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RE-FUNCTIONING OF INDUSTRIAL BUILDINGS WITHIN THE FRAMEWORK OF INDUSTRIAL HERITAGE CONCEPT*

ENDÜSTRİYEL MİRAS KAVRAMI ÇERÇEVESİNDE ENDÜSTRİYEL MİRASIN YENİDEN DEĞERLENDİRİLMESİ

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Abstract

The realization of the importance of industrial buildings was made possible by perceiving them as a heritage. The expansion of heritage in its cultural sense over time has revealed the concept of "industrial heritage". The interest in industrial heritage in recent years has been rooted in the interest in technological developments. Industrial buildings are important heritages that take place in the memory of human and the city, with production carried out in it, their mechanical equipment, their structure and even the lifestyle created by the employees over time. However, despite their importance in the history of architecture, their ties to the past and their historical value, these buildings were not considered architecturally for many years compared to other historical buildings and they were forgotten by being dysfunctional. Industrial facilities, factories, power plants, train stations are important examples of industrial heritage. These structures describe the technology of the period in which they were built in terms of their architectural features and design criteria. First of all, the architecture of the industrial buildings that have survived completely, and then each of the machinery and equipments inside are industrial heritage. This legacy has a story and a foundation. While every detail to be taken from here tells about human's past lives, it also gives clues about the future. These structures affect the environmental perception due to their size and distinctive architectural features, and they are flexible enough to make changes in their interior spaces due to their structural resistance. When the historical industrial structures in the world are examined, it is seen that they are generally re-evaluated as art and culture spaces. The reason for this is that these buildings architecturally create a suitable environment for art and performance spaces. In addition, they allow flexible use with their structural features, large and spacious interiors, high walls and wide windows. When examples from the world and Turkey are examined, it is seen that the factories of the past have turned into art and culture centers on by one over time. The aim of this study, within the scope of re-functioning of historical buildings, will be able to provide analysis through examples of buildings that have been given a new function. Thus, taking into account the structural data that may be required for re-functioning, it will be possible to increase the studies carried out in this direction in our country and to recycle historical buildings by evaluating them in this direction. With this study, it will be possible to analyze through examples of spaces that have been given a new function within the scope of re-functioning historical buildings. In addition, the aim of the study is to increase the number of studies carried out in this direction in our country, considering the structural data that may be required for re-functioning, and to ensure that historical buildings are reused by evaluating them in this direction.

Keywords: Industry, Heritage, Industrial Heritage, Industrial Buildings, Reuse.

Özet

Endüstri yapılarının öneminin fark edilmesi, onların bir miras olarak algılanmalarıyla mümkün olmuştur. Mirasın zaman içerisinde, kültürel anlamındaki genişlemesi, “endüstri mirası” kavramını ortaya çıkarmıştır. Son yıllarda endüstriyel mirasa gösterilen ilginin kökeninde, teknolojik gelişmelere duyulan merak yatmaktadır. Endüstri yapıları, içinde üretim gerçekleştirilen, mekanik donanımları olan, strüktürü ve hatta zamanla çalışanların yarattığı

