end-to-end without any connecting element over the main iron beams (Figure 251).
- The 140 mm profiles located within the wall are connected by bolts.
- The 140 mm profiles rest freely on the 300 mm iron beams, but brick infill is present between them (Figure 254).
- The 140 mm profiles sit on two continuous iron elements, each measuring 60x10 mm, that extend along the wall line inside the wall (Figure 253).
- Above the Volta floor in Hall 23, there is a timber frame made of pine timber with a cross-section of 6.5x11 cm, 20 mm thick pine timber cladding, and 2 mm thick oak parquet flooring.

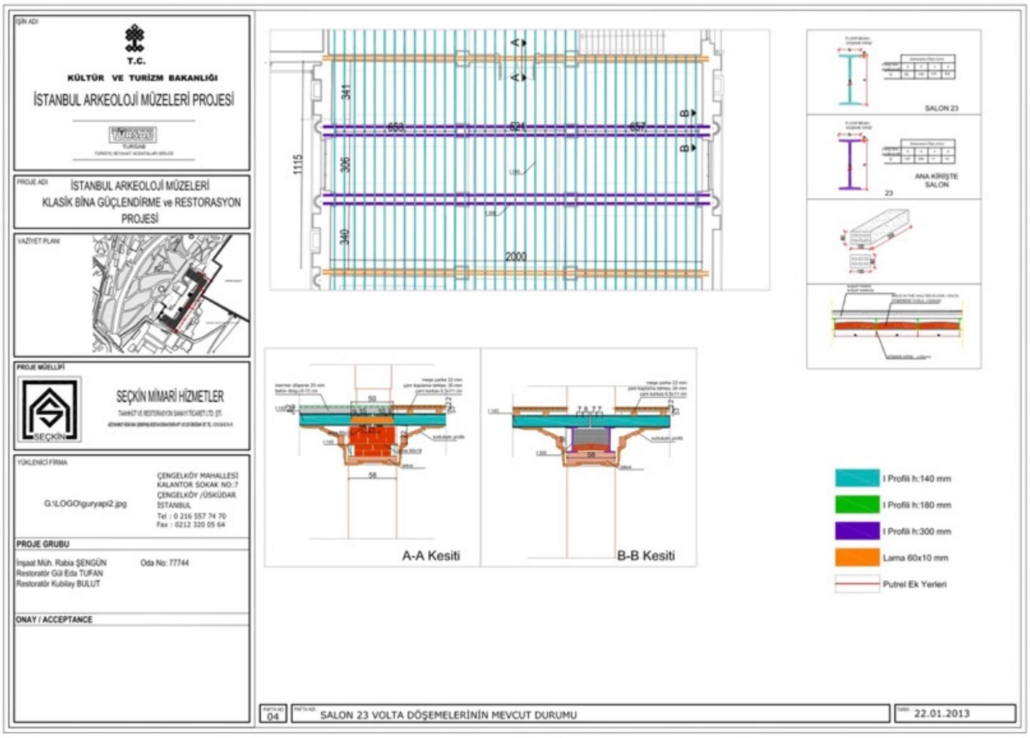

Figure 252. The survey drawing of Hall 23 jack arched flooring (*Güryapı İnşaat* AutoCAD File, drawn by Rabia Şengün, IDSM Archive)

Figure 253. The Photographs of AA section drawing of Hall 23 jack arched flooring details (*Güryapı İnşaat* Construction site report, November 2012, IDSM Archive)

Figure 254. The Photographs of BB section drawing of Hall 23 jack arched flooring details (*Güryapı İnşaat* Construction site report, November 2012, IDSM Archive)

The Construction Detail of Hall 23 Jack Arched Floor

Figure 255. The technical information related iron beams of Hall 24

Hall 24			
Type	**Amount**	**Distance**	**Dimension of hall**
I 140	1*25	55	13,45x11,90
I 300	2*2	4,10 m	**Column size**
Column	4		60x60

In the report, it is stated that the floor in Hall 24 was partially opened, but it was observed to be a continuation of the floor in Hall 23. Therefore, it was assumed that the same characteristics continue (Figure 256).

- The 140 mm profiles of the Jack arch floor are joined end-to-end without any connecting element over the beams.
- The 140 mm profiles located within the wall are connected by bolts.

- The 140 mm profiles rest freely on the 300 mm main iron beams, but brick infill is present between them.
- The 140 mm profiles sit on two continuous iron bars, each measuring 60x10 mm, that extend along the wall line inside the wall.
- Above the Jack Arched Floor in Hall 24, there is 20 mm thick Marmara marble cladding, and between the marble and the Jack Arched Flooring, there is a **concrete infill** ranging between 6,5 cm and 21 cm.

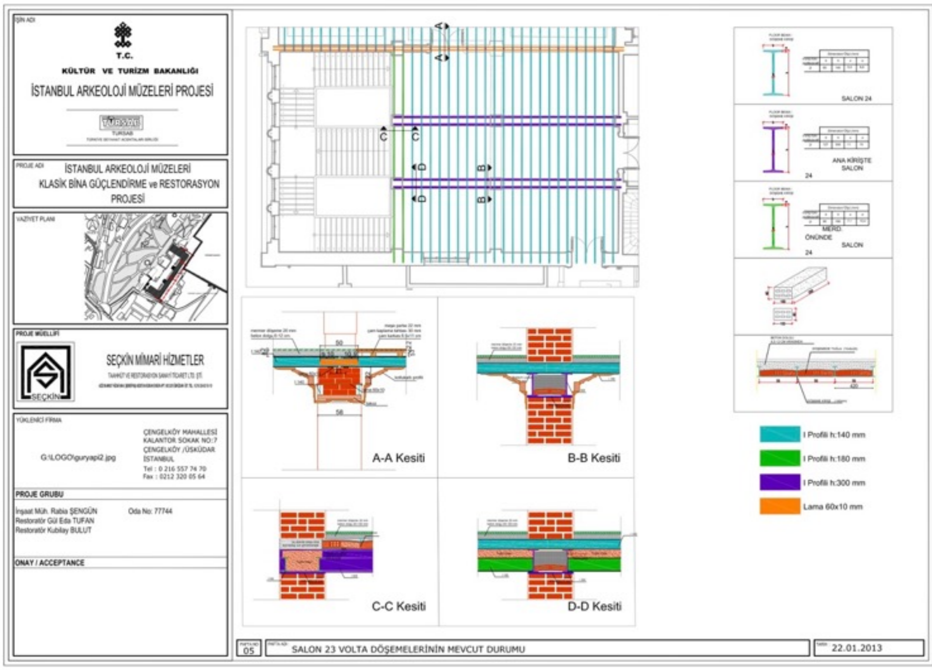

Figure 256. The survey drawing of Hall 24 jack arched flooring (*Güryapı İnşaat* AutoCAD File, drawn by Rabia Şengün, IDSM Archive)

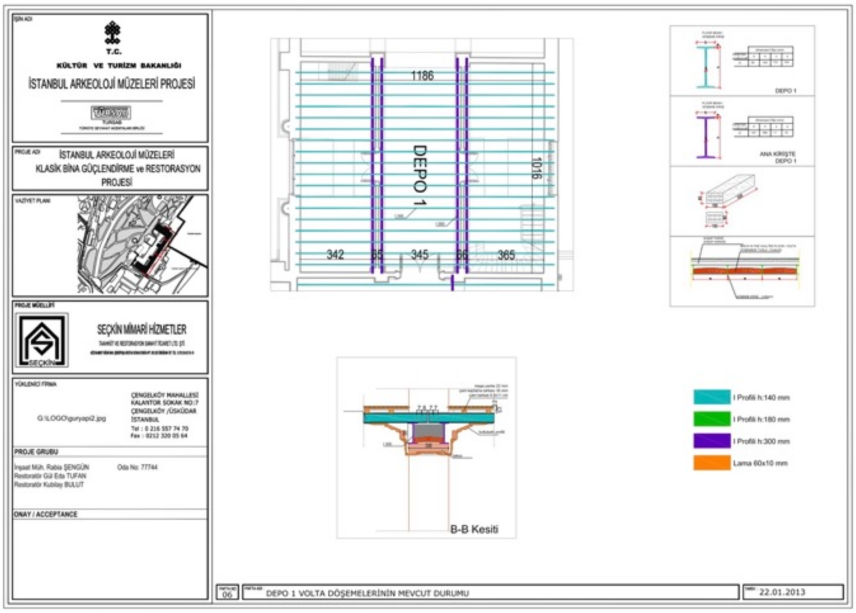

Figure 257. The survey drawing of Hall 25 jack arched flooring (*Güryapı İnşaat* AutoCAD file, drawn by Rabia Şengün, IDSM Archive)

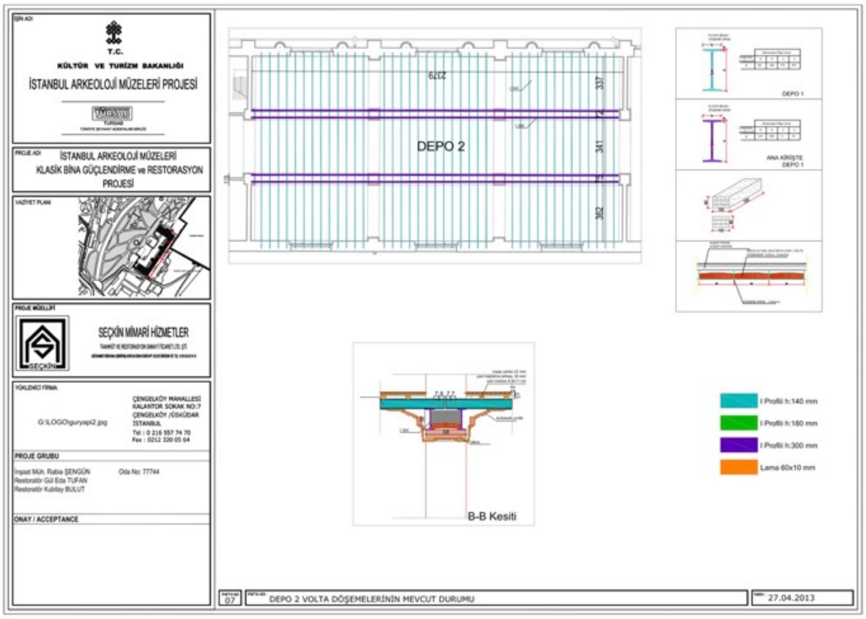

Figure 258. The survey drawing of Hall 26 jack arched flooring (*Güryapı İnşaat* AutoCAD file, drawn by Rabia Şengün, IDSM Archive)

Ceiling Decoration construction Techniques of 3rd Construction Phase of IAM

Ceilings hold an important place in interior decoration. In 1st Phase, it was mentioned that the ceilings featured hand-painted decorations applied on lathwork. In 3rd Phase, however, the interior decoration was achieved through hand-painted ornamentation on wooden moldings.

When examining the ceiling plan of the 3rd Construction Phase of IAM, the wooden cornices dividing the ceiling into sections immediately draw attention. At first glance, these decorative elements might give the impression that they follow the building's structural system (Figure 259, Figure 260, Figure 261, Figure 262, Figure 263, Figure 264). However, when the ceiling coverings were removed for reinforcement interventions, it became evident that this was not the case. The load-bearing beams were placed in only one direction, a detail clearly visible in the archival drawings. To achieve this appearance, it was discovered that not only were the iron beams covered with wooden moldings, but also that a wooden construction system without any iron elements was built in the other direction.

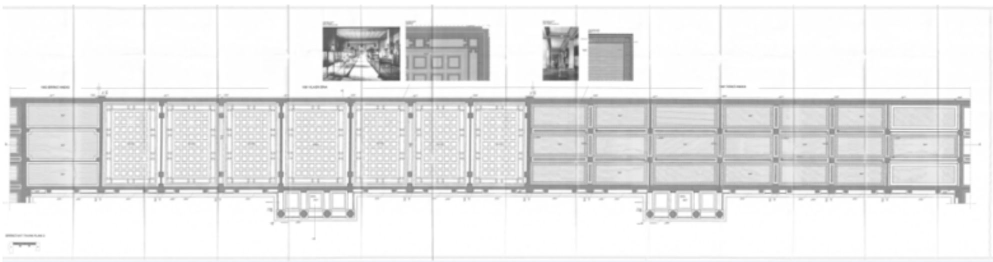

Figure 259. The Restitution plan of ground floor ceiling of 1st and 3rd Construction Phase (source: *Seçkin Mimari Hizmetleri*, IDSM Archive)

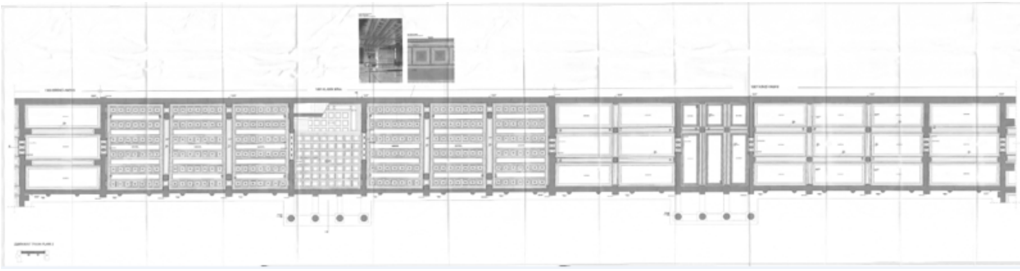

Figure 260. The Restitution plan of first floor ceiling of 1st and 3rd Construction Phase (source: *Seçkin Mimari Hizmetleri*, IDSM Archive)

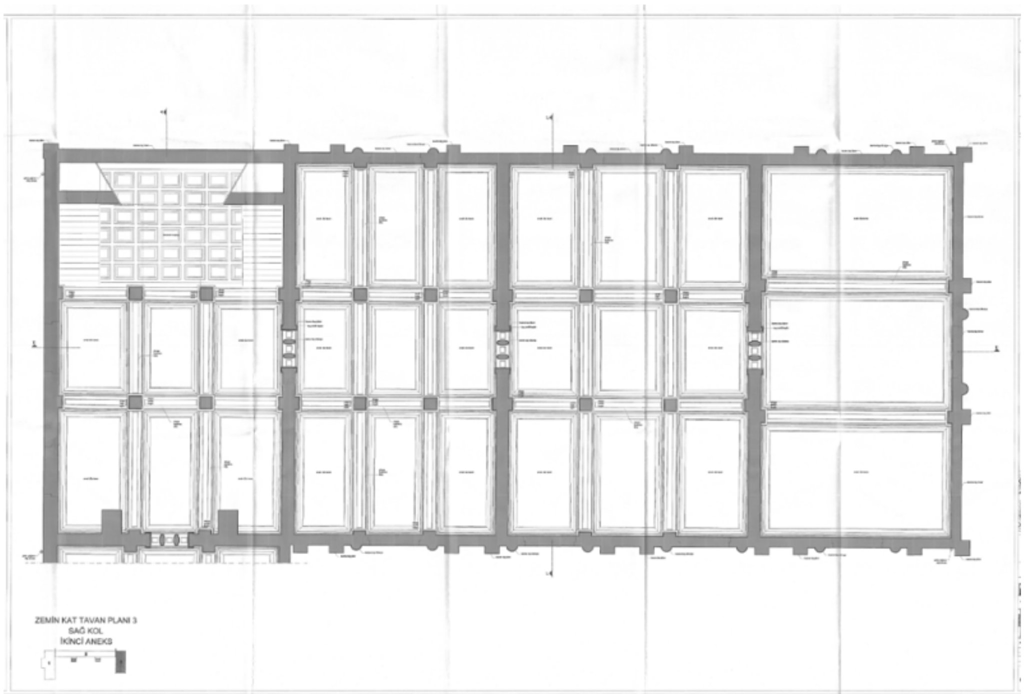

Figure 261. The Restitution plan of ground floor ceiling of 3rd Phase (source: *Seçkin Mimari Hizmetleri*, IDSM Archive)

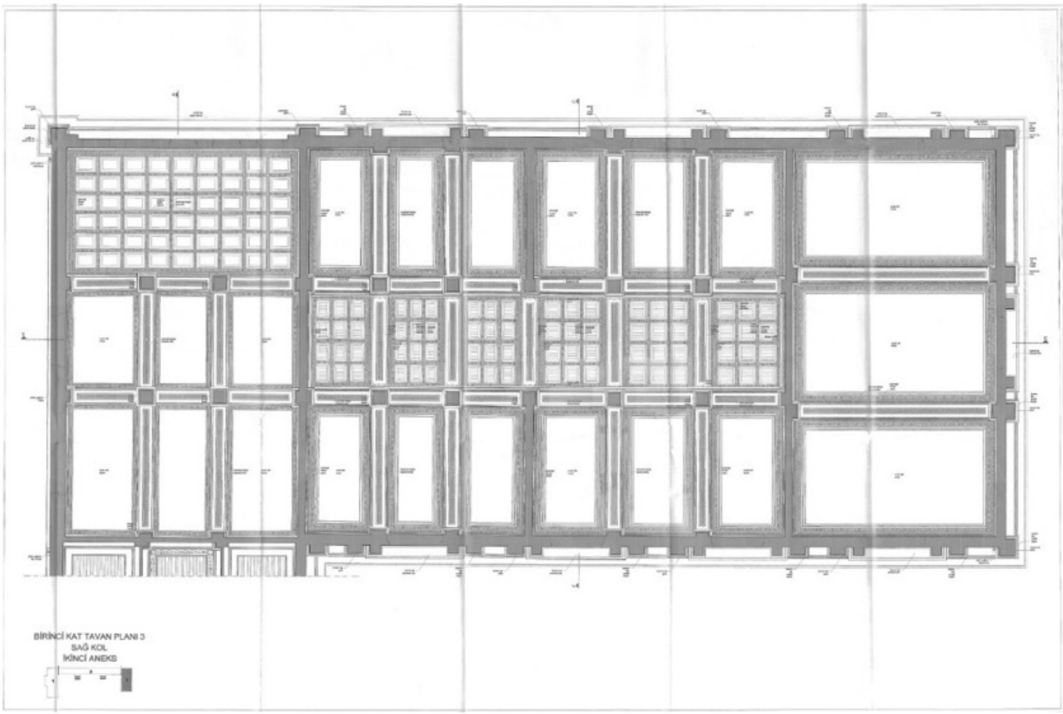

Figure 262. Restitution plan of first floor ceiling of 3rd phase (source: *Seçkin Mimari Hizmetleri,* IDSM Archive)

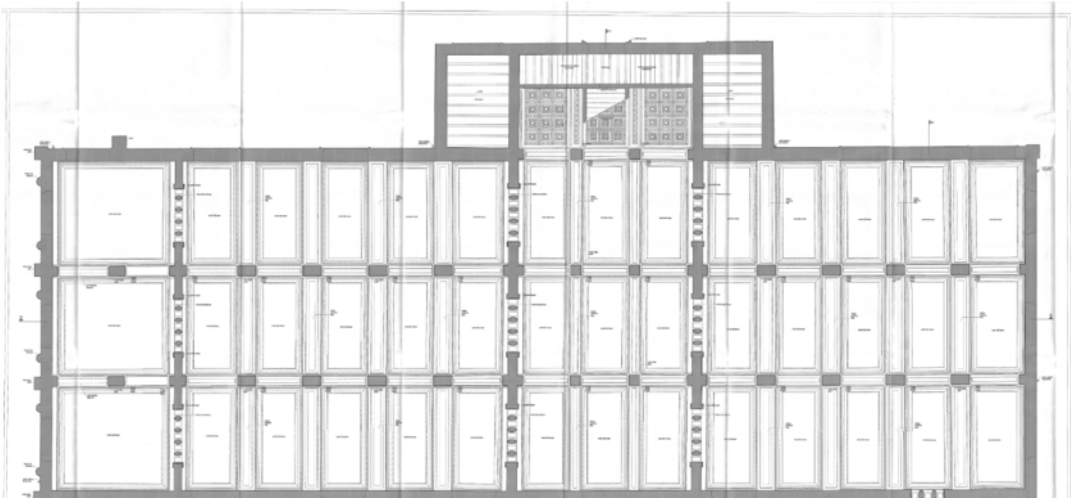

Figure 263. The Restitution plan of ground floor ceiling of 2nd Phase (source: *Seçkin Mimari Hizmetleri,* IDSM Archive)

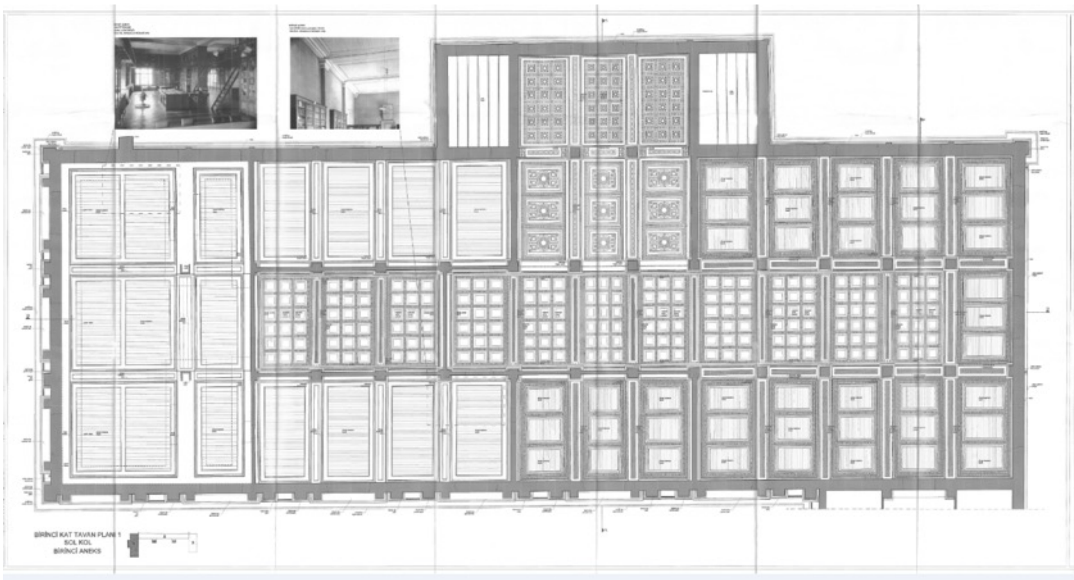

Figure 264. The Restitution plan of first floor ceiling of 2nd phase (source: *Seçkin Mimari Hizmetleri,* IDSM Archive)

As mentioned above, the beams were placed in only one direction, and a two-way beam system was not used. The beams were supported by the load-bearing walls and columns located between them. The confusion arose because **fake beams** were created using timber elements to provide visual symmetry and decorative continuity in areas where iron beams were not present (Figure 265). These **fake beams**, constructed from wood and covered with ornate wooden cornices, made it difficult for visitors to distinguish between the real and false beams (Figure 266Figure 265). This solution was likely implemented for aesthetic purposes. As described in the architectural features section, the original ceilings on the ground and first floor vary from phase to phase. Some ceilings were left with plaster and paint, framed by either painted or unpainted wooden cornices, while others feature hand-painted decorations. It is evident that the architects and builders put considerable effort into giving the modern steel ceiling construction a traditional neoclassical appearance, relying heavily on the use of wooden materials to achieve this.

Figure 265. The ceiling decoration from 2nd Construction Phase of IAM (source: *Güryapı İnşaat*, IDSM Archive)

Figure 266. The removal of timber cornices (source: *Güryapı İnşaat*, IDSM Archive)

The points where the wooden cornices are attached to the iron girders are particularly important because the wooden decorations need to be secured to the iron elements (Figure 267, Figure 268). Except for the first phase, wooden cornices were used throughout the building in the second and third phases on both the ground and first floors to create a gridded appearance and maintain symmetry.

Figure 267. The removal of timber cornices (source: *Güryapı İnşaat*, IDSM Archive)

Figure 268. Construction of new wooden cornices to the iron beams with traditional techniques with some metal addition (taken by the author in 2019)

4.3.2.1 Roof Structural System and Construction Techniques

There is only one correspondence in the Presidential State Archive which mentioned about the roof of the museum. The main subject of the correspondence is about the cost estimate of the new building. However, when the cost estimate was examined, it was understood that the roof of the building would be wooden, but due to the fire hazard, it would be more appropriate to build it with iron instead of wood. A new discovery is requested to be prepared with this correction. Thereupon, the museum directorate states that there was a misunderstanding that the roof of the building would be iron anyway (Figure 269). As explained in Chapter 1, fire prevention was the primary reason for the selection of masonry and iron in the construction. It was crucial for the museum's administration to inform the relevant authorities about this direction for the continuation of the project. However, archival records show that the roof of the building was not made of iron. This may suggest that the intended use of an iron structure was abandoned, possibly due to financial constraints or other reasons. There is no information regarding whether the authorities were informed of this change.

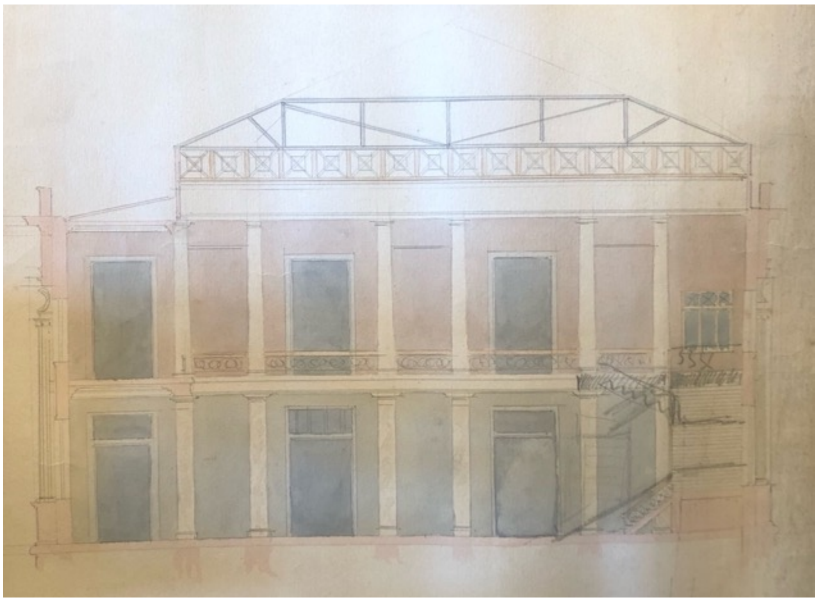

Figure 269. The original drawing of Vallaury period showing the roof structural system (source: "IAM Archive, 16-G2/R2/3")

Continuing from the archive documents, there are wooden roof drawings in Vallaury's original drawings (Figure 270). The roof drawn in the sections follows the wooden system and is depicted in brown in some drawings. However, it is known that the roof was converted to reinforced concrete in 1950. It can be seen from the photographs that the roof that was removed during this major intervention was wooden. So, despite the above-mentioned correspondence stating that the roof would be made of iron and the sensitivity against fire in the 19th century, it must not have been realized for various reasons. These reasons may be due to material supply and budget-related reasons. Therefore, it can be assumed that the roof was originally made of wood. Moreover, in the restitution report prepared for the building, the roof was accepted as wooden (Figure 271).

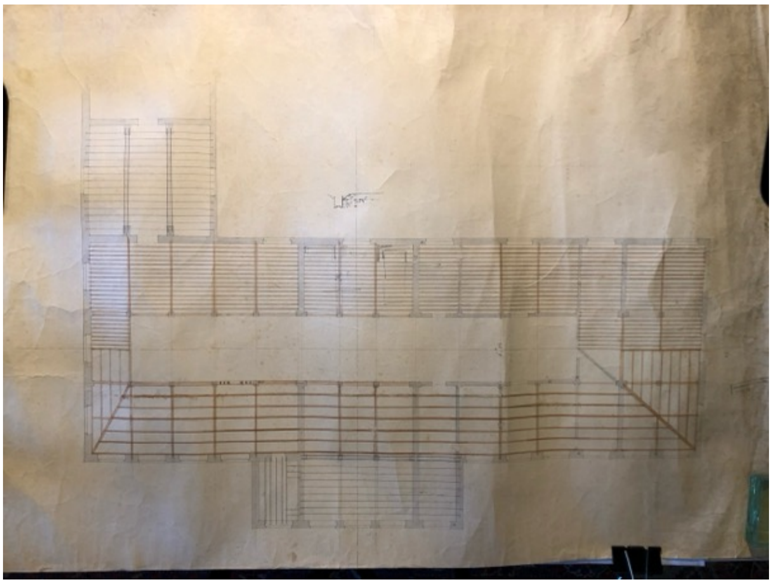

Figure 270. The original drawing of Vallaury period showing the roof plan (source: IAM Archive, "59 G2/R4/27")

Figure 271. The original section drawing of Vallaury showing the roof structure (source: IAM Archive, “66, G2/R5/7”)

With this acceptance, it can be concluded that the 2nd floor’ ceiling slab and roof lanterns were originally made of wooden construction. In 1950, all this wooden construction was removed and replaced with a reinforced concrete system (Figure 272). While doing this, the inlaid wooden cornices on the 2nd floor ceilings were not removed and were used as molds for the new concrete to be applied, as can be seen from the concrete beams that emerged after the wood was removed.

Figure 272. The old photograph showing the removal of timber roof (source: IAM Archive)

CHAPTER 5

EVALUATION OF CHANGING MATERIALS AND CONSTRUCTION TECHNIQUES DURING THE CONSTRUCTION OF ISTANBUL ARCHAEOLOGICAL MUSEUM BUILDING BETWEEN 1887-1907 IN THE LIGHT OF 1894 EARTQUAKE

After giving information on the context of the construction practices in 19th century Istanbul in Chapter 1, the thesis examines The History of Istanbul Archaeological Museums' Classical Building and Its Site in Chapter 3. Chapter 4 entitled as The Structural System and Construction Techniques of Istanbul Archaeological Museums' Classical Building Between 1887-1907 delved into its system details. This chapter aims to analyze the information from Chapter 4 to detect the changes that occurred during the construction period of IAM in the light of 1894 Earthquake.

In 1894, three years after the opening of the first phase of the museum building and in the midst of an expansion decision, Istanbul was shaken by a devastating earthquake which deeply affected people and society. The earthquake posed a great challenge to the Ottoman Empire, which was already shrinking economically and politically. Commissions were established after the earthquake began to assess the damage, followed by fundraising activities to repair the damaged buildings as soon as possible (Mazlum, 2011). Between 1st Phase and 2nd Phase, the 1894 earthquake occurred. The construction of 2nd Phase began in 1899, five years after the earthquake. This might explain the eight-year gap (1891–1899) between the first phase's opening and the construction's start in the second phase, while the third phase of construction began immediately after the completion of the second phase. Some of the most famous and competent architects of the period who worked for the market and the state took part in the commissions formed after the earthquake. One of these architects is Alexandre Vallaury. Vallaury's duty in the commissions meant that he analyzed many damages and suggested a repair method. In this respect, the earthquake provided an opportunity to detect and correct the mistakes made earlier.

The IAM building endured the 1894 earthquake without sustaining severe damage. As understood from the cost estimate prepared for the Fine Arts School building (*Sanayi-i Nefise Maktebi),* which now houses the Museum of Ancient Oriental Works and shared the same courtyard, as well as from the repairs carried out 14 years after the earthquake, simple interventions were deemed sufficient. Focusing on *Müze-i Hümayun* Building (IAM), the estimated cost book[102] (For further details see Chapter 2.3) outlines the following tasks: applying three coats of colored whitewash to the four exterior walls, filling cracks in the handmade decorative art on the ceiling, cornices, and moldings with cement mortar, restoring the handmade decorative work performing minor plaster and whitewash repairs, and changing tiles on roof.

The second document[103] dating back to 1908, pertains to the repair of the museum building following an earthquake. According to the correspondence, the building, constructed 18 years prior and never previously repaired, sustained some damage during an earthquake 13 years earlier. The document highlights those sections of plaster had fallen from the ceilings on the upper floors, and the wooden flooring, made from substandard materials, had deteriorated over time and started to shake (For further details see Chapter 2.3). Consequently, the letter underscores the necessity of reinforcing and repairing the ceilings and floors, installing parquet flooring, and painting the walls. This suggests that the IAM building did not suffer

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[102] Republic of Türkiye Presidential State Archive. "BOA, İ_ŞE_00006_00028_001_002/003/004" (17 Eylül 1310 /September 29, 1894)

[103] Republic of Türkiye presidential State Archive. "BOA, İ_MF_00014_00010_001_001" (30 Zilhicce 1325/ February 3, 1908)

severe damage in the 1894 earthquake, as the repairs were delayed for approximately 13 years. This information suggests that the architect likely had confidence in the building and its construction system overall; however, this thesis argues that certain interventions were still deemed necessary to minimize the risk of damage.

As detailed in Chapter 2.3.2, it is evident that while significant efforts were made through legal regulations to prevent fires, the same level of effort was not applied in preparing the necessary legal frameworks for earthquakes. However, this does not suggest that the people of Istanbul, or the architects and craftsmen who played an active role, were entirely indifferent to earthquakes. Keeping in mind the crucial duty of Alexandre Vallaury after the earthquake, this chapter aims to explore whether there were any changes in construction practices, even if they were not reflected in legal regulations, by examining IAM building whose construction spanned 20 years and was affected by an earthquake during that time.

The basic construction system remained consistent throughout the construction phases (the 1st phase of IAM from 1887-1891, the 2nd phase from 1899-1903, and the 3rd phase from 1903-1907). The structural integrity of the façade, characterized by brick-stone rubble walls and floors created using a brick-filled one-way jack arch system, was also maintained throughout the construction process. However, upon closer examination, certain differences become apparent. This chapter addresses the changes in construction techniques that occurred during the building process of the IAM, along with their causes and effects, based on the information gathered in previous chapters. The analysis focuses on the primary structural elements where these changes were identified. The changes is analyzed under the following headings:

i. The Changes in the Foundation System

ii. The Changes in Masonry Wall Techniques

iii. The Changes in Column Sizes and Spacing

iv. The Changes in Jack-Arched Flooring with Iron Profiles

Changes in the Foundation System

Eginitis's report (Sezer, 1997) revealed that some buildings in and around Istanbul collapsed during the 1894 earthquake due to being constructed on unstable ground. Consequently, ensuring a stable foundation would have been the architect's foremost priority, considering the knowledge gained after the earthquake and his personal experience in inspecting the damaged public buildings at the order of Abdülhamid II (for further details see Chapter 2.3.). As discussed in Chapter 4, significant labor and time were devoted to ground preparation for the IAM building, resulting in detailed technical drawings illustrating the foundation sections.

The original drawings were produced to assess the underground conditions where the foundation system of the IAM would be constructed (Figure 273). Under the supervision of Vallaury, the primary goal of this documentation was to ensure that the building was positioned on stable, solid ground. The architect prepared foundation sections to depict each load-bearing wall in the foundation plan, clearly demonstrating the meticulous efforts to properly support the superstructure on the existing substructure with the most suitable design (Üstoğlu Coşkun & Şahin Güçhan, 2024).

