# A STUDY FOR THE CONSERVATION OF ERTEM OLIVE-OIL FACTORY IN AYVALIK

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**I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work.**

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## ABSTRACT


**A STUDY FOR THE CONSERVATION OF ERTEM OLIVE-OIL FACTORY IN AYVALIK**



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Conservation and re-adaptation of industrial heritage has been a quite important aspect in the sense of continuity of the historic industrial character of the place for future generations. Industrial buildings usually lost their functions due to the fast technological developments and changing within production/consumption systems. This inevitable functional loss caused the obsolete structures which are regarded as industrial heritage. It is essential to conserve and recover the post-industrial landscapes together with the all elements associated with the industrial activity.

Ayvalık is pioneer settlement in the West Anatolia with the olive and olive-oil industry as a major economic activity since its establishment. However, due to great shift of production technology, daily life, working style and the structure of urban space, there is a large stock of derelict industrial buildings within the city center. In addition, few of them are restored under poor conditions as a result of financial profits. This situation causes danger of extinction for Ayvalık's olive industrial heritage which constitutes the identity of the town. Therefore, transformation of these abandoned post-industrial landscape becomes a major issue through new re-use projects of these obsolete structures. One of these industrial heritage structures is Ertem Olive-oil Factory which is a part of Ayvalık's identity as being one of the modest, well-preserved examples that reflects not only the specific architectural features of its construction time, but also olive-oil production processes and technological changes within time. Accordingly, the aim of this thesis is to develop a conservation proposal within the lights of analysis and assessments that were made throughout the research.

Focusing on this aim, first, theoretical and practical background of adaptive re-use strategies for conservation of industrial heritage were examined through selected examples from Italy, Turkey and also from Ayvalık. These strategies were re-evaluated for proposing an approach for adaptive re-use of industrial buildings in order to constitute a base for the study. After, Ertem Olive-oil Factory and its environment were documented, analyzed and evaluated in detail. In addition to this, in order to better understand the building, olive-oil production process and its reflection to the architecture were studied in detail. And finally, within the lights of all obtained data, a conservation proposal was prepared according to the values, problems and potentials of the building and site.

Key words: Ayvalık, Ertem Olive-Oil Factory, Restoration, Conservation, Adaptive Re-use

## ÖZ

## AYVALIK ERTEM ZEYTİNYAĞI FABRİKASI'NIN KORUNMASI İÇİN BİR ÇALIŞMA

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Tez Yöneticisi: Prof. Dr. Neriman Şahin Güçhan

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Endüstriyel miras alanlarının veya yapılarının korunması ve yeniden kullanılması, tarihi endüstriyel kimliğin kent belleğine kazandırılması ve gelecek kuşaklara aktarılması açısından önemlidir. Endüstriyel miras yapıları işlevlerini çoğunlukla hızlı teknolojik gelişmeler nedeniyle kaybederler. Endüstriyel miras olarak tanımlanan ve terk edilmiş bu alanların veya yapıların yeni bir işlevle ikinci bir hayat bularak günümüze adaptasyonu, endüstriyel mirasın korunmasında ve sürdürülebilirliğin sağlanmasında önemli bir yaklaşımdır.

Ayvalık, tarihten bugüne zeytin ve zeytinyağı endüstrisine dayalı ekonomisi ile Batı Anadolu'daki önemli yerleşimlerden biridir. Ancak hızla değişen üretim teknolojisi, çalışma biçimi, kentsel ihtiyaçlar gibi etkenlerle birlikte, kent içinde yer alan ve Ayvalık'ın kimliğini oluşturan endüstriyel yapılar, tamamen işlevlerini kaybederek terk edilmişlerdir. Buna ek olarak, kötü şartlarda gerçekleştirilen, rant bazlı yeniden kullanım örnekleri, kentin endüstriyel kimliğine zarar vermektedir. Bu bağlamda, kent içinde kaderine terk edilmiş bu yapıların yeni hayata adaptasyonları tartışılması gereken bir konudur. Bu tezin amacı, Ayvalık'ın kentsel kimliğinin bir parçası olarak, özgünlüğü ile yapıldığı dönemin mimari özellikleri kadar zeytinyağı üretim teknolojisi ve değişimini de yansıtan, erken dönem zeytinyağı fabrikalarından Ertem Zeytinyağı Fabrikası için, yapılan analiz ve değerlendirmeler ışığında, kapsamlı bir koruma önerisi hazırlamaktır.

Bu amaçla tez kapsamında, ilk olarak endüstriyel mirasın korunması ve yeniden kullanılması konusunda, Dünya'daki, Türkiye'deki ve Ayvalık'taki yeniden kullanım örnekleri incelenerek, yeniden kullanım stratejilerinin değerlendirilip bir yaklaşım önerilmesi, çalışmaya temel oluşturulmuştur. Daha sonra, teze konu olan, Ertem Zeytinyağı Fabrikası'nın ve çevresinin ayrıntılı belgelenmesi, analizi ve değerlendirilmesi yapılmıştır. Buna ek olarak, yapıyı daha iyi anlamak için, zeytinyağı üretim süreci ve mimariye yansımaları ayrıntılı olarak, tarihsel geçmişi ile birlikte yapı özelinde incelenmiştir. Sonuçta tüm bu analiz ve değerlendirmeler ışığında, yapının ve çevresinin değer, sorun ve potansiyelleri temel alınarak, benzerlerine referans olabilecek bir koruma önerisi hazırlanmıştır.

Anahtar Kelimeler: Ayvalık, Ertem Zeytinyağı Fabrikası, Restorasyon, Koruma, Yeniden Kullanım

To my beloved family...

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# INTRODUCTION

Industrial heritage places, landscapes, buildings and/or complexes, are characterized by a pragmatic value-driven approach due to their construction purposes. They have often been both the reflection of transformation and modernization as a result of the industrial revolution. Industrial buildings usually lost their functions due to the fast technological developments and changing within production/consumption systems (Cengizkan, 2006: 9).

"Industrial landscape of Ayvalık" defined by a specific geography, in the Western edge of the Anatolia is accepted on the tentative list of UNESCO in April, 2017 as an outstanding example of social and economic structure of 19th century industry based on olive-oil production in western Anatolia (UNESCO, 2017).

It represents an exceptional example of continuing land-use by Rums[1] and Turks through the history. Ayvalık was one of the important Greek settlements during the 18th and 19th centuries which experienced turbulent period in the second half of the 19th century that resulted changes on political and demographic structure of the site (population exchange [mübadele]_1923_). Rums were forced to migrate to different places in the Greek land, while Turks from Lesbos, Macedonia, Crete were re-settled in Ayvalık or Cunda in accordance with the Treaty of Lausanne, 1923. The olive industry has been continued by both generations as a traditional economic activity (Şahin Güçhan, 2008: 55-56). Therefore, Ayvalık is a crucial example of living

[1] 'Rum' is defined as Greeks [Orthodox, East Romans] of Anatolia, Greek speaking- Christians under Ottoman rule. The word 'Rum' is derived from 'Romeus' (Roman_east roman_) (Türkçe Bilgi, n.d.). Throughout the thesis, it is used as 'Rum' when referring the Greek population under the Ottoman rule.

testimony to olive growing and olive-oil production traditions that come from a long history and it still continues by improving and adapting to the present day (UNESCO, 2017).

The city still reflects the historical importance of itself not only with its historic buildings that have survived today which are mostly composed of factories and depots for the olive-oil and soap productions, but also with olive-oil smell that can be felt within every part of the city.

Accordingly, Ayvalık's unique geography, natural character composed of a large extent of olive groves as a main source of the industrial landscape and its major preserved sites together with its port and traditional settlement provide an exceptional image of the industrialization process. There is a large stock of abandoned industrial heritage buildings within Ayvalık center that loss their functions due to the great shift of production technology, daily life, working style and the structure of urban space. Thus, conservation of Ayvalık's industrial heritage becomes a major issue in the heritage conservation agenda.

In order to better understand the Ayvalık's industrial heritage, three main questions come to the fore within the scope of the thesis. These are 'What is industrial heritage and its scope?', 'Why do we conserve the industrial heritage?' and 'How do we conserve the industrial heritage?'.

### 1.1. Conservation of Industrial Heritage

'Industrial heritage' synonymously 'industrial archaeology' is one of the most vibrant and progressive areas of research and practice which is a discipline with the dimensions of history of architecture, history of technology, archaeology and conservation, which emerged in 1950s in Britain as the first industrial country. It is difficult to define its scope and aim due to its contents and work methods which strictly linked with aforementioned multi-dimensions (Cossons, 2005).

The term 'industrial archaeology' was used for the first time as a first phrase in English in 1955 by Michel Rix in Britain. Rix who staff tutor in Architectural History in the University of Birmingham's Department of Extra Mural Studies, wrote an article in 'the Amateur Historian' in 1955 and he defined 'industrial archaeology' again in 1967 as *"recording, preserving in selected cases and interpreting the sites and structures of early industrial activity, particularly the monuments of the Industrial Revolution"* (Raistrick, 1986: 2-3).

This term (industrial archaeology) is still widely used but commonly called *'industrial heritage studies, patrimonio industriale or patrimoine de l'industrie'* (Martin, 2009: 285-7). On the other hand, some countries did not prefer to use this term for a long while. For instance, in Germany, 'industrial archaeology' was not used as a term until 1970s. It was used as 'technical monument or technical culture monument' instead of 'industrial archaeology' since 1930s. It is also stated that 'industrial archaeology' was not clear for using as a term even in 1978, during the 3rd Congress on Conservation of Industrial Monuments generated by TICCIH in Sweden (Neumann, 1986: 3; Köksal, 2005).

In time, this term became widespread and many definitions developed in the area of research by many scholars such as K. Hudson (1963), Buchanan (1972), Raistrick (1986) and Trinder (2000). However, the incipient quality of the subject is reflected in the lack of any generally agreed definition of industrial archaeology. According to Raistrick, industrial archaeology was defined as *"the organized-disciplined study of the physical remains of yesterday's industries"* (Raistrick, 1986: 4). According to Buchanan, industrial archaeology is basically defined as,

> *"is a field study concerned with investigating, surveying, recording and, in some cases, with preserving industrial monuments. It aims, moreover, at assessing the significance of these monuments in the context of social and technological history"* (1972: 20).

During 1950s to 1970s, discussions focused on determining the scope of the industrial archaeology in terms of period-defined or production defined approaches.

According to Palmer and Neaverson (1998: 15), as many other researchers, the historical period starts with the industrial revolution. On the other hand, Raistrick (1972: 4) notably argued that the term 'industrial archaeology' should involve the whole history of industry through ages.

After Rix's article which was about the emergence and necessary of preservation of the industrial past, CBA (Council for British Archaeology) was set up the first research committee for industrial archaeology in 1959 (Buchanan, 1972: 25). After the demolition of Doric Portico in Euston Station in 1962 which took the attention of public against demolition, the Industrial Monuments of Survey was established in 1963 (Buchanan, 1972: 361). In 1964, the Journal of Industrial Archaeology was started to publish (Trinder, 1981: 13). Between 1966 and 1970, these developments were followed by Bath Conferences. And in 1976, a specialist publication was launched under the name of the 'Industrial Archaeology Review' (Buchanan, 1972: 355). Therefore, 1960s and 1970s were the period of growing awareness of industrial archaeology, documenting and recording industrial remains and an annual publication (Labadi, 2001: 77; Köksal, 2005)

The international level of the issue was started in 1973, leading by an important British expert on industrial archaeology (Neil Cossons); FICCIM -First International Congress on the Conservation of Industrial Monuments- was held in Great Britain. As a result of its positive impact, it was followed with the second one -SICCIM- which was held in 1975 (in Germany, Bochum). And in 1978, the third one (in Sweden, Stocholm) was generated as a conducive event for the establishment of TICCIH on 4th June of 1978 (Trinder, 2000). With these following developments, TICCIH cooperated with ICOMOS in 2000 as an advisory body on industrial heritage. **The Nizhny Tagil Charter**[2] which was announced in 2003, is the first guideline that specified the meaning and relevance of industrial heritage and

[2] TICCIH, 2003, *The Nizhny Tagil Charter for the Industrial Heritage*, Moscow. "This charter is prepared by The International Committee for the Conservation of the Industrial Heritage, TICCIH which is the world organization representing industrial heritage and its special advisor to ICOMOS on the subject" (http://www.icomos.org, / [Last accessed on April 10, 2016]

fundamental conservation of them in accordance with the spirit of Venice Charter (1964). And all definition of industrial archaeology, industrial heritage, industrial monuments and scope of the topic can be found thoroughly in this charter. Accordingly, industrial archaeology and its scope are defined as:

> *"... an interdisciplinary method of studying all the evidence, material and immaterial, of documents, artefacts, stratigraphy and structures, human settlements and natural and urban landscapes, created for or by industrial processes. It makes use of those methods of investigation that are most suitable to increase understanding of the industrial past and present. The historical period of principal interest extends forward from the beginning of the Industrial Revolution in the second half of the eighteenth century up to and including the present day, while also examining its earlier pre-industrial and proto-industrial roots. In addition it draws on the study of work and working techniques encompassed by the history of technology. "* (The Nizhny Tagil Charter, 2003)

It is clear to say that industrial archaeology is a multi-disciplined-hybrid study; architects, engineers, planners, historians and many other professionals should be responsible for understanding the industrial past (Hudson, 1963: 17). After the acceptance of this multi-disciplined study, the question aroused 'What should be preserved?'. In the Nizhny Tagil Charter, it is defined as:

> *" Industrial heritage consists of the remains of industrial culture which are of historical, technological, social, architectural or scientific value. These remains consist of buildings and machinery, workshops, mills and factories, mines and sites for processing and refining, warehouses and stores, places where energy is generated, transmitted and used, transport and all its infrastructure, as well as places used for social activities related to industry such as housing, religious worship or education."*(Nizhny Tagil Charter, 2003)

In 28th November of 2011, ICOMOS and TICCIH published the principles for the conservation of industrial heritage sites, structures, areas and landscapes as another important international document.

Besides, TICCIH, is the most important organization for industrial heritage but not the only one. For instance, it is also known that historic industrial buildings-landscapes were nominated by UNESCO in 1978 as indicated in UNESCO-WCH website. Moreover, there are other organizations which are interested in conservation of industrial heritage such as ERIH (European Route of Industrial Heritage), E-FAITH (European Federation of Associations of Industrial and Technical Heritage), DOCOMOMO (DOcumentation and COnservation of -buildings, sites and neighbors of the- MOdern MOvement).

For Turkey, The Ministry of Culture and Tourism, General Directorate of Cultural Assets and Museums is the responsible governmental body which deals with cultural heritage. There is no systematic inventory study for industrial heritage. The documentation is based on registration of cultural assets according to “Regulation determining procedure, principles and criteria about survey and registration of immovable and natural assets to be conserved” (Based on the act no:2863, 'Law on the conservation of cultural and natural property' dated to 1983, Kültür ve Tabiat Varlıklarını Koruma Kanunu No:2863).

There are two significant laws dealing with the conservation of cultural heritage and sites. The first one is the Turkish Law no:2863 'Law on the conservation of cultural and natural property'. The other one is the Turkish Law no: 5366 'Law on renovating, conserving and Actively Using Dilapidated Historical and Cultural Immovable Assets'. However, there is not any specific definitions related with the industrial heritage. In the Turkish Law no: 2863 which is the major arrangement in the legal sense, the cultural assets are defined as: "*all assets located underground, aboveground or underwater; related to science, culture, religion and fine arts of pre-historic and historic periods; which are being subject to social life in historic and* *pre-historic periods and hold scientifically and culturally original values."*[3](article 3) In the 6th article of the Law, it is stated that *"immovable cultural asset has to be built before the end of 19th century to take into consideration for preservation. In the contrary case, it has to have significance and appropriate characteristics. All immovable assets related with the national history which are the witnesses of War of Independence and foundation of Turkish Republic, all buildings which were used by ATATÜRK are listed as cultural asset without limitation."*[4]

In Turkey, conservation of industrial heritage is very recent phenomenon. It may be said that it was started with the rehabilitation projects of Golden Horn in İstanbul prepared by the municipality in the end of 1980s which was involved some destructions of historic industrial buildings. Immediately afterwards, some of them which were thought to be demolished, were registered by Cultural and Natural Conservation Board. Following this development, re-use projects started for the registered ones such as Sütlüce Slaughterhouse/Sütlüce Congress and Cultural Center, Lengerhane-i Âmire/Rahmi Koç Industry Museum; Feshane Fabrika-ı Hümâyunu (Feshane-ı Âmire)/Feshane International Fair, Congress & Cultural Centre; Silahtarağa Powerplant/Santral İstanbul, Cibali Tobacco and Cigarette Factory/Kadir Has University. However, the main consideration of these adaptive re-use examples were not the conservation of industrial heritage. From the beginning, it was associated with the general conservation reasons as the 'conservation of Golden Horn Silhouette and its Cultural Layers' (İnciroğlu, 1991; Saner, 2012: 60).

Another important event for industrial heritage in Turkey was the gas factories which became derelict due to the introduction of natural gas. One of the important ones was Ankara Maltepe Gas Factory which took the attention of public and media because of introducing the demolition decision by EGO in 1990. Right after in 1991, it was registered by Cultural and Natural Conservation Board. During its conservation

[3] Kültür ve Tabiat Varlıklarını Koruma Kanunu 'Law on the conservation of cultural and natural property', No: 2863, 1983, article 3
[4] Law No: 2863, 1983, article 6

efforts, the term 'industrial heritage' was used for the first time in Turkey in 1993[5]. Unfortunately all these efforts did not make any difference, the factory was totally destroyed in 2006. Later on, this topic has become forefront on the academic platforms in Turkey (Saner and Severcan, 2009; Saner, 2012: 61).

It should also be pointed out that some of these aforementioned adaptive re-use examples in İstanbul and few examples from other cities such as İzmir Gas Factory / Cultural Center, Ankara TCDD Train silos / Cer Modern, Eskişehir Wine Factory /Hayal Kahvesi can be considered as positive developments in Turkey in order to preserve industrial abandoned facilities by integrating them to the present urban context in a successful way (Cengizkan, 2012: 28).

### 1.2. Problem Statement

Industrial buildings which are the symbols of their times in terms of prosperity, affluence and technological innovations, quickly become to lose their values. They have remained as reminders of their times due to no longer continuing their original purposes. In the international scale, these industrial edifices have started to be recognized as a proficient tool for conservation and the transformation of the cities by adaptive re-use (Loures, 2008: 688).

However, in Turkey, industrial sites are highly unprotected and under the risk of demolition because of lack awareness, inadequate designation and documentation, but also because of changing economic trends, environmental issues and the problem of re-functioning of these structures due to their complicated characteristics. Conservation of industrial buildings and reuse of them is a crucial subject that needs innovative and novel approaches. It should be considered as a social, economic, environmental and political process (TICCIH, 2011).[6]

[5] For the detail information, see the decisions for related judicial process: Ankara 7. İdare Mahkemesi Kararı, No:1993/19 (Ankara 7th Administrative Tribunal Decision, No:1993/19); Danıştay 6. Daire Kararı No:1194/2657 (State Council 6th Department Decision, No:1994/2657) (Saner, 2012: 65)
[6] Joint ICOMOS – TICCIH Principles for the Conservation of Industrial Heritage Sites, Structures, Areas and Landscapes, Dublin Principles, Adopted by the 17th ICOMOS General Assembly on 28 November 2011, (http://www.icomos.org/, Last accessed on September 10, 2016)

On the other hand, the most profound impact of industrialization on industrial areas in urban settlements was preventing the industrial activities in the city center by closing the traditional factories because of changing technologies and new demands. And they moved the industrial activities to outside the city center. Thus, industrial heritage within the centers became derelict (Föhl, 1995; Köksal, 2005).

The same was also happened for Ayvalık's industrial heritage. Through the 1972 Development Plan prepared by Architect Yavuz Taşçı, it was planned that industrial activities which were held in the traditional factories within the city center that cause the pollution due to their functions, moved out of the city center. They have been replaced by new industrial buildings which were built outside the city.

Therefore, the industrial buildings within the city center lost their functions and became derelict. And today, while half of the industrial buildings are abandoned, the other half of them are converted into different functions some of which are done by ignoring the values of these buildings[7]. This situation causes a loss in Ayvalık's industrial characteristics which creates a danger of extinction on the identity of the site.

### 1.3. Selection of the Building

Accordingly, Ertem Olive-Oil Factory that is the main subject of this thesis, is one of the industrial heritage buildings in Ayvalık dating back to 1910 constructed before the population exchange (1923). In fact, there are large building complexes which were kept functioning from 19th century to the end of 1970s by making modernizations on production system. For instance, Sezai Ömer Madra Olive-Oil Factory (the largest one), Kırlangıç Factory, Vakıflar Olive-Oil Factory are the advanced ones in Ayvalık. However, Ertem Olive-Oil Factory which was selected as a case study for the thesis, is smaller than abovementioned advanced ones used by family enterprises.

The reason behind the selection of the factory as a case study is not being the largest or the most elaborated one in Ayvalık. It is one of the original, well preserved

[7] see Chapter 2, for further information of the re-used examples of Ayvalık, p.68-82

medium scale factories that reflects typical traditional 19th century olive-oil factory within the city including both olive-oil and soap productions. It is still possible to read the technological layers -production system- within the factory. In short, its specific location along the coastline and its well preserved architectural and technical elements deserve to be studied as being a pixel in the main image of the city.

Besides, there is no documentation related to the factory. The building encounters some problems due to the man-made actions and weathering conditions as a result of abandonment. Thus, this study will also be an opportunity to document the building before losing its originality.

### 1.4 Aim and Scope of the Thesis

The basic process of conservation of immovable cultural heritage starts with documentation, continues with definitions and assessments, and concludes with development of related strategies and intervention decisions. Documenting industrial structures by considering old industrial processes, related machinery, equipments, records or intangible aspects which must address historical, technological and socio-economical dimensions of the heritage place and building is essential to their identification and conservation. It should benefit from a variable sources and information including site surveys, recording, historical investigation, material and landscape analysis, oral history and/or research in public in order to reach to the effective evaluation and assessment. Moreover, in addition to knowledge of the industrial and socio-economic history of the heritage site, their links to other parts of the world is also necessary to understand the significance of the heritage place and structure (TICCIH, 2011)[8].

Within this framework, the main aim of this thesis study is to define and to develop a conservation proposal that is led by comprehensive conservation approach and fundamental principles in order to reveal specific architectural, functional, technical,

[8] Joint ICOMOS – TICCIH Principles for the Conservation of Industrial Heritage Sites, Structures, Areas and Landscapes, Dublin Principles, Adopted by the 17th ICOMOS General Assembly on 28 November 2011, (http://www.icomos.org/, Last accessed on September 10, 2016)

cultural and social aspects of Ertem Olive-Oil Factory which is one of the industrial heritage buildings within the industrial settlement of Ayvalık.

For this aim, this thesis primarily seeks to understand the reasons and historical processes behind the transformation of industrial heritage in general and Ayvalık in particular in order to better understand the industrial heritage of Ayvalık. Furthermore, understanding the successful adaptive re-use examples as a solution for both Turkey and Europe is another objective of this thesis in order to develop an effective conservation proposal for Ertem Olive-Oil Factory. That is why both conservation of industrial heritage and adaptive re-use of industrial buildings are investigated.

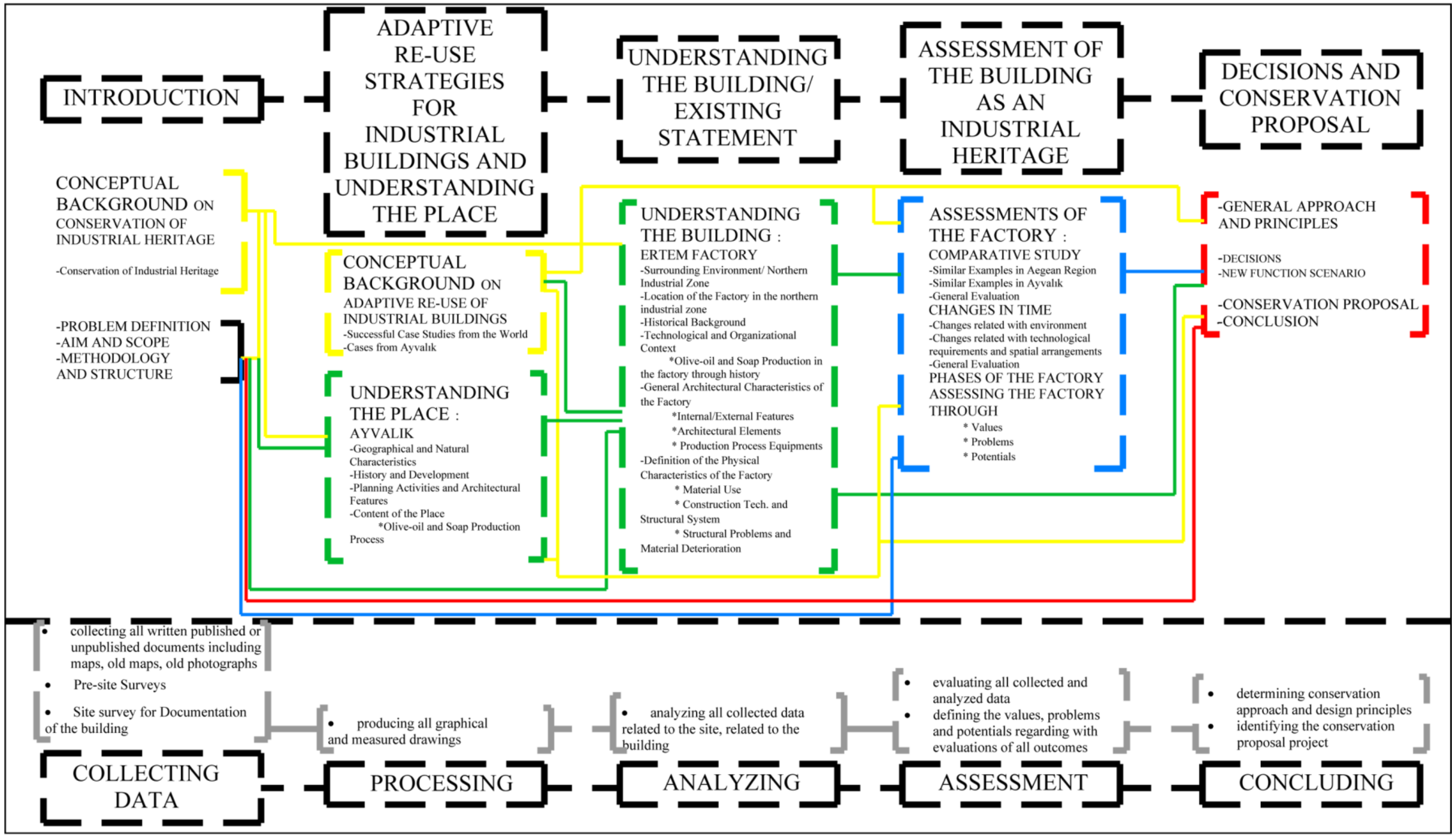
Primarily, the thesis focuses on the documentation, analysis, assessments and related decisions of Ertem Olive-Oil Factory and its environment by considering its character of close environment, historical and technological background, olive-oil and soap production processes with related equipments and general architectural characteristics.

In order to confine the study area for defining the close environment of the building, current state of the northern part of the old port named as 'northern industrial zone' in which Ertem Olive-Oil Factory is located, was studied in terms of open-built-up relationship, identification of the existing building stock and existing adaptive re-use examples of olive-oil and soap factories located in this zone within the scope of the thesis. And the study concludes with the definition of the conservation proposal for Ertem Olive-Oil Factory by constituting comprehensive conservation approach and design principles.

### 1.5 Methodology and Sources of the Thesis

This thesis follows several research steps relating with the scope of the content of the chapters. These are collecting data and processing them, analyzing the data, evaluating all the outcomes and conclusion (See Table 1).

Table 1: Methodology of the thesis



Literature survey starts with the 'industrial heritage/archaeology' with its definition and scope and conservation of industrial heritage through books, articles, thesis, international and national official documents as well as online sources in order to understand the theoretical background of the study. Buchanan (1972), Raistrick (1986), Palmer and Neaverson (1998), Trinder (2000), Köksal (2005) and Nizhny Tagil Charter (2003) were chosen as major sources for this discussion.

Furthermore, Turkish legal documents (Turkish Law no:2863 'Law on the conservation of cultural and natural property', and Turkish Law no: 5366 'Law on renovating, conserving and Actively Using Dilapidated Historical and Cultural Immovable Assets') were reviewed in order to see the concept for Turkey. Şahin Güçhan and Kurul (2009; 2005) were the major sources for this section.

In addition to this, transformation of industrial heritage buildings are studied with selected successful adaptive re-use examples in both Turkey and Europe in terms of conservation principles and intervention strategies in order to understand the theoretical-practical background of the study. While doing this, what 'good practice' is defined through contemporary literature such as Broker and Stone (2004), Binney, Machin and Powell (1999), Feireiss and Klanten (2009), Rogic (2009) and Jager (2010). And according to the parameters of 'good practice', selected cases were investigated in order to see how theoretical principles/strategies are applied to the practice. While selecting the cases, several criteria were taken into consideration:

1) They are examples of industrial complex or buildings regardless of whether they are olive-oil and/or soap factory in order to prevent the restriction of the example types.

2) In each case, it can be recognized at least one of parameters defined as 'good practice' strategies (See Chapter 2, p.23-25).

3) They are the examples which include some similarities between Ertem Olive-Oil Factory in terms of scale, materials and/or construction technique, landscape and environment setting, etc.

Next, Ayvalık was investigated as an industrial heritage with its geographical and natural characteristics, history and development, urban formation of the city and architectural features through written sources of which are Clogg (1997), Bayraktar (1998), Psarros (2004), Yorulmaz (2000), Şahin Güçhan (2008), Kabasakal (1987), Kıyak (1997), Terzi (2007). In addition to this, general structure of olive-oil and soap production processes in Ayvalık with their related equipments and their reflection to the architecture are researched in order to understand the olive-oil and soap factories and their contents that shaped their the architecture.

Moreover, close environment of Ertem Olive-Oil Factory is surveyed in detail. Within the scope of the thesis, northern industrial zone which housed lots of big scale factory buildings including Ertem Olive-Oil Factory is chosen as a city scale study area. It is because the southern part of the old port called depots region were studied by Kabasakal (1987) and Özbayar (2014) in their thesis and by a group of student from METU Graduate Program in Restoration,-REST 507-Design in Restoration 3 Studio- in 2005, within the scope of 'Conservation and Development Project for Ayvalık, Depots Region'. Moreover, Terzi (2007) studied the olive industry in Ayvalık and its impact to the settlement pattern in her thesis. So there are a lot of information about the industrial zones except the northern section. Thus, current state of the 'northern industrial zone' was studied through visual observations, photographs that were taken and interviews made with inhabitants by the author during the site surveys performed in October and November, 2015.

Investigation of the study area focuses on defining the character of existing state of the northern industrial zone. In this regard, first, open and built-up areas were identified. And in order to define the current building stock, categorization of the buildings were done which is based on their construction technique and original function. After this, all buildings were defined according to their current function and storey height. And they are mapped by the author by using the base map obtained from Ayvalık Municipality.

In addition to this, all factories determined in the northern industrial zone of which are converted into different functions were investigated in order to evaluate the current situation of Ayvalık in terms of adaptive re-use examples regardless of whether they are good or bad practices within the scope of the thesis. These re-use examples also were investigated by the help of good practice parameters.

After pre-site survey which was performed in October and November 2015, site survey was performed between 06.01.2016 and 20.01.2016 in order to document the building. Measurements of the factory (See Figure **1**,Figure **2**)[9] were done with conventional techniques (hand measurement with laser meter) and by the use of 'Total Station Theodolite -TST-' system. Then, the building was documented by means of photographs from every part including its environment by the author. Plans, sections, façades and details were prepared with these measurements and by the help of rectified photographs. They were produced in 1/50 and 1/20 scaled drawings by using AutoCAD 2013 software.

In addition to this, site plan of the factory was prepared in 1/200 by using cadastral plan that was obtained from General Directorate of Land Registry and Cadastre of Ayvalık. All these scaled drawings were presented as a project separately in the CD as an appendix of the thesis. During the flow of the thesis, they were just scaled according to the thesis sheet format. The information obtained at the end of literature survey and documentation of Ertem Olive-Oil Factory was used throughout the study whenever necessary.

Moreover, the still in-situ production process equipments that belong to Ertem Olive-Oil Factory were also documented through the site surveys by means of photographs and sketches. Some equipments and/or traces of the equipments have still survived in the building today. But some of them such as steam engine, a hydraulic press and a tractor are exhibited in Rahmi M. Koç Museum, in İstanbul. They were also documented by taking photograph.

In addition to the measurement of the building, interviews with the former owner of the factory that is A. Servet Ertem, (2016) were done by the author during the site

[9] Site survey for documentation of the building was carried out by Sezai Yıldız, Recep Yıldız, Gözde Yıldız, Songül Yıldız and technician Eray Özçiftçi

survey in order to understand the historical process of the building, its nearby environment and also his memories related with the factory.

After producing the measured drawings, the description of the building and its environment were done. First, the surrounding environment of the factory was defined in order to understand the current context and features of the northern industrial zone and to define the location of the factory in its environment. After, the historical background of the factory, technological and organizational context of it are presented in order to better understand the general characteristics of Ertem Olive-Oil Factory.

And then, general architectural characteristics of the factory are defined with supported measured drawings including internal/external characteristics, architectural elements and production equipments.  Right after, definitions of the structural-material characteristics of the factory that were prepared by the author through visual observations during the site surveys are categorized and presented under the titles of 'materials', 'construction technique and structural system', 'structural problems and material deteriorations'.

Thereafter, changes and indications were defined and evaluated by considering similar examples from both Aegean Region and Ayvalık in a comparative manner. First, comparative study was carried out according to the plan layouts and related process structure and their façade layouts which aims to emphasize the significance of the factory and to evaluate the physical and architectural characteristics of it. As a next step, changes of the factory within time with the evaluation of the traces are described. While doing this, all traces were tabulated systematically by coding on the surveyed drawings. And all traces were evaluated according to the reason of changes. After the historical phases of the factory are presented within the help of building itself, evaluation of the changes and traces, comparative study and information given by former owner of Ertem Olive-Oil Factory, A. Servet Ertem. While preparing the phases of the factory, reliability degrees of each questioned part were differentiated.

Then, assessments related to general characteristics and existing state of the factory are given in order to constitute a base for conservation proposal of Ertem Olive-Oil

Factory. All required information in detail which are obtained until here, are re-evaluated under the titles of 'values, problems and potentials' in order to realize for well-defined classifications which are directed to the decisions.

Finally, in the last step, the conservation approach and design principles were defined by referring to all analysis and assessments of the building and environment, theoretical-practical background of the study. And then, general decisions which define the new proposal for Ertem Olive-Oil Factory are identified with supported drawings and visual documents including not only physical interventions, but also new function and related management proposal to adapt the factory into the new life according to the present demands.

### 1.6 Structure of the Thesis

This thesis consists 5 chapters. In the introduction chapter, 'industrial heritage/archaeology' with its definition and scope and conservation of industrial heritage are reviewed. Following this, definition of the problem, aim and scope, methodology and structure of the thesis are explained.

The second chapter is divided into two sections, first section includes the transformation of industrial heritage buildings with selected successful adaptive re-use examples in both Turkey and Europe in terms of conservation principles and intervention strategies in order to understand the theoretical-practical background of the study. While doing this, what 'good practice' is defined through contemporary literature. And according to the parameters of 'good practice', selected cases were investigated in order to see how theoretical principles/strategies are applied to the practice. And lastly, Ayvalık is evaluated through existing adaptive re-use examples within the help of good practice parameters in order to understand the current needs of the city in terms of the transformation of the industrial heritage buildings.

This chapter continues with the section regarding Ayvalık as an industrial heritage in order to understand the site itself with its geographical and natural characteristics, history and development, urban formation of the city and architectural features. In addition to this, general structure of olive-oil and soap production process methods in Ayvalık through history with their related equipments and their reflection to the architecture are given in order to understand the olive-oil and soap factories and their contents that shaped their architecture.

The third chapter covers Ertem Olive-Oil Factory and its environment. It starts with the description of the current state of northern industrial zone by supported drawings and photographs. And the location of Ertem Olive-Oil Factory is defined by emphasizing it within the close environment (in the northern industrial zone). Then, the history of the factory is described with its owners until today. After, technological and organizational contexts of the factory through its changes in time are described in order to better understand the building. It is essential to understand the contexts of these buildings (production process and their transformation due to technological developments) for understanding them which are designed according to their utilization purposes. Because of that changes of the factory in the sense of production process and plan layout are described in this chapter. Thereafter, general architectural characteristics of Ertem Olive-Oil Factory is presented through its internal/external features, architectural elements and production process equipments. Following this, its construction materials, construction technique, material deteriorations and structural problems are described. And the chapter terminates with the evaluation of the current state of the factory.

Forth chapter is divided into two sections. In the first section, changes and indications are given by considering the similar examples from both Aegean Region and Ayvalık in a comparative manner. In this regard, comparative study is presented which aims to emphasize the significance of the factory and to evaluate the physical and architectural characteristics of it. As a next step, changes of the factory within time with the evaluation of the traces are described. After the historical phases of the factory are presented within the help of building itself (traces that read through its originality), evaluation of the changes and traces, comparative study and information given by former owner of Ertem Olive-Oil Factory, A. Servet Ertem.

In the second section of the chapter, assessments related to general characteristics and existing state of the factory are given in order to constitute a base for conservation proposal of Ertem Olive-Oil Factory. All required information in detail which are obtained until here, are re-evaluated under the titles of 'values, problems and potentials' in order to realize for well-defined classifications which are directed to the decisions.

In the fifth chapter, general conservation approach, decision strategies and design principles are identified. All decisions are defined in order to highlight the values, solve problems and reveal the potentials. And finally, in the fifth chapter, the conservation proposal is presented by supported drawings that were done throughout the research.

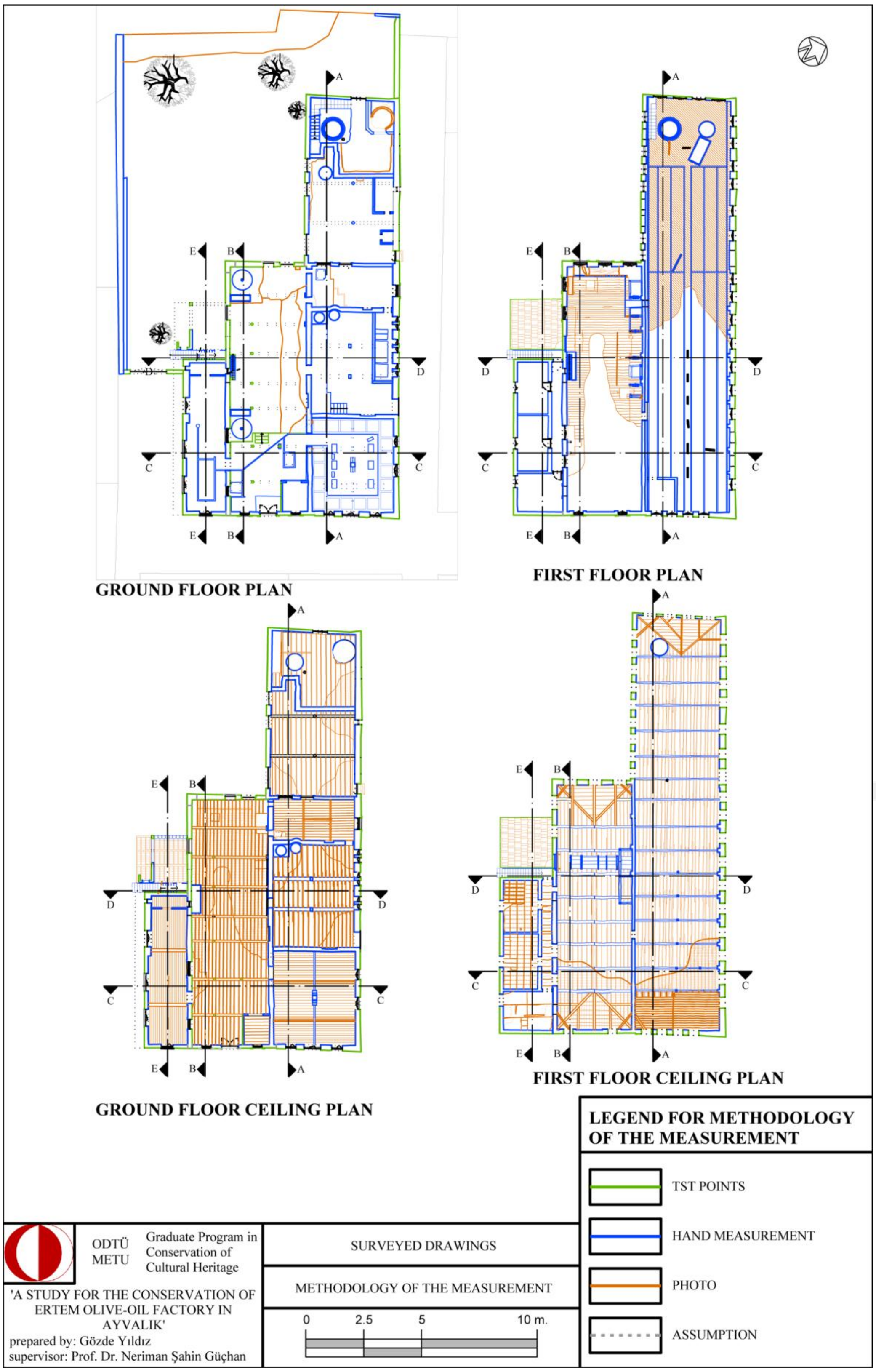



Figure 1: Methodology of the measured survey

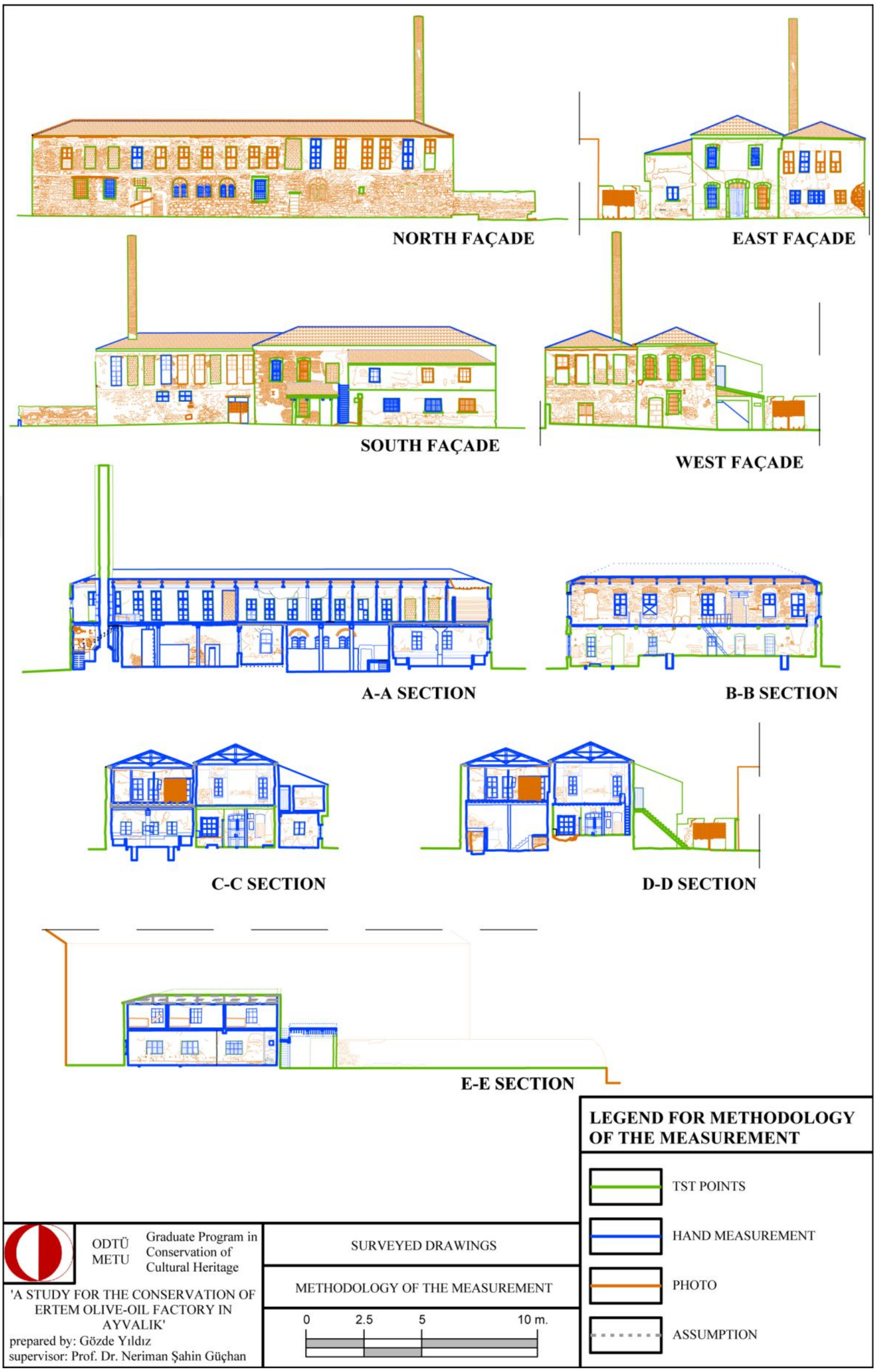



Figure 2: Methodology of the measured survey

# CHAPTER 2

## ADAPTIVE RE-USE AS A STRATEGY TOWARDS CONSERVATION OF INDUSTRIAL HERITAGE AND UNDERSTANDING THE PLACE: AYVALIK

Nowadays, repairing and restoring existing buildings for sustainable use has become a creative and effective challenge which is often called 'adaptive re-use'. According to Brooker and Stone 'adaptive re-use' (in other words, re-modeling, retrofitting, conversion, adaptation, re-working, rehabilitation or refurbishment) means that *"the function is the most obvious change, but other alterations may be made to the building itself such as the circulation route, the orientation, the relationships between spaces; additions may be built and other areas may be demolished"* (2004: 26).

Re-using existing buildings for new functions is not a new phenomenon in general. In fact, the buildings have been adapted to new functions or fit changed demands from far in the past which were done mostly in a pragmatic way that lied behind functional and financial reasons. These interventions were done without heritage conservation as an intention until 19th century (Cunnington, 1988).

With the effects of industrial revolution, architects promote to build new buildings which completely break with traditional building. In the first part of the 20th century, Le Corbusier and CIAM were promoting reconstruction rather than conservation.

However, in the 1970s, when the global oil crisis occurred, the ecological movement protested against the waste of demolished buildings. Due to the reaction of this increased demolition and new built environment, growing awareness has been developed in conservation of every kind of old buildings (Cantacuzino, 1975). As a result of this interest, adaptive re-use has been a key subject in the literature. And 'New Uses for Old Buildings' by Cantacuzino (1975) is the first publication related to this subject.

In the 1970s and 1980s, reusing old buildings became fashionable in the USA and Europe. For the re-use of industrial buildings in particular, whereas the industrial revolution had originated in Great Britain and later spread to the USA, the term 're-use' was first used in the USA and then spread to Great Britain and to the whole Europe. The pioneering reused examples took place in the USA in the 1970s (Powell, 1999: 9-10).

Binney (1984), Kincaid (2002) and Stratton (2000) are the names directly brought up among the authors that deal with specifically adaptive re-use of industrial buildings. In 1990, Binney, Machin and Powell published their book 'Bright Future: The Re-use of Industrial Buildings'. In this book, Binney et al (1990) tried to identify four advantages of industrial buildings for adaptive re-use. 1) Their walls are solid and the floors are made to carry massive weight. If they are being well maintained, they have a life of centuries which make them suitable for adaptive re-use. 2)Most of them are laid out open plan and can be refurbished and adapted for variety of uses. 3) Benefits of re-used industrial buildings such as new job opportunities which often give a certain sense of prestige and promote the development of local economy. 4) The setting of industrial buildings such as being close to the water sources and open land surroundings has quite unexpected potentials. Therefore, adaptive re-use of industrial buildings offers great opportunities for large scale regeneration (Binney et al, 1990).

Both in Europe and Turkey, there are several successful examples concerning the re-use of industrial buildings. They are especially for the purposes of museums, art-cultural activities and educational purposes. The prime example is the Tate Modern in London which is originally an old power station that was converted into new modern art gallery in UK. The BALTIC Center for the contemporary art is another successful re-used example which was originally built as an industrial mill. The Gasometer of Vienna; Mattatoio di Testaccio in Rome (Ex-Slaughterhouse of Testaccio) that converted into art and cultural center; Silahtarağa Electricity Power Station in İstanbul converted into Santral İstanbul, The Paper Factory in Kocaeli converted into Paper Museum and Science Center, northern part of Arsenal of Venice converted into leading center for marine technology, Former Brick Factory of Galotti converted into Industrial Museum of Bologna, Spinning Mill in Salzano converted into museum, Prada Foundation in Milan, Cibali Tobacco Factory in İstanbul converted into Kadir Has University are the ones that can be considered as successful examples.

In this part of the chapter, practical strategies on adaptive re-use of industrial buildings in the literature will be reviewed in order to constitute a base for the investigation of the selected case studies. For this aim, -what ***'good practice'*** is- will be defined and accordingly case studies will be identified and evaluated according to their selection criteria. Since the main aim of this thesis is to develop a conservation proposal for Ertem Olive-Oil Factory, this part of the chapter explores what good practice is in order to use these inputs in the general conservation approach for conservation proposal of Ertem Olive-Oil Factory, in Chapter 5.

### 2.1. Practical Strategies on Re-using Industrial Heritage through Selected Example of Projects and Implementations

Re-using our heritage building stock is one of the most effective strategies to conserve them. And industrial buildings are the most appropriate heritage buildings to re-use them since they offer great opportunities for transformation of the sites as mentioned above. A number of publications have been written on what is considered *'good practice'* for adaptive re-use. Among the contemporary literature, 1970s up to the present, three different approaches related with the new design principles were identified on adaptive re-use by considering only the field of heritage conservation and architecture by scholars (Pleovets and Van Cleempoel, 2011).

1) The first approach named as *programmatic approach* is related with contemporary use. Dwellings, schools, universities, art centers, museums as well as mixed used are among the functions located in the former industrial buildings/sites.

Trinder and Föhl (1992) stated that there are different areas of new usage for the obsolete industrial structures from classical museum to interactive museum. There are also re-use examples such as concert halls that give the possibility to experience this activity in different ambient. The gas depots converted into diving schools or chimneys reused as climbing wall are the other examples in that sector.

However, as manufacturing technology, in the case of industrial buildings is a crucial factor that influenced the development of architectural characteristics, except for stylistic, the design principle that unites all the elements into a whole is the '*technological functionalism*'[10]. Therefore, for the industrial buildings/sites, technological functionalism can be understood as a principle of aesthetic integrity of industrial heritage which also affects the functional integrity in re-use. Understanding the technology of the manufacturing process, from the aspect of industrial archaeology, machines and buildings that represent their physical frame are equally important.

In a post-industrial society, when these buildings can no longer continue their original uses, the problem of conserving the archaeological value of industrial heritage which is defined as technological functionalism, comes to the fore. The characteristics of the industrial buildings/sites reflect their technological manufacturing process which unfolded in them, or still does. And technological functionalism is limiting factor in adaptive re-use in terms of contemporary use as well as related interventions. Proposing any other function for the former industrial buildings, except of converting into a museum of industry, is contradictory to its archaeological value according to industrial archaeologists (Rogic, 2009: 42).

On the other hand, Föhl (1995) mentioned that the museum as a new function is the first thing coming to mind and preferred method for preserving its archaeological

[10] For further information about 'Aesthetic Integrity' and 'Technological Functionalism' of Industrial Buildings, see (Rogic, 2009, Chapter 1)

value. However, it should be pointed out that museum as a new function became very common method through increasing number of them in the sector. As a result of that, necessity of them should be thought for each case.

Nevertheless, it is important that this approach should be given to the historic buildings continually and increasingly being adapted for a whole range of functions instead of freezing the history. In each of these functions, the characteristics of the existing building and linking it with the design principles are essential.

2) The second approach is related with the *design principles of interventions*. In the contemporary literature, design principles are mainly divided into three categories which the alterations to existing fabric are low, medium and high. Brooker and Stone (2004) (intervention-insertion-installation), Feireiss and Klanten (2009) (Add-on, inside-out, change clothes), Jager (2010) (addition-transformation-conversion) and Rogic (2009) (coexistence-imposition-fusion) are the ones among the authors who were dealing with this approach of adaptive re-use. They discussed the design criteria and formulated them according to the good example projects.