yaşam biçimiyle, insan ve kent belleğinde yer alan önemli miraslardır. Ancak mimarlık tarihindeki önemi, geçmişle olan bağları ve taşıdıkları tarihi değere rağmen, bu yapılar diğer tarihi yapılara göre uzun yıllar mimari açıdan dikkate alınmamışlar ve işlevsiz kalarak unutulmaya yüz tutmuşlardır. Sanayi tesisleri, fabrikalar, elektrik santralleri, tren garları endüstri mirasının önemli örnekleridir. Bu yapılar mimari özellikleri ve tasarım ölçütleri açısından yapıldığı dönemin teknolojisini anlatmaktadırlar. Tümüyle ayakta kalmayı başaran endüstri yapılarının öncelikle mimarisi daha sonra içlerindeki makine ve donanımların her biri birer endüstri mirasıdır. Bu mirasın bir hikâyesi ve temeli vardır. Buradan alınacak her detay insanların geçmiş yaşantısını anlatırken, aynı zamanda geleceğe dair ipuçları vermektedir. Bu yapılar büyüklüklerinden ve belirgin mimari özelliklerinden dolayı çevresel algıyı etkilemekte, sağlam strüktürel yapılarından ötürü de iç mekânlarında değişiklik yapmaya olanak veren esnekliktedirler. Dünyadaki tarihi endüstri yapıları incelendiğinde, genellikle sanat ve kültür mekânları olarak yeniden değerlendirildikleri görülmektedir. Bunun sebebi bu yapıların öncelikle mimari olarak, sanat ve gösteri mekânları için uygun bir ortam yaratmalarıdır. Ayrıca strüktürel yapıları, geniş ve ferah iç mekânları, yüksek duvar ve geniş pencereleri ile esnek bir kullanıma da olanak sağlamaktadırlar. Dünyadan ve Türkiye'den örnekler incelendiğinde geçmişin fabrikalarının zamanla birer birer sanat ve kültür merkezine dönüştükleri görülmektedir. Bu çalışma ile tarih yapıların yeniden işlevlendirilmesi kapsamında, yeni işlev kazandırılmış mekan örnekleri üzerinden analiz yapılması sağlanabilecektir. Ayrıca çalışmanın amacı, yeniden işlevlendirme için gerekli olabilecek yapısal veriler dikkate alınarak, ülkemizde bu yönde yapılan çalışmaların artırılmasını ve tarihi yapıların bu yönde değerlendirilerek yeniden kullanıma kazandırılmasını sağlamaktır.

Anahtar Sözcükler: Endüstri, Miras, Endüstri Mirası, Endüstri Binaları, Yeniden İşlevlendirme.

Introduction

Urban transformations that occurred alongside the Industrial Revolution led to the erosion of urban identity, which subsequently encouraged the acceptance of the concept of Cultural Heritage. This approach has expanded over time, adding a new dimension to cultural heritage under the term "industrial heritage." Today, the resources identified as industrial heritage are quite broad and fragmented. This is due to the industrial civilization's ongoing attempts to transform itself and the lack of an integrated operational strategy.

1. Conceptual Framework

Urban transformations that occurred alongside the Industrial Revolution led to the erosion of urban identity, which subsequently encouraged the acceptance of the concept of Cultural Heritage. This approach has expanded over time, adding a new dimension to cultural heritage under the term "industrial heritage." Today, the resources identified as industrial heritage are quite broad and fragmented. This is due to the industrial civilization's ongoing attempts to transform itself and the lack of an integrated operational strategy.

The concept of industrial heritage emerged as a result of the disappearance of values tied to industrial identity. When an asset is threatened, the need for its preservation arises. In the 19th century, while industry was developing in Europe, it posed a threat to traditional structures, and efforts were initiated to protect the existing fabric. By the second half of the 20th century, factory buildings were under the threat of destruction; changes in the industrial process and the rationalization of production exerted a significant pressure to demolish older industrial buildings. At this point, the concept of "industrial heritage" emerged. Recognizing the importance of industrial structures became possible by perceiving them as heritage assets.

Zollverein Coal Mine, (URL-1).

The resources defined as industrial heritage today are quite broad and fragmented. This is due to the industrial civilization's efforts to transform itself and the absence of an integrated operational strategy. If we were to classify the resources within the scope of industrial heritage in general terms, they include tools defined as movable cultural assets and structures and industrial landscapes defined as immovable cultural assets (Seçer Kariptaş, 2009).

The Importance of Industrial Buildings in Terms of Preservation

The concept of preservation is used as an equivalent for the terms "preservation," "conservation," and "protection." In fact, these three terms are very similar in meaning. "Conservation" involves practices aimed at preventing the deterioration, misuse, or abandonment of a structure. "Preservation" refers to maintaining a historic structure in its current state without alteration. It also involves supporting the building's existing form, integrity, materials, and structural aspects, along with its unintentional outer shell formed by its surrounding environment. "Protection," on the other hand, is defined as intervening in and enhancing a property to defend it against physical deterioration and losses (Kaşlı, 2009).

