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An Example of Conservation and Documentation of Traditional Houses: Isparta Nurten Terlikçi House

Abstract

Isparta, located in the Western Mediterranean Region, possesses a rich cultural heritage similar to that of many other Anatolian cities. Some of these are traditional houses. In order to preserve these traditional houses, the Ministry of Culture grants funds for the restoration of a large number of buildings to be used in both project and implementation phases. Following agreements between the building owners and the Isparta Culture Directorate, an appropriation request is submitted to the ministry, and, upon obtaining the necessary approvals, the projects are assigned to restoration experts. Only a small number of traditional houses in Isparta, which are rapidly disappearing, can be given restoration funds. That is why the funds allocated for this work are so precious. The restoration project for the Nurten Terlikçi House, one of Isparta's traditional houses, was awarded to SURAY Architecture Engineering Construction Restoration Industry and Trade Ltd., located within the Süleyman Demirel University Lakes Region Technopolis (Teknokent), following agreements between the building owners and the Isparta Provincial Directorate of Culture and Tourism in 2014. The author and their team prepared the building's survey, restitution, and restoration projects, as well as the analysis reports, which received approval from the Antalya Cultural

Heritage Conservation Board. Conservation issues were identified and then it was decided to maintain the existing function in order to resolve these issues. With the aim of transferring the original function and building elements to future generations, it is aimed to protect the cultural heritage and contribute to the city and the literature.

Keywords: *Conservation Project, Restoration, Civil Architecture, Cultural Heritage, 3D Laser Scanner*

Geleneksel Evlerin Korunması ve Belgelenmesine Bir Örnek: Isparta Nurten Terlikçi Evi

Öz

Batı Akdeniz Bölgesi'nde yer alan Isparta, diğer birçok Anadolu kentinde olduğu gibi zengin bir kültürel mirasa sahiptir. Bunlardan bazıları geleneksel evlerdir. Bu geleneksel evlerin korunması amacıyla Kültür Bakanlığı, hem proje hem de uygulama aşamalarında kullanılmak üzere çok sayıda binanın restorasyonu için fon sağlamaktadır. Yapı sahipleri ile Isparta Kültür Müdürlüğü arasında yapılan anlaşmaların ardından bakanlığa ödenek talebinde bulunulmakta ve gerekli onaylar alındıktan sonra projeler restorasyon uzmanlarına verilmektedir. Isparta'da hızla yok olmakta olan geleneksel evlerin çok az bir kısmına restorasyon ödeneği verilebilmektedir. Bu nedenle bu iş için ayrılan fonlar çok kıymetlidir. Isparta'nın geleneksel evlerinden biri olan Nurten Terlikçi Evi'nin restorasyon projesi, 2014 yılında yapı sahipleri ile Isparta İl Kültür ve Turizm Müdürlüğü arasında yapılan anlaşmalar sonucunda Süleyman Demirel Üniversitesi Göller Bölgesi Teknokenti (Teknokent) bünyesinde yer alan SURAY Mimarlık Mühendislik İnşaat Restorasyon Sanayi ve Ticaret Ltd. The author and their team prepared the building's survey, restitution, and restoration projects, as well as the analysis reports, which received approval from the Antalya Cultural Heritage Conservation Board. Conservation issues were identified and then it was decided to maintain the existing function in order to resolve these issues. With the aim of transferring the original function and building elements to future generations, it is aimed to protect the cultural heritage and contribute to the city and the literature.

Keywords: *Conservation Project, Restoration, Civil Architecture, Cultural Heritage, 3D Laser Scanner*

Introduction

With the financial contributions provided by the Ministry of Culture for the protection of cultural assets, there has been an increase in restoration projects and implementations. The Ministry of Culture offers financial and technical support to property owners lacking the economic means to undertake repairs on these buildings. However, each year, these grants are awarded to a decreasing number of restoration applications—or, in some cases, none at all. The high costs

associated with restoration practices, insufficient budgets, low public demand on this issue, and a lack of conservation awareness have collectively resulted in the destruction of buildings outpacing conservation efforts. It is very valuable to restore the few surviving examples of these rapidly disappearing civil architecture products. To prevent further losses and preserve these houses for the present day, the Isparta Provincial Directorate of Culture and Tourism reached agreements with building owners and commissioned restoration projects to architects in the region. An agreement was made between the Isparta Provincial Directorate of Culture and Tourism and the SURAY Architecture Engineering Construction Restoration Industry and Trade Ltd Company in the Süleyman Demirel University Lakes Region Technopolis (Teknokent), where the author is located, to prepare the survey restoration projects of the Nurten Terlikçi house. The project was prepared by the author and their team, who carried out the work through Technopolis (Teknokent). Within the scope of this study, the building survey - restoration project of the Nurten Terlikçi House located on Block 446, Parcel 4 on Street 1414 was completed. In the first phase of the study, the building was accurately and precisely documented and the material deterioration over time and its causes were identified. Thus, survey drawings and an analysis report were prepared for the documentation and analysis of the building. 3D Laser Scanner FARO Device was used for documentation. A laser meter was also used to measure the points that the scanner could not scan. With the restoration projects prepared, measures that can be effective in removing the building from harmful period addenda and protecting it against new deterioration in the coming years have been proposed. The measures also include removing certain later addenda that do not align with the building's architectural and aesthetic character, and modifying them to better suit the building's original character and interior spaces. As a result, the main objective was to preserve the original architectural character of this building and extend its lifespan.

1. General Information About Nurten Terlikçi House

Nurten Terlikçi House is building no. 27 on the street no. 1414, Çelebiler Neighborhood, Isparta Province. The building is located on plot no. 29L-IIa, block no. 446, parcel no. 4. The inventory number of the building is 15-70. The building was registered with the decision of the Antalya Cultural and Natural Heritage Conservation Board dated 08.03.2007 and numbered 1464. Previously owned by Fuat Özkurt, Nurten Terlikçi's brother, today it belongs to Nurten Terlikçi and her brothers. The construction date and architect of the house are unknown. However, it is known that the oldest surviving example of traditional Isparta houses belongs to the 19th century.

Due to its location and architectural character, the Nurten Terlikçi House may have been built in the late 19th or early 20th century. However, in Dr. Doğan Demirci's book Isparta Houses, it is stated that the building was built in the 2nd quarter of the 20th century (Demirci, 2011, p. 355).

In terms of style, Nurten Terlikçi house has a different façade character among the houses of the period it was built. While the plan typology resembles that of traditional Isparta houses, the façade character and the materials used—such as brick, jambs, and dentils—enhance the likelihood that the building might be of Greek house. The jambs constructed with brickwork are finished with plaster. According to information obtained from Nurten Terlikçi and Serdar Terlikçi, the building was bought by Nurten Terlikçi's father from the Greeks who left with the population exchange (Nurten Terlikçi and Serdar Terlikçi oral source). The building has been subjected to various interventions over time, an eave was added to the facade, the staircase was relocated, and additional spaces were built. These interventions caused structural deterioration in certain parts of the building. The building experienced its most significant repairs and interventions in the early 1960s, carried out by Nurten Terlikçi's father. Some of the interventions made at this date are not compatible with the original materials and elements of the building. Until 2008, the building was used as a residence, after which it remained empty and today it is uninhabitable.