Basically, all abovementioned models show us that the main criterion for the definition of design principles is the relationship between the existing building and the new intervention. For each model, one design principle was presented which implies dependence to the existing building and minimal change. The original building conducts the intervention and decisions. And all characteristics of the new elements derive from characteristics of the existing one.

For instance, according to Brooker and Stone (2004), the *design principle of "Intervention"*, even though it allows for a substantial change, implies the predominance of the old building as all the characteristics of the new elements depend on the character of the existing building. Second design principle, *"Insertion"*, preserves the image of the old building but changes substantially its inner spaces, making both old and new equality present and dominant. The third design concept, *"Installation"*, implies the highest autonomy of the new elements, both materially and structurally, even though its scale and dimensions depend on the old building's physical characteristics.

On the other hand, Rogic (2009) discussed three *design principles* which were studied from the six proposal of best-known architecture firms (David Chipperfield, Renzo Piano, OMA, Herzog & de Meuron, Tadao Ando and Jose Rafael Moneo) shortlisted for the second stage of the competition for the reactivation of the Bankside Power Station. And she analyzed them on two levels, *"building tectonics"* and *"spatial-formal composition"*.

For the first category, *"building tectonics"*[11], each firm follows that new interventions conducted by the existing structure. For the *"spatial-formal composition"*[12] Rogic defines four new concepts: *"Tectonic fusion"* if new and old structure and materials are completely interwoven; *"Tectonic coexistence"* when new and old structure and materials work separately and are clearly distinguishable; Spatial composition conservation if the old spatial organization was preserved and influenced the new intervention; Spatial composition transformation if the old spatial organization was altered (Rogic, 2009).

Consequently, there are several approaches related with design principles for 'good practice' which developed by the scholars as mentioned above. The criteria for the design principles were mainly material relationship-structural dependence and formal-spatial organizations in term of relationship between the old and the new.

3) The third approach is related with the *technical aspects* of re-use such as fire resistance, thermal performance, acoustic performance, prevention of damp penetration, condensation and timber decay. Energy efficiency is another key point for this approach. It is also important to focus on how to adapt a building so as to ensure it in the best way for the new function's technical requirements. Optimizing the new use requires a detail assessment of many aspects related to its values, existing condition such as structural layout, building capacity for the new use, its potential to meet standards (Bullen&Love, 2009).

In this part of the thesis, five case studies were selected from Italy and Turkey in order to explore the different 'good' re-use strategies in relation with abovementioned

[11] Here, when she says building tectonic, she refers building material and its structure (Rogic, 2009)
[12] Here, when she says spatial formal composition, she refers interior and exterior (Rogic, 2009)

approaches that were oriented to the former industrial buildings. The selection of the cases was based on several criteria:

1) They are examples of industrial complex or buildings regardless of whether they are olive-oil and/or soap factory in order to prevent the restriction of the example types.

2) In each case, it can be recognized at least one of approaches defined above as 'good practice' strategies.

3) They are the examples which include some similarities between Ertem Olive-Oil Factory in terms of scale, materials and/or construction technique, landscape and environment setting, etc.

#### 2.1.1. Cases from the World

**1| A Re-use Example from the Northern Part of The Arsenal in Venice, L'Arsenale di Venezia -VE, ITALY-**

**| Three Warehouses converted into Thetis Center (Leading Center for Marine Technology) |**[13]

The Arsenal in Venice located on the eastern edge of Venice's historic center occupying an area approximately 47 hectares, is one of the first major and highly specialized production centers before the Industrial Revolution. The Arsenal no longer serves its original function, but the complex is a unique urban setting with its historical-cultural value which incorporates also intangible assets.

The redevelopment of the Arsenal complex concerns the northern part of the site, the other areas being assigned for military use. The Northern Arsenal occupies a total surface of 250,000 square meters, including 60,000 square meters covered space. The whole area is entirely State owned. The interventions to secure this area (northern Arsenal) and to restore the historic buildings were funded by the State and carried out by the Venice Water Authority at a cost in excess of €140 million (Bernardi and Scalet, 2012: 23).

[13] See Table 2, for the project description

Table 2: Thetis Center

| | |
|---|---|
| **1.PROJECT** | **THETIS CENTER (Leading Center for Marine Technology)** |
| **LOCATION** | Arsenale di Venezia, VE, ITALY |
| **AREA** | 4500 m2 closed, 6500 m2 open |
| **DURATION** | 4 years (from 1992 to 1996) |
| **COST** | 10 million euro |
| **OWNERSHIP** | State owned |
| **ARCHITECT/S** | Iginio Cappai and Pietro Mainardis |
| | |
| **2.PROGRAMMATIC APPROACH** | Two 19th century and a15th century industrial buildings (warehouses for wooden warships) were converted into leading center for marine technology (caused transformation -technological- on the site and Venezia) |
| **ARCHITECTURAL PROGRAMME** | Laboratories<br>Technical and Administrative Offices<br>Conference Center<br>Multi-media Library<br>Training Facility<br>Workshop |
| **3.DESIGN PRINCIPLES OF INTERVENTION** | Alteration to the existing fabric: Medium |
| **Material Relationship** | New and old equally dominant |
| **Structural Dependence** | Preserve the image of existing structure without harming |
| **Formal-Spatial Organization** | Old formal-spatial organization was preserved and influenced the new interventions |
| **4.TECHNICAL ASPECTS** | -Energy efficiency<br>-low construction, maintenance and running costs<br>-low environmental impact for the surrounding area in terms of emissions and noise and heat pollution<br>-modularity and system expandability to adapt to further development of the area<br>-Acoustic performance |

One of the most interesting proposals is the transformation of the Arsenal into a place for marine science and technology. Such a choice would entail also an increase in the number of people working at the Arsenal, leading to a greater demand for services and thus contributing to the regeneration of the area. In 1991, the corporation of private and public companies was formed that called 'Thetis' with two main objectives which are of developing technical projects and building a center for them (Thetis Center) (Bernardi and Scalet, 2012: 24-25).

'Thetis Center' (See Figure 3) is the pioneering and successful re-use example in the Arsenal which consists of 4500 square meters of covered area and 6500 square meters of open area, thus accounting for only 3 per cent of the Arsenal's overall area (Paruzzolo, n.d.).


Figure 3: Location of Thetis in Arsenale. (Source: http://ec.europa.eu/, last accessed on August 12, 2016)

The project was implemented over a four year period, from 1992 to 1996. The Thetis Center includes offices, laboratories, a training facility, a workshop, a test pool and operational equipments. The chosen site for the centre’s location consists of three historic buildings, one dating from the 15th century, and two from the late 19th century (See Figure 4).

Figure 4: Thetis Center Complex, after restoration (Source: http://ec.europa.eu/, last accessed on August 12, 2016)

The Lamierini workshop is a late 19th century building, restored to house various laboratories on the lower level, and the Thetis technical and administrative offices on the upper levels. The Modelli workshop, also a 19th century structure, was converted to house a conference centre, multimedia library and training facilities (See Figure 5). The oldest building, the Capannone 106, dating from the 15th century, was originally part of the Venetian Republic shipyard where wooden warships were made. It has been restored to create the entrance to Thetis from the Arsenal basin and test area (Paruzzolo, n.d.).

Figure 5: Left: Lamierini and Modelli Workshops, after restoration, Right: Lamierini Workshop before restoration (Source: http://ec.europa.eu/, last accessed on August 12, 2016)

The general design approach is creating an independent inside structure to accommodate the new uses without harming to the existing structures. Iginio Cappai and Pietro Mainardis designed new reversible interior infrastructure for the offices and technology laboratories within the existing building which is distinguished from the old. The significance of this solution lies in the relationship between the existing structure and the new one. This solution also gives the possibility of modularity and simplicity for quick installation and flexible workspace. New interior structures that were added to the existing buildings are totally reversible and recognizable. All interventions are independent from the historic buildings by using bolted metal constructions (See Figure 6) (Bondi et al., 2011).

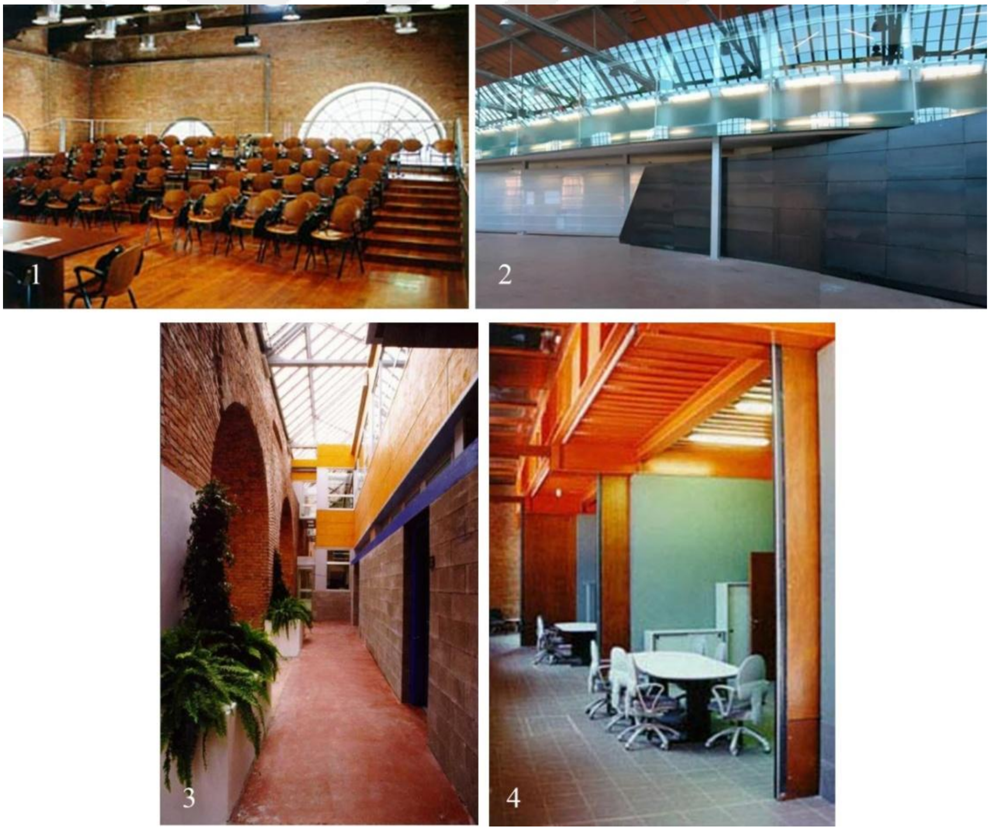



Figure 6: New interventions Image 1: Conference Hall; Image 2: Entrance Hall; Image 3: Offices; Image 4: Lecture Rooms (Source: http://ec.europa.eu/, last accessed on August 12, 2016)

This example of re-used project is also successful from the technical aspect. High energy efficiency; energy savings; low construction, maintenance and running costs; low environmental impact for the surrounding area in terms of emissions and noise and heat pollution; and modularity and system expandability to adapt to further development of the area are the important criteria for the project. In addition to that, integrating architectural solutions, shapes, materials and colors in order to maximize the use of natural light for interior place is also essential within this example of adaptive re-use. New skylights roof were installed due to the problem of natural light as imposed intervention to the nature of the historic building (Bondi et al., 2011), (See Figure 7).

Figure 7: New skylight roof of Thetis Center (Source: http://ec.europa.eu/, last accessed on August 12, 2016)

**2| A Re-use Example from Veneto Region Industrial Heritage, Salzano -VE, ITALY-**

**| Romanin Jacur Spinning Mill converted into Museum |**

Veneto Region was one of the famous territories for silk production that follows a simple and linear scheme in which the silk thread is directly produced from the raw material through a process called 'trattura'. There are lots of spinning mills in the region but most of them are abandoned or re-used due to the process of economic transformation and urbanism (Caini and Paparella, 2013).

The former spinning mill constructed in 1872 by Leone-Romanin Jacur and it is also called as 'La Filanda Romanin Jacur' (See Figure 8). This building is not only important with its characteristics, but also important as being one of the pioneering example of the silk production technology for Italy. The building was active until 1952 and it had been abandoned from 1952 until 2000 (Commune di Salzano, 2014).


Figure 8: Old photos of the factory (Source: commune di Salzano archive, http://www.comune.salzano.ve.it/, last accessed on May 5, 2016)

This project stems from the need, requested by the Municipality of Salzano, to renovate the Romanin-Jacur Spinning Mill which the municipality has owned since 1979. The main objective of this re-used project was preserving the factory, its social, historical importance for the region and for Italy through cultural transformation (See Table 3) (Commune di Salzano, 2014).

Table 3: Museum of Romanin Jacur Spinning Mill

| **1.PROJECT** | **MUSEUM OF ROMANIN JACUR** |
|---|---|
| **LOCATION** | Salzano, VE, ITALY |
| **AREA** | NA |
| **DURATION** | 2 years+3 years(2002-2004; 2007-2010) |
| **COST** | 565.000 euro |
| **OWNERSHIP** | Salzano Municipality (since 1979) |
| **ARCHITECT/S** | Feiffer&Raimondi Studio di Restauro |
| | |
| **2.PROGRAMMATIC APPROACH** | Spinning Mill was converted into a museum, library (cultural purpose) |
| **ARCHITECTURAL PROGRAMME** | Museum<br>Library<br>Administrative Area<br>Offices |
| **3.DESIGN PRINCIPLES OF INTERVENTION** | Alteration to the existing fabric: Low |
| **Material Relationship** | All the characteristics of the new elements depend on the character of the existing building. Interventions are in minimum. |
| **Structural Dependence** | Preserve the existing structure as it is. |
| **Formal-Spatial Organization** | Old formal-spatial organization is preserved. |
| **4.TECHNICAL ASPECTS** | -Successful solutions for weathering conditions, structural consolidation<br>-service solutions for disabled people |

The Spinning Mill of Romanin Jacur was constructed in brick masonry technique that was designed in the 'C shape' form with a large courtyard. Through the analyzing stage of the re-used project with the restoration studio of Feiffer&Raimondi, it is assessed that the building possessed valuable elements of its industrial past such as boilers, ventilation channels (See Figure 9), air vents, etc. ("Ex-Filanda Romanin Jacur", n.d.).

Figure 9: Ventilation Channels of the factory, before and after restoration (Source: http://www.feifferaimondi.com/, last accessed on May 5, 2016)

The general objective of the adaptive re-use project was to convert a **compatible function** by respecting the functional, architectural features and its industrial elements. It was converted into a documentation center on silk and spinning, attributed an expositive section and an archival section that gathers materials and documentation about selected subjects. This adaptive re-use example represents a transformation from industrial production to the cultural production. Through the new attributed program, the factory houses lots of organizations (See Figure 10), cultural events related local festivals (Commune di Salzano, 2014).

The general design approach is preserving the structure as it is with minimum alteration (See Figure 11). The significance of this re-used project is that existing structure and its formal-spatial organization were preserved as they were due to its compatible conversion[14] ("Ex-Filanda Romanin Jacur", n.d.).

Figure 10: Cultural events in the factory(Source: commune di Salzano archive, http://www.comune.salzano.ve.it/, last accessed on May 5, 2016)

In addition to that, technical aspect of this re-used example is also successful (See Figure 11). As explained by Feiffer and Raimondi in their official website ("Ex-Filanda Romanin Jacur", n.d.), the reinforcement of the masonry walls had been carried on through injection with hydraulic lime. Material loss, structural deformations had been consolidated through punctual interventions with compatible materials. Timber floorings of the factory were completed with epoxy resin glues.

[14] As mentioned by Rogic (2009), industrial buildings are very specific buildings which are formed with their technological contents that is 'production process'. Therefore, as mentioned in Chapter 2.1, the best solution for preserving the whole values of these kind of assets is converting into museum.

The new staircase (See Figure 11, image1) and elevator had been added in the west wing of the factory ("Ex-Filanda Romanin Jacur", n.d.)


Figure 11: Spinning Mill, after restoration-1:Added stairs for the new requirement;2:Conference Hall; 3-4:Flooring materials after restoration (Source: http://www.feiffereraimondi.com/en/portfolio/, last accessed on May 5, 2016)

**3| The Prada Foundation in Milan (Fondazione Prada in Milan -MI-ITALY)**

The Prada Foundation in Milan is a former industrial complex dating back 1910 (formerly the 'Società Italiana Spiriti' distillery**)** is composed of seven old buildings once used for warehouses, offices, silos and distillation laboratories that is located in the Largo Industrial Complex on the southern edge of Milan.

Prada foundation was committed since 1993 to promote contemporary culture by organizing exhibitions and events covering visual arts, dance, architecture, cinema and philosophy. And in 2008, the new project has started to carry on (See Table 4).

Table 4: Fondazione Prada

| PROJECT | THE PRADA FOUNDATION (CULTURAL COMPLEX) |
|---|---|
| **LOCATION** | Largo Isarco, Milan, ITALY |
| **AREA** | 19000 sqm |
| **DURATION** | 7 years  (from 2008-to 2015) |
| **COST** | NA |
| **OWNERSHIP** | Fondazione Prada |
| **ARCHITECT/S** | Federico Pompignoli/ Partners: Rem Koolhaas, Chris Van Duijn (OMA) |
| | |
| **PROGRAMMATIC APPROACH** | The whole complex was converted into a cultural center (one of the largest contemporary art center in Italy) |
| **ARCHITECTURAL PROGRAMME** | Museum/Gallery-11800 sqm<br>Services/7100 sqm<br>Public Space-5500 sqm<br>Theatre-800 sqm<br>Restaurant/Bar-470 sqm<br>Office-450 sqm<br>Library-420 sqm |
| **DESIGN PRINCIPLES OF INTERVENTION** | Alteration to the existing fabric: High |
| **Material Relationship** | New and old equally dominant, they work separately and sometimes 'new' more dominant than old (For the new designed structures in terms of co-existed) |
| **Structural Dependence** | New and old structure work separately and are clearly distinguishable, |
| **Formal-Spatial Organization** | Old spatial organization was preserved and influenced the new intervention |
| **TECHNICAL ASPECTS** | -modularity and system expandability to adapt to further development of the area<br>-Acoustic performance |

The new re-used project that designed by Rem Koolhaas, Chris Van Duijn and Federico Pompignoli, is composed of seven existing buildings and three new structures: Museum, a space for temporary exhibitions; Cinema, a multimedia auditorium; and Torre (Tower), a ten storey permanent exhibition space for displaying the foundation's collection and activities. The complex is covering an area of 19000 square meters which is consisted of exhibition spaces, offices, a cinema, an archive, a library, a store and a bar in total (See Figure 12) (Luce Bar designed by Wes Anderson) ("Projects-Fondazione Prada", n.d.).

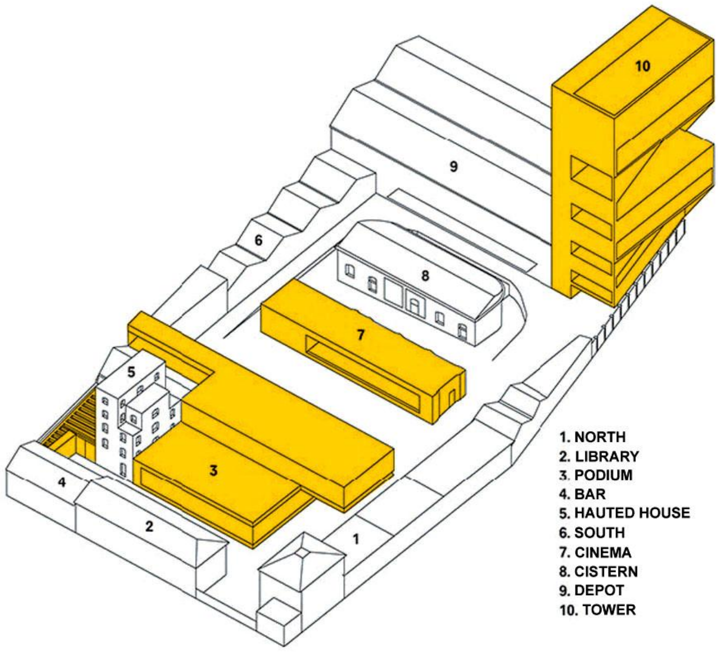



Figure 12: Diagram of the site and program (Source: http://oma.eu/projects/fondazione-prada, last accessed on September 12, 2016)

The main objective of this re-used example was to create an ensemble "intended as a collection of artifacts that encounters a collection of architectural typologies" as noted by the designer, Rem Koolhaas. Therefore, Koolhaas designed the exhibition spaces of the Prada Foundation (See Figure 13, image 7-8) to differ as much as possible from one to another ("Projects-Fondazione Prada", n.d.).

The new structures differ not only in shape and function, but also in their façade designs which gives the area a diverse appearance (Schröck, 2015). The old factory buildings and warehouses were renewed with the totally new finishes. For instance, Haunted House (number 5 in the diagram of the site, see Figure 12) was covered with 24-carat gold leaf in order to give the values as the oldest one ("Projects-Fondazione Prada", n.d.).

The mirror-clad cinema (number 7 in the diagram of the site, see Figure 12; see Figure 13, image 4-5) is an independent structure partially sunken underground, while the glazed Podium (number 3 in the diagram of the site, see Figure 12; see Figure 13, image 1-2-3) was constructed around another building – known as the Haunted House. The new Podium building – designed to host temporary exhibitions – and the cinema were both inserted into the centre of the site. They divide the space into a series of small courtyards, some level and some sloping.

Rem Koolhaas defined their design principles as:

> *"We didn't work with contrast but on the contrary, we tried to create a situation where old and new can work very seamlessly together and are sometimes actually merged together so that you cannot tell at any one moment whether you are in a new or an old situation.*
> *Two conditions that are usually kept separate here confront each other in a state of permanent interaction – offering an ensemble of fragments that will not congeal into a single image, or allow any part to dominate the others. New, old, horizontal, vertical, wide, narrow, white, black, open, enclosed -- all these contrasts establish the range of oppositions that define the new Fondazione. By introducing so many spatial variables, the complexity of the architecture will promote an unstable, open programming, where art and architecture will benefit from each other's challenges. " (Koolhaas, 2015).*

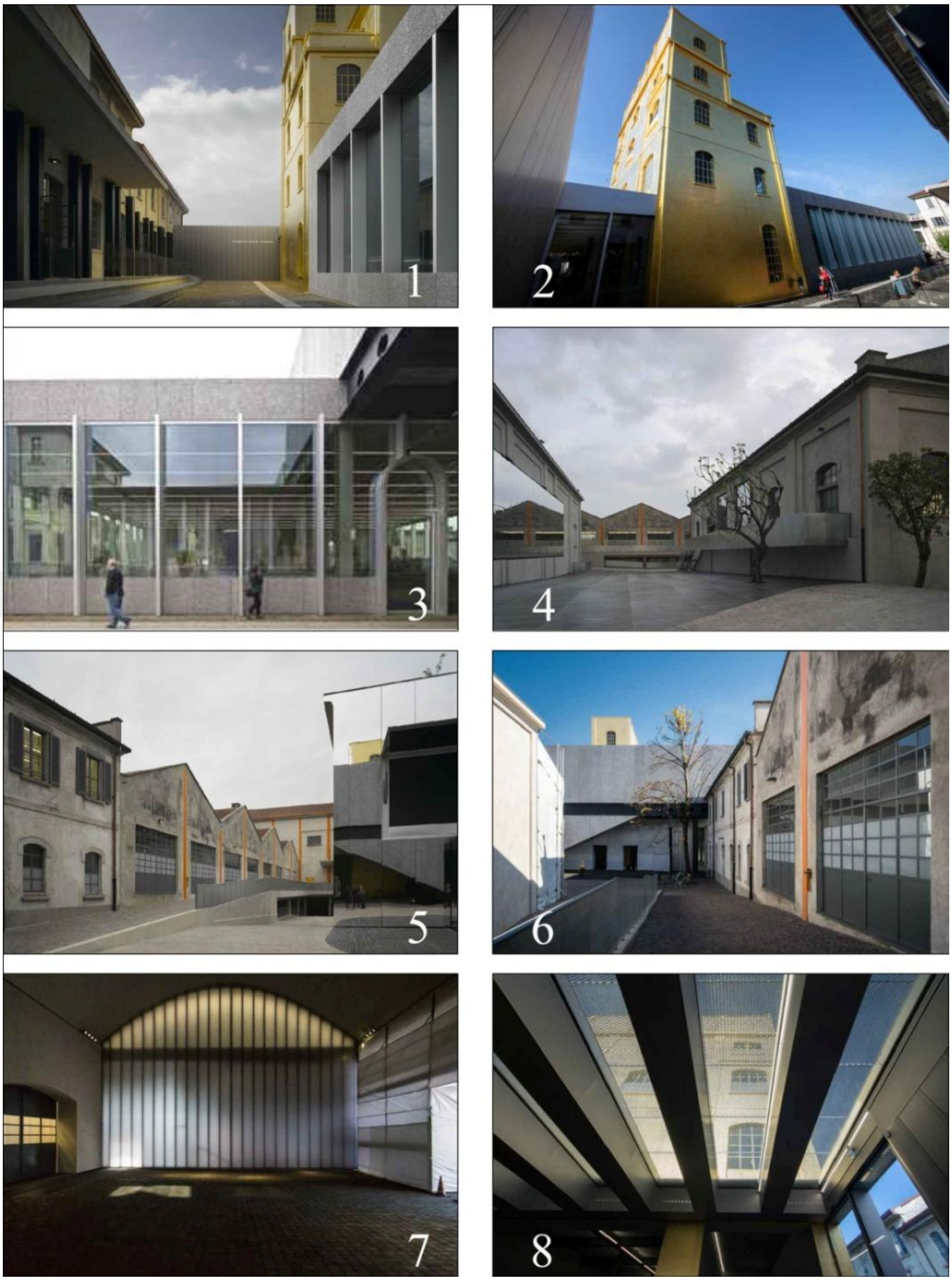



Figure 13: Prada Foundation- 1-2: Haunted House with the Podium; 3: Podium; 4: at the left, multimedia auditorium, at the right, cistern gallery (source: Bas Princen, 2015) ; 5: at the left, south gallery, at the right, multimedia auditorium; 6: at the right south galley; 7-8: interior views (Source: http://oma.eu/projects/fondazione-prada, last accessed on September 10, 2016).

**4| Industrial Museum of Bologna (Museo del Patrimonio Industriale in Bologna -BO-ITALY)**

The Museo del Patrimonio Industriale (Industrial Heritage Museum) is a former brick factory of Galotti that was constructed in 1887. The factory was active until 1963 when the supply of clay was finished due to the changes in transportation and operation itself. The building is located on the Canal Nevile on the northern outskirts in Bologna (Mccauley, 2005).

Table 5: Industrial Museum of Bologna

| **PROJECT** | **INDUSTRIAL MUSEUM OF BOLOGNA (FORMER BRICK FACTORY)** |
|---|---|
| **LOCATION** | Bologna, BO, ITALY |
| **AREA** | 3000 sqm closed area |
| **DURATION** | 6 years (from 1984-to 1990) |
| **COST** | NA |
| **OWNERSHIP** | Municipality of Bologna (since 1966) |
| **ARCHITECT/S** | Carlo Salomoni |
| | |
| **PROGRAMMATIC APPROACH** | Former Brick Factory of Galotti was converted into an industrial museum. |
| **ARCHITECTURAL PROGRAMME** | -Exhibition Area<br>-Service<br>-Offices |
| **DESIGN PRINCIPLES OF INTERVENTION** | Alteration to the existing fabric: Low |
| **Material Relationship** | All the characteristics of the new elements depend on the character of the existing building. Interventions are in minimum. |
| **Structural Dependence** | Preserve the existing structure as it is. |
| **Formal-Spatial Organization** | Old formal-spatial organization is preserved. |
| **TECHNICAL ASPECTS** | NA |

After a period of abandonment of the factory, the Municipality of Bologna purchased in 1966 and restored it between 1984-1990. It is one of the important museum in Italy which was dedicated to industrial museum (Mccauley, 2005).

The former brick factory of Galotti was converted into one of the important museums in Italy that represents not only building's historical, social, cultural, technological past, but also Bologna's manufacturing past too. And it is the earliest example which was dedicated to industrial museum for Italy. The main theme is the products for which Bologna has become famous in the international market place: silk, mortadella and chocolate, machinery, motorcycles and automobiles, consumer goods and, finally, electronics (Mccauley, 2005).

In the museum, the program follows as: On the ground floor, the Hoffman oven, the heart of the production for brick is presented in its external portico with the information boards related to the production cycle, history of it and packaging section of Bologna. On the first floor, the concept is 'from excellence to future' in order to realize the connection between the development of technology, innovation, economic and productive area of Bologna. On the second floor, silk and water is the main topic in order to present the importance of Bologna for the silk production ("Fornace Galotti", n.d.).

The restoration approach "*was to represent the past structure but not necessarily recreate it*" ("Bologna Tourist Guide", 2010: 47). For instance, the new steel frame structure which has some similarities with the original one in terms of form/shape, is used above the kiln that was originally wood framed. Other features such as the chimney venting the kiln, were not reconstructed due to not serving for any useful purpose for the new museum. All new materials (See Figure 14) that were used are distinguishable from the old one (Mccauley, 2005).

The main objective of this adaptive re-use project is keeping the interventions in minimum. Conversion into a museum is very appropriate function for following this design principle which is the 'minimum intervention' as mentioned in the second example.

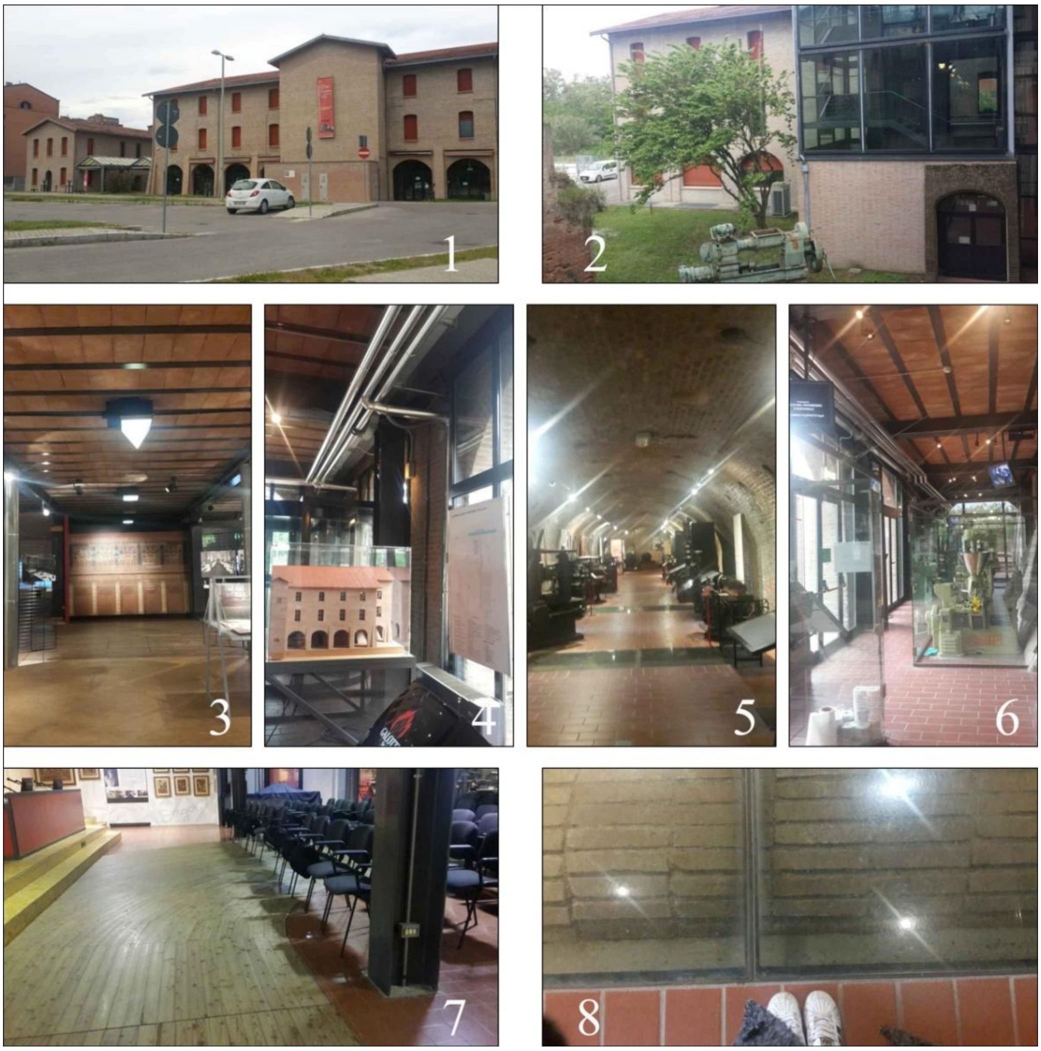


Figure 14: Industrial Heritage Museum in Bologna, 1-2: General façade layout of the museum; 3-4-5-6-7-8: Interior details of the museum

**5| Kadir Has University, İstanbul, TURKEY**

**| Former Cibali Tobacco Factory converted into a university|**

Cibali Tobacco Factory which was designed during Sultan II. Abdülhamit's reign in 1884 by the architects H. Aznavur and A. Vallaury and re-designed by Eugene Bottazzi in the following years, is an example of cultural heritage in the early industrialization period in Goldern Horn, İstanbul. The factory was operated by the French until 1925, with the establishment of the Republic, state enterprise has passed. The building lost its original function in 1995 and remained empty until 1997 (Alper M., 2004). There were many volunteers to rent the historic building and use it for different functions because of its strategic location. Finally it was decided to convert it into the university building by Kadir Has, by whom it was rented for 49 years. The renovation project which won the Europe Nostra Prize in 2003 of its blocks of A and B was prepared by the architect Mehmet Alper.

Table 6: Kadir Has University

| **PROJECT** | **KADİR HAS UNIVERSITY (FORMERLY CİBALİ TOBACCO FACTORY)** |
|---|---|
| **LOCATION** | Golden Horn, İstanbul, TURKEY |
| **AREA** | 35000 sqm |
| **DURATION** | 4 years (from 1998-to 2002) |
| **COST** | NA |
| **OWNERSHIP** | Fatih Municipality (rented for 49 years by Kadir Has Foundation) |
| **ARCHITECT/S** | Mehmet Alper |
| | |
| **PROGRAMMATIC APPROACH** | Former tobacco factory was converted into a university |
| **ARCHITECTURAL PROGRAMME** | -Faculty<br>-Museum<br>-Service<br>-Offices |
| **DESIGN PRINCIPLES OF INTERVENTION** | Alteration to the existing fabric: Medium |
| **Material Relationship** | All the characteristics of the new elements depend on the character of the existing building. Interventions are in minimum. |
| **Structural Dependence** | Preserve the existing structure as it is. |
| **Formal-Spatial Organization** | Old formal-spatial organization is preserved. New requirements derive from existing fabric. |
| **TECHNICAL ASPECTS** | NA |

The building is important due to consistence of different historic layers which are Byzantine Water Tank from 13th century, Ottoman Bath from 16th century, Tobacco Factory from 19th century and new additions. In the critics platform, the project was successful in terms of preserving the structure of the building, load bearing parts and originality of the building itself. The only intervention carried out, was about the division of the space with partitions and the adding necessary additions for the new use.

During the restoration/adaptation process, the conservation of historic, aesthetic and socio-cultural values of the asset and minimum intervention was the main approach. Today, the factory building is used as administration and for educational activities of the university.

The basement floor was designed as museum called 'Rezan Has' that contains temporary and permanent exhibitions including the Byzantine Water Tank, Ottoman Bath. This part of the building is used by fine arts faculty of the university. Here, while the historic walls have been preserved, new floors were inserted which are supported by steel columns (See Figure 15).

In addition to those, there is a contemporary addition attached to the existing building that is used as a cultural center. This new addition respects the original features of the building by designing in harmony in terms of color, proportion and spatial organization. Transparent boxes that were designed with steel and glass are used as offices inside of the courtyard (Alper, 2008; Günçe and Mısırlısoy, 2015: 718-727).

In general, the project has positive effects of the transformation on its close environment such as pioneering the new restorations around the site, new opened facilities, new rented houses around the area by the students as an impact of the new use proposal (Alper, 2008).

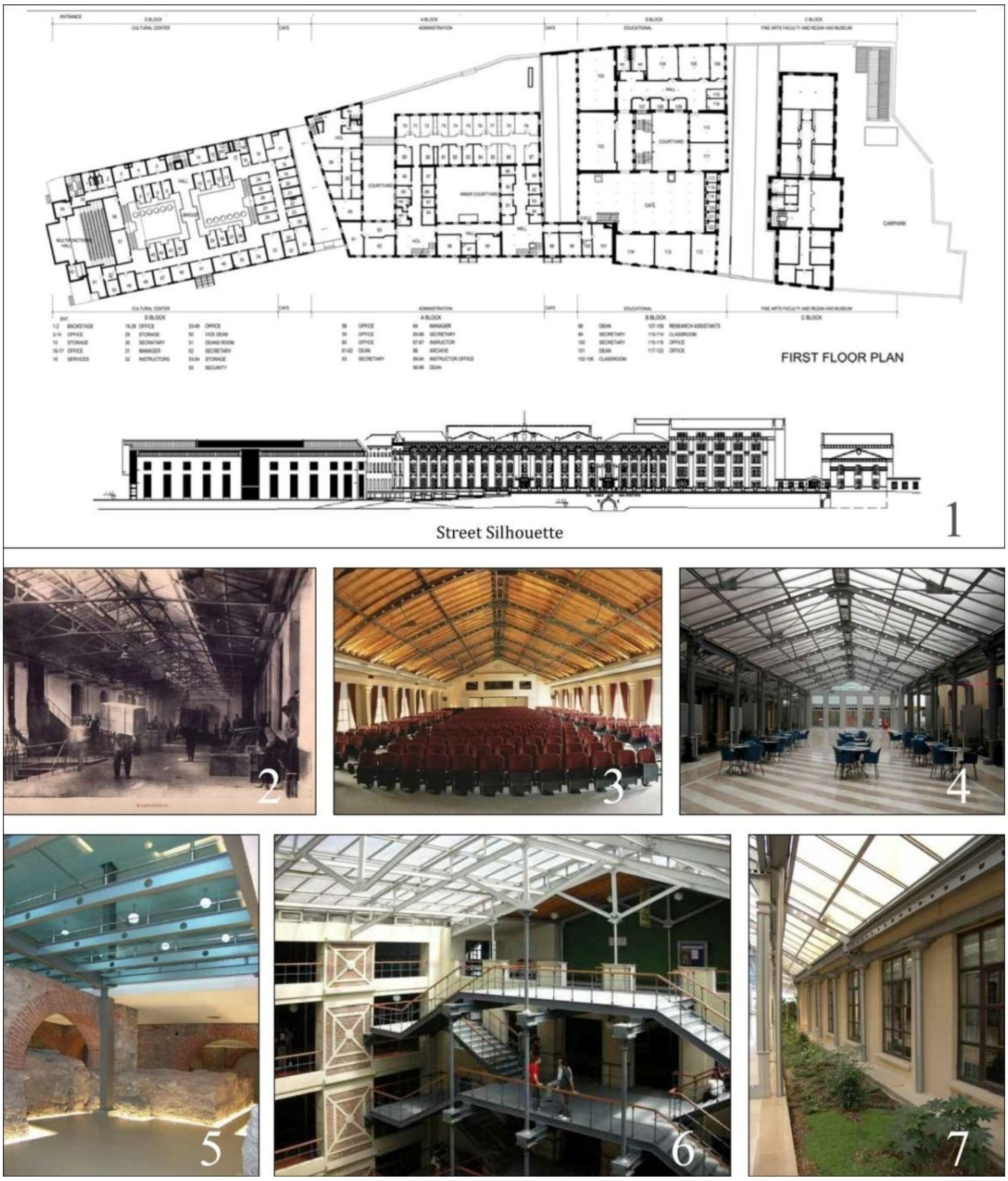



Figure 15: Former (Cibali) Tobacco Factory/Kadir Has University, 1: Drawings of the Kadir Has Building (source: Mehmet Alper's personal Archive) ; 2: old photograph of the factory; 3-4: after restoration; 5-6-7: The new interventions (source: http://www.mimarizm.com/makale/, last accessed on September 5, 2016)

### 2.1.2. A Critical Evaluation on Selected Adaptive Re-use Projects

In this section of the chapter, practical strategies on adaptive re-use towards 'good practices' were pointed out through contemporary literature. And several adaptive re-use projects which were selected from various geographic locations including Italy and Turkey were investigated as 'good practices' in order to see that how theoretical principles/strategies are applied to the industrial buildings and/or complexes in practice.

These five selected re-used projects, even though they differ in terms of location, scale, size, branch of industry and so on, they were planned as single, large space due to their construction purpose that was manufacturing. And this feature of industrial buildings (in other words, their natural potential for adaptive re-use) enables a large variety of practices in the sector from different perspectives. All abovementioned projects have their own conservation approach, but primarily, they represent successful relationships between 'old and new'.

Within the scope of these case studies, they were evaluated according to their programmatic approach [*selected cases are the adapted examples of a wide variety of functions which are museums (Museum of Romanin Jacur, Industrial museum of Bologna), a technology center (Thetis Center), a university (Kadir Has University), an art-cultural center (Prada Foundation) in order to see different transformations in the building scale*], design principles of intervention [*material relationship, structural dependence and formal-spatial organization*] and technical aspects in order to develop a design principles for Ertem Olive-Oil Factory that is the main objective of this thesis.

In addition to that, adaptive re-use, as being a strategy to conserve the cultural heritage, is result a wide range of direct and indirect environmental, social and economic impacts. Abovementioned examples are also good practices of transformation due to having direct and/or indirect benefits of them.

The most important criterion for 'good practice' is to provide sustainability through new attributed program that meets the new requirements, while preserving the authenticity; in other words, to associate the old and the new. As it is seen in the selected cases, even though the degree of new interventions differ in terms of low, medium and high, the common principle for all of them is 'preserving the old' by providing the requirements of the new.

For instance, in the case of Thetis Center in the Arsenal, as being an example with the exception of the museum approach, in order to provide the new requirements, reversible independent structure was designed inside the existing building by distinguishing them with the new materials such as glass and steel. In this way, **modular and flexible spaces** were generated for the new program without harming the existing structure. This design approach may be very appropriate, when the new function requires more spaces, since it offers a reversible modular system inside of the existing structure. In addition to that, this example is also successful from the technical aspect which offers some solutions for the light problem of industrial buildings.

In the case of Prada Foundation in Milan, designing new buildings and/or additions within the existing fabric come to the fore. As being a big industrial complex, it is composed of seven existing industrial structures and three new ones. The new ones totally differ from the existing ones due to the **intention of diversity**. While it is seen as a successful relation between the new and old, it also affected positively its surroundings by **leading new actions through its new attributed program** that is one of the biggest cultural center in Milan. As a result of this project, renovation projects have started surrounding the site in order to make it cultural junction point for Milan.

For the cases of museum (especially industrial one), it is one of the best way to preserve the existing structure. However, while converting the building into a museum, the characteristics of the building should be analyzed comprehensively. As seen in the all cases, all of the industrial buildings exhibit themselves due to reflecting their manufacturing process. Beside the increasing number of museums in the sector as a problem, the 'exhibition objects' (process equipments) which unfolded in the building or still does, is the main criterion through museum conversion. As seen in the Museum of Romanin Jacur in Salzano, the building has many valuable industrial elements inside of the building. Because of that converting it into a museum is successful decision. On the other hand, in addition to the industrial elements, the place of the building in the collective memory is another important criterion as seen in the industrial museum of Bologna. In that case, even the building does not have enough material to exhibit, it has symbolic value for the collective memory. Therefore, it becomes a reflection of industrial past of the place (Bologna) by converting into a museum with the collection exhibition objects from its surroundings. That is why this museum represents the exhibition of multi-branch of industry (industrial past of Bologna) inside of it.

In the case of Kadir Has University in İstanbul, the existing structure includes some layers of history such as Byzantium, Ottoman and industrial era. In that case, **reading all layers of history including the new** is very important criterion. The Byzantium and the Ottoman parts of the building which are located in the basement floor of the factory that is converted into Faculty of Fine Arts, are being used as a museum for their exhibition today. Other requirements for new function were provided through **minimum interventions** which is reversible divisions for the classes and offices that differ from the old in order to read all layers of history. This example also shows that the museum approach is often used, even the main function is different. Industrial buildings which reflect their technological manufacturing process, generally behave like an exhibitive object even they are converted into different functions. That is why many of them are converted into museums or multi-functional purposes.

To conclude, the information gathered from these case studies helped to lead the content and scope of this thesis as follows. First, in order to develop a comprehensive conservation proposal for Ertem Olive-Oil Factory, in addition to the information of Ayvalık, it is necessary to understand the site in terms of adaptive re-use of industrial buildings through existing examples. Thus, in this chapter, Ayvalık examples will also be investigated. This will be helped to identify the programmatic approach for Ertem Olive-Oil Factory by referring abovementioned experiences. After that, it is also essential to evaluate the building in terms of process equipments. In other words, technological value of the building will be analyzed comprehensively in order to define the design principles for Ertem Olive-Oil Factory. It is because as seen in the abovementioned examples, technological values of the industrial buildings drive the degree of the new interventions in terms of low, medium or high, and also new attributed program. Therefore, within the scope of this thesis, it is necessary to discuss the olive-oil production process and its elements in general and specific to the building in order to understand the context of the building while developing an adaptive re-use proposal.

### 2.1.3. Cases from Ayvalık

Today, in Ayvalık as an industrial heritage, there are lots of industrial buildings which are especially olive-oil and soap factories. Although most of them are currently abandoned, there are few examples which have been restored. In this regard, after defining the general characteristics, content of the place and historical background, four examples of old olive oil and soap factories which are converted into museum and library, café, boutique hotel and hotel were investigated in order to evaluate the current situation of Ayvalık and determine the new efficient strategies and principles for the future of the site. The main criteria when investigating these cases were their contribution to the site and their negative effects as well according to the good practice parameters.

**1| Vakıf Bank Olive-oil and Soap Factory /converted into Olive History Museum and Feyza Hepçilingirler Library**

Vakıf Bank Olive-oil and Soap Factory, is one of the 19th century industrial buildings with largest program in Ayvalık located at the main artery, Atatürk Boulevard. It operated from 1960s until the end of 1980s. And it had been abandoned until 2010. In 2010, the intention for conversion of the building by the municipality was initiated. In the same year, the factory housed an architectural workshop by Gazi University for two weeks in order to develop conservation proposals (See Figure 16). Finally it was converted into olive history museum by municipality in 2013. After a while, the library part named as 'Feyza Hepçilingirler Library' was added to the museum in 2016 (See Figure 17).

Figure 16:The factory before restoration, it used as a workshop area by Gazi University in 2010 during the abandonment[15] (source: Halilcan Kıyak, 2010)

Table 7: Vakıf Bank Olive-Oil Factory/Olive History Museum and a Library

| **1.PROJECT** | **OLIVE HISTORY MUSEUM AND FEYZA HEPÇİLİNGİRLER LİBRARY (Formerly, Vakıfbank Olive-Oil Factory)** |
|---|---|
| **LOCATION** | Ayvalık, northern part of the cape |
| **AREA** | NA |
| **DURATION** | 3 years (from 2010-2013)+ 1 year (from 2015 to 2016.9 |
| **COST** | NA |
| **OWNERSHIP** | Ayvalık Municipality |
| | |
| **2.PROGRAMMATIC APPROACH** | 19th century building was converted into museum and library |
| **ARCHITECTURAL PROGRAMME** | Exhibition Area,<br>Service,<br>Offices,<br>Library |
| **3.DESIGN PRINCIPLES OF INTERVENTION** | Alteration to the existing fabric: Low |
| **Material Relationship** | Old is preserved as it is, new is distinguished from the old |
| **Structural Dependence** | Preserve the image of existing structure without harming |
| **Formal-Spatial Organization** | Old formal-spatial organization was preserved and influenced the new interventions |
| **4.TECHNICAL ASPECTS** | NA |

[15] European Workshops in Tourism and Architecture [EWTA] (2010), by European Union and Gazi University

The project can be considered as one of the successful examples in Ayvalık in terms of preserving the existing structure by giving a function regarded to the originality of it. The museum part contains the old factory building with the exhibition of traditional 19th century production equipments such as olive mills, hydraulic press, super steel press, collecting tools, storage pots which are the process elements of this industrial activity (See Figure 17, image 4-9). These exhibited equipments/tools do not only belong to the factory itself, they were also collected from the surrounding industrial buildings. The main purpose of this re-use project was to establish a museum that represents the industrial past of Ayvalık which is linked with olive.


Figure 17:Olive History Museum and Feyza Hepçilingirler Library/after restoration, 1-2: Library part ; 3-4-5-6-7-8: inside views of Olive History Museum (source:http://www.ayvalik.bel.tr/ayvalik-belediyesi-merkezlerimiz/mueze-ve-galerilerimiz/ayvalik-tarihsel-zeytin-galerisi.html, last accessed on March 7, 2017)

The visitors can also find the information about famous families involved in olive industry in Ayvalık. In addition to that, the primitive equipments are also exhibited on the information boards (See Figure 17, image 3) in the museum which were designed by archeologist Suzan Özyiğit and graphic designer Tuğcan Güler.

By giving it a compatible function, preserving the existing structure with minimum interventions is provided. The new library part (See Figure 17, image 1-2) was separated from the old factory with glass as new, modern intervention in the restoration project.

**2| Emin Kantarcı Olive-oil Factory /converted into Café (Piu-Roma)**

The factory is one of the few examples with large program but medium scale which is not located at the coastline of Ayvalık. It was established by a Rum Businessman at the end of the 19th century. It was operated until 1995 (Efe et al., 2013: 61) . The building is an exclusive property which needs financial concern. Thus, the buildings was converted into Café (See Table 8).

The factory is used as café today. The restoration project has both positive and negative effects. The new function can be considered as successful due to being converted into gastronomic purpose which is one of the important fields in Ayvalık. It is also linked with touristic purpose which can be used for the site. Thus, from the programmatic point of view, the re-use project is successful. It is a small scale gastronomic place that serves to inhabitants and tourists in this old factory building.

It is also successful in terms of preserving the original structure with reversible interventions. For instance, the roof of the factory is not existing today. It is covered by steel and glass in the restoration project which is distinguished from the old. One of the prominent feature of this factory is its chimney which was not damaged until today (See Figure 22). And in the Café, it is used as an exhibited object. However, kitchen part is located at additional block adjacent to the factory building. This addition has negative effects to the factory with its unharmonious design (See Figure 23).

Table 8: Emin Kantarcı Olive-Oil Factory/Converted into Café

| | |
|---|---|
| **1.PROJECT** | **PiU ROMA CAFÉ (Formerly, Emin Kantarcı Olive-Oil Factory)** |
| **LOCATION** | Ayvalık, northern part of the cape, inside the fabric |
| **AREA** | NA |
| **DURATION** | NA |
| **COST** | NA |
| **OWNERSHIP** | Exclusive property |
| **2.PROGRAMMATIC APPROACH** | 19th century building was converted into Café |
| **ARCHITECTURAL PROGRAMME** | Café<br>Service |
| **3.DESIGN PRINCIPLES OF INTERVENTION** | Alteration to the existing fabric: Medium |
| **Material Relationship** | Old is preserved and new is distinguished from the old with modern materials, but there is unqualified addition |
| **Structural Dependence** | Preserve the image of existing structure with reversible interventions |
| **Formal-Spatial Organization** | Old formal-spatial organization was almost preserved, however, inharmonious added mass harms the existing structure. |
| **4.TECHNICAL ASPECTS** | NA |

Figure 18: Piu-Roma Cafe, interior views


Figure 19: Piu-Roma Cafe, Additional Block

**3| Emin Süner Olive-oil and Soap Factory/ converted into Sızma Han Boutique Hotel**

The olive-oil and soap factory was constructed by Emin Süner in 1907. It was operated with traditional water based system by a grinder and two hydraulic presses until 1980 (Efe et al., 2013: 55). In 2008, the soap factory that is located on the coastline was converted into a boutique hotel called Sızma Han.

Table 9: Sızma Han Boutique Hotel

| | |
|---|---|
| **1.PROJECT** | **SIZMA HAN BOUTIQUE HOTEL (Formerly, Emin Süner Olive-Oil Factory)** |
| **LOCATION** | Ayvalık, northern part of the cape, at the coast |
| **AREA** | NA |
| **DURATION** | 2 years (From 2006 to 2008) |
| **COST** | NA |
| **OWNERSHIP** | Exclusive property |
| | |
| **2.PROGRAMMATIC APPROACH** | 19th century building was converted into hotel and restaurant |
| **ARCHITECTURAL PROGRAMME** | Hotel units<br>Restaurant<br>Service |
| **3.DESIGN PRINCIPLES OF INTERVENTION** | Alteration to the existing fabric: Medium |
| **Material Relationship** | New is distinguished from the old, |
| **Structural Dependence** | Preserve the image of existing structure but, there is also irreversible interventions |
| **Formal-Spatial Organization** | Façade organization (formal) is preserved, spatial organization is damaged by the new interventions |
| **4.TECHNICAL ASPECTS** | NA |

The restoration project was realized under the responsibility of Ministry of Tourism and Council of Monuments in 2008 by Mustafa Büyükçıvgın, the member of the commerce chamber. The new function for the old factory is boutique hotel-restaurant.