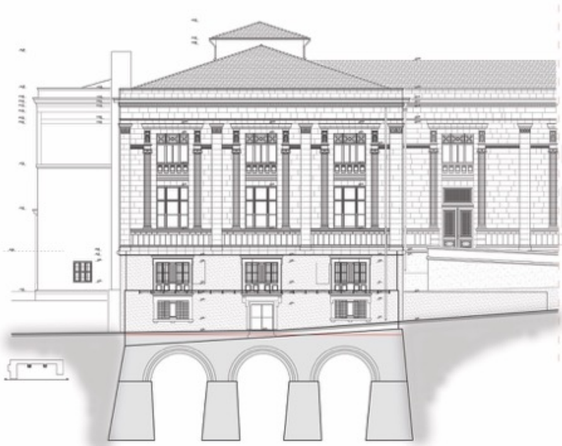

Figure 273. The superimposed drawing of the Underground East Elevation of Vallaury period and the Elevation of the Second Phase of IAM (produced by the author, elevation's source: Restoration Project prepared by *Seçkin Mimari Hizmetleri* IDSM-Archive).

Ultimately, an arched system was integrated below the ground level. This decision also imposed an economic burden on the museum's construction. However, it ensured compliance with the most fundamental lesson learned from the earthquake: the necessity of a stable foundation. As explained in Chapter 2, the *Sanayi-i Nefise Mektebi*, built by Vallaury using similar techniques in the same courtyard with IAM Building, was severely damaged due to ground shifting caused by the separation of the retaining wall. Observing this and conducting the repair assessment, Vallaury was determined not to take the same risk for the museum building, especially since the second phase of the museum stands on the same retaining wall (Figure 274).

Figure 274. (Left) Istanbul Archaeological Museum Building; (Right) *Sanay-i Nefise Mektebi* Building located on the same terrace looking to *Gülhane Park* (taken by the author)

The Changes in Masonry Wall Techniques (Type and Size)

Although all three phases of the museum building were constructed using masonry techniques, research conducted within the scope of this thesis reveals that this technique was applied with different materials, particularly on the ground floor walls, across all three structures. At this point, an important question arises: What could be the reason for these changes, and why might the wall construction, the most fundamental element, not have progressed in the same manner as when it first began?

In fact, in the 1st construction phase, it was observed that the ground and second floors were constructed entirely with *brick masonry walls* (Figure 276). However, in the subsequent construction of the 2nd construction phase, it is seen in the old photo (Figure 277) that the rear facade's exterior walls on the ground floor were built using a *stone masonry system with brick lintels*[104]. Unfortunately, there are no images of the courtyard-facing facade or the interior walls, leaving no data available for these sections. It is highly likely that the front facade of the building, where the stone cladding was applied, consists of brick masonry (Figure 275). In the 3rd construction phase, it is seen that the old photo (Figure 278Figure 277) that the exterior walls on the ground floor were built using a *stone masonry system with brick lintels* and *brick masonry* together.

[104] There is no current or old photo shows the front facade of 2nd Construction Phase

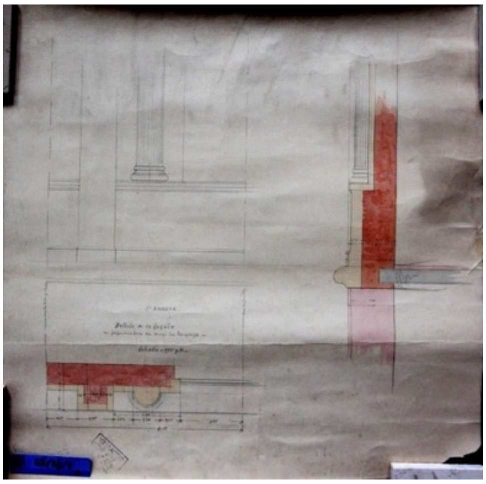

Figure 275. The detail sketches of wall section of IAM drawn by Alexandre Vallaury in (Say, 2014)

Figure 276. The brick masonry wall construction Techniques of 1st Phase of IAM (1887-1891) (taken by the author)

Figure 277. The stone masonry with brick lintel wall construction Techniques of 2nd Phase of IAM (1899-1903) (source: Restitution Report prepared by Seçkin Mimari Hizmetleri, IDSM Archive)

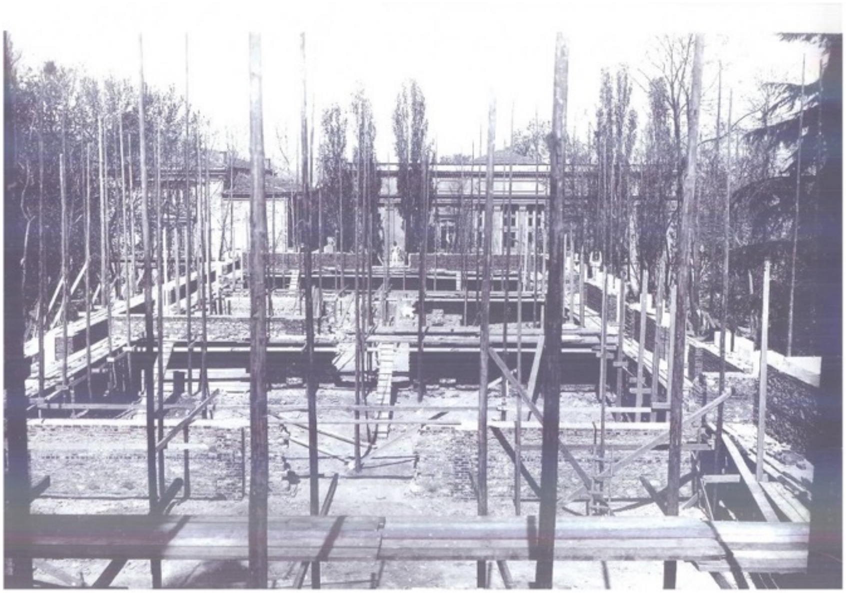

Figure 278. The brick and stone masonry with brick lintel wall construction Techniques of 3rd Construction Phase of IAM (1904-1907) (source: Restitution Report prepared by *Seçkin Mimari Hizmetleri,* IDSM Archive)

The transition from brick masonry (in rear and front facades of the building) to stone masonry on the rear facade is particularly surprising given that the construction of the 2nd Construction Phase began three years after the major 1894 earthquake disaster in Istanbul, during a time when scientific studies and public opinion widely advocated for brick walls as being more protective than stone walls. Why, then, did the architect make a decision that contradicted this prevailing view? He chose to change the construction technique from brick masonry walls to a stone masonry system with brick lintels for rear façade (which was constructed without stone cladding) between the 1st and 2nd phases of the IAM. The fact that the first phase of the building did not suffer significant damage during the earthquake is making the decision to change the construction technique all the more intriguing. However, it is essential to remember that numerous critical variables during the construction process might have necessitated this change. Challenges in material procurement, financial difficulties, or the availability of a ready stockpile of stone could have influenced this decision.

In the 3rd and section (1904-1907), whose construction began one year after the opening of the 2nd phase, the exterior ground floor walls were constructed up to the window sill level[105] (or basement level) using a *stone masonry system with brick lintels* and then completed the upper portion with brick walls alone. On the other hand, the building's interior load-bearing walls were continued up to the first-floor level using the *stone masonry with brick lintels.*

In Figure 279 and Figure 280presented below, the plans of the ground and first floor of the IAM building have been color-coded according to construction techniques, based on the data obtained from the documents presented in Chapter 4. The wall and column measurements at the marked points are shown in the table to compare construction phases. InFigure 279 and Figure 280, the walls without available data are not colored. Since the base drawings were produced through a survey drawing of IAM, the measurements refer to plastered and painted walls. Therefore, slight variations in wall thicknesses are observed at different points. Measurements have been taken at locations indicated by the "W" (wall) symbol on the plan.

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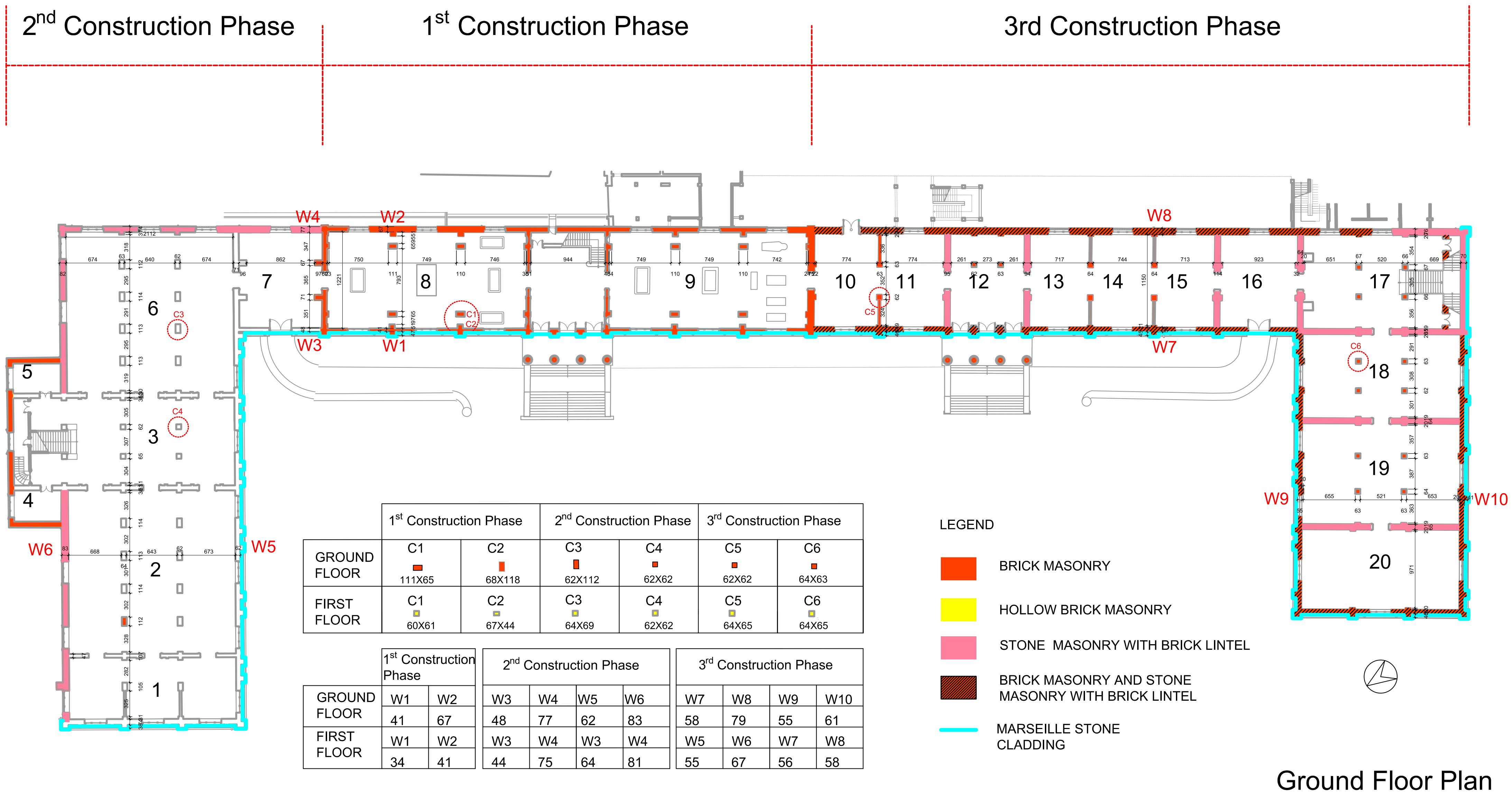
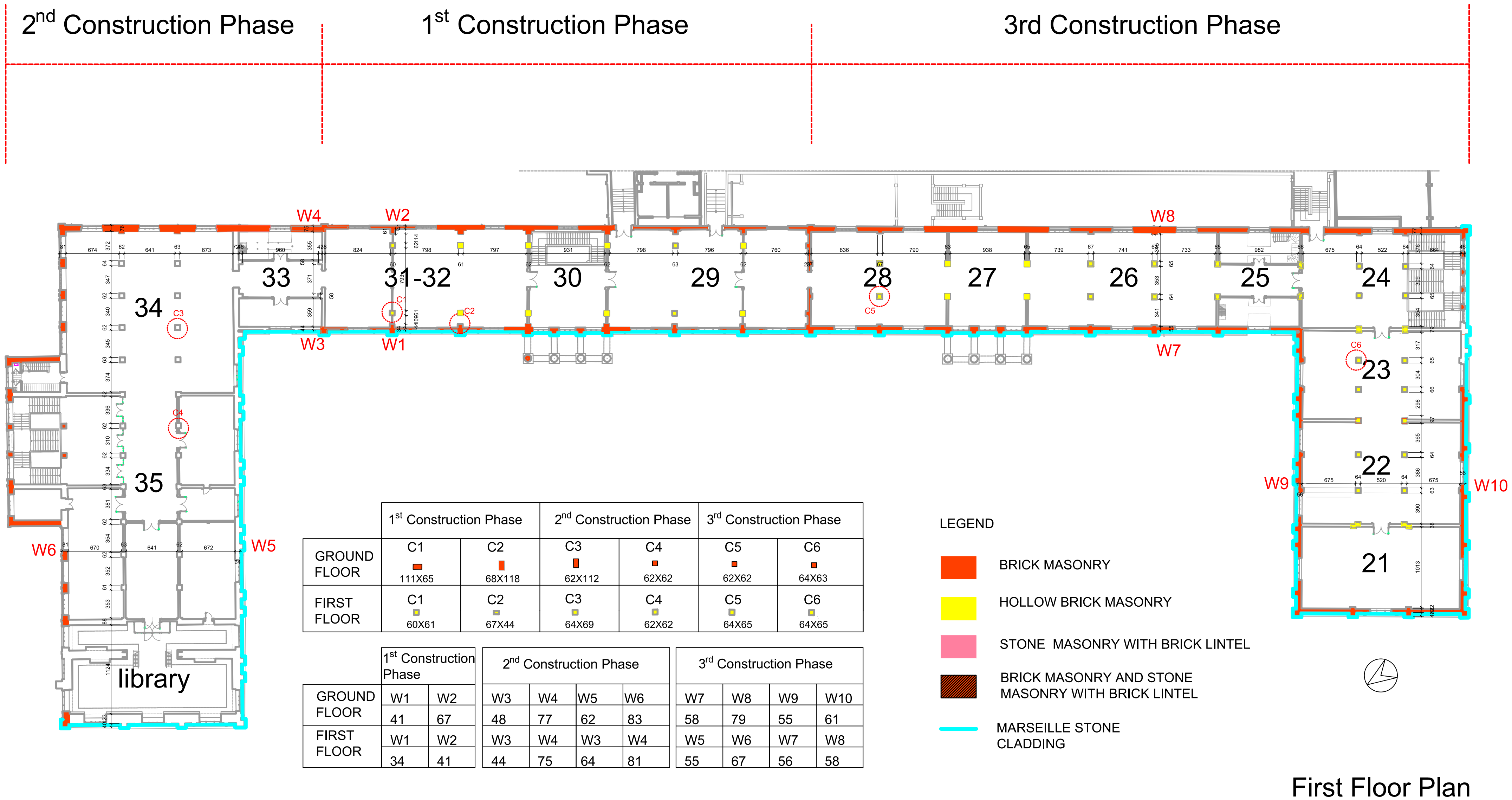
[105] According to the section prepared by Rabia Şengün (Figure 187) during the restoration works, which illustrates the construction materials, for 3rd construction phase, the wall up to the window sill consists of stone masonry, while the section above is built with brick masonry. However, this level is not clearly discernible in old photographs. In the photos taken during the restoration, the plaster on the walls was not scraped, making it impossible to identify the materials. In this case, as shown in Figure 274, the stone masonry wall may have been constructed down to the ground level



	1st Construction Phase		2nd Construction Phase		3rd Construction Phase	
	C1	C2	C3	C4	C5	C6
GROUND FLOOR	111X65	68X118	62X112	62X62	62X62	64X63
	C1	C2	C3	C4	C5	C6
FIRST FLOOR	60X61	67X44	64X69	62X62	64X65	64X65

	1st Construction Phase		2nd Construction Phase				3rd Construction Phase			
	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10
GROUND FLOOR	41	67	48	77	62	83	58	79	55	61
	W1	W2	W3	W4	W3	W4	W5	W6	W7	W8
FIRST FLOOR	34	41	44	75	64	81	55	67	56	58

Figure 279.The Ground floor plan of IAM showing Construction Techniques and materials (generated by the author based on restoration project prepared by *Seçkin Mimari Hizmetleri*)



	1st Construction Phase		2nd Construction Phase		3rd Construction Phase	
	C1	C2	C3	C4	C5	C6
GROUND FLOOR	111X65	68X118	62X112	62X62	62X62	64X63
FIRST FLOOR	60X61	67X44	64X69	62X62	64X65	64X65

	1st Construction Phase		2nd Construction Phase				3rd Construction Phase			
GROUND FLOOR	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10
	41	67	48	77	62	83	58	79	55	61
FIRST FLOOR	W1	W2	W3	W4	W3	W4	W5	W6	W7	W8
	34	41	44	75	64	81	55	67	56	58

Figure 280. The First Floor plan of IAM showing Construction Techniques and materials (generated by the author based on restoration project prepared by *Seçkin Mimari Hizmetleri*)

Upon reviewing the information provided in Figure 279 and Figure 280, the following conclusions related to masonry wall construction techniques can be drawn:

i. When the plans are examined in terms of materials and construction techniques, it is seen that different materials and techniques were used during the construction of the whole IAM building. They are shown in the plans in different colors. Pink indicates stone masonry walls with brick bond beams. Orange represents brick masonry walls. Orange with cross-hatching shows sections where both brick and stone masonry were used together. Based on old photographs and those from the restoration process presented in Chapter 4, the 1st phase was constructed as brick masonry. The rear façade of the 2nd phase was built with stone masonry walls reinforced with brick lintels, while the stairwell was constructed solely of brick masonry. In the 3rd phase, the exterior walls with stone claddings were built with stone masonry reinforced with brick lintel up to the window sill level, and from this point upward, the upper floors were constructed with brick masonry. The load-bearing partition walls were entirely made of stone masonry with brick lintels. Throughout the building, the walls on the first floor were built using brick masonry. The columns on the ground floor were constructed with solid bricks, while perforated bricks were used on the first floor.

ii. In the first phase of construction, it is observed that the wall thickness of the front and rear façades differs, with the rear façade wall being approximately 26 cm thicker than the front façade wall. While the front façades were clad with Marseille stone, the rear façades, being out of sight, were left unadorned and kept simple. It means that the architect preferred to keep that principle in the entire building. The walls of façades clad with stone were thinner than those built without stone claddings. As Ali Talat (2022) mentions in his book, the thickness of the stone cladding must be at least 10 cm. This suggests that the stone not only served as a cladding or decorative element but also contributed to the structural strength of the wall depending on the connection of facing stone with the inner structure of the wall. Iron clamps help to provide this proper connection in this kind of wall construction techniques.

iii. In the first construction phase of the museum, when comparing the wall thickness of the ground and upper floors, it is observed that the walls on the ground floor were made thicker than those on the upper floor. However, in the other sections, the wall thickness of the ground and upper floors was kept approximately the same. Although it is a common technique to reduce wall thickness as the building rises from the foundation, this approach was not consistently applied.

Detailed information regarding wall thicknesses is even included in the Building Law published in 1891, which remained in effect for only a short time. According to this law, it was determined that houses to be built in *Dersaadet and Bilâd-ı Selâse* would use three different construction techniques: fully masonry, partially masonry, and wooden structures surrounded by protective walls. For fully masonry buildings, the foundation was required to be constructed up to road level, with surrounding walls having a thickness of at **least one and a half bricks up** to the second floor, and **one brick for the third floor**. The beams would be iron I-profiles, and the spaces between two profiles would be filled with half-arch brick vaulting with cement mortar (jack arch flooring), with the roof constructed using the same type of flooring and covered with asphalt (Ergin, 1995, p. 1714; Erdal, 2023). However, implementing these principles was not feasible at the time, which is why the law was repealed shortly after its enactment [106](Ergin, 1995, p. 1714; Erdal, 2023)

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[106] The primary reason for preparing the Building Law of 1891 was the shortcomings of the existing law. Discussions held in the Council of State revealed that, the wooden houses had begun to be constructed in many parts of the city, and people were still allowed to build structures using any construction technique and at any height they desired. It was also discovered that some individuals

In his book "*Kargir İnşaat ve Eşkali*" Ali Talat (2022, p71) states that since bricks allow less heat to pass through than rubble stones, a wall must be 50 cm thick when it is built with rubble or dressed stone. Alternatively, it can be built with a thickness of 35-38 cm when brick is used. Thus, brick walls offer significant advantages, occupying less space than rubble or dressed stone walls. The variations in wall thickness observed throughout the structure are closely related to whether the walls were constructed using stone or brick, and if brick, how many bricks were used in the construction of one course to provide the necessary wideness. Additionally, Ali Talat (2022) has illustrated in detail the possible construction techniques based on wall thicknesses, accompanied by images.[107]

Accordingly, the bonding of walls built with one and a half bricks, which are 35 cm thick, is shown in Figure 281 as *Şekil 37-38-39*; the bonding of walls built with two bricks, which are 46-47 cm thick, is depicted in *Şekil 40-41*; the bonding of walls built with two and a half bricks, which are 57-60 cm thick as illustrated in *Şekil 42*; and the walls built with three bricks, which are 70-72 cm thick as illustrated in *Şekil 43* (Figure 282).

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were secretly using wooden materials for new constructions or repairs to avoid tax obligations (Ergin, 1995, p. 1060 as cited in Erdal, 2023).

[107] Ali Talat also notes that while it varies from country to country, the average length of a brick is between 22-25 cm, its width is between 10.5-12 cm, and its thickness is between 5-5.5 cm (p.70).

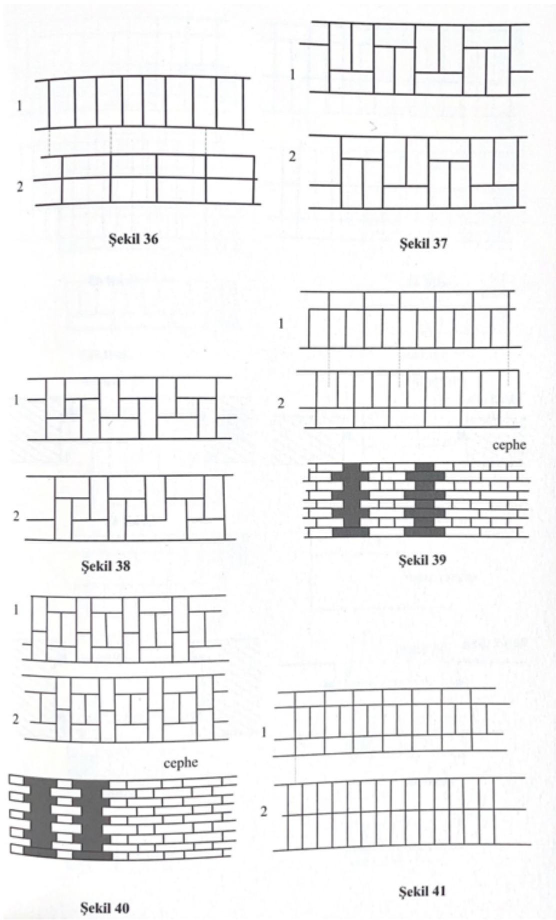

Figure 281. Brick masonry construction techniques (Ali Talat, 2022)

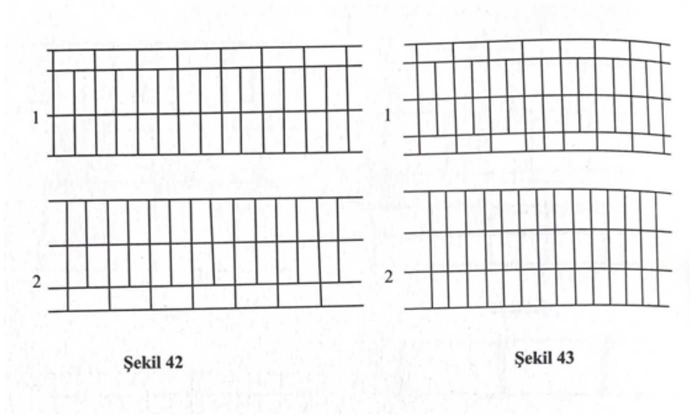

Figure 282. Brick masonry construction techniques (Ali Talat, 2022)

According to the information on Wall Thickness of 1st Construction Phase of IAM given in Table 9, the front façade' wall thickness is measured at 40-45 cm on the ground floor and 35 cm on the upper floor. It is certainly known that the 1st Construction Phase of the IAM building was constructed with brick masonry in all storeys. Therefore, the front facade of the ground floor must have been built with ***two bricks***, and the upper floor with ***one and a half*** bricks according to Ali Talat's descriptions. On the rear facade, the ground floor's wall thickness is measured at 65-80 cm and the upper floor at 40-45 cm.

Table 9. Wall Thickness of 1st Construction Phase of IAM (source: AutoCAD file of Restoration Project drawn by *Seçkin Mimari Hizmetleri*, IDSM archive)

1ST CONSTRUCTION PHASE OF IAM	Ground Floor	1st Floor
Front façade Wall (with stone cladding)	40 - 45 cm	35 cm
Rare façade Wall (without stone cladding)	65 - 80 cm	40 - 45 cm

According to the information on Wall Thickness of 2nd Construction Phase of IAM given in Table 10, the rear face façade' wall thickness is measured at 80-85 cm and 70-75 cm on the ground floor and 80-75 cm on the upper floor. This means that the wall thickness keeps nearly the same for ground floor and first floor walls. The front façade' wall thickness is measured at 60-65 cm on the ground floor and 60-65 cm on the upper floor. This means that the wall thickness keeps nearly the same for ground floor and first floor walls also for front facade.

Table 10. Wall Thickness of 2nd Construction Phase of IAM (source: AutoCAD file of Restoration Project drawn by *Seçkin Mimari Hizmetleri*, IDSM archive)

2nd CONSTRUCTION PHASE OF IAM	Ground Floor	1st Floor
Front façade (with stone cladding)	60-65 cm	60-65 cm
Rare façade (without stone cladding)	80-85 cm 70-75 cm (east wing)	80-85 cm

According to the information on Wall Thickness of 3rd Construction Phase of IAM given in Table 11, the rear façade' wall thickness is measured at 75-80 cm on the ground floor and 55-60 cm and 65-70 cm on the upper floor. This situation indicates a reduction in wall thickness of approximately 20 cm when transitioning from the ground floor to the first floor. The front façade' wall thickness is measured at 55-60 cm on the ground floor and 55-60 cm on the upper floor. This means that the wall thickness keeps the same for ground floor and first floor walls also for front facade.

Table 11.Wall Thickness of 3rd Construction Phase of IAM (source: AutoCAD file of Restoration Project drawn by *Seçkin Mimari Hizmetleri*, IDSM archive)

3rd CONSTRUCTION PHASE OF IAM	Ground Floor WT	1st Floor WT
Front façade (with stone cladding)	55-60 cm	55-60 cm
Rare façade (without stone cladding)	75-80 cm --	65-70 cm 55-60 cm

When all the above information is evaluated, the following conclusions emerge:

i. In the first phase, which constitutes the initial construction of the building, the wall thicknesses for both floors are thinner compared to the other phases. This thickness was deemed insufficient, leading to an increase in wall thickness in subsequent phases. This change is directly related to the construction materials used.
ii. In the first phase, the difference in wall thickness between the two floors is approximately 30 cm, whereas in the later phases, this thickness of the walls remained the same or very close.

Additionally, considering that the thickness of the mortar joints between the bricks and the external plastering is not uniform throughout, and the walls have been subject to multiple layers of plaster and paint over time, the wall thicknesses might have increased in time.

The changes related to the construction materials might have been driven not only by structural but also by economic reasons. The archives mention cleaning the terrace wall-retained wall (*sed duvarı*) across the museum building and using the stone extracted in the museum's construction. The third phase of the construction process stands out for its extreme efforts to maximize economic resources and expedite the work. So much so that imperial approval was obtained to clear and organize the terrace located next to the museum and opposite to Imperial Mint (*darphane)* building, transforming it into a garden, with the stones removed from this area to be used in the construction of the new building[108]. Similarly, before starting on the second building, the findings indicated that the architect conducted an extensive ground survey and only began construction after strengthening the foundation. Given the numerous excavations conducted at the foundation level and

[108] (Document 3.06: “DH_MKT_00887_00032_002_002” (7 Cumadelâhire 1322 / August 19, 1904)

the richness of Byzantine remains in the area, it is very likely that there was a significant stockpile of stone available. It is also probable that large amounts of rubble and stone were encountered during these excavations, as some correspondence mentions the need to remove this rubble[109]. Considering the difficulty in securing funding for the construction (see Chapter 3.3), it seems highly plausible that the available materials on-site were used wherever appropriate or in the foundation work. Given that Osman Hamdi was reportedly requesting even to donate his one-year salary to continue the museum's construction[110], utilizing the stones found on-site makes perfect sense. In Figure 276, the piles of rubble in the background can be seen.

Another question that comes to mind is whether using brick lintels in the stone wall could be interpreted as an additional precaution against earthquakes? Returning to "*Kargir İnşaat ve Eşkali*" an architectural textbook written by Ali Talat in the end of 19th century, some interesting details reveals. As the Editor of the book, Damla Acar notes that the chapters, titles, and illustrations in this textbook almost directly correspond to those in J. Denfer's *Architecture & Constructions Civiles, Maçonnerie*, published in Paris in 1891. In the transcription, the paragraphs, footnotes, and even entire sections that Ali Talat added to the translated text are italicized, setting them apart from the main body of the text. In the section on brick

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[109] Document 2.37: "MF_MKT_00622_00012_007_001" (11 Şaban 1320/November 13, 1902)-Document 2.40: "MF_MKT_00622_00012_005_001" (13 Mart 1319/March 26, 1903)-Document 2.41: "İ_MF_00009_00020_002_001-2" (18 Muharrem 1321/April 16, 1903)-Document 2.42: "BEO_002027_154260_001_001" (4 Safer 1321 /Mai 2, 1903)-Document 2.43: "İ_MF_00009_00020_001_001" (5 Rabiulevvel 1321/June 1, 1903)-Document 2.44: "İ_MF_00009_00020_003_001" (29 Rebiulevvel 1321/June 25, 1903)-Document 2.45: "MF_MKT_00622_00012_008_001" (28 [Haziran sene 1319/July 11, 1903)-Document 2.46: "MF_MKT_00622_00012_009_001" (28 [Haziran sene 1319/July 11, 1903)-Document 2.47: "MF_MKT_00622_00012_010_001" (7 Cumadelula sene [1]321 /August 1, 1903)-Document 2.48: "MF_MKT_00622_00012_011_001" (Fî 3 Ağustos 1319/August 16, 1903)

[110] (Document 2.17: "BEO_001770_1326931_001_001" (17 Ramazan 1319 /December 28 1901), Document 2.18: "BEO_001770_132693_003" (12 Ramazan 1319 /Aralık 23, 1901))

or stone horizontal reinforcements (p. 82), it is observed that Ali Talat personally added the following remarks.

> *It has been mentioned above that in walls constructed with irregular rubble stones, due to the unevenness of the stones, it is necessary to level the surface horizontally at intervals of 30–50 cm in height to achieve a smooth finish. To create this horizontal surface more effectively, as seen in Figure 103, at least three rows of bricks are laid every 50–70 cm. These rows of bricks are referred to as horizontal lintel (yatay hatıl). Thanks to these lintels, the wall is constructed in horizontal layers. The impact of this technique on the strength of the wall is undeniable.*[111]

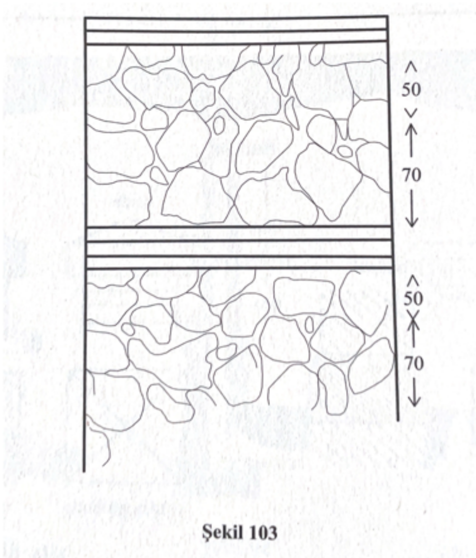

Figure 283. Masonry Wall Construction from "*Kargir İnşaat ve Eşkali*" (Ali Talat, 2022)

[111] Translated by the author

Ali Talat (2022) states that the surface must be leveled horizontally every 30-50 cm to achieve a smooth finish in walls constructed with irregular rubble stones. To create this horizontal surface more effectively, at least three courses of brick are laid every 50-70 cm (Figure 283). The author continues by saying that these brick courses are called horizontal lintel. By means of these reinforcements, the wall is constructed in horizontal layers and this technique's impact on the wall's strength is undeniable.

The architectural textbooks of 19th century period were mostly translated from French into Ottoman Turkish. Even though the technique described in these books, which became widespread with foreign architects, is modern and imported from Europe, earthquakes are the local and most important problem in Istanbul. Maybe that's why, although there was no detail of brick beams on the masonry walls in the original textbook translated from French into Ottoman by Ali Talat, the author felt the need to add it in the Ottoman Turkish version. The fact that the architect made such an addition based on local practices and experiences, despite France not being in an earthquake zone, is a particularly significant point. In this case, the shift from brick to stone, likely due to material supply issues, may have been compensated for using brick beams.

The Changes in Column Sizes and Spacing

Upon reviewing the information provided in Figure 279 and Figure 280, the following conclusions related to columns can be drawn:

i. When examining the column sizes, it is observed that in the 1st and 2nd phases, the column dimensions decrease as the upper floors are reached, whereas in the 3rd phase, the column sizes remain the same from the ground to first floor.
ii. Another interesting point is the decreasing distance between the columns, with the most notable change occurring between the 1st and 2nd phases. The 1st phase, which had the largest column spacing, and the final part of the 3rd

phase, where an attempt was made to span without columns, later required structural reinforcement interventions in the following years.

iii. The columns on the upper floors were made from perforated bricks to reduce the structure's weight.

The increased number of columns and the reduced distance between column axes were likely heavily influenced by the architect's ground studies. It is understood that, after the earthquake, the architect sought to establish a strong relationship between the superstructure and the ground. With its foundation strengthened, the museum building was placed on the newly constructed arched system beneath the ground, in alignment with the existing archaeological remains. Iron girders are visible inside the brick columns in an original archival drawing from the second phase (Figure 284). However, this was not identified during the construction process due to the absence of a wall radar survey.