The building consists of three parts: the original main mass, a period outbuilding annex and the courtyard. The building used as a houses is two-storeyed and covered with a gable roof. The section built as an addition is arranged as a single storey. Later, this section was turned into a terrace and a toilet was added. The building is adjacent to the east and west facades. The building was constructed in masonry system in rubble stone wall technique. The outer walls are up to 80 cm. It is seen that brick material was also used intensively with plaster spills. In particular, the jambs, moldings, eaves and door-window gaps that form the character of the facade of the building were formed with brick material. The facade character and the materials used in the building suggest that it may have been constructed as early as the late 19th century.

2. Building Survey Works

Building survey is the most accurate documentation work without damaging the structure. In this study, traditional and contemporary measurement techniques were used together. Using the 3D Laser Scanner FARO device, scans were conducted at approximately 20 points within and outside the building, and these images were aligned with the total station. Multiple points were

measured at each position and 360º panoramic photographs were taken. With the help of the photographs, the point cloud was colored and ortho image was calculated. With these measurements, two and three dimensional documentation of the building was made (Figures 1, 2). The damages and faulty repairs identified based on on-site observations and requiring intervention were analyzed, reported and documented on the analytical survey data. Along with the building survey measurements, the preservation and material condition of the building was evaluated, and material sheets, preservation status and deterioration sheets were prepared to form the basis for restoration decisions. Deterioration and losses in the original building elements; static problems in the walls and floors; inappropriate accretion addenda; material deterioration such as dampness, fragment breaks, pitting, vegetation and moss formations observed on building materials were shown on the plans, sections and facade drawings created with the help of on-site examinations and information obtained as a result of scanning.

2.1. Plan Features

The building is entered from the street numbered 1414 on the north facade. On both the east and west sides of the building, there are adjacent houses. Until recently, these buildings had a similar architectural style to the traditional Isparta houses. However, these buildings have lost their traditional architectural character today. The building consists of the main mass, outbuildings and courtyard sections. The main mass of the building has external dimensions of 6.90 x 10.80 meters, while the courtyard section measures 6.60 x 10.50 meters in an irregular rectangular shape. The outbuilding is located in the courtyard and covers approximately half of the courtyard.

The house has an interior sofa plan, with the hall extending as a long corridor in the north-south direction, and the rooms are located on the west wall of the sofa. The east wall of the sofa is shared with the wall of the neighboring building. The upper floor has the same plan scheme as the ground floor. On the ground floor, there are rooms Z-01, Z-02, Z-03, and Z-04, the Z-05 sofa, the Z-06 outbuilding, the Z-07 kitchen, the Z-08 room, the Z-09 toilet, the extensively damaged and inaccessible Z-10 room, and the courtyard. The south facade of Sofa Z-05 leads to the courtyard. There is no separate entrance to the long, thin courtyard on the south side of the building. From the courtyard, the rooms belonging to the outbuildings are entered directly from the semi-open area formed by two wooden columns. The outbuildings, like the other rooms in the main part of the building, are arranged on the west wall (Figure 3).

The upper floor is accessed by a wooden staircase on the east wall of the Sofa Z-05. The house owners have stated that this staircase is an inappropriate accretion. However, it is certain that it belongs to a specific period. This staircase was later turned into a closed space with a wooden joinery incompatible with the original joinery. The house owners stated that the original staircase is located in the area where rooms Z-02 and M03 are located today. It is known that the staircase is a wooden, double-armed staircase, but there is no data on its style (Figure 4).

On the upper floor, there are rooms M-01, M-02, M-03, M-04, sofa M-05, kitchen M-06, terrace M-07 located above the outbuilding and two small wet areas on this terrace. Rooms M-01 and M-06 were created later on the north and south sides of the upper floor hall. The terrace of M-07 is the "roof" of the Isparta house seen in many traditional Isparta house plan typologies. However, although the "roof over the outbuilding" and the "toilet space on this roof" are frequently seen in traditional Isparta houses, it was determined that the outbuilding part of this building was built later and was a period addition. Especially on the upper floor of the outbuilding, intervention with reinforced concrete material is observed. Although the building has no basement, it has a base with a height of approximately 1.00 m. It is also known that a hatch in the staircase and the floor of room Z01 leads to the basement. This section will be uncovered by excavations during the restoration.

3.2. Ornamentation

The decoration in the building is notably simple. On the exterior, only the dentils at the corner of the front facade, the string courses between floors, and the jambs are of ornamental significance. Some of the interior cabinets and the ceiling of room M-04 have wood and plaster decoration. Some rooms have plaster çırappa (niches for lamps). The gusulhane, cupboards, niches and hearths in rooms Z-01, M-02 and M-04 have wooden joinery that is continuous along the wall (Figure 5).

3.3. Facade Features

Since there are neighbouring buildings on the east and west sides of the house, there are two facades that can be seen from the outside. The north facade is the entrance facade and faces the street numbered 1414. Due to the increasing slope of the street from east to west, the eastern part of the facade is 5.80 m. and the western part is 5.50 m. There are five windows and an entrance door on the facade. The double-leaf wooden entrance door measures approximately 2.70 x 1.95 m. The ground floor windows have flat arches and double sashes. These two windows belonging to

room Z-01 have iron bars on the outside. The upper floor windows are rectangular. While the window of room M-01 is double casement, the windows of room M-02 are guillotine. These windows are emphasized with 20 cm wide brick jambs. In addition, the brick teeth (molding) on the east and west corners of this facade distinguish the facade style of the building from other traditional Isparta houses and add mobility to the facade.

Between the inappropriate accretion eaves and the floor, which was added later on the entrance door, there are brick moldings about 15 cm wide on the eaves and at the water basement level. The facade suffers from plaster flaking, mossing and corrosion due to the installation of various tools. The facade has significant plaster spills and losses on the jambs. Rising damp and moisture transmission from the ground are noticeable up to a height of 150-200 cm. Decay is observed in some of the wooden frames on the façade. Particularly on the entrance door, physical deformation and decay have occurred due to ground moisture (Figure 6). The south (rear) facade of the building facing the courtyard has lost its original appearance. On this facade, which reaches 5.80 m in height, inappropriate accretion walls were constructed to disrupt the original plan organization. The wall of the inappropriate accretion section is covered with metal sheets. It is known that this section was originally covered with wood. On this facade; there is a door and window belonging to the Z-05 sofa on the ground floor and a three-pane guillotine window belonging to the Z-04 room. On the upper floor there are two rectangular guillotine windows belonging to room M-05, a guillotine window belonging to kitchen M-06 and a door leading to the terrace. The rear facade wall connecting the ground floor with the courtyard was completely reconstructed. Wooden joinery incompatible with the original joinery was added. An outbuilding was added to the south facade at a later date. Room Z-04 coincided with this section, partially blocking the guillotine window in this room facing the courtyard. Even if the outbuilding is compatible in terms of material and facade character, the fact that it covers the window suggests that this section is inappropriate accretion.

