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Evaluatıon of Restoratıon and Revıtalısatıon Opportunıtıes of Hıstorıcal Industrıal Herıtage in Protected Area of Bilecik-Sögüt (Türkiye)

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Abstract
The concept of protection has lasted since Ottoman Empire Period and the interest belonged to this concept started with the discoveries of the archeological areas in 19th Century. The rich historical heritage at each district of Turkey includes wide range of timeframe from pre-historical periods to now. The excess type and amount of cultural assets urge all the pieces in this field are needed to be filed, protected and saved.
The theme of the research is; to give information about the recent situation of factory structures in Bilecik – Söğüt region on the basis of protection sense and to form completeness by refunctioning with the urban fabric. In other word, the goal is; how the archeological heritage areas can be integrated into the inventories of Turkey with the properties and recommendations decided by predicating on universal definitions.

On this thesis study, the region where the factory buildings exist in Bilecik – Söğüt protection area is reviewed. The locations, identities and architectural features of factory structures in the region are elaborated. After the evaluation of the recent situation of structures, evaluation of restoration and revitalisation (refunctioning) and the changes in the protected areas of region are discussed with the various suggestions. With the framework of the sustainability of the industrial heritage, the protection of the factory buildings, which are densely deployed in the region, is targeted. At the same time, by bringing the structures into force, it is aimed that the local people who worked in the structures which are among the most important employment centres of city in due course of time, can refresh their memories, lay claim to structures and protect the cultural integrity. Splitting the historical factory buildings in Söğüt region into requisite fields at urban fabric and solution suggestions about usage are evaluated. With the idea of keeping the region alive with these structures by approaching holistically, revitalisation is aimed on this study.

Keywords: *Söğüt, restoration, revitalisation, refunction, conservation.industrial heritage*

Introductıon

The survey studies of the three most important factory buildings of the 19th century, which were located in the Söğüt conservation area, were on the verge of extinction, the preservation problems of each building were investigated, and in line with these analyzes, it was aimed to preserve and re-function the structures immediately. In this context, conservation proposals were made for buildings and re-functions were given.

1. Silk Factory No.1

The Silk Factory is located in the southern part of the city center of Söğüt, on Hankaya Street. The residential area of the building, which is located in the district center, on a land inclining to the north, is 347.25 square meters. It is a rectangular planned building and its entrance is from the west. It consists of ground floor, upper floor and attic floor. There is a large vacant lot in front of the south fa-

Figure 1.: Relationship of the Silk Factory No.1 with its surroundings Source: (Irden, A. 2021)

Figure 2: Aerial view of the Silk Factory No.1 with a drone Source: (Irden, A. 2021)

Figure .3: General view of the front of the building from the outside Source: (Irden, A. 2021)

Fig. 4: General view of the back of the building from the outside Source: (Irden, A. 2021)

Fig. 5: Relief drawing of the north (rear) facade of the building Source: (Irden, A. 2021)

Fig.6 Source: (Irden, A. 2021)

çade of the building. There are one and two storey settlements around the other facades. The building, which was one of the most important silkworm breeding buildings of the period, is in ruins and ruins today. The survey studies of the silk factory No. 1 were made, conservation proposals were made and a new function proposal was presented.

The Silk Factory building was built with brick masonry technique. It has a wooden framed, two-winged entrance door. Wooden shutters are used in the narrow and long windows with two wings, which can be opened on both wings. The load-bearing construction of the masonry walls consists of terracotta (clay) brick and mudbrick material components. To the left of the entrance door, there is a wooden carrier staircase with a two-armed middle landing. Horizontally arranged floor and beam elements are also made of wood. It has a Marseille tiled cover and four triangular windows on its roof (Figs.1,2,3,4,5).

1.1 **Protection Recommendations for Silk Factory No:1**

The tiles on the roof cover should be collected and removed from the surface. Original tiles should be identified and preserved in place. If there are lichen and moss formations on tile surfaces, they should be chemically removed from the surface.

Strength and material tests of wood should be made on wooden roof trusses, flooring covering, beams and columns, stairs, doors and window shutters, and solid wood should be protected in place.

The wood type should be determined, and the wood that has lost its function should be renewed.

In order to protect the original woods in place, they should be disassembled and fumigated5 by agricultural engineers, either as local parts in immersion pools or by packing the entire wood or roof that cannot be dismantled in situ.

The woods to be protected should be applied with a dip pool or brush. should be impregnated.

Chemical protection against fire can be applied.

Whether there is shellac varnish as a protector on doors and windows, it should be applied according to the results of the analysis.

Samples of exterior plaster and joint mortars should be taken and mortar analysis should be performed in the laboratory. Repairs should be made with the results to be obtained from these prescriptions.