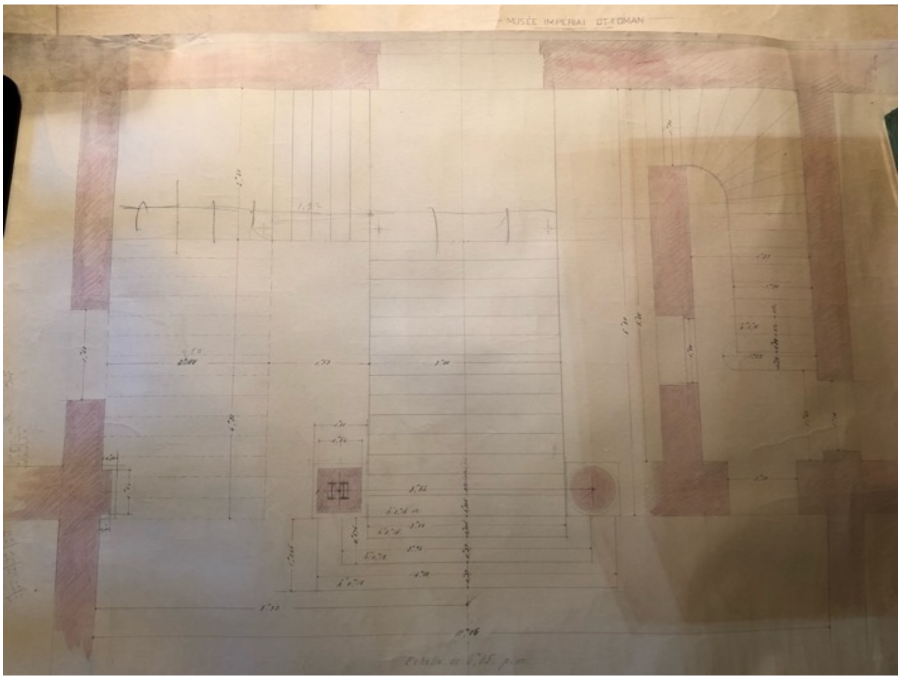

Figure 284. The vertical iron profiles drawn in a drawing of the staircases of 2nd Construction Phase of IAM (source: IAM Archive)

Table 12. The column sizes and max openings between columns in the 1st Construction phase of IAM

1ST CONSTRUCTION PHASE OF IAM	Ground Floor	1st Floor
Column size	65 - 110 cm 65- 50 cm	60 - 60 cm 60 - 45 cm
Openings	1,5 - 8,55 m	1,6 - 8,55

Table 13. The column sizes and max openings between columns in the 2nd Construction phase of IAM

2nd CONSTRUCTION PHASE OF IAM	Ground Floor	1st Floor
Column Size	110 – 62 cm 62 – 62 cm	64 – 62 cm 62 – 62 cm
Opening	4 – 7 m	4 – 7 m

Table 14. The column sizes and max openings between columns in the 3rd Construction phase of IAM

3rd CONSTRUCTION PHASE OF IAM	Ground Floor WT	1st Floor WT
Column Size	62 – 62 cm	65 – 65 cm
Openings	4 -5 ,8 m 4 - 8 m	4 -5 ,8 m 4 - 8 m

During the restoration of the 1st and 3rd Phase of the museum building, all columns were stripped, revealing that they were made of brick. According to the site report detailed in Chapter 4, the perforated bricks were preferred for the upper-floor columns. A significant difference in the number of columns between Phase 1 and Phase 2 is particularly noticeable (Table 12-Table 13 -Table 14). In the first phase, columns were placed closer to the walls to create large spaces for displaying the massive sarcophagi, resulting in a building composed of two large halls designed specifically for this purpose. At first glance, the most striking difference is the much denser column system in the second phase. While the distance between two columns in the large halls of the first section was 8,55 m, in the second section, a column was placed every 4 meters. In Phase 3, the number of columns was also increased, with an attempt to place four columns in each room. However, in Room 20, this idea was later abandoned, and by altering the girder system, a column-free room was created. The size and significance of the exhibited artifact likely played an important role in this decision as well.

The Changes in Jack Arched Flooring with Iron Profiles

Upon reviewing the information provided in Figure 279 and Figure 280 , the following conclusions related with jack arched flooring can be drawn:

i. When looking at plans the first and most striking observation is that the architect changed the direction of placing the iron girders by 90 degrees after the first building. In the second phase, which was built adjacent to the left side of the first building, and the third phase, built adjacent to the right side, the iron girders were placed parallel to the exterior load-bearing walls of the building. This direction was applied consistently throughout the building, apart from two rooms (Hall 12-Hall 20).
ii. The ceiling of the ground floor, which is dedicated to exhibition spaces, and the flooring of the first floor, which spans the entire building, exhibit variations within the system itself. However, the number of girders used, the spacing between them, and the span length vary in each phase.
iii. The primary difference is that, in the first phase, the architect used three I profile (h:250 mm) per beam, whereas in the third phase, he opted for two I-profile (h:300 mm) per beam.

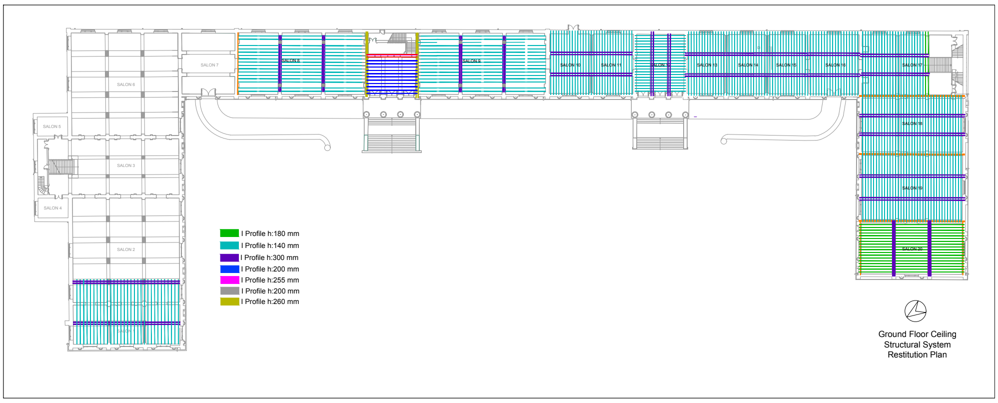

Figure 285. Restitution drawing of iron beams found after removal work done in 1st , partially 2nd and 3rd construction phase of IAM (Autocad drawing prepared by Güryapı İnşaat source: IDSM Archive, redrawn by the author)

In the 1st Phase, in halls 8 and 9, it was determined that three I 250 profiles were used for each beam (side by side), and during the 1983 repair, three more I 200 profiles were welded beneath them (Figure 284). In these halls, the columns were placed close to the walls to create larger open spaces, resulting in the largest span between two columns being 8.55 meters. In the majority of the third phase, the horizontal supports resting on the columns and load-bearing walls consist of two I 300 beams per girder, while the girders forming the floor were chosen to be 140 mm. However, this rule was broken in Salon 20 to create a column-free space, and the columns were removed, using four beams per girder instead. It is clear that four columns were originally designed for this hall and were later canceled (Figure 286, Figure 287). Additionally, the direction of the beams in this salon was made perpendicular to those in the other rooms. Furthermore, only in Salon 20, the floor beams were made from 180 cm beams.

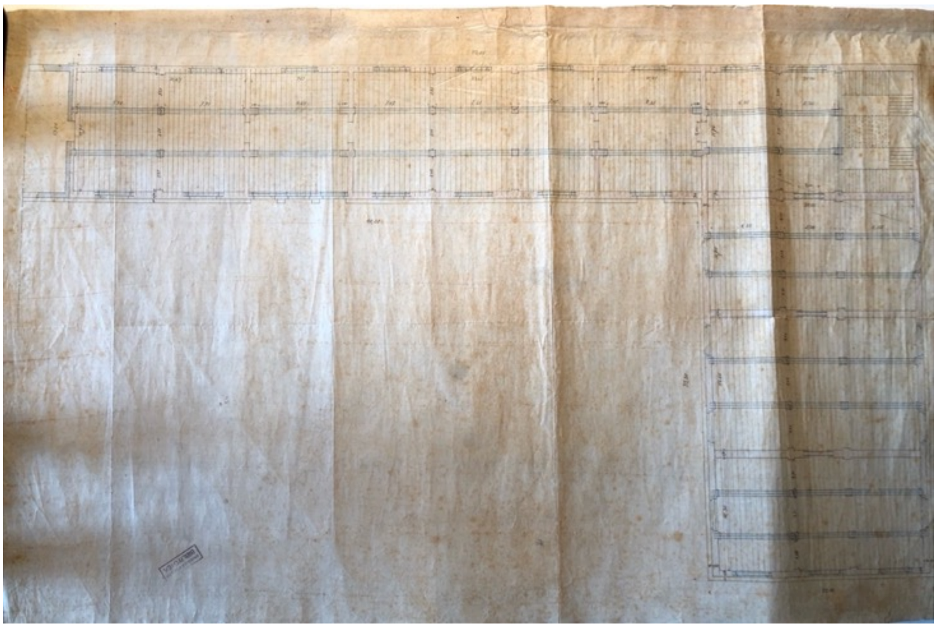

Figure 286. The initial iron I profile plan for 3rd Construction phase of IAM (source: "IAM Archive, 90. G3/R3/2")

Figure 287. The revised iron I profile plan for 3rd Construction phase of IAM (source: "IAM Archive, 91, G3/R3/3")

In the 3rd phase, it is not possible to make a more detailed comparison regarding the connection details, as the drawings and information about these details are not available for the other phases in the same level of detail. However, many details related to Phase 3, the last section built by the architect, have been uncovered. The following points detailed in Chapter 4 are particularly noteworthy:

i. The 180 mm profiles of the jack arch floor are bolted to each other on 300 mm main beams. Thus, the profiles were interlocked, enabling the jack arched flooring to function in two directions.

ii. I 180 profiles sit freely on I 300 profiles, but brick is filling between them.

iii. I 180 profiles continue inside the wall until the facade cladding stone (it sits within the wall for approximately 40 cm) and are fixed into the brick wall with a sword. at the end.

iv. The 140 mm profiles of the Jack arch floor are joined end-to-end without any connecting element over the main iron beams.

v. The 140 mm profiles located within the wall are connected by bolts to each. other.

vi. The 140 mm profiles rest freely on the 300 mm iron beams, but brick infill is present between them.

vii. The 140 mm profiles sit on two continuous iron elements, each measuring 60x10 mm, that extend along the wall line inside the wall.

Archival research reveals that structural reinforcement efforts had been made in certain parts of the building before this time. Notably, these reinforced areas predominantly correspond to sections where large spans were attempted. In the 1st phase, columns were placed closer to the walls to create larger spans, but the building was later reinforced in 1983 through the addition of extra girders. In the third phase, columns were removed in areas where large spans were needed, and the number of girders was increased. However, this appears to have been insufficient, as most of the interventions occurred in these areas. In Room 20, unlike the rest of the building, four I-beams were used instead of two. However, the room required reinforcement in 2007 due to a sagging floor.

CHAPTER 6

CONCLUSION

The 19th century marked significant social, economic, and technological transformations for the Ottoman Empire. It was also a time when a series of disasters tested the resilience of societies and structures alike. During the *Tanzimat* Period, the Ottoman Empire underwent significant changes toward Westernization, which not only reshaped urban spaces but also construction practices through the introduction of Western architectural styles and materials such as utilizing imported iron for structural elements. Istanbul Archaeological Museum Building (IAM) is an excellent example illustrating the changes in construction practices. Over the 133 years since its groundbreaking and throughout the 20-year (1887-1907) construction period, numerous events, such as wars, crises, epidemics, fires, and earthquakes, have left their mark on the Museum building. In this sense, the museum has evolved into a repository of knowledge, shaping and reflecting the collective memory, a phenomenon characteristic of all historical structures. Thus, studying such a historical and public building is essential for understanding how local and global dynamics converge at certain points and diverge at others. Merely knowing the construction techniques of historic buildings is insufficient for their conservation; a critical assessment of these techniques is required to identify any weaknesses.

This dissertation focuses primarily on the Istanbul Archaeological Museum Building, designed by Alexandre Vallaury, as a case study to explore how late 19th-century Ottoman architecture integrated technological innovations from the West, while also taking local factors into account. The museum's construction, its response to the 1894 Istanbul earthquake, and the subsequent restoration efforts provide valuable insights into the architectural transformations of the era.

To understand the impact of 19^{th} century construction practices on the IAM building, this dissertation first explores the transformation of Istanbul's urban fabric during the Tanzimat period, highlighting how monumental public buildings on the Historical Peninsula, such as IAM building, contributed to the city's modernization efforts. These buildings incorporated modern materials and construction techniques, often using neoclassical designs that emphasized symmetry, simplicity, and the use of imported materials such as stone, brick, wooden parquet, and steel. Unlike other monumental structures of the time, the IAM building did not directly influence the urban landscape due to its secluded location within the Topkapı Palace courtyard. The museum's modest initial scale reflected the state's economic constraints, but it gradually expanded, ultimately achieving the grandeur characteristic of 19^{th} century public buildings, while maintaining a consistent architectural language.

This study also highlights the influence of local factors, including legal regulations, fires, and earthquakes, on Istanbul's architectural practices. Legal measures prioritized fire prevention, promoting the use of fire-resistant materials like iron and stone. However, despite the damage caused by the 1894 earthquake, no significant legal reforms followed, especially in contrast to the public concern over fire hazards. Repairs and reconstruction began soon after, but no substantial legal measures were introduced in direct response to the earthquake. The 1882 Building Law (*Ebniye Kanunu*) remained in effect until 1933, indicating that the earthquake was not deemed sufficient to warrant a fundamental policy change.

Following the 1894 earthquake, which occurred 128 years after the last major earthquake in 1766, Sultan Abdulhamid II invited observatory directors to Istanbul and supported a scientific investigation of the event. Although this demonstrated a value for scientific approaches, the legal framework did not evolve accordingly. This raises an important question for further research: While fires were perceived as something controllable, was the absence of legal measures in response to earthquakes—like the one in 1766—due to a perception of earthquakes as an uncontrollable force? Alternatively, did European-inspired construction technologies and bureaucratic systems perhaps overlook earthquakes because they were not a primary concern in Europe at the time?

Focusing on the 1894 earthquake's impact on the IAM building and its surroundings, this study presents some intriguing findings. In the cost estimate for the *Sanayi-i Nefise Mektebi* after the earthquake (reference), it is noted that while the *Sanayi-i Nefise Mektebi* suffered significant damage, the *Tiled Kiosk* (Çinili Köşk) and the *Müze-i Hümayun* required only minor repairs, such as plastering and whitewashing walls, repairing ceiling cracks, restoring decorative ceiling paintwork, and replacing broken roof tiles. In contrast, the recommended repairs for the *Sanayi-i Nefise Mektebi* were more extensive, including reinforcing door and window lintels with iron profiles, constructing a retaining wall with partial new stone, and installing a buttress at the front, with joints filled with cement mortar. As understand from the repairs, movement during the Earthquake in this retaining wall may have threatened the superstructure, causing the significant damage to the *Sanayi-i Nefise Mektebi.* When comparing the estimated cost of repairing the buttresses to the total repair estimate, it becomes evident that the buttress work accounted for nearly half of the total cost. This discrepancy in damage levels highlights why the *Müze-i Hümayun*, constructed by the same architect, using similar techniques, and located in the same courtyard, was not as severely affected as the *Sanayi-i Nefise Mektebi*.

This study has demonstrated that the 1894 earthquake not only provided Alexandre Vallaury with the opportunity to test the resilience of the buildings he designed (*Sanayi-I Nefise Mektebi* and *Müze-I Hümayun*) but also allowed him to use the feedback gained from the earthquake to reinforce the subsequent phases he planned. Additionally, this thesis has shown that the most significant impact of the earthquake was the architect's effort to securely anchor the new phases of the building onto the underlying infrastructure remains.

In the scope of this dissertation, the construction history of the museum building through official correspondences found in the Republic of Türkiye Presidential State Archives uncovered new information. The Sultan's attitude was notably positive, as the documents reveal that permissions and financial resources were granted in a short period to support the museum's development. This approach was consistently followed throughout each phase of the museum's construction. These archival materials also provide detailed insights into the architectural characteristics, the architect, and the budgetary matters related to the project.

This dissertation proved the existence of two Byzantine cisterns beneath the ground level of the third phase of the IAM building by the official correspondences found in the Republic of Türkiye Presidential State Archives and the IAM Archive, along with original drawings supervised by Vallaury. These cisterns, depicted in Vallaury's drawings, were validated through Ottoman archival documents, corroborated by an on-site discovery of a hole, and further confirmed through georadar studies, providing scientific evidence of their existence. The primary goal of the documentation, which includes several site sections overseen by Vallaury, was to ensure the building was situated on stable ground. Additionally, the study found that the site interventions caused minimal damage to the underlying ruins while securely positioning the building. Vallaury appears to have designed the story heights, floor plans, and structural elements to accommodate the underlying remains. Moreover, because of the discovery of the cistern in the courtyard led to design alterations during the second and third phases of construction, resulting in the museum's expansion and the addition of a non-functional entrance. Furthermore, the research highlights a reciprocal relationship between the museum's superstructure and its underground structures (Üstoğlu Coşkun & Şahin Güçhan, 2024). This study claims that there is a the reciprocal relationship between the IAM building and the Byzantine remains.

This study highlights the critical importance of conducting comprehensive historical research from diverse sources, detailing all interventions a historic structure has undergone, before undertaking restoration efforts. Analyzing the construction techniques objectively and critically, in light of historical data and the scientific findings from on-site studies, is essential for making informed restoration decisions.

This dissertation provides an overview of the intervention history of the IAM building to create a comprehensive understanding of its development. To accurately analyze the key interventions throughout its history, the study divides this history into seven sections. The research has determined that, at certain times, the museum building underwent more extensive and radical interventions, while at other times, its continuity was maintained through smaller-scale modifications. The preservation history of the building offers valuable insights, with each intervention or addition made in response to specific needs. By identifying the era and technology associated with these modifications, this study found a deeper understanding of the building's strengths and weaknesses, as well as the restoration approaches and political contexts of each period.

This dissertation concentrated directly to the structural system and construction techniques of Istanbul archaeological museums' classical building between 1887-1907. This study offers detailed insights into the structural system of a late 19th-century building, a topic that is rarely accessible in the literature, serving as a valuable example for other buildings constructed using similar techniques during that period. Additionally, by thoroughly examining the foundation system, the vertical and lateral load-bearing system, it offers a valuable opportunity to compare the construction techniques used in the building's different phases. Although the structure appears as a single unified building from the façade, its 20-year construction process reveals that, from a technical perspective, the implementation should be viewed as three distinct phases.

This thesis examines the local and imported construction materials used in the building, alongside the site and architectural characteristics of the museum. The entire exterior front facade was clad in stone, specifically Marseille stone, as detailed in Chapter 3. These stones were secured both to one another and to the inner brick walls using clamps and tenons, a method that will be further explained. Using Marseille stone in the building is an interesting point and considered that even the stone was imported from Marseille, despite the challenges of the time, reveals that this practice was common during the period and that the necessary infrastructure, networks, and transportation systems had been established to support it. This dissertation explored why stone was sourced from Marseille rather than from local quarries. It is concluded that factors such as material shortages due to extensive construction activity, extraordinary circumstances affecting material prices, the demand for new technologies, the desire to use high-quality and distinctive materials in prestigious buildings, and the influence of architects and mediators (commissioners) may have played a role in the preference for imported construction materials in Ottoman territories.

On the other hand, this thesis challenges the common assumption that cement tiles (*karosiman*) were imported into the country through Levantine connections, revealing instead that the tiles used in the museum during the 19th century were locally produced. The trace of cement tiles to "*Kalafat Yeri,"* as noted on the screed beneath a sarcophagus, may initially seem confusing. However, an analysis of the connection between the tiles and *Kalafat Yeri* helps clarify this relationship. Charles Edward Goad's 1905 *Constantinople Insurance Maps* indicate that *Kalafat Yeri* extended from Yeni Kapı Street in a west-east direction along the coast, reaching *Kürkçü Kapı*. This area was home to foundries and iron workshops, which further strengthens the connection since floor and wall tiles were manufactured by pouring clay dough into a metal frame and compressing it under a press. Considering the production technology of cement tiles, the presence of these industrial facilities in *Kalafat Yeri* likely played a key role in their local manufacture.

This study shows that throughout the construction phases (the 1st phase from 1887-1891, the 2nd phase from 1899-1903, and the 3rd phase from 1903-1907), the basic construction system of the IAM building remained consistent while some details changed from phase to phase**.** The vertical structural components of the museum primarily utilized a combination of stone and brick, or brick alone. The structural integrity of the façade was consistently maintained throughout the construction process. However, closer examination reveals notable differences between the construction phases. This dissertation outlines the changes in construction techniques that occurred during the building process of the IAM, as well as their causes and effects, based on information presented in previous chapters. The analysis focuses on the primary structural elements where these changes were identified. These changes are categorized under the following headings: Changes in the Foundation System, Changes in Masonry Wall Techniques, Changes in Column Sizes and Spacing, and Changes in Jack-Arched Flooring with Iron Profiles.

In the case of the Archaeological Museum building, it was observed that the areas requiring the most repair were those with large spans. During the second phase, the architect abandoned the column-free wide spans used in the first phase, opting for a much denser column arrangement in these sections. Although this approach continued into the third phase, the architect chose to include a column-free span in only one hall, taking into account both the size of the exhibits and the visitor experience. Despite periodic interventions, these areas remain at higher risk of damage in the event of an earthquake if not properly analyzed. The damage sustained by the building during the 1894 earthquake offers valuable insights into its vulnerable points and overall seismic resilience.

At first glance, the use of brick infill within the iron profiles might seem confusing, given its apparent lack of contribution to the load-bearing system. However, the role of these bricks is far from insignificant. Along with wooden blocks attached to all surfaces of the iron profiles, the bricks provide the necessary surfaces for installing wooden cornices, which are a crucial element of the interior decoration, and for creating smooth, hand-decorated surfaces using the Bağdadi technique. While the wooden blocks are loosely placed along the sides of the iron beams, the blocks on the lower surface are directly affixed to the bricks between the beams using nails. This technique allowed for the creation of geometric surfaces with desired indentations and projections, seamlessly integrating modern materials with traditional decorative methods. The result was a structure that appeared traditional and neoclassical from the outside, but modern in its underlying construction. However, the fact that the structural system remained concealed often led to misinterpretations of the building's design.

This study highlights the importance of critically and objectively analyzing historical buildings from all perspectives. It is essential to move beyond the assumption that every original feature is flawless and to approach each element with a healthy degree of skepticism. In addition to evaluating the artistic and architectural features of a historical building, a comparative analysis of its structural system and construction techniques, through various methods and on-site scientific investigations, ensures that past mistakes are not repeated and enhances the building's seismic resilience. This study proposes a method for conducting a critical assessment of historical structures, emphasizing key factors that must be considered.

This thesis shows that when preparing restoration projects for historical buildings like the IAM Museum, which were constructed over an extended period, it is not always appropriate to make generalized assumptions about the entire structure. In the case of the IAM building, it was found that architect Vallaury made modifications to the load-bearing wall system during each construction phase. As a result, wall thicknesses and materials varied across different sections of the building. While accurate data is often gathered only after restoration begins, this approach can extend the project timeline and require multiple revisions to the restoration and structural plans. Conducting comprehensive research and on-site investigations before construction starts would shorten the project duration and lead to more realistic and accurate planning.

In conclusion, due to the limited information in the literature regarding the architectural and construction techniques of historical buildings built in late 19th-century Istanbul, this thesis focuses on the building's construction years to explore and shed light on its hidden construction methods. Since the building was constructed in multiple phases, analyzing the construction details of each period is vital for understanding the technical knowledge of the time, assessing its long-term performance, and evaluating its connection to seismic activity.

This study focuses mainly on the IAM Building. However, the Istanbul Archaeological Museums complex also includes structures from different periods, such as the Tiled Kiosk from the Fatih era, the Sanayi-i Nefise Building constructed in the 19th century, and the additional building constructed during the 1960s-80s. Each of these structures presents distinct preservation challenges. Similar studies should be conducted for each building within the same courtyard. Moreover, the second construction phase of the IAM building had not undergone comprehensive restoration during the preparation of this dissertation, which made it impossible to utilize first-hand data from the site. In the future, it will be essential to carry out a study with the same level of detail and scope for this section. It is also important to test the data presented in this study against new data that may emerge from the field. Moreover, given the importance of interdisciplinary work in buildings of this nature, future studies based on scientific calculations and models prepared by teams, particularly involving civil engineers, will make significant contributions to preserving historic structures and ensuring their transfer to future generations.

REFERENCES

Acar, D., & Mazlum, D. (2016). Timber-framed Houses Built for the Court Members after the 1894 Earthquake in Istanbul: Rationalization of Construction Techniques. *International Journal of Architectural Heritage*, *10*(5), 604–619. https://doi.org/10.1080/15583058.2015.1045995

Akpolat, M. S. (1991). *Fransız Kökenli Levanten Mimar Alexandre Vallaury* [Unpublished PhD Dissertation]. Hacettepe Universitesi.

Akyürek, G. (2011). *Tanzimat Döneminde Mimarlık, Bilgi ve İktidar*. Tarih Vakfı Yurt Yayınları kontrol.

Ali Talat. (2022). *Kargir İnşaat ve Eşgali; Transkripsiyon, Günümüz Türkçesi ile Çeviri ve Değerlendirme* (D. Acar, A. Çakar, A. Han, & R. Şengün, Eds.; Vol. 1). Koruma Akademisi Yayınları.

Altan, B. (2007). *Arşiv Belgeleri Işiğinda Hezaren Han'in Yapisal Çözümlemesi* [Unpublished Master Thesis]. Istanbul Teknik Üniversitesi.

Altuğ, K. (2013). *İstanbul'da Bizans Dönemi Sarnıçlarının Mimari Özellikleri Ve Kentin Tarihsel Topografyasındaki Dağılımı* [Unpublished PhD Thesis]. İstanbul Teknik Universitesi.

Ambraseys, N. N. . (2009). *Earthquakes in the Mediterranean and Middle East : a multidisciplinary study of seismicity up to 1900*. Cambridge University Press.

Ar, B. (2013). *Osmanli Döneminde Aya Irini Ve Yakin Çevresi* [Unpublished PhD Dissertation]. İstanbul Teknik Üniversitesi.

Arseven, C. E. (2017). *Osmanlı Dönemi Mimarlık Sözlüğü, "Istılâhât-ı Mi'mariyye"* . Kaknüs Yayınları.

Ayverdi, E. H. (1958). *19. Asırda İstanbul Haritası*. İstanbul Fethi Derneği, İstanbul Enstitüsü Yayınları.

Bahrani, Z., Çelik, Z., & Eldem, E. (Eds.). (2011). *Scramble for the past: A Story of Archaeology in the Ottoman Empire, 1753–1914*. SALT.

Barkey, K. (2008). *Empire of difference: The Ottomans in comparative perspective*. Cambridge University Press.

Bassett, S. (2004). *The Urban Image of Late Antique Constantinople*. Cambridge University Press. http://www.cambridge.org

Batur, A. (1993). Arkeoloji Müzeleri Binası. In *Dünden Bugüne İstanbul Ansiklopedisi: Vol. Cilt 1* (pp. 310–311). Kültür Bakanlığı ve Tarih Vakfı.

Berkant, C. (2005). *İzmirli Bir Mimar: Raymond Pere* [Unpublished Master Thesis]. Ege Universitesi.

Boriani, M. (2007). Between Westernization and Orientalism: Italian Architects and Restoreres in istanbul from the 19th Century to the beginning of the 20th. *Architecture*, *1*, 71–91.

Çelik, G. (2007). *İstanbul Tarihi Yarimadasi'nda Tanzimat Dönemi İdari Yapilari* [Unpublished PhD Dissertation]. İstanbul Teknik Üniversitesi.

Çelik, Z. (1993). *The Remaking of Istanbul: portrait of an Ottoman city in the nineteenth century* (Vol. 2). University of California Press.

Çelik, Z. (2016). *About Antiquities: Politics of Archaeology in the Ottoman Empire*. University of Texas Press.

Cezar, M. (1971). *Sanatta Batıya Açılış ve Osman Hamdi Bey.* . Türkiye İş Bankası Kültür Yayınları.

Çiftçi, A. (2004). *19. Yüzyilda Osmanli Devleti'nde Askeri Mimari Ve İstabul'da İnşa Edilen Askeri Yapilar* [(Unpublished PhD Dissertation).]. Yıldız Teknik Üniversitesi.

Çiftçi, A., & Yergün, U. (2010). Brick as a construction material in the modernization process of the Ottoman architecture. *Advanced Materials Research*, *133–134*, 107–112.

Çokuğraş, I., & Gençer, C. İ. (2016). Urban regulations in 18th century Istanbul: Natural disasters and public dispute. *A/Z ITU Journal of the Faculty of Architecture*, *13*(1), 183–193. https://doi.org/10.5505/itujfa.2016.54154

Dağdelen, İ. (Ed.). (2006). *Alman Mavileri 1913-1914 I. Dünya Savaşı Öncesi İstanbul Haritaları: Vol. II*. İstanbul Büyükşehir Belediyesi Kütüphane ve Müzeler Müdürlüğü.

Davison, R. H. (2016). Decline and Reform to 1856. In *Reform in the Ottoman Empire, 1856-1876* (pp. 36–51). https://doi.org/10.1515/9781400878765-003

Denel, S. (1982). *Batılılaşma Sürecinde İstanbul'da Tasarım ve Dış Mekanlarda Değişim ve Nedenleri*. Orta Doğu Teknik Üniversitesi.

Deringil, S. (1999). The Well Protected Domains: Ideology and the Legitimation of Power in the Ottoman Empire 1876-1909. In *Osmanli Arastirmalari* (Vol. 7). https://osmanliarastirmalari.isam.org.tr/dergi/article/download/718/740

Dünden Bugüne İstanbul Ansiklopedisi. (1993). Türk Tarih Vakfı Yayınları.

Ekinci, K. (2019). Darülaceze Keşf-İ Sâni Defteri. *Turkish Studies - Historical Analysis*, *Volume 14 Issue 3*(Volume 14 Issue 3), 497–510. https://doi.org/10.29228/turkishstudies.36953

Eldem, E. (2010). Osman Hamdi Bey Sözlüğü. T.C. Kültür ve Turizm Bakanlığı. https://cir.nii.ac.jp/crid/1130580284819273858

Eldem, E. (2011). From Blissful Indifference to Anguished Concern: Ottoman Perception of Antiquities, 1799–1869. In Z. Bahrani, Z. Çelik, & E. Eldem (Eds.), *In Scramble for the Past: A Story of Archaeology in the Ottoman Empire, 1753–1914* (pp. 281–329). Salt.

Erarslan, A. (2022). An Overview of The Neoclassical Style in Ottoman Architecture. In B. Ranguelov, R. Efe, & S. Çelik Uğuz (Eds.), *Academic Researches and Studies in Sciences*. St. Kliment Ohridsky University Press.

Erdal, Y. (2023). *İstanbul Konut Mimarliğinda Ahşap-Kâgir Yapim Sistemlerinin Seçiminde Belirleyici Etkenler (1800-1930)* [Yayımlanmamış Doktora Tezi]. İstanbul Teknik Üniversitesi.

Ergin, O. N. (1995). *Mecelle-i Umur-ı Belediyye* (Vol. 21). İstanbul Büyükşehir Belediyesi Kültür İşleri Daire Başkanlığı Yayınları.

Ersoy, A. (2000). *On the Sources of the "Ottoman Renaissance:" Architectural Revival and its Discourse During the Abdülaziz Era (1861-76)* [Unpublished PhD Dissertation]. Harvard University.

Eyice, S. (1985). Arkeoloji Müzesi ve Kuruluşu. In *Tanzimat'tan Cumhuriyet'e Türkiye ansiklopedisi 6* (pp. 1596–1603).

Finkel, C. F., & Ambraseys, N. N. (1997). The Marmara Sea Earthquake of 10 July 1894 and Its Effects on Historic Buildings. *Anatolia Moderna - Yeni Anadolu*, *7*(1). https://doi.org/10.3406/anatm.1997.948

Fıratlı, N. (1969). *Rapor. İstanbul Arkeoloji Müzeleri.*

Güçhan Şahin, N., & Kurul, E. (2009). A history of the development of conservation measures in Turkey: from the mid 19th century until 2004. *Metu Journal of the Faculty of Architecture*, *26*(2), 19–44. https://doi.org/10.4305/METU.JFA.2009.2.2

Gül, M., & Lamb, R. (2004). Mapping, regularizing and modernizing Ottoman Istanbul: Aspects of the genesis of the 1839 development policy. *Urban History*, *31*(3), 420–436. https://doi.org/10.1017/S0963926805002634

Gürol Öngören, P. (2012). *Displaying Cultural Heritage, Defining Collective Identity: Museums From The Late Ottoman Empire To The Early Turkish Republic* [Unpublished Phd Thesis]. Middle East Technical University.

Gürol, P. (2008). Conflicting visualities on display: national museums from the Ottoman empire to the Turkish republic. . *Comparing: National Museums; Territories; Nation-Building and Change. NaMu IV; Linköping University; Norrköping; Sweden 18-20 February*, 121–127.

Hamadeh, S. (2002). *Splash and Spectacle: The Obsession with Fountains in Eighteenth-Century Istanbul*. *19*, 123–148.

Hamadeh, S. (2010). *Şehr-i Sefa: 18. Yüzyılda İstanbul*. İletişim Yayınları.

İgüs, E. (2014). XVIII. Yüzyıl İstanbul'unda Fiziki Çevre, Meydan Çeşmeleri ve Çeşme Meydanlarının Etrafında Oluşan İstanbul Meydanları. In & A. A. F. Emecen (Ed.), *II. Uluslararası Osmanlı İstanbul'u Sempozyumu Bildiriler Kitabı* (pp. 675–692). 19 Mayıs Üniversitesi Yayınları.

İstanbul Arkeoloji Müzeleri Yıllığı: Vol. No:4. (1950). İstanbul Arkeoloji Müzeleri Yayınları.

İstanbul Arkeoloji Müzeleri Yıllığı: Vol. No:7. (1956). İstanbul Arkeoloji Müzeleri Yayınları.

İstanbul Arkeoloji Müzeleri Yıllığı: Vol. No:8. (1958). İstanbul Arkeoloji Müzeleri Yayınevi.