Industrial building interior example (URL-2)

In addition to these definitions, the Cultural and Natural Heritage Conservation Law No. 2682 explains the concept of "conservation" as follows: "'Conservation' and 'protection' involve the preservation, maintenance, repair, renewal, and change of function for immovable cultural and natural assets, while for movable cultural assets, they include preservation, maintenance, repair,

and restoration" (Kaşlı, 2009). The importance of industrial buildings in terms of conservation is evident through their historical, architectural, and cultural values. These buildings, constructed with the technology and innovations of their time, carry cultural messages symbolizing the characteristics of a specific era. Each structure is a valuable cultural source, embodying the technical, social, economic, architectural, and social lifestyle components of its time. Additionally, each building holds unique historical and symbolic values (Kaşlı, 2009)

Kayseri Cloth Factory Interior, (URL-3)

The risks associated with the loss of function of historic industrial buildings, considered within the scope of industrial archaeology, and issues arising from the preservation approach in our country need to be resolved as soon as possible. Therefore, there are several urgent actions required to protect these structures. First, historic industrial buildings should be identified and inventoried. This inventory system must be continuously updated and developed. Additionally, it should be prepared in a system that can be stored digitally and made accessible to the public. The inventories of these buildings should be supported with survey, restitution, and restoration projects to initiate an informed preservation effort. In this way, the degree of damage and risk status of these buildings can be assessed. Following these studies, these structures, which are part of industrial heritage in the cultural and architectural context, should be given new functions to ensure their survival today. The most suitable uses for re-functioning should be determined. If a historic industrial building has lost its original function but retained its structural characteristics, it may still be suitable for reuse. When assessing such buildings under current conditions, it is necessary to consider the structure's characteristics, the features of its surroundings, its archaeological and architectural importance, its level of deterioration, its potential for reuse, and the availability of economic support (Köksal, 2006). During the re-functioning of historic structures, interventions such as cleaning, consolidation, integration, renewal, and new additions may be necessary. Before implementation, sufficient research should be conducted by experts in the field, followed step-by-step, and with a clear methodology. Rapid implementations pose the greatest risk to re-functioned buildings (Föhl, A, 1995).

To avoid unsuccessful implementations, re-functioning proposals should be carefully considered. Continuity should be ensured with long-term, developed programs. Although adapting industrial buildings for new uses without demolishing them is more economical than constructing from scratch, funding is still needed for preparation, preliminary research, and implementation. Moreover, the financial aspect of implementation is essential. Support may be sought from chambers of industry, private companies, and national and international

organizations. It is known that the Council of Europe does not turn down such requests for industrial heritage buildings deemed worthy of preservation. Support can also be sought from international organizations such as the Union of Local Authorities (WALD), ICOMOS, UNESCO, TICCIH, and DOCOMOMO (Köksal, 2005)

Before and after Cevizli Tekel Factory, (URL-4)

Revitalizing factories through adaptive reuse allows the cultural heritage embodied in old values to be revived, making them readable, perceptible, and visible. The continuation of traditional spaces through adaptive reuse ensures cultural sustainability by preserving and accurately reflecting historical heritage. This creates a bridge between the past and the future, the old and the new. In the transformation of industrial heritage, harmony gained through new functions and the adaptation of buildings to these functions are criteria indicating the success of the process. Thus, by assigning appropriate functions, sustainability is achieved economically, socially, culturally, and environmentally. Consequently, the preservation and reassessment of structures within the scope of industrial heritage occur by giving them new and suitable functions (Seçer Kariptaş, Edirne Erdinç, & Özkazanç Dinçer, 2015).

2. Methodology

In this study, the authors' thesis works and the project data of Erginoğlu & Çalışlar Architecture Design Center (www.ecarch.com) were evaluated, and examples of industrial heritage from both domestic and international contexts were examined. The research utilized project data from the years 2000-2024, illustrating the transformation of industrial heritage examples during this period through photographs.

3. Findings

The approach of preserving and reusing industrial buildings began with the opening of the world's first technical museum in Paris in 1794. However, the term "industrial archaeology" began to be widely used in 1970. Considering that 37 out of the 754 cultural assets on the World Heritage List are industrial heritage, the importance that should be attributed to these structures becomes evident. Furthermore, these buildings within the scope of industrial heritage are significant works that provide important clues about the social and economic lives of the communities where they are located, as they reflect the production and working methods of specific periods. In European countries that hosted the Industrial Revolution, such as Germany, France, and England, there are over 100 registered industrial structures. According to a report prepared by The International Committee for the Conservation of Industrial Heritage (TICCIH) in 1985, there are around 14,000 registered industrial buildings in England, 400 in Poland, 254 in Austria, and 200 in Sweden (Özen, 2006). To understand the value of historic industrial buildings, it is important to grasp how much and in what way they are connected to the era in which they were built. Therefore, during the process of proposing new functions for historic industrial buildings and selecting the most appropriate one, the scope, criteria, and boundaries of the assessments should be well-defined.