3.4. Structure and Material

The exterior walls of the house were built with rubble stone up to the foundation level and the body walls were built with smooth masonry stone, rubble stone and brick in masonry wall technique. The material of these building walls was exposed by plaster spills on the facade (Figure 7). The building's interior walls are plastered with lath-and-plaster, featuring timber framing filled with either adobe or brick. Exterior wall thickness varies between 60 and 80 cm on the exterior

walls and between 15 and 18 cm on the interior walls. Usually the interior walls are 15 cm. In the brick parts of the walls of the building, wooden beams were laid for the window door gaps. The house is plastered inside and outside. However, there are spills on the plaster in places. The exterior of the house was painted blue in a later period, while the interior was painted light green. All doors, windows and cabinet joinery of the building are made of wood. Wood was also used in the original ceiling and floor coverings. Some ceilings are clad in plywood. Plaster and metal materials were used for the ceilings of some rooms and for the "çırappa" (niches for lamps) in some rooms. The front facade ground floor windows have iron railings with craftsmanship. It is seen that cement and screed materials were used during the repairs and additions to the house. On the east wall of the courtyard, a briquette wall was added over the original rubble stone wall (Figure 8).

The roof has the original form of a gable roof. Although the roof, which was built with a wooden structure, has undergone partial repair, it is covered with Turkish style tiles, which is the original covering material. For this reason, the roof covering is quite worn out. There is one original brick chimney in the roof cover. However, it is known that there are original chimneys in the courtyard where the outbuildings are located (Figure 9). The slope of the roof varies at different levels. The eaves protrude an average of 45 cm. Rainwater downpipes are located on the roof to transfer rainwater. All of the pipes go down to the first floor level. Structurally, they are all in poor condition.

3.5. Conservation Problems and Deterioration

As a result of the building survey and on-site inspection, it was determined that the Nurten Terlikçi House faces significant conservation problems. These conservation problems can be grouped under the headings of structural intervention errors, material deterioration, facade deterioration, deterioration in decoration elements, deterioration in the roof system, and deterioration of installation systems.

3.5.1. Structural Intervention Errors

There is no information on the restoration of the Nurten Terlikçi house. However, when the building is examined, it is seen that it has been subjected to many faulty interventions. During these interventions, an outbuilding was added to the building, a concrete terrace was added to this outbuilding, and many original joinery such as stairs and doors and windows were changed within the main mass of the building. On the upper floor, two rooms were created within the sofa (Figures

10, 11, 12). A sink and stove were added to the M-06 kitchen space. These addenda both overloaded this section and disrupted the material and formal integrity of the space (Figure 13).

These interventions have damaged the house visually and physically. Especially the outbuilding section has moved away from the building materials and appearance of a traditional Isparta houses. The use of the outbuilding section outside its traditional spatial and functional characteristics and the interventions made to the spaces belonging to this section have created visual pollution (Figure 14). Briquettes were added to a section of the courtyard wall of the building, thus disrupting the form, statics and visual integrity of the original wall. Many unnecessary materials and equipment were thrown into this part of the courtyard, causing visual pollution in the courtyard.

3.5.2. Material Deteriorations

Many material deteriorations were detected both in the interior and exterior of the building. On the exterior, especially on the north facade and on the interior walls facing this façade, there is a lot of plaster loss, dampness, moss, blackening, and corrosion problems. As a result, rotting of wooden elements has occurred. Decay and collapse can be seen in both window and cabinet joinery as well as floor and ceiling coverings (Figures 15, 16, 17).

Both the front and rear facades of the building show deterioration due to ground water. In addition, since the building started to stay below the road level due to the additions such as sidewalks etc. added during the road works, it started to let in bad weather conditions. Failure to drain the ground water caused vegetation, moss and dampness in the structure. This resulted in cracks and material losses due to water seeping through these cracks. The plaster loss seen on the brick molding at the flood level of the building, especially on the front facade, can be given as an example. In addition, blackening and salinization problems are observed in the stones and bricks on the facades. Some of the wooden beams exposed as a result of the plaster spillage have decayed. Rain gutters and water pipes have been destroyed over time and are no longer functional. It was observed that the tiles on the roof and the bricks belonging to the chimney were also worn out.

3.5.3. Facade Deteriorations

The outbuilding on the south facade of the building is incompatible with the original architecture of the building. On the same facade, there are door and window joinery added later. Elements related to electricity, water (stormwater), natural gas installations on both façades and

chimneys, sheet metal plates, etc. added later disrupt the facade both physically and aesthetically. It causes corrosion (Figure 18).

3.5.4. Deterioration of Decoration Items

Destruction and material losses in the jambs and moldings on the facade of the building can be given as examples of exterior decoration deterioration. In addition, the entrance door, windows, some cabinets, ceilings and floor coverings in the building are rotten in places. Some of the door and window frames are incompatible with the original wooden joinery of the building and it is thought that they were fabricated.

3.5.5. Deterioration in Installation Systems

The clean water, waste water and lighting installations of the building were both damaged and destroyed. Rust and corrosion have occurred in the rainwater drainage system in the building, and the pipes and gutters of this system present a bad appearance. In addition, the plumbing added to the sofa section of both floors also damages the structure (Figure 19).

Another important installation problem of the building is lighting. Since there was no electrical installation in its original state, it was necessary to bring electrical installation to the building. However, the introduction of electrical wiring resulted in the installation of a large number of electrical cables and switches in the building, which caused various deterioration in the structure. In addition, these cables and switches passing through wooden joinery pose a fire risk (Figure 20). In addition, it was observed that holes were drilled for stove chimneys in some walls due to the heating problem in the building (Figure 21).

The conservation problems of the building are many and growing. Therefore, these problems need to be addressed quickly and the hammam should be carefully restored under the supervision of an expert. All kinds of space and element additions that were added to the building in the late periods and that cause physical or visual damage to the building should be removed and its original state should be revealed. However, it was found appropriate to preserve the useful period additions such as the staircase, which were added over time, arranged in accordance with the needs of the day, compatible with the architecture of the building. The causes of physical deterioration in the building should be eliminated and the deteriorated parts should be repaired. Measures should be taken to protect the artifact against rain and snow water and ground water.

4. Restitution Works

There is no inscription on the building. No written or visual documents could be found regarding the dates of construction and repair. For this reason, the traces observed in the building, oral sources and typological research method were utilized in the restitution periodization of the building. The most information about the period was obtained from the Terlikçi family, the current owners of the building. The interventions, inappropriate accretions and traces detected in the building were also utilized. While comparing Nurten Terlikçi house with other buildings built in similar periods, studies on Isparta houses in the past periods were utilized.