To begin with, the courtyard of the factory is used as a restaurant that serves not only for the hotel guests, but also for other people in order to provide availability of the coast for public use. General overview of the building from outside can be considered as successful in terms of preserving the façade organization and related architectural features of the building itself (See Figure 20).


Figure 20: Sızma Han Boutique Hotel, preserved façade organization and courtyard usage (source: http://www.butikoteller.com.tr/property/sizma-han, last accessed on March 7, 2017)

On the other hand, internal part of the building has irreversible interventions that broke the soul of the old factory because of the new function requirements (See Figure 21). For instance, the new interior organizations in order to arrange the rooms for the hotel are damaged to the authenticity of the existing building through the irreversible interventions. They are distinguished from the old, but they harm the plan organization of existing structure. To conclude, this project has positive and negative effects both. The new function is not compatible with the initial spatial organization.


Figure 21: Sızma Han Boutique Hotel, interior views (source: http://www.butikoteller.com.tr/property/sizma-han, last accessed on March 7, 2017)

**4| Old Olive-oil and Soap Factory/ converted into Bacacan Hotel**

The old olive-oil factory is located at the coastline of Ayvalık as one of the big scale factories with its chimney that is existed today. It was abandoned for a long time. In 2016, it was converted into a huge hotel complex, namely Bacacan Hotel with 56 rooms by Can Construction (See Table 10).

Table 10: Bacacan Hotel

| **1.PROJECT** | **BACACAN HOTEL<br>(An Old Olive-Oil Factory)** |
|---|---|
| **LOCATION** | Ayvalık, northern part of the cape, at the coast |
| **AREA** | NA |
| **DURATION** | 2 years (From 2014 to 2016) |
| **COST** | NA |
| **OWNERSHIP** | Exclusive property |
| | |
| **2.PROGRAMMATIC APPROACH** | 19th century building was converted into big hotel complex |
| **ARCHITECTURAL PROGRAMME** | Hotel units (with 56 rooms)<br>Restaurant<br>Service |
| **3.DESIGN PRINCIPLES OF INTERVENTION** | Alteration to the existing fabric: High |
| **Material Relationship** | New harmed to the old |
| **Structural Dependence** | New irreversible interventions do not have any language, yet harmed to the existing harmony |
| **Formal-Spatial Organization** | Façade organization (formal) is partially preserved, but spatial organization is totally damaged by the new interventions |
| **4.TECHNICAL ASPECTS** | NA |

From the programmatic approach, it should be mentioned that this kind of new large programs such as hotel with 56 room, caused a force for the existing structure. Understanding the capacity of the existing building is essential in that sense.

The restoration project can be considered unsuccessful due to its new design principles by ignoring the values of the existing structure. All interventions that have been done during the restoration process were damaged to the originality of the building. The original context of the building is not recognizable today (See Figure 22, Figure 23).

Figure 22: Bacacan Hotel, façade views (source:http://bacacanotel.com/, last accessed on March 7, 2017)

Figure 23: Bacacan Hotel, interior views (source:http://bacacanotel.com/, last accessed on March 7, 2017)

### 2.1.4. A Critical Evaluation on Conservation and Adaptive Reuse of Industrial Buildings in Ayvalık through Selected Examples

In the second section of this chapter, adaptive re-use examples in Ayvalık was discussed through selected reuse projects regardless of whether they are good or bad examples. These chosen examples originally constructed as olive-oil and soap factories, located in the northern industrial zone. This investigation is important for comprehending the site demands, what should or should not do for Ayvalık when constituting the conservation approach and principles for Ertem Olive-Oil Factory and Ayvalık as well.

To begin with, the current physical, social, cultural characteristics of Ayvalık that linked with its history makes it a significant example under the topic of conservation of industrial heritage. And it is approved by UNESCO in 2017, Ayvalık is accepted as 'Industrial Landscape' on UNESCO tentative list.

For Ayvalık, continuation of olive industry as a tradition at the different zone of the town and re-functioning the traditional industrial buildings for food culture tourism (gastronomic tourism) or re-functioning as hotels have caused the transformation of the place from industrial center to touristic-commercial center.

It is obvious that re-functioning of these industrial buildings for touristic purposes is a way to preserve them for the future of Ayvalık as suggested by the Ministry of Culture and Tourism in 1984 through a research that was made by Tourism Bank. However, while giving a new function regarded with touristic purposes, the capacity of the existing buildings become essential in order to prevent the negative effects of tourism. As seen on Bacacan Hotel example, new function is not compatible to the original capacity of the building. And it damaged the old.

From the programmatic point of view, it can be said that most of the examples (except Bacacan Hotel) make a contribution for the site in order to provide the sustainability. Moreover, the intention for giving the museum example (Vakıf Bank Olive-Oil Factory) in this section is to understand the site demands in order to develop a conservation proposal for Ertem Olive-Oil Factory. Because, while giving a function as museum, the necessity of it for the site should be analyzed. Thus, in Ayvalık, there is a museum for olive history that one can see the production processes, primitive and 19th century processing tools, information about family enterprises. In addition to Olive History Museum, there is also Rahmi Koç Museum in Cunda (Formerly, Taxiarchis Church).

For their conservation approaches, it can be concluded that the successful ones have acceptable relation between the new and old. Generally, minimum interventions provide the success as is seen on the examples of Museum-Library, Piu-Roma Cafe due to their compatible functions. On the other hand, hotel examples have some additions due to their new program's requirements. In that sense, both examples, Sızma Han Boutique Hotel and Bacacan Hotel, have irreversible interventions which damage the existing structures. As it is seen in the good practices around the world such as Thetis Center in Arsenal, Kadir Has University in İstanbul, the new function requirements can be provided through comprehensive design principles by establishing a good relationship between new and old. And it must be succeed by analyzing the buildings both technological context and its reflection to the architecture. Generally, when the technological functionalism used as a guide for constituting the design principles, good relationship between new and old achieved for adaptive re-use of industrial buildings.

Consequently, investigating the good practices around the world helped to define the design principles for the conservation proposal of Ertem Olive-Oil Factory. In addition to this, understanding the site's present situation is guided to propose new function and related decisions according to the site demands in terms of what should or should not do.

### 2.2. Understanding the Place: Ayvalık

Ayvalık is a seaside town on the northern Aegean cost of Anatolia which is a province of Balıkesir. The geographical settings of Ayvalık, that is confined by the sea in the west, is surrounded with Ida Mountains (average altitude: 1774m) and Gömeç plain; Altınova province in the south; and Madra Mountain (1200m) that stretches from the north-east to the south-east in an arch form in the east (See Figure 24). It is situated on a volcanic peninsula. From the west, Lesbos Island can also be seen; on the north-east, there is Gömeç; on the south, there are Dikili and Bergama.


Figure 24: Location of Ayvalık (Google Earth, last accessed on September 12, 2016) and its close environment (source: http://www.thefullwiki.org/Ayvalik#Notes, last accessed on August 24, 2016)

Ayvalık has a special location with its 22 islands (See Figure 24). The biggest one is Alibey Island that is commonly called Cunda is connected to Lale Island. The connection from there to the city center is provided by a bridge which was constructed in 1964.

This unique geography where Aegean Sea meets the mainland and which is defined by Ida Mountain in the north and Madra Mountain in the east is covered with olive groves and rich in terrestrial and marine species and hosts species endemic to the northern Aegean region.

Olive groves that is a component of the natural character of Ayvalık cover almost 41.3 per cent of the region which constitutes the main source of the industrial landscape. There are more than two millions olive trees which originate from the wild olive (olea olester) that existed as local specie among other species and was domesticated and converted genetically endemic specie (UNESCO, 2017).

Ayvalık has the Mediterranean climate. The weather is usually hot and dry during the summers. The prevailing wind is on the west-east direction which sets between the sea and the land. There is another important wind that comes from Ida Mountain. These winds are important in terms of the formation of the urban fabric of Ayvalık.

Sarımsaklı-Badavut which is located very close to Ayvalık is an important stone quarries[16] for this region since the historic settled time. In addition to that, granite is another important element that is taken out from the surrounding of Ayvalık. There are also underground sources such as lead ("Ayvalık Belediyesi," n.d.)

### 2.2.1. Brief Look on the History of Ayvalık: Olive Industry from Past to Present as a Tradition

According to the written sources, there have been settlements in Ayvalık region since the antiquity. However, there are no clearly-defined information of Ayvalık related with the foundation of the settlement because of the uncertain sources. It was known as Kydonia, capital of Eolia in ancient Greek[17] (Yorulmaz, 2000: 34-38; Psarros, 2004; Şahin Güçhan, 2008).

Ayvalık has developed as a settlement where Christians and Muslims lived together since 1580 and the rapid development of the settlement started after the 18th century (Psarros, 2004; UNESCO, 2017).

The late 18th and the beginning of 19th century was the period of Ayvalık's development of international trade with the help of İzmir as a metropolis. Ayvalık became one of the important port cities which consists of Rum (Greek speaking Christians under the Ottoman rule) population. The main activities related with trade was **olive oil, by-products** (soap and olive pomace -pirina-) **and flour**. By the help of these developments, the population flourished rapidly. In addition to that, in 1803 an important academy that makes Ayvalık an educational center in the Greek world was founded.

Before the 1821 Revolt, Ayvalık was one of the important metropolis with economic activities which consist of mainly olive oil and soap production as mentioned above.

[16] The local stone of Ayvalık which gives the identity to the town through its color, is named 'sarımsak stone' due to the name of the region that comes from.
[17] Ayvalık was also known as Αϊβαλί, *Ayvali* or Κυδωνίες, *Kidoniyes* in Contemporary Greek and آيوالق in the Ottoman Turkish (UNESCO, 2017).

1821 was the turning point for Ayvalık. There was a big revolt that was supported by external powers and the Academy of Ayvalık. This revolt which started in 1821 and ended in 1847, was concluded with the big destruction for the town and all inhabitants scattered all around the Aegean. However, by 1850, the majority of the inhabitants returned and Ayvalık was rapidly rebuilt. With this destruction due to the revolt, coast line had been moved 100-200 meters further to the west through the ruins of destroyed buildings (Psarros, 2004).

After rebuilding the physical environment that was destroyed in the outbreak of Greek Revolution, the pace of development accelerated. Building activity flourished all over the area in 1870s and the Neoclassicism was the prevailing style as mentioned by Psarros (2004).

In the 19th century the north of İzmir region including Ayvalık was defined as **'olive region'**. In that period, due to the weakness of the Empire, Anatolia became an open market for the colonialist powers and Ayvalık was one of the important gates for penetrating to the economy. Thus, it took the attention of foreign investors such as English R. Hadkinson who was a pioneering entrepreneur of olive-oil trade during the industrialization period by introducing the machines instead of the primitive tools in Ayvalık and İzmir. It is estimated that in 1884, he constituted an olive oil factory in Ayvalık. And it was developed in time at the sea shore which contains the northern part of the port (Bayraktar, 1998: 16-17, 23).

According to Servet-i Fünun (in the 101st issue) for identifying the socio-economical situation of Ayvalık in 1894, it is written that there were 11 districts (mahalle), 1 mosque, 12 churches, 6 monasteries, **26 soap plants**, **78 olive oil plants**, 40 tanneries, 25 wind-mills, 2 hotels, 2 restaurants, **7 olive-oil and flour factories**, 45 furnaces. Moreover, in 104th issue of it, it is mentioned that there were 9 quarries in Sarımsaklı (which gives the name to the stone that used in the buildings in the region 'sarımsak stone'), 14 tile and brick kiln and 7 pitcher kiln. This period contained the industrialization and machine power.

When it comes to 1900-1914, according to French commerce annual known as "Annuaire du Commerce 'Didot-Bottin' Etranger 1914, Paris, tome II" , the trade activities in Ayvalık increased rapidly. New factories were added to the old ones by the supports of foreign investors through the industrialization effects of Europe. Moreover, these trade activities also caused the establishment of consulates in the town such as Greek, England, Italy, France and Norway (Yorulmaz, 2000: 59-61).

In the second half of the 19th century, the political and demographic situation of Ayvalık changed. After the World War I, Rums rebelled a second time. By the accordance with the Treaty of Lausanne in 1923, the Rums in Ayvalık were settled to different parts of Greece and the Turks living in Lesbos, Macedonia and Crete were settled in and around Ayvalık and Cunda (Şahin Güçhan, 2008: 84).

In addition, it is well known that aside from the Rums (Orthodox Greeks) living in İstanbul and the Muslim minorities in Western Thrace, exchange populations between the Muslims living on Greek land and Rums living on Turkish land was made based on the Lausanne Treaty in 1923. However, prior to this agreement, residents of Ayvalık had largely left the city. Thus, it can be said that the immigration was quite familiar to the people of Ayvalık (Arı, 1995; Cengizkan, 2004). The cultural diversity of different ethnic societies living together in the Ottoman State have a major impact on Anatolian cities. Rums were the ethnic group with largest population in Anatolia before the population exchange and dominant in Ayvalık. Therefore, Ayvalık is an important city in Anatolia that experienced the impact the population exchange the most (Arı, 1995).

As for the main economic activity of the city that is olive industry was continued by the Turks after exchange population. These immigrants came from Greek land (Lesbos, Macedonia and Crete) were involved in trade but not specifically olive-oil. After population exchange, they tried to adapt their livelihood according to the existing economic activity. Thus, the factories which were built and planned by Rums, were continued to use by the Turks as an example of continued land-use as mentioned in the UNESCO criterion (2017).

In 1914, the majority of the population in Ayvalık (approximately 33.894) consisted of Rum People and it had decreased to approximately 16.837 according to the census data in 1927 after the exchange between Turkey and Greece (Bayraktar, 1998:

34,70,89). After this turning point, it is remarked that the main economic activities were **still same as olive, olive oil and soap production**. In 1923, there were **32 olive-oil mills and 28 soap factories**[18] in Ayvalık (Yorulmaz, 2000: 60).

Moreover, the earthquake that took place in 1944 caused a great destruction within the settlement. The population of Ayvalık started to increase only after 1950s when olive production and relevant industrial sectors started to redevelop (Balcı Akova, 2011: 64,66; UNESCO, 2017). During 1950s, there was lots of changing on the identity of the town such as the new coast road. During the opening of the road, lots of buildings were damaged or destroyed such as the Academy building which was one of the symbols of the city (Yorulmaz, 1994). During 1980s, the new constructions were built with the touristic purposes that also damaged the urban characteristics of the city (Kıyak, 1997).

### 2.2.2. Planning Activities and Architectural Features of Ayvalık

The 1972 Development Plan, prepared by Architect Yavuz Taşçı, it was planned that industrial activities which were held in the traditional factories within the city center that cause the pollution due to their functions, were moved out of the city center. This decision started to be implemented by the 1980s and the industrial activities started to be continued outside the city, near Çanakkale-İzmir Highway, inside the new buildings. This inevitable transformation that comes due to the technological developments (modernization of the method), solved some problems in the city. However, it caused the majority of the industrial buildings within the city center to become abandoned/non-functional.

In addition to that, historic settlement of Ayvalık and Cunda was declared 'Natural and Historic Conservation Area' by the Superior Council for Immovable Antiquities and Monuments in 1976 (Şahin, 1986: 28-35). In the 1980s, the rapidly increasing urbanization process led to a need for new development plan and Baran İdil who is

[18] Current number of olive-oil factories and soap factories were investigated within the scope of the thesis. It is determined that mainly they were spread to the northern part of the cape. Thus, northern part of the cape was chosen as a broader scale study are in this thesis. According to the data that was gained through site-survey, 9 of 32 olive-oil factories, 17 of 28 soap factories are present currently within the study area (See for further information, Chapter 3, 3.1.1, p.86-108

an architect-planner, was commissioned to prepare it in 1981. In 1984, Tourism Bank carried out 'a Study on Conservation and Re-adaptation of Historic Protected Areas for Touristic Purposes' on behalf of Ministry of Culture and Tourism.

In accordance with the Protection of Cultural and Natural Properties Law (*Kültür ve Tabiat Varlıklarını Koruma Kanunu*)[19], Ayvalık was assigned to the newly established Bursa Regional Conservation Council for the Protection of Cultural and Natural Properties and in 1989, three intermediary council decisions considering revisions in definitions and boundaries of the Conservation Areas in Ayvalık and transition period development conditions were taken.

While 1/5000 and 1/1000 scale Regional Development Plans for Ayvalık and Cunda that contain the outside of the conservation area boundaries were prepared and approved in 1990, 1/500 and 1/1000 scale conservation plans for Urban Conservation Areas were also prepared with the collaboration of İzmir Dokuz Eylül University and approved in 1994 which is still in effect (Şahin, 1986: 28-35). This plan shows that there are 1855 registered buildings in Ayvalık.

***Architectural Features***

Ayvalık is laid in a linear urban form which still keeps its large variety of 19th century buildings. Atatürk Boulevard is the main artery of the city that separates the city fabric. Ayvalık can be defined in three different categories of urban fabric diversity. Near the coastline of the city, industrial and commercial fabric is dominant. While administrative and commercial buildings are usually located in the cape (Kanelo), near the center of the city; industrial buildings are spread to the north and south of the cape. Inside of the region and near the hillside part of the city, the fabric is residential (UNESCO, 2017).

Industrial buildings within Ayvalık can be categorized into two groups: olive-oil factories, workshops used for olive and soap production and/or depots. Among those, the buildings with the largest program are olive-oil factories. They generally contain

[19] Law no: 2863, 23/07/1983, enacted in 1983

both olive-oil and soap production as a complex or in the same building. They are more than twenty as a building stock in Ayvalık, these large building complexes were kept functioning from the 19th century to the end of 1970s by making modernizations to adapt the latest olive-oil production technology (passing from steam power to the electric, and modern tools) or with partial renovations.

These include the old examples such as Sezai Madra Olive-Oil Factory which was very advanced and the largest one as well as the examples such as Kırlangıc Factory**,** which was expanded with additions in time and Vakıflar Olive-Oil Factory, which was initially constructed as a complex. Similarly, there are also smaller scale buildings used by family enterprises such as Ertem Olive-Oil Factory which is the subject of this thesis. Even if these factory buildings (with the large program) are spread to the north and south, they are mainly situated on the northern part of the cape (UNESCO, 2017).

It was known that in 1923, just after the population exchange, there were 32 olive-oil mills and 28 soap plants in Ayvalık (Yorulmaz, 2000:60). In the present day, 9 of olive oil factories (some of which are consisted of both olive-oil and soap production units) including Ertem Olive-Oil Factory and 17 soap plants are located in the northern part of the cape. In addition to that, there have been detected 34 depots and a tanner in the area. Even though they are mostly abandoned in the present, few of them are used for different purposes (See for further information Chapter 2.1.3, p.53-65).

In addition to that, brick chimneys are the most important aspect of the city which gives the character to it. Although after the relocation of the industrial activity that caused the abandonment for these buildings, majority of the chimneys are deteriorated and their upper parts were partially demolished, but a great number of them -at least skirt of the chimneys- are present currently.

### 2.2.3. The Background to Understand the Content of the Place: Olive and Olive-Oil Production

To begin with, for better understanding of the towns, the contents of the place have to be understood since they are the fundamental elements of them. In the case of Ayvalık, olive industry, olive-oil and by-products (soap), process of the productions, their impacts to the settlement pattern and the life style are the main contents of the site. Therefore, here, the background of the content which are the general information of olive-oil production process, its techniques and reflection to the architecture are defined which will constitute a base for understanding Ertem Olive-Oil Factory and its content.

The archeological evidences and the reviews that were made till now take us to the approximately 5000 years ago. According to the several sources (such as Ünsal, 2011: 13; Hehn, 2003; Dara, 2010), the wild olive tree known as 'Olea Europea Oleaster' first revived in Anatolia. Also today, one can still observe the immense size of territory with 'Oleo Europa Oleaster' in the Anatolia. Although this information is not clearly identified by the sources, there are lots of legends in the history as noted by Boynudelik & Boynudelik (2007: 7).

As mentioned by Çoruhlu (2011), according to the Adyromytteion excavation signs which is located in Aegean Region, it is understood that olive and olive-oil production dated 2000 years back from now. These production techniques and equipments are still valid today in some regions (Uçar, 2014: 19-28). In addition to the Adyromytteion, 'Klazomenai Olive-Oil Plant' is an oldest example of archaic period in the Anatolia (located in Urla, İzmir) that the excavation of the plant was completed between 1992-2004. The Klazomenia Olive-Oil Plant' is being used for the representation of the olive-oil production process sustained by Komili Company (Klazomeniaka, n.d.).

Roman author Old Plinius[20] in his book called 'Natural History' mentioned that extracting olive oil from the olives is a gift from Aristaeus to the humanity and the

[20] Pliny the Elder (Gaius Plinius Secundus, A.D. 23–79), Roman naturalist, encyclopedist and writer

first olive press was invented by him. Extracting olive-oil was a process that is performed basically in **three steps** for thousands of years (See Figure 27). **The first step**, the collected olives are broken to become olive paste. **The next step**, the olives which became olive paste are crushed and **the final step** is distillation. Famous Roman Author Columella[21] in his book called 'On Agriculture' mentioned lots of information about olive cultivation and the main requirements for olive-oil production buildings (Boynudelik & Boynudelik, 2007: 69-71).

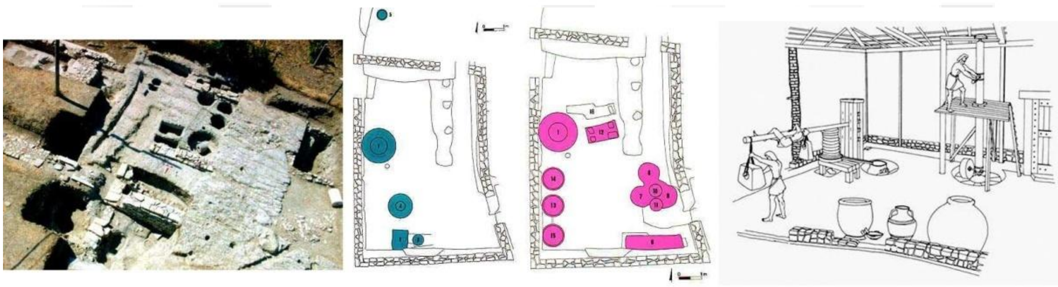


Figure 25: Klazomenai (source: http://www.klazomeniaka.com/, last accessed on 18th September, 2017)

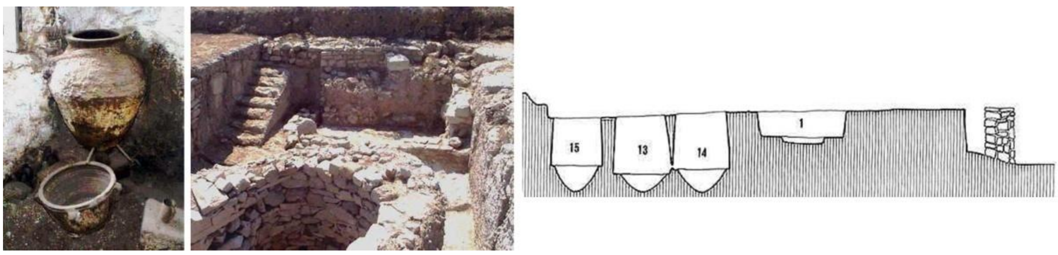



Figure 26: Klazomenai (source: http://www.klazomeniaka.com/, last accessed on 18th September, 2017)

born in Verona.

[21] Columella Lucius Junius Moderatus (1st century A.D.), Roman writer on agriculture, born in Gades (now Ca´ diz), Spain.

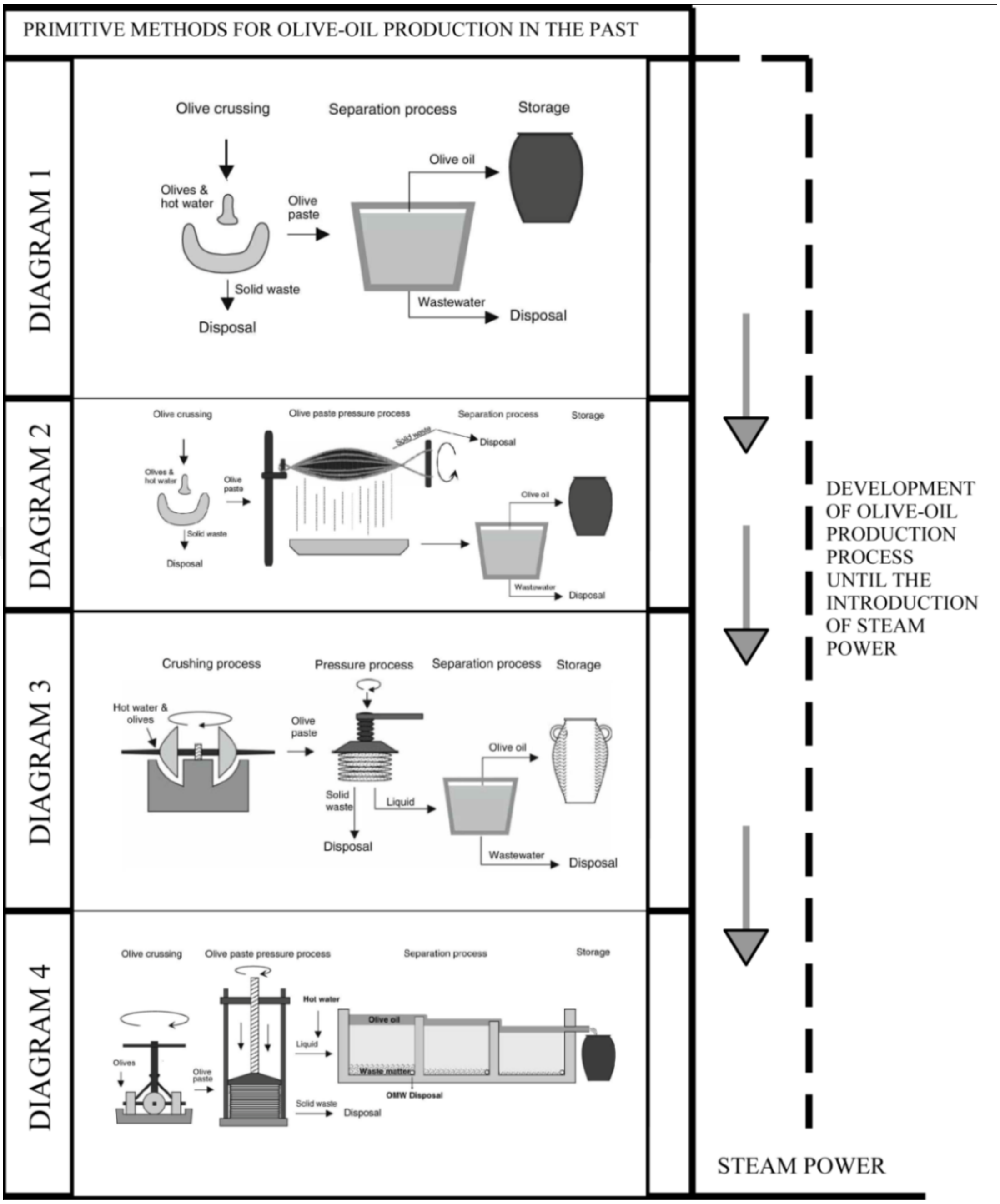



Figure 27: Olive-oil production process in antique period until the introduction of steam power (source: modified from Kapellakis et. al., 2008: 3-6)

**In the most primitive methods**, the olives were placed into the spaces as courtyard or holes named -dökek- for the collected olives. They were crushed with the large pestle or treaded under the foot. During the time, crushing equipments were developed. The crucial change for production techniques was the round crushing basin based on rotary motion that worked with animal power. These equipments were Canalis et solea (See Figure 27-Diagram 1-2), Trapetum (See Figure 27-Diagram 3) and Mola-Olearia (See Figure 27-Diagram 4) which also described by Roman writers Cato and Columella. For the pressing section, some equipments were used in the past times such as by foot, hoist and weight system, hoist and screw system, double screw system, etc. The important development for the press was using screw (See Figure 28). This system logic was used until the 19th century. And then, the seperation of the olive oil had been done using the principle of gravitation. The simpliest method was collecting the oil by hand or with the help of some tools (Niaounakis and Halvadakis, 2006: 83-92).

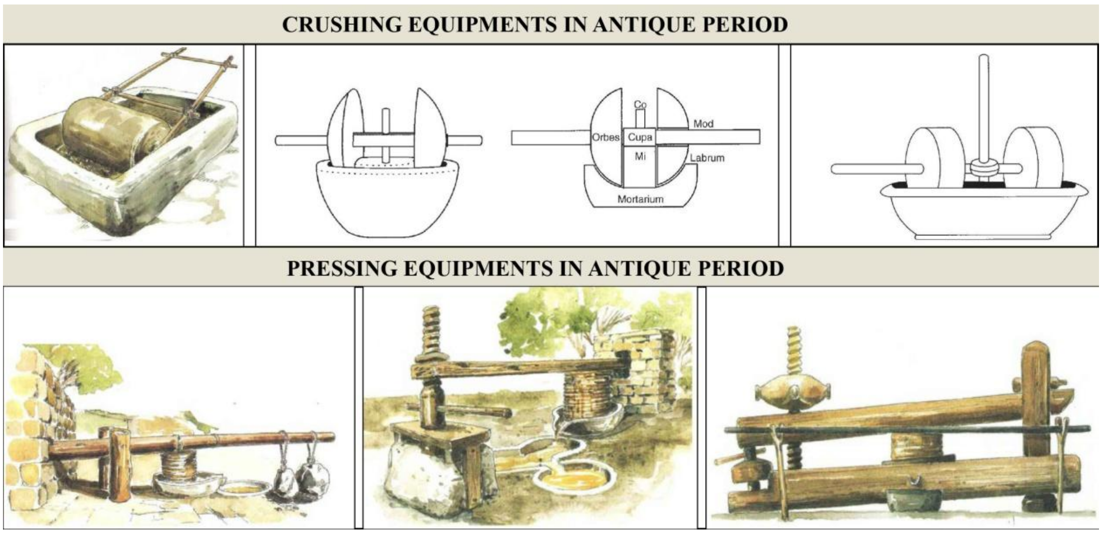



Figure 28: Top Left: Canalis et solea (source: Boynudelik & Boynudelik, 2007: 73); top middle: Trapetum; top right: Mola-olearia (source: Niaounakis and Halvadakis, 2006); /bottom left: lever and weighted system; bottom middle-right: lever and screw system (source: Boynudelik & Boynudelik, 2007: 80, 82-83)

#### 2.2.3.1. General Structure of Olive-Oil Production Process in Ayvalık and Reflection to the Architecture

Edremit and the gulf were the center for olive and its products during the reign of Ottoman State. In that period, it was known that all needs of the Ottoman State was provided from this region. And all olive groves were used as foundation lands as noted by Özdemir (2000). After the population exchange that was based on religious reasons in 1923, the olive and by-products production reached its peak with the new operated factories on the coastline. Ayvalık was the pioneering settlement for these productions in the Edremit region.

The productions obtained from these factories were sent to İzmir and İstanbul by sea at that time. In that period, olive-oil was produced by using **primitive methods** in the workshop buildings which were called '**mengene**' (workshop) that are single-floored buildings as mentioned by Manisa (2013). This production type was used until the introduction of steam power as a result of industrialization.

According to the records, in 1876, there were 46 workshop buildings (mengene) in Edremit region. After the **introduction of steam power**, at the end of 19th century, the new factory buildings were started to construct. It is because, the workshop buildings were not sufficient for the steam power requirements in terms of spatial needs such as wide space, chimney or furnace for the heating of the boiler. With this innovation, new factories were constructed with their chimneys and specific architectural features. These new type of production buildings that also housed **soap production** as by-product of olive which is based on the boiling the olive oil with coal, were spread in Ayvalık in time and they became symbol of Ayvalık with their characteristics (Uçar, 2014: 25). And today, the production still continues as a tradition, but with the modern production methods in the new area near the İzmir-Çanakkale highway.

There are three types of olive-oil production method in Ayvalık, **workshop or house production method**, **water system traditional factory production method and dry system traditional factory production method** and **today's modern method** (See, Figure 27, Figure 29, Figure 30).

*Workshop/House Production Method in Ayvalık*

The workshop or house production method was the basic production method since the establishment of Ayvalık. As mentioned by Yıldırım Gönül (2004: 49), the entrance of the houses was also used as a workshop for producing olive oil at that time in order to produce inhabitants' need in a small scale. The production process had been performed as primitive method that explained above until the introduction of steam power (See Figure 27). All equipments were performed with the help of animals such as horse-cow or with the help of manpower. This method is still valid today in some regions in order to produce small scale production.

These workshop buildings that are called 'mengene', are single-floored buildings in which all process stages were generated in the same space through primitive tools and methods (See Figure 29).

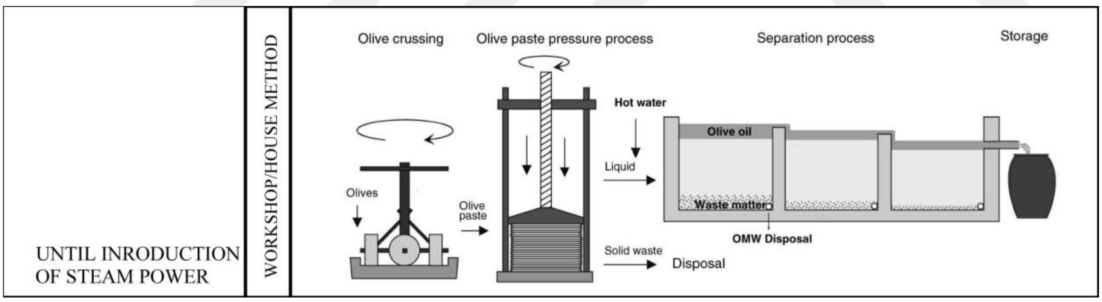



Figure 29: Workshop/house production method in Ayvalık (source: Kapellakis et. al., 2008: 5)

*19th Century Traditional Factory Production Method in Ayvalık*

The traditional factory production method started to be used with the introduction of steam power. In this method, basically all steps were the same as primitive methods but with the new equipments that operated with steam power (See Figure 30). In

Ayvalık, according to the site investigations and interviews made with the inhabitants, it is understood that the production process was performed in two different method: water based and dry based. Dry system started to be used in 1980s as indicated by A. Servet Ertem (2016)[22].

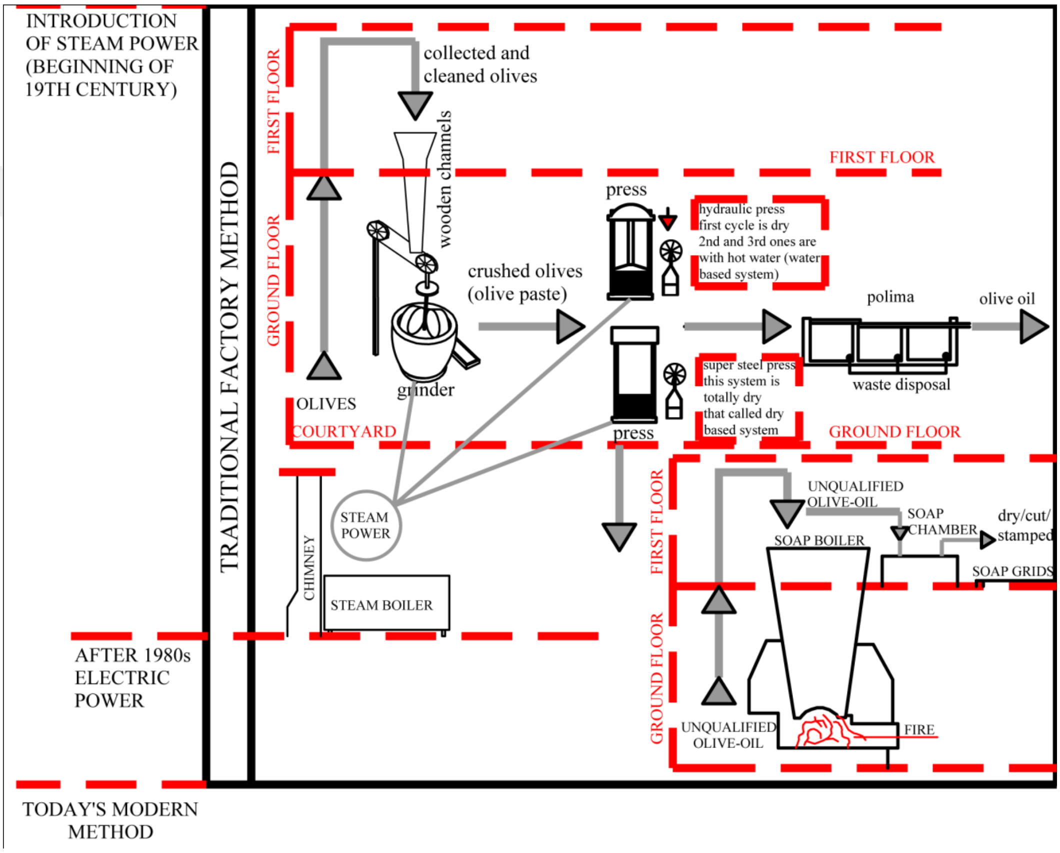



Figure 30: Traditional Factory Production Method in Ayvalık (source: Author, prepared according to the interviews[23] made with inhabitants and site investigations)

[22] Individual interview with former owner of Ertem Olive-oil Factory on January 16, 2016
[23] Individual Interview with A. Servet Ertem on January 16, 2016; individual interview with Hakan Doğan on January 17, 2016

To begin with, olive-oil factories in Ayvalık are two storied buildings. The first floors serve for preparation of olive oil process and main soap production process. The ground floors serve for preparation of soap production and main olive-oil process. In general both systems follow the same stages (See Figure 30).

Firstly, olives were collected and cleaned if necessary. They were moved to the courtyard of the factories. As a second stage, they were transferred to the first floor of the factories by cranes. After, the olives were sent through channels to the grinders that were located on the ground floor. And the main process was started. The other steps were operated in the ground floor. The olives were crushed in the grinders and became olive paste.

For the next step, in water based system, **hydraulic press**[24] was used that operated in three cycles: first cycle was dry and the others were generated with hot water. For this type of press, olive paste was put into the bags which were envelope shaped. On the other hand, in dry based system, **super steel press** was used that performed totally dry. For this type of press, olive paste was put into the bags which were as round discs with the hole in the middle. This system was performed with the help of 'dozatör' and 'pomparya' in order to provide the pressure (Ünsal, 2003).

After that, the liquid extracted from press that composed of olive-oil and water were sent to the distillation pools called 'polima'. The olive-oil was separated with the collecting tools and the waste was discharged to the sea. During this process, the remains of the press bags as pomace (pirina) were used for fuel for the steam boiler.

In addition to that, some factories in Ayvalık also housed soap production which is by-product of olive-oil. For this process, firstly unqualified olive-oil extracted through the olive-oil process was put into the soap boiler which is located in the first floor of the factories. This boiler was fired through its furnace which is located in the ground floor. After the boiling stage, obtained liquid that is soap, was poured into the

[24] The hydraulic press system that was invented by Joseph Graham in 1795, was the significant development for olive-oil production as mentioned by Balatsouras (1986).

soap basin. And it was poured into the drying grids that called 'sabun tavlası'. As a final step, they were cut and stumped.[25]

*Today's Modern Production Method in Ayvalık*

Today's modern method uses an industrial decanter to separate all phases by centrifugation. It is also started with the collecting the olives (See Figure 31). They are washed in order to remove the foreign materials. They are crushed by a hammer crusher, a disc crusher or a knife crusher. This obtained paste is mixed for 30-40 minutes. Afterwards, the paste is pumped into an industrial decanter. Water is added in this process and finally water and oil are separated because of their different densities ("Olive-oil process", n.d.).

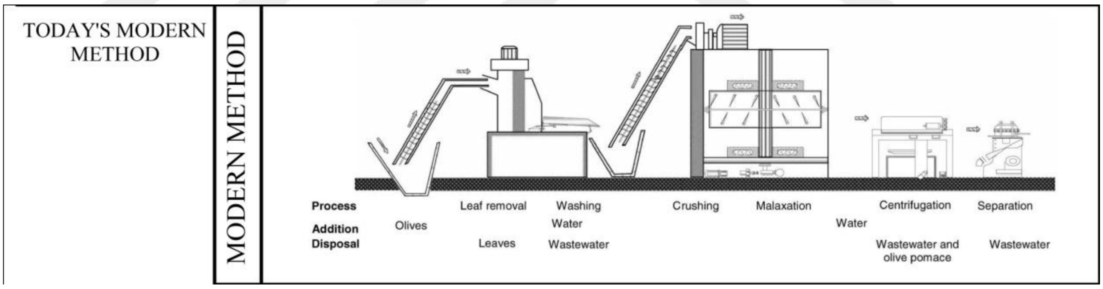



Figure 31: Today's Modern Production Method, (source: Kapellakis et. al., 2008: 5)

[25] All these information were obtained through the interviews with the inhabitants and site investigations in January 2016.

# CHAPTER 3

# CURRENT STATE OF ERTEM OLIVE-OIL FACTORY: UNDERSTANDING THE BUILDING

Ertem Olive-Oil Factory which is selected as a case study for this thesis, is one of the olive-oil factories with large program that constructed before the exchange period by Rums in 1910. According to the former owner of the factory, A. Servet Ertem (2016), the factory was active until 2000 and probably, it has been abandoned since that time. Its special location on the coastline, original architectural features that carry the traces of traditional olive-oil and soap production process which represent the historic layers of technology, makes it a significant example.

In this chapter, first, the surrounding environment of the factory is defined with supported maps prepared according to the site surveys in order to understand the current context and features of the surrounding area and define the location of the factory in its environment.

After, the historical background of the factory, technological and organizational context of it are presented in order to better understand the general characteristics of Ertem Olive-Oil Factory. And then, general architectural characteristics of the factory are defined with supported measured drawings that were prepared by the author according to the site surveys including external/internal characteristics, architectural elements and production equipments.

Right after, definitions of the structural-material characteristics of the factory that were prepared by the author through visual observations during the site surveys are categorized and presented under the titles of 'materials', 'construction technique and structural system', 'structural problems and material deteriorations'.

## 3.1. Understanding Surrounding Environment of the Building within Ayvalık Center

During the development of Ayvalık as an industrial center in 19th century, introduction of the factory buildings along the coastline due to taking an advantage of sea water and being closer to the port was the main impact to the urban pattern as mentioned in the history of Ayvalık in the previous chapter. These industrial buildings which give the identity to Ayvalık are located along the coastline on the north and south parts of the site that can be seen dominantly from the sea and within the settlement.

Ayvalık has been studied from different perspectives until present. There are some of researches and studies which discuss the urban formation of Ayvalık. Among them, while Kıyak (1997) studies the spatial and formal pattern of Ayvalık, Demir (1997) focuses on urban development process and related proposals with conservation of the site in their master thesis. On the other hand, Okur (1996) developed a proposal for Çınarlı Square in Ayvalık.

For the case of industrial heritage of Ayvalık, the southern part of the old port called depots region were studied by Kabasakal (1987) and Özbayar (2014) in their thesis and by a group of student from METU Graduate Program in Restoration,-REST 507-Design in Restoration 3 Studio- in 2005, within the scope of 'Conservation and Development Project for Ayvalık, Depots Region'. Moreover,Terzi (2007) studies the olive industry in Ayvalık and its impact to the settlement pattern in her thesis.

However, there aren't any detailed studies about the northern industrial zone which housed lots of big scale factory buildings including Ertem Olive-Oil Factory. Thus, northern industrial zone as a broader scale study area will be studied in this thesis in order to better understand the environment of Ertem Olive-Oil Factory.

Ertem Olive-Oil Factory is one of the important factories having socio-cultural, historical, architectural values within this unique settlement pattern. The factory is one of the reference points that is located in the northern industrial zone as an important example of 19th century traditional factory building in Ayvalık which affects the city panorama. Therefore, the factory should be discussed in terms of adaptive re-use as an example of industrial heritage by considering not only its values and characteristics but also neighboring environment's characteristics that will be mentioned below.

In this section, first, current state of the northern industrial zone will be identified with special emphasis on Ertem Olive-Oil Factory by collected data through the visual observations, photographs that were taken and interviews that were made with inhabitants during the site surveys. And then, the location of the factory will be defined in detail.

### 3.1.1. Physical Characteristics of the Northern Industrial Zone

Ayvalık, as it is mentioned in Chapter 2, is laid in a linear urban form which still keeps its large variety of 19th century buildings. Atatürk Boulevard is the main artery of the city that separates the city fabric. Ayvalık can be defined in three different categories as an urban fabric diversity. Near the coastline of the city, industrial and commercial fabric is dominant. While administrative and commercial buildings are usually located in the cape (Kanelo), near the center of the city; industrial buildings spread to the north and south of the cape. Inside of the region and near the hillside part of the city, the fabric is residential (See Figure 32).

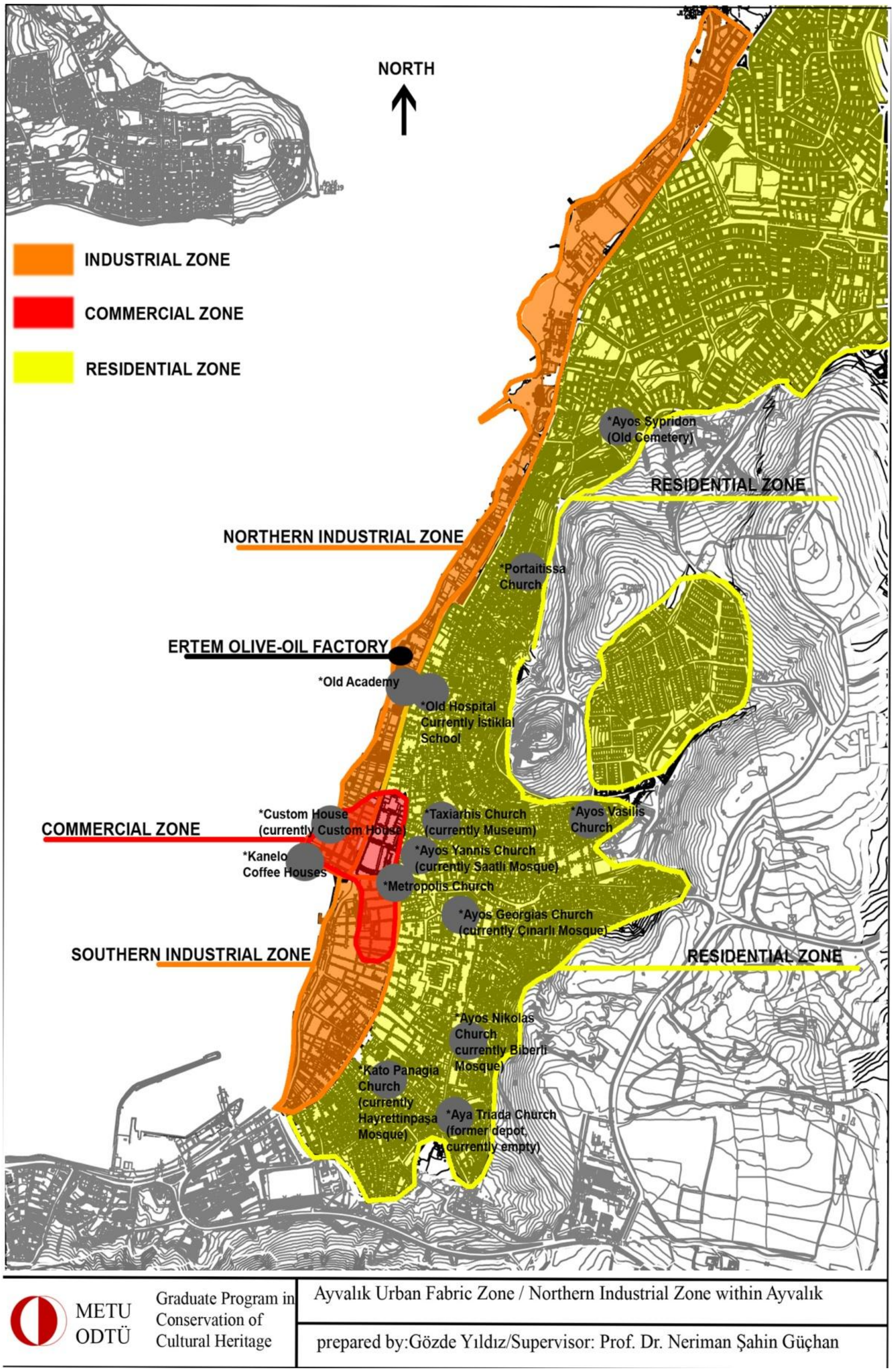



Figure 32:Ayvalık Urban Fabric Zones, northern industrial zone within Ayvalık

The detailed study area consists of the big scale factory buildings including Ertem Olive-Oil Factory in the northern industrial zone. The area is surrounded by Atatürk Boulevard on the east as a main vehicular axis and Aegean Sea on the west. The circulation is provided by narrow grid-iron planned streets. According to A. Servet Ertem (2016) who is an immigrant and former owner of Ertem Olive-Oil Factory, northern industrial zone in which lots of factory buildings are located, was the industrial zone of the city till 1980s, not only felt through the physical characteristics that were composed of these factory buildings and their chimneys but also felt through all sensations such as olive-oil smells and soap stamp voices. Today, the area has become a commercial-touristic center after moving of the industrial activities to the outside the city. But still, it is obvious to see the industrial characteristics of the area through these factory buildings and depots located in this zone close to the sea.

The area has important silhouette (See Figure 47) from the sea due to having olive-oil and soap factories lying along the coastline with their chimneys. Courtyards of the buildings and narrow streets are important open areas that have unique vista points as a link with the sea and settlement pattern. And today, the courtyards of them which are the important open areas of the site are used as car parking area, private spaces for the ones that have been restored for different uses or they are not being used because of abandonment (See Figure 33, Figure 34).


Figure 33: Open spaces in the northern industrial zone which are used as car parking


Figure 34: Open areas, 1: Closed courtyard of an abandoned olive oil factory; 2: Hotel courtyard; 3: Narrow street example; 4-5: courtyard usage

In order to define the character of current building stock in the northern industrial zone, categorization of the buildings were done which is based on their construction technique and original function. Buildings which are constructed with traditional construction materials, systems and techniques (masonry with stone, brick or combination of them; masonry ground floor and timber framed upper floor) and having original functions of olive-oil factory, soap factory, depot, tanner [industrial]; school, municipality, government office [administrative]; house [residential] are defined as 'traditional buildings'. On the other hand, buildings which are constructed with new construction materials, systems and techniques (reinforced concrete frame structures) and having functions of house [residential]; shop, house and shop [commercial]; government office, school, hospital [administrative] are defined as new buildings.

As a result of this definition, it can be said that the majority of the study area is built up with both traditional and new buildings (See Figure 42). It is observed that in general **60%** of the buildings are **traditional** in the area, while **40%** of them are **new** buildings (See Figure 38, Figure 39, Figure 40).

Among the traditional ones, **80%** of them are determined as **industrial** in general (See Figure 35, Figure 44). **11%** traditional industrial buildings are olive-oil factories including soap production such as Ertem Olive-Oil Factory. **29%** of them are determined as soap factories. 1% of them is detected as tanner. **38%** of traditional industrial ones are determined as depots.

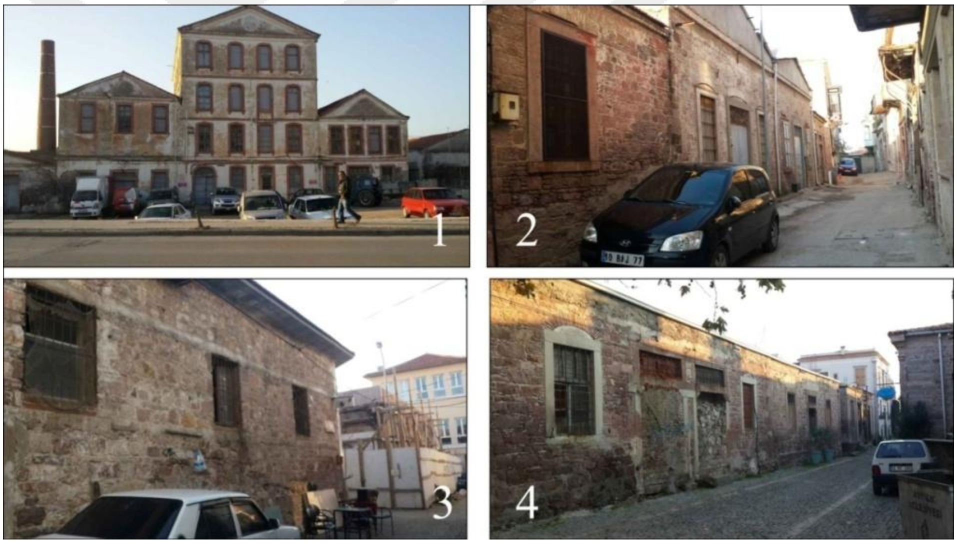


Figure 35: Abandoned traditional industrial building examples, 1: Sezai Ömer Madra Olive-Oil Factory, 2-3-4: depots and soap factories

Besides, **11%** of traditional buildings are constructed as **administrative** buildings (See Figure 36). Among them, **3%** of them is constructed as **school**, **1%** of them are constructed as **hospital** and **%7** of them are constructed as **government offices** such as municipality.