The original surface paint should be determined by mechanical and chemical scraping on the façade paint on the façade surface.

Periodic research scraping should be done on the original plaster surfaces of the interior, and color and, if any, decoration samples belonging to the original period should be determined. The brick and stone samples of the building should be analyzed and original brick or stone should be preferred for repairs.

Fumigation: It is the process of suffocating insects, pests and bacteria, which are thought to be harmful, by giving gaseous chemicals in a closed environment. · The original architectural documents of the building should be researched and the project should be designed by researching the original project and document in order to complete the missing parts of the building.

Plant problems that partially or indirectly affect the structure should be mechanically and chemically removed from the structure.

Window frames, glasses, wooden shutters and doors that may belong to the building should be investigated in detail and the original material should be determined.

1.2 Evaluation of revitalization possibilities for Silk Factory No.1

Silk Factory Building No. 1 was abandoned due to the economic reasons mentioned in the content of the thesis, and it was observed that the building should be restored as a result of the researches. It is not possible for the building to maintain its original function under current living conditions. The preservation of the factory building, which reflects the social structure and architectural features of the period, and its transfer to future generations are important for continuity. Considering the protection suggestions presented in the content of the thesis, it was thought to make the necessary restoration applications and to give the structure a suitable function. Silkworm farming, which was one of the most important values of the city in its time, is very important for the lo-

cal people. Although silkworm farming has lost its value due to economic conditions today, with the thought that local people should keep this value alive, new opportunities should be created in order to attract local and foreign tourists to the region and show how important this value is for the people of the region. As a new function proposal, it has been proposed to be used as a 'Silk Insect Breeding Education-Production Workshop and Textile Industry Museum' for commercial, cultural and employment purposes.

After the proposed function, it will be possible to give trainings on silkworm breeding, convey its history and development process, and demonstrate silkworm breeding practices in the workshop. In this way, future generations and tourists coming to the region will have more detailed information about silkworm breeding. It will be possible to convey the historical texture of the district, the social structure of the people of the region and the architectural characteristics of the period by training and practices. Together with the textile industry museum, the works produced by the people of the region can be exhibited to the tourists, the presentation of these produced works and the sales of these products if desired. In this way, silkworm breeding will be revived in the region, employment will be created, it will be possible to show the works produced by the people of the region to everyone and keep the history alive.

With the new function proposal, it is aimed to introduce the parts of the production process, especially in the historical silk factory building. For this purpose, an arrangement should be made so that the machines and material samples used in the production process from the arrival of the raw wool fiber to the formation of the yarn, obtaining the weaving from the yarn, performing the dyeing and finishing processes and obtaining the ready-made garments are exhibited in a single large hall. At the same time, various information boards or screens should be placed on the walls and on the sides of the visitor's path so that museum visitors can get information about textile machinery and production stages. It will be possible to monitor the production stages of silkworm in the building.

On the first floor of the building, which consists of three floors, an exhibition hall has been planned for the purpose of organizing various exhibitions for the promotion of cultural and historical heritage. Silkworm production workshop should be built on the second floor, and workshops where many trainings can be given on silkworm breeding, such as pulling silk from the cocoon and silk weaving. Landscaping work should be done on the area to the south of the land of the factory building, and special areas should be created where employees and visitors can rest.

2. Silk Factory Building No. 2

2.1. Location, structure identity and properties

The Silk Factory building is located on Hankaya Street, in the southern part of Söğüt city center. The residential area of the building, which is located in the district center, on a land inclining to the north, is 528.29 square meters. It is a two-storey building with a rectangular plan. In addition to this building, there is a rectangular and two-storey building. It has entrances from the north and east. There is a boiler and chimney belonging to the building in the south. The building, which was one of the most important silkworm breeding buildings of the period, is in ruins and ruins today. The survey studies of the silk factory No. 2 were made, conservation proposals were made and a new function proposal was presented. The Silk Factory building was built with brick masonry technique. When the materials used are examined, it consists of the ground floor and the first floor, which are thought to belong to two different periods. All of the windows of the building are damaged and only structural gaps are visible. The load-bearing construction of the masonry walls consists of terracotta (clay) brick and mudbrick material components. Wooden material is used in horizontally arranged floor and beam elements. There is a Marseille tiled cover on the roof. In addition to the building, another building was built. It can be seen that these additions made in different periods are different from the original state of the building. The roof of the annex has completely disappeared and the building is unusable (Figs.7,8,9).

2.2. Protection recommendations for Silk Factory No:2

Ground surveys should not be made for the problems of the building. If necessary, measurements should be made with underground radar. Processing has been ad-

Fig.7 Source: (Irden, A.)Fig.8 Fig.9 Source: (Irden, A).

ded to the structure and durability engineering of the dimensioning walls is not done.