Kafesçioğlu, Ç. (2009). *Constantinopolis/İstanbul: Cultural Encounter, Imperial Vision, and the Construction of the Ottoman Capital*. The Pennsylvania State University Press.

Kaya, Ş. (2017). XIX. Yüzyilda İstanbul'da Tuğla Üretimi Ve Çobançeşme Tuğla Fabrikasi. *The Journal of Academic Social Sciences*, *50*(50), 165–188. https://doi.org/10.16992/asos.12422

Kayaalp, A. (2019). Antoine Melling: Hayati, Eserleri Ve "Voyage Pittoresque De Constantinople Et Des Rives Du Bosphore" Üzerine Bir Değerlendirme.

Turkish Studies - Historical Analysis, *Volume 14 Issue 2*(Volume 14 Issue 2), 233–288. https://doi.org/10.29228/turkishstudies.22936

Kızıltan, Z., & Saner, T. (2011). *İstanbul'da Arkeoloji İstanbul Arkeoloji Müzeleri Arşiv Belgeleri (1970-2010): Mirası ve Kültür Ekonomisi Envanteri 2010*. İstanbul Bilgi Üniversitesi Yayınları.

Koç, H. (1993). Bir Belge Işığında Ibrahim Edhem Paşa ve Ailesi Hakkında Hatırlamalar. *Osman Hamdi Bey ve Dönemi: Sempozyumu, 17-18 Aralık 1992*, 27–41.

Koçarslan, D. (2018). *Karosimanın Fiziksel ve Mekanik Özelliklerinin Terrazo Karolarla Karşlaştırmalı Olarak İncelenmesi* [Unpublished Master Thesis]. İstanbul Teknik Üniversitesi.

Kuban, D. (1973). *Boğaziçi* (Vol. 3). Türkiye turing Otomobil Belleteni.

Kuban, D. (2010). *İstanbul, bir kent tarihi: Bizantion, Konstantinopolis*. Türkiye İş Bankası Kültür Yayınları.

Maheri, M. R., Pourfallah, S., & Azarm, R. (2012). Seismic retrofitting methods for the jack arch masonry slabs. *Engineering Structures*, *36*, 49–60. https://doi.org/10.1016/j.engstruct.2011.11.018

Mango, C. (1980). *Bizans Yeni Roma İmparatorluğu*. Yapı Kredi Yayınları.

Mansel, A. M. (2013). Halil Edhem ve İstanbul Müzeleri. In *Halil Edhem Hatıra Kitabı: Vols. I–II*. Türk Tarih Kurumu.

Mazlum, D. (2011). *1766 İstanbul Depremi Belgeler Işığında Yapı Onarımları*. İstanbul Araştırmalrı Enstitüsü Yayınları.

Mazlum, D. (2013). Osmanli Arşiv BelgeleriIşığında 18. Yüzyılda Osmanlı Mimarlığında Avrupa Kökenli Malzeme Kullanımı. *14th International Congress of Turkish Art,19-21September 2011*, 503–507.

Müller-Wiener, W. (2016). *İstanbul'un Tarihsel Topografyası*. Yapı Kredi Yayınları.

Necipoğlu, G. (2014). *Architecture, Ceremonial, and Power. The Topkapi Palace in the Fifteenth and Sixteenth Centuries*. Yapı Kredi Yayınları.

Necipoğlu, G. (2021). Volatile urban landscapes between mythical space and time. In S. Hamadeh & Ç. Kafescioğlu (Eds.), *A Companion to Early Modern Istanbul* (Vol. 26, pp. 197–232). Brill.

Ogan, A. (1937). *Hamdi Beyin Ölümünün Yirmi Beşinci Yıldönümü: Vol. No:2*. İstanbul Arkeoloji Müzeleri Yayınları.

Ogan, A. (1947). *Türk Müzeciği'nin 100. Yıldönümü*. Türkiye Turing ve Otomobil Kurumu.

Ortaylı, İ. (1983). *İmparatorluğun En Uzun Yüzyılı*. Hil Yayınları.

Osman Nuri Bin Şevki. (1908). *Fenn-i İnşaat*. Mekteb-i Harbiye Matbaası.

Özcan, K. (2011). Tanzimat'in Kent Reformlari: Türk İmar Sisteminin Kuruluş Sürecinde Erken Plânlama Deneyimleri (1839-1908). *Osmanlı Bilimi Araştırmaları*, *7*(2), 149–180.

Özdoğan, M. (2010). *Tarih Öncesi Dönemlerin İstanbul'u. Bizantion'dan İstanbul'a Bir Başkentin 8000 Yılı.* Sakıp Sabancı Müzesi.

Özkaya, B. T. (2014). The British Museum, Müze-i Hümâyun and the travelling "Greek ideal" in the nineteenth century. *New Perspectives on Turkey*, *50*, 9–28.

Özkılıç, S. K. (2015). *1894 Depreminin İstanbul üzerindeki etkileri (Deprem sonrası imar faaliyetleri)*. Türkiye İş Bankası Kültür Yayınları.

Özkurt, M. Ç. (2023). 1894 İstanbul Depreminden Etkilenen Edirnekapı Mihrimah Sultan Camii Hakkında Mimar Alexandre Vallaury'nin Raporu. *Uluslararası Beşeri Bilimler ve Sanat Dergisi*.

Pasinli, A. (1993). Arkeoloji Müzeleri. In *Dünden Bugüne İstanbul Ansiklopedisi* (Vol. Cilt1, pp. 307–310). Kültür Bakanlığı ve Tarih Vakfı.

Peker, A. U. (2011). The Assessment of European Architecture by Ottoman Ambassadors of the Eighteenth Century. In B. Schmidt-Haberkamp (Ed.), *In Europa und die Türkei im 18. Jahrhundert/Europe and Turkey in the Eighteenth Century.* . Bonn University Press.

Rifa'at A. Abou-El-Haj. (1991). *Formation of the Modern State: The Ottoman Empire Sixteenth to Eighteenth Centuries*. State University of New York Press.

Şahin Güçhan, N. (2007). Observations on earthquake resistance of traditional timber-framed houses in Turkey. *Building and Environment*, *42*(2), 840–851. https://doi.org/10.1016/j.buildenv.2005.09.027

Say, S. K. (2014). *Beaux Arts kökenli bir mimar olarak Alexandre Vallaury'nin meslek pratiği ve eğitimciliği açısından kariyerinin irdelenmesi* [Unpublished PHD Thesis]. İstanbul Teknik Üniversitesi.

Semiz, H. N. (2014). *İstanbul Haliç Ve Marmara Surlari Belgeleme Çalişmalari, Tarihi Ve Peyzaj Değerlerinin Korunmasina Yönelik Öneriler* [Unpublished PhD Dissertation]. İstanbul Teknik Üniversitesi.

Şengün, R. (2015). *Darphane-i Amire'nin Demir Üst Örtü Sistemlerinin İki Yapi Üzerinden İncelenmesi Ve Koruma Önerileri* [Unpublished Master Thesis]. İstanbul Teknik Üniversitesi.

Şenyurt, O. (2011). *Osmanlı mimarlık örgütlenmesinde değişim ve dönüşüm*. Doğu Kütüphanesi.

Sezer, H. (1997). 1894 İstanbul depremi hakkında bir rapor üzerine inceleme. *Tarih Araştırmaları Dergisi*, *16*, 101130.

Shaw, W. M. K. (2000). Islamic Arts in the Ottoman Imperial Museum, 1889-1923. *Ars Orientalis*, *30*.

Shaw, W. M. K. (2003). *Possessors and Possessed: Museums, Archaeology, and the Visualization of History in the Late Ottoman Empire*. University of California Press.

Shaw, W. M. K. (2011). From Mausoleum to Museum: Resurrecting Antiquity for Ottoman Modernity. In Z. Bahrani, Z. Çelik, & E. Eldem (Eds.), *In Scramble for the Past: A Story of Archaeology in the Ottoman Empire, 1753–1914* (pp. 423–441). Salt.

Stearns, P. N. (1998). The Industrial Revolution in World History. In *The Industrial Revolution in World History*. Westview Press. https://doi.org/10.4324/9781003050186

Tankut, G. (1975). Urban Transformation in the Eighteenth Century Ottoman City. *METU Journal of the Faculty of Architecture*, 153–178.

Tanyeli, G. (2017). *Hiçbir Üstad Böyle Kar Etmemişdir: Osmanlı İnşaat Teknolojisi Tarihi.* Akın Nalça Kitapları.

Tanyeli, U. (1992). Transfer of Western Urban Planning Concepts and Techniques to Turkey (1718-1840). In *Transfer of Modern Science & Technology to the Muslim* (pp. 345–363). Boğaziçi Üniversitesi.

Tezcan, H. (1989). *Topkapı Sarayı ve Çevresinin Bizans Devri Arkeolojisi*. Türkiye Turing ve Otomobil Kurumu.

The Venice Charter. (1964). *International Charter for the Conservation and Restoration Of Monuments And Sites*.

Uçar, A. (2013). *Süsleme Tasarımı Açısından İzmir Konutlarında Döşeme Karoları* [Unpublished Phd Dissertation]. Ege Üniversitesi.

Ürekli, F. (1999). *Istanbulda 1894 Depremi*. İletişim Yayınları.

Üstoğlu Coşkun, D., & Şahin Güçhan, N. (2024). Building an Imperial Museum on Byzantine Remains: The Foundation System Built for Istanbul Archaeological

Museum by Vallaury Between 1899-1907. *International Journal of Architectural Heritage*, *18*(10).

Uygun, S. (2015a). French-Armenian Relations Around A French Steamship Navigation Company. *Gazi Akademik Bakış*, *16*, 121–146.

Uygun, S. (2015b). Messageries Maritimes Vapur Şirketi'nin İstanbul'un Yolcu Ve Eşya Taşimaciliğindaki Yeri. *BüyükİstanbulTarihi*, *7*, 492–501.

Vasiliev, Alexander. A. (1964). *History of the Byzantine Empire, 324–1453: Vol. II*. Univ of Wisconsin Press.

Yergün, U. (2002). *Batililaşma Dönemi Mimarisinde Yapim Teknolojisindeki Değişim ve Gelişim* [Unpublished PhD Dissertation]. Yıldız Teknik Üniversitesi.

Yergün, U., & Çiftçi, A. (2008). Imported Construction Materials and Techniques in 19th Century Ottoman Architecture. In D. D'Ayala & E. Fodde (Eds.), *Structural Analysis of Historic Construction*. CRC Press.

References of Presidency of the Republic of Türkiye Directorate of State's Documents

Document 1.05: Presidency of the Republic of Türkiye Directorate of State Archives "İ_MMS_00093_003911_003" (6 Zilkade 1304/ July 27, 1887)

Document 1.06: Presidency of the Republic of Türkiye Directorate of State Archives "İ_MMS_00093_003911_004" (21 Zilkade 1304/ Agust 11, 1887)

Document 1.07: Presidency of the Republic of Türkiye Directorate of State Archives "İ_MMS_00093_003911_005" (16 Zilhicce 1304 / September 5, 1887)

Document 1.10: Presidency of the Republic of Türkiye Directorate of State Archives "MF_MKT_00098_00078_001" (18 Receb 1305/March 31, 1888)

Document 1.11: Presidency of the Republic of Türkiye Directorate of State Archives "MF_MKT_00098_00078_002" (24 Şaban 1305 /May 6, 1888)

Document 1.12: Presidency of the Republic of Türkiye Directorate of State Archives "MF_MKT__00099_00056_001" (20 Şevval 1305/June 30, 1888)

Document 1.13: Presidency of the Republic of Türkiye Directorate of State Archives "MF_MKT__00099_00061_001" (20 Şevval sene 1305/June 30, 1888)

Document 1.14: Presidency of the Republic of Türkiye Directorate of State Archives "MF_MKT_00101_00045_001_001" (22 Zilhicce 1305/Agust 30, 1888)

Document 1.15: Presidency of the Republic of Türkiye Directorate of State Archives. "İ_ŞD_00095_005683_001_001" (29 Cumadelahıre 1306/March 2, 1889)

Document 1.16: Presidency of the Republic of Türkiye Directorate of State Archives. "İ_ŞD_00095_005683_002" (1 Şaban 1306 /April 2, 1889)

Document 2.01: Presidency of the Republic of Türkiye Directorate of State Archives. "MF_ MKT_ 00475_ 00045_001_001" 28 *Rebiüahire* 1317/September 5, 1899)

Document 2.02: Presidency of the Republic of Türkiye Directorate of State Archives. "MF_MKT_00475_00045_002_001" (24 C 1315 /November 29, 1899)

Document 2.07: Presidency of the Republic of Türkiye Directorate of State Archives. "MF_MKT_00526_00002_001" (29 Ağustos [1]316 /September 11, 1900)

Document 2.09: Presidency of the Republic of Türkiye Directorate of State Archives. "MF_MKT_00526_00002_002" (18 Cemazeyilevvel 1318 /September 13, 1900)

Document 2.10: Presidency of the Republic of Türkiye Directorate of State Archives. "MF_MKT_00528_00014_001" (11 Cemazeyilahir 1318 /October 6, 1900)

Document 2.13: Presidency of the Republic of Türkiye Directorate of State Archives. "MF_MKT_00528_00014_002" (28 Zilkade 1318 /Mart 19, 1901)

Document 2.17: Presidency of the Republic of Türkiye Directorate of State Archives. "BEO_001770_1326931_001_001" (17 Ramazan 1319 /December 28 1901)

Document 2.18: Presidency of the Republic of Türkiye Directorate of State Archives. "BEO_001770_132693_003" (12 Ramazan 1319 /Aralık 23, 1901)

Document 2.29: Presidency of the Republic of Türkiye Directorate of State Archives. "İ_MF_00008_00024_002_001" (11 Rebiülâhire [1]320 /July 18, 1902)

Document 2.37: Presidency of the Republic of Türkiye Directorate of State Archives. "MF_MKT_00622_00012_007_001" (11 Şaban 1320/November 13, 1902)

Document 2.40: Presidency of the Republic of Türkiye Directorate of State Archives. "MF_MKT_00622_00012_005_001" (13 Mart 1319/March 26, 1903)

Document 2.41: Presidency of the Republic of Türkiye Directorate of State Archives. "İ_MF_00009_00020_002_001-2" (18 Muharrem 1321/April 16, 1903)

Document 2.42: Presidency of the Republic of Türkiye Directorate of State Archives. "BEO_002027_154260_001_001" (4 Safer 1321 /Mai 2, 1903)

Document 2.43: Presidency of the Republic of Türkiye Directorate of State Archives. "İ_MF_00009_00020_001_001" (5 Rabiulevvel 1321/June 1, 1903)

Document 2.44: Presidency of the Republic of Türkiye Directorate of State Archives. "İ_MF_00009_00020_003_001" (29 Rebiulevvel 1321/June 25, 1903)

Document 2.45: Presidency of the Republic of Türkiye Directorate of State Archives. "MF_MKT_00622_00012_008_001" (28 [Haziran sene 1319/July 11, 1903)

Document 2.46: Presidency of the Republic of Türkiye Directorate of State Archives. "MF_MKT_00622_00012_009_001" (28 [Haziran sene 1319/July 11, 1903)

Document 2.47: Presidency of the Republic of Türkiye Directorate of State Archives. "MF_MKT_00622_00012_010_001" (7 Cumadelula sene [1]321 /August 1, 1903)

Document 2.48: Presidency of the Republic of Türkiye Directorate of State Archives. "MF_MKT_00622_00012_011_001" (Fî 3 Ağustos 1319/August 16, 1903)

Document 2.49: Presidency of the Republic of Türkiye Directorate of State Archives. "Y_MTV_00252_00294_001_001" (10 Rebiülevvel [1]320 /November 3, 1903**)**

Document 3.01: Presidency of the Republic of Türkiye Directorate of State Archives. "BEO_002150_161201_001_001" (1 Cumadelâhire 1321/Agust 25, 1903)

Document 3.02: Presidency of the Republic of Türkiye Directorate of State Archives. "BEO_002270_170182_001_001" (21 Zilkade 1321 / February 8, 1904)

Document 3.04: Presidency of the Republic of Türkiye Directorate of State Archives. "BEO_002354_176536_001_001" (8 Rebiülâhir 1322 / June 22, 1904)

Document 3.06: Presidency of the Republic of Türkiye Directorate of State Archives. "DH_MKT_00887_00032_002_002" (7 Cumadelâhire 1322 / August 19, 1904)

Document 3.09: Presidency of the Republic of Türkiye Directorate of State Archives. "MF_MKT_00817_00057_001_001" (25 Ramazan 1322/December 3, 1904)

Document 3.10: Presidency of the Republic of Türkiye Directorate of State Archives. "İ_RSM_00021_00015_001_001" (22 Zilhicce 1322/February 27, 1905)

Document 3.12: Presidency of the Republic of Türkiye Directorate of State Archives. "MF_MKT_00969_00063_002_002" (8 Zilkade 1323/January 4, 1906)

Document 3.13: Presidency of the Republic of Türkiye Directorate of State Archives. "İ_MF_00012_00042_001_001" (4 Cumadelula 1324 / June 26, 1906)

Document 3.15: Presidency of the Republic of Türkiye Directorate of State Archives. "MF_MKT_00958_00016_001_001" (12 Cumadelula [1]324 / July 4, 1906)

Document 3.16: Presidency of the Republic of Türkiye Directorate of State Archives. "İ_RSM_00025_00011_001_001" (16 Cumadelâhire 1324/July 28, 1906)

Document 3.23: "MF_MKT_00969_00063_001_001" (24 Şaban 1324 / October 13, 1906)

Document 3.25: Presidency of the Republic of Türkiye Directorate of State Archives. "MF_MKT_00994_00083_001_001" (9 Rebiülevvel 1325/April 22, 1907)

Document 3.30: Presidency of the Republic of Türkiye Directorate of State Archives. “DH_MKT_02612_00063_001_001” (17 Receb 1325 / August 26, 1907)

Document 3.32: Presidency of the Republic of Türkiye Directorate of State Archives. “MF_MKT_01018_00067_002_002” (20 Sha'ban 1325 / September 28, 1907)

Document 3.50: Presidency of the Republic of Türkiye Directorate of State Archives. “İ_MF_00014_00010_001_001**” (**30 Zilhicce 1325 / February 3, 1908)

Document 3.51: Presidency of the Republic of Türkiye Directorate of State Archives. İ_MF_00014_00010_002_001” (14 Muharrem sene 1326 / February 17, 1908)

Document 4.01: Presidency of the Republic of Türkiye Directorate of State Archives. “MF_MKT_01236_00052_001”, (5 Şevval 1334-August 15, 1916)

Document 4.02: Presidency of the Republic of Türkiye Directorate of State Archives. “MF_MKT_01236_00052_010” (2 Teşrinievvel 1332/October 15, 1916)

Document 4.04: Presidency of the Republic of Türkiye Directorate of State Archives. ”MF_MKT_01236_00052_005” (27 Ağustos 1334/August 27, 1334)

References of Istanbul Archaeological Museums Archive Documents

Istanbul Archaeological Museums Archive. “IAM Archive, 2, G1/R1/2” (n.d.))

Istanbul Archaeological Museums Archive. “IAM Archive, 6, G2/R1/4” (n.d.)

Istanbul Archaeological Museums Archive. “IAM Archive, 19 G2/R3/1” (n.d

Istanbul Archaeological Museums Archive. “IAM Archive, 20, G2/R3/2” (n.d.),

Istanbul Archaeological Museums Archive. “IAM Archive, 27 G2/R3/9” (n.d.)

Istanbul Archaeological Museums Archive. “IAM Archive, 28, G2/R3/10” (n.d.)

Istanbul Archaeological Museums Archive. “IAM Archive, 56, G2/R4/24” (1899)

Istanbul Archaeological Museums Archive. “IAM Archive, 78, G3/R1/5”, (n.d.)

Istanbul Archaeological Museums Archive. “IAM-Archive 79- G3/R1/6” (n.d.)

Istanbul Archaeological Museums Archive. “IAM Archive, 94,G3/R3/5” (n.d.)

(Boa_plk.P.01372).

Istanbul Archaeological Museums Archive. “IAM Archive, 101, G3/R3/12” (n.d.)

Istanbul Archaeological Museums Archive. “IAM Archive, 102, G3/R3/13” (n.d.)

Istanbul Archaeological Museums Archive. “IAM Archive, 105, G3/R3/16” (n.d.)

Istanbul Archaeological Museums Archive. “IAM Archive, 129, G3/R3/15” (n.d.)

Istanbul Archaeological Museums Archive. “IAM Archive, 132, G3/R3/18” (n.d.)

Istanbul Archaeological Museums Archive. “IAM-Archive,Carton:45/2, File 504” (28 Za Rebiüahire [1] 318-March, 19 1901)

Istanbul Archaeological Museums Archive “IAM Archive, Cartoon 45/2, File: 504” (2 Rabiulevvel 1324- April, 26 1906)

Istanbul Archaeological Museums Archive “IAM Archive, Cartoon 45/2, File: 504” (18 Nisan 1322- May, 1 1906)

APPENDICES

A. The list of all Presidency of the Republic of Türkiye Directorate of State Archives Documents transcribed and translated into Turkish by Fuat Recep and studied throughout the thesis

DOCUMENTS RELATED FIRST CONSTRUCTION PHASE OF IAM		
DOC. NO	REFERENCE NO	DATE
Document 1.01	"MF_MKT_00094_00112_001"	(5 Zilkade 1304/July 26, 1887)
Document 1.02	"MF_MKT_00094_00079_001"	(5 Zilkade 1304/July 26, 1887)
Document 1.03	"İ_MMS_00093_003911_001"	(5 Zilkade 1304/ July 26, 1887)
Document 1.04	"İ_MMS_00093_003911_002"	(5 Zilkade 1304/ July 26, 1887)
Document 1.05	"İ_MMS_00093_003911_003"	(6 Zilkade 1304/ July 27, 1887)
Document 1.06	"İ_MMS_00093_003911_004"	(21 Zilkade 1304/ Agust 11, 1887)
Document 1.07	"İ_MMS_00093_003911_005"	(16 Zilhicce 1304 / September 5, 1887)
Document 1.08	"MF_MKT__00096_00085_001"	(3 Cumadelevvel 1305/ January 17, 1888)
Document 1.09	"MF_MKT__00096_00085_002"	(10 Cumadelula 1305 / January 24, 1888)
Document 1.10	"MF_MKT_00098_00078_001"	(18 Receb 1305/March 31, 1888)
Document 1.11	"MF_MKT_00098_00078_002"	(24 Şaban 1305 /May 6, 1888)
Document 1.12	"MF_MKT__00099_00056_001"	(20 Şevval 1305/June 30, 1888)
Document 1.13	"MF_MKT__00099_00061_001"	(20 Şevval sene 1305/June 30, 1888)
Document 1.14	"MF_MKT_00101_00045_001_001"	(22 Zilhicce 1305/Agust 30, 1888)
Document 1.15	"İ_ŞD_00095_005683_001_001"	(29 Cumadelahıre 1306/March 2, 1889)
Document 1.16	"İ_ŞD_00095_005683_002"	(1 Şaban 1306 /April 2, 1889)
Document 1.17	"İ_MMS_0123_005280_002"	(25 Zilkade 1308 /July 2, 1891)
Document 1.18	"MF_MKT__00119_00028_001"	(28 Zilkade 1308/July 5, 1891)
Document 1.19	"İ_DH_01233_096569_001_001"	(22 Zilkade 1308/June 29, 1891)
Document 1.20	"İ_MMS_0123_005280_001_001"	(14 Muharrem 1309/Agust 20, 1891)

Document 1.21	"İ_MMS_0123_005280_003"	(14 Muharrem 1309 /August 20, 1891)
DOCUMENTS RELATED SECOND CONSTRUCTION PHASE OF IAM		
DOC. NO	REFERENCE NO	DATE
Document 2.01	"MF_MKT_00475_00045_001_001"	(28 Rebiüâhire [1]317/September 5, 1899)
Document 2.02	"MF_MKT_00475_00045_002"	(24 C 1315 /November 29, 1899)
Document 2.03	"MF_MKT_00470_00055_002"	(4 Cemazeyilahir 1317/October 9, 1899)
Document 2.04	"MF_MKT_00470_00055_001"	(25 Eylül 1315/ October 7, 1899)
Document 2.05	"BEO_001439_107921_002"	(6 Şevval 1317 /Şubat 7, 1900)
Document 2.06	"BEO_001439_107921_001"	(8 Şevval 1317 /Şubat 9, 1900)
Document 2.07	"MF_MKT_00526_00002_001"	(29 Ağustos [1]316 /September 11, 1900)
Document 2.08	"MF_MKT_00526_00002_001"	(29 Ağustos 1316 /September 11, 1900)
Document 2.09	"MF_MKT_00526_00002_002"	(18 Cemazeyilevvel 1318 /September 13, 1900)
Document 2.10	"MF_MKT_00528_00014_001"	(11 Cemazeyilahir 1318 /October 6, 1900)
Document 2.11	"MF_MKT_00539_00011_001_001"	(20 Receb 1318/November 13, 1900)
Document 2.12	"MF_MKT_00539_00011_002_001"	(25 Kasım 1900)
Document 2.13	"MF_MKT_00528_00014_002"	(28 Zilkade 1318 /Mart 19, 1901)
Document 2.14	"MF_MKT_00528_00014_003"	(7 Zilhicce 1318 /Mart 28, 1901)
Document 2.15	"MF_MKT_00528_00014_004"	(16 Zilhicce 1318/April 6, 1901)
Document 2.16	"BEO_001770_1326931_002"	(17 Mayıs 1317/May 30, 1901)
Document 2.17	"BEO_001770_1326931_001_001"	(17 Ramazan 1319 /December 28 1901)
Document 2.18	"BEO_001770_132693_003"	(12 Ramazan 1319 /Aralık 23, 1901)
Document 2.19	"MF_MKT_00622_00012_003_001"	(20 Muharrem 1320/April 29, 1902)
Document 2.20	"MF_MKT_00622_00012_004_001"	(21 Safer 1320/May 30, 1902)
Document 2.21	"BEO_001794_134501_001_001"	(8 Zilkade [1]319 /Şubat 16, 1902)
Document 2.22	"BEO_001825_136848_001_001"	(30 Zilkade 1319/Mart 10, 1902)
Document 2.23	"MF_MKT_00622_00012_001_001"	(29 Zilhicce 1319/April 8, 1902)
Document 2.24	"MF_MKT_00622_00012_002_001"	(7 Nisan 1318/April 20, 1902)

Document 2.25	"Y_MTV_00231_00059_001_001"	10 Rebiülevvel [1]320 /June 11, 1902
Document 2.26	"İ_MF_00008_00026_002_002-3"	(20 Rebiülevvel sene 1320/June 27, 1902)
Document 2.27	"İ_MF_00008_00017_001_001"	(24 Rebiülevvel [1]320 /July 1, 1902)
Document 2.28	"BEO_001877_140730_001_001"	(26 Rebiülevvel 1320] /July 3, 1902)
Document 2.29	"İ_MF_00008_00024_002_001"	(11 Rebiülâhire [1]320 /July 18, 1902)
Document 2.30	"İ_MF_00008_00026_004_001"	(3 Cumadelula 1320 /August 8, 1902)
Document 2.31	"BEO_002167_162524_003_001"	(4 C [1]320 /August 26, 1902)
Document 2.32	"İ_MF_00008_00026_003_001"	(23 Cemazeyievvel 1320/August 28, 1902)
Document 2.33	"MF_MKT_00622_00061_001_001"	(not dated)
Document 2.34	"İ_MF_00008_00024_001_001"	(25 Cemazeyilevvel [1]320/August 30, 1902)
Document 2.35	"BEO_001911_143284_001_001"	(26 Cumadelula 1320] /August 30, 1902)
Document 2.36	"BEO_001915_143589_001_001"	(4 [Cumadelâhire 1320] /September 8, 1902)
Document 2.37	"MF_MKT_00622_00012_007_001"	(11 Şaban 1320/November 13, 1902)
Document 2.38	"BEO_002167_162524_002_001"	(27 Şevval 1320 /January 26, 1903)
Document 2.39	"BEO_002026_151904_001_001"	(24 [Zilkade 1320] /February 22, 1903)
Document 2.40	"MF_MKT_00622_00012_005_001"	(13 Mart 1319/March 26, 1903)
Document 2.41	"İ_MF_00009_00020_002_001-2"	18 Muharrem 1321/April 16, 1903)
Document 2.42	"BEO_002027_154260_001_001"	(4 Safer 1321 /Mai 2, 1903)
Document 2.43	"İ_MF_00009_00020_001_001"	(5 Rabiulevvel 1321/June 1, 1903)
Document 2.44	"İ_MF_00009_00020_003_001"	(29 Rebiulevvel 1321/June 25, 1903)
Document 2.45	"MF_MKT_00622_00012_008_001"	(28 [Haziran sene 1319/July 11, 1903)
Document 2.46	"MF_MKT_00622_00012_009_001"	(28 [Haziran sene 1319/July 11, 1903)
Document 2.47	"MF_MKT_00622_00012_010_001"	(7 Cumadelula sene [1]321 /August 1, 1903)
Document 2.48	"MF_MKT_00622_00012_011_001"	(Fî 3 Ağustos 1319/August 16, 1903)
Document 2.49	"Y_MTV_00252_00294_001_001"	(10 Rebiülevvel [1]320 /November 3, 1903
Document 2.50	"MF_MKT_00622_00012_012_001"	(14 Nisan sene [1]321/April 27, 1905)

Document 2.51	"MF_MKT_00622_00012_013_001"	(10 Rebiulevvel 1323/April 15, 1905)
Document 2.52	"MF_MKT_00622_00012_014_001"	(Fî 21 Temmuz 1321/August 3, 1905)
Document 2.53	"MF_MKT_00622_00012_016_001"	(26 Şevval sene 1323 /December 24, 1905)
Document 2.54	"MF_MKT_00622_00012_015_001"	(18 Cumadelahıre sene [1]327/July 7, 1909)
DOCUMENTS RELATED TO THIRD CONSTRUCTION PHASE OF IAM		
DOC. NO	REFERENCE NO	DATE
Document 3.01	"BEO_002150_161201_001_001"	(1 Cumadelâhire 1321/Agust 25, 1903)
Document 3.02	"BEO_002270_170182_001_001"	(21 Zilkade 1321/February 8, 1904)
Document 3.03	"BEO_002322_174078_001_001"	(12 Safer 1322/April 28, 1904)
Document 3.04	"BEO_002354_176536_001_001"	(8 Rebiülâhir 1322/June 22, 1904)
Document 3.05	"BEO_002362_177126_001_001"	(21 Rebiülahir 1322/July 5, 1904)
Document 3.06	"DH_MKT_00887_00032_002_002"	(7 Cumadelâhire 1322 / August 19, 1904)
Document 3.07	"BEO_002404_180241_001_001"	(24 C… 1322/September 5, 1904)
Document 3.08	"DH_MKT_00887_00032_001_001"	(24 Cumadelâhire 1322/ September 5, 1904)
Document 3.09	"MF_MKT_00817_00057_001_001"	(25 Ramazan 1322/December 3, 1904)
Document 3.10	"İ_RSM_00021_00015_001_001"	(22 Zilhicce 1322/February 27, 1905)
Document 3.11	"İ_RSM_00021_00015_002_001"	(23 Zilhicce 1322 /February 28, 1905)
Document 3.12	"MF_MKT_00969_00063_002_002"	(8 Zilkade 1323/January 4, 1906)
Document 3.13	"İ_MF_00012_00042_001_001"	(4 Cumadelula 1324/June 26, 1906)
Document 3.14	"İ_MF_00012_00042_002_001"	(12 Cumadelula 1324/July 4, 1906)
Document 3.15	"MF_MKT_00958_00016_001_001"	(12 Cumadelula sene [1]324 / July 4, 1906)
Document 3.16	"İ_RSM_00025_00011_001_001"	(16 Cumadelâhire 1324/July 28, 1906)
Document 3.17	"İ_RSM_00025_00011_002_001"	(23 Cumadelâhire 1324 /August 14, 1906)
Document 3.18	"Y_A_HUS_00505_00094_001_001"	(27 Cumadelâhire 1324/ Agust 18, 1906)
Document 3.19	"DH_MKT_02611_00001_001_001"	(1 Receb 1324/Agust 21, 1906)
Document 3.20	"BEO_002899_217406_001_001"	(7 Receb 1324/Agust 27, 1906)
Document 3.21	"BEO_002908_218081_001_001"	(24 Receb 1324/September 13, 1906)