The first proposal for determining the path to be followed regarding the identification and functional transformation of industrial heritage was made by Cartier in relation to the preservation of industrial heritage in France. Cartier stated, "Documenting the current situation comprehensively with photographic records will form the basis of scientific studies," and suggested the creation of the following list of questions, applicable as evaluation criteria for all monuments:

- What is the name of the structure within the scope of industrial heritage?
- Where is it located?
- What type of energy is used for production in the building?
- What types of machinery does it contain?
- What historical records related to the building are accessible?
- Have any additions been made to the building over the years?
- What architectural interventions have been carried out on the building?

Conservation Approaches for Industrial Buildings - Adaptive Reuse

The reasons necessitating the reuse of buildings can be identified as the loss of their original functions or their functional obsolescence. Today, many structures, such as palaces, caravanserais, inns, and madrasas, have lost their original functions, while others have become functionally outdated. The physical characteristics of buildings can become problematic over time, even for those that continue to serve their functions.

Kasımpaşa Flour Mill, (Seçer Kariptaş, 2012)

The cause of spontaneous changes in buildings is largely social in nature. The desire to achieve the quality of modern living has also affected the spaces we inhabit. In buildings where the planning process has not been properly implemented, these expectations often lead to overuse and degeneration (Altınoluk, 1998).In summary, if buildings within the scope of industrial heritage lose their original function, reusing them with a new purpose means prolonging their lifespan by fully preserving their inherent values (Kaşlı, 2009). The reasons for adaptive reuse, as discussed above, can be grouped under three main categories: historical and cultural reasons, economic reasons, and environmental reasons.

Conservation Approaches for Industrial Buildings - Historical and Cultural Reasons

The functions of historic industrial buildings are intertwined with the economic, social, and cultural characteristics of society. As conditions change over time, the function of the building is also affected. The crucial point here is that the building does not lose its historical memory and maintains continuity. In some cases, a building with heritage value may be replaced by a new structure with different characteristics, thus erasing its original features. This is a situation we often encounter in restoration practices today. The original function of the building and its place in social memory are removed, and with the addition of a new function, harm is done to both memory and social identity. Despite these reasons, buildings with historical and cultural value are still under threat from high-return economic demands in the short term. Rather than viewing historical buildings as mere income-generating assets, it is a more suitable approach to recognize them as cultural products that, with appropriate functions, can be used, lived in, and passed on to future generations (Kariptaş, 2010).

Conservation Approaches for Industrial Buildings - Economic Reasons

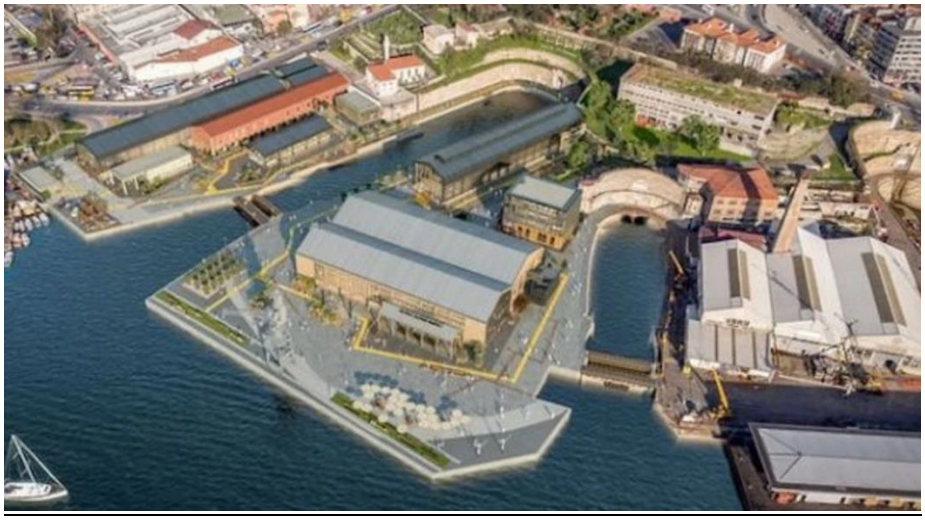
Industrial buildings within the scope of industrial heritage that are repaired, repurposed, and made usable bring economic vitality through their new functions, benefiting society, the environment, culture, and even tourism. Originally constructed with significant labor, financial investment, and materials, repurposing these structures today provides a gain both for world and architectural history as well as for economic development. However, the desire for economic gain should not overshadow the architectural, cultural, social, and environmental considerations of repurposing industrial buildings. Interest in the Industrial Revolution over time has led to the formation of a new economy called industrial tourism, which emerged with