4.1. Historical Research

The available written and visual records on both monumental and civil architectural heritage in Isparta are notably limited. In this study, there are only some photographs of the "roof" part of the building from the archives of the building owners, but these photographs could not provide much information. A literature review was made on Isparta, but no information on the construction or repair date of the building was found. The Nurten Terlikçi House appears solely in Doğan Demirci's 2011 book, Isparta Houses, published by the Directorate of Culture, as catalog entry number 25. However, there is no clear information about its history in this book either. It is known that the oldest surviving example of traditional Isparta houses belongs to the 19th century. Although some houses have construction or repair inscriptions, there is no inscription on the Nurten Terlikçi house. According to Doğan Demirci, Nurten Terlikçi House was built in the 2nd quarter of the 20th century (Demirci, 2011, p.355). However, its location and architectural character suggest that it may have been built in the late 19th or early 20th century. The most comprehensive information about the building was provided by Nurten Terlikçi and her family, the current owners of the building. According to information obtained from oral sources, the building was repaired by Nurten Terlikçi's father in the 1960s (Nurten Terlikçi and Serdar Terlikçi oral source, 2015). Süleyman Sami Böcüzade (1983) stated that Greeks were found in Temel, Kemer, Çavuş and Emre neighbourhoods. Today, the names of these neighborhoods have been changed to Turan, Çelebiler and Emre Neighborhoods. Nurten Terlikçi House is building no. 27 on the street no. 1414, Çelebiler Neighborhood. According to information obtained from Nurten Terlikçi and Serdar Terlikçi, the building was bought by Nurten Terlikçi's father from the Greeks who left with the population exchange (Nurten Terlikçi and Serdar Terlikçi oral source, 2015).

4.2. Comparison of Plan Types

The building consists of three parts; main mass, outbuildings and courtyard. There are some spaces added to the outbuilding section later. The main mass of the building has external dimensions of 6.90 x 10.80 m, while the courtyard section measures 6.60 x 10.50 m in an irregular rectangular shape. The outbuilding is located in the courtyard and covers approximately half of the courtyard. The house has an "interior sofa plan", with the hall extending as a long corridor in the north-south direction, and the rooms are located on the west wall of the sofa. The east wall of the sofa is shared with the wall of the neighboring building. The upper floor has the same plan scheme as the ground floor. Depending on the place of the sofa in the plan plane, it is also included in the "side sofas" plan group (Table 1).

An examination of houses with similar floor plans revealed that the stairs are typically positioned in the central room between the rooms facing the sofa. Some houses have a roofed outbuilding in the courtyard (Figure 24). As in example no. 5, in some houses the outbuilding rooms are arranged in rows towards the courtyard. Besides, the 1st and 2nd houses are believed to have belonged to the Greeks and were built at the beginning of the 20th century. However, the other three houses are also located in the Emre Neighborhood, where Greeks live in large numbers.

4.3. Comparison of Facade Types

In terms of style, Nurten Terlikçi house has a different façade character among the houses of the period it was built. While the plan typology resembles that of traditional Isparta houses, the facade character and the materials used—such as brick, jambs, and dentils—enhance the likelihood that the building might be of "Greek house". The brick material plastered on the teeth (brackets) at the corners of these houses gives the appearance of smooth cut stone. Houses with similar façade features are also found in Eğirdir district (Table 2).

4.4. Structure Features

Traditional houses in Isparta are typically two-story structures, featuring stone walls on the ground floor and a wooden framework with a lath-and-plaster system on the upper floors. The houses built with brick material are in Turan, Gazi Kemal and Çelebiler neighborhoods. It is thought that this house built with brick material is a Greek House. The facade character and the materials used in the Nurten Terlikçi house suggest that it may have been constructed as early as the late 19th century. The building was constructed in masonry system in rubble stone wall technique. The outer walls are up to 80 cm. It is seen that brick material was also used intensively

with plaster spills. In particular, the jambs, moldings, eaves and door-window gaps that form the character of the facade of the building were formed with brick material. In the periodization of the building's restitution, the early 20th century—marking the original construction phase—was identified as the 1st Restitution, while the renovations carried out in the 1960s were classified as the 2nd Restitution. In this direction, restitution drawings of the building belonging to two periods were made.

4.5. Restitution Periods

It is thought that Nurten Terlikçi house, which is a house that differs from the traditional Isparta houses with its façade character and material, is a Greek house. This indicates that the building was likely constructed between the late 19th and early 20th centuries, a period when the Greek population, who departed during the population exchange of the 1920s, was actively engaged in construction activities. When the building was first built, it has architectural features reflecting its period and has a simple style. In this period, the building has a traditional side-hall housing typology. In this period, there is an outbuilding with a roof, but no clear information about its boundaries has been found.

Some of the late addenda (stairs and some cupboard doors) are accepted as period addenda and can be preserved. The period addenda, which have suffered extensive damage and deterioration from the building's initial construction to the present and were reconstructed in the 1960s with similar joinery, are of low quality; therefore, their removal would be more suitable.

Specifically, the alignment of the outbuilding’s mass with the window of room Z-04 on the ground floor, along with the concrete top cover, indicates that it has lost both its aesthetic and structural integrity. Other low-quality addenda include the new rooms created in the upstairs sofa, specifically room M-01 and kitchen M-06. These addenda are constructed with joinery and materials that do not reflect the period. It would therefore be more appropriate to remove them (Figures 22, 23).

5. Restoration Project

The Nurten Terlikçi house has survived to the present day in a structurally sound manner despite the damaging repairs and corrosive external factors. However, the identified conservation issues are substantial enough to lead to serious structural problems. With the restoration project and report prepared, measures that can be effective in removing the building from harmful period addenda and protecting it against new deterioration in the coming years have been proposed. The

measures also include removing certain later addenda (various doors, stairs, lighting and protective installations, etc.) that do not align with the building's architectural and aesthetic character, and modifying them to better suit the building's original character and interior spaces. Today, it is understood that the Nurten Terlikçi house has been subjected to many faulty interventions and has lost its originality. For this reason, the restoration work aims to restore the originality of the building as much as possible in the plan plane, structure and material, facade plane, decoration elements, and installation system.

However, before the restoration works are started in the building, the piles of garbage and rubble in all the spaces and gardens of the building should be removed. Pest plants in the garden should be removed. Exploratory excavations should be carried out in the vicinity for the foundations of the building. Thus it should be provided in the laying of the drainage system (Figure 25, 26).

5.1. Proposed Interventions at the Plan Level

The building belongs to the "inner - side sofa" plan type group. The original plan scheme of the building has changed with the late interventions. However, some of the addenda made in these interventions are qualified. Since the staircase built in this period is of high quality, it is suitable to be preserved. The dividing elements surrounding the staircase should be removed and the staircase should be included in the living room and left open. Stair railings should be treated with appropriate wood protection. The outbuilding part of the building has not survived to the present day. The outbuilding part, which has lost its quality and has structural problems, should be demolished. However, due to the lack of wet areas in the remaining existing plan, a new outbuilding should be built. This part should be built in accordance with the building material of the original architecture (lath-and-plaster) with a roof on it, as in its original form, and this roof should be accessed by a portable staircase from a hatch in the ceiling of the outbuilding. Because, as learned from the building owners, the original roof structure is accessed from the courtyard by a portable wooden staircase. There is no doorway through the upper floor plan or a fixed staircase arranged on the ground floor. The outbuilding should consist of a single space used as kitchen, pantry and panary. After the renovation of the outbuildings, toilet and bathroom spaces are needed. Therefore, the Z-02 space of the building, which has a screed floor, should be converted into a bathroom and should also serve as a toilet. In this way, the toilet-bathroom part should be taken inside the house, as in

today's modern architectural plan typology. On the ground floor, the south wall of room Z-04 was moved forward. However, this deteriorated both the facade quality and structural strength. There are deep cracks in this section. Urgently, the building should be suspended and this wall should be pulled back and should be underneath the wall of the upper floor. The spaces M-01 and M-06, which were created in the upper floor sofa, should be converted back into sofas. Addenda such as inappropriate accretion sinks etc. in these spaces should be removed. In its original form, M-01 is a pavilion located in the sofa with a raised floor. For this reason, this section should be used as a pavilion again by enclosing it with similar railings to the original railings and should be included in the sofa. In this pavilion, couches can be added.