Document 3.22	“MF_MKT_00961_00064_001_001”	(30 Eylül 1322/ October 13, 1906)
Document 3.23	“MF_MKT_00969_00063_001_001”	(24 Şaban 1324 / October 13, 1906)
Document 3.24	“MF_MKT_00961_00064_002_001”	(13 Ramazan 1324/ November 17, 1906)
Document 3.25	“MF_MKT_00994_00083_001_001”	(9 Rebiülevvel 1325/April 22, 1907)
Document 3.26	“MF_MKT__00970_00067_001_001”	(16 Zilkade 1324/January 1, 1907)
Document 3.27	“İ_MF_00013_00005_001_001”	(13 Muharrem 1325/26 Şubat 1907)
Document 3.28	“İ_MF_00013_00005_002_001”	(18 Muharrem 1325/ March 3, 1907)
Document 3.29	“BEO_003102_232618_001_001”	(5 Cumadelâhire 1325/July 16, 1907)
Document 3.30	“DH_MKT_02612_00063_001_001”	(17 Receb 1325/Agust 26, 1907)
Document 3.31	“MF_MKT_01018_00067_001_001”	(12 Receb 1325/Agust 21, 1907)
Document 3.32	“MF_MKT_01018_00067_002_002”	(20 Şaban [1]325 /Eylül 28, 1907)
Document 3.33	“MF_MKT_00972_00024_001_001”	(17 Ramazan sene 1324 /November 4, 1906)
Document 3.34	“MF_MKT_00972_00024_002_001”	(23 Zilkade sene 1324/January 8, 1907)
Document 3.35	“MF_MKT_00979_00035_001_001”	(2 Zilhicce 1324 /January 17, 1907)
Document 3.36	“MF_MKT_00979_00035_002_001”	(8 Muharrem 1325/February 21, 1907)
Document 3.37	“MF_MKT_00972_00024_003_001”	(12 Mart 1323/March 25, 1907)
Document 3.38	“MF_MKT_00972_00024_004_001”	(12 Safer 1325/March 27, 1907)
Document 3.39	“MF_MKT__00997_00012_001_001”	(3 Rebiulevvel 1325 /Nisan 16, 1907)
Document 3.40	“MF_MKT__00997_00012_002_001”	(23 Rebiulahır 1325/June 5, 1907)
Document 3.41	“MF_MKT_01017_00059_001_001”	(……./……)
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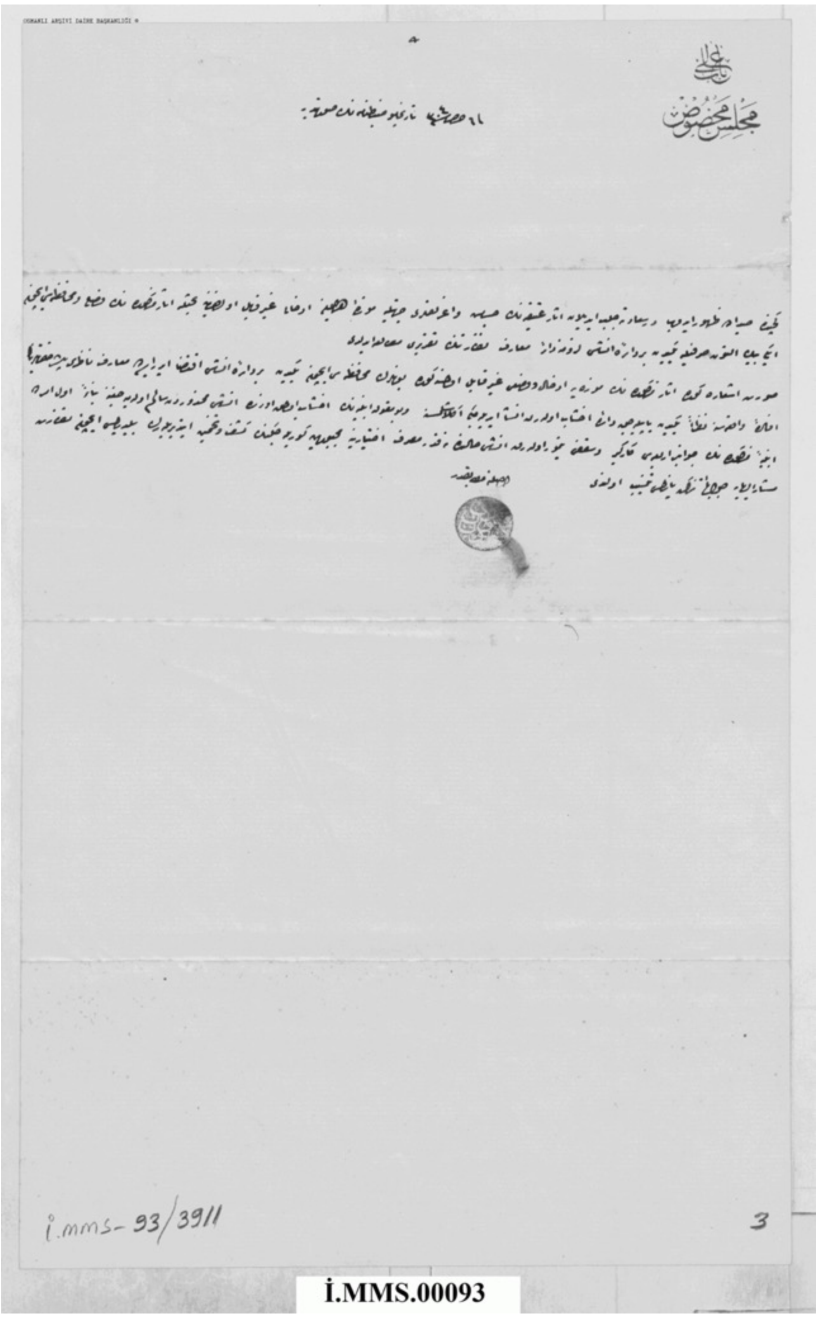
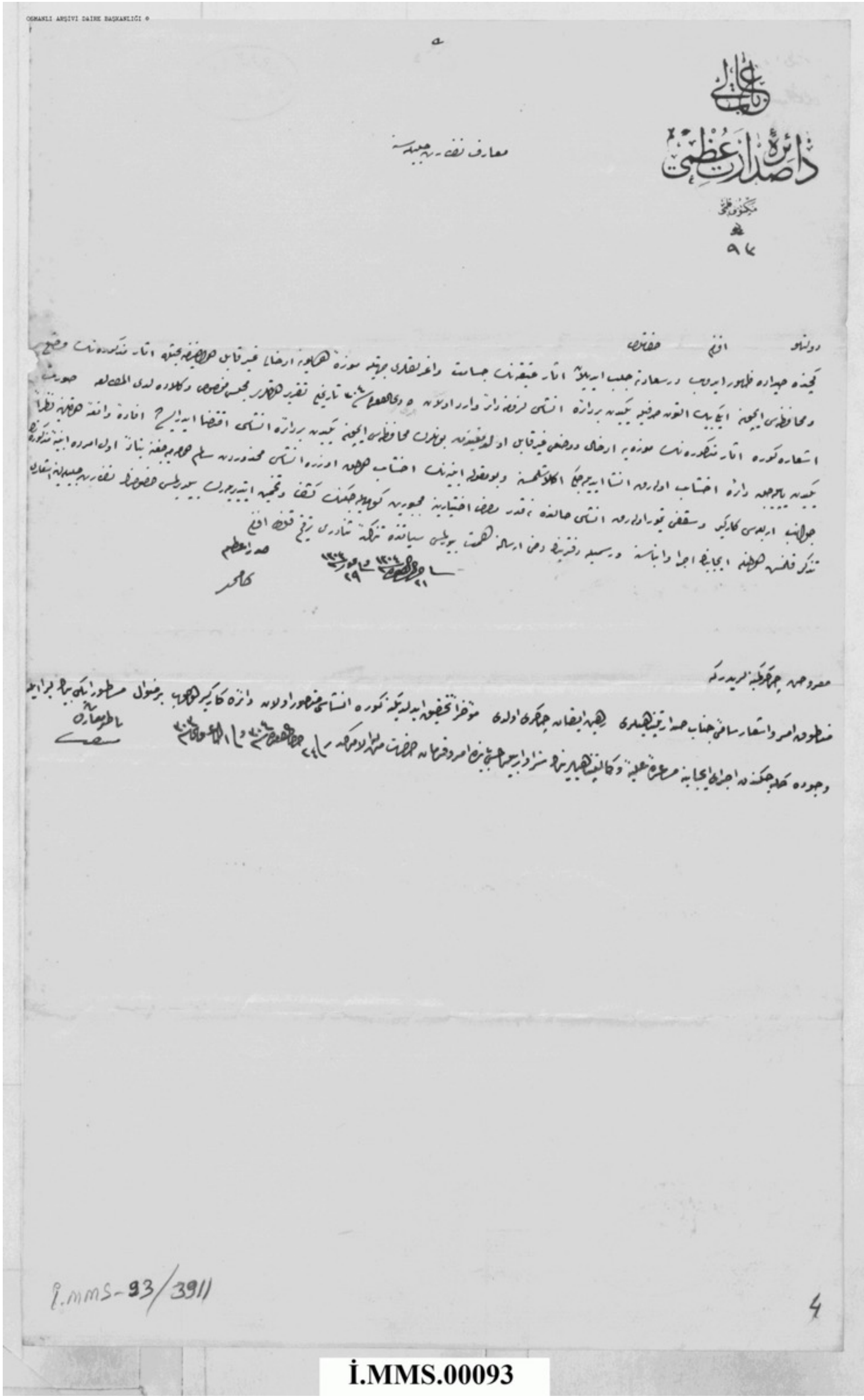
Document 3.43	“MF_MKT_01017_00059_003_001”	(15 Şaban 1325/23 September 1907)
Document 3.44	“MF_MKT__01029_00032_001_001”	(19 Teşrinisani 1323/2 December 1907)
Document 3.45	“MF_MKT__01029_00032_002_001”	(12 Zilkade 1325/17 December 1907)
Document 3.47	“MF_MKT__01029_00032_004_001”	(1 Muharrem 1326 /February 4, 1908)
Document 3.46	“MF_MKT__01029_00032_003_001”	(18 Rebiulevvel 1326/20 April 1908)

Document 3.48	"MF_MKT__01029_00032_005_001"	(29 Rebiulahır 1326 /May 22, 1908)
Document 3.49	"MF_MKT__01029_00032_006_001"	(14 Şaban 1326 /September 11, 1908)
Document 3.50	"İ_MF_00014_00010_001_001"	(30 Zilhicce 1325 / February 3, 1908)
Document 3.51	İ_MF_00014_00010_002_001"	(14 Muharrem sene 1326 / February 17, 1908)
Document 3.52	"MF_MKT_01017_00059_004_001"	(6 Şaban 1326 /3 September 1908)
Document 3.53	"MF_MKT_01017_00059_005_001"	(19 Şevval 1326 /14 November1908)
OTHER DOCUMENTS		
DOC. NO	REFERENCE NO	DATE
Document 4.01	"Y_MTV_00102_00120_001_002"	(7 Ağustos 1310 /Agust 19, 1894)
Document 4.02	"MF_MKT_01236_00052_001"	(15 Şevval 1334-August 15, 1916)
Document 4.03	"MF_MKT_01236_00052_010"	(2 Teşrinievvel 1332/October 15, 1916)
Document 4.04	"MF_MKT_01236_00052_003"	(18 Şevval 1336 /July 27, 1918)
Document 4.05	"MF_MKT_01236_00052_006"	(4 Eylül 1334/September 4, 1918)
Document 4.06	"MF_MKT_01236_00052_007"	(16 Eylül 1334/September 16, 1334)
Document 4.07	"MF_MKT_01236_00052_005"	(27 Ağustos 1334/August 27, 1334)
Document 4.08	"MF_MKT_01236_00052_009"	(12 Muharrem 1337/October 18, 1918)
Document 4.09	"Y MF_MKT_01095_00009_001_001"	(26 Kanunuevvel 1324/January 08, 1909)
Document 4.10	"MF_MKT_01095_00009_002_002"	(1 Muharrem sene [1]327/January 23, 1909)

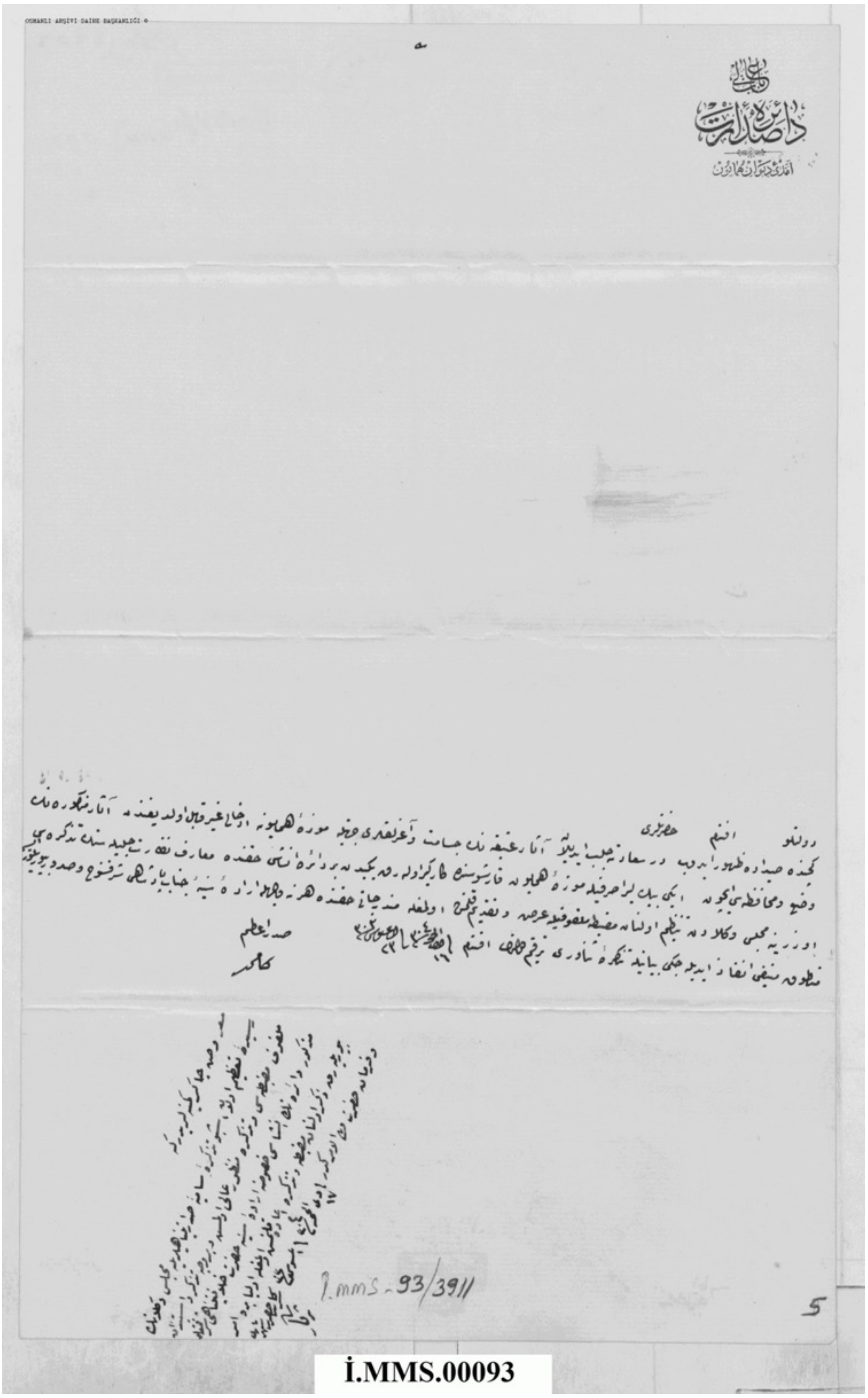
B. The original documents which are referenced in the thesis from Presidency of the Republic of Türkiye Directorate of State Archives



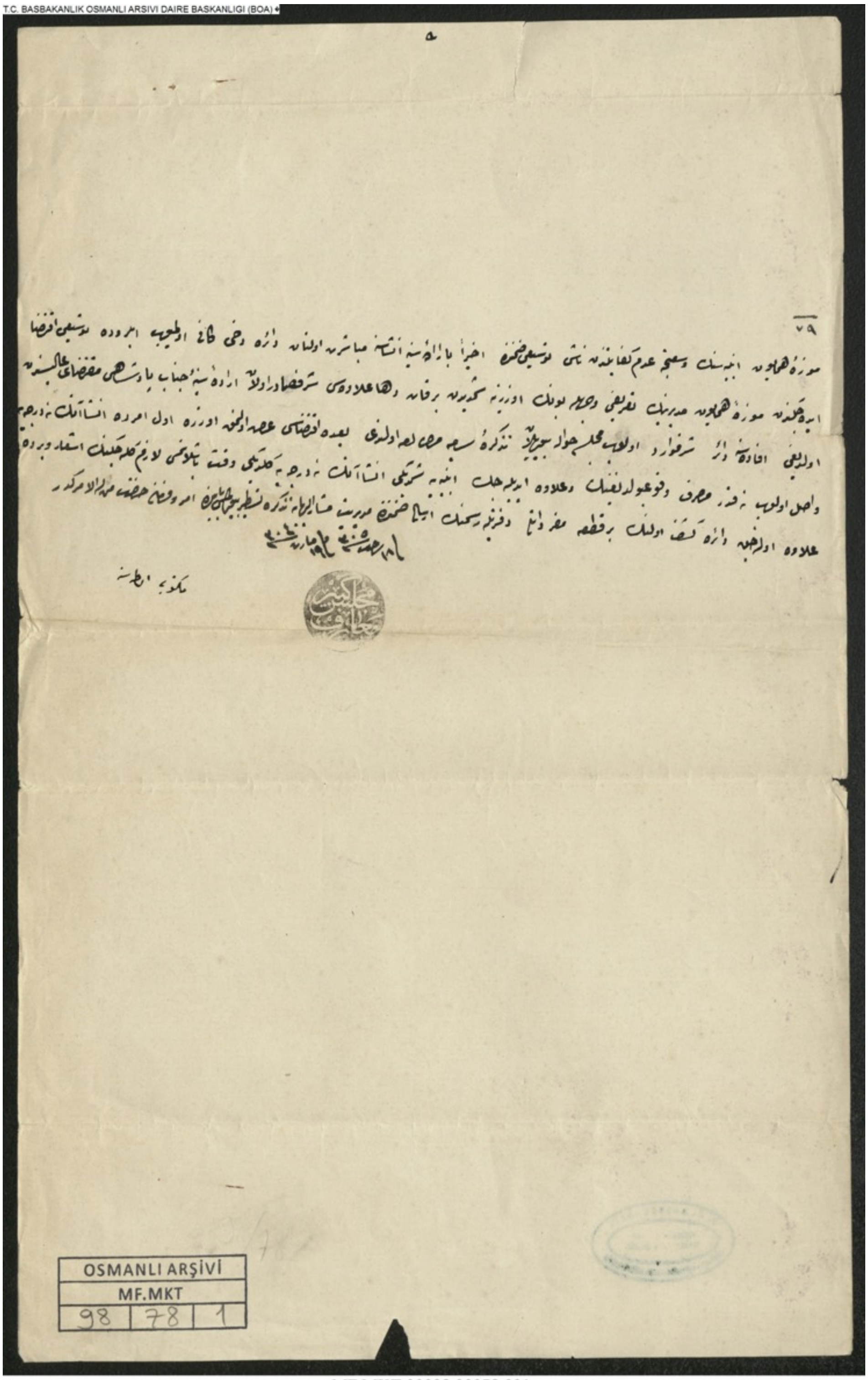
B1. Document 1.05: Presidency of the Republic of Türkiye Directorate of State Archives “İ_MMS_00093_003911_003” (6 Zilkade 1304/ July 27, 1887)



B2. Document 1.06: Presidency of the Republic of Türkiye Directorate of State Archives “İ_MMS_00093_003911_004” (21 Zilkade 1304/ Agust 11, 1887)



B3. Document 1.07: Presidency of the Republic of Türkiye Directorate of State Archives "İ_MMS_00093_003911_005" (16 Zilhicce 1304 / September 5, 1887)



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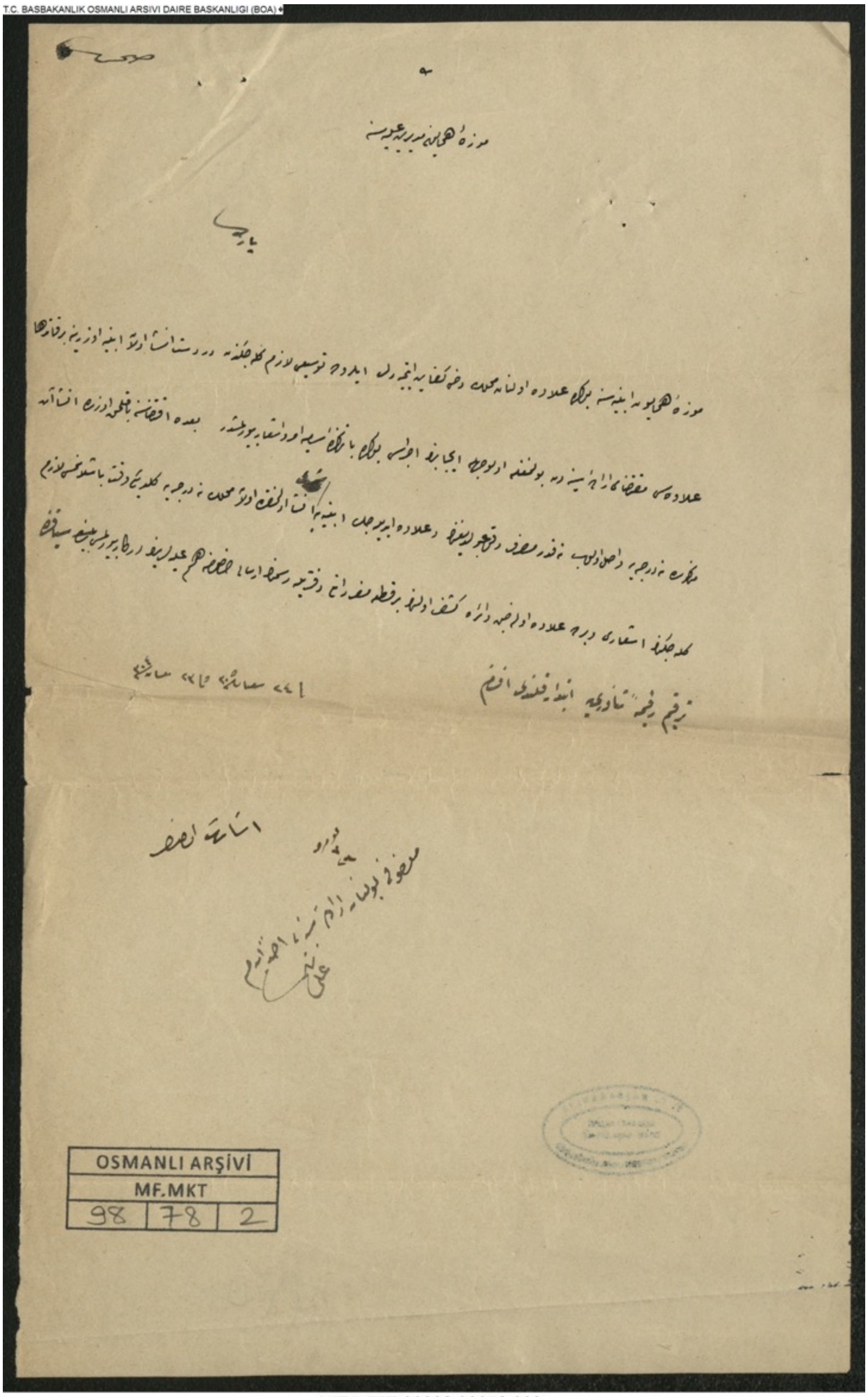
B4. Document 1.10: Presidency of the Republic of Türkiye Directorate of State Archives "MF_MKT_00098_00078_001" (18 Receb 1305/March 31, 1888)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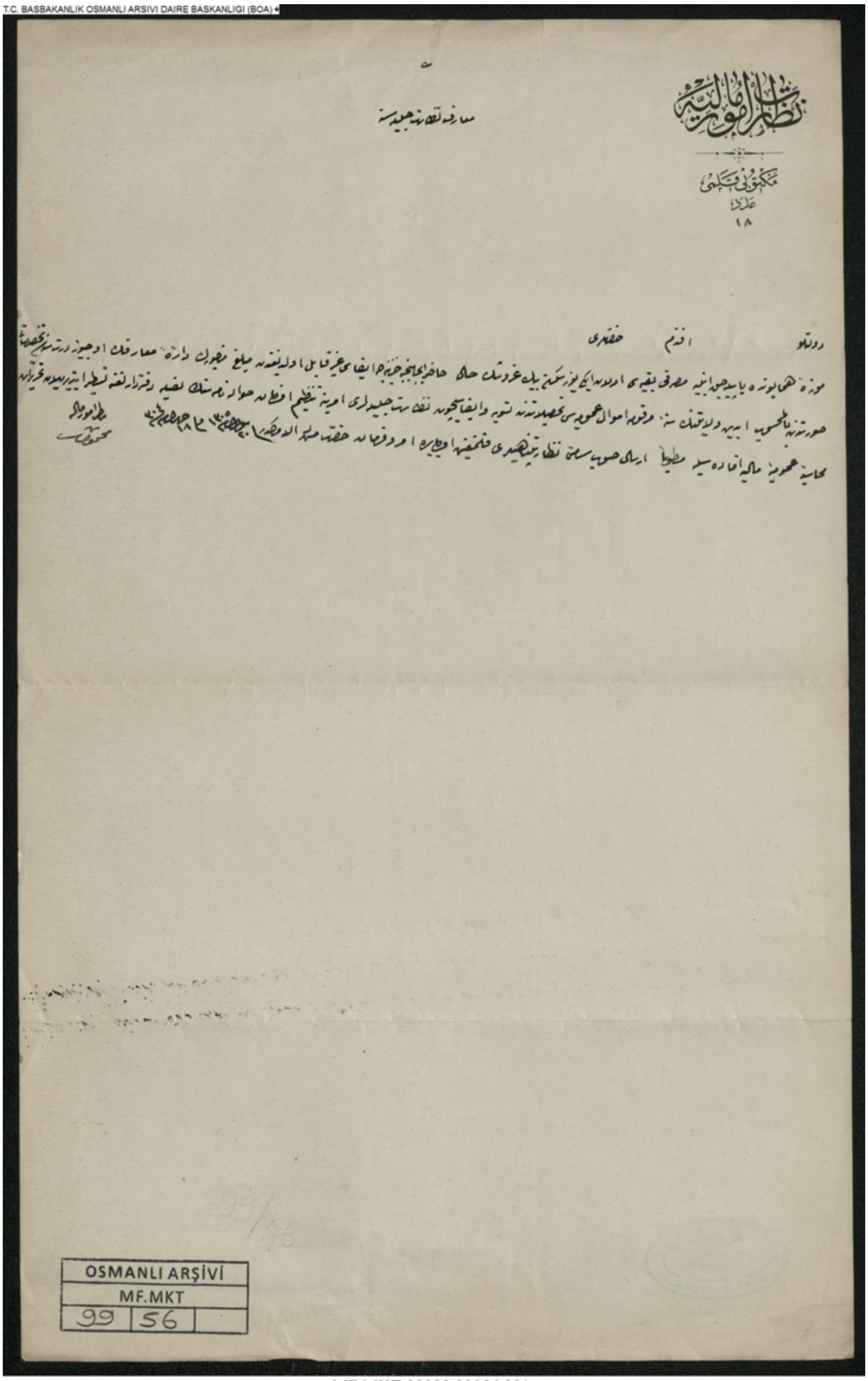
B5. Document 1.11: Presidency of the Republic of Türkiye Directorate of State Archives "MF_MKT_00098_00078_002" (24 Şaban 1305 /May 6, 1888)



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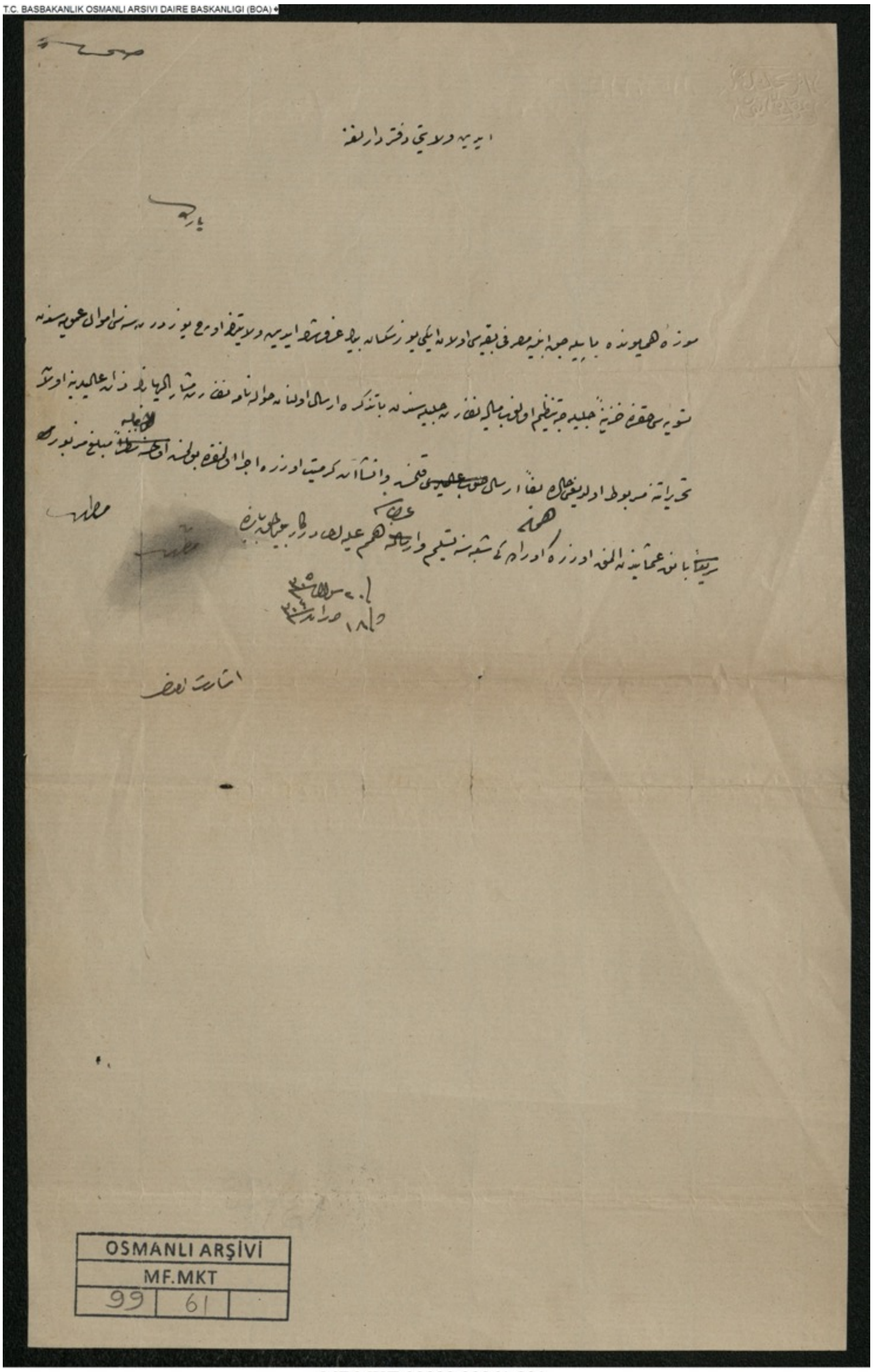
B6. Document 1.12: Presidency of the Republic of Türkiye Directorate of State Archives “MF_MKT__00099_00056_001” (20 Şevval 1305/June 30, 1888)