**6%** of the traditional buildings are detected as **residential** buildings (See Figure 38, image 1-2). While **4%** of them are constructed as **house**, **2%** of them are constructed as **house and shop**. Moreover, **3%** of the traditional ones are constructed as coffee houses, in the Kanelo (See Figure 36, image 3).


Figure 36: Traditional public building examples, 1-2: currently abandoned examples (former school buildings); 3: Commercial traditional example on the Kanelo (former Casino and Coffee House, currently restaurant, tea shop)


Figure 37: Traditional residential building examples; 1: Traditional house, it is still used for house, 2: shop (ground floor)-house (first floor); 3: new residential building.

Among the new buildings, 12% of them are constructed for administrative purposes (See Figure 38) ; %5 of them are using as hospital and/or community clinic centers, 7% of them are using as government offices (See Figure 38, image 1-5). 45% of the new buildings are constructed as house (See Figure 37, image 3), while 43% of them are constructed for commercial purposes such as shop, bank (See Figure 39)


Figure 38: New buildings within the historic pattern; 1-2-3 school buildings; 4-5 government office


Figure 39: new commercial building examples

Traditional industrial buildings are mostly one or two storey high buildings which were constructed in stone or brick masonry techniques. Timber trusses are another typical feature that was used as spanning elements both in upper floors and roofs in these buildings. Most of them have pitched roofs covered with over and under tiles and/or french tiles.

The depot buildings are one storey high buildings that were constructed in stone masonry techniques. According to the interviews that were made with the inhabitants, it is known that these buildings were once served for the olive-oil factories as a part of these complexes. However, most of them are currently abandoned, while few of them are used as depots or small shops.

The soap factories are divided into two different types which are the ones constructed only for soap production and the ones which constitute a complex with the olive-oil factory such as Ertem Olive-Oil Factory. The ones that were constructed independently are usually single floored buildings which were made out of stone in masonry technique. The others which were constructed as a part of olive-oil factories, are one or two storey high buildings. The ground floors were made out of stone, while the first floors were made out of brick in masonry techniques. Today, half of them are abandoned, while the others are mostly converted into boutique hotels.

The olive-oil factories are two storey high buildings which were constructed in stone or brick masonry system. Chimneys of the factories were totally built out of brick as a general common characteristics of them. In addition to that, traditional public buildings are usually two storey high buildings which were totally constructed in stone masonry structures, while the residential ones are generally two or three storey high buildings constructed in stone masonry and timber frame together. But they are usually plastered. And today, the most of these traditional buildings are abandoned, while few of them are converted into commercial-touristic functions such as hotel, restaurant, shop or café.

To conclude, current function of the area (See Figure 45) can be considered as commercial-touristic center. Almost half of the traditional buildings are re-used for commercial-touristic purpose, while the other half of them are derelict today. The restored traditional ones are mostly converted into hotel, restaurant, café or shop (See Figure 41).

In addition to the traditional buildings, there are also new buildings (the 40% of the buildings in total) which are grouped as public, residential and commercial (shop). The commercial ones such as shop, bank, restaurants are dominant (the 43% of the new buildings) in the area. The public ones (12% of the new ones) such as school, government offices, hospital are spread among the traditional pattern. A small number of residential new buildings are seen at the north end of the study area. Although the traditional ones are mostly one or two storey high buildings, there are also some new buildings which are three and four storey high (See Figure 40, Figure 46).

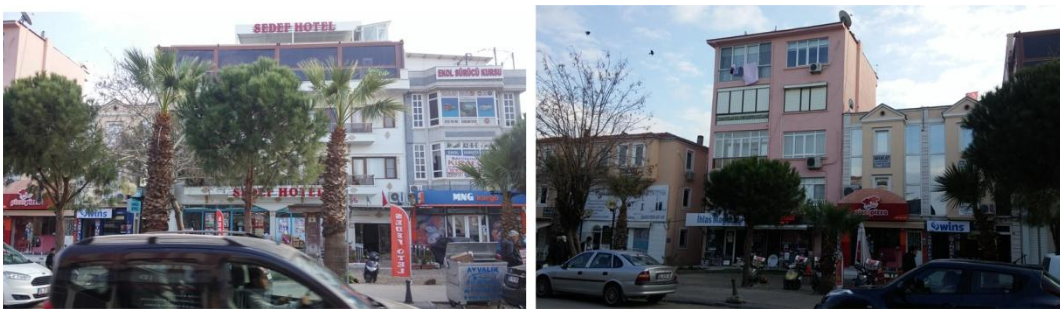


Figure 40: New buildings in the area

Figure 41: Former industrial buildings that are used for shop, restaurant, coffee house etc.; 1: former soap factory, converted into shop; 2: former depot, converted into restaurant; 3: former olive-oil factory, converted into café; 4: former tanner, converted into shop; 5: former soap factory, converted into shop; 6: former soap factory, converted into boutique hotel; 7-8: former depots, converted into shop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| ODTÜ METU Graduate Program in Conservation of Cultural Heritage | 'A STUDY FOR THE CONSERVATION OF ERTEM OLIVE-OIL FACTORY IN AYVALIK' | SURROUNDING ENVIRONMENT OF THE FACTORY NORTHERN INDUSTRIAL ZONE | prepared by: Gözde Yıldız<br>supervisor: Prof. Dr. Neriman Şahin Güçhan |

Figure 42: Built up-open areas in the neighboring environment

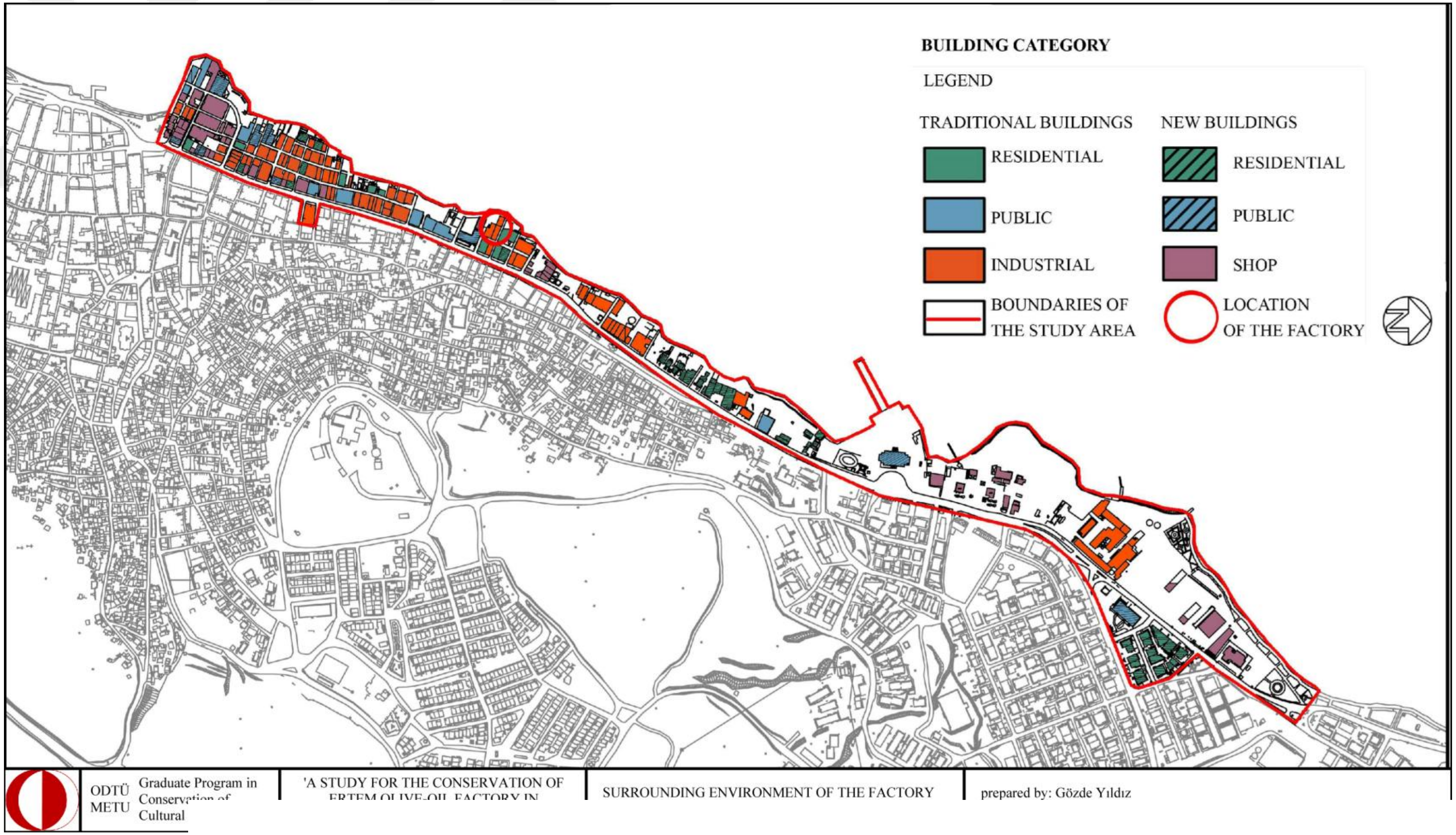



Figure 43: Building Category in the neighboring environment

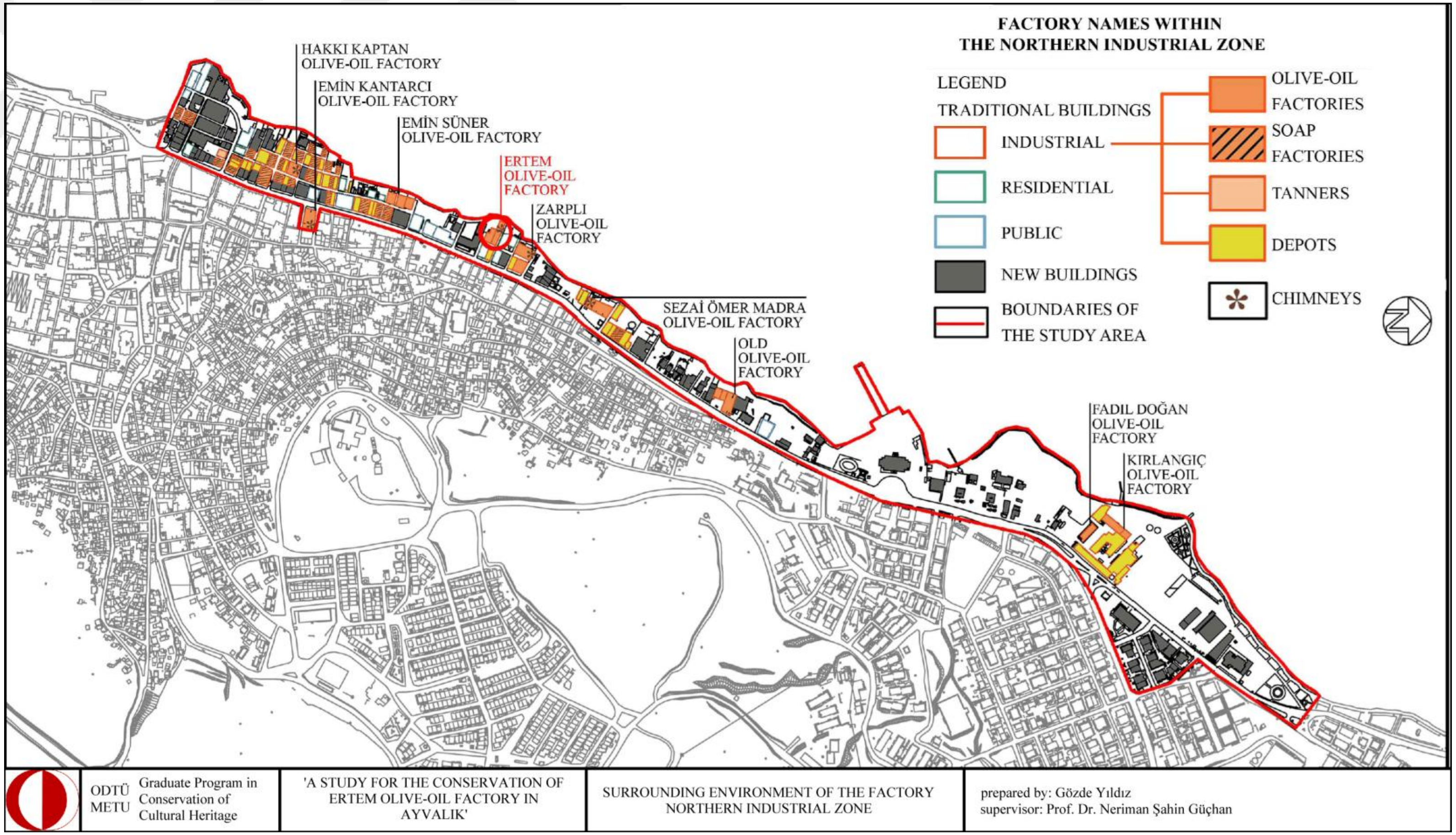



Figure 44: Olive-oil and/or Soap Factory Names in the neighboring environment

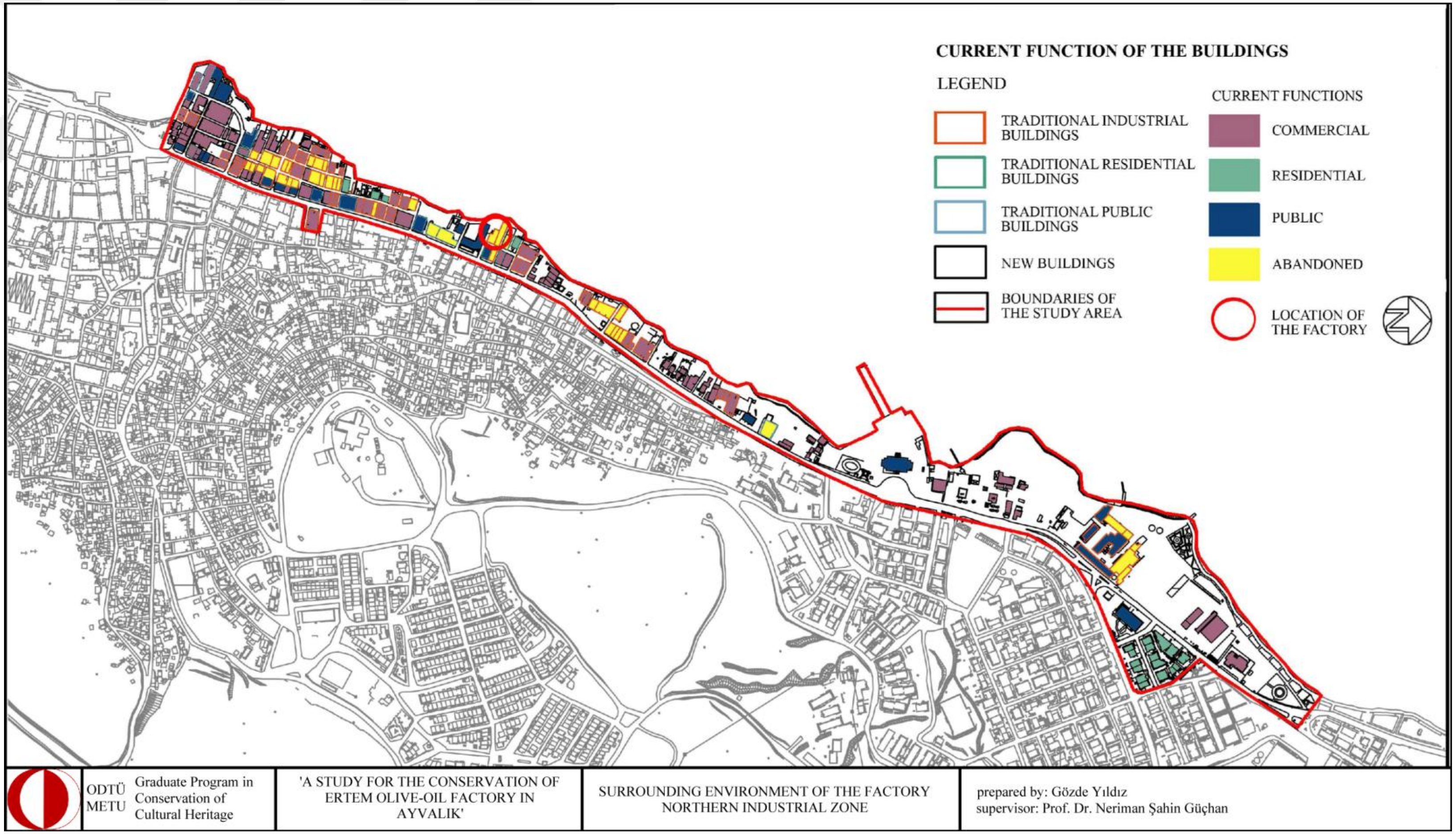



Figure 45: Current function of the buildings in the neighboring environment

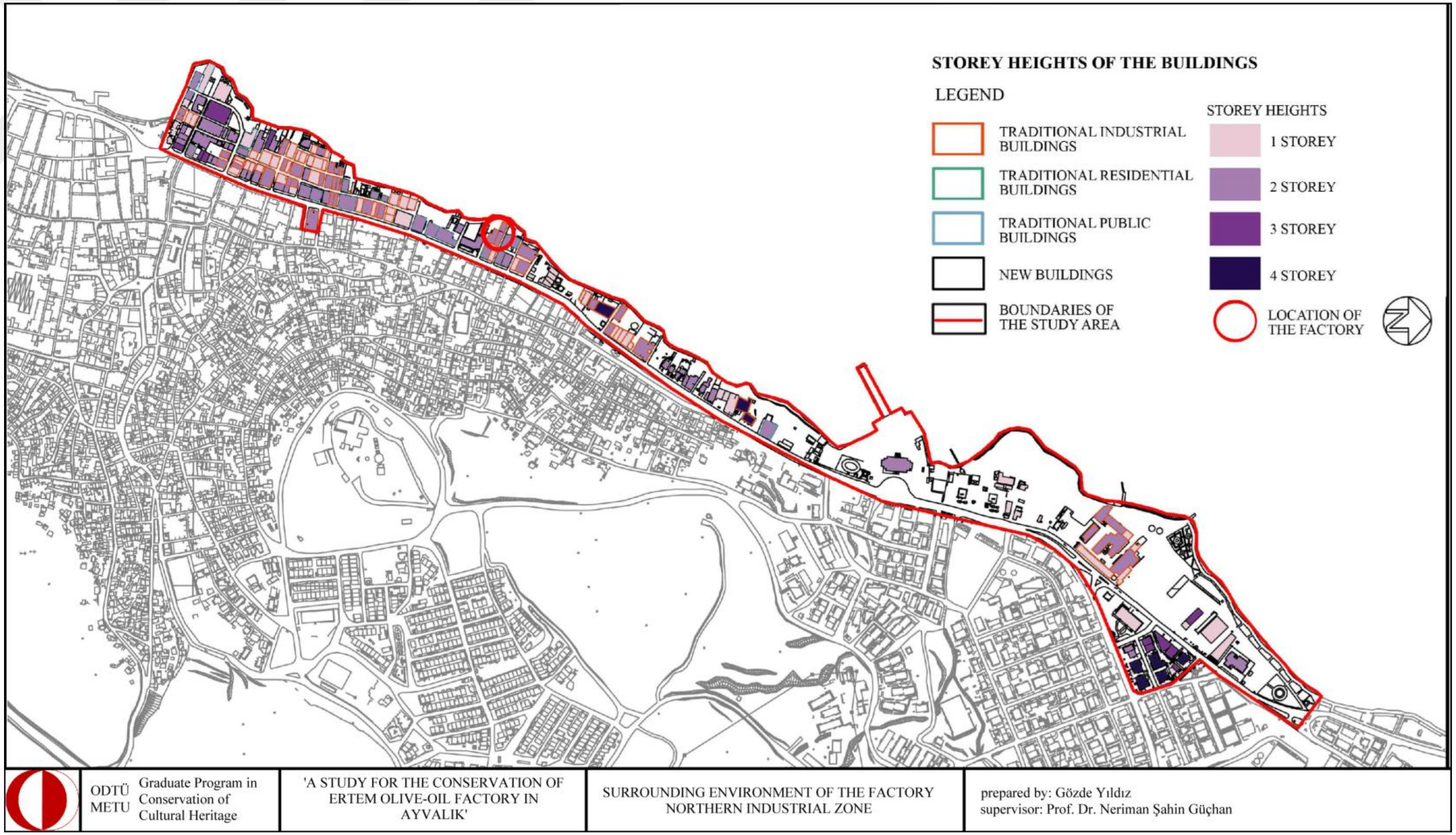



Figure 46: Storey height of the buildings in the neighboring environment

CURRENT USE OF THE COASTLİNE USAGE IN THE NORTHERN INDUSTRIAL ZONE


| | | | | | |
|---|---|---|---|---|---|
| ODTÜ METU | Graduate Program in Conservation of Cultural Heritage | 'A STUDY FOR THE CONSERVATION OF ERTEM OLIVE-OIL FACTORY IN AYVALIK' | SURROUNDING ENVIRONMENT OF THE FACTORY NORTHERN INDUSTRIAL ZONE | prepared by: Gözde Yıldız<br>supervisor: Prof. Dr. Neriman Şahin Güçhan | Base Map: obtained from Ayvalık Municipality, it is digitally manipulated by the author;<br>Panoramic Photo: prepared by a group of student from METU City and Region Planning Department, Design Studio, 2013-2014;<br>Other photos: taken by the author |

Figure 47: Current use of the coastline

### 3.1.2. Location of Ertem Olive-oil Factory in Surrounding Area with Its Nearby Environment

Ertem Olive-Oil Factory which is one of the important buildings of this settlement pattern by making a contribution to the city panorama, is located on the 14. Street, Sakarya District in Ayvalık, Balıkesir, Turkey. The building is on the lot 62 of the building block 617 that is surrounded by Aegean Sea from the west, by the 15. Street from the north, by the 14. Street from the east, by the border of the district governorship *'Hükümet Konağı'* from the south which was constructed in 1955 (See Figure 48, Figure 49, Figure 50).

The building lot (See Figure 48, Figure 49, Figure 50) is bordered from the district governorship (See Figure 53, image 3-4) lot by the stone masonry wall as a separator. On the north neighboring lot which is facing with 15. Street, there is a soap factory which is abandoned today (See Figure 53, image 1-2). The condition of this building is poor due to being partially destroyed. On the east neighboring lots which are facing with 14. Street, there are two traditional residential buildings and a depot. One of the traditional residential buildings that is located on the Atatürk Boulevard is used for the Turkish Red Crescent 'Türk Kızılay'ı' society (See Figure 52), while the other one(See Figure 51, image 3-4) and the depot (See Figure 51, image 1-2) that are located on the opposite side of the factory are abandoned today.

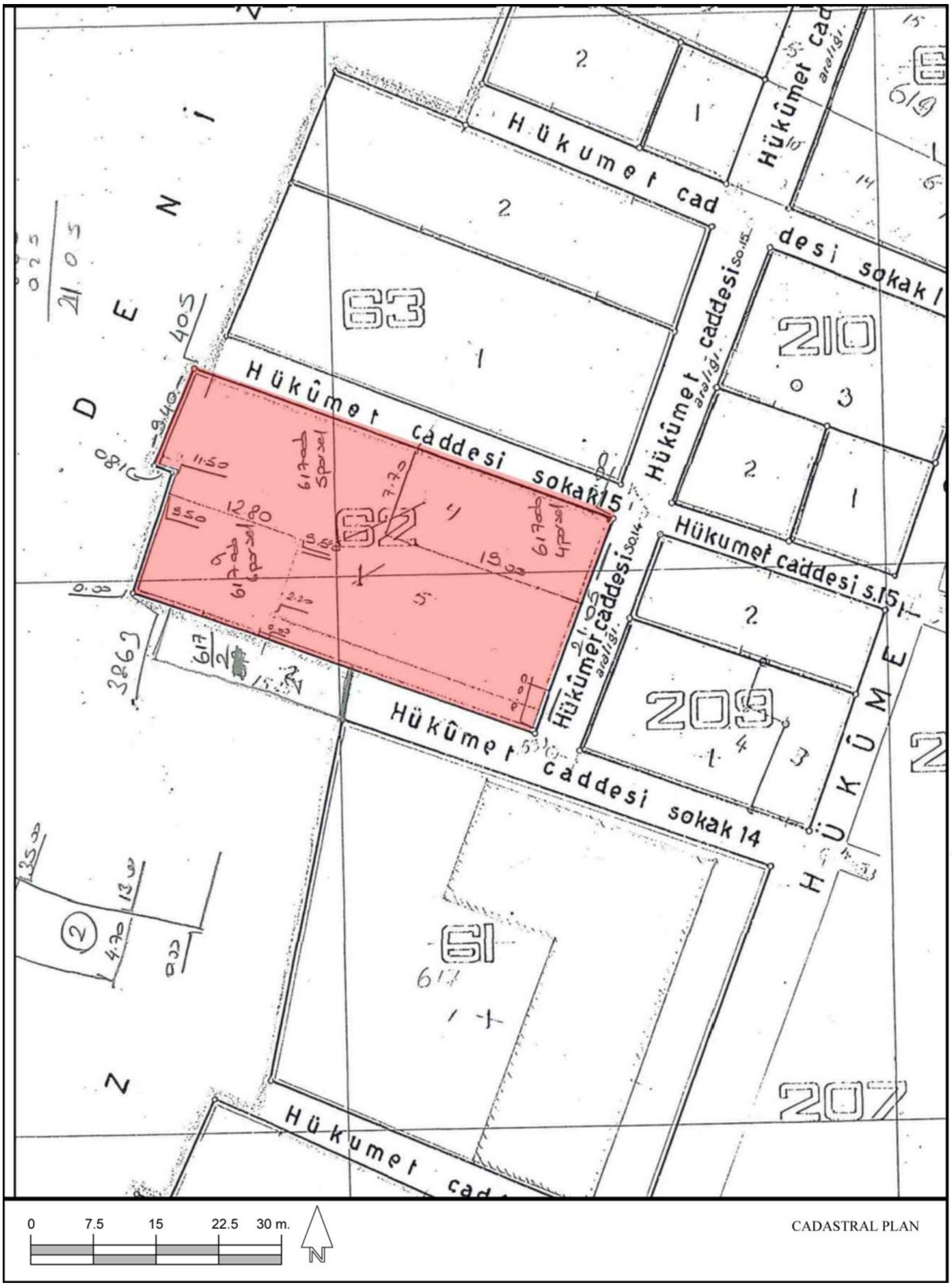



Figure 48: Cadastral Plan (obtained from Municipality)


Figure 49: Physical layout of the building, site plan


Figure 50: Physical layout of the building, site plan, (Google Earth image, 2016 is digitally manipulated by the author)


Figure 51: neighboring buildings of the factory; 1-2 abandoned depot; 3-4 residential (abandoned one)

Figure 52: neighboring buildings of the factory; left: former residential building converted into Turkish Red Crescent 'Türk Kızılayı' Society; right: abandoned depot (look from Atatürk Boulevard)


Figure 53: neighboring buildings of the factory; 1-2 former soap factory; 3-4 district governorship that was constructed in 1955.

The surrounding study area of the factory in which most of the important big scale factory buildings are located (northern industrial zone), has very significant characteristics within the town. The area has unique panoramic view from the sea through the factory buildings with their chimneys which are the symbols of Ayvalık as a city identity (See Figure 47). The characteristics of the streets which are still presented, contribute specific features for the area with unique vista points.

The area as a commercial-touristic center of the town with small restaurants, tea houses, shops for traditional local foods, reflects the richness of the food culture of the place which is important for Ayvalık that came from the history of the town as a tradition. The traditional factory buildings which housed these local tastes such as olive-oil, soap and by-products, are the reflection of the town culture. In addition to that, there are also important art centers within the area such as music academy (AIMA), galleries, small art shops, etc.

As a result of these features, the area may be considered as the center of Ayvalık with its touristic attractions. However, these specific features of the town were damaged through new interventions that have been done for the traditional buildings under the name of adaptive re-use[26] and the new buildings that have been designed inharmoniously within this unique urban pattern. Moreover, the lack of interests to the abandoned traditional buildings in terms of re-functioning caused losses on the identity of the town.

Along the coastline, there are important wide empty areas which are originally empty lots or courtyards of the abandoned buildings. It should be pointed out that these empty lots or courtyards of the buildings which are the only places that provide the relationship between the settlement part and the sea, are used for private purposes or car parking areas today. Therefore, the relation between the town and sea is cut through these uses. It should be also mentioned that the main traffic line called Atatürk Boulevard has dense traffic circulation in the town. The car parking is a big problem that was solved through using empty lots along the coastline by damaging the site itself. Moreover, it is also observed that half of the traditional buildings are

[26]See Chapter 2.2.3.; p.68-83, for further information about adaptive re-use examples

derelict today which have very big potential of reuse for new demands of the site. Most of these traditional buildings are in good condition except some material decays. For the restored ones, the problem is irreversible interventions that damage the buildings originality. For instance the ones converted into a hotel, not only damage the site and building characteristics, but also cut the relation with the sea through privatization of the buildings just for guests. Hence, it is hard to find a place to connect with the sea as a visitor or an inhabitant.

As a result, the surrounding study area that was the industrial heart of Ayvalık in 19th century, has become a commercial-touristic center with touristic attractions for Ayvalık which is still in developing process. The problems are waiting for new appropriate solutions that should be solved according to indigenous values, potentials and new demands of the site. In this respect, Ertem Olive-Oil Factory that is subjected to this thesis by discussing in the sense of conservation and re-adaptation proposal, can be a tool through its architectural, social, historic and cultural values in order to solve some problems which have been defined above.

### 3.2. Historical Background of the Factory

Ertem Olive-oil Factory was constructed in 1910 by a Rum named Anastasyos Yorgolos. The factory which was transferred to 'Emvali Metruka İdaresi'[27] during the exchange period, was purchased by a banker, Kahraman Bahadır. Soon afterwards Güldenoğul Family had the ownership of it. In 1952, the ownership of the factory took over to Ertem Brothers. Mehmet and Hasan Ertem who immigrated from Crete in 1924, was settled in Ayvalık in the population exchange. Ertems were one of the important families that come from olive trade originated family. They were also famous in Crete with olive, olive-oil, cereal and pulse trade that were pioneered by Bilalzade Abdullah who is the grandfather of Mehmet and Hasan Ertem. After the dead of Hasan Ertem in 1974, Abdullah and A. Servet Ertem operated the factory until 2000 (Efe et al., 2013: 65).

[27] Emvali Metruke İdaresi is one of the institutions for the derelict buildings during the Ottoman Period.

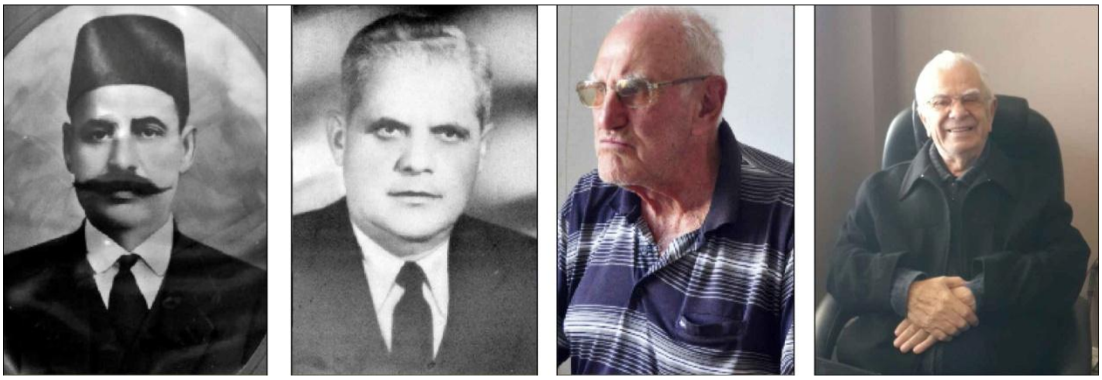


Figure 54: Ertem Family, from left to right: Bilalzade Abdullah Bey, Mehmet Ertem, A. ServetErtem (source: Efe et al., 2013: 65); Abdullah Ertem

In 2006, the factory was purchased by Keten Construction. And today, the ownership of the factory belongs to a Turkish Doctor who lives in the USA[28]. It is abandoned and under the risk of destruction due to the factors of human and nature. In addition to that, the sources (Efe et al.; 2013; Ertem, 2016) date the factory to 1910. Thus, Ertem Olive-Oil Factory has an important place in the history of Ayvalık as being one of the mentioned 32 olive-oil and 28 soap factories in 1923[29].Moreover, some of the important equipments of Ertem Factory such as steam engine, a press and a tractor are exhibited in Rahmi M. Koç Industrial Museum in İstanbul today (See Figure 110).

### 3.3. General Characteristics of Ertem Olive-Oil Factory

The building lot which is located on 14. Street, Sakarya District in Ayvalık/Balıkesir-Turkey, covers an area of 1125 m², of 582 m² which is occupied by the factory. The factory that is subjected to this thesis is located at the north-east part of the lot. It is composed of three blocks (See Figure 55) adjacent to each other. The main entrance to the factory is provided from 14. Street, from the middle block named as '2nd

[28] Individual interview made with the former owner of the factory, A. Servet Ertem, 2016.

[29]In 1923, after the exchange between Rums and Turks, there were 32 olive-oil mills and 28 soap factories in Ayvalık (Yorulmaz, 2000: 60).

Block'. The courtyard entrance is also provided from 14. Street, through a courtyard door that is adjacent to the factory.

'1st Block' is located at the north side of the lot and lies on the 15. Street. It covers an area of 39x8.15 m. It is a two-storied building that isconstructed with the stone masonry system at the ground floor and brick masonry system at the first floor. The chimney is located at this mass which is made out of brick. The entrance is provided from three sides of the block which are from the north that lies on 15. Street, from the west and south which are located on the courtyard. From the interior of the building, while it is possible to reach to each block in the ground floor, it is only possible to reach to '1st Block' and '2nd Block' in the first floor.

'2nd Block' is located in the middle of the other blocks. It covers an area of 23.5x8 m. This block is constructed with the brick masonry system and cut stones are used at the corners of it. The main entrance to the factory is provided from this block. There is another entrance from the west part of it which is located on the courtyard. Reaching to the first floor is supplied from this block by the iron stairs that are located inside of the building.

'3rd Block' is located adjacent to '2nd Block'. It covers an area of 4.5x14.5 m. This block looks new. It is a reinforced concrete structure that was articulated to the '2nd Block'. The entrance is provided to this block from the ground floor of it. Access to the first floor of it is provided througha concrete stairs that are located at the courtyard of the building adjacent to '2nd Block'.

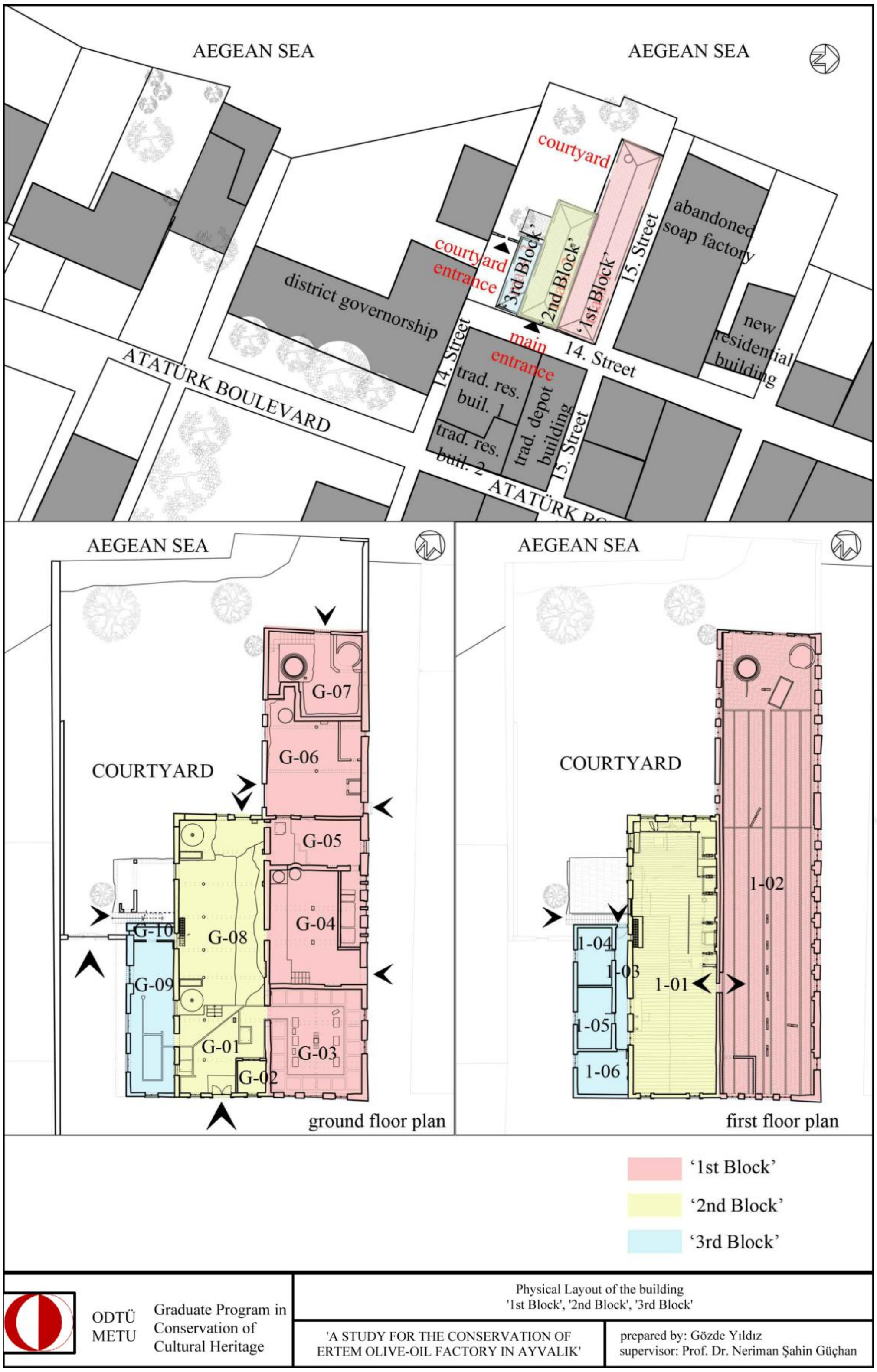



Figure 55: Plan Layout of the factory, three blocks adjacent to each other

### 3.3.1. Technological and Organizational Context: The Structures of the Production Process in the Factory through Time

In this part of the thesis, in order to better understand the building, first, space organization and relationship of them; the organizational context of the building that gives the name to the factory are presented with technological changes through time by referring to the space codes of the building itself. And then, within the light of this background, internal/external features of the factory, architectural elements and process equipment are presented.

The production process is very crucial context to understand the industrial buildings due to shaping their architectural characteristics[30]. And technology is another important context related with the process. Therefore, this part that named 'technological and organizational context of the building' should be understood in order to comprehend the general characteristics of these kinds of structures.

As a result of the information which was obtained from traces of the buildings and information given by A. Servet Ertem (2016) [former owner of the factory], it is understood that the factory has gone through gradually three different production processes due to technological changes and spatial arrangements that affected the space and space organizations of the factory through history (For further information See Chapter 4.4.2.; p:256)

**The first phase of the production process** within the factory proceeded the period between its construction date (1910) and 1954. It is attained through traces of the building, but mostly according to the information given by A. Servet Ertem (2016) due to lack of tangible clues. At that time, the factory was consisted of two blocks which were '1st Block' and '2nd Block'. While '3rd Block' was not added to '2nd Block' yet, '1st Block' which was housed for soap production process, was one storey high. In addition to that, the lot was smaller than today, and there was a street between the factory and today's district governorship lot that was Old Academy's lot

[30]Rogic (2009: 42) pointed out that production technology is a crucial context that influenced the development of architectural characteristics of the industrial buildings except for stylistic. For further information see Chapter 2.1.; p.26

at that period. Moreover, Atatürk Boulevard was not widened yet. On the eastern neighboring lots of the factory, there was a house used by the factory owner and a depot which was used as depot which is still presented but in derelict condition. And it is also known that there was a timber summer house for the owner of the factory located in the middle of the courtyard in that period. But it was demolished in 1954 by Ertems through the first intervention that was done by themselves. And the production process was as follows: (See Figure 56):

As a first step **(Collecting)**, collected olives were brought to the factory and they were stored in the courtyard. In addition to this, some parts of olives were stacked into the today's district governorship lot which was the garden of the Academy at that time. These olives were separated into the sacks and they were numbered according to their owners. After that, they were sent to the Space 1-01 which was used for indoor storage purpose.

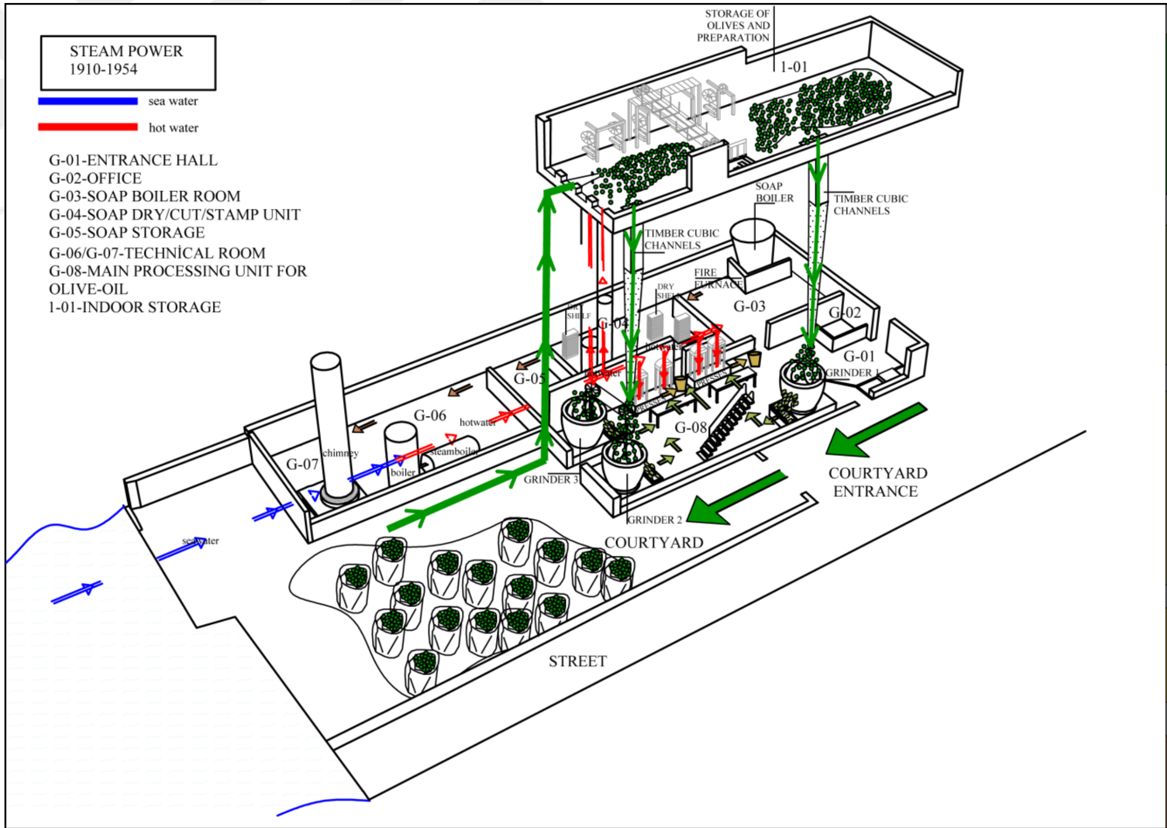
As a second step **(Crushing/Pasting)**, the olives which were sent to the Space 1-01, were transferred to the grinders which were located in the Space G-08 through timber cubic channels that is very specific element for olive-oil factories in Ayvalık (See Figure 109). The Space G-08 wasthe main process unit in the factory for olive-oil production. Here, the olives were crushed in three different grinders(See Figure 112) which were located at the west and east corners of the Space G-08 in order to obtain the olive paste. After this step, the extra virgin olive-oil extracted from the olive paste was collected into the containers that were located near the grinders.

As a third step **(Pressing)**, the olives which became olive paste were put into the bags named 'tesir bags' that were envelope shaped for sending to the hydraulic presses. This process was held in the Space G-08 through the desks located between the presses and the grinders. In hydraulic presseswhich were located on the opposite side of the grinders in the Space G-08, the olives that became olive paste were squeezed in three times. The first cycle was dry, and the others were with hot water for obtaining more olive-oil. After this step, the pomace with very little amount of olive-oil in the bags was separated and stacked into the courtyard for reusing as fuel for steam boiler.

As a forth step **(Separation)**, the olive-oil extracted from the presses which includes water, olive-oil and waste water were separated by the workers. In that period, the distillation area named 'polima' was not situated in the factory. The Space G-08 was also used for separation stage.

Fifth step was for **producing the soap**. The unqualified olive-oil was poured into the soap boiler that was located in the Space G-03. The soap boiler was fired from the furnace located on the basin of the boiler, in the same Space (G-03). After, it was boiled and put into the soap shelves which were located in the Space G-04. And then, after drying process, they were cut and stamped.

All process was generated with the **steam power**. The Space G-06 and G-07 were used as technical room that housed the steam engine, steam boiler and chimney.




### STEP 1/COLLECTING

step 1-a: Collected olives are stacked into the courtyard with their sacks.
step 1-b: Olives are moved to the first floor of the factory by crane
step 1-c: Prepared olives according to their weight are put the wooden cubic channels in order to send to the grinders.

### STEP 2/CRUSHING AND PASTING

step 2-a: Sent olives are crushed into the grinders in order to obtain the olive paste
In this step very first virgin olive-oil is collected in to the containers that are located near the grinders.
step 2-b: Olives which are became olive paste are put to the bags for press process. And these bags are carried to the presses by stabilization rods.

### STEP 3/PRESSING

step 3-a:Approximately 60-70 bags of olive paste are sent to the presses for obtaining liquid mix which included olive-oil, water and deposits
In this step hot water is used for pressing the paste.
This operation were done in 3 times. First cycle was dry, while the others were done with hot water.
step 3-b: The remains from the olive paste bags are separated for producing prina and green soap. And some parts of them were used for the fuel for the steam boiler.

### STEP 4/SEPERATION

step 4-a: This mixed liquid were collected into the barrels for extracting the olive-oil.
step 4-b: Waste water was discharged to the sea.

### STEP 5/SOAP PROCESS

step 5-a:The olive oil which are in poor quality was put into the soap boiler. and the furnace of the boiler was fired.
step 5-b: After this process obtained liquid was poured into the soap shelves.
step 5-c: This liquid that poured into the shelves was kept waiting for drying. And they are stamped and cut for selling process.

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| ODTÜ METU | Graduate Program in Conservation of Cultural Heritage | prepared by: Gözde Yıldız<br>supervisor: Prof. Dr. Neriman Şahin Güçhan | 'A STUDY FOR THE CONSERVATION OF ERTEM OLIVE-OIL FACTORY IN AYVALIK' | PROCESS SCHEMA OF THE FACTORY FIRST PHASE (1910-1954) |

Figure 56: The first phase, production process schema of the factory, between 1910-1954

**The second phase of the production process** within the factory lasted the period between 1954 and 1986 (See Figure 57). The information were obtained through traces of the buildings and from the information given by A. Servet Ertem (2016) [former owner of the factory]. In this period, Ertem Family made some space arrangements in the factory in order to make the process more effective than before. The changes in this phase of the factory were not because of the technology, but because of the organizational requirements. Here, the process was still generated by steam power.

The Space G-06 was started to be used as technical room that housed steam engine and boiler. The equipments such as presses, grinders were the same type as previous phase. To begin with, in this period, the district governorship was constructed, and Atatürk Boulevard was widened. Moreover, during the widening of the boulevard Old Academy Building was destroyed. The lot of the factory became same as today through adding the street into the lot. And the factory was consisted of two blocks which are '1st Block' and '2nd Block'. '3rd Block' was not added to the factory yet. But '1st Block' which was the soap production process block became two storey high in this period. While the depot located on the opposite side of the factory was still used as depot by Ertem Family, the residential one was not used anymore. And the production process was as follows: (See Figure 57):

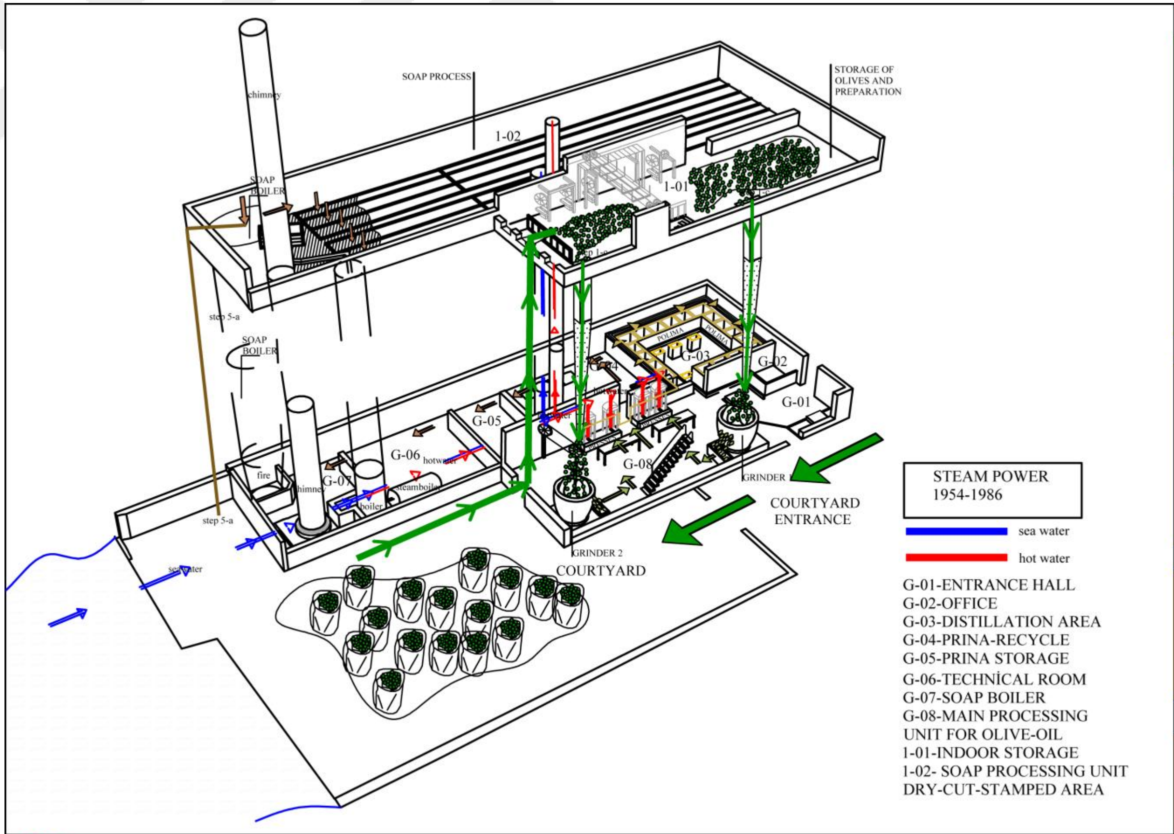
First, step is called as **Collecting step**, collected olives were brought to the factory and they were stored in the courtyard. These olives were separated into the sacks and they were numbered according to their owners. After that, they were sent to the **Space 1-01** by cranes from **Space G-08**. Here, there were some changes for sending the olives to the first floor easier than before. The first change was to remove one of the grinders which was located at the north-west corner of Space G-08 in order to constitute an area for stacking the olives. The other change was generating a gap on the first floor covering by arranging the observation point on the first floor. By doing so, the olives were sent from the Space G-08 to the Space 1-01 by cranes with the help of the new gap on the first floor covering.