The covered overhang on the rear façade, which enlarges the M-06 kitchen and provides access to the roof, should be retracted according to the original plan layout. The facade should be restored to its original state, both because of the deterioration of the character of the façade and because of the construction of a plan that is incompatible with the original plan layout. In addition, a mobile removable pergola with tempered glass between the partitions should be added to the section that provides access to the outbuilding. In bad weather conditions, this section should provide access to the kitchen (Figures 23, 24).

5.2. Proposed Interventions in the Scope of Structure - Material

There are problems in the structural system of Nurten Terlikçi's house, especially in the rear facade and outbuildings. It has been determined that the outbuilding section added later has a structural problem within itself and this addition does not damage the original mass, but it may damage it over time. This section is in danger of collapse and therefore needs to be removed. The building is also facing material deterioration that requires urgent intervention. The southern walls of the kitchen M-06 and room Z-04, which were added to the building later, should be retracted to prevent structural problems. In addition, the south wall of the ground floor hall should be renewed with its original material and should contribute to the strength of the structure. Especially in the rooms facing the rear facade, patching and filling treatment should be applied to the deep cracks detected and the cracks that should be revealed after scraping. Injection should be applied with Khorasan mortar. The concrete annex on the front facade of the building should also be removed as it causes material loss in the building. Addenda such as fountains, washbasins, etc. that are clearly later and incompatible with traditional architecture should be removed. It is possible to clean accumulations of atmospheric contamination on brick surfaces using the steam method.

"Steam cleaners" from the small household appliances series are suitable for this purpose. Cracks in the jambs should be reinforced with appropriate resin injection and closed with lime mortar in accordance with the original surface color. Both interior and exterior walls of the building need to be urgently cleaned of deterioration such as plaster flaking, dampness, blackening, moss, fungus, mold, corrosion, plastic whitewash, etc. In fact, it is well-known that such deteriorations lead to a loss of material rigidity, resulting in issues such as the eventual collapse of the entire wall. The joint voids and material loss seen in certain parts should be completed and strengthened with building material, khorasan mortar and plaster compatible with the architecture of the building. Reinforcement should be done by injection of lime mortar in the parts where there is too much material loss as a result of scraping. This should only be revealed after scraping. Existing paints on the building should be removed with absorbent gel and scraping processes. Interior walls should be whitewashed with white lime. Synthetic and plastic paints should not be preferred as they prevent the structure from breathing and removing moisture. The plaster to be applied in the wet areas of the building must be moisture resistant. Ceramic material should be laid in the Z-02 section of the building, which has been converted into toilet - bathroom, and the newly built outbuilding (Z-06 kitchen). The decaying wooden materials in the remaining parts of the building should be replaced with original wood, and the sound ones should be preserved. Waterproofing should be made on the roof of the outbuilding and the water flow should be directed to the south with a slight slope. Here it should come down with the help of the gargoyle. Thus, the roof should not transmit water from bad weather conditions into the building mass. Non-original doors and windows should be replaced with original ones, according to the pose numbers specified in the project. Following the removal of the additions on the south facade and the retraction of the walls, the facade should be restored by installing guillotine windows with P5 pose number in accordance with the original. In addition, some floor and ceiling joinery has collapsed and rotted. These joinery, which cannot be protected by cleaning, should be reconstructed with appropriate materials and details. The original doors and windows should also be cleaned and puttied to ensure thermal insulation. On original wooden surfaces, a homogeneous layer of dirt caused by dust and stains caused by roof water are observed. To remove these superficial dirt, mechanical cleaning can be done first with a soft bristle brush. A mixture of distilled water and ethyl alcohol can then be used. Ethyl alcohol should be preferred because it evaporates quickly. Wooden materials that are worn out and have

weakened mechanical strength need to be strengthened to extend their life. Wood surfaces can be reinforced with “Paraloid B72” (in 10% toluene/acetone), a metaacrylic resin suitable for this purpose. The prepared solution is applied to the surfaces with a brush. Surface reinforcement should be applied after the surfaces have been cleaned and thoroughly dried, especially on some door and window joinery whose physical strength has been weakened by abrasion. Wooden materials detected in the building should be strengthened by impregnation after cleaning processes such as sanding etc. and their decay should be prevented. There is screed flooring on the floor, but as a result of the research, the original flooring was not identified, the screed used should be dismantled and the new floor should be made of pavers. The tiles on the roof of the building were previously repaired but are now old. Old roof materials (wooden structure and tiles) should be renewed. Insulators should be laid on the roof for heat and waterproofing. The original chimneys are made of brick. These chimneys should be cleaned and the parts with material loss should be completed. If there is a request to install solar panels with alternative heating systems, they should be placed in the building's courtyard rather than on the roof. This should prevent additional load on the roof and provide a semi-open, shaded space in the building’s courtyard. The design should consider the building's courtyard and landscaping together. The weeds and plants in the courtyard should be cleared. Cobblestone paving should be applied to the sidewalk between the building and 1414 Street. A garden landscape is planned for the empty area in the courtyard. This section should be covered with granite, and a decorative fountain should be placed in the center. Additionally, seating chairs can be added upon request. A cornice should be constructed on the courtyard wall.

5.3. Proposed Interventions at the Facade Level

Due to the building's attached configuration, it has both a north and south facade. Both facades show signs of deterioration, including material loss, dampness, moss growth, and other damages. The entrance facade (north facade), which is significant for the building's architectural character, shows more damage due to harsh weather conditions, while the rear facade (south facade) has structural issues due to the displacement of the walls. Elements related to electricity, water (stormwater), natural gas installations on both facades and chimneys, etc. added later disrupt the facade both physically and aesthetically. It causes corrosion. These addenda should be removed immediately. Pipes to drain rainwater should be renewed together with the roof repair. The outbuilding on the south facade of the building is incompatible with the original architecture of the building and should be removed immediately. On the same facade, there are door and window

joinery added later. The upper floor closed exit on this facade is also inappropriate accretion. Therefore, the debris on the south facade should be cleared, the vegetation on the closed overhang should be removed, and the south walls of the M-06 and Z-04 spaces should be repositioned according to the original floor plan. During this process, a suspend operation must be performed. The south facade should be a wooden facade built entirely with the lath-and-plaster technique in accordance with the original facade character. Windows of unknown original character should be replaced with guillotine windows. The outbuilding located in the courtyard of the building and adjacent to the south façade should be removed and replaced with a new outbuilding compatible with the architecture of the building. In this way, the need for a kitchen and roof should be eliminated and a healthier and more harmonious outbuilding should be obtained with the architectural character of the building. The concrete entrance canopy added later on the north facade, which is the entrance facade of the building, is incompatible with the architecture of the building and has caused loss of parts due to material incompatibility. It needs to be removed urgently. This removed addenda should be replaced with the original material and plastered with a plaster suitable for the original plaster. The entrance door on this facade has fallen into decay. However, this door is a period addenda and should be protected by sanding with the appropriate technique. The jambs, moldings and brackets on this façade should be completed with appropriate materials where there is material loss, and the facade should be completely re-plastered. Rotting wooden beams between the jambs should be replaced with suitable wooden material. The original window railings of the ground floor windows on the south façade are rusted. These railings should therefore be cleaned. Rust and paint layers on the original interlocking iron railings should be removed with the help of paint remover and scalpel. After the preservative is applied, matt black acrylic paint should be applied. It should be plastered with plaster mortar containing hydraulic lime reinforced slaked lime mortar.