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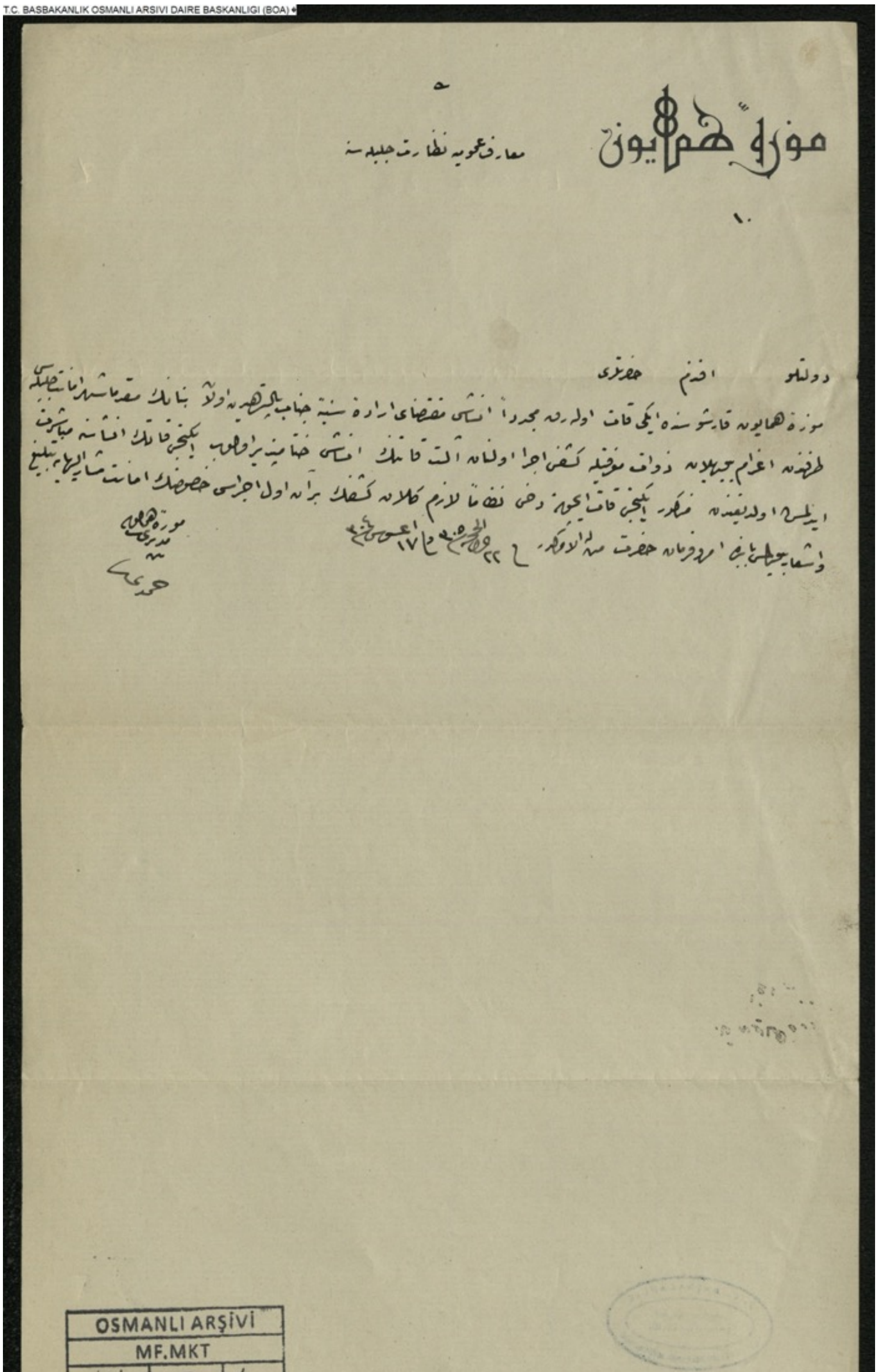
B.7. Document 1.13: Presidency of the Republic of Türkiye Directorate of State Archives “MF_MKT__00099_00061_001” (20 Şevval sene 1305/June 30, 1888)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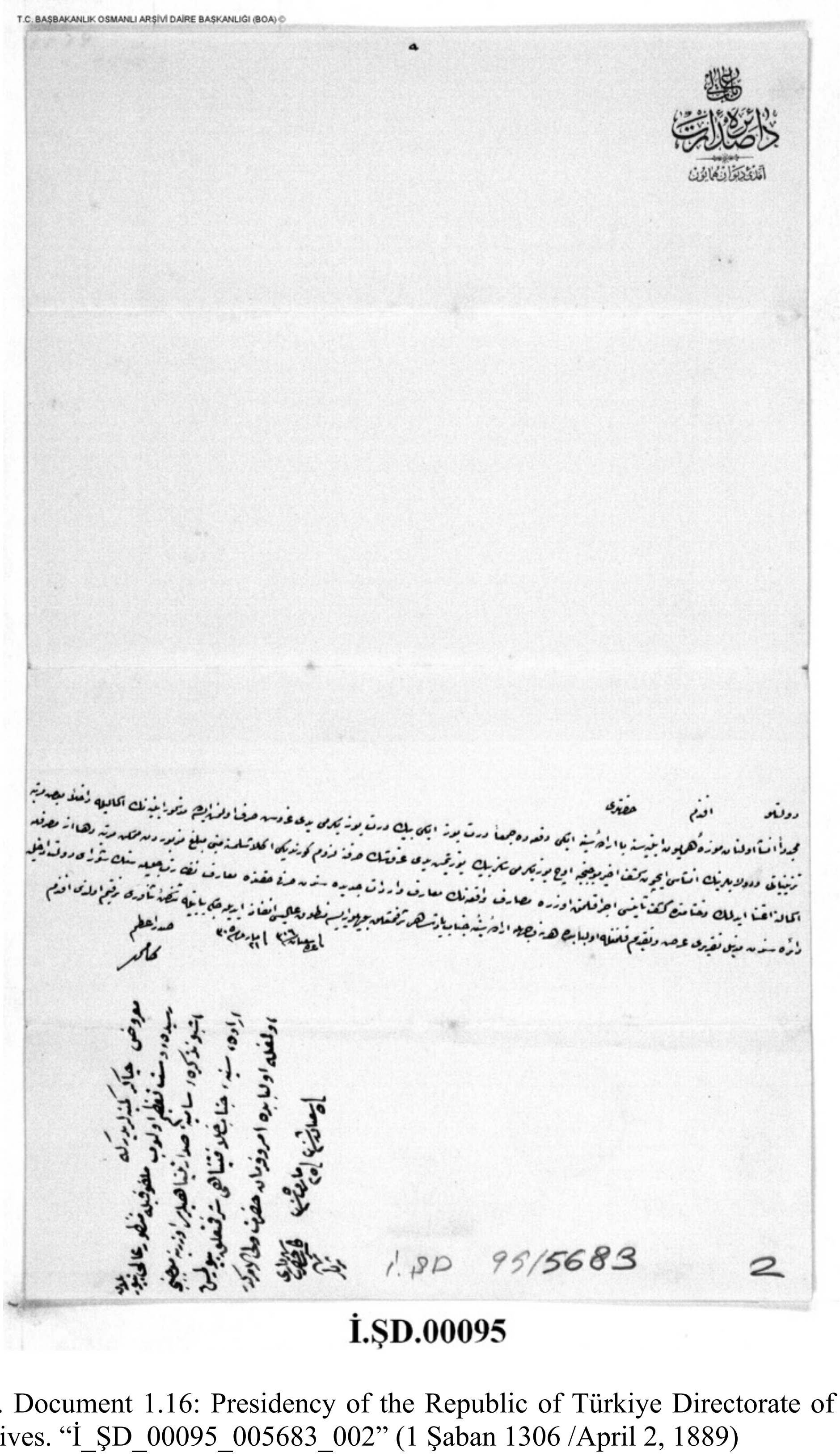
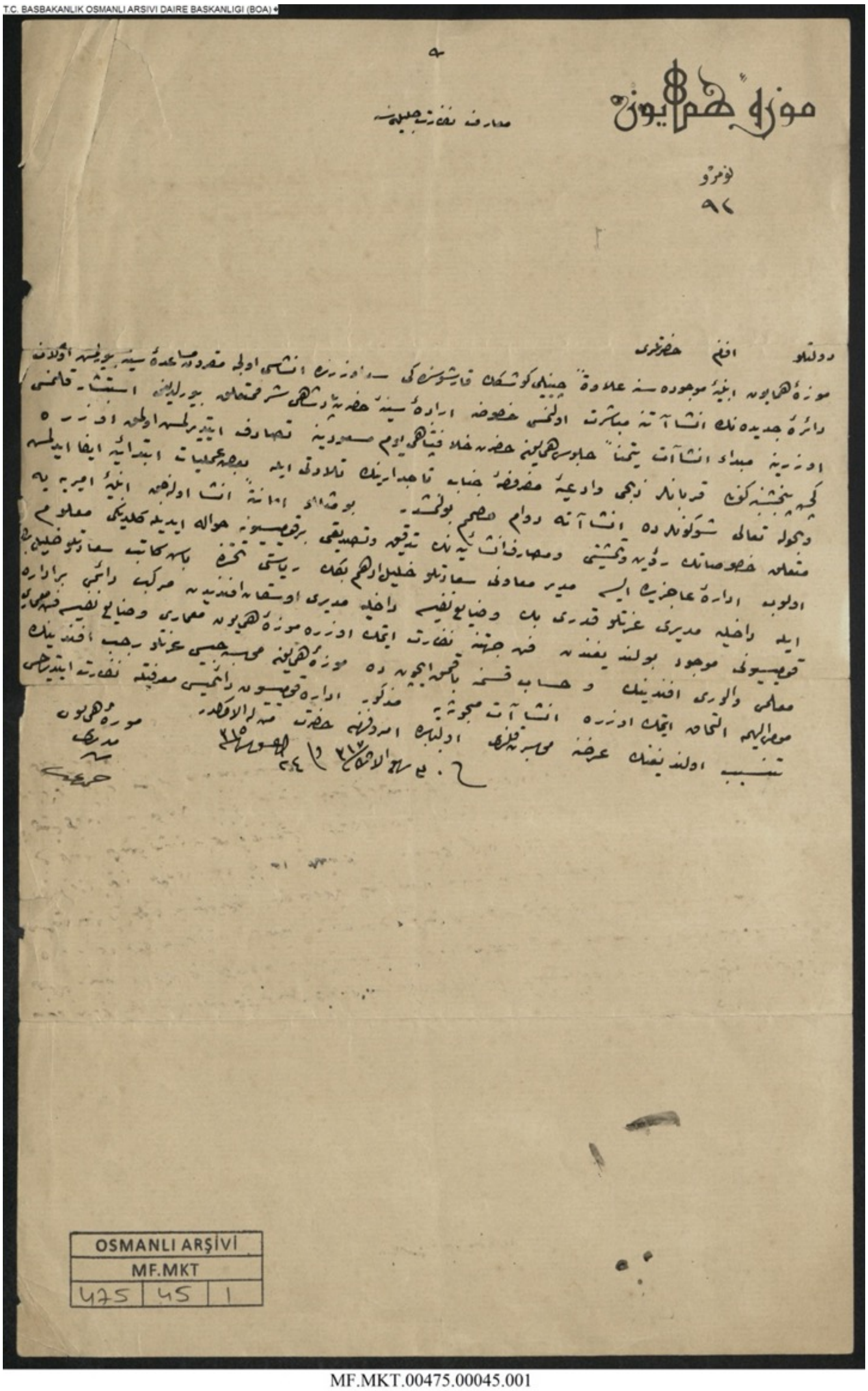
B.8. Document 1.14: Presidency of the Republic of Türkiye Directorate of State Archives “MF_MKT_00101_00045_001_001” (22 Zilhicce 1305/Agust 30, 1888)

B.9. Document 1.15: Presidency of the Republic of Türkiye Directorate of State Archives. "İ_ŞD_00095_005683_001_001" (29 Cumadelahıre 1306/March 2, 1889)



B.10. Document 1.16: Presidency of the Republic of Türkiye Directorate of State Archives. "İ_ŞD_00095_005683_002" (1 Şaban 1306 /April 2, 1889)



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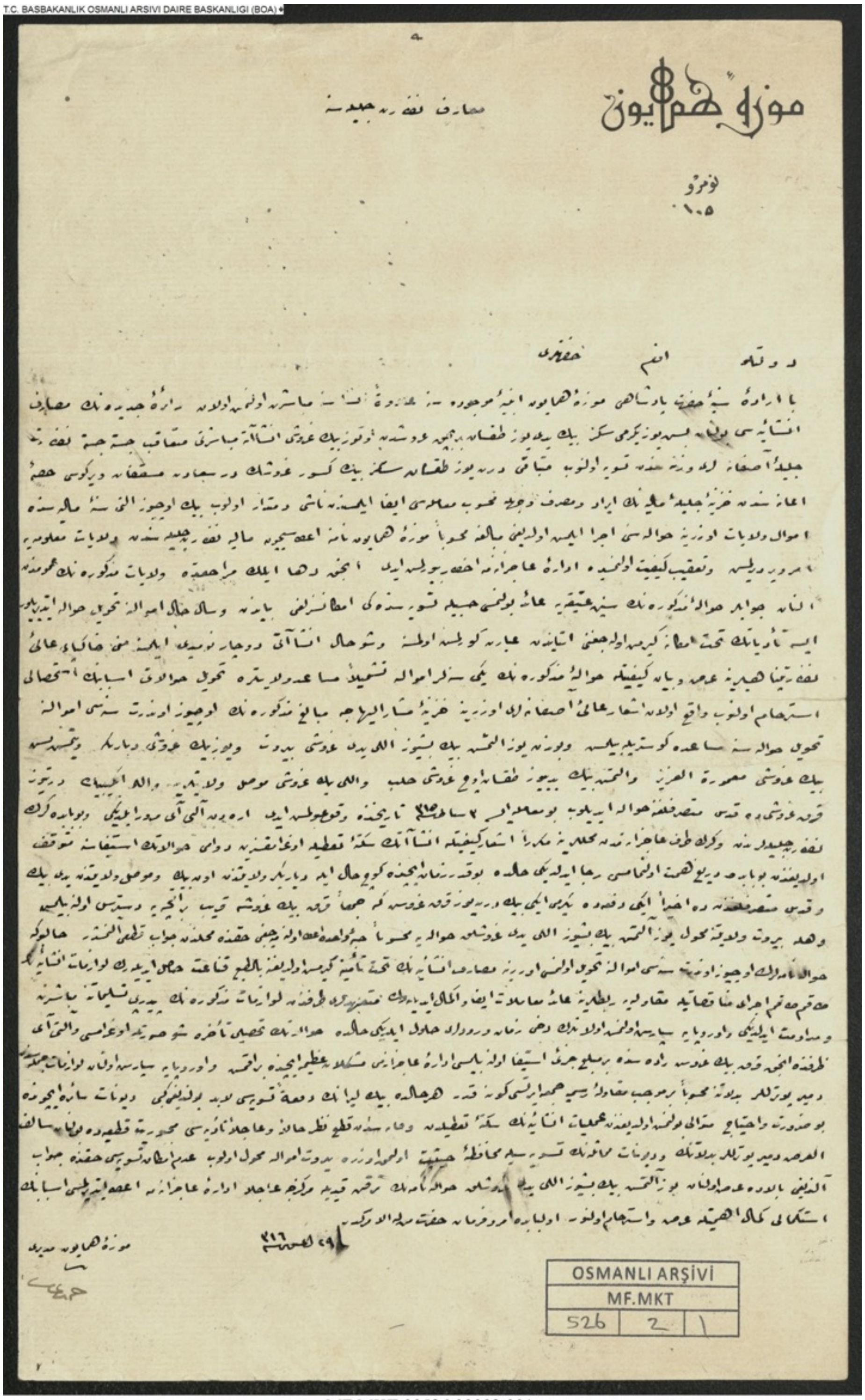
B.11. Document 2.01: Presidency of the Republic of Türkiye Directorate of State Archives. “MF_ MKT_ 00475_ 00045_001_001” 28 *Rebiüahire* 1317/September 5, 1899)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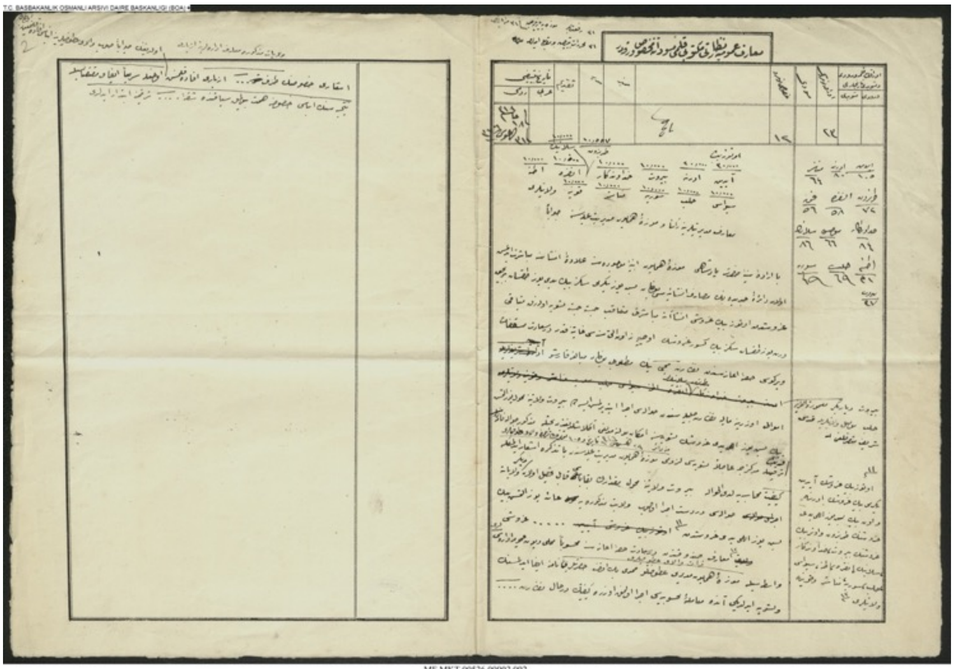
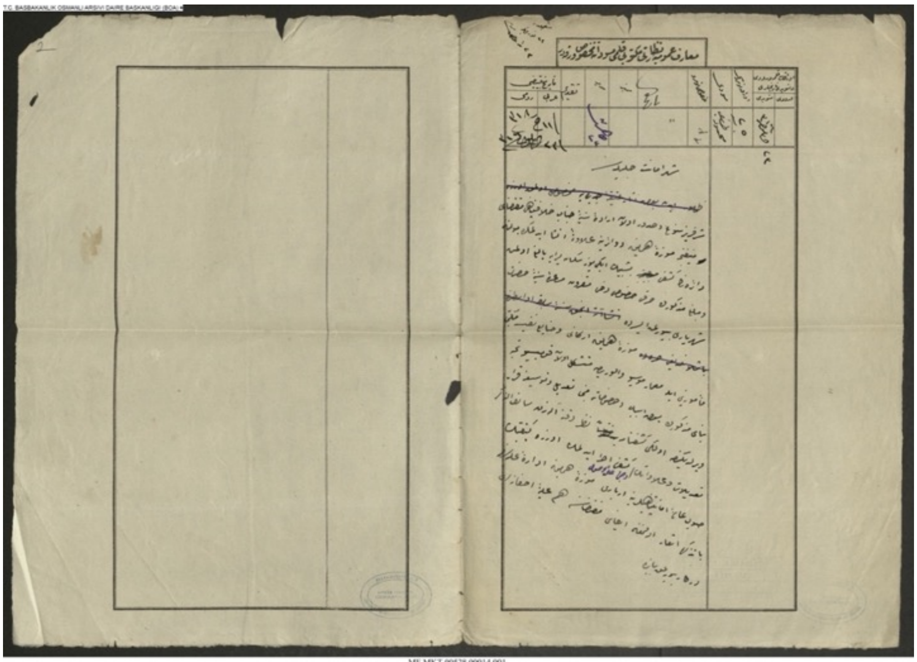
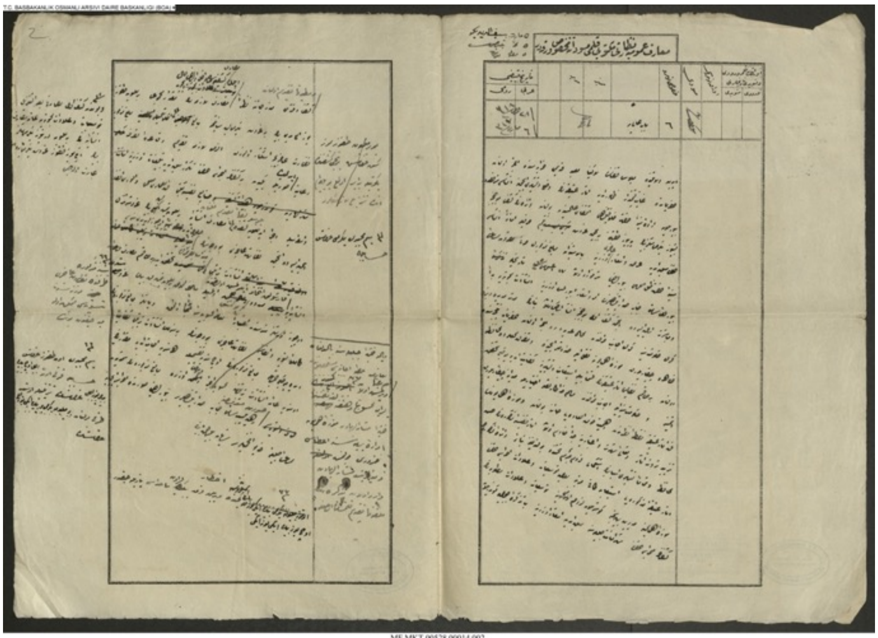
B.12. Document 2.07: Presidency of the Republic of Türkiye Directorate of State Archives. "MF_MKT_00526_00002_001" (29 Ağustos [1]316 /September 11, 1900)



B.13. Document 2.09: Presidency of the Republic of Türkiye Directorate of State Archives. “MF_MKT_00526_00002_002” (18 Cemazeyilevvel 1318 /September 13, 1900)



B.14. Document 2.10: Presidency of the Republic of Türkiye Directorate of State Archives. “MF_MKT_00528_00014_001” (11 Cemazeyilahir 1318 /October 6, 1900)



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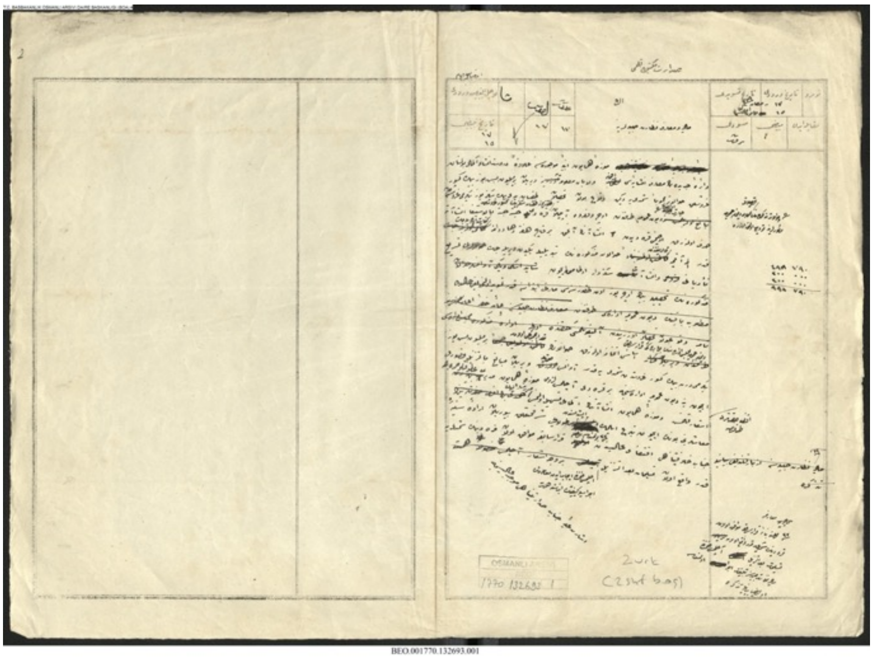
B.15. Document 2.13: Presidency of the Republic of Türkiye Directorate of State Archives. “MF_MKT_00528_00014_002” (28 Zilkade 1318 /Mart 19, 1901)



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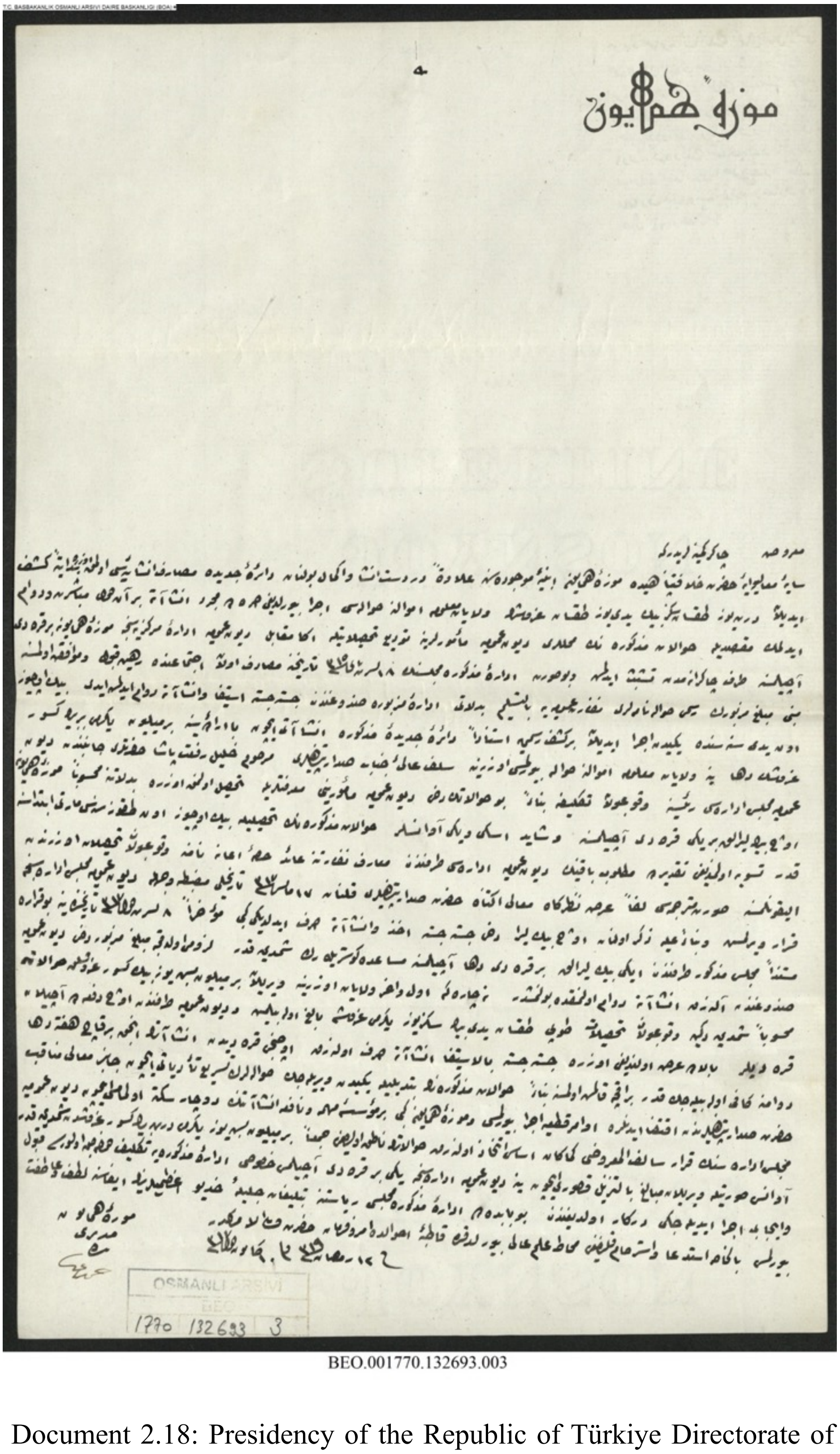
B.16. Document 2.17: Presidency of the Republic of Türkiye Directorate of State Archives. “BEO_001770_1326931_001_001” (17 Ramazan 1319 /December 28 1901)



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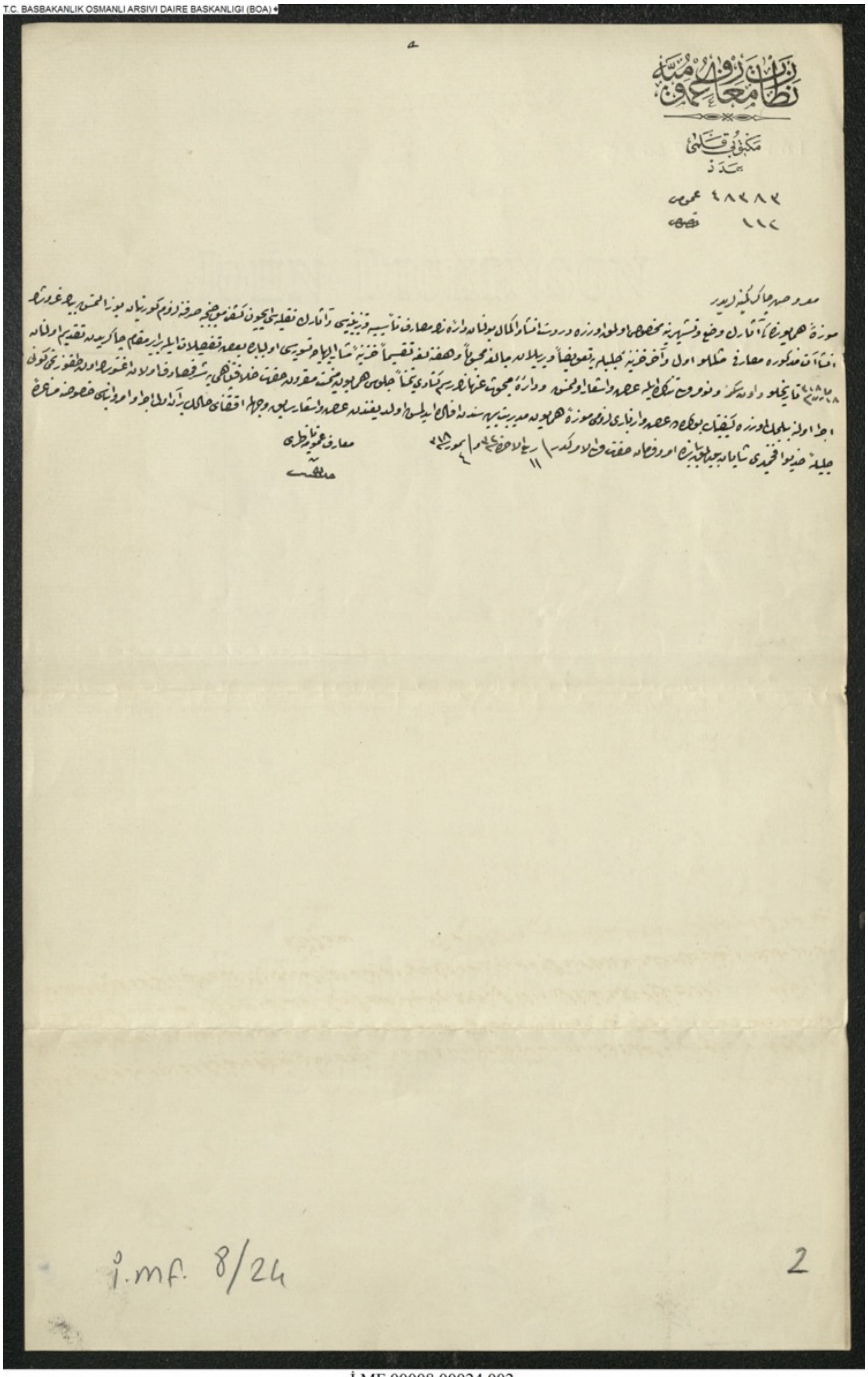
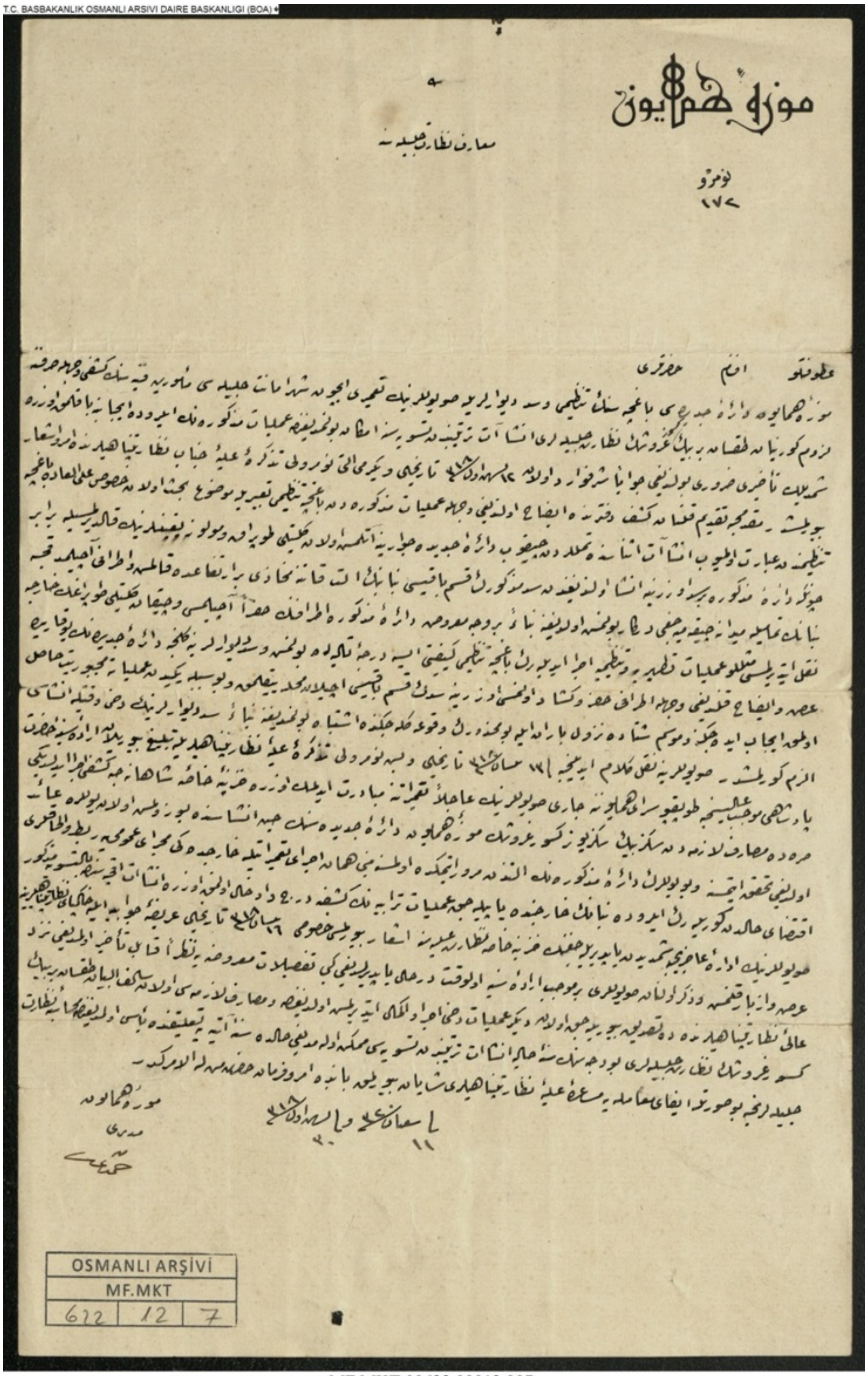
B.17. Document 2.18: Presidency of the Republic of Türkiye Directorate of State Archives. “BEO_001770_132693_003” (12 Ramazan 1319 /Aralık 23, 1901)



B18. Document 2.29: Presidency of the Republic of Türkiye Directorate of State Archives. “İ_MF_00008_00024_002_001” (11 Rebiülâhire [1]320 /July 18, 1902)