As a second step defined as **Crushing/Pasting**, the olives which were sent to the Space 1-01, were transferred to the grinders which were located in the **Space G-08** through timber cubic channels (See Figure 109). The Space G-08 was still the main process unit in the factory for olive-oil production. Here, the olives were crushed in two different grinders (See Figure 112) which were located at the west and east corners of the Space G-08 in order to obtain the olive paste. After this step, the extra virgin olive-oil obtained from the olive paste were collected into the containers that were located near the grinders.

As a third step is **Pressing**, in which the olives which became olive paste were put into the bags named 'tesir bags' (See Figure **113**, image 1) which were envelope shaped for sending to the hydraulic presses. This process was held in the **Space G-08** through the desks located between the presses and the grinders. In hydraulic presses which were located on the opposite side of the grinders in the Space G-08, the olives that became olive paste were squeezed in three times. The first cycle was dry, while the others were with hot water for obtaining more olive-oil. After this step, the pomace with very little amount of olive-oil in the bags was separated and stacked into Space G-04. Here, Space G-04 which was used for drying area for soap in the previous phase, was started to be used for separating the pirina for two different purposes. The one was for using it as a fuel for steam engine. The other one was kept for green soapwhere it was sent to other factories which produced green soap.

As a forth step is **Separation**. The olive-oil extracted from the presses which includes water, olive-oil and waste water were sent to the distillation pools named 'polima' through the pipes. The distillation area named 'polima' was located in **Space G-03** which has still existed in the factory. Here, we can see the important addition to the factory organization which was done by Ertem Family. The Space G-03 which housed to the soap boiler in the previous process organization, became distillation area. In the Space G-03, they added nineteen pools for extracting olive-oil and nine sedimentation ponds for discharging the waste water. By doing so, the process started to be operated easier than before.

Fifth step was for **producing the soap**. For this step, in this phase, big arrangements had been done by Ertem Family. The first addition was that '1st Block' became two storey high and the other one was the addition of the polima (distillation pools). The Space G-03 became distillation area as mentioned above. The soap boiler which was located in the Space G-03 was moved to the Space G-07, near the chimney. It should be noted that the soap boiler was the tool that continued to the first floor of '1st Block', to the Space 1-02. According to the new arrangement, the unqualified olive-oil was poured by the tool named 'motopomp' into the soap boiler which was located in the Space 1-02. At the same time, the furnace of the soap boiler that was located in the Space G-07 was fired with caustics. After, it was boiled until obtaining the homogeneous liquid. And they were poured into the grids that named 'sabun tavlası' which were added to the first floor of the '1st Block'. And after one day, the production, soap which was dried, was cut and stamped for selling. This process was held in the Space 1-02 which was added to the factory in this period.




**STEP 1/COLLECTING**

step 1-a: Collected olives are stacked into the courtyard with their sacks.
step 1-b: Olives are moved to the first floor of the factory by crane
step 1-c: Prepared olives according to their weight are put the wooden cubic channels in order to send to the grinders.

**STEP 2/CRUSHING AND PASTING**

step 2-a: Sent olives are crushed into the grinders in order to obtain the olive paste
In this step very first virgin olive-oil is collected in to the containers that are located near the grinders.
step 2-b: Olives which are became olive paste are put to the bags for press process. And these bags are carried to the presses by stabilization rods.

**STEP 3/PRESSING**

step 3-a:Approximately 60-70 bags of olive paste are sent to the presses for obtaining liquid mix which included olive-oil, water and deposits
In this step the operation were done in 3 cycles. The first ones was dry, while the others were done with hot water.
step 3-b: This mixed liquid are sent to the distillation pools by pipes
step 3-c: The remains from the olive paste bags are separated for producing prina and green soap. And some parts of them were used for the fuel for the steam boiler.

**STEP 4/SEPERATION**

step 4-a:The liquid that were sent to the distillation pools are decompose of water and olive oil. And olive-oil which are raised to the up are gathered by the collecting plates.
step 4-b:The wasted part are sent to the channels located on the floor which is called sedimentation ponds.

**STEP 5/SOAP PROCESS**

step 5-a:The olive oil which are in poor quality is carried by the machines to the first floor into the soap boiler. And the boiler is fired from the ground floor with the caustic.
step 5-b: After this process obtained liquid are put into the timber chamber for soap. And it is transferred to the grids which is called 'sabun tavlası'.
step 5-c: They are keep waiting for drying. And they are stamped and cut for selling process.

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| ODTÜ METU | Graduate Program in Conservation of Cultural Heritage | prepared by: Gözde Yıldız<br>supervisor: Prof. Dr. Neriman Şahin Güçhan | 'A STUDY FOR THE CONSERVATION OF ERTEM OLIVE-OIL FACTORY IN AYVALIK' | PROCESS SCHEMA OF THE FACTORY SECOND PHASE (1954-1986) |

Figure 57: The second phase, production process schema of the factory, between 1954-1986

**The third phase of the production process** within the factory lasted the period between 1986 and 2000. The information were obtained through traces of the buildings and from the information given by A. Servet Ertem (2016), former owner of the factory. All changes in the factory were because of the technological change in this phase. Here, the extraction system of the factory was changed due to introduction of electricity. Therefore, all spatial arrangements were because of technological requirements. The physical layout was almost same as second phase except the addition of the '3rd Block'. The production process of this period can be summarized as below (See

Figure 58):

As a first step **(Collecting)** which is the same stage in all phases, collected olives were brought to the factory and they were stored in the courtyard. These olives were prepared according to theirweight for extracting olive-oil for their owners. After that, these prepared olives were sent from the Space G-08 to the Space 1-01 by cranes.

For the (**Crushing/Pasting)** step, these prepared olives which were sent to the Space 1-01, were transferred to the grinders which were located in the Space G-08 through timber cubic channels. The Space G-08 was still the main process unit in the factory for olive-oil production. But here some arrangements were done due to technological requirement. The main change was raised floor (approximately 1m above) because of the introduction of super steel presses. Here, the olives were crushed in two different grinders which were located at the west and east corners of the Space G-08 in order to obtain the olive paste. After this step, the extra virgin olive-oil extracted from the olive paste was collected into the containers that were located near the grinders.

For the (**Pressing)** step, the olives which became olive paste were put into the discs with hole at the middle of them for sending to the super steel presses. This operation was operated in one time for extracting the olive-oil. It was generated through the wheels named 'pomparya' that worked with electric power. 'Pomparya' sent the pressure to the presses with the help of water pumps. The water used in the process was provided from the sea. First, obtained water from the sea was stored in the water tank which is located in the Space G-04. And it was boiled in the water boiler in order to obtain the hot water from the presses. After this step, the pomace with very little amount of olive-oil in the bags was separated and stacked into Space G-04. This production that called 'pirina' was used only for green soap production in this phase.

As a forth step **(Separation)**, the olive-oil extracted from the presses which includes water, olive-oil and waste water were sent to the distillation pools named 'polima' through the pipes. The distillation area named 'polima' was located in Space G-03 which has still existed in the factory. And here, the workers named 'yağcı' collected the oil from the pools. Collected olive-oil was sent to the '3rd Block' to keep waiting into the tools named 'lanca'. The Space G-09 and G-10 were used for this purpose. The first floor of the '3rd Block' which are the Spaces 1-03, 1-04, 1-05 and 1-06, was used as resting area for the workers.

Fifth step was for **producing the soap**. The unqualified olive-oil was poured by the tool named 'motopomp' into the soap boiler which was located in the Space 1-02. At the same time, the furnace of the soap boiler that was located in the Space G-07 was fired with caustics. After, it was boiled until obtaining the homogeneous liquid. And they were poured into the grids that named 'sabun tavlası' which were added to the first floor of the '1st Block' in the second phase. And after one day, the production, soap which was dried, was cut and stamped for selling.

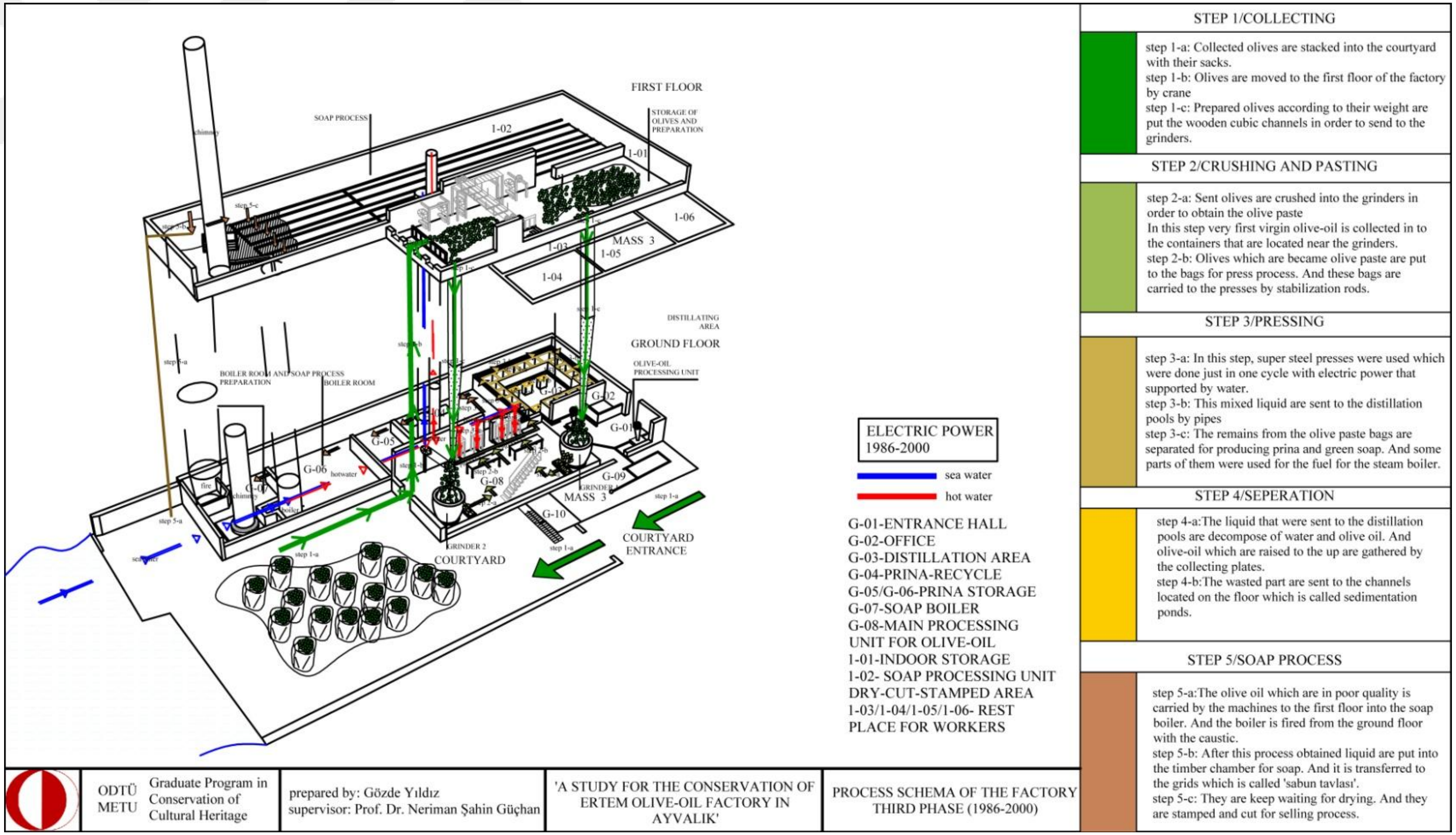



Figure 58: The third phase, production process schema of the factory, between 1986-2000

### 3.3.2. General Layout: Blocks Forming the Factory

The technological (production process) and organizational relations of the factory were described above for better understanding the physical features of the each space in the factory. In this part of the thesis, each block will be identified and named in order to describe them in terms of geometry, volumetric-planimetric features which will be helped to the description of the spaces.

'1st Block' of the factory named as soap production block (sabunhane), has rectangular plan type located on the northern edge of the lot. It is two storied block that is measured 8x23.5 m in plan dimensions and 7.5 m high from the ground level. '1st Block' is the part of the factory that housed the soap production and partial olive-oil production. It consists of the Spaces 'G-03, G-04, G-05, G-06 and G-07' at the ground floor, the Space 1-02 at the first floor.

'2nd Block' of the factory named as olive-oil production block (yağhane), has rectangular plan type located at the middle of the other blocks. It is also two storied block that is measure 8x15.9 m in plan dimensions and 7.45 high from the ground level. '2nd Block' is the part of the factory that housed olive-oil production. It consists of the Spaces 'G-01, G-02 and G-08' at the ground floor, the Space 1-01 at the first floor.

'3rd Block' of the factory named as 'Annex Block', has rectangular plan type which is two stories block. It is 5.5x14.9 m in plan dimensions and 6.15 high from the ground level. '3rd Block' is the part of the factory that added lately as a part of olive-oil production and resting places for the workers. It consists of the Spaces 'G-09 and G-10' at the ground floor, the Spaces '1-03, 1-04, 1-05 and 1-06 ' at the first floor. Here, the spaces of the factory are defined according to their physical characteristics.

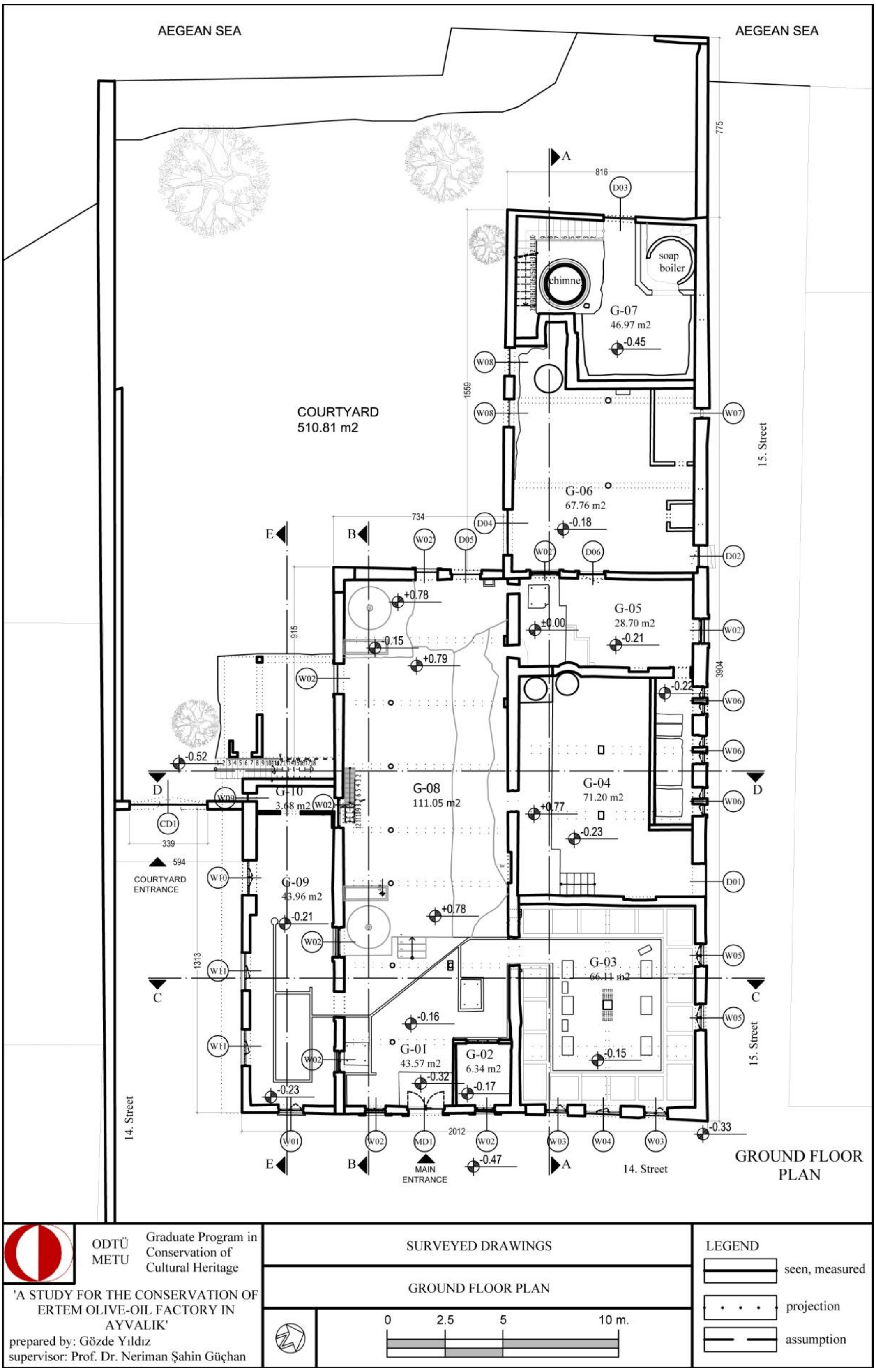



Figure 59: Ground Floor Plan

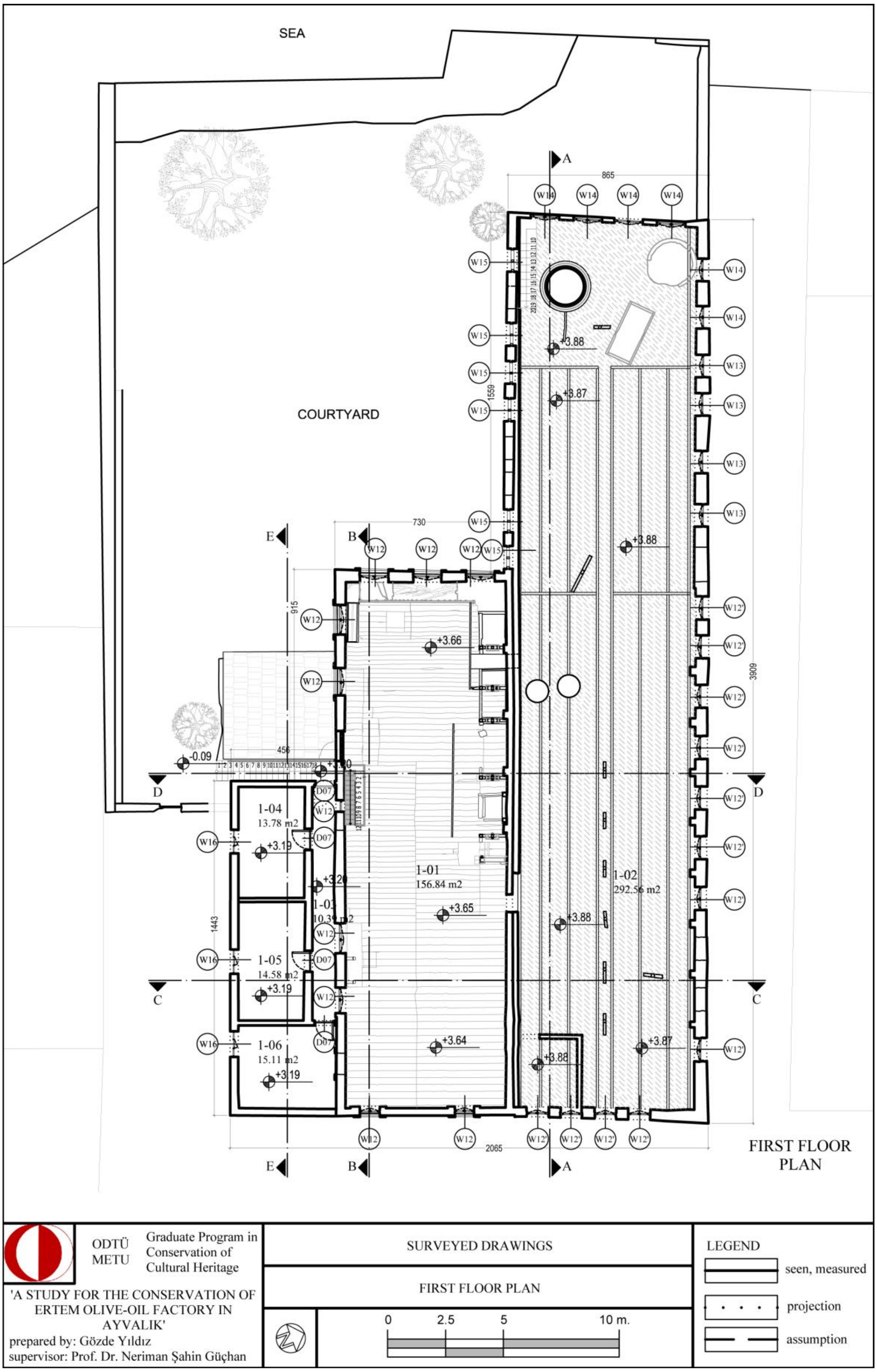



Figure 60: First Floor Plan

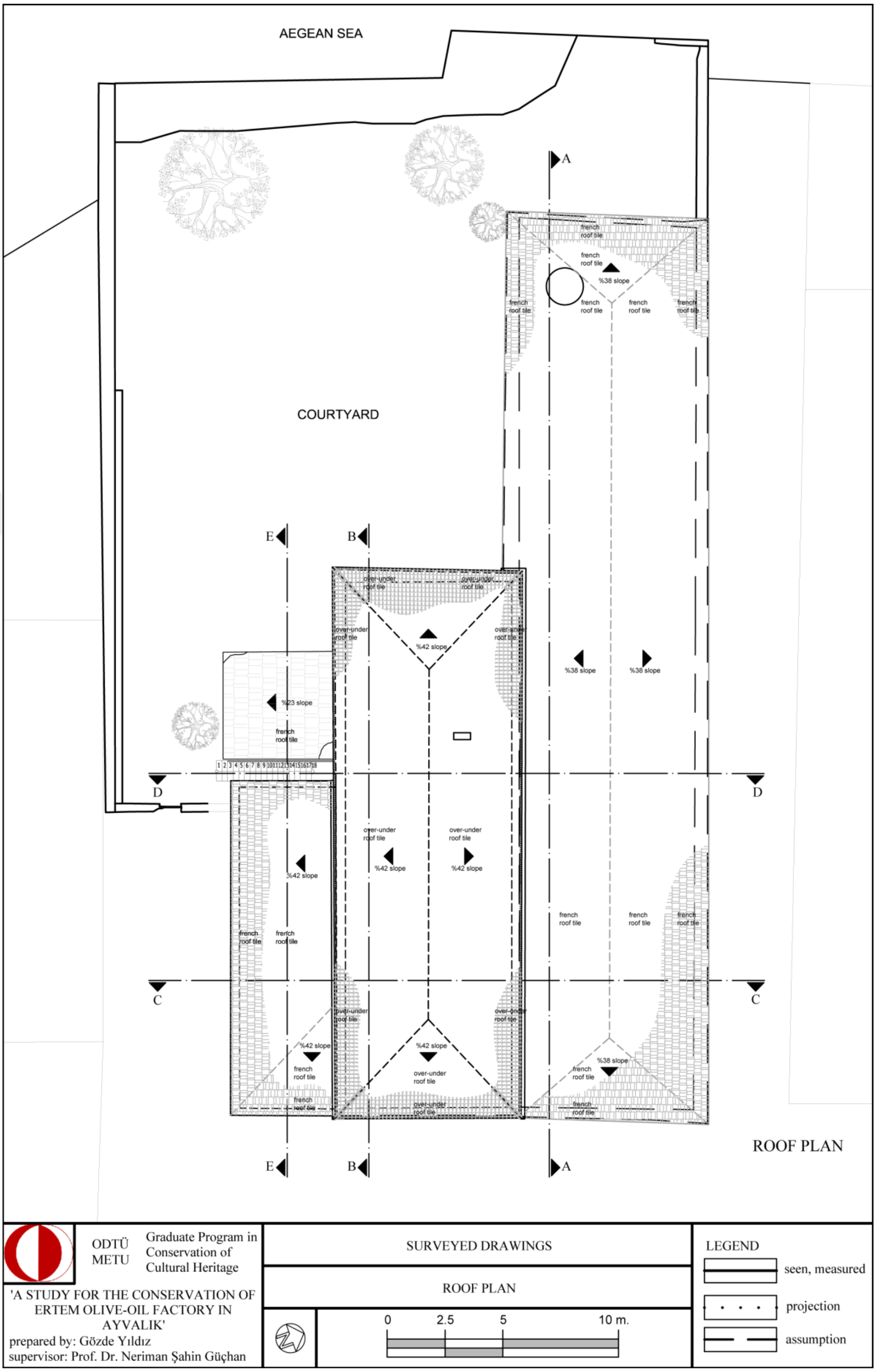



Figure 61: Roof Plan

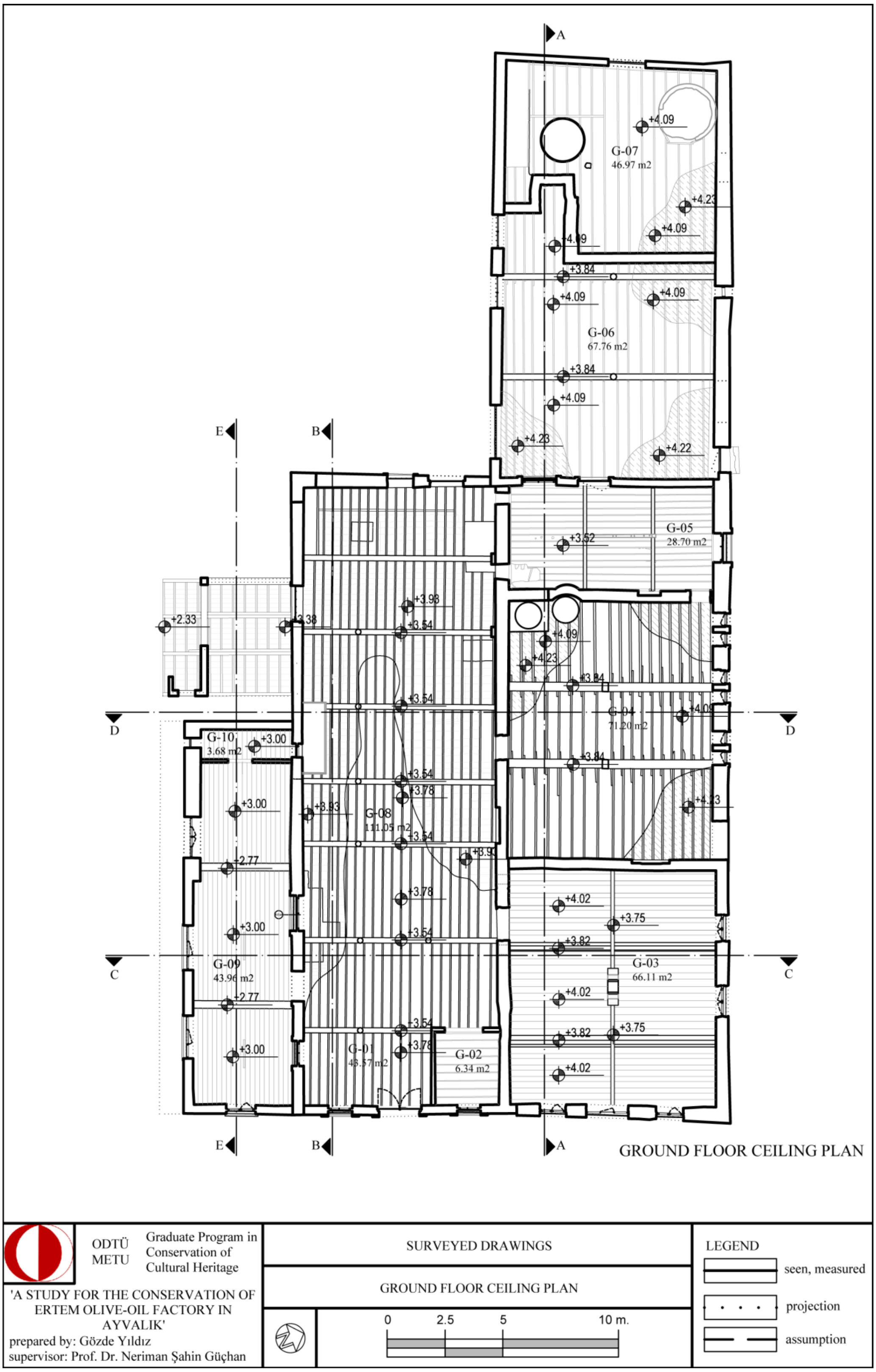



Figure 62: Ground Floor Ceiling Plan

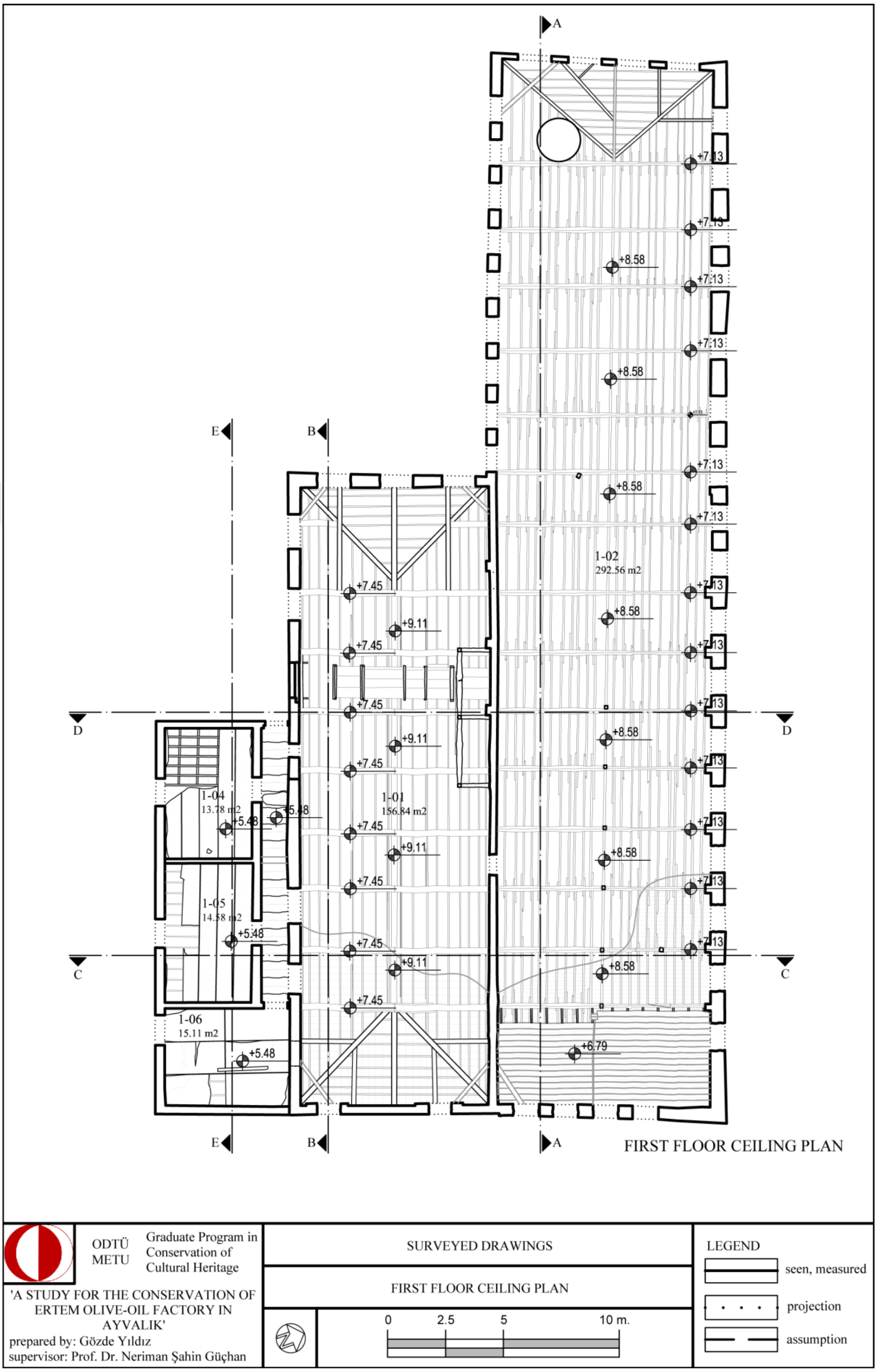



Figure 63: First Floor Ceiling Plan

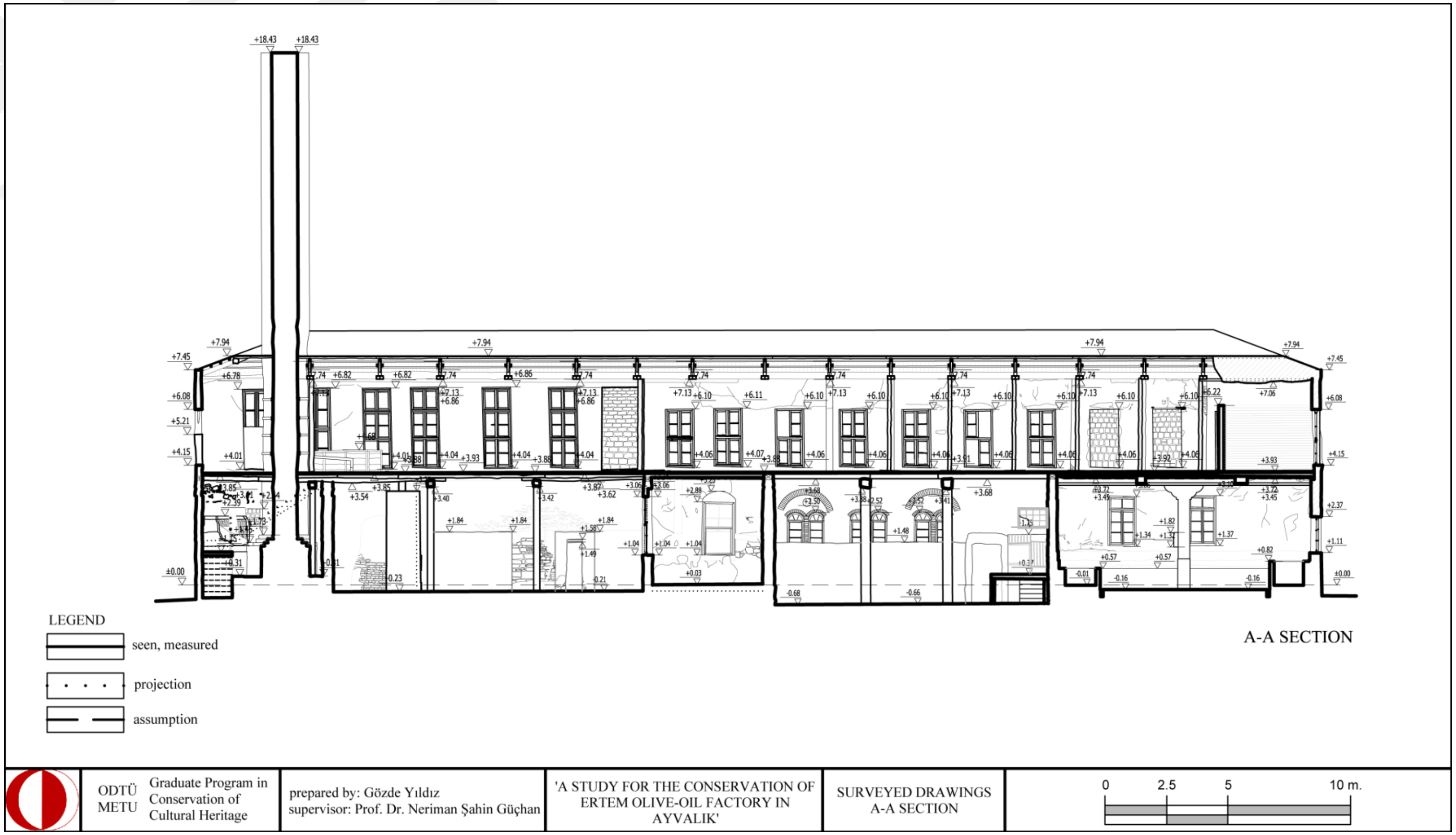



Figure 64: A-A Section

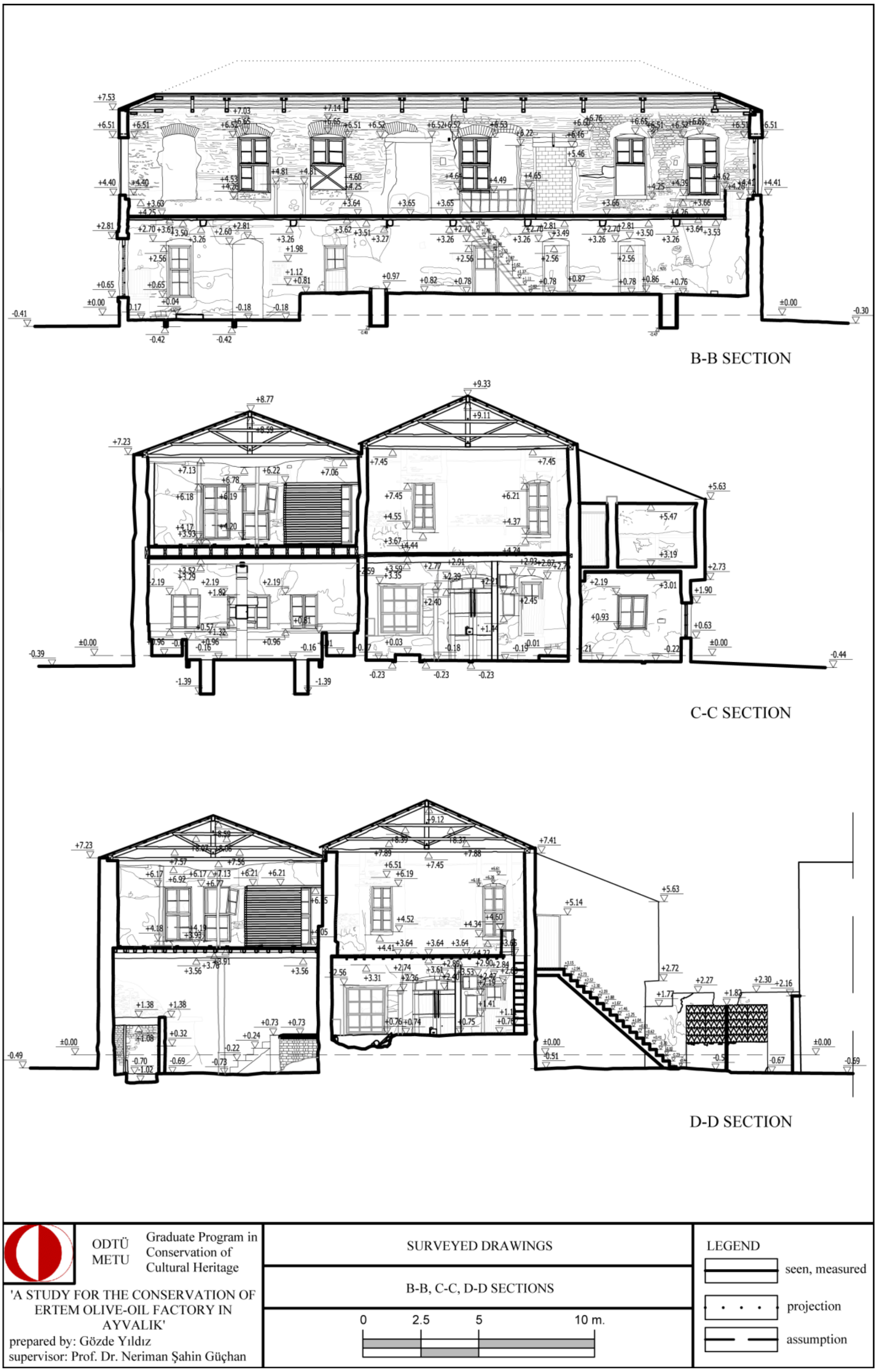



Figure 65: -B, C-C, D-D Sections

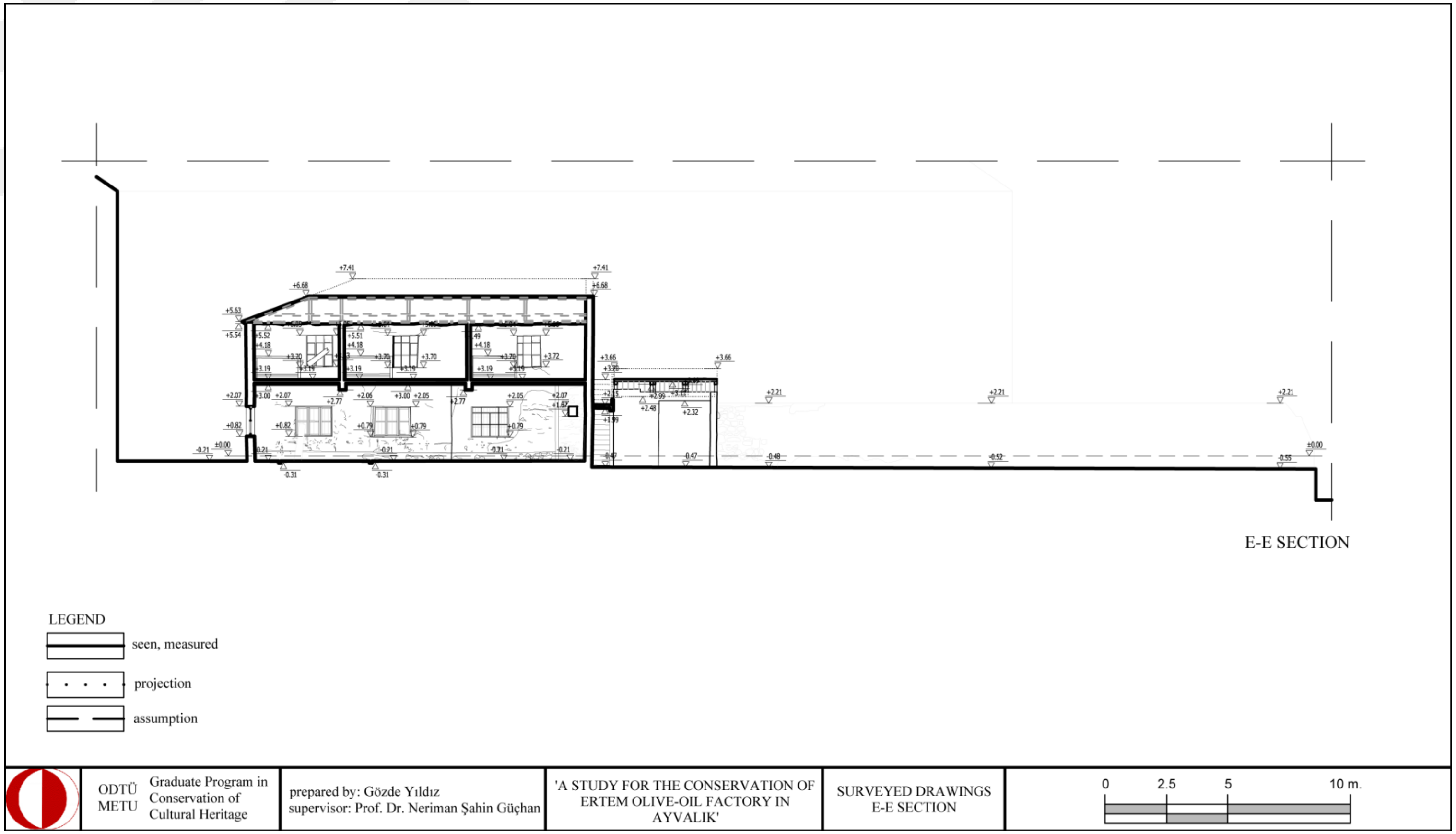



Figure 66: E-E Section

#### 3.3.2.1. Planimetric Features of the Factory

In this section, each space of the factory will be described according to their planimetric features with measured drawings and photos that were prepared by the author. First, ground floor spaces (See Figure 59,Figure 62) will be described according to their space codes by referring their location (in which block). And then, first floor spaces (See Figure 60,Figure 63) will be identified.

##### 3.3.2.1.1.Ground Floor

Ground floor of the factory (See Figure 59,Figure 62,Figure 64,Figure 65,Figure 66) is consisted of abovementioned blocks, however it works as a whole through the entrances to each block. They are all rectangular plan type. While 'Yağhane Block' was arranged as single-large space for the olive-oil production unit [Space G-01-G-08] and it also includes office (yazhane) [G-02] inside of it, 'Sabunhane Block' was arranged with five different spaces [G-03,G-04,G-05,G06,G-07] for the preparation of the soap production. 'Annex Block' was also arranged as single-large space [G-09] with small storage [G-10] inside of it as a part of olive-oil production process. Space codes were given to each space starting from the main entrance which is provided from the olive-oil production (yağhane) block and continuing in counter clockwise direction.

**1| Space G-01 [Entrance]**

It is the entrance space of the factory which is located in 'Yağhane Block' where the main entrance is provided from 14. Street through double-wing timber door (MD01) that is approximately 1.62x3.26m in dimensions. The space is in L shape form with 7.2mx7.3m in size at the long sides and 3.8m in height from the ground level until the bottom border of the upper floor covering.

There is 16 cm level difference from the entrance to the space. It is bordered by the Space G-02 at the south corner which was used as office, by the Space G-03 at the north-east corner which was the space for distillation, by the Space G-08 at the north-western side where the main olive-oil process was held, by the Space G-09 at the south-western side which was the place for keeping the extracted olive-oil in the barrels named 'lanca'.

The floor covering of the space is screed. On the floor, there are channels for the production process (See Figure 68, image 7). In addition to the channels, there are also two basins of the water pumps (See Figure 68, image 6). The flooring was differentiated by a platform with 94cm in height from the ground level that includes concrete stairs for reaching the Space G-08 (See Figure 68, image 5). The ceiling is spanned with finely shaped primary and secondary timber beams that is covered with lime wash. There are also three timber columns inside of the space that is also covered with lime wash (See Figure 67, image 1-2).

The south-east wall of the space is brick masonry wall where the entrance door is located in the middle of it. This wall is composed of two hung sash timber windows in types of W02 with dimensions of 0.88mx2.15m and 0.85mx2.14m which are located at the both side of the entrance door (See Figure 68, image 4). One of them serves to the Space G-02, while the other one serves totally for G-01. Approximately 25cm near to this window, there is a profile of an electric box that can be seen through its traces today. And the approximately 20 cm above of it, there is another box that should be for the electric box.

The north-east wall of the space is composed of an opening for the entrance to the Space G-03 with the dimensions of 1.11mx2.99m. This wall is also brick masonry wall that is partially covered with cement plaster and lime wash.

The south-west wall of the space is composed of a timber hung sash window and an opening for passing to the Space G-09 (See Figure 68, image 4). Approximately 25cm near of this opening, there is another electric box which is 58x85 cm in size. The window is arch shaped at the top as a type ofW02 with the dimensions of 0.84mx2.17m. The wall is covered with cement plaster and lime wash but it can be seen from the discharges of the plasters that is a stone masonry wall.


Figure 67: Space G-01; photographs key plan; 1:north-eastern side of the Space G-01; 2:western part of the Space G-01.


Figure 68: Space G-01, photos- 3:south-eastern part of the Space; 4:north-east wall of the Space; 5:the platform with concrete stairs that separates the spaces G-01 and G-08; 6:the base of the water pipe; 7:The channels on the floor.

## 2| Space G-02 [Office]

The Space G-02 (See Figure 69, image 1-2) which was used as office, is located at the north-east corner of the Space G-01 which is accessed through a timber door from the Space G-01 that has existed today only with its jambs (See Figure 69, image 1). The space is rectangular shaped with 2.35x2.70m in plan dimensions and 3.5m in height.

The walls of the space are covered with tin sheet 148 cm in height from the ground level (See Figure 69, image 4). The rest of the walls are covered with cement plaster and are lime washed in general. The flooring of the space is screed and the ceiling cover is composed of 25 cm timber boards adjacent to each other and parallel to the south-east/north-west walls. The ceiling cover is framed with 6cm timber boards.

The south-west wall of the space is a briquette wall. This wall is where the entrance is provided by an opening that has existed with only timber jambs today. And a hung sash timber window is located near this door that is 141cm in length and 192cm in height (See Figure 69, image 1-4).

The south-east wall of the space is the common wall with the space G-01 that is a brick masonry wall. There is a hung sash timber window in type of W02on this wall (See Figure 69, image 1).

The north-east wall of this space is also brick masonry wall that is common wall with the space G-03. There is a window in type of W03in the middle of this wallthat serves the both spaces G-02 and G-03.

At the north corner of the space, there is a timber cupboard painted in blue which is 74 cm in length and 64 cm in height (See Figure 69, image 5). The north-west wall of the space is briquette wall. It is composed of a hung sash timber window which is 141 cm in length and 167 cm in height.

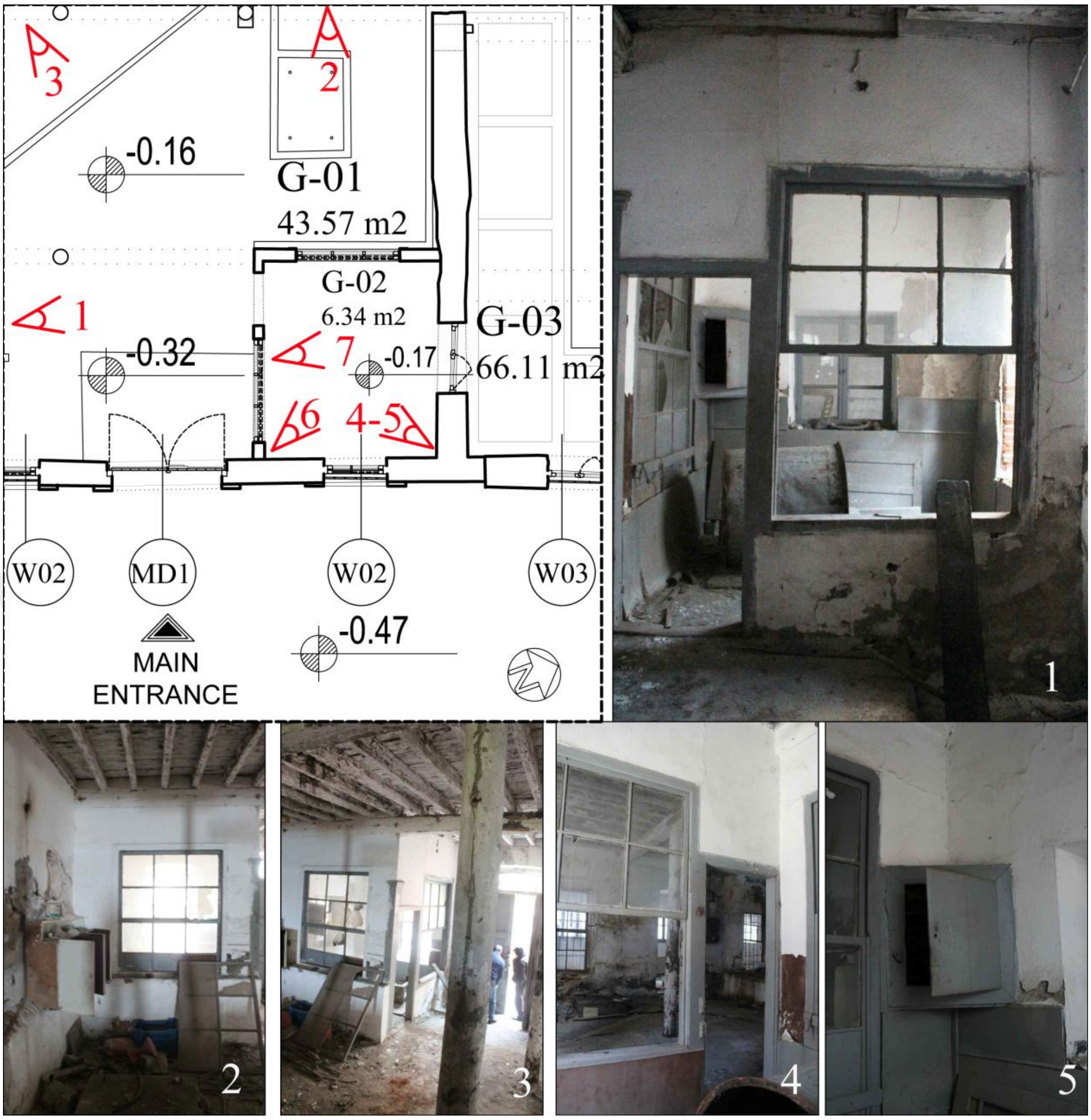



Figure 69: Space G-02 photograph key plan; 1-2-3:general view of the Space; 4: Tin sheet on the wall;5: timber cupboard detail.

### 3| Space G-03 [Distillation Pools]

The space was used as soap boiler room until the polimas were added to the factory by Ertem Family. And until the end of operation, this space was used as distillation area. The Space G-03 has rectangular shape with 8.7x7.58m in plan dimensions and 3.68m in height from the ground level until the ceiling board. It is reached from the

Space G-01 through an opening that is located on the north-eastern wall of the space (See Figure 70, image1-2).