Existing paints on the building should be removed with absorbent gel and scraping processes. Cleaning should be done after the scraping process. Facades should be washed clean and water-soluble dirt should be removed. Special tips that spray water as particles should be used (Ahunbay, 2007, p. 91). The building should be finally plastered with lime whitewash and khorasan mortar. Synthetic and plastic paints should not be preferred as they prevent the structure from breathing and removing moisture. Both the front and rear facades of the building show deterioration due to

ground water. In addition, since the building started to stay below the road level due to the additions such as sidewalks etc. added during the road works, it started to let in bad weather conditions. Ground water must be drained. Therefore, a drainage system should be installed around the structure, extending to its foundation level. Materials that prevent biological formations should be used on the courtyard walls. The courtyard wall of the building should also be renovated. The briquette parts and the parts made of materials should be dismantled and completed with rubble stone masonry technique.

5.4. Recommended Interventions for Decoration Elements

The building's original wooden joinery, including doors, windows, ceilings, and cabinets, should be preserved through sanding and polishing. Inappropriate accretion joinery shall be rebuilt in accordance with the pose number specified in the plan. The covers of the non-original niches should be removed, glass doors should be made to these parts and LED light system should be added inside. The plaster lamp holders and the metal lamp holder, which was a period addition, should be cleaned and strengthened, and oil lamps should be placed in these parts. After the renovation of the installation in the building, sconces should be placed on the walls in accordance with its traditional architecture, which should not cause corrosion and material loss. The garden landscape should also be given dim light to illuminate the courtyard, and ground lighting (lawn lighting fixtures) should be added to show the walking area in more detail.

5.5. Recommended Interventions in the Installation System

The clean water, waste water and lighting installations of the building were both damaged and destroyed. Rust and corrosion have occurred in the rainwater drainage system in the building, and the pipes and gutters of this system present a bad appearance. In addition, the plumbing added to the sofa section of both floors also damages the structure. The inappropriate accretion plumbing in the building should be removed, and only the rain gutters and water pipes from the roof and the newly created kitchen and bathroom sections should be plumbed. The original bathing cubicles should never be used as bathing cubicles. These sections can be used as cabinets with a light glazing system. The sewage drains of the toilet and bathtub in the M-02 space, which was later converted into a bathroom in the building, should be connected to the manhole system outside the building and removed from the building. Discharge of waste water should be done with slightly inclined pipes. In order to remove water from the ground of the structure, it should be excavated up to the foundations of the structure. A drainage system should be installed in the excavated part of the

building in the outdoor area by utilizing the slope and the foundations of the building should be sheathed. Another important installation problem of the building is lighting. Since there was no electrical installation in its original state, it was necessary to bring electrical installation to the building. However, the introduction of electrical wiring resulted in the installation of a large number of electrical cables and switches in the building, which caused various deterioration in the structure. These cables and switches passing through wooden joinery pose a fire risk. These cables should be removed and electrical wiring should be installed with a nano-technology cable system that does not pose a fire risk. Besides, these cables should be concealed as much as possible and should be brought over the shortest distance. In addition, it was observed that holes were drilled for stove chimneys in some walls due to the heating problem in the building. There is no original heating system in the building. However, due to today's comfort conditions, the heating system should be built in a way that should not damage the original walls and floors of the building. Thus, the facade and structural system of the building should not be disrupted by the stove chimneys to be added later. It is proposed to install the heating system using panel radiators in simple and small sizes. The building should be heated with natural gas, so an additional boiler room should not be required. Finally, a small marble plaque should be placed on the eastern wall of the ground floor hall section of the building, indicating the construction date, the owner, the restoration date, the restoring institution, and the restoring architect. Nurten Terlikçi house, which is estimated to be a Greek structure, is one of the important and rare buildings in the traditional Isparta urban fabric. The building, which has reached the present day in a very worn-out state, continues to deteriorate rapidly due to factors such as neglect, abandonment, vandalism, faulty repairs and faces the risk of extinction. The idle structure needs to be preserved and transferred to future generations in a sound manner. For these reasons, the deterioration process of the building should be stopped urgently, and conservation and restoration practices should be started in the light of the necessary documentation for its repair. It was also decided that the original function of the building should continue in order to transfer it to the future with confidence. Within this scope, the building survey, restitution and restoration works of Nurten Terlikçi house were documented and the project was designed for restoration applications.

Conclusion

The civil architecture of Isparta is under risk due to both user-induced and institutional threats such as municipality etc. and is rapidly disappearing. In particular, faulty repairs, neglect and abandonment are among the leading user-induced conservation problems. The original architectural features of traditional buildings are being lost and even their structural systems are being damaged. As a result, these buildings are seen as a threat to both the users and the people of the region due to the risks of collapse etc. As a result, the few historic buildings that have undergone extensive repairs through restoration projects serve as examples for property owners and local communities, becoming a source of motivation for local governments. Nurten Terlikçi House is one of these buildings for which budget support for restoration projects is scarce. It was decided to continue the current function of the building, where conservation problems were revealed and restoration projects were prepared, and the projects were approved by the conservation board. The restoration projects, prepared by the author and their team using 3D laser scanning technology as part of the company within the Technopolis, were submitted to the Antalya Cultural Heritage Conservation Board and approved by the board. At the meeting of the Antalya Regional Board for the Protection of Cultural Assets dated 16.09.2015 and numbered 124, the projects were approved in the decision numbered 4094. The approval of the projects set an example for the surrounding community and many applications for budget support were made to Isparta Provincial Directorate of Culture. In addition, this study is significant as one of the few restoration projects conducted using laser technology in Isparta province. This study will contribute to the literature both in terms of its impact on raising the conservation awareness of the society and the use of new technologies. It is also aimed to contribute to the city with the conservation work of this cultural heritage, which is intended to be transferred to future generations with its original function and building elements.

Acknowledgements

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Ekler

Table 1. Traditional houses with a similar plan scheme to the building (houses with side sofas) (Urfalıoğlu, 2010 p.155; Demirci, 2011, p.355 and Author archive).