With the project studies, which will be prepared in such a way that it can be made very dilapidated by evaluating all these in a way that can be made suitable, all of its own materials that can be preserved can be applied in a way that can be demolished and re-applied.

The existing cast boiler in the boiler room of the building should be cleaned mechanically and chemically and protected by applying a transparent protector.

It should be examined whether the brick chimney connected to the boiler room has any static problems, and a transparent protector can be applied to the bricks by cleaning the surfaces.

The tiles on the roof cover should be collected and removed from the surface. The original tiles should be identified and the intact ones should be protected. If there are lichen and moss formations on tile surfaces, they should be chemically removed from the surface.

Samples of exterior plaster and joint mortars should be taken and mortar analysis should be performed in the laboratory. Repairs should be made with the results to be obtained from these prescriptions.

The original surface paint should be determined by mechanical and chemical scraping on the façade paint on the façade surface.

Periodic research scraping should be done on the original plaster surfaces of the interior, and color and, if any, decoration samples belonging to the original period should be determined.

The original architectural documents of the building should be researched, survey studies should be carried out before the reconstruction application, the original project should be prepared and documented by document research.

2.3.Evaluation of revitalization possibilities for Silk Factory No.2

Silk Factory Building No. 2 was abandoned due to the economic reasons mentioned in the content of the thesis, and as a result of the researches, it was observed that the building is now dilapidated and ruined. It is not possible for the building to maintain its original function in the current economic and living conditions. The preservation of the factory building, which reflects the social structure and architectural tastes of the period, and its transfer to future generations are important for cultural continuity. It is aimed that the local people working in the building, which was one of the most important employment points of the city at the time, re-functioning the building, refreshing their memories, protecting the building and protecting its cultural integrity. Considering the conservation proposals presented in the content of the thesis, it is necessary to extend the life of the building by giving an appropriate function and to create employment for the local people again, without damaging the integrity, typology and spatial relations of the building. Factory Building No. 2 was re-functionalized in order to preserve and keep alive the original values. As a new function proposal, it has been proposed to be used as an 'Alpine Clothes Sewing Workshop' for commercial and employment purposes.One of the most important sources of employment for the local people is the workshops where Alpine clothes are sewn. Alpine clothes for the domestic and international TV series and film industry are produced in Söğüt. Taking advantage of today's popularity, Alpine clothes are requested to be sewn more widely in Söğüt district by the Governorship of Söğüt due to the high demand. It is aimed to increase female employment and to create a new brand value in the region. With the spatial size and historical texture of the factory building, it was thought that it would be appropriate for it to be operational today as an alpine clothing sewing workshop. It is necessary to prepare restoration projects with detailed intervention sheets for the improvement of the damage caused by evaluating the structural system, construction technique and materials of the building, together with the protection proposals presented as a result of the current situation analysis and the restitution studies that need to be done. No changes were made in the functions presented to the building that would affect its physical appearance. The basic approach is to propose spaces suitable for the existing social structure and production facility indoors

Fig.10 Source: (Irden, A. 2021)

3. Silk Factory Building No. 3

3.1 Location, building identity and features

3.1 Location, building identity and featuresSilk Factory No. 3 is located in the southern part of Söğüt city center, on Sünnetçi Street (Fig.10). The residential area of the building, which is located in the district center, on a land inclining to the north, is 774.96 square meters. Except for the additions, the living area of the building is 316,02 square meters. It is a rectangular structure and its entrance is from the north. It consists of ground floor, upper floor and attic floor. The factory building is located right next to the Söğüt Stream. The building, which was one of the most important silkworm breeding buildings of the period, is in ruins and ruins today. Relief studies of the silk factory No. 3 were made, protection suggestions and a new function proposal were presented.

The Silk Factory building was built in the wicker construction technique. Some of the windows and doors of the building were damaged. It consists of stone material components as a filling between wooden carcass elements. Wooden material is used in horizontally arranged floor and beam elements. There is a Marseille tiled cover on the roof. In addition to the building, another building was built. It can be seen that these additions made in different periods are different from the original state of the building. The façade was damaged on the south-facing façade of the building, and the roof of a part of the annex was completely destroyed. Factory building and annex building are unusable (Fig .11,12,13)

Fig. 13

Fig.11 Source: (Irden, A)

Fig.12

Fig.13

3.2 Protection recommendations

Roofing tiles should be collected and removed from the surface. Original tiles should be identified and preserved in place. If there are lichen and moss formations on tile surfaces, they should be chemically removed from the surface.

Strength and material tests of wooden roof trusses, flooring covering, beams and columns, stairs, doors, window shutters and rattan wood should be done, and the solid wood should be protected in place.

The wood type should be determined, and the wood that has lost its function should be renewed.