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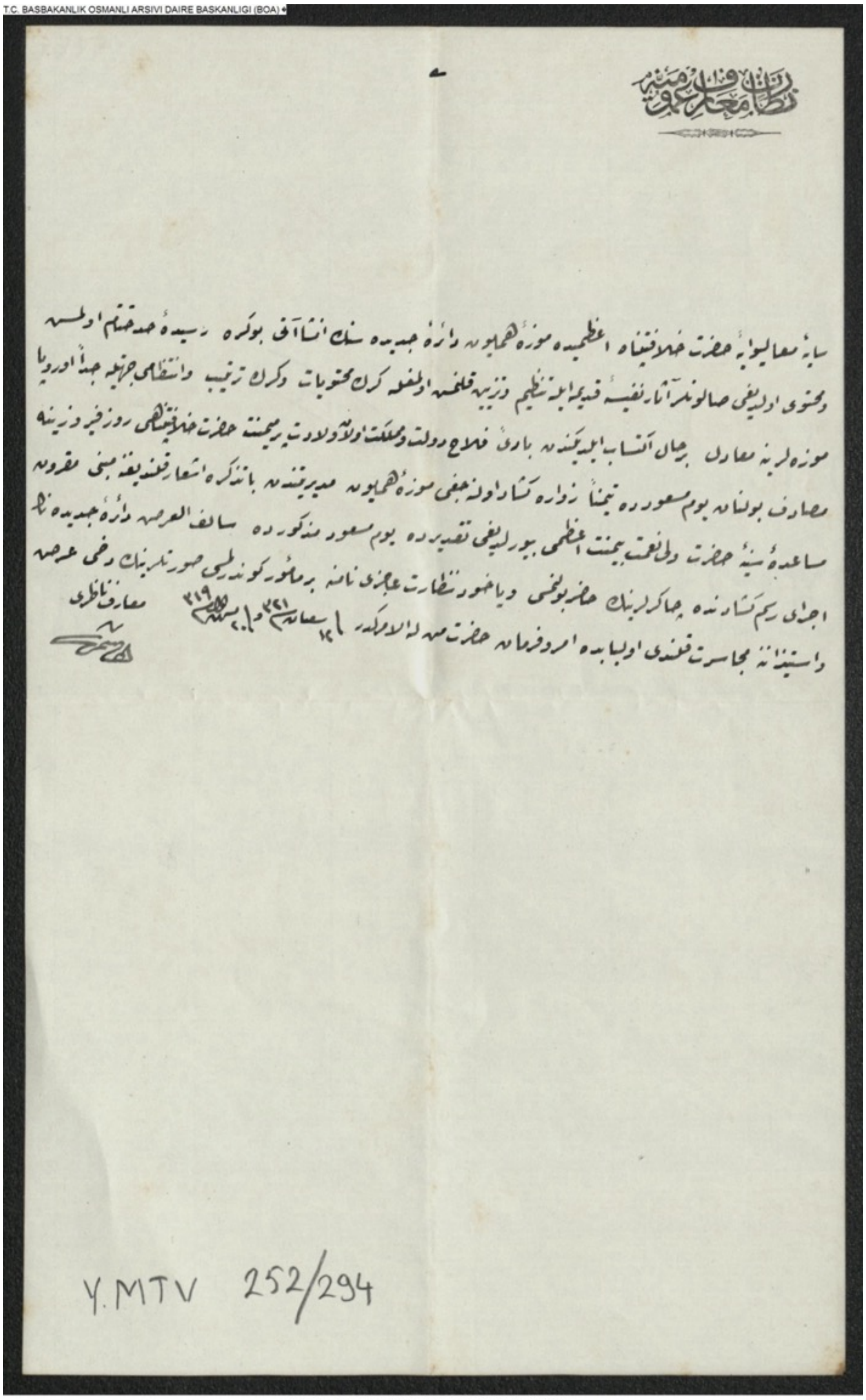
B.19. Document 2.37: Presidency of the Republic of Türkiye Directorate of State Archives. "MF_MKT_00622_00012_007_001" (11 Şaban 1320/November 13, 1902)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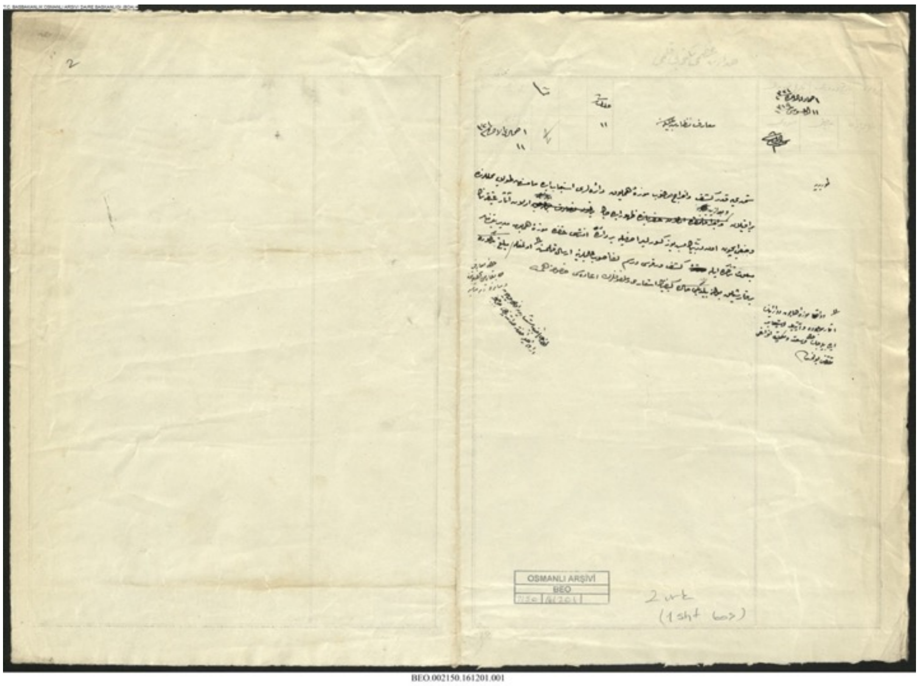
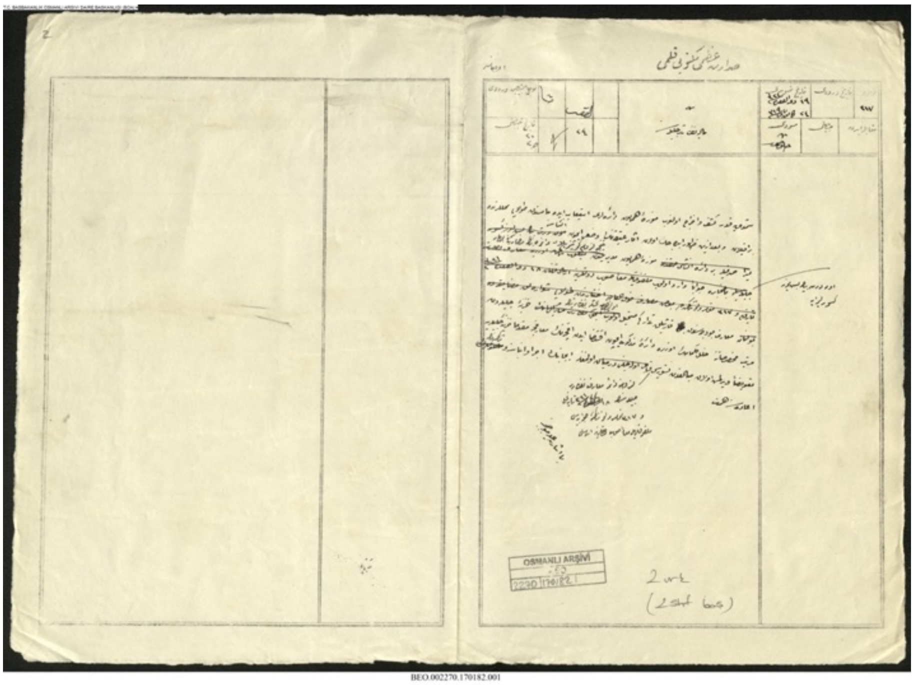
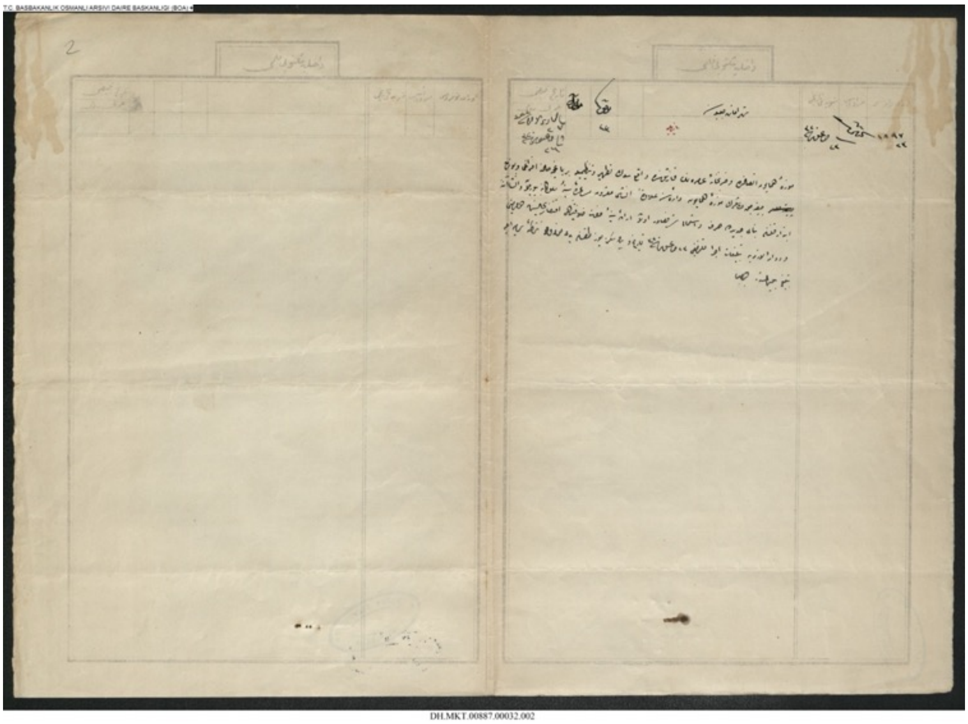
B.20. Document 2.49: Presidency of the Republic of Türkiye Directorate of State Archives. “Y_MTV_00252_00294_001_001” (10 Rebiülevvel [1]320 /November 3, 1903)



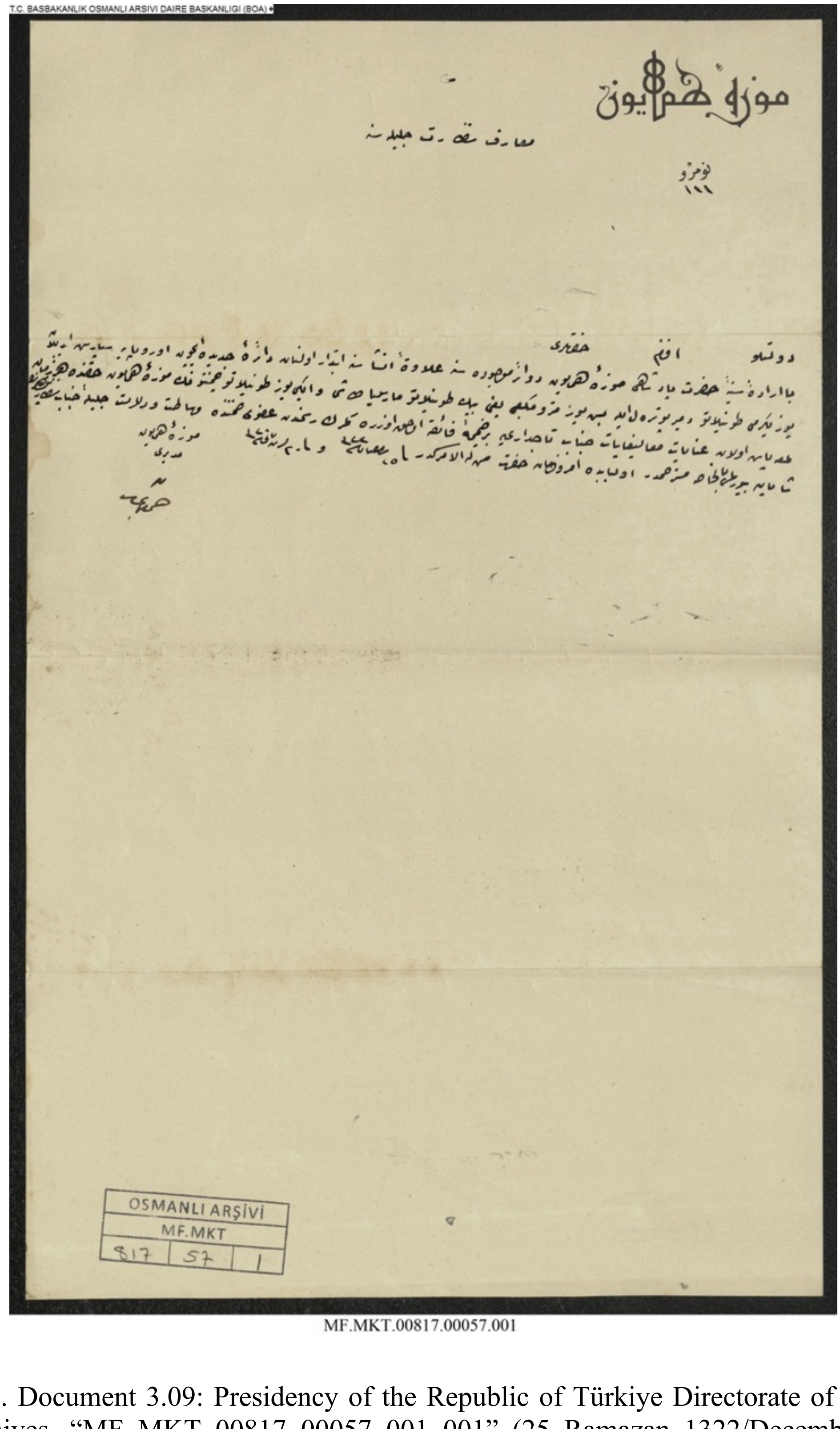
B.21. Document 3.01: Presidency of the Republic of Türkiye Directorate of State Archives. “BEO_002150_161201_001_001” (1 Cumadelâhire 1321/Agust 25, 1903)



B.22. Document 3.02: Presidency of the Republic of Türkiye Directorate of State Archives. “BEO_002270_170182_001_001” (21 Zilkade 1321 / February 8, 1904)

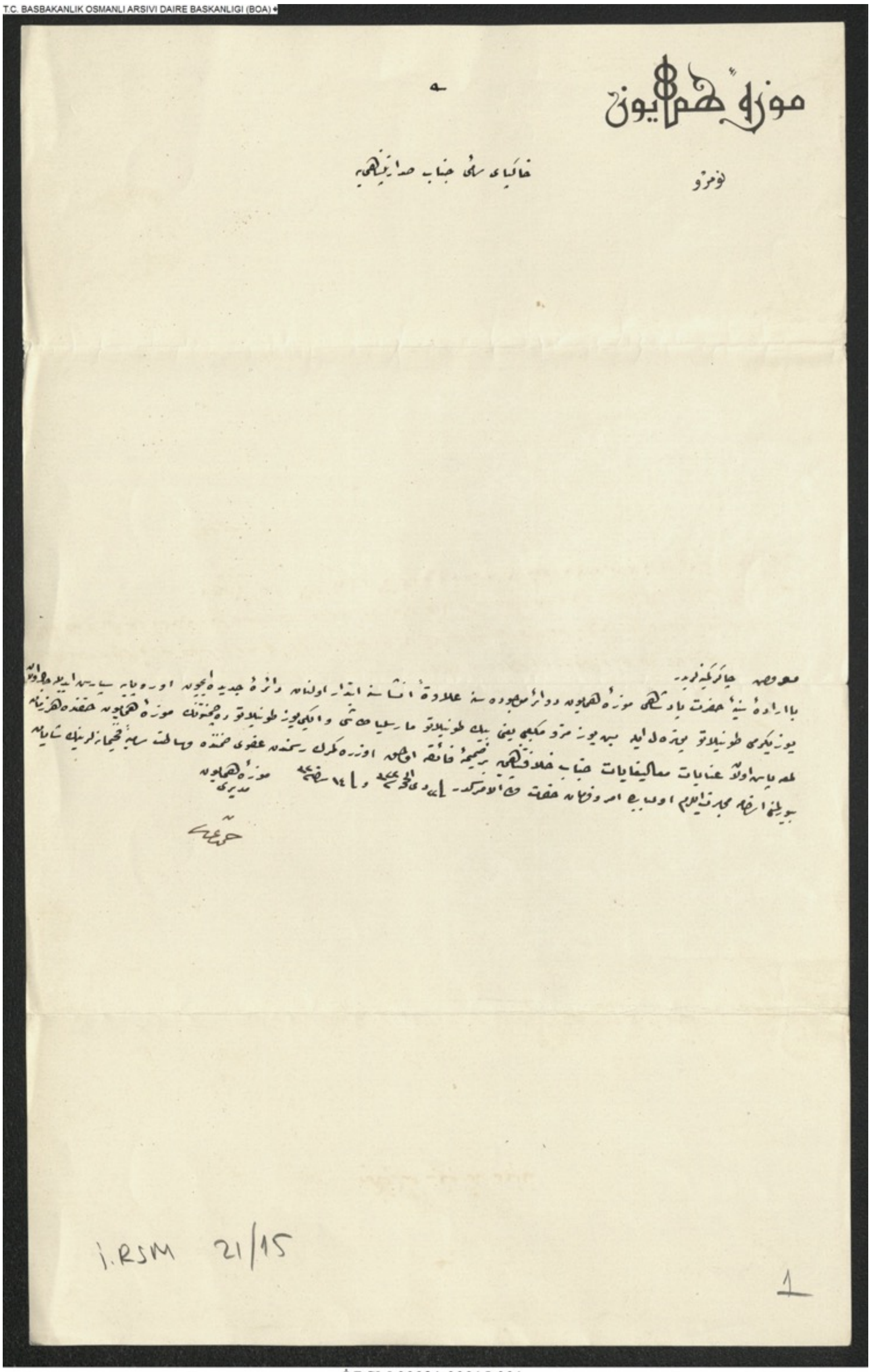


B.23. Document 3.06: Presidency of the Republic of Türkiye Directorate of State Archives. “DH_MKT_00887_00032_002_002” (7 Cumadelâhire 1322 / August 19, 1904)



MF.MKT.00817.00057.001

B.24. Document 3.09: Presidency of the Republic of Türkiye Directorate of State Archives. “MF_MKT_00817_00057_001_001” (25 Ramazan 1322/December 3, 1904)


T.C. BASBAKANLIK OSMANLI ARSIVI DAIRE BASKANLIGI (BOA)

موزهٔ همايون

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İ.RSM 21/15

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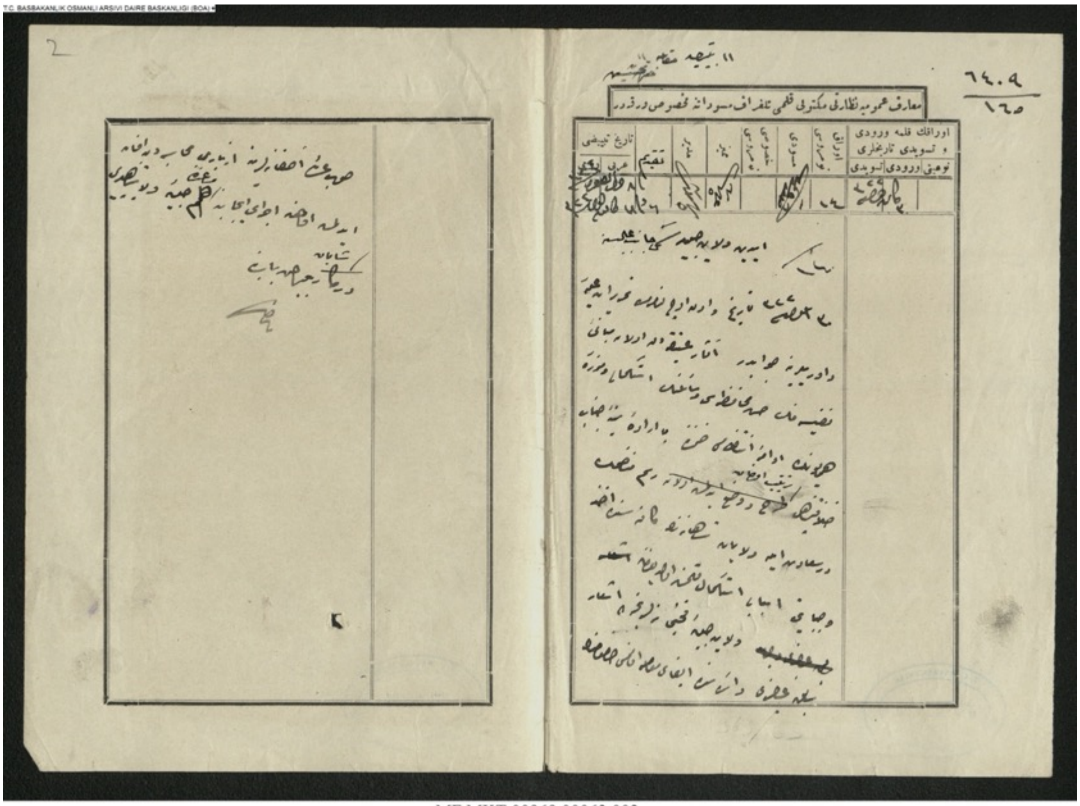
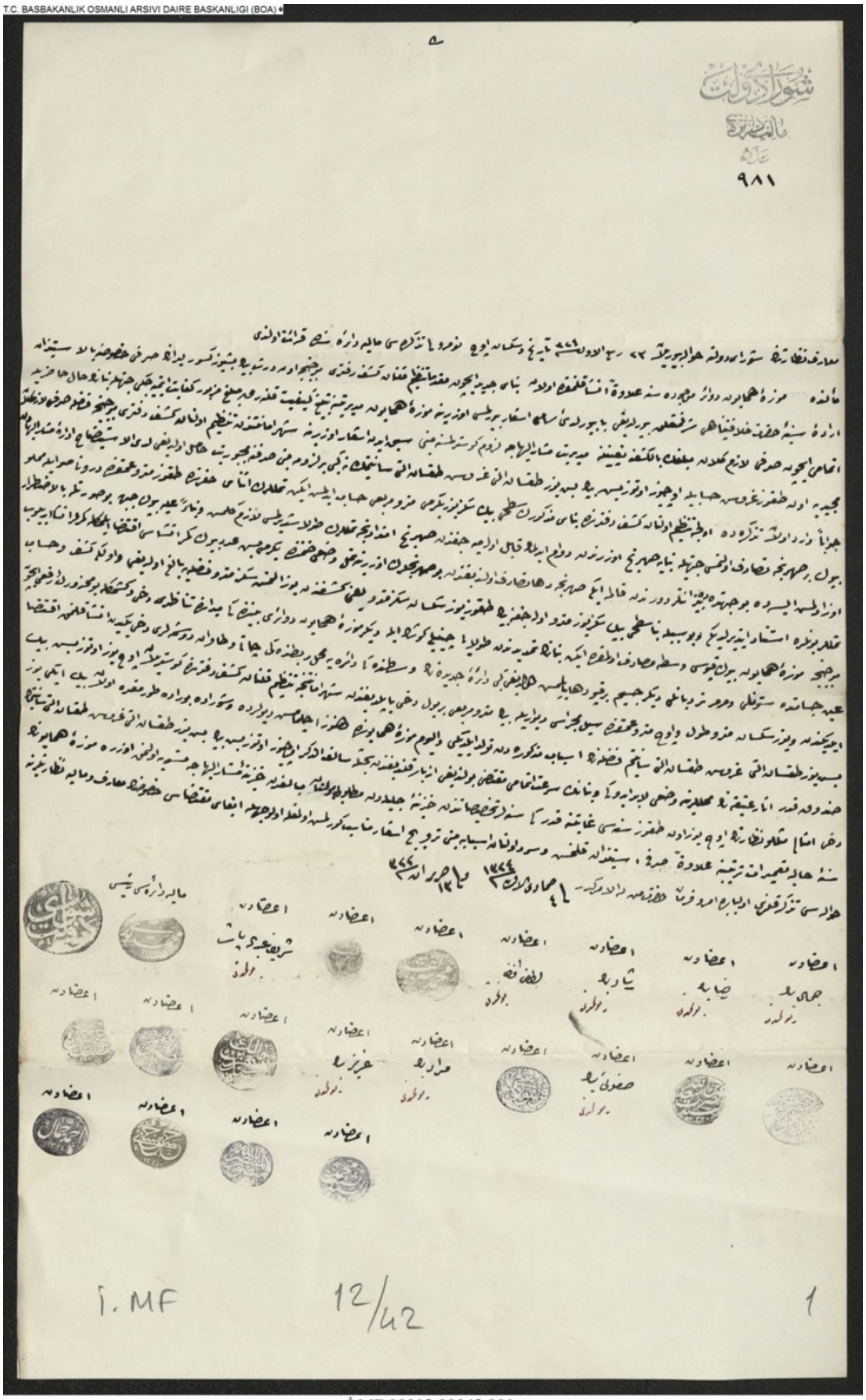
İ.RSM.00021.00015.001

B.25. Document 3.10: Presidency of the Republic of Türkiye Directorate of State Archives. "İ_RSM_00021_00015_001_001" (22 Zilhicce 1322/February 27, 1905)



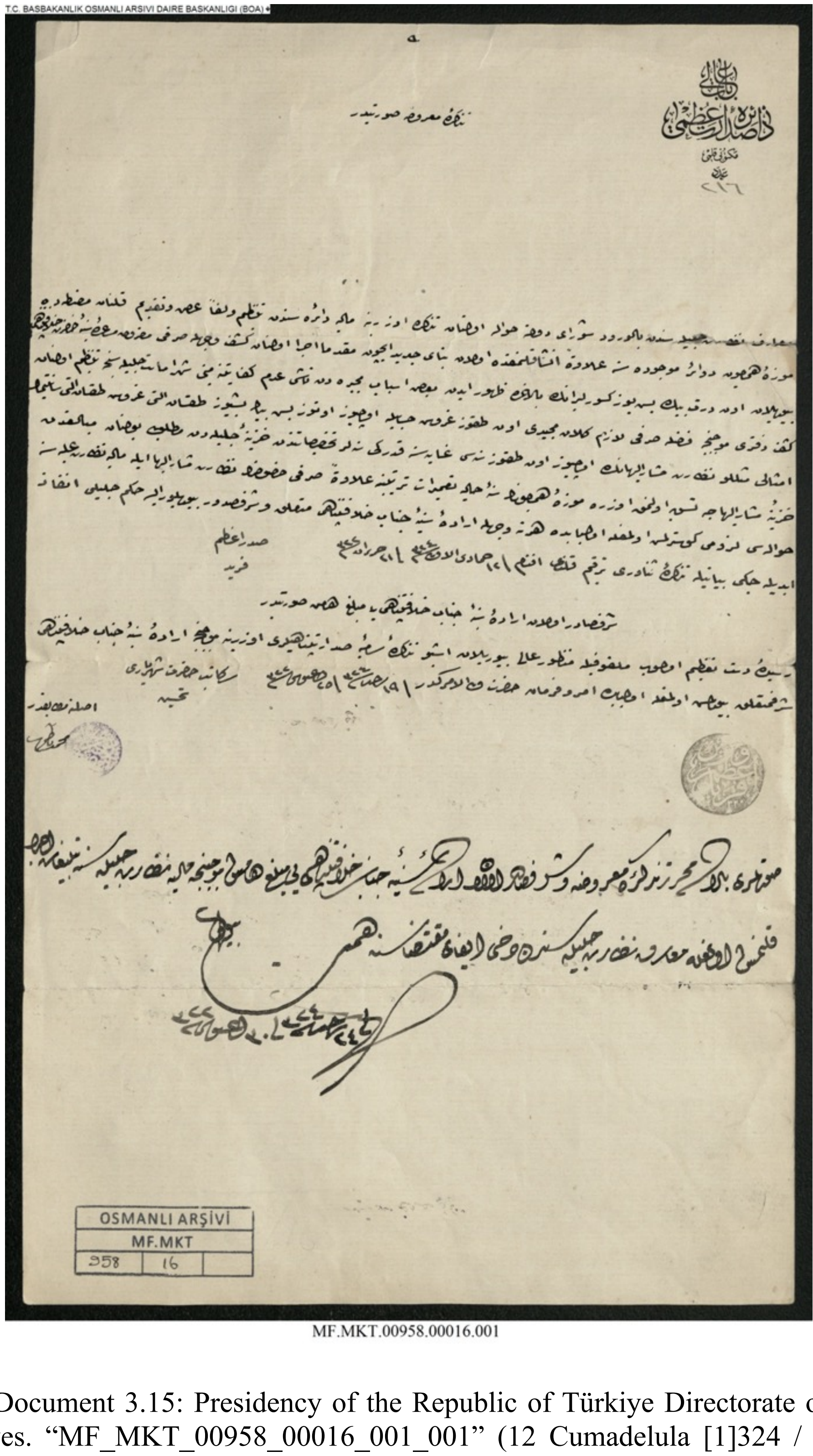
MF.MKT.00969.00063.002

B.26. Document 3.12: Presidency of the Republic of Türkiye Directorate of State Archives. "MF_MKT_00969_00063_002_002" (8 Zilkade 1323/January 4, 1906)



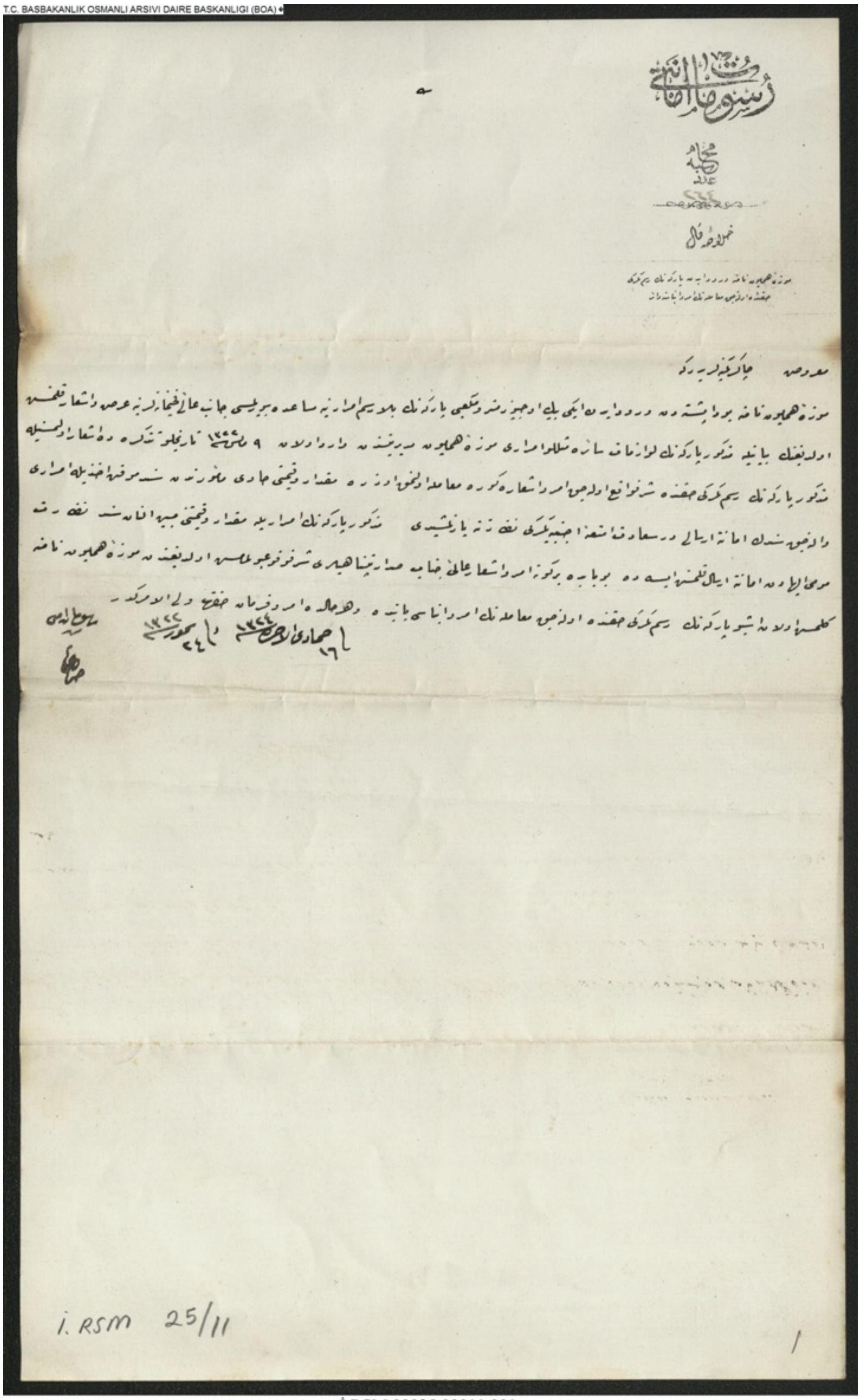
İ.MF.00012.00042.001

B.27. Document 3.13: Presidency of the Republic of Türkiye Directorate of State Archives. "İ_MF_00012_00042_001_001" (4 Cumadelula 1324 / June 26, 1906)



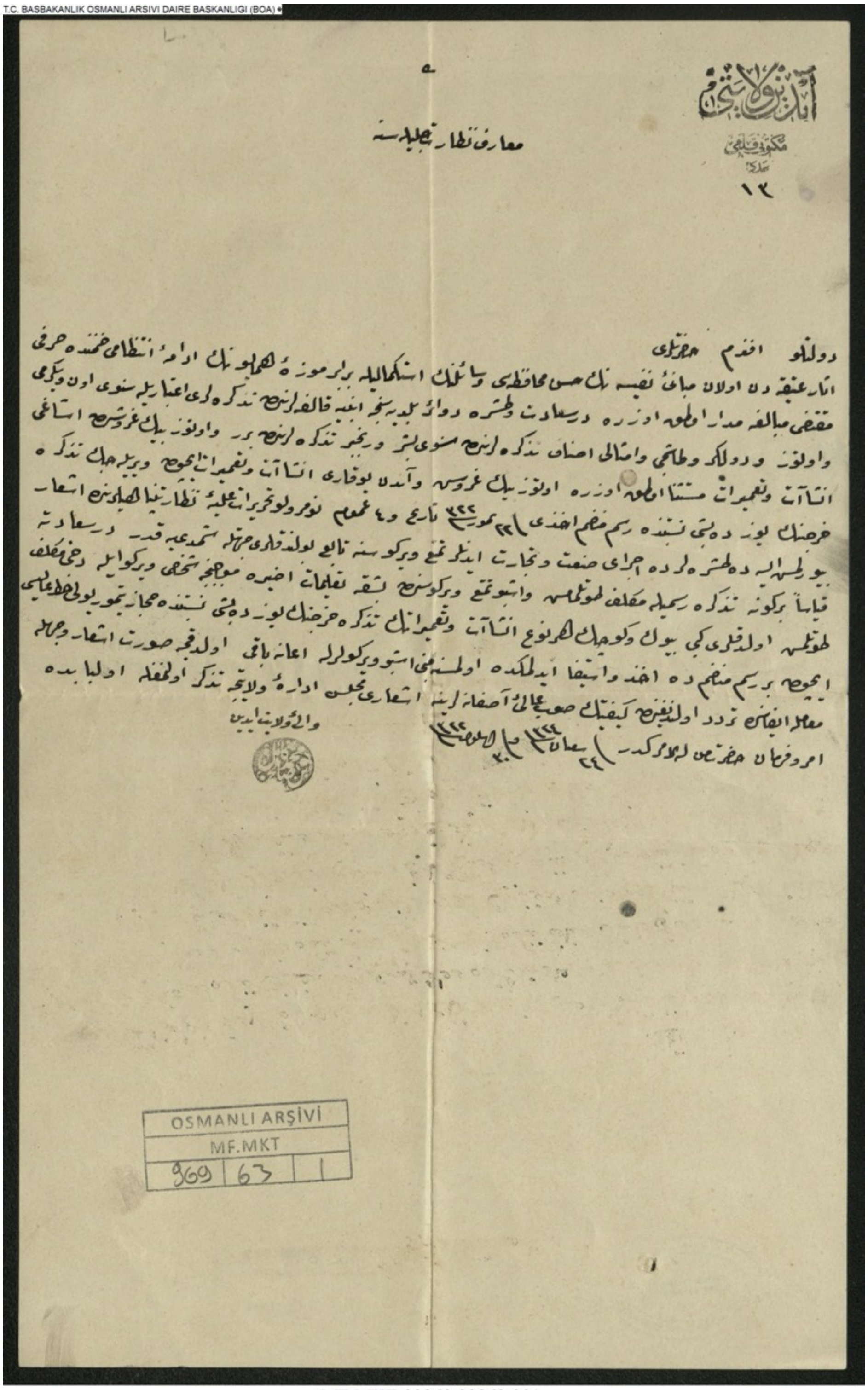
MF.MKT.00958.00016.001

B.28. Document 3.15: Presidency of the Republic of Türkiye Directorate of State Archives. “MF_MKT_00958_00016_001_001” (12 Cumadelula [1]324 / July 4, 1906)



İ.RSM.00025.00011.001

B.29. Document 3.16: Presidency of the Republic of Türkiye Directorate of State Archives. "İ_RSM_00025_00011_001_001" (16 Cumadelâhire 1324/July 28, 1906)