Table 2. Isparta and Eğirdir houses in a similar style to the Nurten Terlikçi house (Anonymous, 2009, p.110)

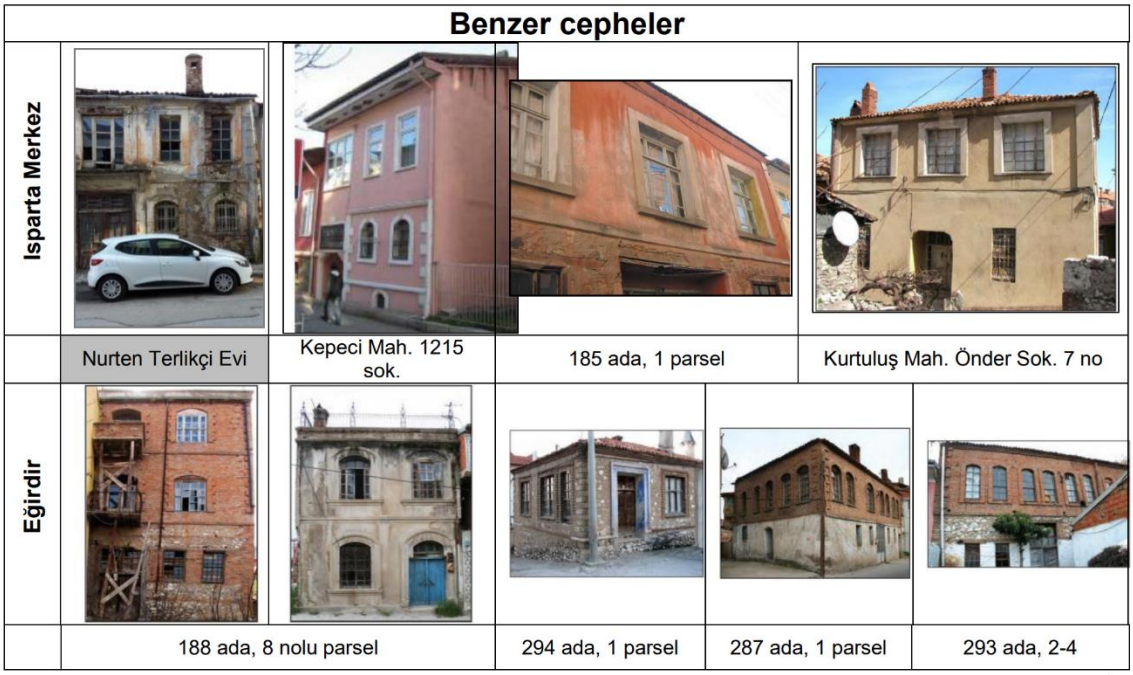

Figure 1. Laser Scan Data - scans of the front and rear facades (created by the author).

Figure 2. Laser Scan Data - scans of plan and section (created by the author).

Figure 3. Nurten Terlikçi House ground floor building survey plan (Created by the author)

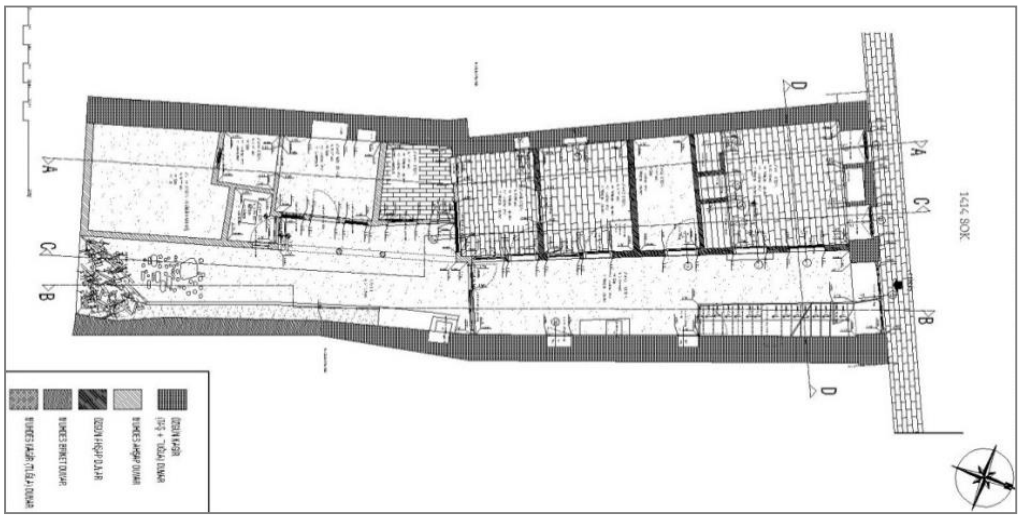

Figure 4. Nurten Terlikçi House upper floor building survey plan (Created by the author)

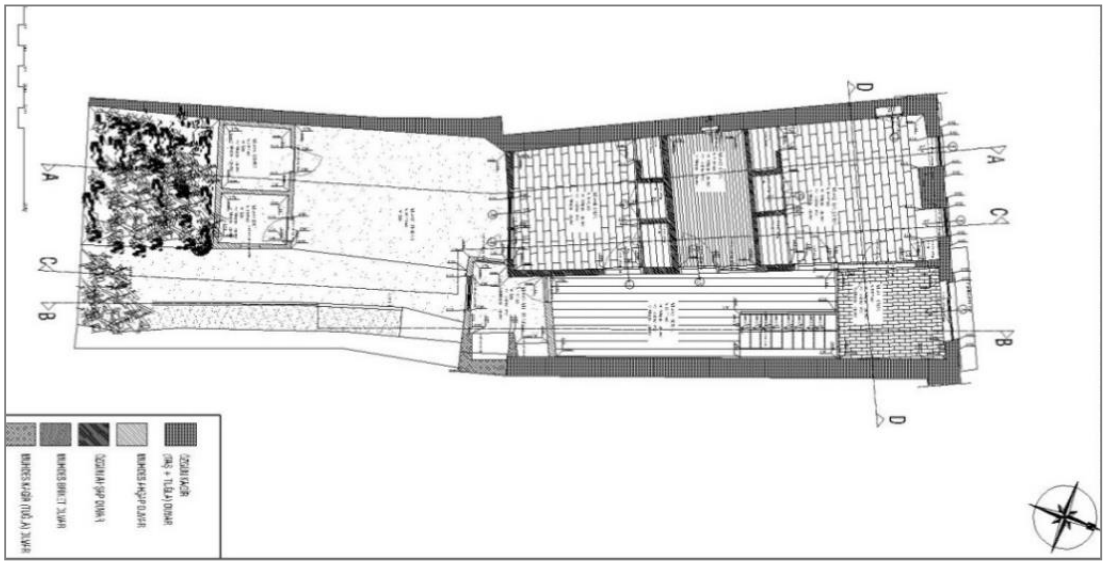

Figure 5. Examples of wooden ornamentation in the building (Created by the author)

Figure 6. Front facade of the building (Created by the author)

Figure 7. Materials used in the front facade walls of the building (Created by the author)

Figure 8. Original plaster and inappropriate accretion metal çırappas (niches for lamps) from rooms M-02, M-04 and Z-01 (Created by the author)

Figure 9. The original brick chimney of the building (Created by the author)

Figure 10. Distinction between the original and inappropriate accretion (orange:inappropriate accretion) (Created by author)