The flooring is screed that contains six big holes with the dimension of 79x48cm and three small holes with the dimension of 25x50cm named 'sedimentation ponds' for discharging the waste water of olive oil at the distillation process. On the ground, there are also 25 cm deep channels that connect with the ones located in the Space of G-01 (See Figure 72, image 6).

There are nineteen concrete distillation pools named 'polima' (See Figure 72, image 3-5)which varies in terms of size and depth. There are also three pipes (See Figure 72, image 7-8) coming from the Space G-01 which are circulated surrounding of the pools. In the active period, the liquid consisted of oil, water and waste water that extracted from the presses were transferred to the polimas through these pipes. While the olive-oil is rising up due to dense difference, the other waste parts were sent to the sedimentation ponds (See Figure 72, image 6) through the channels.

The ceiling cover is timber board that is merged with the one in 18cm and 24cm adjacent to each other (See Figure 71). In the middle of the space, there is a concrete column that is ornamented at the top of it. Approximately at the 1.5 m high from the ground level, there is an electric box 45x50 cm in size that is located on the column (See Figure 72, image 4).

The south-west wall of the space is brick masonry wall that is covered with cement plaster and is lime washed. Brick part of the wall can be seen from the discharges of the plasters. This wall contains a timber window in the type of W03that serves for the Spaces G-02 and G-03 (See Figure 72, image 3).

The south-east wall of the space is stone masonry wall with cement plaster and lime wash. It contains three timber windows in the types of W03 and W04.The north-east wall of the space is also stone masonry wall with cement plaster and is lime washed. It contains two timber windows in the type of W05 (See Figure 70, image1-2).

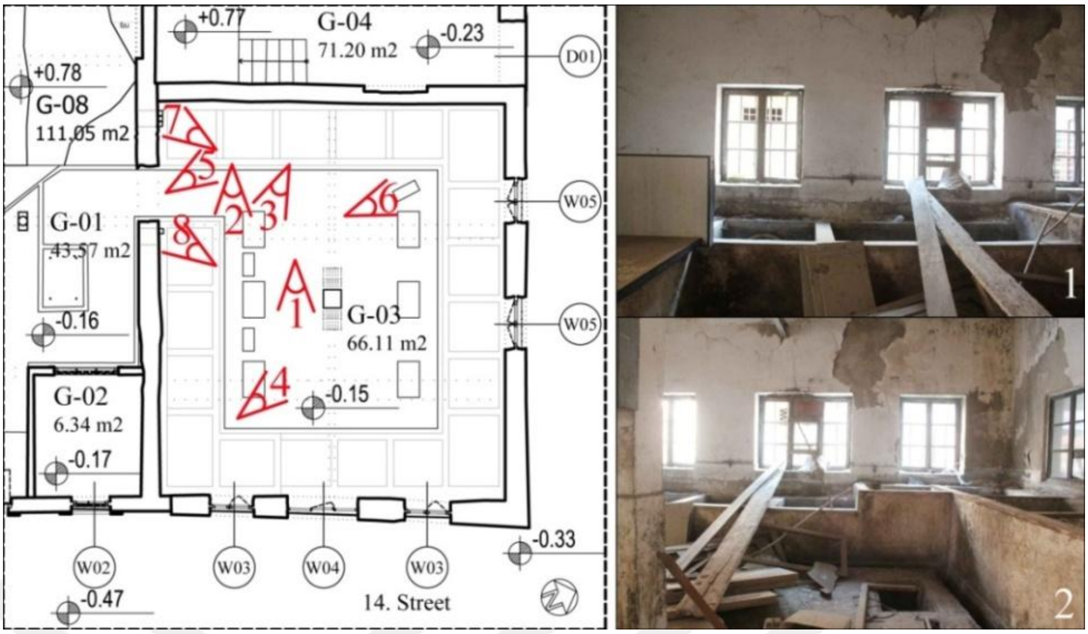



Figure 70: Space G-03, Photograph key plan; 1-2:south-eastern part of the space, polimas and the windows in types of W03 and W04, sedimentation ponds that are located on the ground are also seen in the image 2

Figure 71: Space G-03, ceiling detail


Figure 72: Space G-03, photos- 3:south-west wall of the space, the window which serves also for the Space G-02; 4:the column in the space and the ceiling detail; 5:polima (distillation pools); 6:one of the sedimentation ponds and the channels; 7-8:the pipes.

### 4| Space G-04 [pirina]

This space was used as soap drying unit and pirina re-cycling unit when the factory was working as mentioned in the process explanation. It is the space where the arch shaped windows (W06) (See Figure 73, image 1) are located as a unique type.

The space is rectangular shaped with 9.48x7.54m in plan dimensions and 4.6m in height from the ground level of earth part until the bottom borders of the ceiling board. It is reached from the Space G-08 through an opening on the south-west wall of the Space G-04. There is an iron door (D01) from the 15th Street that also provides the entrance to the space from outside. The floor is distinguished by a concrete part of it in height of 1.2m. There are also concrete stairs that comprise of six steps for reaching the earth part of the floor. It is because of the arrangement of G-08 in the third phase that is rise floor from the ground approximately 94 cm due to the introduction of super-steel press for the production process (See Figure 73, image 3).

The ceiling is spanned with primary and secondary timber beams that are finely shaped. In the space, there are two timber columns approximately 2.5m away from each of them (See Figure 73, image 6).

The south-west wall of the space is brick masonry wall with cement plaster and is lime washed where the entrance is provided through an opening from the space G-08. At the west corner of the space, there are two water tanks (See Figure 73, image 3) adjacent to each other which rise to the first floor where the soap production was held in.

The south-east wall of the space is stone masonry wall that is lime washed. On this wall, there is a niche in the size of 137x90cm which is 1m in height from the ground level. At the top of the niche, there is a timber lintel.

The north-east wall of this space is also stone masonry wall that is lime washed. It contains three timber arch shaped windows (W06)which are the unique types not only for the factory, but also for the region (See Figure 73, image 1-5).There is an iron door (D01) that serves to 15th Street (See Figure 73, image 2).

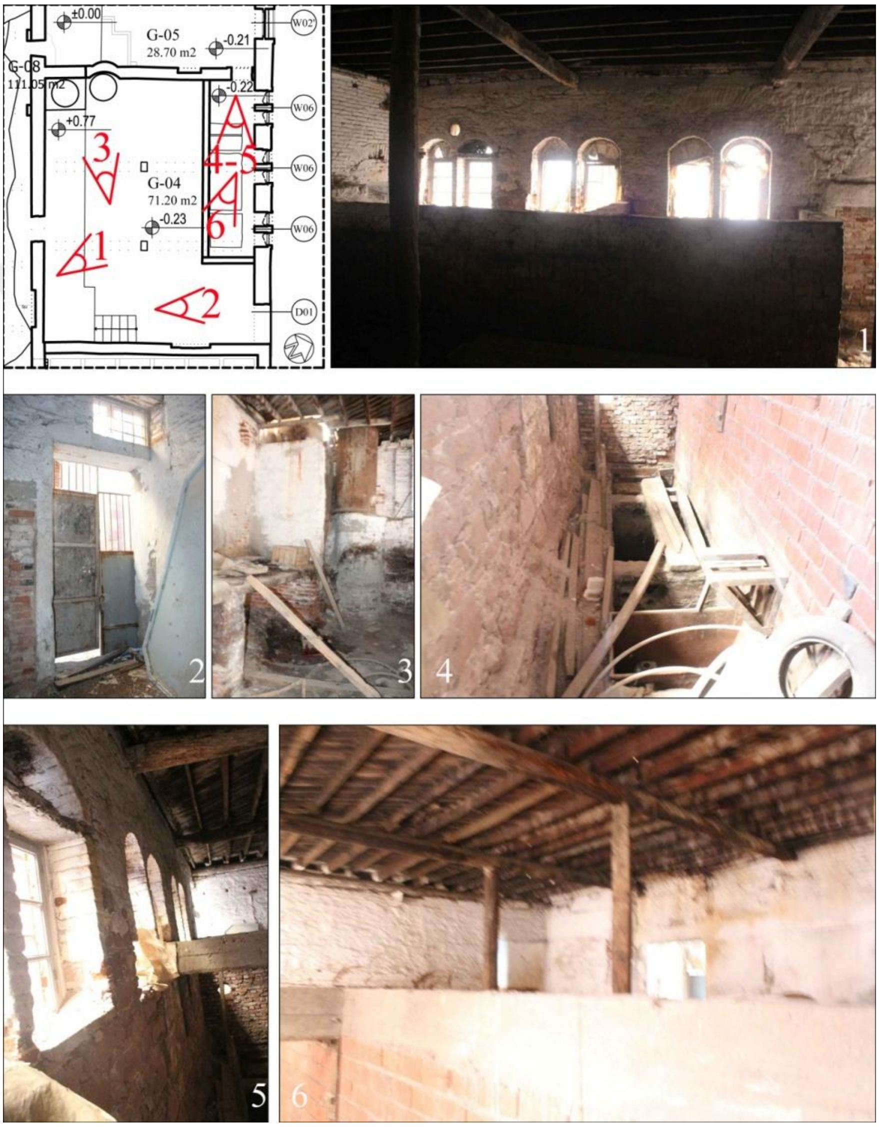



Figure 73: Space G-04, photographs key plan; 1:the view of arch shape windows; 2:iron door located at the 15th Street; 3: two water tanks; 4: the holes on the ground for green soap; 5: arch shape windows and additional part for pirina; 6: ceiling detail and the columns in the space.

There is an altered part on the wall that covered with brick near this door. 1.65m away from the north-east wall, there is a hollow brick wall that does not look aged (See Figure 73, image 1-6). This additional wall is 2.05m in height. It creates a space inside of G-04 from the northern side of the altered part of the north-east wall that is reached from the Space G-05 through an opening. In this part, there are three holes on the ground (See Figure 73, image 4). This division was added for putting the pirina for sending other factories in order to produce green soap. The north-west wall of this space is stone masonry wall that is lime washed. At this wall, there is an arch trace at the top of the opening for reaching to the Space G-05 (See Figure 73, image 1).

**5| Space G-05 [Storage]**

G-05 was the space to store the pirina for the use as fuel in the steam boiler. The space was like a storage area for transferring it to the boiler room. In addition to this, there was a water pump for activation of the grinder which has existed today with only its base with 1x0.88m in size (See Figure 74, image 5).

The Space G-05 has rectangular shape with 7.5x3.8m in plan dimensions and 3.75m in height from the ground level until the bottom of ceiling covering. It is reached from G-06 through a timber door (See Figure 74, image 3) and through an opening in 57cm in width from the Space G-08 (See Figure 74, image 1). The flooring is from rammed earth but it is distinguished 25cm in height by screed from the ground at the south-western side of the Space G-05. This differentiation was done most probably due to the requirement of the water pump setting (See Figure 74, image 5).

The ceiling cover is 21cm timber boards adjacent to each other that are parallel to the north-east/south-west wall of the space. Under the timber board, there are two timber beams which are located 2.4m away from each other. Under these two beams, a lighting element is seen (See Figure 74, image 6).


Figure 74: Space G-05, photograph key plan; 1:door for reaching the Space G-04 and a niche; 2:The boiler that seen partially and the opening that provides the entrance from the Space G-08; 3:The timber door (D06) and a hung sash window W02'); 4:The hung sash window (W02'); 5:Concrete differentiation on the ground for the water pump and its channel; 6:Ceiling detail.

The south-west wall of the space is brick masonry wall with cement plaster and is lime washed that contains two openings. The one is located at the west corner of the wall that is 41cm in width which continues to the first floor of the factory. The other one is located at the south corner of the wall that is 57cm in width which was done in order to reach to the Space G-05 from the G-08 (See Figure 74, image 2).

The south-east wall of the space is stone masonry wall with cement plaster and it is lime washed. 1.7m away from the east corner of the space, there is a boiler that can be seen partially which is located in the Space G-04 (See Figure 74, image 2). At the south corner of it, there is an opening which is 74cm in width for the entrance to the Space G-04 where the green soap raw materials were kept. 1.1m away from this opening, there is a niche in a half circle form (See Figure 74, image 1).

The north-east wall of the space is also stone masonry wall with cement plaster and is lime washed. There is a hung sash timber window in type of W02'in the middle of this wall (See Figure 74, image 4).

The north-west wall of the space is stone masonry wall with cement plaster and is lime washed. There is a timber door in type of D06 with the arch shape on the top of itwhich provides the entrance to this place from the Space G-06. There is also a hung sash timber window in type of W02'that is located 48 cm away from the west corner of this wall (See Figure 74, image 3).

**6| Space G-06 [Boiler Room]**

G-06 was the place where the steam boiler and engine were located. It was the heart of the factory when the factory was working with steam power. It measures 7.85x7.8m in plan dimensions with an extra space for the boiler equipment at the west corner of the north-west wall. The height of the space is 3.78m from the ground level until bottom of the upper floor covering. It is reached through an iron door in type of D02 from 15. Street (See Figure 75, image 1), through another iron door in type of D04 from the courtyard (See Figure 76, image 9) and also through a timber door in type of D06from the Space G-05 (See Figure 76, image 8).

The flooring of the space is from rammed earth. The ceiling is spanned with primary and secondary timber beams which are finely shaped. Between these beams, the timber floor covering for the soap process named 'sabun tavlası' is seen. Under these primary beams, there are two secondary beams that are located on two timber columns inside of the space (See Figure 76, image 4-11).

In the space, there are two secondary spaces 2.05m in height which were made from hollow brick walls with cement plaster and were painted into white (See Figure 75, image 2). The one that is located at the north corner of the north-east wall which is 1.75x3.2m in plan dimensions (See Figure 75, image 4). It contains a timber door in type of D07 for reaching to this place. The other one is located at 1.8m away from the east corner of the north-east wall that is 1.04x1.02m in plan dimensions (See Figure 75, image 5). This space contains an opening, but its door is not existing today. These secondary spaces were done in the third phase of the factory in order to provide the toilet for the workers.

The south-west wall of the space is stone masonry that is lime washed. There is also brick part of the wall that is lime washed which is 1.5m in height, 13cm in width adjacent to the stone masonry wall. The south-west wall of the space contains an iron door in type of D04 that provides the entrance to the courtyard. Other than this iron door, there are two timber windows in type of W08.

The south-east wall of the space is also stone masonry which is lime washed. It contains a timber door in type of D06 that provides the passing from the Space G-05, and a hung sash timber window in type of W02' that is located 1.85m away from this door (See Figure 76, image 7-8).

The north-east wall of the space is stone masonry wall and it is lime washed. It contains an iron door in type of D02 that provides the passing between 15. Street and the Space G-06. It also has a window opening where only timber jambs of it has existed today.

The north-west wall of the space is brick masonry. There is a boiler located at the west corner of the wall that is penetrated approximately 2.9m to the Space G-07 (See

Figure 76, image 6-10). This boiler was connected to steam boiler in order to work together with the chimney, when the factory was active with steam power.

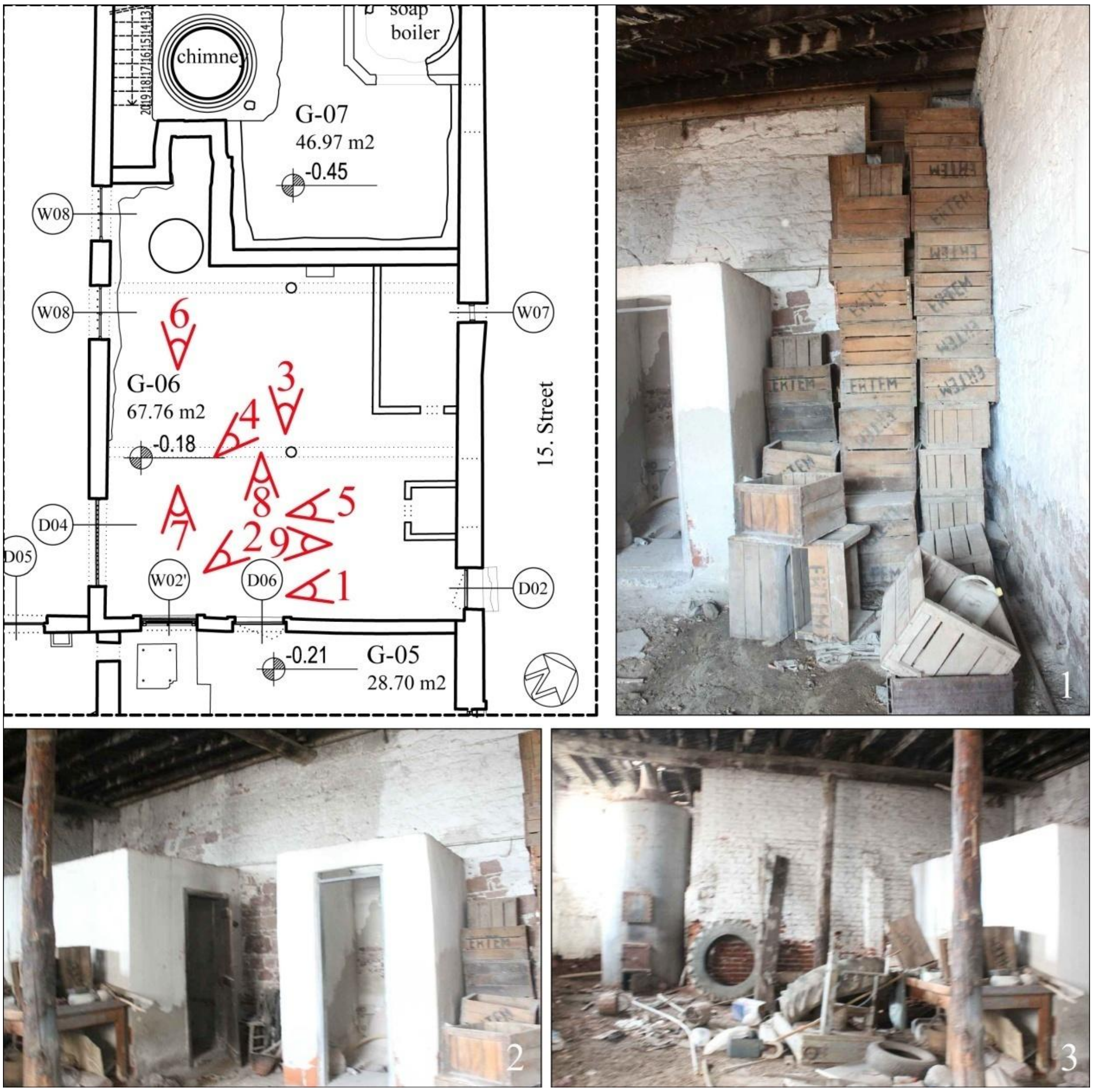



Figure 75: Space G-06; photograph key plan- 1:Interior view of the north-east wall where the iron door is located; 2:Secondary spaces in the space G-06; 3:North-western side of the space where the boiler is located.


Figure 76: Space G-06, photos- 4:North corner of the space; 5:The view of the secondary place in G-06; 6:Boiler that connected to the chimney; 7-8:The window (W02') and the opening that is located at the south-east wall of the space; 9:The iron door (D04) that provides the entrance from the courtyard; 10-11:Ceiling details

### 7| Space G-07 [Boiler Room-2]

The Space G-07 was the place where the chimney and soap boiler are located. This place was used as preparation of the soap production process when the factory was active. The base of the soap boiler is still existing today (See Figure 78, image 2), while the boiler was sold to an antique shop in Ayvalık.

The space is measured 7.78x6.9m in plan dimensions and 4.29m in height from the ground floor level until bottom of the upper space's floor covering (1-02) where the soap process was held. Passing to this space is provided through a double-wing iron door in type of D03 from the courtyard (See Figure 78, image 5). There are twenty stepped concrete stairs leading up to the Space 1-02 [soap production unit] which was added in the second phase (See Figure 78, image 1). The flooring of the space is from rammed earth.

The ceiling is spanned with primary and secondary timber beams which are finely shaped. There are two holes in the same dimension at the ceiling: the one is for the rising chimney and the other one is for the soap boiler that rises to the first floor which is not existing today (See Figure 77). The brick chimney is rising approximately 19m from the ground level of the Space G-07 until the top of the chimney. It has a base that was made out of stone in dimensions of 2.9x3.2m and 75cm in height (See Figure 78, image 3-4-6).

Figure 77:Space G-07- left: the hole of the soap boiler; right: view of the spanning elements

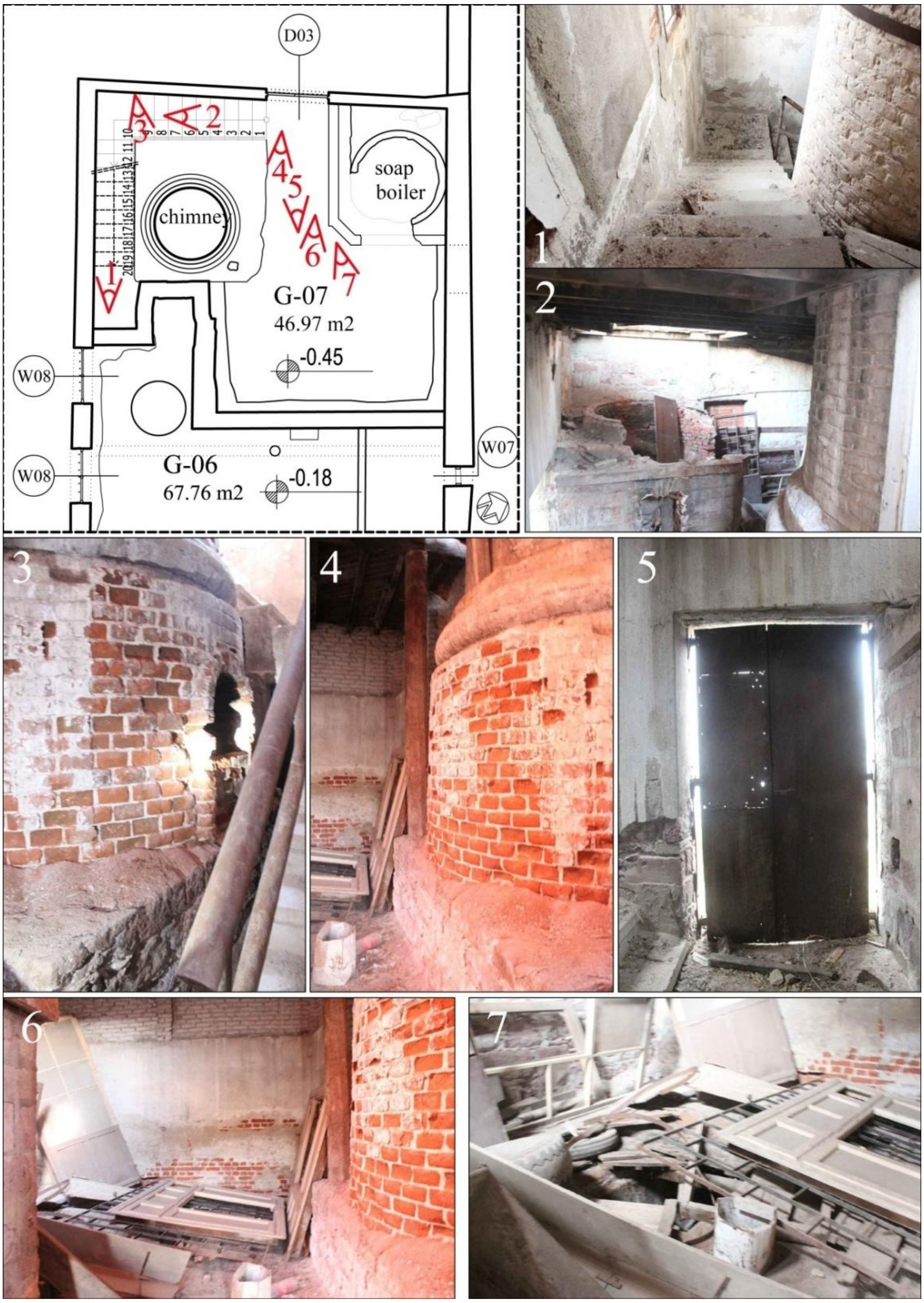



Figure 78: Space G-07; photograph key plan, 1:The concrete stairs; 2:Soap boiler and its base; 3-4:Chimney; 5:Double-wing iron door; 6:The view of the south-east wall of the space; 7:The view of the flooring.

The south-west wall of the space is stone masonry wall with cement plaster and is lime washed. The part of L shaped concrete stairs with its iron railings is located at that wall. In front of this wall, brick chimney is rising adjacent to this stairs (See Figure 78, image 1).

The south-east wall of the space is brick masonry with cement plaster and is lime washed which was added to the space in the second phase of the factory when the soap boiler was moved to this space from the Space G-03 (see Figure 78, image 6).

The north-east wall of the space is stone masonry wall which is partially lime washed. At the south corner of this wall, there is the base of the soap boiler that includes the furnace of it. Near of it, it is seen that there is a window opening which is closed with hollow brick (See Figure 78, image 2).

The north-west wall of the space is also stone masonry wall with cement plaster and is lime washed. The other part of the L shaped concrete stairs with its iron railings is located at the west corner of this wall. Near the first step of the stairs, there is a double-wing iron door in type of D03 is located (See Figure 78, image 5).

**8| Space G-08 [Olive-oil Production unit)**

G-08 was the space where the olive-oil process was generated mainly. It has rectangular shape that is measured 7.1x16.3m in plan dimensions and 2.8m in height from the ground level until bottom of the upper space's ceiling cover(1-01). Reaching to the space is provided by concrete stairs that comprise of four steps from the Space G-01. The ground of the space is raised by hollow brick with screed on it that is approximately 1m higher than the ground of G-01. This raised floor was constructed in 1986 by Ertem Family due to the change of production process system (See Figure 79, image 1-2-3).

There is also another entrance from the courtyard that is located on the north-west wall of the space through an iron door in type of D05 (See Figure 80, image 12). In this part of the place, there is level difference between the door and the raised part.

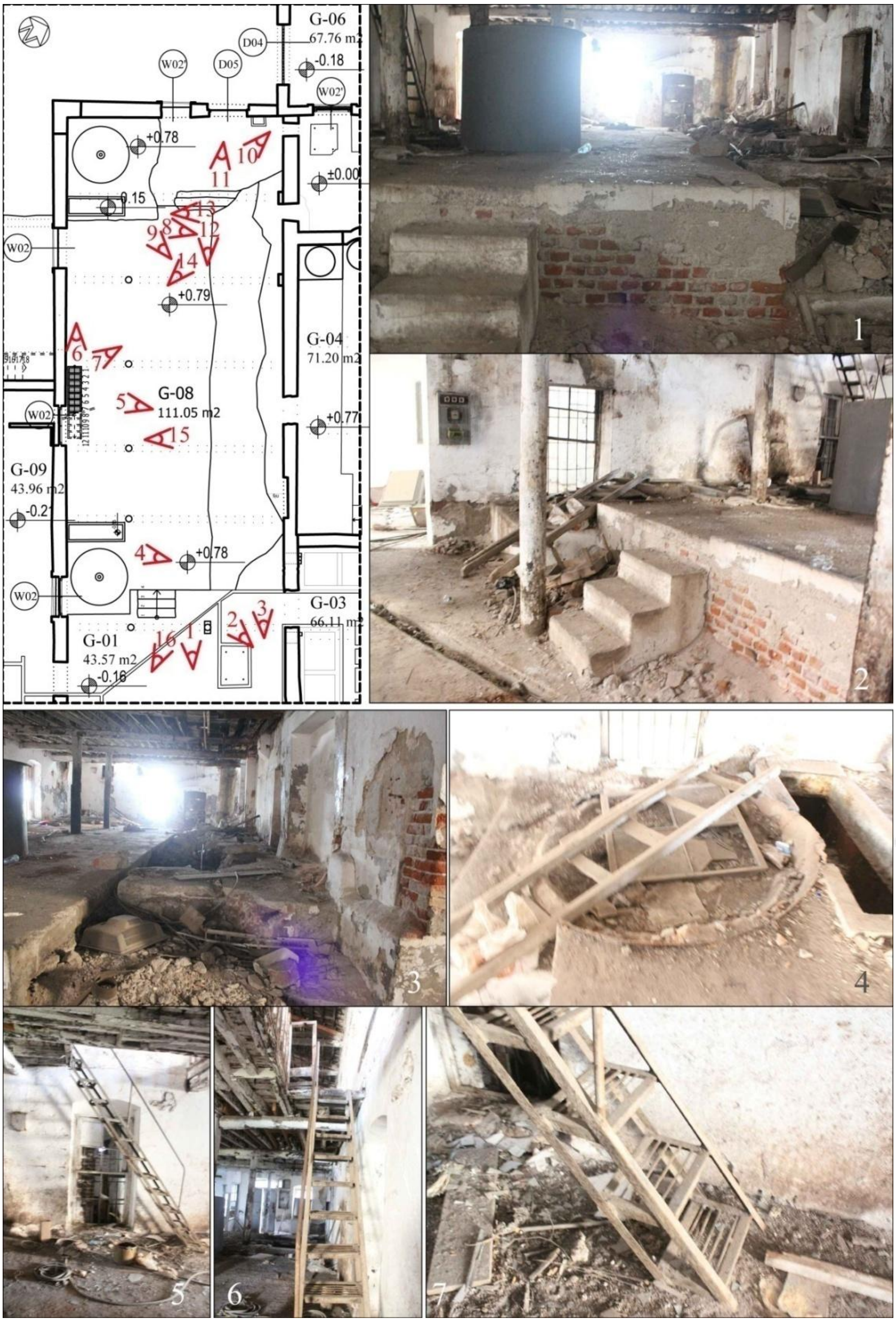



Figure 79: Space G-08; photograph key plan; 1-2-3:Raised platform; 4:Traces of the grinder 1; 5-6-7:Iron stairs.

Figure 80: Space G-08; photos-8-9:Traces of the grinder 2; 10-11-12:North-west part of the space; 13-14:Opening on the north-east wall and its ceiling; 15-16:The collapse part of the ground where the presses were located.

There is a trace of another concrete stairs that is closed with the ruins (See Figure 80, image 10-11).The ceiling is spanned with primary and secondary timber beams finely shaped which are the common elements with the Space G-01 (See Figure 80, image 12-14).

The north-east part of the raised floor is collapsed which is filled with ruins of it today. This part of the G-08 was the place where the presses were located. Therefore, this collapse part shows that all presses were moved from the factory with their bases. The channels which provides the transportation of the liquid that extracted from the presses, are also seen on the border of the collapsed part (See Figure 79, image 3; Figure 80, image 15).

At the west and south corners of the space, there are remains of two grinders which are existing with bases of them today. In front of the grinders, there are 105cm in depth rectangular shaped containers which were used for collecting the extra virgin olive-oil that was extracted from grinder stage (See Figure 79, image 4; Figure 80, image 8-9). At the top of the grinders, the gaps on the upper space's flooring are seen where timber cubic channels were located for sending the olives from the first floor to the grinders (See Figure 80, image 14).

There are also four timber columns inside of this space which are approximately 2.5m away from each other. This space is the only space that provides the access to the first floor spaces (1-01/1-02) through an iron stairs with its iron railings which is located in the middle of the grinders. This stairs are comprised of twelve steps which are approximately 45x25 cm in plan dimension and approximately 26cm in height (See Figure 79, image 5-6-7).

The south-west wall of the space is brick masonry wall with cement plaster and is lime washed. It contains three hung sash timber windows in type of W02, one of them is existing only with its iron grills today. Windows are partially closed due to the raised floor.

The north-west wall of the space is stone masonry wall with cement plaster and is lime washed. It contains an iron door in type of D05 for reaching from the courtyard and a timber window in type of W02'that has also survived with only iron grills today. The right part of the iron door (D05) was the place for transportation of the olives to the first floor by the crane which was done by Ertem Family in the second phase of the factory (See Figure 80, image 12).

The north-east wall of the space is brick masonry wall with cement plaster and is lime washed. It contains two openings which are opened to the Spaces G-04 and G-05. The opening that provides the entrance to the G-04, is 89cm in width. Approximately 175cm away from this opening, there is a niche in 133cm in width and 212cm in height. The opening that provides the entrance to the G-05, is 57cm in width that was done in the third phase of the factory (See Figure 80, image 15). And at the north corner of the space, there is another 44cm wide opening continued to the first floor, which was constituted in the third phase of the factory due to equipment requirement (See Figure 80, image 13).

**9| Space G-09 [Annex]**

G-09 was the space which was added to the factory complex in the third phase. It was used for keeping the olive-oil in the barrels that were named 'lanca'. It has rectangular shape that is measured 3.6x12.5m in plan dimensions and 3.2m in height from the ground level until bottom of the ceiling covering. It is reached to this space through an opening from the Space G-01 (See Figure 81, image 2). The flooring is screed that contains channels (See Figure 82, image 5). They are connected to the others which are located at the Space G-01 and G-03. The ceiling is 18cm timber boards adjacent to each other which are parallel to the north-west and south-east walls of the space.

The north-east wall of the space which is a common wall with 'Yağhane Block', is stone masonry wall that is lime washed. It contains an opening that provides the entrance to the G-01 and two hung sash timber windows in type of W02 which are located at the each side of this opening (See Figure 81, image 1). Cement plaster and lime wash are the finishing materials on the south-east wall which is the part of

'Annex Block' that is a concrete structure.  It contains a timber window in type of W01 in the middle of this wall (See Figure 81, image 3-4).

The south-west wall of the space is additional wall which was constructed with concrete skeleton system and infilled with stone pieces. Lime wash is the finishing material for this wall. It contains three timber windows in types of W10 and W11which are located 1.7m and 2.5m away from each of them. The north-west wall of the space is factory brick wall that is lime washed. It contains an opening of 90cm in width that is located 1m away from the west corner of the north-west wall for passing to the space G-10 which is a secondary space in the space G-09 (See Figure 82, image 6-7).


Figure 81: Space G-09 and G-10, photograph key plan; 1:The old and new part joint, and the concrete beam; 2:The opening that located on the north-east wall of the Space G-09 which provides the entrance from the Space G-01 to G-09; 3:South-west wall of the 'Annex Block' and the concrete beam; 4:The window view (W11)

### 10| Space G-10 [Annex- storage]

G-10 is the space which was used for storage purpose inside the Space G-09. It has rectangular shape that is measured 3.3x1.1m in plan dimensions and 3.2m in height. It is reached from the space of G-09 by an opening that is located at the south-east wall of the Space G-10. The flooring is screed. The ceiling is 18cm timber board adjacent to each other that is parallel to the north-west and south-east wall of the space.


Figure 82: Space G-09 and G-10, photos-5:The channels that are located on the ground of the spaces; 6:The view of the window (W01); 7:The opening which provides the entrance to the Space G-10; 8:The view of window (W02) that closed partially through the south-east wall of the Space G-10; 9:The view of window (W09)

The north-east wall of the space is stone masonry wall that is lime washed which contains a timber window with iron grills in type of W02.This window is partially seen because of the south-east wall of the space that is additional wall that made out of factory brick with cement plaster and is lime washed. It contains an opening for reaching from the space G-09. The south-west wall of the space is stone wall that is lime washed asinfilled material of the concrete skeleton system. It contains a timber window in type of W09 which is 40x40 cm in size. Cement plaster and lime wash are the finishing materials for the north-west wall of the space (See Figure 82, image 7-8-9).

#### 3.3.2.2. First Floor

First floor of the factory (See Figure 60,Figure 62,Figure 64,Figure 65,Figure 66) is consisted of 'Yağhane' and 'Sabunhane' Blocks which work together through an entrance to each other, and the 'Annex Block' that arranged independently. They are all rectangular plan type. While 'Yağhane Block' and 'Sabunhane Block' were arranged as single-large spaces for the production units [Space 1-01,1-02], 'Annex Block' was arranged with four different spaces [1-03,1-04,1-05,1-0] for the resting place of the workers. Space codes were given to each space in counter clockwise direction.

**1| Space 1-01 [Olive-Oil Preparation]**

Space 1-01 is the place that was used for indoor storage purpose and preparation for the olive-oil production process. It is located above the olive-oil productionunit (G-08) as a part of the 'Yağhane Block'. It is accessed through twelve stepped iron staircase from the Space G-08 where the main olive-oil process was generated (See Figure 84, image 6). The Space 1-01 has rectangular shape that is measured 7x22.7m in plan dimensions and 3.8m in height from the ground level until bottom of the truss, 5.5m in height from the ground level until bottom of the ridge.

Flooring of this space is covered by using 2 cm thick, 30 cm wide timber boards that are placed on the timber girder in a perpendicular manner (See Figure 83,Figure 84). In the space, it is possible to see the roof structure of the block. There are eight timber trusses (See Figure 83,Figure 84) which are the structure of the roof that is covered with over-under tiles. In addition to this, between second and third trusses at the north-west side of the space, there is a timber machine which is hanged to these trusses. It was the mechanism (See Figure 83, image 2; Figure 84, image 4-5) which worked with the belts for transportation of the sacks of olives. The bottom point of this machine is 3.6m in height from the floor level.

The south-east wall of the space is brick masonry wall and is lime washed which consists of two windows in type of W12 that are approximately 1.24m x 2m in size (See Figure 83, image 2). The north-east wall of the space is also brick masonry wall and is lime washed. In front of the northern part of this wall, there are some traces of equipment which were the parts of wheels 'pomparya'. In this part, on the floor, there are some holes finely shaped around these remains of the equipments. At the end of this remains, there is 76 cm wide opening on this wall in order to reach the space 1-02 (See Figure 84, image 4).

The south-west wall of the space is brick masonry wall and is lime washed which consists of five windows in type of W12 that are approximately 1.24m x 2m in size and two closed windows by hollow bricks. The closed one that is located at the south corner of the wall is such because of the 'Annex Block', while the other one is due to the requirements of the equipment. In front of this wall, at the south and west part of the space where the grinders were located below, there are rectangular gaps on the floor that are framed by timber boards which were the places of timber cubic channels that were used for sending the olives from here to the grinders (See Figure 84, image 7-8-9).

The north-west wall of the space is brick masonry wall and is lime washed which consists of three windows in type of W12 that are approximately 1.24m x 2m in size. There are four arch shaped traces on this wall next to the each window. In front of this wall, at the west and north corners of the space, there are rectangular holes on the floor approximately 2m x 0.8m in plan dimensions which were used for transportation of the incoming olives from the courtyard to the Space 1-01 by crane. These gaps were constituted by Ertem Family in the second phase of the factory by removing a grinder that was located at the north corner of the Space G-08 for creating a place inside in order to transfer the olives easier than before through these gaps. And here, there is a timber railing in order to provide the security (See Figure 83, image 1). There is another timber railing that confines the twelve stepped iron stairs which are located adjacent to the middle of the south-west wall in this space.


Figure 83: Space 1-01, photograph key plan; 1:The view of the north-west part of the space where can be seen timber railing, windows arrangements, partial equipment remains; 2:The view of the south-east part of the space that can be seen the timber mechanism


Figure 84: Space 1-01, photos; 3:The view of the west corner of the space; 4:North-east wall of the space; 5:The remains of the equipments (pomparya); 6:The location of the twelve stepped iron stairs and timber railing that surrounds it; 7:76 cm wide opening that located on the north-east wall of the space which provides the entrance to the 1-02; 8:The gap on the floor that is the trace of timber cubic channel; 9:The gap framed with timber boards that is the part of timber cubic channel which is located at the west corner of the space; 10:North corner of the space where the olives were transferred to the Space 1-01 from the Space G-08 by crane.

**2| Space 1-02 [Soap Production Unit]**

The Space 1-02 (See Figure 85,Figure 86) is the place where soap production process was generated. It is the first floor of the 'Sabunhane Block' which was added (only upper floor was added) to the factory in the second phase of the factory when Ertem Family re-arranged the spaces. Entrance to this space is provided through an opening from the Space 1-01 (See Figure 86, image 8) and through twenty stepped concrete stairs that leads up to the Space G-07 [boiler room] where the soap boiler's furnace and chimney were located (See Figure 86, image 11-12).

The Space 1-02 is rectangular shaped that is measured approximately 38m x 7.60m in plan dimensions and 3.2m in height from the flooring level until bottom of the truss and 4.65m in height from the flooring level until bottom of the ridge. Flooring of the space is the tool where the soap was poured and kept waited to dry. Therefore, it is a kind of tool rather than a kind of flooring that named 'sabun tavlası'. It is covered by using 2 cm thick, 12 cm wide timber boards that placed on the timber girder in a 45 degree angle diagonal manner. This arrangement of the floor provided the great convenience for cutting the soap without sticking around. And the whole space is divided into two parts in north-west/south-east direction through 6 cm high and 5cm wide, rectangular sectioned timber laths. These two parts are consisted of approximately 100 cm wide three grids where the soap was poured in. At the middle of these parts, there is 53 cm wide area as a corridor that was used for the workers for cutting and stamping. On this part, at the south-east side of the space there are six rectangular sectioned timber columns that support the timber trusses (See Figure 85,Figure 86).

At the north corner of the space, there is a circular shaped empty gap where the soap boiler was located (See Figure 86, image 9). In front of it, there is a timber soap chamber (See Figure 86, image 10) in size of 2.5 m x 1.2 m x (h)0.89 m which was used for transferring the boiled liquid in order to pour it into the grids named 'sabun tavlası' by ladles.

After pouring the soap into the grids, all windows were opened for making it dry. The north-west wall of space is brick masonry wall and is lime washed which consists of four windows in type of W14 (See Figure 86, image 4). Near this wall, at the west corner of the space, twenty stepped L shaped concrete stairs that are leading to the Space G-07 [boiler room 2], are located.

East side of the 86 cm wide concrete staircase, there is chimney which is made out of brick. At the south-east part of the chimney where its part is seen in the Space 1-02, there is a stove pipe which is connected to the boiler that is located in the Space G-06 (See Figure 86, image 11-12).

The south-west wall of the space is also brick masonry wall and is lime washed which is the common wall with the Space 1-01 [olive-oil production unit] where the connection between them is provided through an opening. It consists of six windows in type of W15 and three closed openings by factory bricks. At the west part of the opening, there are two water tanks that are raised from the Space G-04 [pirina] which were used for the hot water and cold water that was obtained from the sea. One of them is rising until the bottom of the trusses which was used for hot water that comes from the boiler, while the other one is rising just 40 cm above the first floor level which was used for cold water that was obtained directly from the sea (See Figure 86, image 6).

The south-east wall of the space is brick masonry wall and is lime washed which consists of four windows in type of W12'. At the south corner of the space, there is a secondary place that is constituted by 18cm wide wainscot division walls in 2.5m x2.95 m plan dimensions and 2.3m in height. It is just bordered by these wainscot division walls rather than a closed space. The entrance to this secondary area is provided through 90cm wide opening that is located at the west corner. This place was used for stacking the tools for cutting and stamping. The flooring of this secondary area is the same as 'sabun tavlası'. The laths that divide the place in grids continue to here too (See Figure 86, image 7-8).

The north-east wall of the space is also brick masonry wall and is lime washed which consists of fourteen windows in types of W12', W13 and W14 and three closed openings by factory bricks. This space has lots of windows due to requirement of soap process (See Figure 85, image 3).

Figure 85: Space 1-02, photograph key plan, 1:North-west side of the space where the chimney and soap boiler were located; 2:The south-east side of the space; 3:North-east wall of the space the window types are changing due to increasing the surface area of the windows in order to make them dry easier than before.


Figure 86: Space 1-02, photos- 4:Windows of the space; 5-6:The views of the water tanks coming from the Space G-04; 7-8:Secondary space located at the south corner and opening from the Space 1-01; 9:Circular gap on the flooring where the soap boiler was located; 10:Timber soap chamber; 11-12:The chimney that is made out of brick and stove pipe that is connected to the boiler.

In addition to those, there are fifteen timber trusses (See Figure 85, image 1; Figure 86, image 5) that covered up the Space 1-02 which are the structure of the roof of 'Sabunhane Block'. The roof of the block is covered with french tiles. The timber roof board is seen between these timber trusses inside of the Space 1-02. At the south-east part of the space, there is partially demolished and sagging timber ceiling covering that is nailed to the first truss. And it is observed that all trusses in this space have nails which show the continuation of this destroyed and sagged timber ceiling covering.

**3| Space 1-03 [Resting]**

It is the space which is located in the 'Annex Block' as a third phase addition. The entrance to this place is provided through a timber door in type of D07 that reached through eighteen stepped concrete stairs located in the courtyard in front of the block. This staircase is the only way to reach this place. There is no connection between the processing units (Yağhane and Sabunhane Blocks).

Space has rectangular shape that is measured 1m x10m in plan dimensions and 2.3m in height. This space was used as a corridor (See Figure 87, image 1-2) in order to reach the resting places of 1-04, 1-05 and 1-06. At the south-east part of the space, there is the entrance of the Space 1-06 which is a timber door in type of D07. The north-east wall of the space is the common wall with the Space 1-01. This wall is brick masonry wall and is lime washed that consists of three windows in type of W12. The south-west wall of the space is plastered and painted briquette wall that is consisted of two timber doors in type of D07 which provide the entrances to the spaces of 1-04 and 1-05.

The flooring of the space is covered by screed. The ceiling of the space is tin sheets as finishing material. Two concrete girders are also seen under the ceiling covering.


Figure 87: Space 1-03, 1-04, 1-05 and 1-06 which are the spaces of Annex Block', views of these space from different angles.

**4| Space 1-04 [Resting]**

It is the space (See Figure 87, image 3-4) that was used as one of the resting places for the workers. It has rectangular shape that is measured 4.8mx2.85m in plan dimensions and 2.3m in height. The entrance to this space is provided through a timber door in type of D07 located on the north-east briquette wall of the space which is plastered and painted into white. The flooring is covered by screed as the Space 1-03.

The ceiling of the space is covered by tin sheet as finishing material. But the timber roof structure which is one way slope, is seen from the gaps on the ceiling covering. The south-west wall of the space is briquette wall that is plastered and painted into white which is consisted of a window in type of W16. The north-west and south-east walls of the space are completely blind briquette walls that are plastered and painted into white.

**5| Space 1-05 [Resting]**

It is the space (See Figure 87) that was also used as one of the resting places for the workers. It has rectangular shape that measured 5.1m x2.85m in plan dimensions and 2.3m in height. The entrance to this space is provided through a timber door in type of D07 that is located on the north-east briquette wall of the space which is plastered and painted into white. The flooring is covered by screed as the Space 1-03. The ceiling of the space is covered by tin sheet as finishing material. But the timber roof structure which is one way slope, is seen from the gaps on the ceiling covering. The south-west wall of the space is briquette wall that is plastered and painted into white which is consisted of a window in type of W16. The north-west and south-east walls of the space are completely blind briquette walls that are plastered and painted into white.

**6| Space 1-06 [Resting]**

It is the space (Figure 87, image 5-6-7) that was used as one of the resting places for the workers. It has rectangular shape that is measured 3.6mx4.25m in plan dimensions and 2.3m in height. The entrance to this space is provided through a timber door in type of D07 that is located on the north corner of the north-west briquette wall of the space which is plastered and painted into white. The flooring of the space is covered by screed as the others in 'Annex Block'. The ceiling of the space is covered by tin sheet as finishing material. But the timber roof structure is also seen from the gaps on the ceiling covering. The south-west briquette wall of the space is also plastered and painted into white that consists of a window in type of W16. The north-east wall of the space is the common wall with the Space of 1-01 that is brick masonry wall and is lime washed which is consisted of closed window in type of W12. It is still possible to see the traces of the window including iron grills. The south-east wall of the space is plastered and painted briquette wall that is completely blind wall.

### 3.3.3. External Characteristics of the Factory: Façades

In this part of the thesis, the external characteristics of the factory which are consisted of three blocks as explained before in the general layout of the factory. It has four façades of which are south-eastern, north-eastern, south-western and north-western façades. While west façade is directed to the sea, the south façade defines the courtyard. Moreover, East Façade is the entrance façade and North Façade is the most elaborated one.

#### 3.3.3.1. South-Eastern Façade

The south-eastern façade (See Figure 88) is the entrance façade of the building where the main access is provided from 14. Street. It is composed of three blocks adjacent to each other which are all two-storey high. And there is a gate for entrance to the courtyard. This façade is surrounded by 15th Street at the east side; 14th Street and the district governorship building at the south side of it.

The south-eastern façade of 'Sabunhane Block' in which the soap processing was generated, was altered as two storey high block due to the re-arrangement of the spaces in the second phase. It is 8.15m in length and 7.5m in height from the ground level until the starting of roof level.

The roof of this block is gable roof with four surfaces that is covered with french tiles. On the ground floor, there are three timber windows in two different types that are W03 and W04 which serve to the distillation space (G-03 Space). The window in type of W04 is different in terms of width due to converting into window from the door while Ertem Family added the polimas into the Space G-03. This alteration is the reflection of the re-arrangement of the spaces to the façade.

On the first floor, there are four timber windows in the same type (W12') which serve to the soap production area (1-02 Space). From the east corner of east façade of the 'Sabunhane Block', it can be seen partially from the discharge of the plaster that the ground floor level is constructed in the stone masonry technique. The rest of the facade is covered by lime plaster that is painted into green as a finishing material.

The south-eastern façade of 'Yağhane Block' in which the olive-oil process was generated, is 8.1m in length and 7.9m in height from the ground floor level until the starting of roof level.

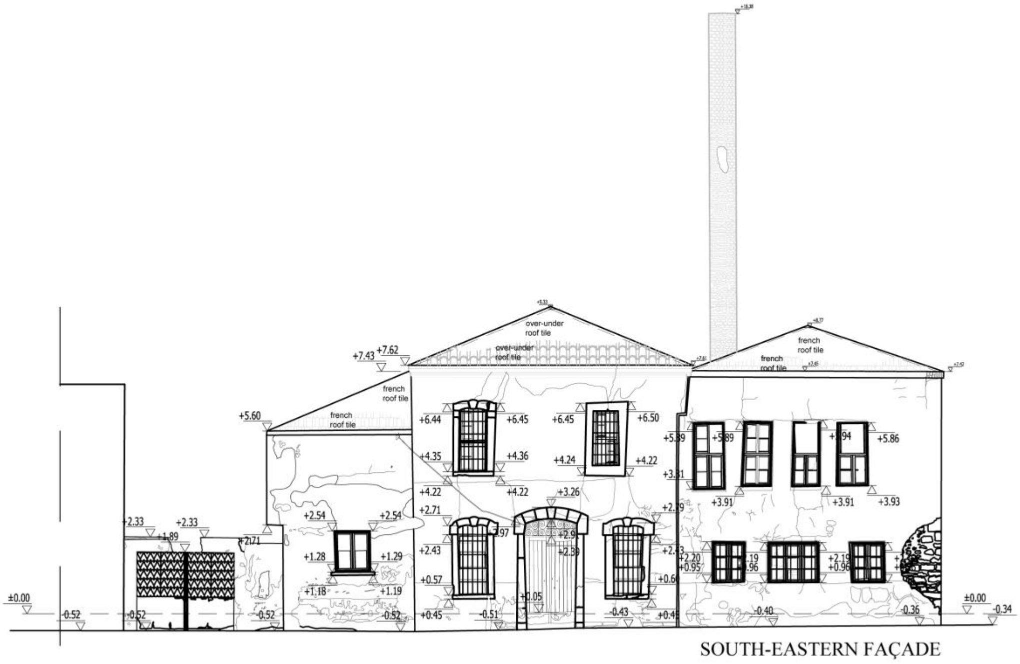
The roof of this block is gable roof with four surfaces that is covered with over and under tiles. On the ground floor, there is the main entrance door to the building which is located symmetrically in the middle of the 'Yağhane Block'. It is double-winged timber door (MD1) that is 1.61m in length and 3.38m in height. At the upper section of the door, there is arch-shaped glazed part with iron ornamented grills. And the surrounding of the door, is ornamented with the local stone as a contour (with sarımsak stone).

There are also two timber hung-sash windows in type of W02 with the iron grills. They also have ornamented with local stone surrounding of them as a contour. The door and the windows serve to the G-01 and G-02 Spaces which were used as the entrance hall and the office.

On the first floor, there are two timber windows in type of W12 which have different type from the ground floors'. One of them has ornamented with local stone as a contour and the other one does not have it. They both have iron grills. They serve to the 1-01 Space [olive-oil preparation] which was the space for indoor storage. This façade of the block is covered by plaster and painted into green as a finishing material. It is not possible to read the construction material of this block from this façade due to the finishing material.

The south-eastern façade of 'Annex Block' which was added to the building in the third phase of the factory, is 4.48m in length and 6.25m in height from the ground level until the starting of roof level.

The roof of this block is gable roof with two surfaces that are covered with french tiles. On the ground floor, there is one timber window in the type of W01.This window served to the G-09 Space where the extracted olive-oil was kept inside the barrels named 'lanca'. All this façade of the block is covered by plaster and painted into white as a finishing material. Between this block and district governorship building, there is a courtyard entrance that is located approximately 13m behind the building façade. It is a concrete wall that is painted into white which consists of an iron door (CD1). This door is 3.3m wide and 2.8m high double-wing iron door located in the middle of the concrete courtyard wall.