In order to protect the original woods in place, they must be disassembled, either as local parts in immersion pools or the entire roof or wood that cannot be dismantled in situ should be packed and fumigated by agricultural engineers.

The woods to be protected should be impregnated to be applied with a dip pool or brush.

Chemical protection against fire should be applied.

It should be applied if it is determined in the analysis results whether there is shellac varnish as a protector on the doors and windows.

Samples of exterior plaster and joint mortars should be taken and mortar analysis should be performed in the laboratory. Repairs must be applied with these prescriptions. It should be examined whether the mortars on the facade on the ground floor are original or not.

Repairs made with cement-added materials in the following periods should be removed from the building. Due to the water channel passing right next to the building, it should be investigated whether there are salinizations caused by moisture in the building, and if it is detected, salt intake should be done.

The original surface paint should be determined by mechanical and chemical scraping on the façade paint on the exterior surface.

Periodic research scraping should be done on the original plaster surfaces of the interior, and color and, if any, decoration samples belonging to the original period should be determined. The brick and stone samples of the building should be analyzed and original brick or stone should be preferred for repairs.

The original architectural documents of the building should be researched and the project should be designed by researching the original project and document in order to complete the missing parts of the building.

Plant problems that affect the building partially or indirectly should be mechanically and chemically removed from the structure.

Existing windows and doors in the building should be researched and replaced with original materials.

The original annexes that do not belong to the building should be demolished and the first state of the building should be revealed.

3.3 Evaluation of revitalization possibilities

Silk Factory Building No. 3 was abandoned due to the economic reasons as mentioned . As a result of the researches, it was observed that the building is unusable, dilapidated and ruined today. It is not possible for the building to maintain its original function under current conditions. Considering the protection suggestions presented in the content of the thesis, it is desired to give an appropriate function and prolong its useful life. In this context, the economic and social development of the region is also targeted.

There are many artifacts reflecting the historical texture in Söğüt district. It is thought that the interest in the region will increase with the buildings protected by the restoration works carried out so far and the conservation and re-function studies of the three buildings examined in the content of the thesis. Accordingly, it will become mandatory to meet the accommodation and food needs of domestic and foreign tourists who want to visit the region and structures. As a new function proposal for Factory Building No. 3, it has been proposed to give 'Hotel and Restaurant' functions for commercial and employment purposes. With this function of the building, local and foreign tourists will be able to stay in the region and spend more time in the district. Thus, the region will become a center of attraction and the economic, social and cultural development of the people of the region will be facilitated.

Apart from the magnificent annexes of the building, it

has been observed that the three-storey main building is 948 square meters in total. The entrance area, accommodation units and social units etc. that should be in the hotel. Considering this, it is thought that it would be more functional to organize the proposed hotel and restaurant functions in the factory building number three. The restaurant can be arranged by making it available not only to the hotel user, but also to all visitors of the region.

It is thought that the arrangement of the restaurant on the ground floor will be more appropriate both in terms of the privacy of the hotel user and in terms of associating the green area with the restaurant. Arranging the accommodation units on the first floor and attic will ensure maximum use of the view, along with user privacy.

The new functional requirements to be met within the confines of the existing building will require a substantial change in the spatial layout of the original structure. In this sense, a successful design and implementation is required for a sustainable adaptation.

CONCLUSION AND EVALUATION

If the three most important factory buildings of the 19th century in Söğüt, the first capital of the Ottoman Empire, are on the verge of extinction in economic and cultural terms, the traces of the buildings will be completely erased if they are not renewed. It is thought that these three factory buildings, which reflect the historical texture of Söğüt, will be beneficial in terms of culture and economy, by systematically re-functioning, revitalizing and updating them. For this reason, it is aimed to eliminate the protection problems of the buildings and to open the buildings to the use of the people of the region by regaining their function.

It is necessary to prepare detailed survey, restoration and restitution projects for all three factory buildings, to carry out necessary scientific analyzes to eliminate conservation problems, and to protect the structures immediately in line with these analyses. In this context, it is possible to develop protection proposals for buildings in the content of this article.

It is not possible for the structures to maintain their original functions, since silkworm breeding, which was once the greatest economic power of the region, has lost its value in today's economic conditions. After the conservation problems are eliminated, the necessary steps should be taken to make the structures functional again today. It is important for cultural continuity to preserve and transfer the factory buildings, which reflect the social and cultural structure and architectural language of the period, to future generations. It is aimed to revive the memories of the local people working in the factory buildings of the period, after the buildings are re-functioned, to protect the buildings and to protect their cultural integrity. Considering the re-function suggestions presented in the content of the thesis, it is aimed to extend the life of the buildings without damaging the integrity and typology of the buildings and to create an important employment force for the local people.

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