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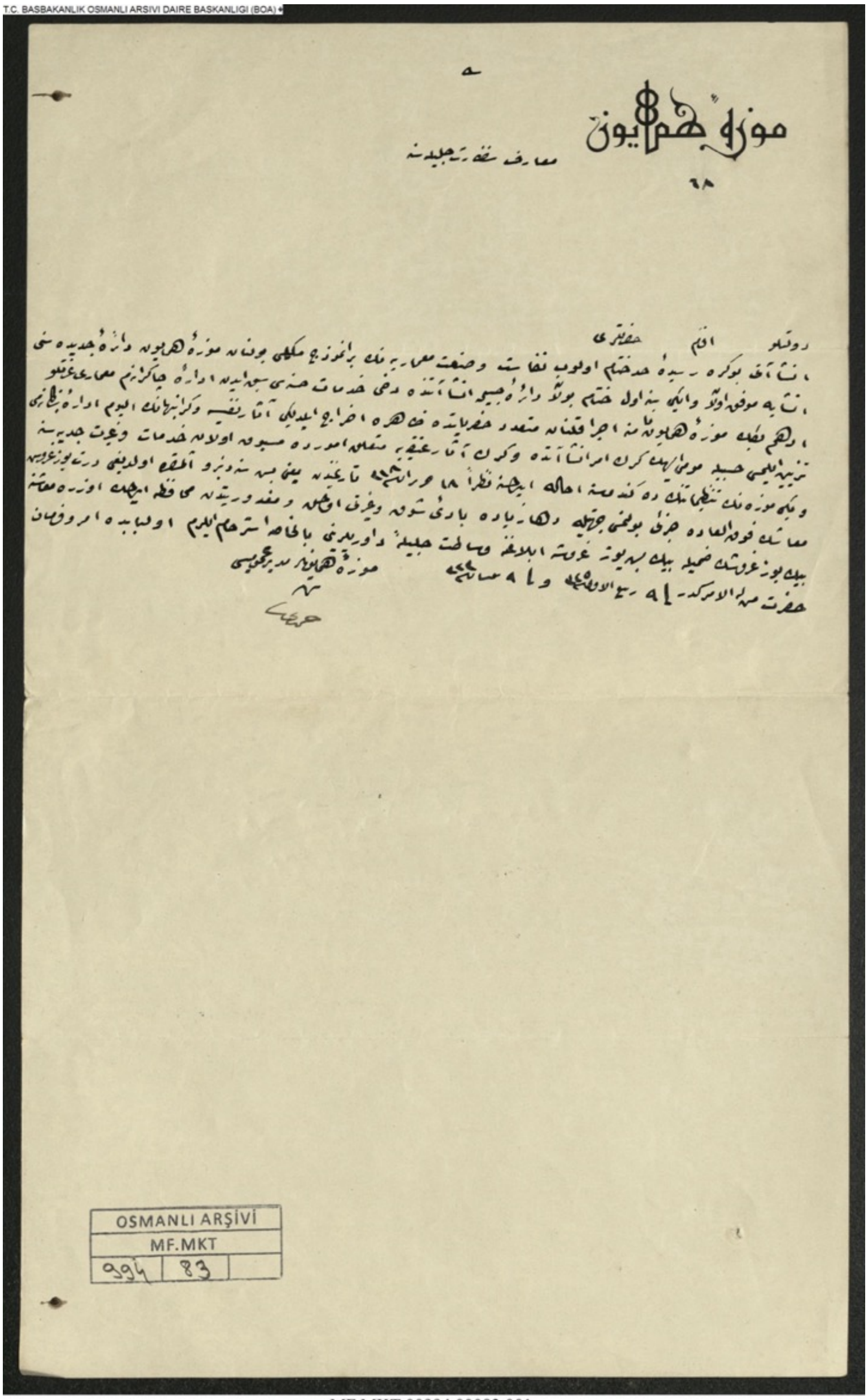
B.30. Document 3.23: “MF_MKT_00969_00063_001_001” (24 Şaban 1324/ October 13, 1906)


T.C. BASBAKANLIK OSMANLI ARSIVI DAIRE BASKANLIGI (BOA)

موزهٔ همایون

OSMANLI ARŞİVİ
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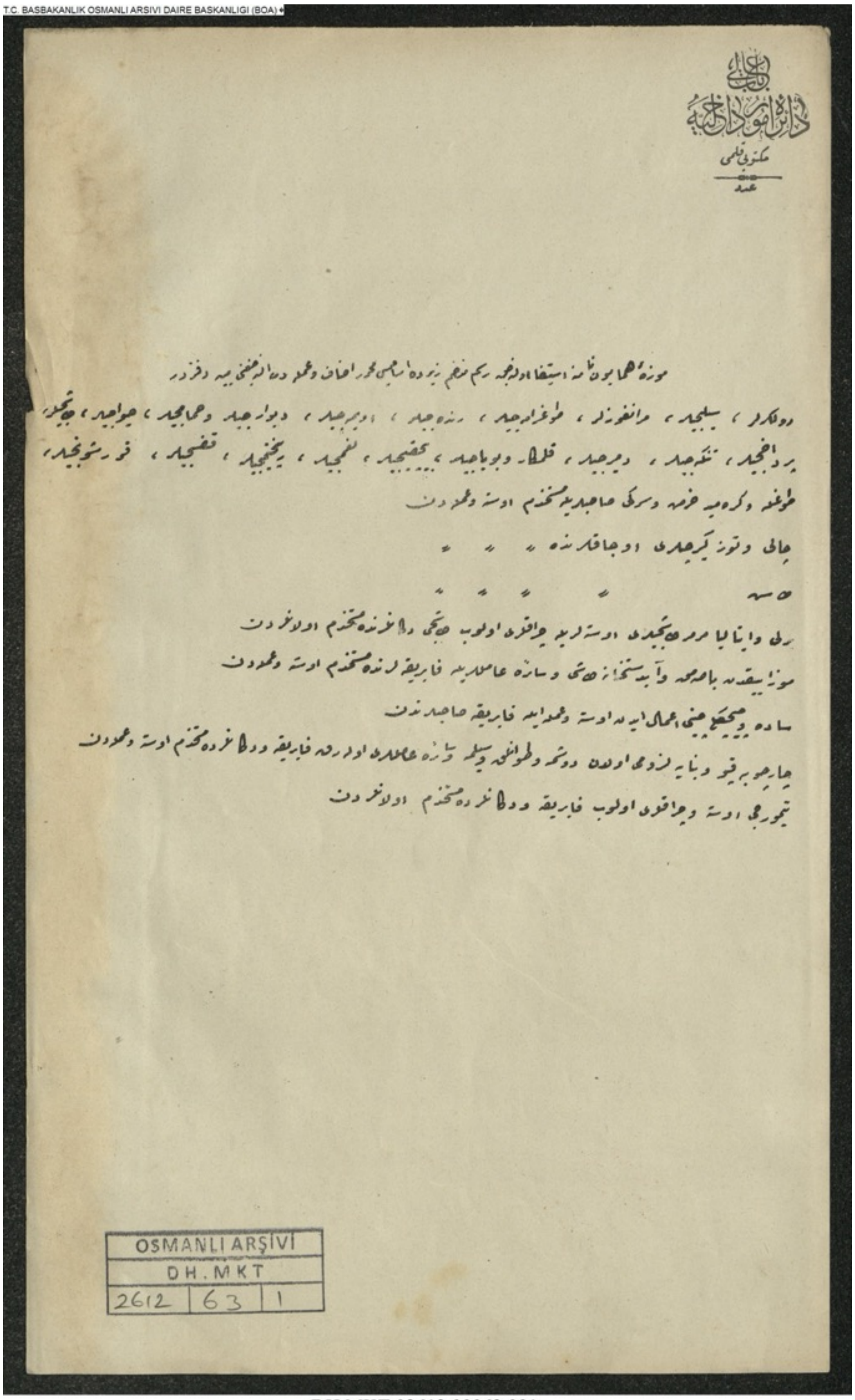
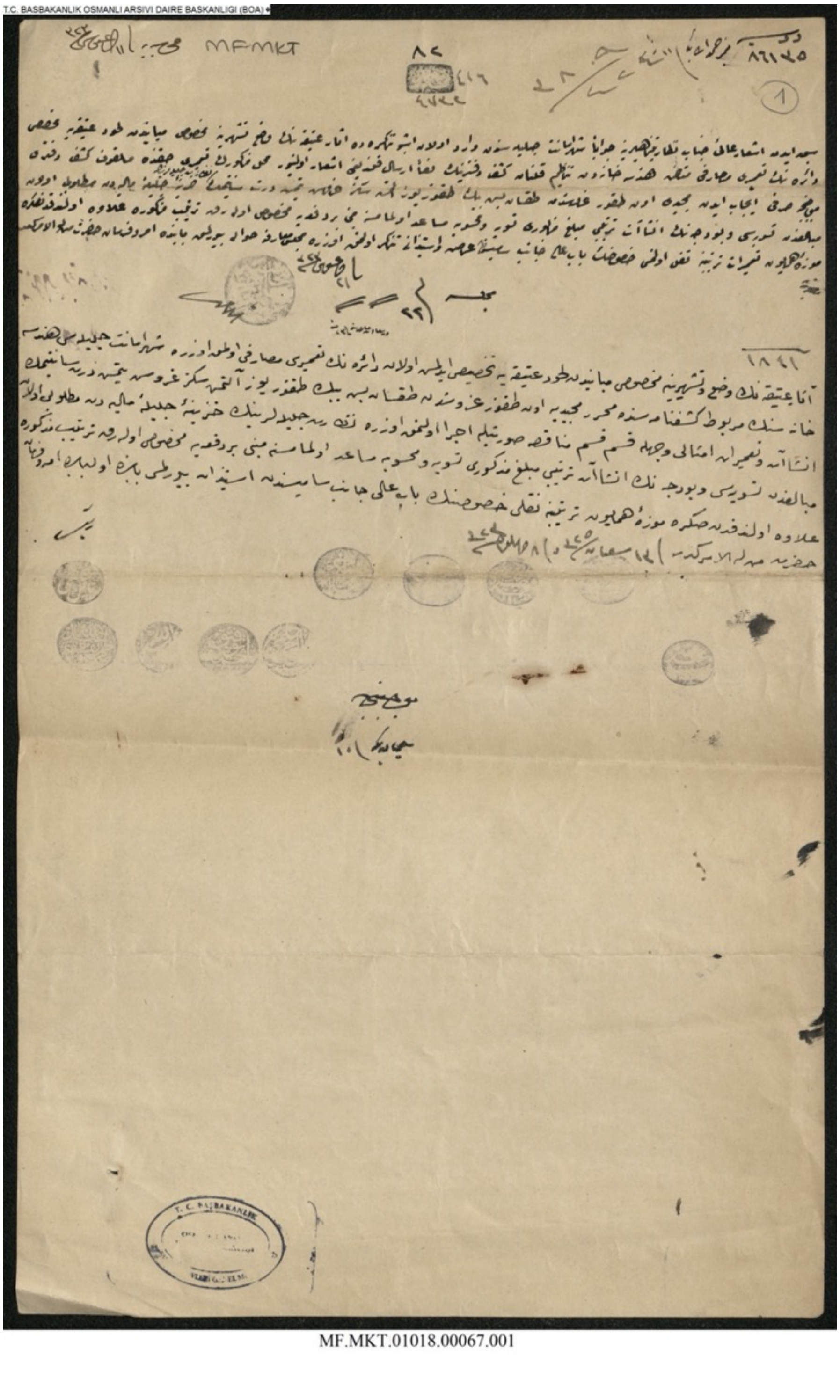
MF.MKT.00994.00083.001

B.31. Document 3.25: Presidency of the Republic of Türkiye Directorate of State Archives. "MF_MKT_00994_00083_001_001" (9 Rebiülevvel 1325/April 22, 1907)



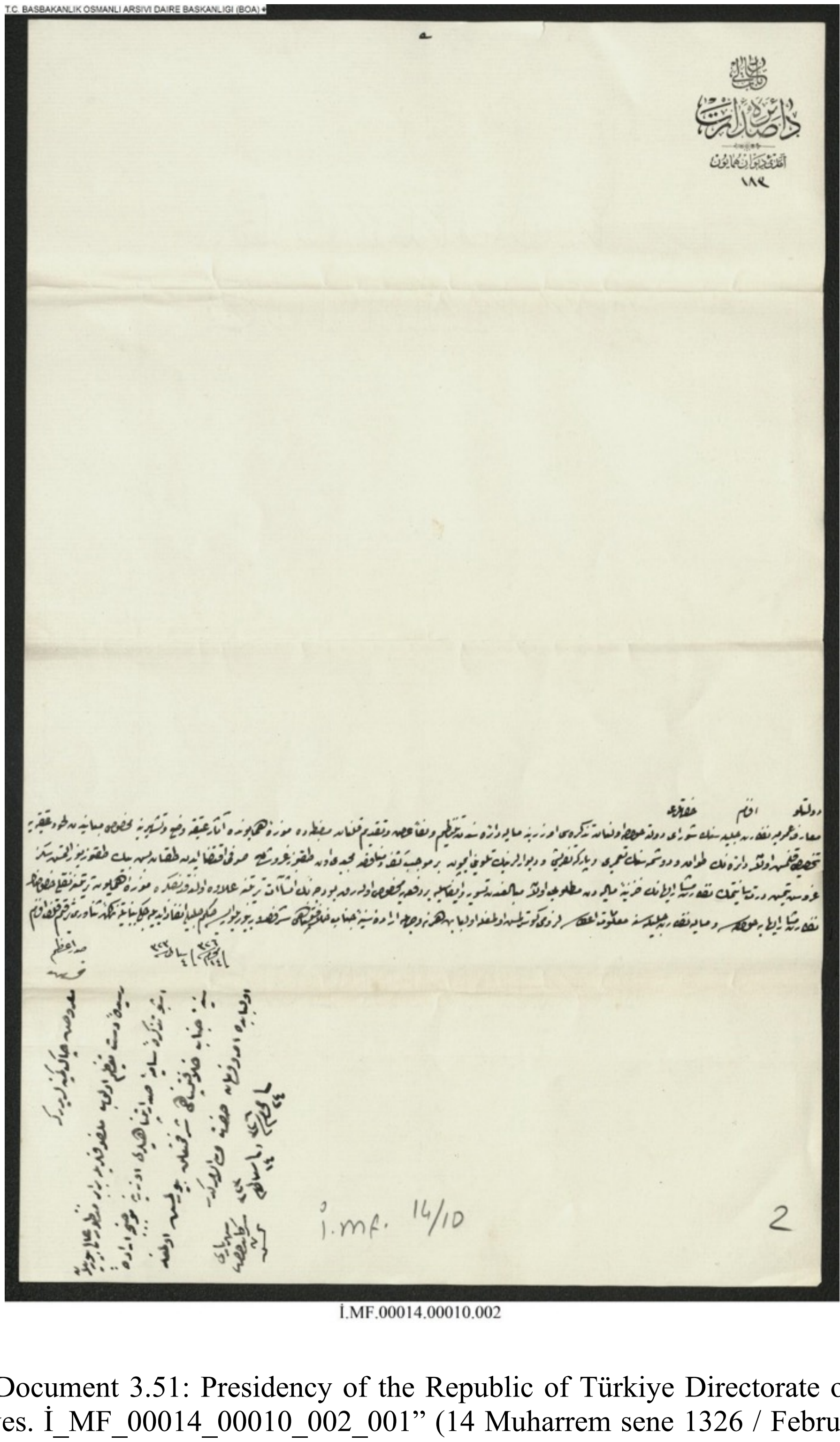
DH.MKT.02612.00063.001

B.32. Document 3.30: Presidency of the Republic of Türkiye Directorate of State Archives. “DH_MKT_02612_00063_001_001” (17 Receb 1325 / August 26, 1907)



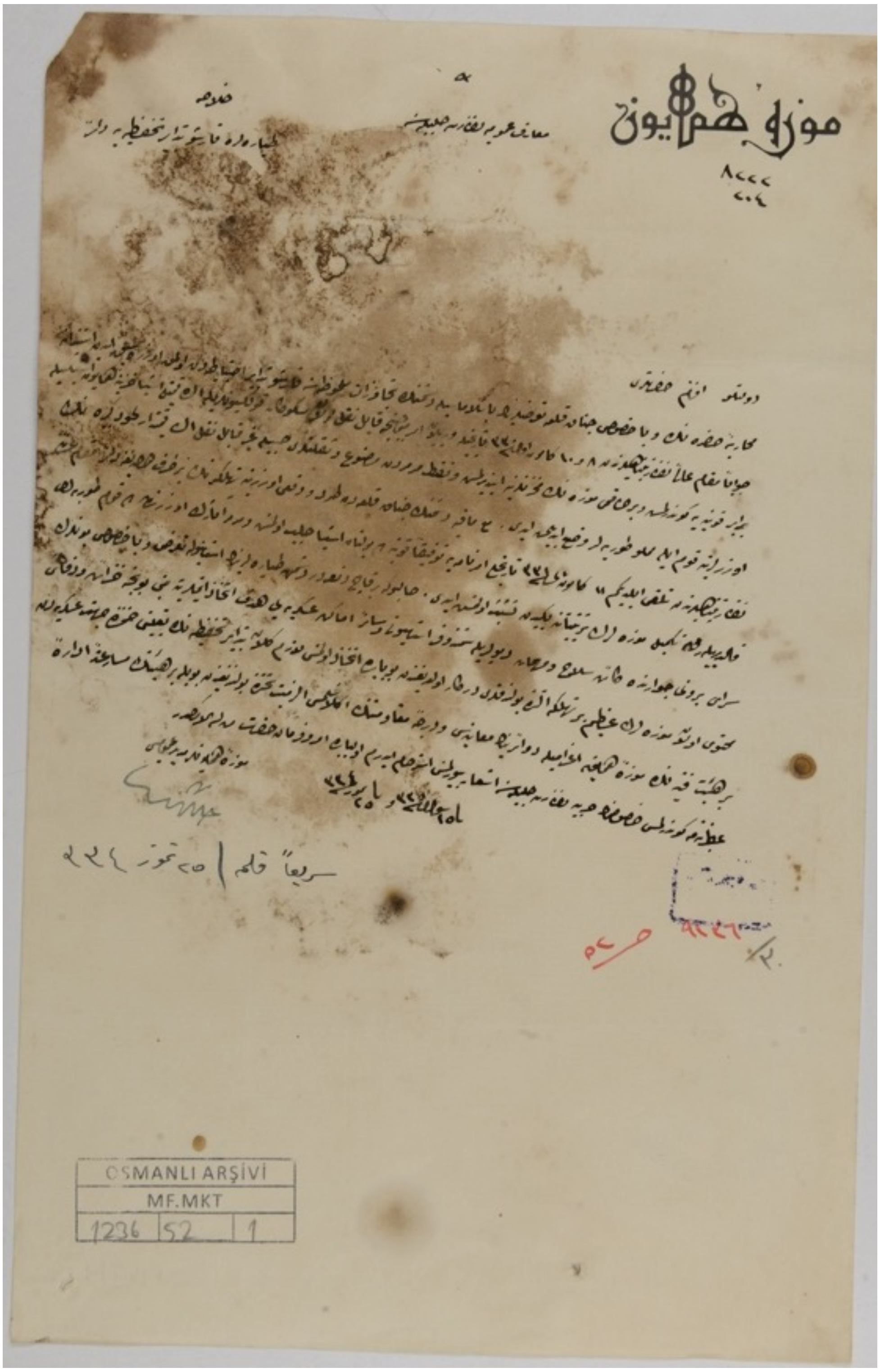
MF.MKT.01018.00067.001

B.33. Document 3.32: Presidency of the Republic of Türkiye Directorate of State Archives. “MF_MKT_01018_00067_002_002” (20 Sha'ban 1325 / September 28, 1907)



İ.MF.00014.00010.002

B.34. Document 3.51: Presidency of the Republic of Türkiye Directorate of State Archives. İ_MF_00014_00010_002_001" (14 Muharrem sene 1326 / February 17, 1908)


موزهٔ همایون

OSMANLI ARŞİVİ
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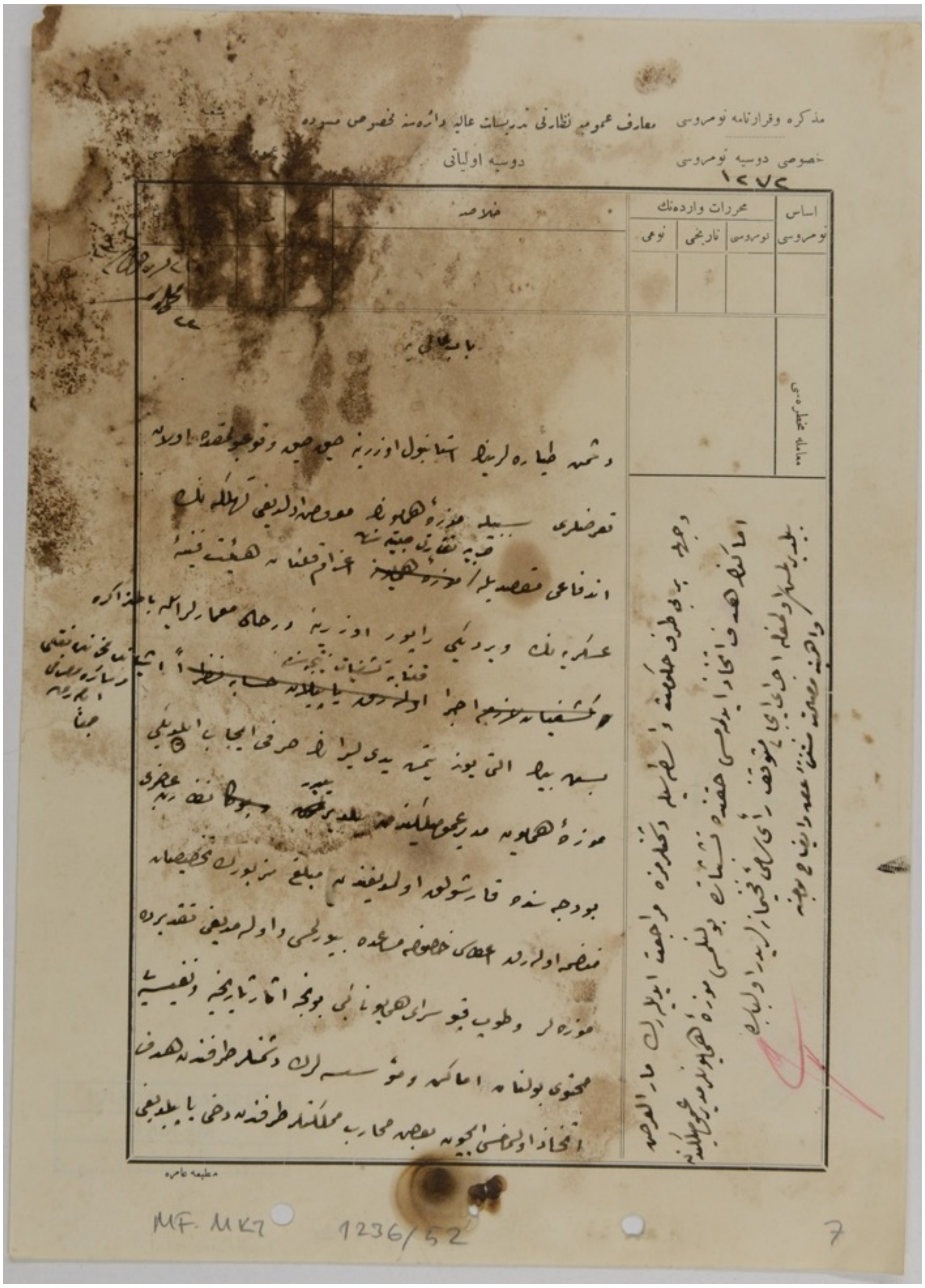
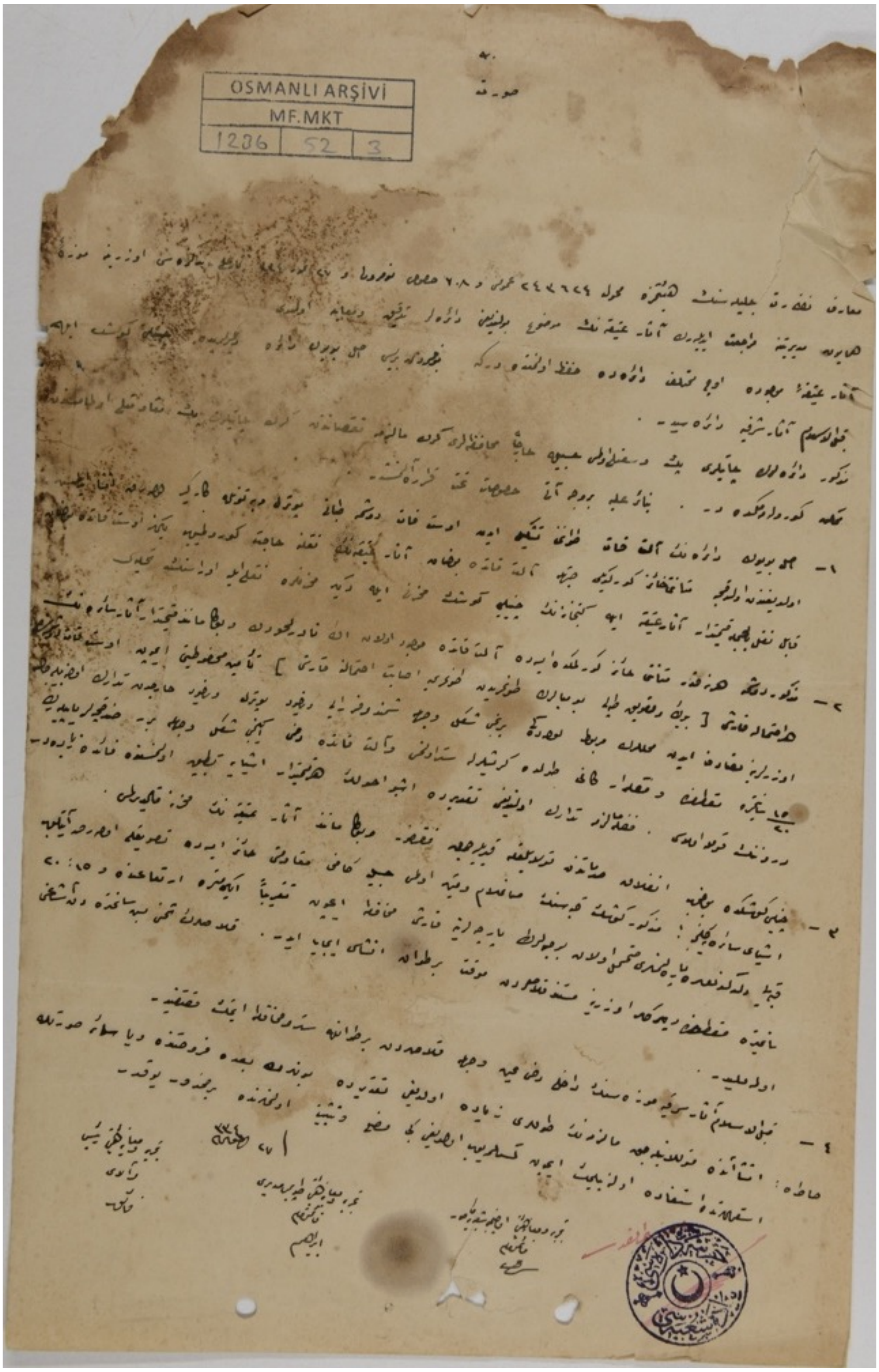
1236 | 52 | 1

B.35. Document 4.01: Presidency of the Republic of Türkiye Directorate of State Archives. “MF_MKT_01236_00052_001”, (5 Şevval 1334-August 15, 1916)

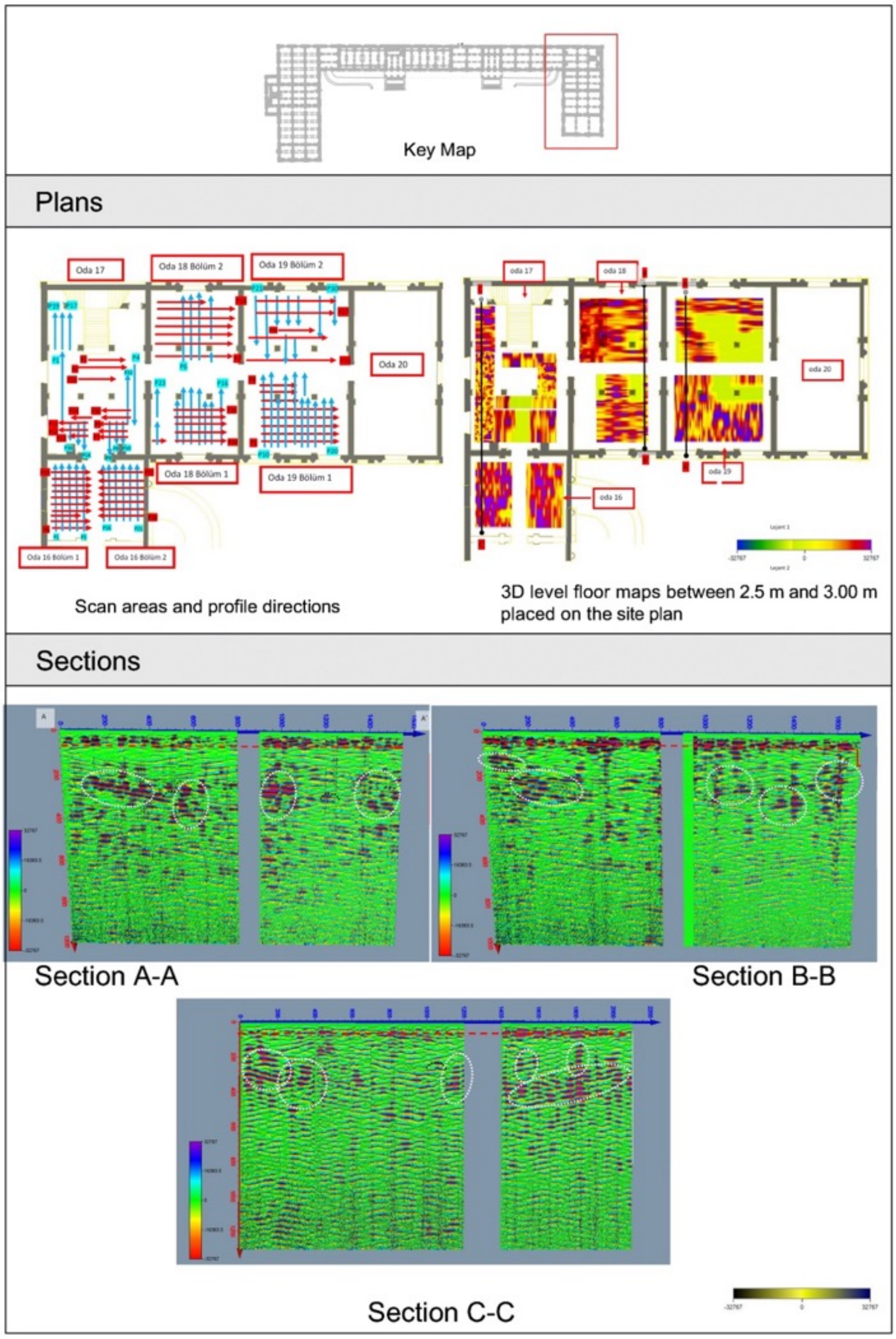

مذكره وقرارنامه نومروسی
معارف عموميه نظارتی مدرسات عاليه دائره‌سنه خصوصی مسوده
خصوصی دوسيه نومروسی
دوسيه اولياتی
خلاصه
محررات وارده‌نك
اساس نومروسی
MF. MKT 1236/52

B.36. Document 4.02: Presidency of the Republic of Türkiye Directorate of State Archives. “MF_MKT_01236_00052_010” (2 Teşrinievvel 1332/October 15, 1916)

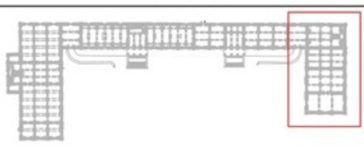
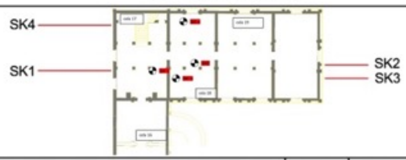

OSMANLI ARŞİVİ
MF.MKT
1236 52 3

B.37. Document 4.04: Presidency of the Republic of Türkiye Directorate of State Archives. ”MF_MKT_01236_00052_005” (27 Ağustos 1334/August 27, 1334)

C. **The results of GPR Report prepared by Geoanaliz Yer Bilimleri Ltd. Şti. (IDSM Archive)**



D. The results of Drilling Report prepared by by Geoanaliz Yer Bilimleri Ltd. Şti. (IDSM Archive)

Location: Istanbul, Fatih, İstanbul Archaeological Museums	
Equipment: CRAELIUS D500	Drilling Method: Portable
Ground Elevation: 0,00 m	Depth of Drilling: 6,5 m
Key Map	Drilling Locations
	

Drilling No: SK1	Depth	Soil Type	Height	Legend
	2.5	material with Khorasan mortar, brick fragments, limestone blocks, sandy gravel	-2.5	
	5	EMPTINESS	-5	
	6.5	soft viscous, sandy crumb unit (Fill)	-6.5	

Drilling No: SK2	Depth	Soil Type	Height	Legend
	4	brick piece, limestone block, sandy gravel material	-4	
	6	EMPTINESS	-6	

Drilling No: SK3	Depth	Soil Type	Height	Legend
	2	EMPTINESS	-2	
	4	Khorasan mortar, brick piece, sandy gravel material	-4	
	6	soft viscous, sandy crumb unit (Fill)	-6	

Drilling No: SK4	Depth	Soil Type	Height	Legend
	1	sandy gravel soil (fill)	-1	
	2.5	Soft viscous, sandy crumb unit, less brick fragments (Fill)	-2.5	
	3.5	Limestone and brick fragmentary material	-3.5	
	5	soft, viscous, sandy crumb unit (Fill)	-5	

CURRICULUM VITAE

Surname, Name: Üstoğlu Coşkun, Deniz
Nationality:
Date and Place of Birth:
Marital Status:
email:

EDUCATION

Degree	Institution	Year of Graduation
MS	METU Urban Design	2012
BS	METU Department of Architecture	2009
High School	Çankaya Anadolu Lisesi, Ankara	2004

WORK EXPERIENCE

Year	Place	Enrollment
2009-2010	Güral Alüminyum	Architect
2011	Ulusoy İnşaat	Architect
2012-2014	Arma Mimarlık	Architect
2014-2017	Ankara Rölöve ve Anıtlar Müdürlüğü	Architect
2017-cont.	İstanbul Rölöve ve Anıtlar Müdürlüğü	Architect

FOREIGN LANGUAGES

Advanced English, intermediate level German, beginner level Italian, beginner level Ottoman Turkish

PUBLICATIONS

1. Üstoğlu Coşkun, D., & Şahin Güçhan, N. (2024). Building an Imperial Museum on Byzantine Remains: The Foundation System Built for Istanbul Archaeological Museum by Vallaury Between 1899-1907. *International Journal of Architectural Heritage*, 1-26.)