the reuse of industrial buildings and the benefits they bring to their surroundings. In this way, it is aimed for cities and their residents to benefit equally from the rising economic opportunities and for living standards to improve (Tümer, 2003).

Conservation Approaches for Industrial Buildings - Environmental Reasons

The structures that represent industrial heritage share a common history with the region in which they are located. As their interactions continue for years, they must be reevaluated according to the changing environmental conditions and the functions needed. The new function assigned to the building should be reinterpreted in light of the surrounding environment. This way, the building, assessed together with its surroundings, continues its life with the social and historical continuity created by change. It is necessary for the industrial structure to maintain continuous interaction with the local population and to be repurposed considering the wishes of the people living in the area. For the building to survive, it must not lose its significance in the surrounding environment. When the community embraces the building with its new function, it becomes possible to protect a living heritage that continues to exist. The interventions made to meet the needs of the region where the structure to be preserved is located will also contribute socially and culturally to the building's surroundings. With its new function, the building can provide job opportunities for the local people. By offering cultural, educational, and sports activities to the surrounding community, it can facilitate social integration through the building. The acceptance and ownership of the industrial heritage building by the local population accelerate this process (Föhl, A., 1987).

The Haliç Shipyard, one of Istanbul's significant industrial heritage sites, has been revitalized and integrated into the city's cultural and social life through an adaptive reuse project. This transformation carefully balanced preserving the historical identity of the structure with incorporating modern architectural approaches and conservation principles. The shipyard has been converted into a center featuring museums, exhibition spaces, and cultural event venues, highlighting its historical value while offering contemporary usage opportunities. This project stands as a successful example of preserving industrial heritage within the framework of sustainability principles. (Erginoğlu&Çalışlar, 2019)



Haliç Shipyard refunctional Project (URL-5)

Factors Affecting the Reevaluation of Industrial Buildings

Buildings that fall under the scope of industrial heritage have considerable documentary value and are worthy of protection. Historical buildings are shaped according to their spatial and volumetric structures, beyond just their surroundings. For instance, the position and spatial characteristics of a factory located in a historic environment are fixed and cannot be altered. When deciding to use an industrial structure as a cultural center or museum, it is essential to investigate the needs and desires of the surrounding area to determine which function will be most suitable for the building's architectural structure.

By paying attention to these issues, it will be possible to protect and reevaluate industrial buildings. In the arrangements to be made, interior design is of great importance. The building's location can be examined under three headings: functional, volumetric, and spatial configurations.

The Location of the Industrial Structure

The location of the industrial structure and its surroundings are directly connected to its function. Regardless of how accurately the spatial and volume-function relationship and architectural configuration are designed, if the building is located in an area unsuitable for its selected function, then it cannot be said that a building has been entirely repurposed. When deciding on the new function, attention should be paid to the geographical and physical characteristics of the surroundings as well as the desires of the local population.

Due to the loss of functions of industrial buildings in the face of changing and developing technology, or because they remain within urban areas due to increasing urbanization, their repurposing is inevitable for preservation. Consequently, many industrial buildings have remained in city centers and along coastlines. For example, if we consider the factory buildings located along the Golden Horn, they sustained their presence in that area for a long time. In fact, when asked about the industrial and port region of that era, everyone would refer to the Golden Horn. The growth and expansion of Istanbul over the years have caused changes in the city's structure. As a result, industrial buildings have remained within the city, but the negative impacts they created alongside the benefits for the city have necessitated their relocation. Factories began to adversely affect the city, particularly through environmental pollution. Therefore, it can be said that industrial structures along the Golden Horn have experienced a change in location as they have been moved outside the city. Most of the industrial heritage structures located along the Golden Horn no longer exist today; they have been demolished and the area has been redeveloped as a recreational space.