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SURVEYED DRAWINGS

SOUTH-EASTERN FAÇADE

0 2.5 5 10 m.

LEGEND
seen, measured
projection
assumption

Figure 88: South-eastern Façade [Entrance]

#### 3.3.3.2. North-Eastern Façade

North-eastern façade of the factory is the most elaborated façade that is directed to the 15. Street (See Figure 90, Figure 89).This façade of the building which is consisted of only 'Sabunhane Block', is 39m in length and 7.5 m in height from the ground level until the starting of the roof level.

The roof of this block is gable roof with four surfaces. At the ground floor level of the façade, there are two entrances which are located 9.4m and 23.8m away from the east corner of the façade respectively. The doors that provide the entrance to the spaces G-04 and G-05, are iron door that are in 1.65x2.74m and 0.87x2.03m dimensions.

At the east side of the first door, there are two timber windows which are the type of W05 with the iron grills. At the top of these windows which serve to the same interior space called as distillation area (G-03 Space), there is timber lintel. 21cm above the iron door in type of D01 located 9.4m away from the east corner, there is a window profile with the iron grills fixed into the opening. Between the two doors, there are four windows that three of them are the type of W06, while the other one is the type of W02'.These windows serve to the G-04 Space which was the place for re-cycling the pirina for green soap production. And the other window which is the type of W02' is surrounded by local stones as an ornamentation. This window serves to the G-05 Space which was the storage area for transferring the pirina for fuel of the steam boiler that was located in the Space G-06.

At the right side of the iron door D02, there is a timber window in type of W06 which was closed by bricks; a window opening only with timber profile which serves to the G-06 Space [boiler room] where the toilet places are located and a closed window opening by hollow brick which is located in the G-07 Space [boiler room] where the soap boiler was located. These closed openings were done in the second phase of the factory when Ertem Family re-arranged the process organization.

At the north end of the façade, there is a courtyard wall that is made out of stone in the dimension of 7.5m in length and 2.60m in height (See Figure 89).

At the east side of the first floor level, there are eight timber windows in type of W12'and two window openings closed by the hollow brick. At the north side of the first floor level, there are four timber windows in the type of W13,two timber windows in the type of W14 and one closed opening by hollow brick. All windows serve to the 1-02 Space where the soap process was generated. The original window type is W12', the other types are altered by having bigger surface in order to make the soap dry easier.

The ground floor of the north-eastern façade is constructed in rubble stone masonry technique (See Figure 89), while the first floor of the façade is constructed in brick masonry technique. Whole façade is un-plastered. In addition to this, there is concrete bonding at the junction of ground floor and first floor.

Figure 89: North-eastern Façade view

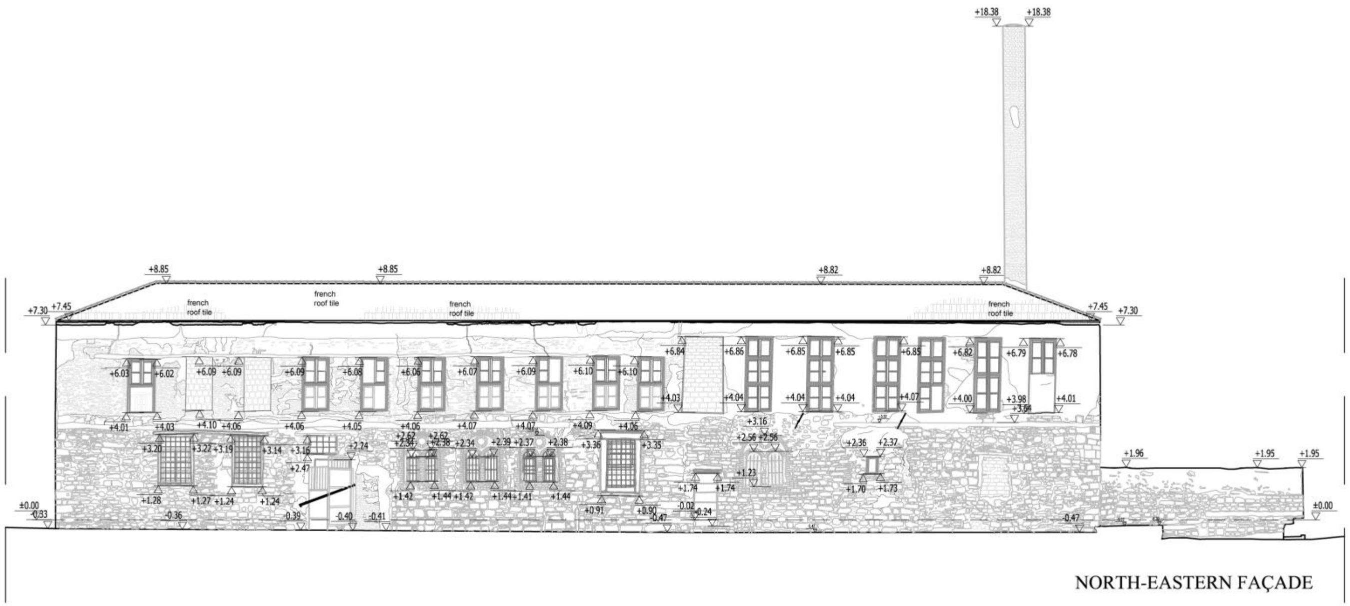


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Figure 90: North-eastern Façade

Figure 91: North-eastern Façade- photos

### 3.3.3.3. South-Western Façade

The south-western façade of the building (See Figure 92,Figure 93) is composed of three blocks that are both two storey high. The west side of the façade is directed towards the Aegean Sea; the south side of the façade is surrounded by 14. Street. It defines the courtyard that is the part of city panorama which is confined by the courtyard walls and the sea.

At the west part of the façade, the courtyard wall and a part of 'Sabunhane Block' are located in which soap production process was generated. In this façade, 'Sabunhane Block' is 15.3m in length and 7.45m in height at the west corner,7.29m in height at the south corner.

The roof of this block is gable roof with four surfaces. At the ground floor level, there is an entrance door which is located 12.7m away from the west corner of the mass. It is iron door in type of D04 which serves to the G-06 Space [boiler room] where the steam engine was located. At the west side of this door, there are two timber windows with the iron grills in type of W08. They also serve to the G-06 Space.

At the first floor level, there are six timber windows in type of W15 and three window openings closed by the hollow bricks as the same portion of the windows. The façade of the block is partially plastered with the lime-plaster. It can be read that the ground floor level is constructed with the stone masonry system and the first floor level is constructed with the brick masonry system.

In the middle of the façade, a part of 'Yağhane Block' is located where the olive-oil production process was generated. And approximately 4.5m in front of this façade, there is a shelter for the tractor.

At the ground floor level, there is a timber window with iron grills that is 4.3m away from the west corner of this block. It is surrounded by the local stones as an ornamentation. It serves to the G-08 Space which was the processing unit. At the first floor level, there are two timber windows with the iron grills in type of W12 which are also surrounded by the local stones as an ornamentation. And there is one opening closed by the hollow bricks. This part of the block is partially covered with the lime-plaster. It can be seen that all this block is constructed with the brick masonry system and cut stones are used at the corner of it.

At the south side of the façade, 'Annex Block' is located that is 14.3m in length and 6.15m in height. There are concrete stairs adjacent to this block for reaching to the first floor of the 'Annex Block'.

The roof of this block is gable roof with two surfaces. At the ground floor level, there are three timber windows with iron grills: one of them is in type of W10 without the sill and the others are in type of W11 with the sills outside. At the first floor level, there are three timber windows in type of W16. These windows serve to the 1-04,1-05,1-06 Spaces respectively. This level of this block is approximately 35cm in front of the ground level of it. This part of façade is covered with the plaster and painted into white.

Figure 92: South-western façade, top left: view of the 'Sabunhane Block' on this façade; top right: the view of the 'Yağhane Block' on this façade; bottom left: shelter and the concrete staircase; bottom right: the view of the 'Annex Block' on this façade.

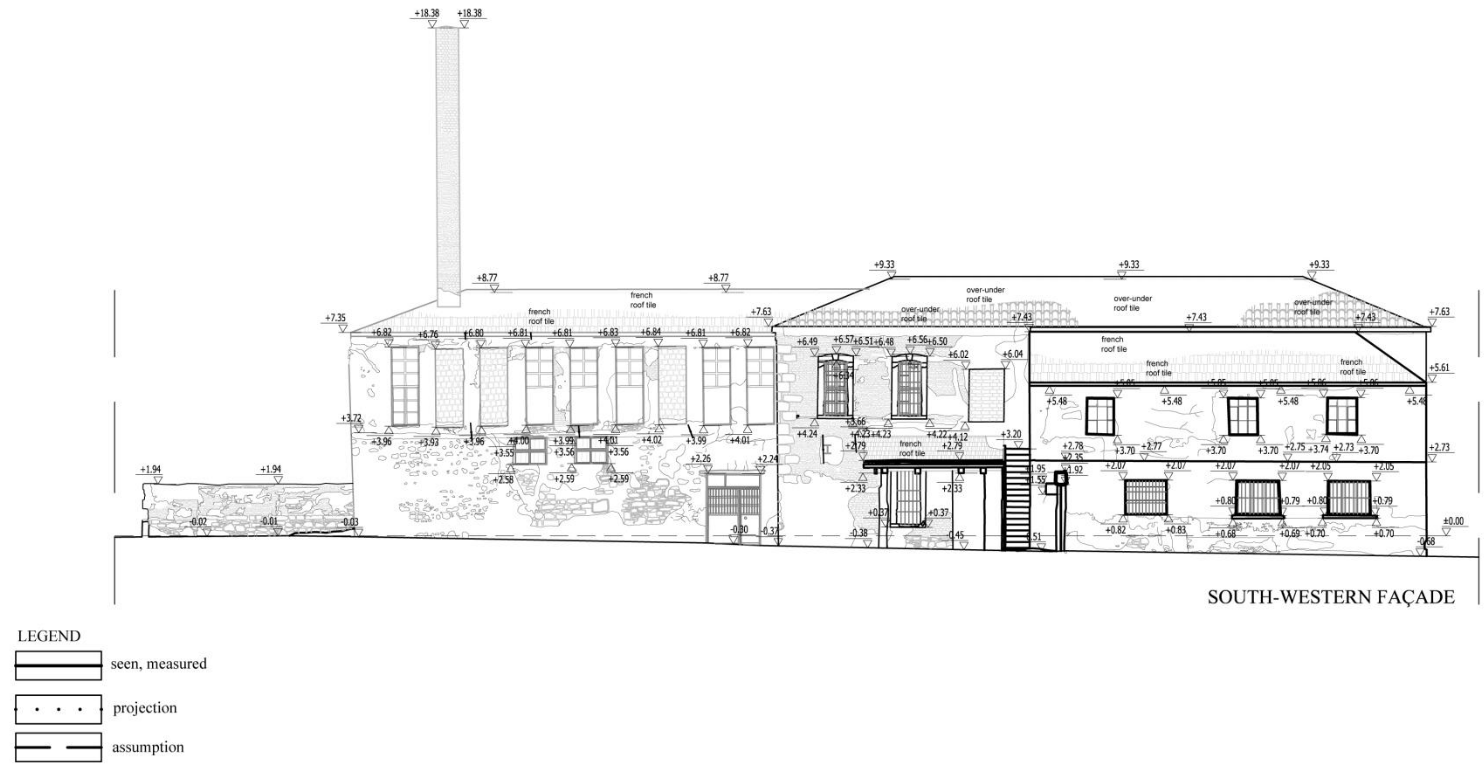


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Figure 93: The south-western Façade

### 3.3.3.4. North-Western Façade

The north-western façade of the building (See Figure 94) is composed of four parts: 'Sabunhane Block' and 'Yağhane Block' at the northern side; 'Annex Block' and a shelter in front of the 'Annex Block' and courtyard gate located between 'Annex Block' and the district governorship building.

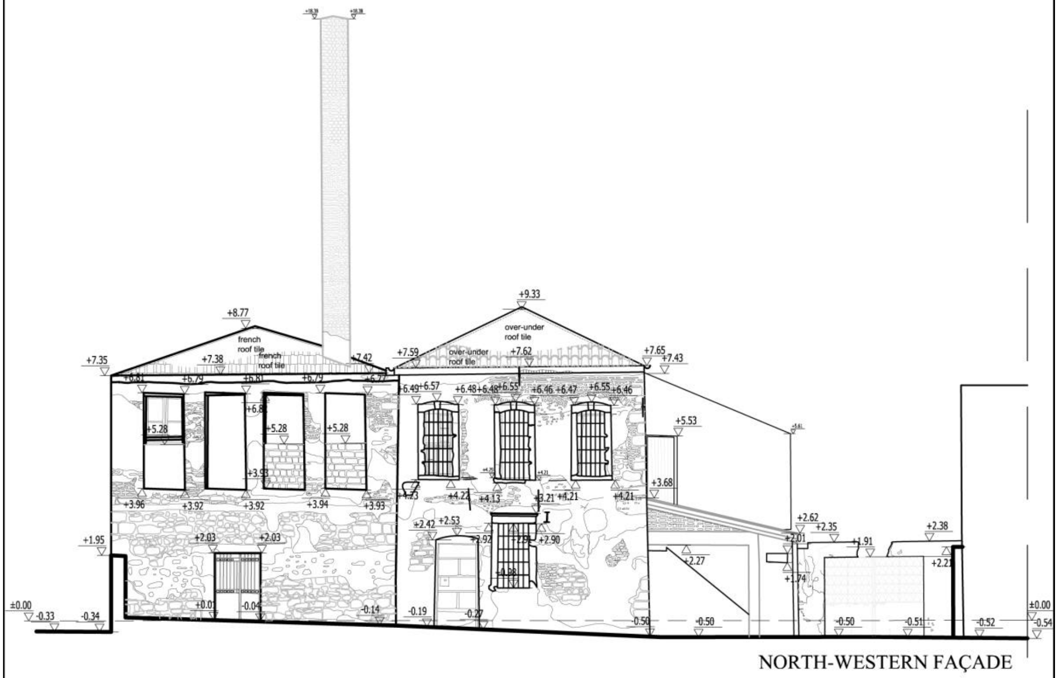
At the south-western side, there is an iron courtyard gate that provides reaching to the courtyard from 14th Street. From the north side of the façade, it is surrounded by the 15th Street; from the west side of the façade, it is surrounded by district governorship building. In front of this façade, there is a big courtyard that is the part of city panorama which is confined by the courtyard walls from the northern and western sides. Ground of the courtyard is partially covered by the grass with three palm trees and some part of it is covered by the earth .

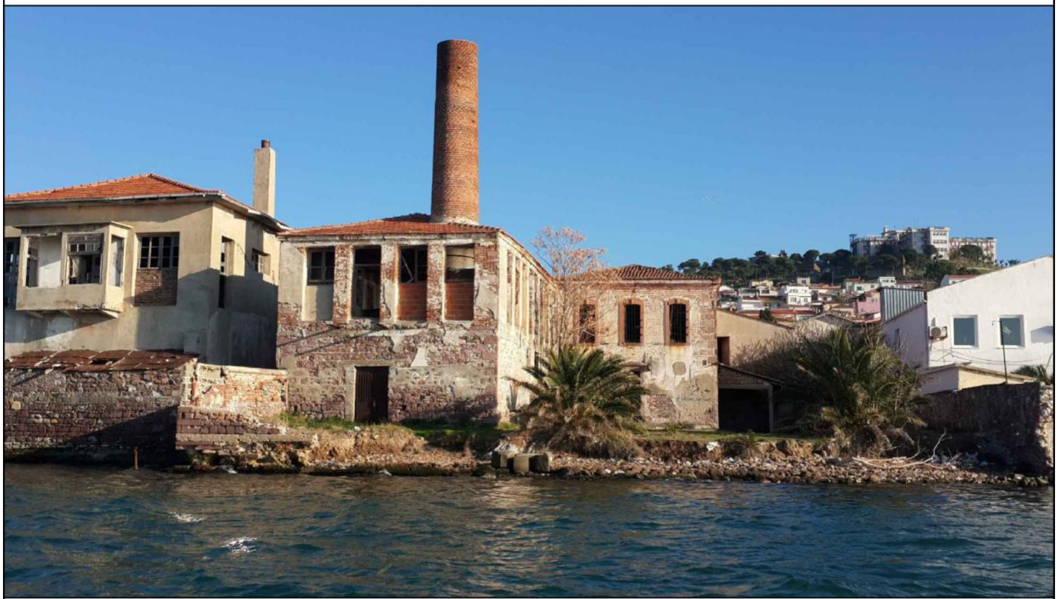
At the north side of the façade, 'Sabunhane Block' in which the soap processing was generated, with the dimension of 8.62m in length and 7.59m in height from the 15. Street level until the start of the roof level, 7.48m in height from the courtyard level until the starting of the roof level. The chimney that is made out of brick, is also located at this block. The roof of it is gable roof with four surfaces. At the ground floor level, there is an entrance door which is double-wing iron door in type of D03 that provides the reach from the courtyard to the G-07 Space where the soap boiler was located. At the first floor level, there are four timber windows in type of W14: two of them are partially closed by the hollow bricks and one of them is partially closed bythe concrete. These windows serve to 1-02 Space where the soap processing was generated. This façade of the 'Sabunhane Block' is partially plastered with the lime plaster. It is prominently seen that the ground floor level of the façade is constructed with the stone masonry system and the first floor level of façade is constructed with the brick masonry system which is known that the first floor was added in the second phase of the factory by Ertems.

At the middle of the façade, 'Yağhane Block' in which the olive-oil processing was generated, is located at the approximately 15.6m behind of the 'Sabunhane Block'with 7.3m in length and 7.73m in height at the north corner, 8.14m in height at the west corner. At the ground floor level, there is an entrance door (D05) which is located at 1.16m away from the north corner of the mass. Reaching from the courtyard to the G-08 Space which was the olive-oil process area, it is provided with this iron door (D05). There is also a timber window in type of W02' with iron grills that serves to the G-08 Space which is surrounded by the rectangular shaped local stones. At the first floor level, there are three timber windows in type of W12 with iron grills that are surrounded by the arch-shaped local stones such as the south-eastern façade of the block. This façade is partially plastered with the lime plaster. But it can be seen that the ground floor level of the façade is constructed with the stone and brick masonry system and the first floor level of the façade is constructed with the brick masonry system. At the corner of the 'Yağhane Block', cut-stones are used.

Third part of the façade is composed of the 'Annex Block' and a shelter that is located approximately 6.7m in front of this block. The shelter is one way sloped and it has a pediment that was made out of brick. At the west end of the shelter, there are reinforced concrete columns that support the shelter. Behind the shelter, 'Annex Block' is located in 4.3m in length and 6.1m in height from the ground level until the starting of the roof level at the south corner of it, 7.4m in height from the ground level until the start of the roof level at the west corner of it. At the ground floor level, there is twelve stepped concrete stairs for reaching to the first floor which is the only connection of the first floor of this block. At the first floor level, there is a timber door in type of D07 that provides the only entrance to the first floor of this block. This façade of the 'Annex Block' is completely covered with the plaster and painted into white.

There is a courtyard gate between the 'Annex Block' and the district governorship building at the west end of the façade. The courtyard door is located at the middle of the concrete wall.



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SURVEYED DRAWINGS

NORTH-WESTERN FAÇADE

0 2.5 5 10 m.

LEGEND
seen, measured
projection
assumption

Figure 94: The North-Western façade

### 3.3.4. Architectural Elements of the Factory

This section of the thesis focuses on definition of the architectural elements of the factory. For this purpose, all existing architectural elements are grouped according to their functions as 'doors and openings, windows, cupboards, niches and production process elements'. Then, each group are defined considering their type and variations.

#### 3.3.4.1. Doors and Openings

In the factory, there are two main entrances; the one is from the middle of the 'Yağhane Block' through a double-wing timber door (See Figure 95, MD1) to the main processing unit G-08 [olive-oil production unit] and the other one is through a double-wing iron door to the courtyard (See Figure 96, CD1). At the ground floor of the factory, except the main entrance and courtyard entrance, there are five more entrances.

Two of them which are parts of the 'Sabunhane Block', are located at the north-eastern façade that lie on the 15th Street. They provide the reach to the Spaces G-04 [pirina] and G-06 [boiler room] where the steam boiler was located. They are both iron doors; one of them that is in type of D01 (See Figure 96)which provides an entrance to the Space G-04 [pirina], is located at the approximately 9.5m far away from the east corner of the north-eastern façade, while the other one that is in type of D02 (See Figure 97, D02) which provides to enter the space G-06 [boiler room], is located at the 12.6m far away from the other one (D01).

The type of D01 located in the 'Sabunhane Block' is 1.6m x 2.75 m in size double - wing iron door. 21cm above this door, there is an approximately 1m wide and 70 cm high window opening which has existed with its jambs and iron grills (See Figure 96). The type of D02 is 90cm in width and 1.97m in height. In front of this door, there is 23cm high two stepped concrete base in order to catch the interior level. At the top of the door, there is a timber lintel seen from the façade (See Figure 97).

There are two more entrances in the 'Sabunhane Block' which are located at the courtyard. One of them which is in type of D03 (See Figure 97) is located at the north-western wall of the 'Sabunhane Block' that provides an entrance from the courtyard to the Space G-07 [boiler room 2]. The other one which is in type of D04 (See Figure 97) is located at the south-western wall of this block that provides an entrance from the courtyard to the Space G-06 [boiler room] where the steam engine was located. These doors are also double-wing iron doors; D03 is 1.36m in width and 2.05m in height and D04 is 1.97m in width and 2.59m in height.

There is another entrance to the factory which is located in the 'Yağhane Block'. This entrance which provides the reach to the Space G-08 [olive-oil production unit] from the courtyard, is located at the north-western wall of the 'Yağhane Block'. It is an iron door in type of D05 (See Figure 98) that is 1.26m in width and 2.77m in height. In addition to those, there is a timber door in type of D06 (See Figure 98) which is located in the Space G-05 [pirina]. This door provides the reach from the Space G-05 [storage for pirina] to the Space G-06 [boiler room]. This door is 1.2m in width and 2.55m in height. There is stone ornamentation that framed this door.

In the first floor of the factory, there is only one type of door that is the type of D07 (See Figure 98). Four same types of doors are located in the 'Annex Block'. The first one is located at the north-western wall of the 'Annex Block' which provides the entrance to the block. It is reached through 18 stepped concrete stairs that are located adjacent to the 'Annex Block'. This door is a single-wing timber door that is 83 cm in width and 2m in height. The other three of them are also located in the 'Annex Block' that provide the entrance to the Spaces 1-04, 1-05 and 1-06 in the first floor.

In addition to the doors, there are also openings in the factory. In the ground floor, three of them are located at the common wall of the 'Sabunhane Block' and 'Yağhane Block' which provide an entrance to the Spaces G-03 [distillation pools], G-04 [pirina] and G-05 [storage for pirina] from the Space G-08 [olive-oil production unit]. The one that provides an entrance to the Space G-03 [distillation pools] is 1.2m in width and 2.8m in height. The other one that provides an entrance to the Space G-04 [pirina] is 0.9m in width and 2.1m in height. Other opening that provides the reach to the Space G-05 [storage for pirina] is 0.55m in width and 2.1m in height. Moreover, another opening is located on the north-western wall of G-04 [pirina] that provides an entrance to the space G-05 [storage]. It is 0.74m in width and 2.55m in height. And the other one is located at the common wall of the 'Yağhane Block' and 'Annex Block' which provides the reach to the Space G-09 [annex] from the Space G-08 [olive-oil production unit]. It is 1.11m in width and 2.99m in height.

In the first floor, there is just one opening that is located on the north-eastern wall of the 'Yağhane Block' which provides an entrance to the Space 1-02 [soap production unit]from the Space 1-01 [olive-oil preparation]. It is 0.77m in width and 2.3m in height. All openings in the factory are without ornamentation or any specific characteristics. They just provide the entrance between the blocks.

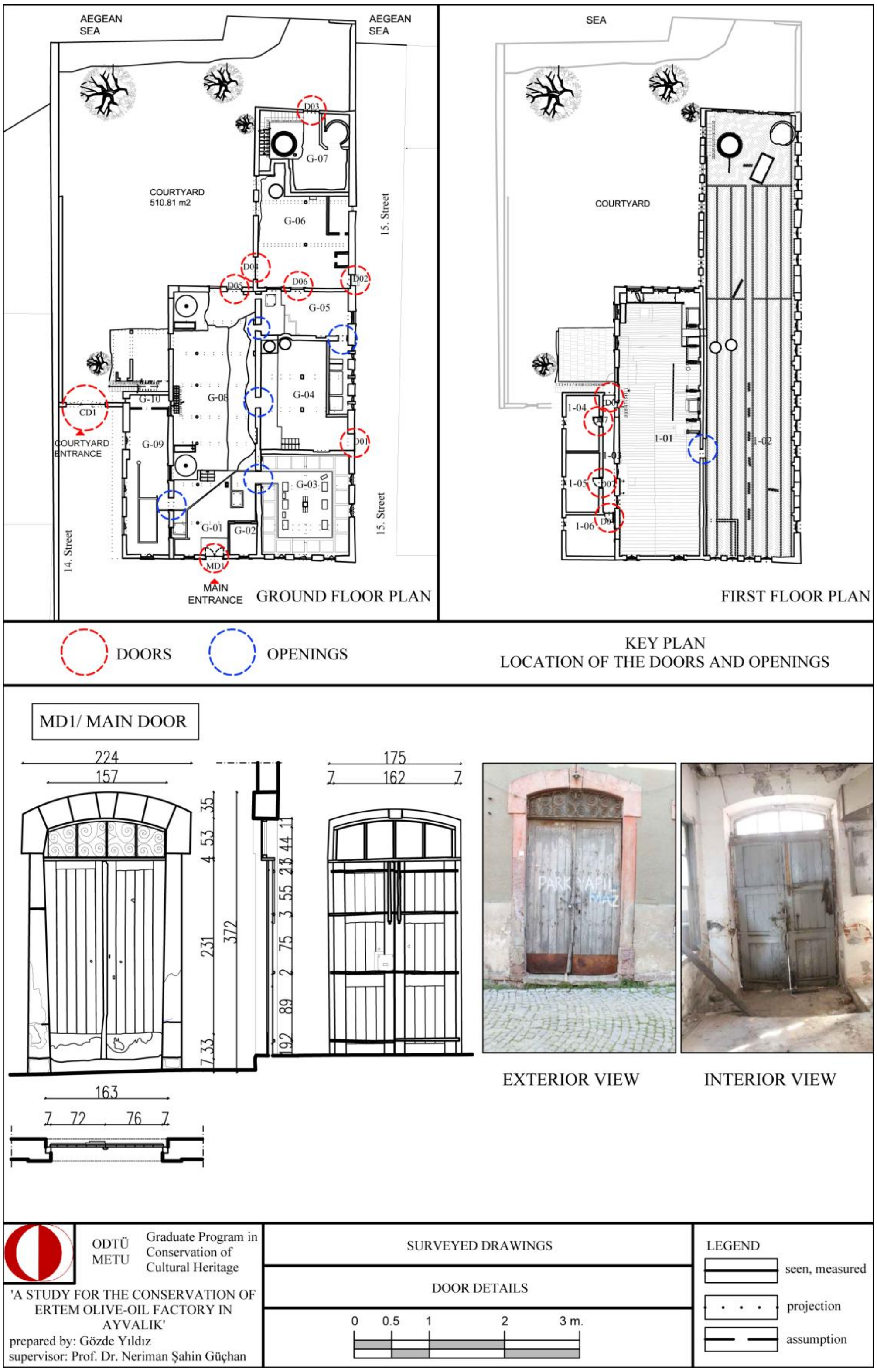
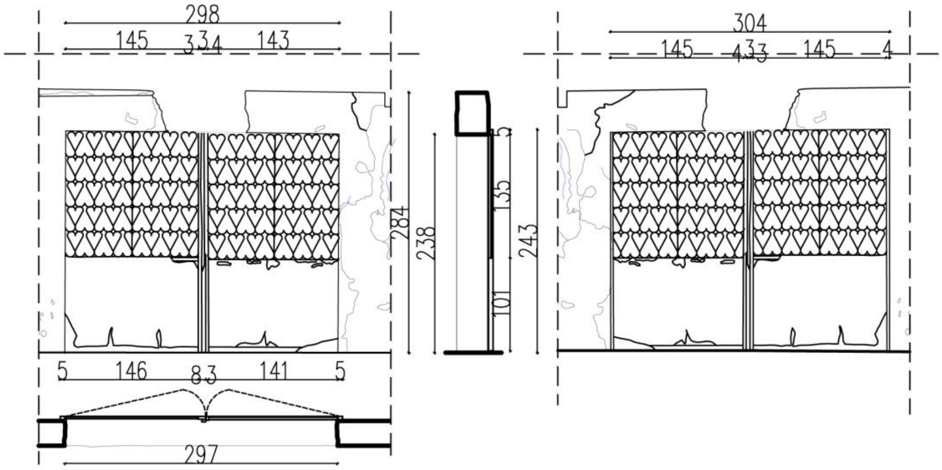



Figure 95: Key plan for the doors and openings; main door detail

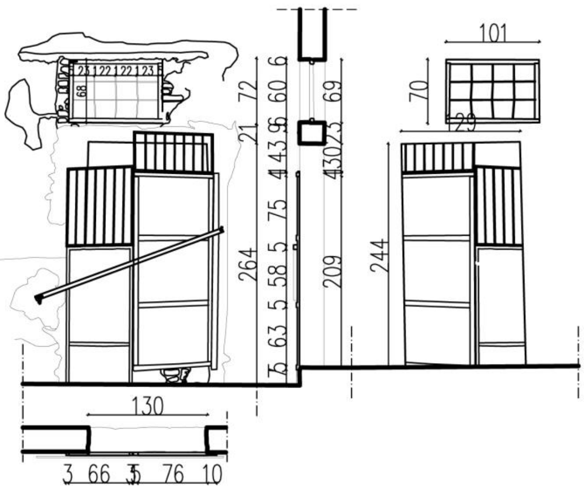
CD1/ COURTYARD DOOR

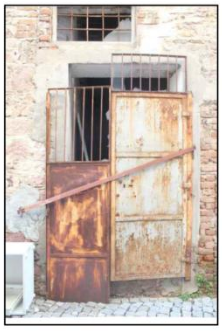



EXTERIOR VIEW

INTERIOR VIEW

D01/ DOUBLE-WING IRON DOOR



EXTERIOR VIEW

INTERIOR VIEW

| ODTÜ METU — Graduate Program in Conservation of Cultural Heritage | SURVEYED DRAWINGS | LEGEND |
|---|---|---|
| 'A STUDY FOR THE CONSERVATION OF ERTEM OLIVE-OIL FACTORY IN AYVALIK' | DOOR DETAILS | seen, measured |
| prepared by: Gözde Yıldız<br>supervisor: Prof. Dr. Neriman Şahin Güçhan | 0 0.5 1 2 3 m. | projection<br>assumption |

Figure 96: Courtyard door and D01 details

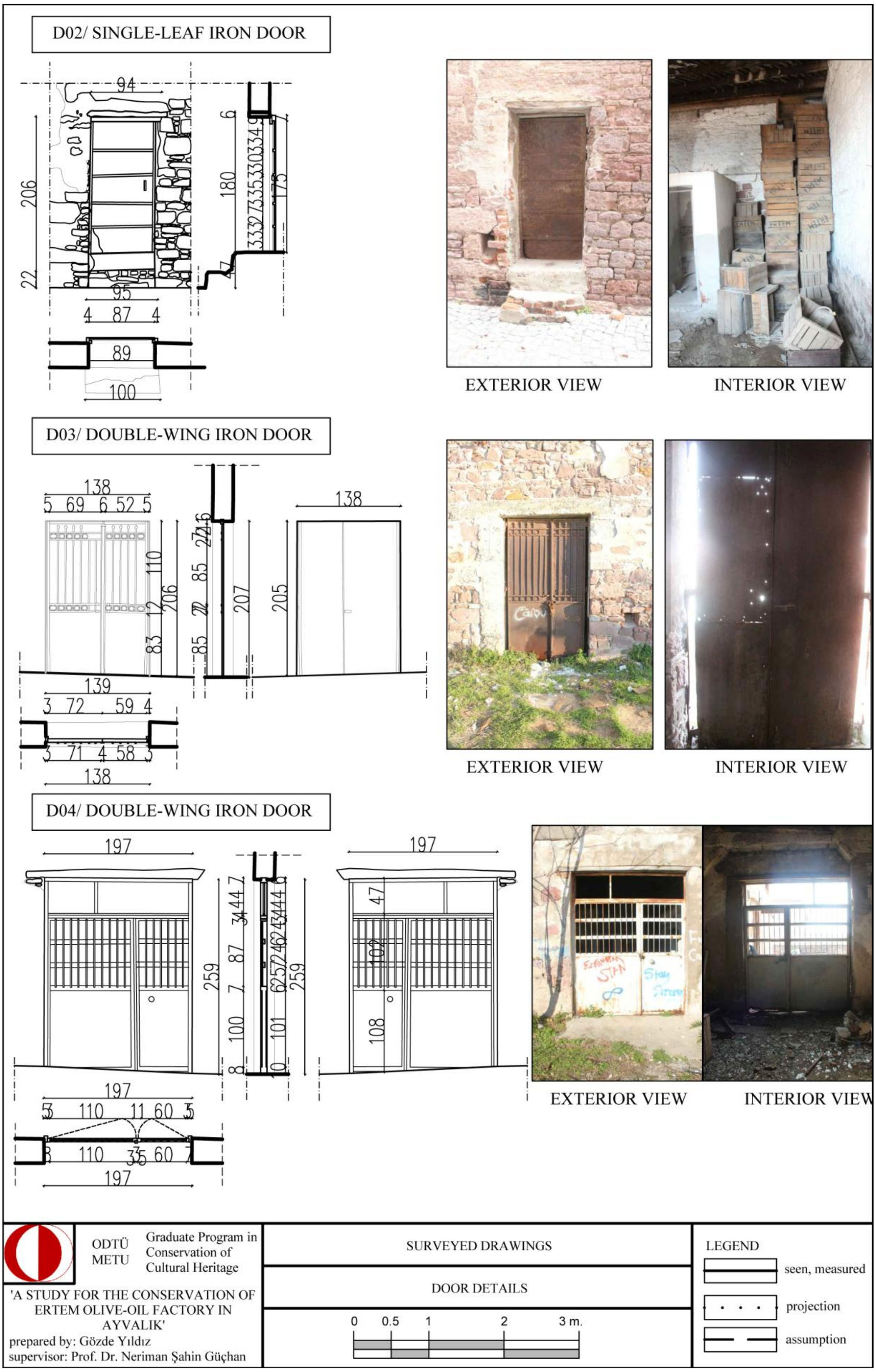



Figure 97: D02, D03 and D04 details

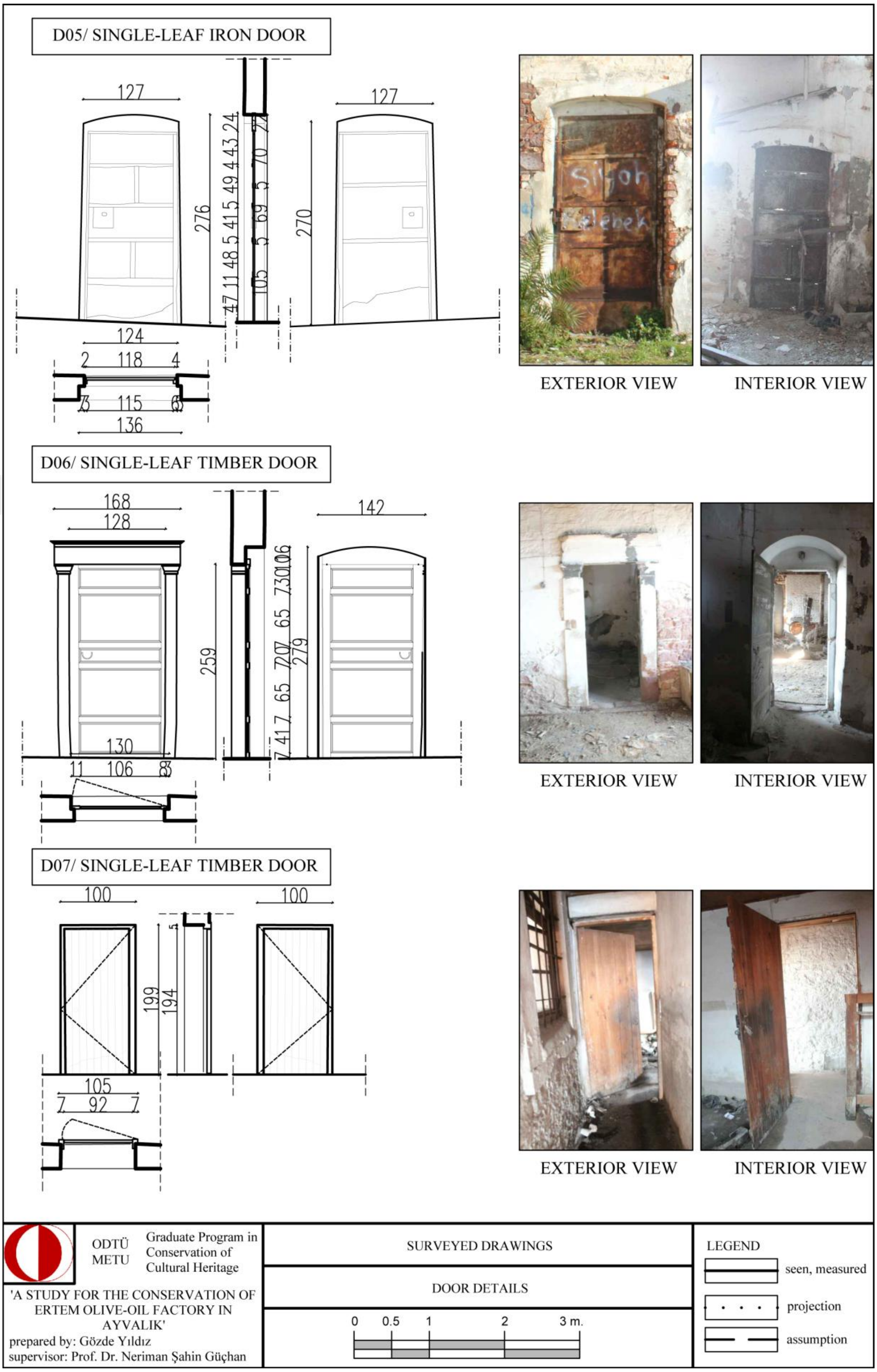



Figure 98: D05, D06 and D07 details

#### 3.3.4.2. Windows

Since the factory has constructed gradually in three different time period due to the re-arrangement of the spaces and technological requirements, there are sixteen different types of windows that is observed according to their form and materials. At the ground floor, there are mainly ten different types of windows whose frames are all wooden. The types of W01, W09, W10 and W11 are located at the 'Annex Block'.

W01 (See Figure 100) is 1.1m in width and 1.26m in height that is located at the south-east briquette wall of the Space G-09 [annex] where the extracted olive-oil was kept inside the barrels. Within the wooden frames of the window, it is vertically and horizontally divided into two sections by the wooden muntins. It has concrete sill outside. W09 (See Figure 102) is 36cm in width and 45cm in height that is vent sash window. It is located at the south-west wall of the 'Annex Block' that serves to the Space G-10. W10 and W11 (See Figure 102) are 1.51m in width and 1.25m in height that is located at the south-west wall of the 'Annex Block' which serve to the Space G-09. These windows are framed with the same size wooden joinery elements, but they have different forms. W10 is vertically divided into four parts and horizontally divided into three parts by the muntins, while W11 is vertically divided into two parts and horizontally divided into three parts.

The type of W02 (See Figure 100) is the only type of window that is located at the ground floor of the 'Yağhane Block' where the olive-oil process was generated. This type of window is semi-circular arch shaped hung-sash timber window which is approximately 0.92m in width and 1.95m in height. It is framed with the local stone named 'sarımsak taşı' as an ornamentation that is arch shaped. It has iron grills outside.

The types of W02', W03, W04, W05, W06, W07 and W08 which are all made out of timber, are located at the ground floor of the 'Sabunhane Block'. The type of W02' (See Figure 100) is the same window as the type of W02, but it is framed with local stone as an ornamentation that is rectangular shaped. This window that serves to the Space G-05 [pirina], is located at the north-east wall of the 'Sabunhane Block'.

The types of W03, W04 and W05 serve to the Space G-03 [distillation pools]. The types of W03 and W04are the altered windows in the second phase of the factory due to the re-arrangement of the Space G-03. W03 (See Figure 100) is 1.02m in width and 1.21m in height which is vertically divided into three parts and horizontally divided into two parts by the wooden muntins. W04 (See Figure 101) is 1.55m in width and 1.25m in height which was altered from the door. It is vertically and horizontally divided into three parts by the wooden muntins. W05 (See Figure 101) is located at the north-east wall of the Space G-03 [distillation pools]. It is 0.97m in width and 1.77m in height. At the top of the window, timber lintel is seen from the façade.

The type of W06 (See Figure 101) is the unique type of window not only in the factory but also in Ayvalık. This type of window is located in the Space G-04 [pirina]. It is the arch shaped window that is ornamented with bricks. It consists of two different windows which are vertically divided into three parts by wooden joinery elements. They are both 0.47m in width and 1.2m in height. At the top of the windows, there is circular shape opening. This type of windows has iron grills outside which is different from the others.

W07 (See Figure 101) is another altered window which is located at the north-east wall of the Space G-06 [boiler room]. This window is 0.43m in width and 0.6m in height which was altered from the type of W06. It is still obvious to see the traces of the W06.

The type of W08 (See Figure 102) is 1.2m in width and 0.97m in height which is vertically and horizontally divided into two parts by the wooden joinery elements. It also has iron grills outside. It is located in the Space G-07 [boiler room 2]. These windows are in different size than the others because of the location of them which is near the steam engine.

At the first floor of the factory, there are six types of windows which are W12, W12', W13, W14, W15 and W16. The type of W16 (See Figure 104) is located at the 'Annex Block'. This window whose frames are all wooden, is vertically divided into three parts and horizontally divided into two parts. It is approximately 1.09m in width and 1.38m in height.

W12 (See Figure 103) is the only type of window which is located at the first floor of the 'Yağhane Block'. This type of window whose frames are all wooden, is semi-circular arch shaped window, 0.87m in width and 1.98m in height. It is vertically and horizontally divided into two parts and it has iron grills outside. It is also ornamented by local stones that are arch shaped as W02.

W12', W13, W14 and W15 are the types of windows which are located at the first floor of the 'Sabunhane Block'. Space 1-02 needs lots of windows due to technical requirements. Therefore, in this space, there are twenty-eight windows; twelve of them are in type of W12' (See Figure 103); four of them are in type of W13 (See Figure 103); six of them are in type of W14 (See Figure 104) and the other six of them are in type of W15 (See Figure 104).

The type of W12' is the same as W12. The only difference between them is the ornamented stones and the arched shape. While the type of W12 has the ornamented local stones at the frame of it and it is arch shaped, the type of W12' does not have these kinds of features.

W13 and W14 (See Figure 103-Figure 104)are the timber windows in same size. They are 0.99m in width and 2.78m in height. W13 is vertically divided into three parts, on the other hand, W14 is vertically divided into two parts. As a result of this order, W13 has three parts for opening, while the W14 has two bigger parts for opening. W15 is an iron window that is located at the south-west wall of the space 1-02. It is 1m in width and 2.83m in height which is vertically and horizontally divided into two main parts by the iron joinery elements. These types of windows which are W12', W13, W14 and W15; were constructed for making the soap dry easily.

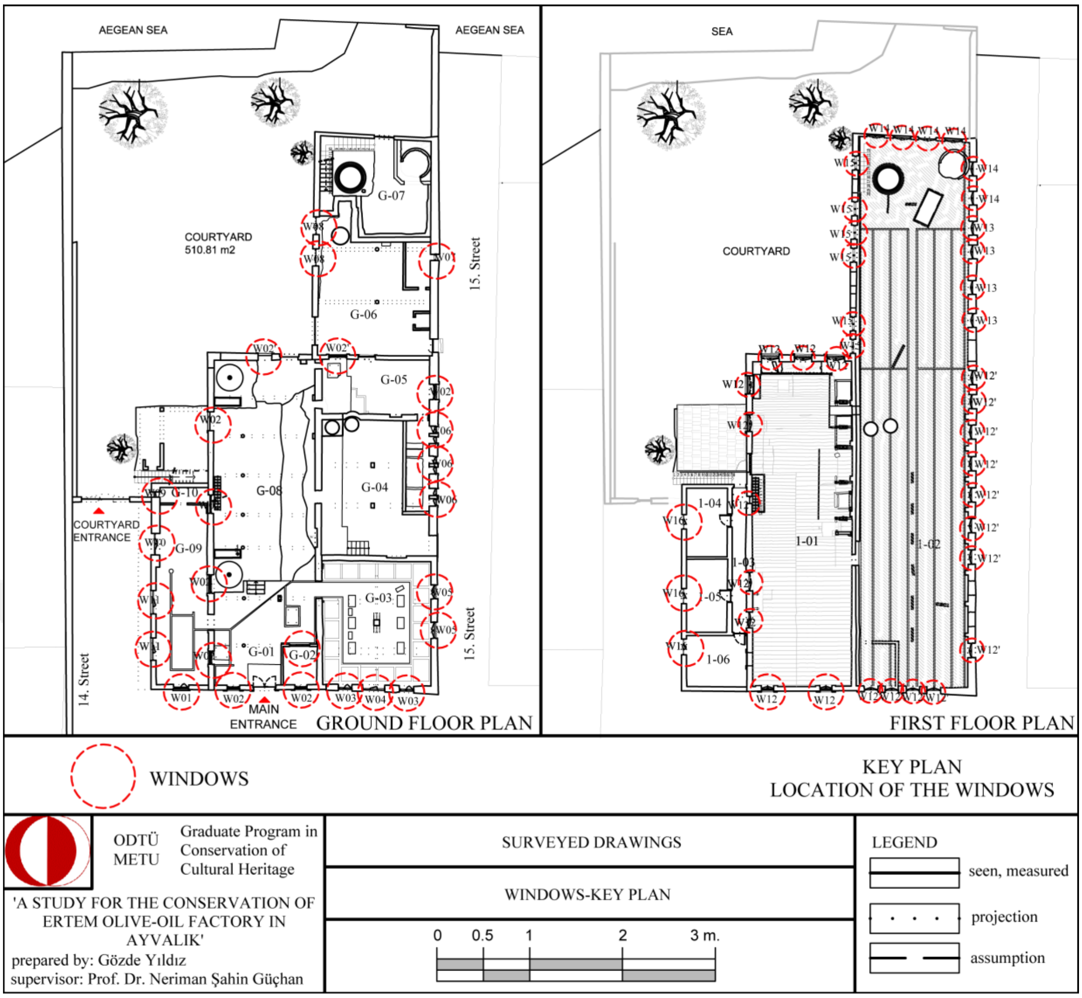



Figure 99: Key plan of the location of the windows

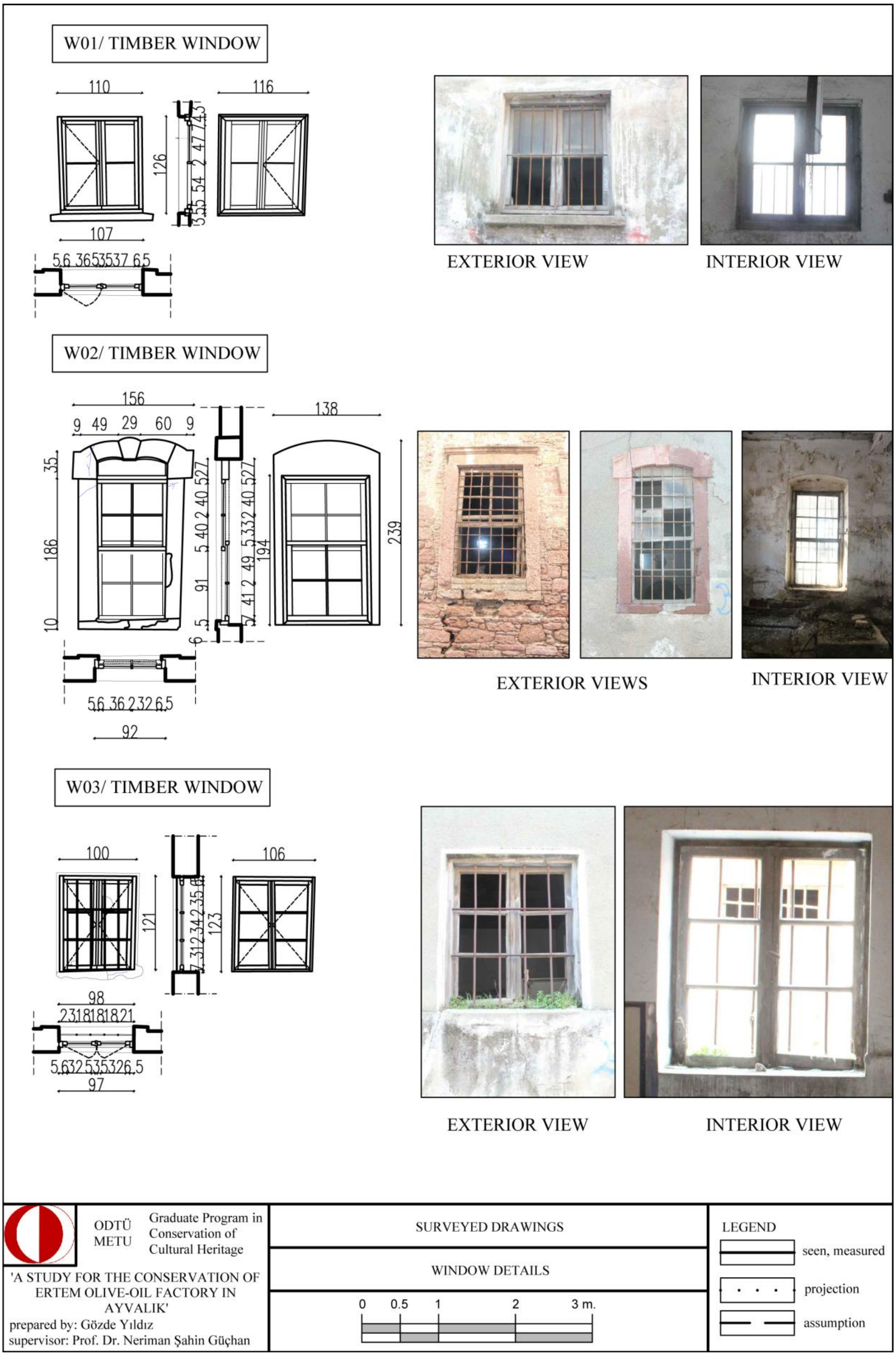



Figure 100: Window Details; W01, W02, W03

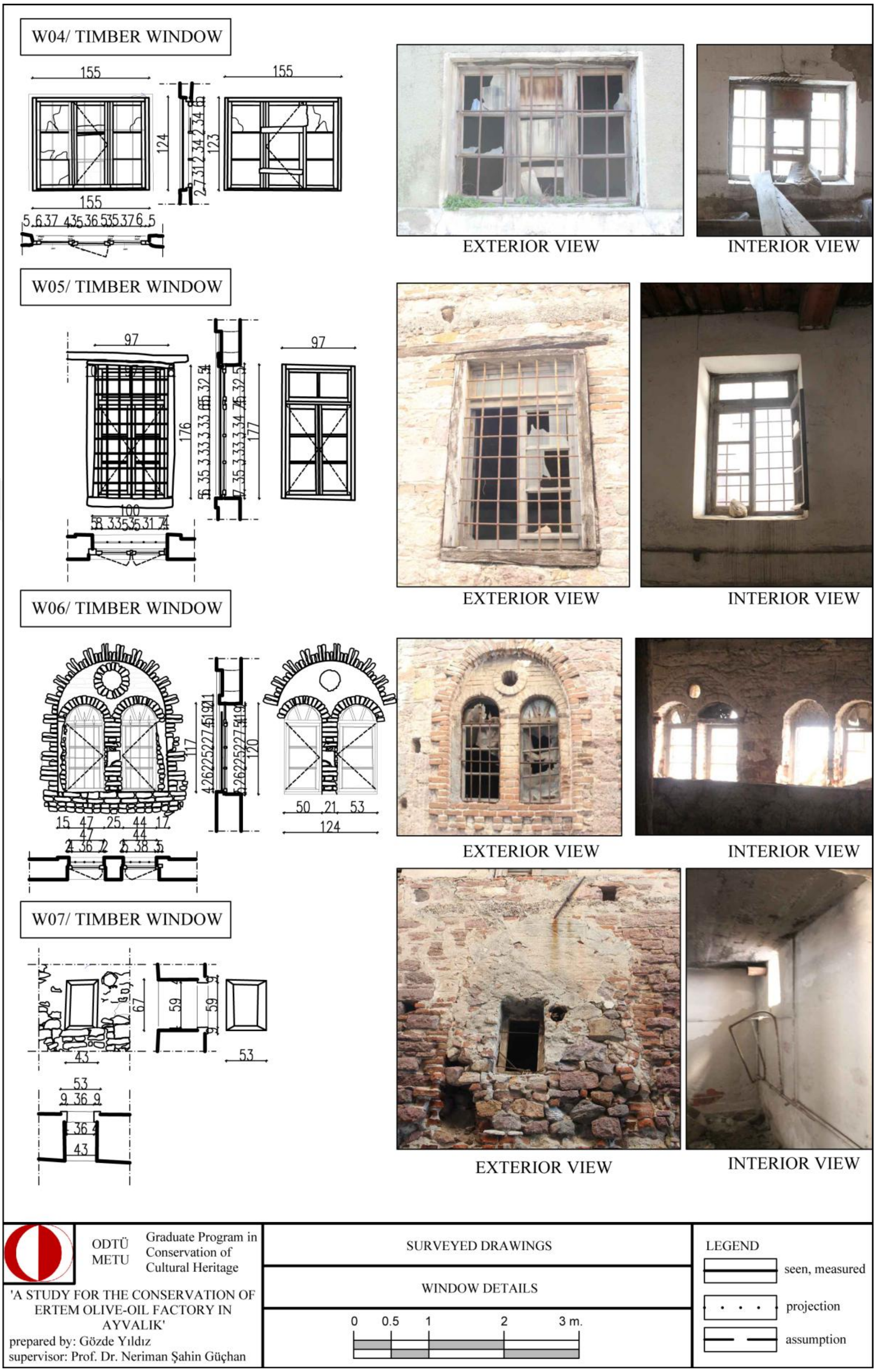



Figure 101: Window Details; W04, W05, W06 W07


Figure 102: Window Details; W08, W09, W10, W11


Figure 103: Window Details; W12, W12', W13

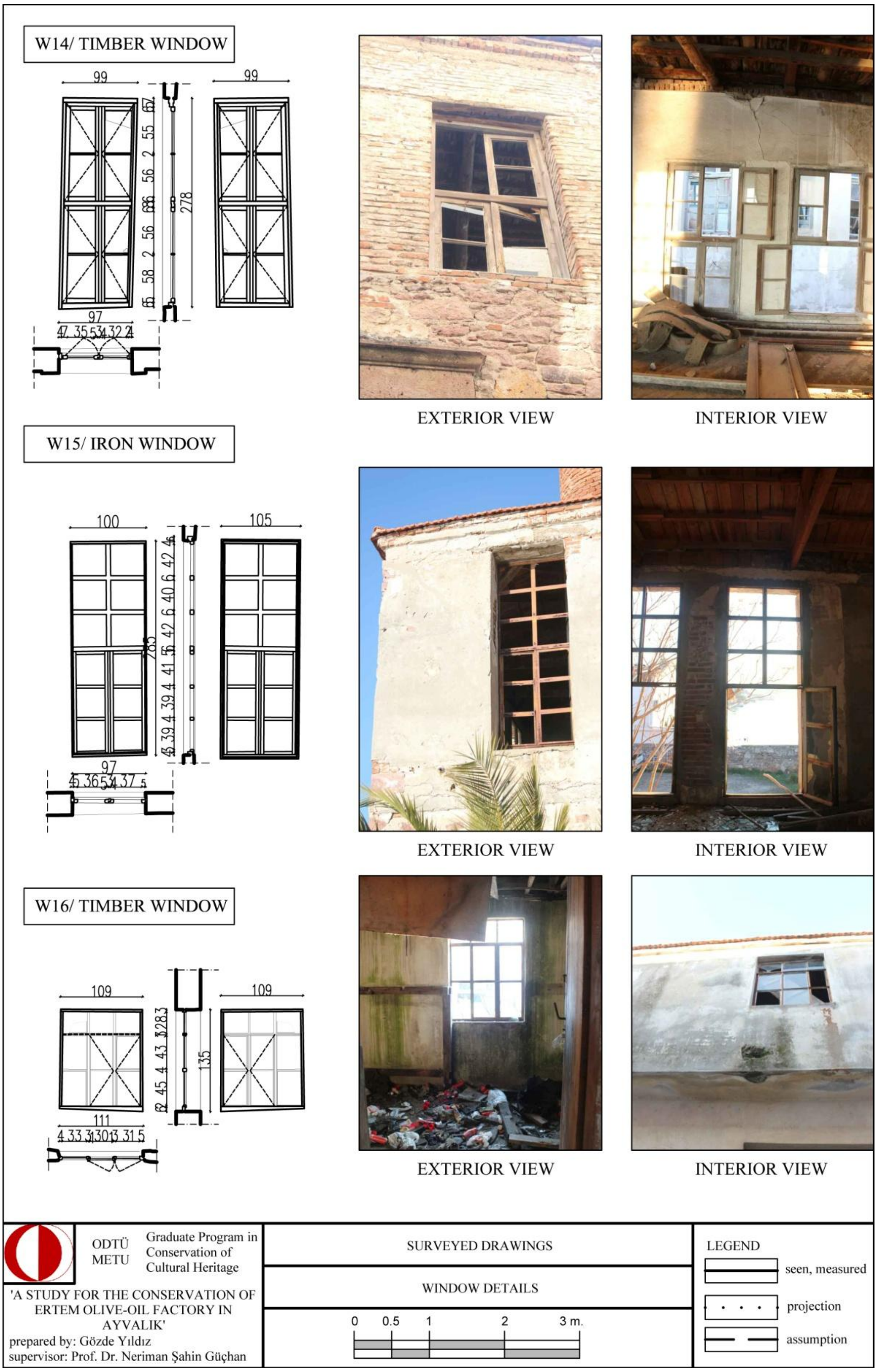



Figure 104: Window Detail; W14, W15, W16

### 3.3.4.3. Cupboards and Niches

There is a wooden cupboard (See Figure 105) which is located on the north corner of the Space G-02 that was used as office. This cupboard is placed at the corner of the wall in 45 degree angle and approximately 1m above the ground of the Space G-02 [office]. It is 0.75m in length and 0.63m in height. It consists of two sections inside.