Figure 11. Inappropriate accretion spaces (spaces M-01 and M-06) in the upper floor sofa (Created by the author)

Figure 12. The location of the staircase according to the original plan of the building and the location of the staircase today (Created by the author)

Figure 13. Addenda in section M-06 (Created by the author)

Figure 14. The outbuilding and the roof over the outbuilding (Created by the author)

Figure 15. Dampness, moss and rot problems (Created by the author)

Figure 16. Dampness and rotting problems in the flooring (M-04 and Z-01 floors) (Created by the author)

Figure 17. Dampness, rotting and collapse problems on the ceiling (Z-05 living room) (Created by the author)

Figure 18. Sheet metal plates on the south facade of the building and the installation seen on the north facade (Created by the author)

Figure 19. Plumbing problems in the building (Created by the author)

Figure 20. Electrical cables in the building (Created by the author)

Figure 21. Stove chimney holes drilled later in the building (Created by the author)
Figure 21. Stove chimney holes drilled later in the building (Created by the author)

Figure 22. Nurten Terlikçi House ground floor restution plan (Created by the author)

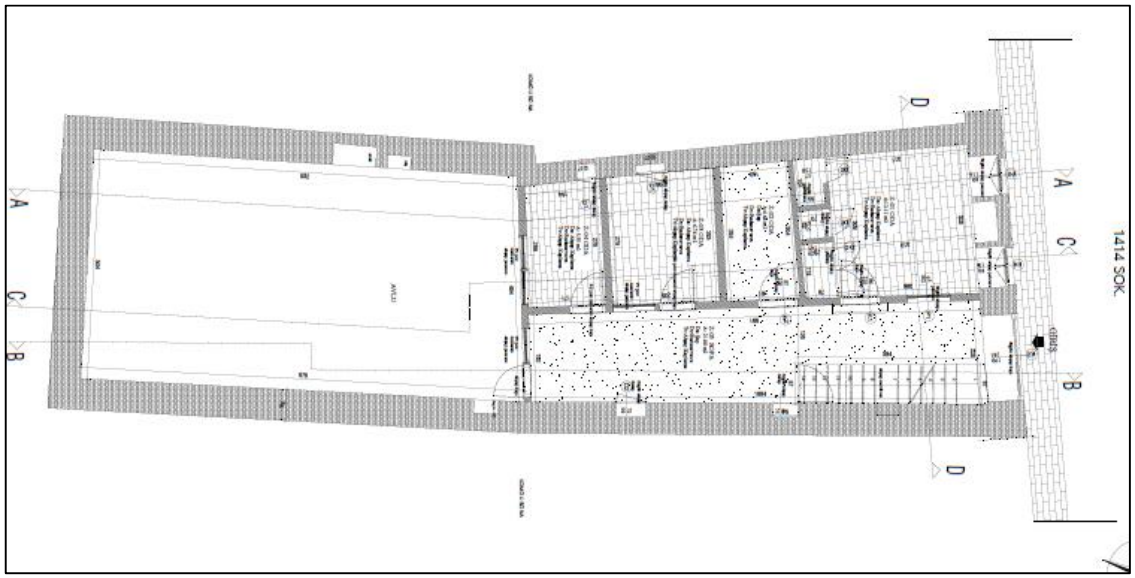

Figure 23. Nurten Terlikçi House upper floor restution plan (Created by the author)

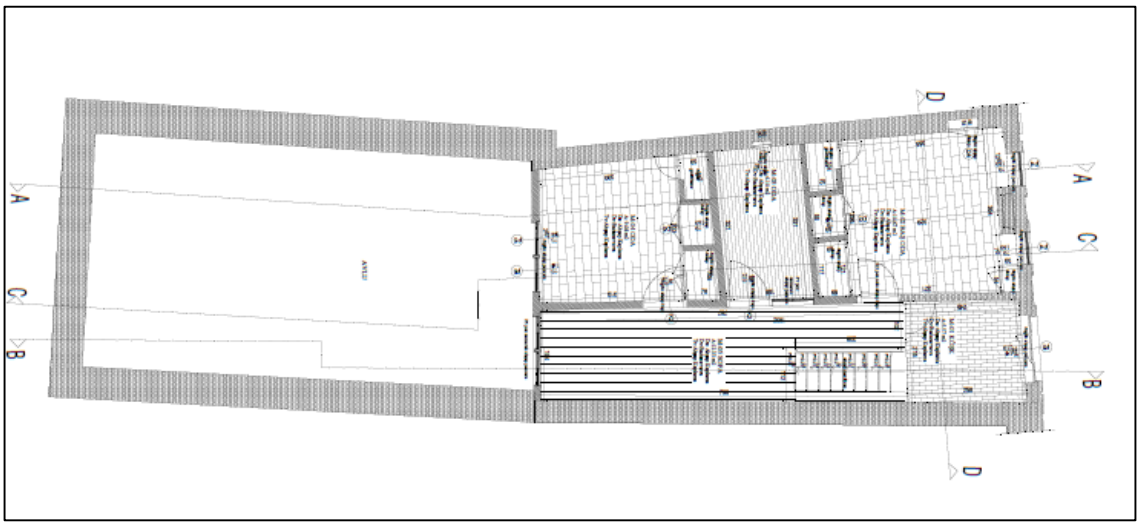

Figure 24. Outbuilding roof in traditional Isparta houses (Created by the author)

Figure 25. Nurten Terlikçi House ground floor restoration plan (Created by the author)

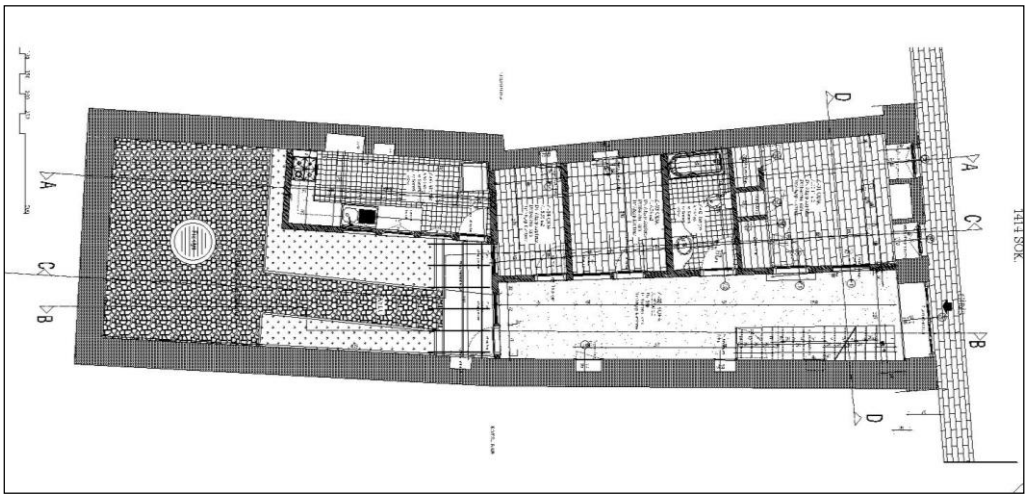

Figure 26. Nurten Terlikçi House upper floor restoration plan (Created by the author)