Functional Structure of the Industrial Building

When we talk about functional structure, it encompasses not only the architectural design within the building itself but also the relationships it has with its surrounding environment. The relationship with other buildings nearby is also crucial. The activities that will take place within the building shape its internal configuration. For example, if the industrial structure is a mill, the interior planning will be designed according to the activities that will occur there and the needs of the users. The journey of wheat begins from the moment it enters the factory and continues until it is transformed into flour, packaged, and distributed. Various spaces within the factory are shaped according to this functional configuration. Some spaces may be designed deeper inside the building, while others are closer to the facade; some areas may be designed

with inputs that suggest they will not receive natural light. The initial functional structure gained by the building should be reorganized to accommodate its new identity when a new function is assigned. For instance, when a historical office building is repurposed as an accommodation facility, the configuration of the central courtyard must be carefully considered. Potential problems arising from exiting rooms should be taken into account (Altınoluk, 1998).

Volumetric and Spatial Configuration of the Industrial Structure

As mentioned above, industrial buildings are shaped volumetrically and spatially according to their functions. The perception of the interior space is directly proportional to the identity of the space. Depending on the functions, a building can have a single volume, multiple volumes, repetitive, or complex plans. When a single, tall factory building is repurposed as a university, its architectural configuration will change, causing the building to lose its original identity characteristics. However, if an office building is to be used as accommodation, a solution can be derived from the existing plan. This is because it already has a multi-sectional plan structure and will not lose its identity characteristics.

Discussion and Conclusion

In recent years, there has been an increase in efforts to change the perspective on industrial buildings, understand the concept of industrial heritage, and include it in evaluation scopes. The lack of sufficient written resources on this subject adds more significance to the existence of old industrial structures. In this context, the buildings themselves remain the most informative documents. However, it is essential to preserve all data related to the structures that fall under the concept of industrial heritage, both architecturally and technologically. To promote the global spread of the industrial heritage concept and to ensure its value is understood, there should be more examples of well-executed adaptive reuse, allowing these buildings to participate in the life of the city with their new functions. In this way, the preservation of industrial areas and structures can be achieved through renewal practices that not only maintain their original characteristics and distinctive qualities but also reveal their hidden meanings and ultimately reinterpret their identities with a new understanding.

The concept of industrial heritage is relatively new in Turkey. It has not received the necessary recognition among other monumental building types and has remained in the shadows. Consequently, it has not attracted sufficient interest, nor have documentation efforts been carried out. As technology and needs have evolved over time, many industrial structures became vacant and dysfunctional before reaching the 21st century or were evaluated for different uses without significant renovation efforts. As a result, these structures have gradually begun to disappear, and the technical equipment within them has either been sold or stolen. The inadequacy of archives also poses challenges when studying such structures.

This study has conducted a detailed investigation into the concept and scope of industrial heritage. The reasons necessitating the adaptive reuse of industrial buildings have been researched and categorized into three main groups: historical, economic, and environmental reasons. Once the decision to repurpose industrial buildings is made, the question arises as to which function should be assigned to the existing structure. The answer to this question leads to the conclusion that the location of the building, its functional configuration, and its volumetric and spatial structure need to be examined in detail. Thus, it is understood that in the reassessment of the structure, it is necessary to consider the acceptance of the building by the

surrounding community, whether the functional configuration can adapt to the new function, and if the spatial structure allows for the placement of that function.

The building has its own stance and identity. The equipment used within it reflects the technology of the time it was constructed. When studies are conducted to repurpose the building without considering historical factors, it becomes evident that the renovation efforts will not be successful. Therefore, the most critical aspect of adaptive reuse is ensuring that the historical identity of the existing building is preserved. Users of the existing structures must support this preservation process. In our environment, it will be possible to establish a conscious and rational mindset in the protection and adaptive reuse process of our industrial heritage structures through the awareness and information provided by municipalities, historical preservation departments, and civil users.

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