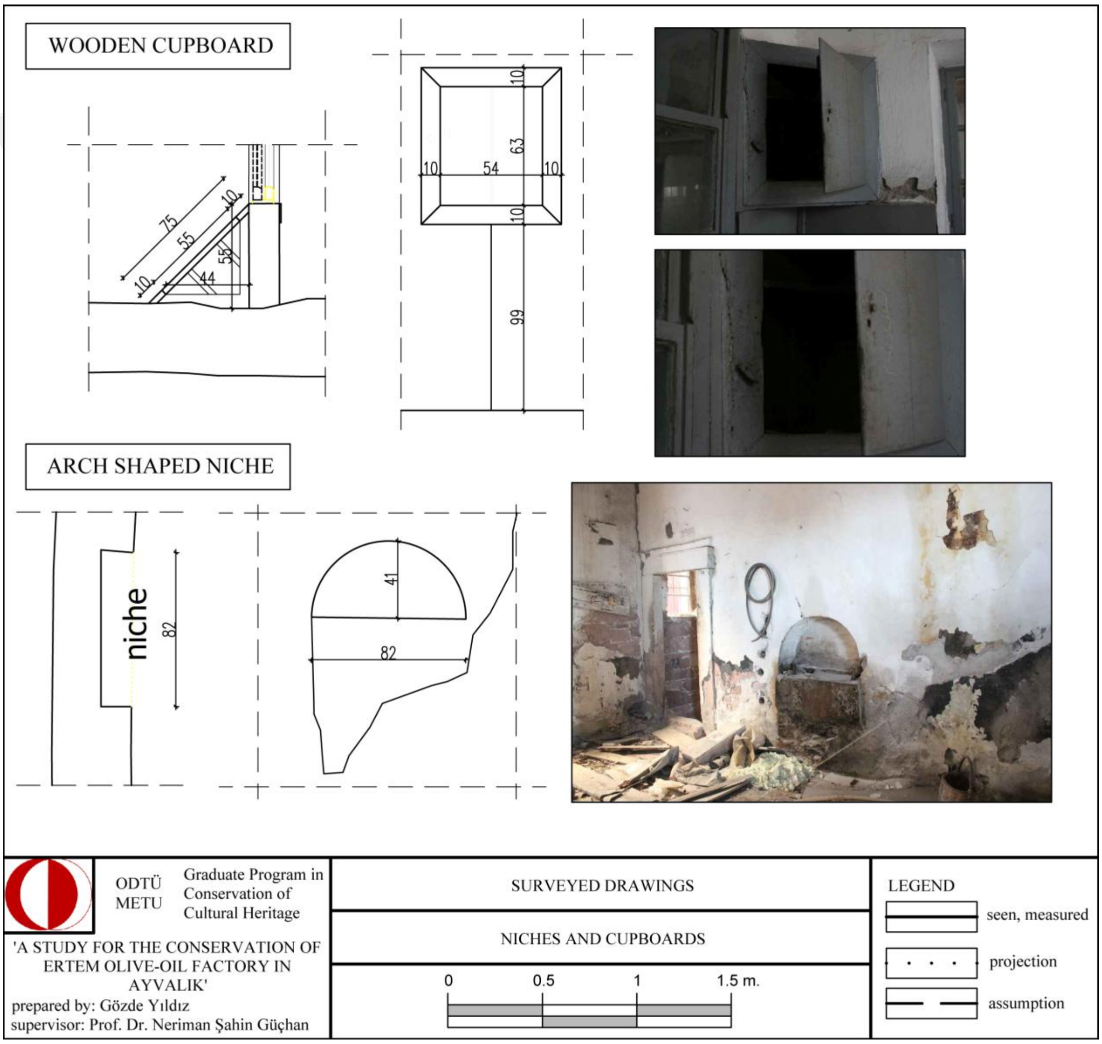



Figure 105: Cupboard Detail and Niche Detail

In the factory, there are some niches at the ground floor of the factory. They are located in the 'Sabunhane Block'. The one which is 1.38m in width and 0.9m in height, is located at the south-east wall of the Space G-04 [pirina], 0.89 m above the ground floor of it. The other one which is 0.83m in width and 0.9m in height, is located at the south-east wall of the space G-05 [storage for pirina] (See Figure 105), 0.9m above the ground floor of it. They are both semi-circle arch shaped.

#### 3.3.4.4. Staircases and Balustrades

In the factory, there are three different staircases. According to their material and construction technique, they can be categorized into two; the one is made out of iron and the others are made out of concrete.

The iron staircase which is located in the middle of the south-west wall of the Space G-08 [olive-oil production unit], leads to the Space 1-01 [olive-oil preparation unit]. It consists of 12 steps which are approximately 0.45m x0.21m in size and 0.26m in height. Each step has rectangular shape with approximately 3.5cm thickness. While the staircase has iron balustrades leading to the first floor, at the landing space that is the Space 1-01 [olive-oil preparation], it has timber balustrade which confines the staircase (See Figure 106).

There are also concrete staircases in the factory. The one that provides the connection with the first floor of the 'Annex Block', is eighteen stepped concrete staircase located adjacent to this block. Each step is rectangular shaped, approximately 0.84m x 0.24m in size and 0.21m in height. It provides the reach to the Space 1-03 [resting space] directly. It does not have any balustrades (See Figure 106). The other concrete staircase is located at the west corner of the Space G-07 [boiler room 2], near the chimney. It is 'L' shaped, twenty stepped concrete staircase which provides reaching to the Space 1-02 [soap production unit] from the Space G-07 [boiler room]. Each step is rectangular shaped, approximately 0.87m x0.31m in size and 0.20m in height. It has partially metal balustrade that is 89cm high (See Figure 107).

In addition to the staircases and their balustrades, there is independent timber balustrade which is located at the north-west side of the Space 1-01 [olive-oil preparation]. It was added to the building because of the transportation of the olives from the courtyard to the Space 1-01 (See Figure 107).

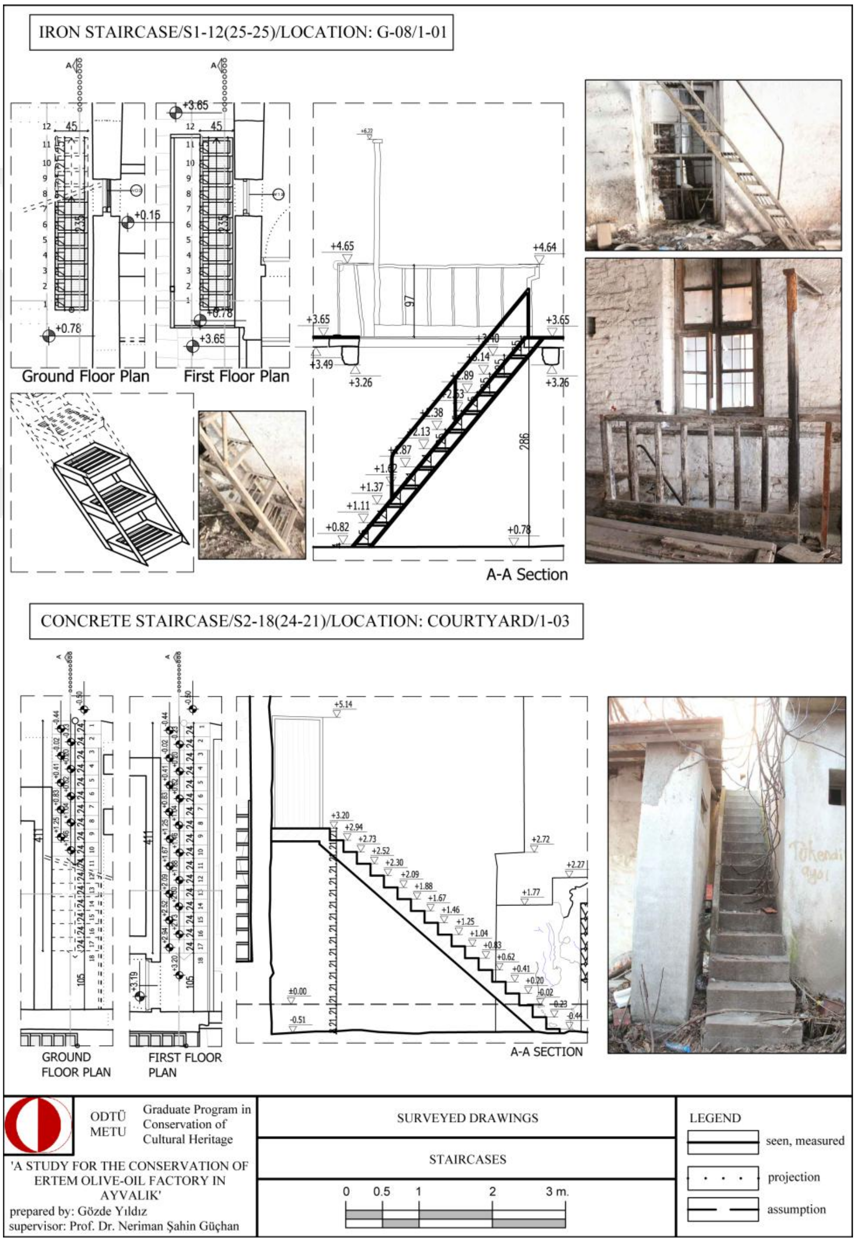



Figure 106: Staircases

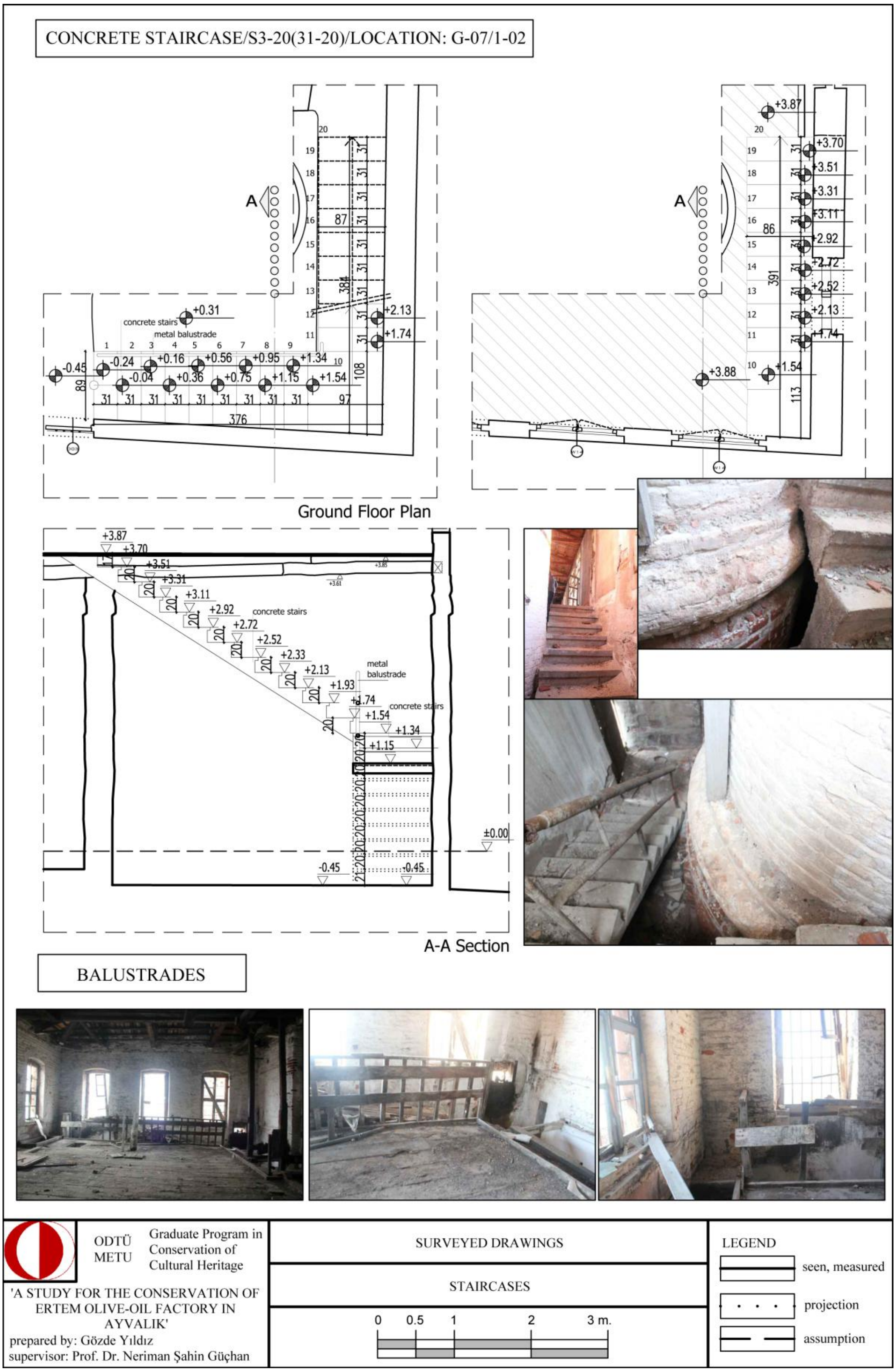



Figure 107: Staircases and Balustrades

### 3.3.4.5. Production Process Elements [PPE]

From the first step of the production process in the factory till the last step, the actions and stages which are the parts of the process throughout the history, were defined in the previous part of the thesis (See Chapter 3.3.1.; p.113-124). This section focuses on the existing PPE which provide these stages in the historical development of the building. PPE play an important role in the history of the factory due to forming the building itself with their technical features.

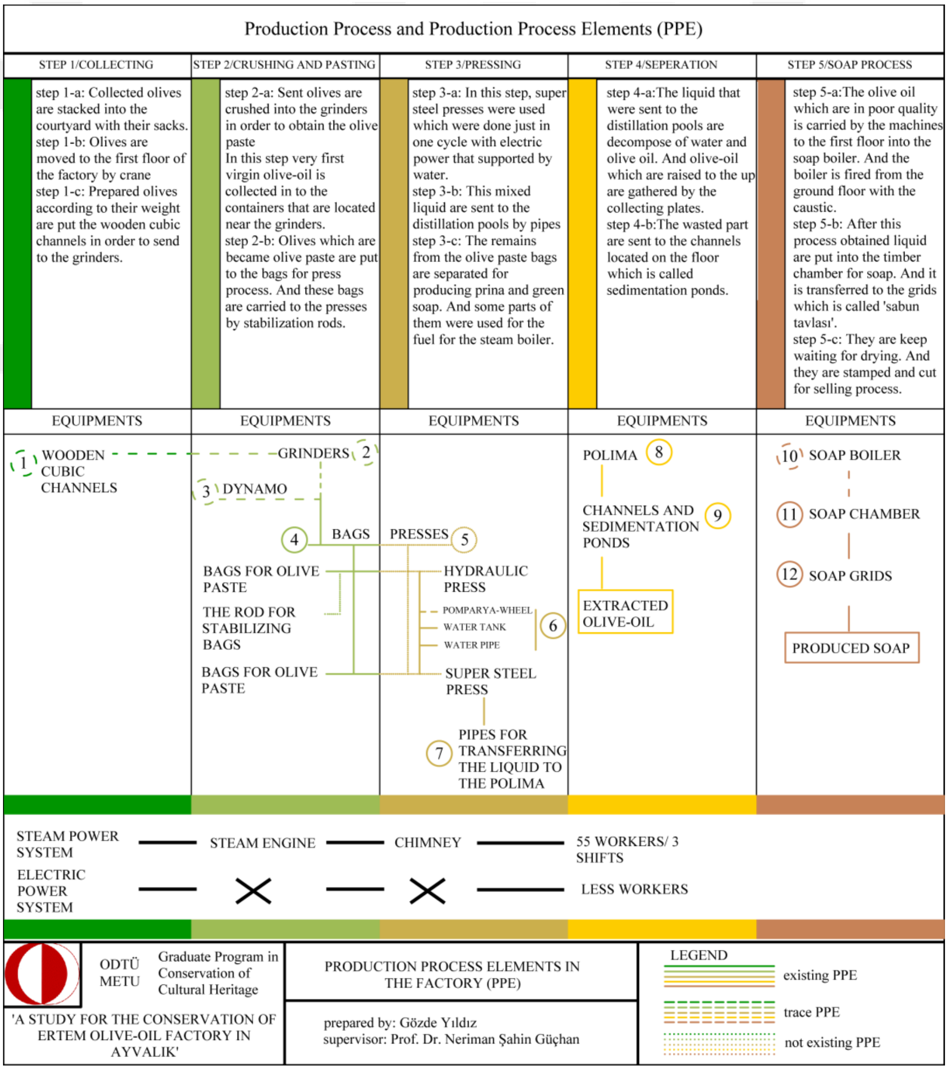



Figure 108: PPE of the Factory

***Wooden Cubic Channels, (Ambar):*** It is a wooden box which is rectangular shaped located at the first floor of the factory. It is canalized conically shaped prism towards the grinders. This equipment provides the transfer of the incoming olives to the grinders in order to crush (See Figure 109). In the factory, there were two of these wooden channels which are existing with their wooden frames that are located in the first floor as a trace.

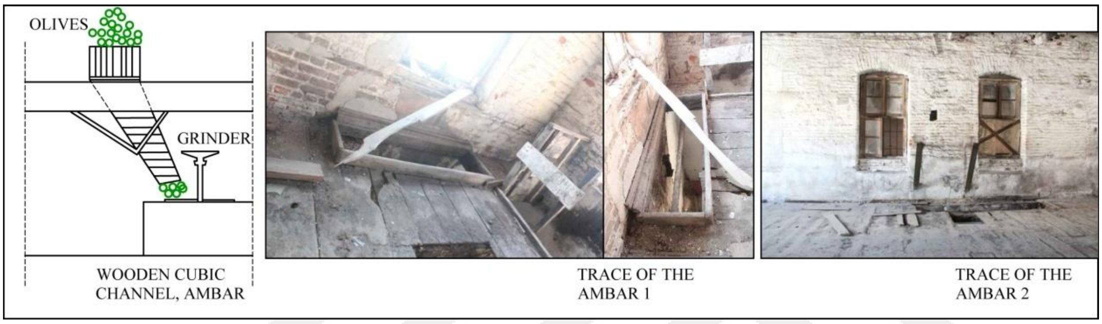



Figure 109: Representative Wooden Cubic Channel and traces of them in the factory.

***Grinders, (Değirmen):*** This equipment provides to crush the olives for extracting olive paste. During this stage, extra virgin olive-oil was extracted which was the very first production of the process. The grinders (See Figure 112) in the factory were with double vertical granite stones which are placed on approximately 91cm high brick masonry platform. They have two wheels which are connected with pivot that provides revolving. They worked with **hydraulic pump** when the factory was working with **steam power** (See Figure 110). At that time, there was a steam engine which was the hearth of the process that operated all the equipments. But when the system was changed in 1986 with the introduction of **electricity** (See Figure 111) into the factory, the grinders were started to work with **dynamo** which supply the electricity through the transportation of motion by pulley.

In addition to this, in front of the each grinder, there is a container for extra virgin olive-oil. Today, the grinders are not existing in the factory but it is possible to read the original location of them through their bases (See Figure 112). They were sold to antique dealers in Ayvalık. While some boilers, water tanks and basis of the water pump are still presented in the factory, the steam engine is located today in Rahmi Koç Museum in İstanbul today (See Figure 110).

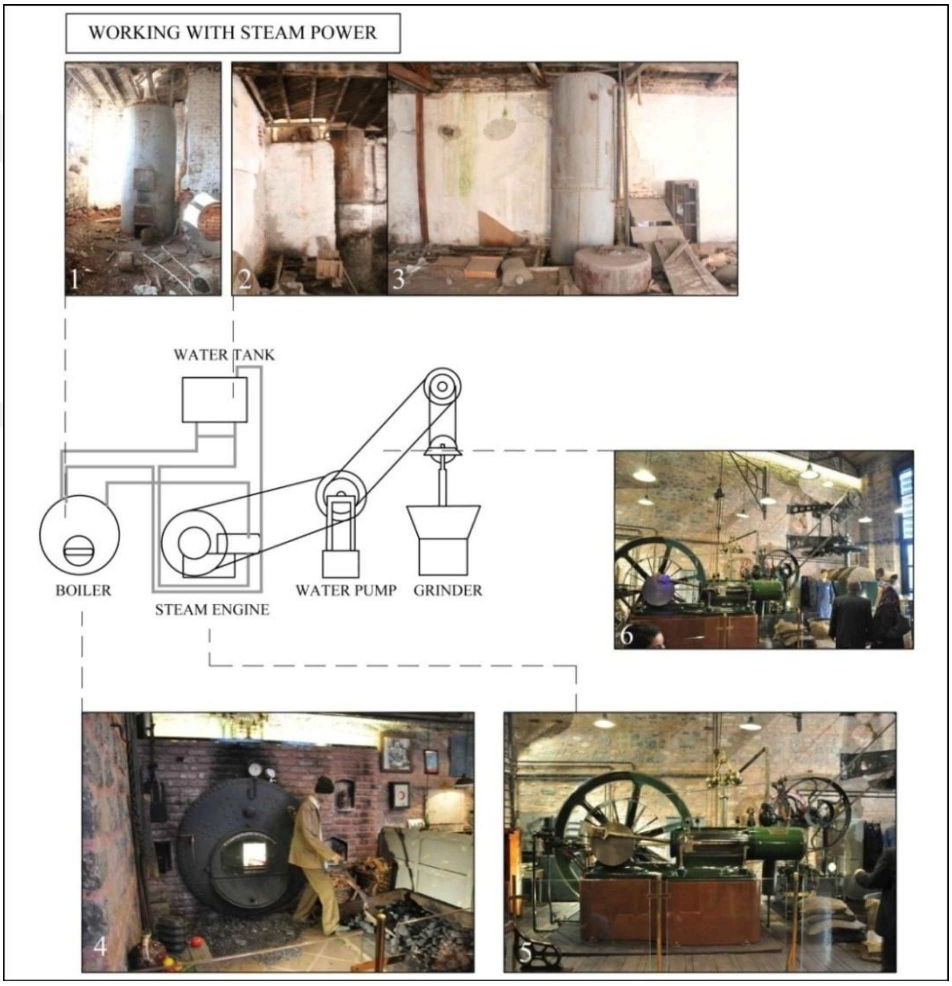



Figure 110: Working with steam power; 1-2-3:Boilers and water tanks in the factory; 4-5-6:Boiler, steam engine and hydraulic pump of the factory that located in Rahmi Koç Museum

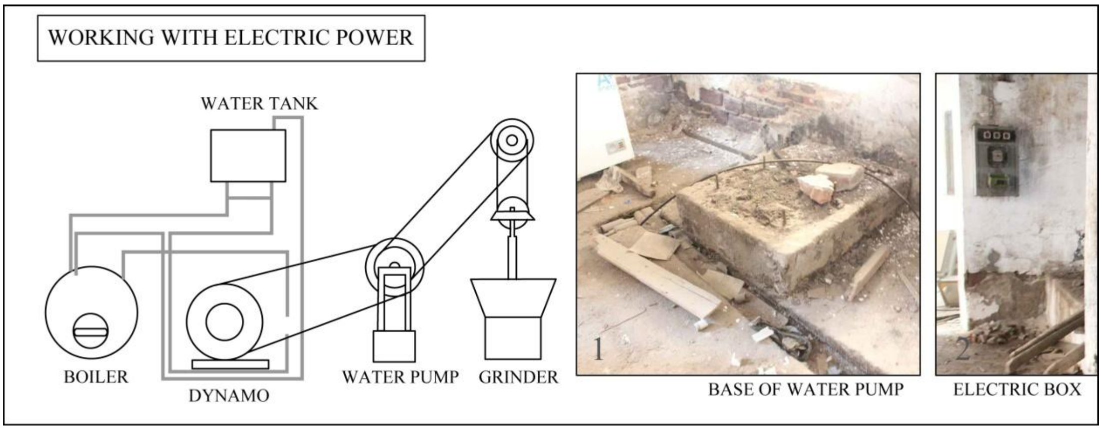



Figure 111: Working with electricity; in this phase dynamo was taken place instead of the steam engine in order to supply the electricity; 1:Concrete base of the water pump in the factory; 2:One of the electric boxes in the factory

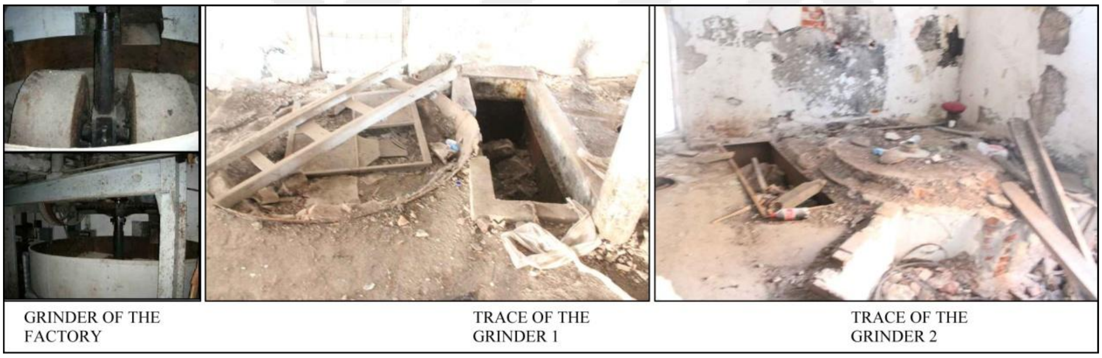



Figure 112: The grinders of the factory ; The left images (source: Esra Terzi, 2007); The middle and right images are the traces of the grinders and their containers for extra virgin olive-oil in the factory

***Bags and Presses:*** These tools provide squeezing the olive paste that was extracted from the grinders. The olive paste extracted from the grinders was put into the bags (See Figure 113, image 1) before it was put into the presses. The factory had housed two types of presses as mentioned in the phases of the process; hydraulic and super-steel presses (See Figure 113, image 4). Today, they are not existing in the factory. It is known that they were removed by the antique dealers during the abandonment period. Today, the ruins of removed concrete platforms of the presses are seen(See Figure 113, image 3).


Figure 113: PPE; 1:The bags that can be still seen in the factory; 2:The rod for stabilizing the bags (source: Terzi, 2007); 3:The ruins of removed presses; 4:Super steel press of the factory (source: Terzi, 2007)

***Pipes and Polimas:*** After the pressing stage, the liquid that includes the water, olive-oil and waste were transferred to the pools named *'polima'* by the pipes (See Figure

114, image 1-2). In these pools, the olive-oil was extracted with the help of dense difference.

***Channels and Sedimentation Ponds:*** Sedimentation ponds are approximately 1m high channels located on the ground floor of the polima area (G-03) (See Figure 114, image 3). It is for discharging the waste part of the product. Additionally, on the ground, there are 25 cm deep and 20cm wide channels in order to provide the path for waste between polima and sedimentation ponds (See Figure 114, image 4).


Figure 114: Image 1-2: the pipes for transferring the liquid from the presses to the polimas; image 3: pools named 'polima'; image 4: the sedimentation ponds for discharge of the waste and the channels

***Soap boiler:*** This tool is a boiler that was composed of a base with furnace (See Figure 115, image 1-2-3). With this tool, the olive-oil was boiled by firing the furnace in order to produce the soap. The base of the soap boiler with its furnace is located in the Space G-07 in the factory where the chimney is located. And the boiler is extended until the first floor of the factory (1-02).

***Soap Chamber:*** It is a wooden box for putting the boiled soap from the boiler (See Figure 115, image 4-5). It is 2.5 m x 1.18m in plan dimensions and 90 cm in height. After transferring the liquid from the boiler to the chamber, it was poured into the dry grids by ladles.

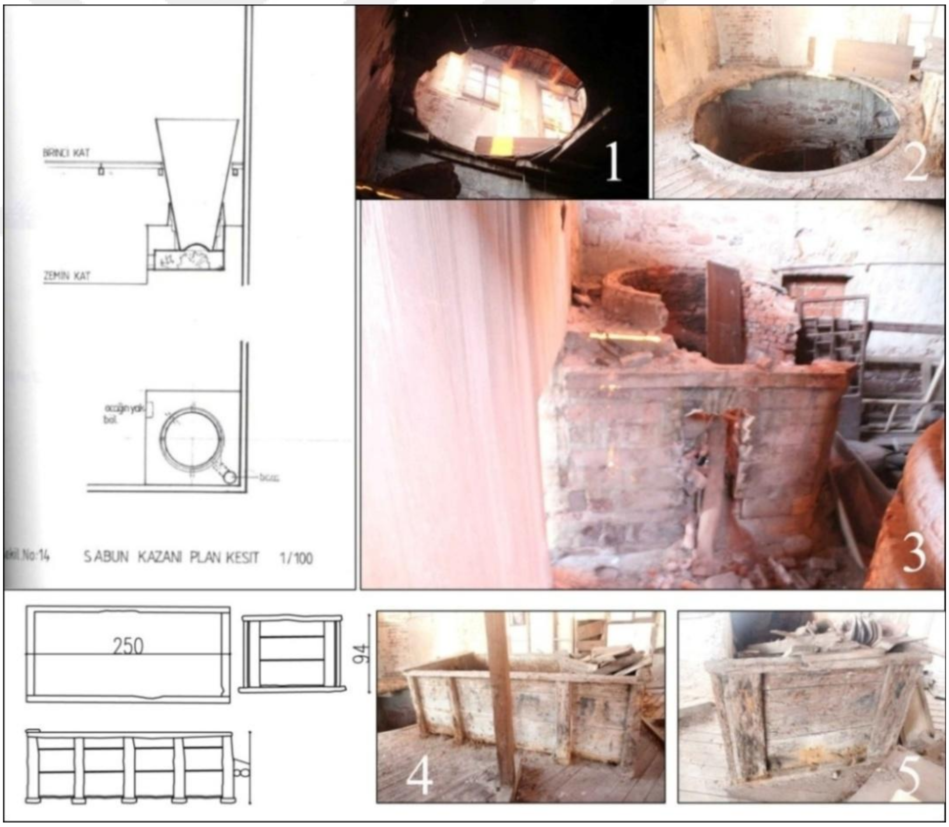



Figure 115: The soap boiler and soap chamber of the factory, the soap boiler drawing (source: Lim, 1997); other images and detail for soap boiler and chamber

***Soap Grid, SabunTavlası:*** On the first floor of the factory, the arrangement of flooring was constructed according to the soap production(See Figure 116, top images). There are some lathes on the flooring in order to create the grid for drying the soap that was called 'sabuntavlası'. Here, the soap was kept waited for drying and then cut and stamped.

***Chimney:*** Chimney is an important element of the factory that may be considered as both architectural and process element(See Figure 116, bottom images). It is the necessary element for working of the steam engine when the factory was operated with steam power. It is made out of brick with a stone base. It continues approximately 18m high behind the steam engine. It is tighten towards the top of it.

Figure 116: Soap grid (Sabun tavlası) and the chimney

### 3.4. Understanding the Building through Physical Characteristics

Within the understanding of the building, documentation related to the physical and architectural features of the building which are material use, construction technique & structural system, decay and deteriorations in structural system and materials are presented. All titles discussed in this part, have been defined according to the **visual observations** obtained from the site surveys. In order to determine these titles, related information are listed within a legend and presented in surveyed drawings with a color mapping (See Figure 117-Figure **118**Figure **119**Figure **120**Figure **121**).

#### 3.4.1. Material Use in the Factory

Understanding the material use of the factory aims to systematically present the materials which are used for the construction of the factory. They are grouped under nine main headings according to the origins as stone, wooden based, metal, earth based, lime based, cement based, glass and synthetics. These headings are also sub-grouped according to the aim and type of use that depends on location and function.

One of the main construction materials of the factory is **stone.** There are three types of stones which are used as either ruble stone, fine cut stone or rough cut stone binding with **lime mortar**. Ruble stone and rough cut stone binding with lime mortar are mainly seen at the ground floor masonry walls of the 'Sabunhane Block'. Fine cut stone which is very famous in the region named **'sarımsak stone'**, is seen at the corners of 'Yağhane Block' and the framing of windows and doors as an ornamentation.

There are **wooden based elements** in the factory which are grouped under two main headings according to their level of process: ready-made timber and log type. Logs which are generally square shaped, are used as posts, tie beams, truss elements. On the other hand, there are also processed timber elements in the factory named as ready-made timber elements. They are separated as rectangular shaped timber elements and wainscot. Rectangular shaped timber elements are used as flooring beams, lintels, joinery elements of the windows and doors, truss elements, covering and architectural elements. They are also used as flooring and ceiling. In addition to this, there is a partition wall located in the Space 1-02 which is made out of wainscot.

**Metal elements** are seen in the factory which are sub-grouped as iron elements, tin sheets and steel. Iron is used at grills and joinery elements of the doors and windows, lockers and hinges of them, balustrades of the staircases and torsion bars. Tin sheet is used at the ceiling covers of the first floor of the 'Annex Block' and gutters. There are also steel I-beams in the factory which are located in the Space G-03 [distillation pool].

The materials which are grouped under the heading of **'earth based'** are produced from earth that are investigated as bricks, tiles and rammed earth. Brick is one of the main construction materials in the factory after the stone. There are two types of bricks which are solid brick that is named 'old brick' and the factory bricks. Generally they are both used for masonry walls, partition walls and floorings.

The solid bricks binding with lime mortar are used at the masonry walls of the 'Yağhane Block' and first floor masonry walls of the 'Sabunhane Block'. While some parts of these walls are lime plastered, some parts are left un-plastered. The factory bricks binding with cement mortar are used at the division walls which were added to the factory.

In addition to the walls, solid bricks and factory bricks are used together for flooring where the platforms for equipments are needed. Therefore, in the Space G-08 [olive-oil production unit], the floor difference for equipment settings were provided through brick flooring platform. The bricks are also used for ornamentation of the windows located in the 'Sabunhane Block' such as W06. Another earth based material used in the factory is roof tiles. There are two types of roof tiles used in the factory: over and under roof tile (traditional one) and the french tile. Traditional one is used on the finishing of the roof covering of the 'Yağhane Block'. The french tile is used on the roof coverings of the 'Sabunhane Block' and 'Annex Block' which are added or altered. In addition to those, the flooring of the Spaces G-06 and G-07 is made of rammed earth.

Use of **lime** can be seen either lime mortar, lime plaster or washes into white or color. Generally the traditional masonry walls of the factory which are made out of stone or solid brick, are used binding with lime mortar. Their finishes are generally lime plaster and white wash. Green, pink and red paints are also used as finishing material as seen on the south-eastern façade of the factory.

**Cement based** materials are sub-grouped under screed floorings and contemporary additions. Screed floorings are used originally in the ground floor of the factory with the channels and sedimentation ponds. And the others are used at the contemporary additions such as the 'Annex Block' and shelter which is constructed with concrete skeleton. In addition to that, the closed openings on the façades are made out of factory bricks binding with cement mortar and sometimes cement plastered.

**Glass** is used at the windows of the factory. The divisions of the window frames which are mostly wooden, define the dimensions of glasses.

The materials under the heading of **synthetic** are artificially added to the original structure such as electric cables, sockets, plastics and sanitary installations.

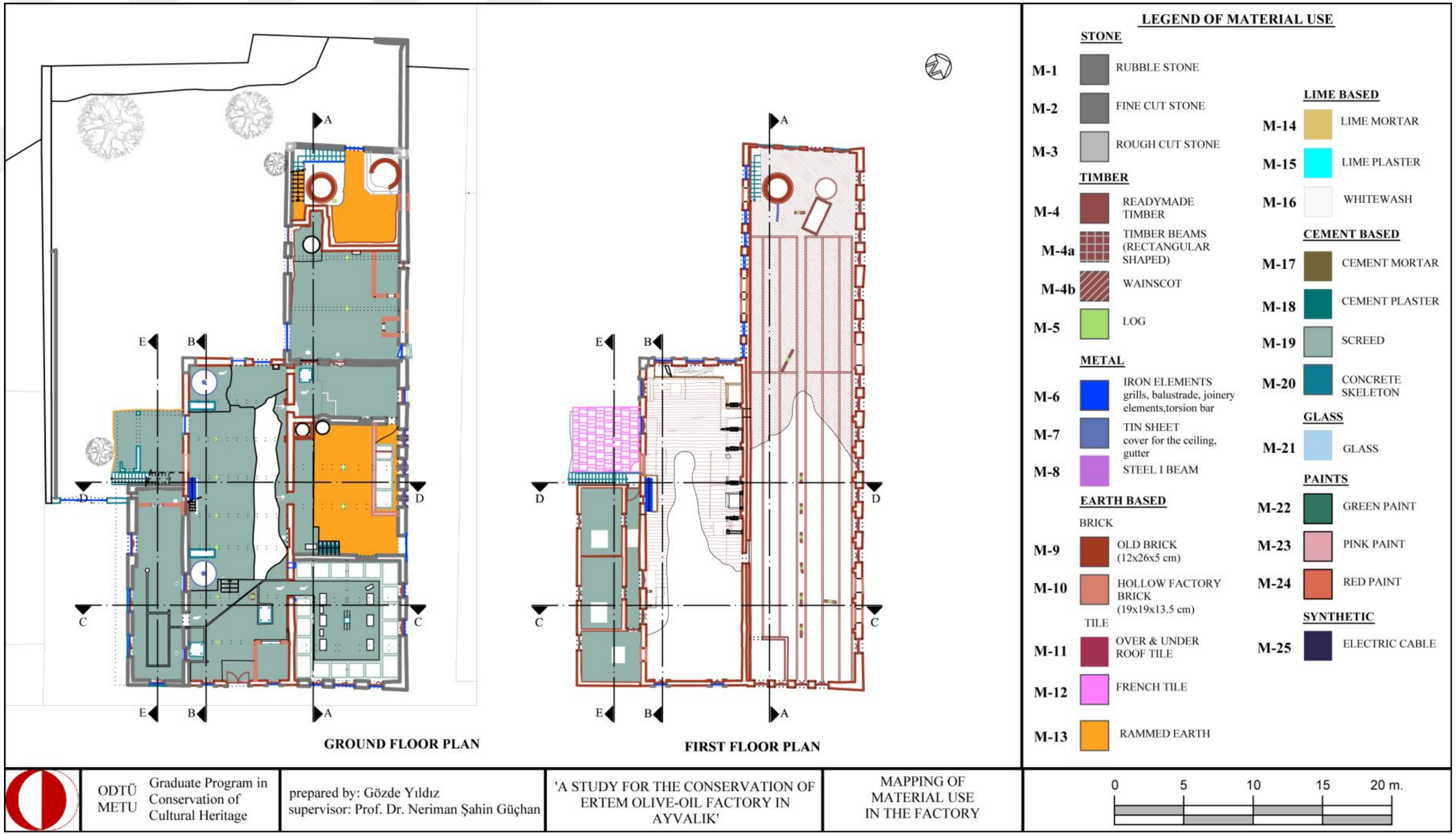



Figure 117: Material Use in the Factory, Floor Plans


Figure 118: Material Use in the Factory, Ceiling Plans

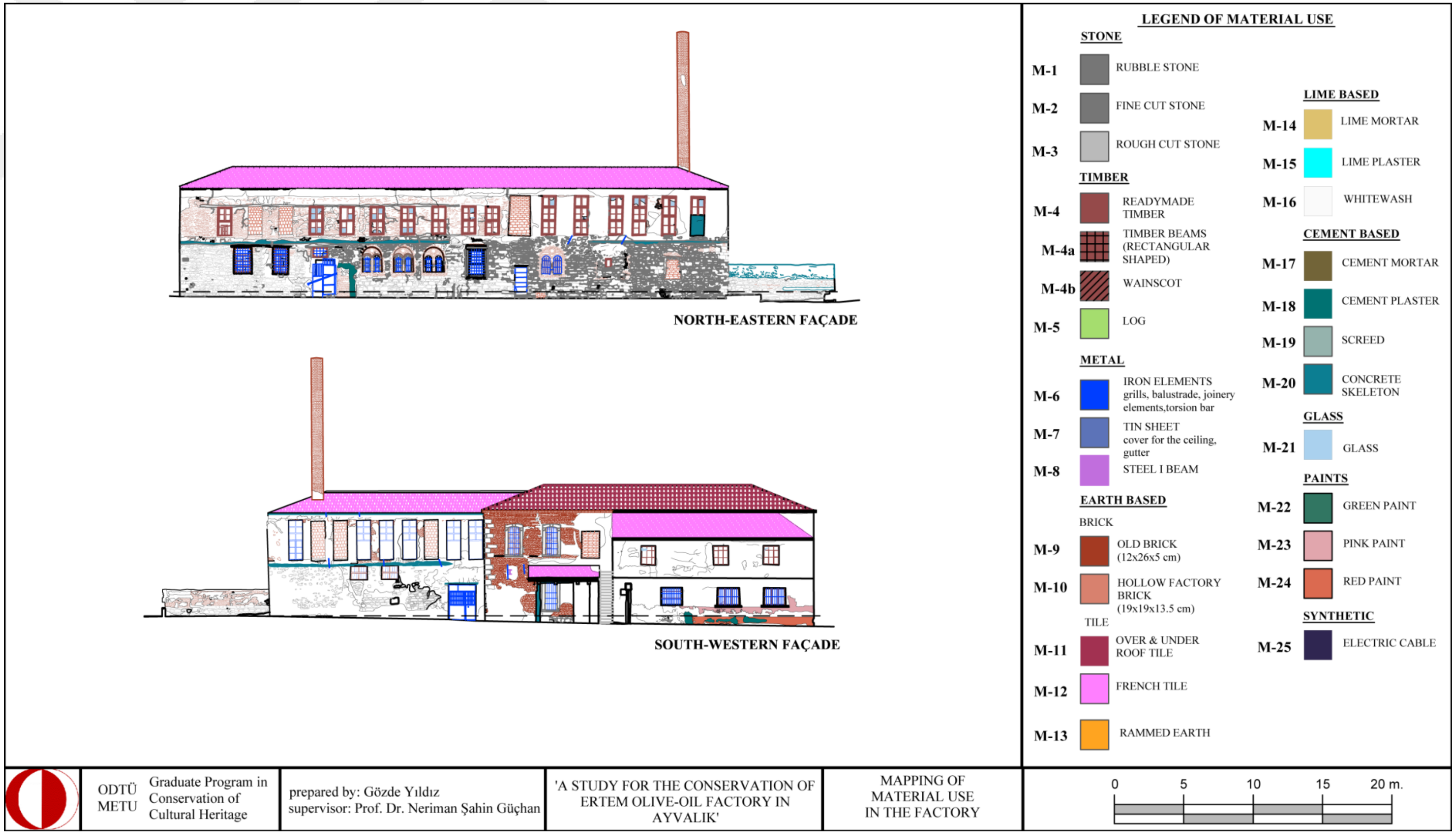



Figure 119: Material Use in the Factory, north-eastern and south-western façades

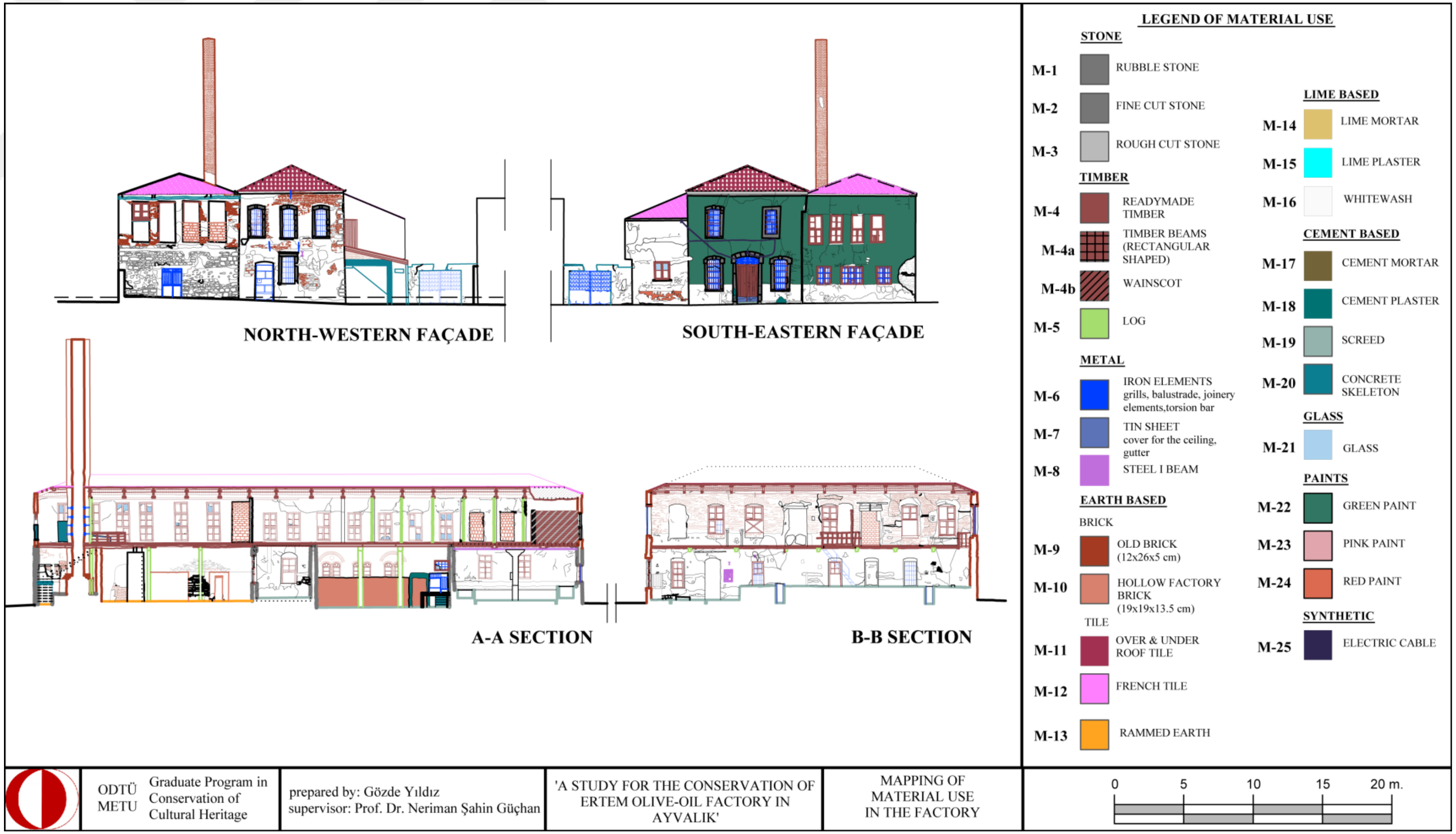



Figure 120: Material Use in the Factory, North-western and South-eastern Façades and A-A/B-B Sections

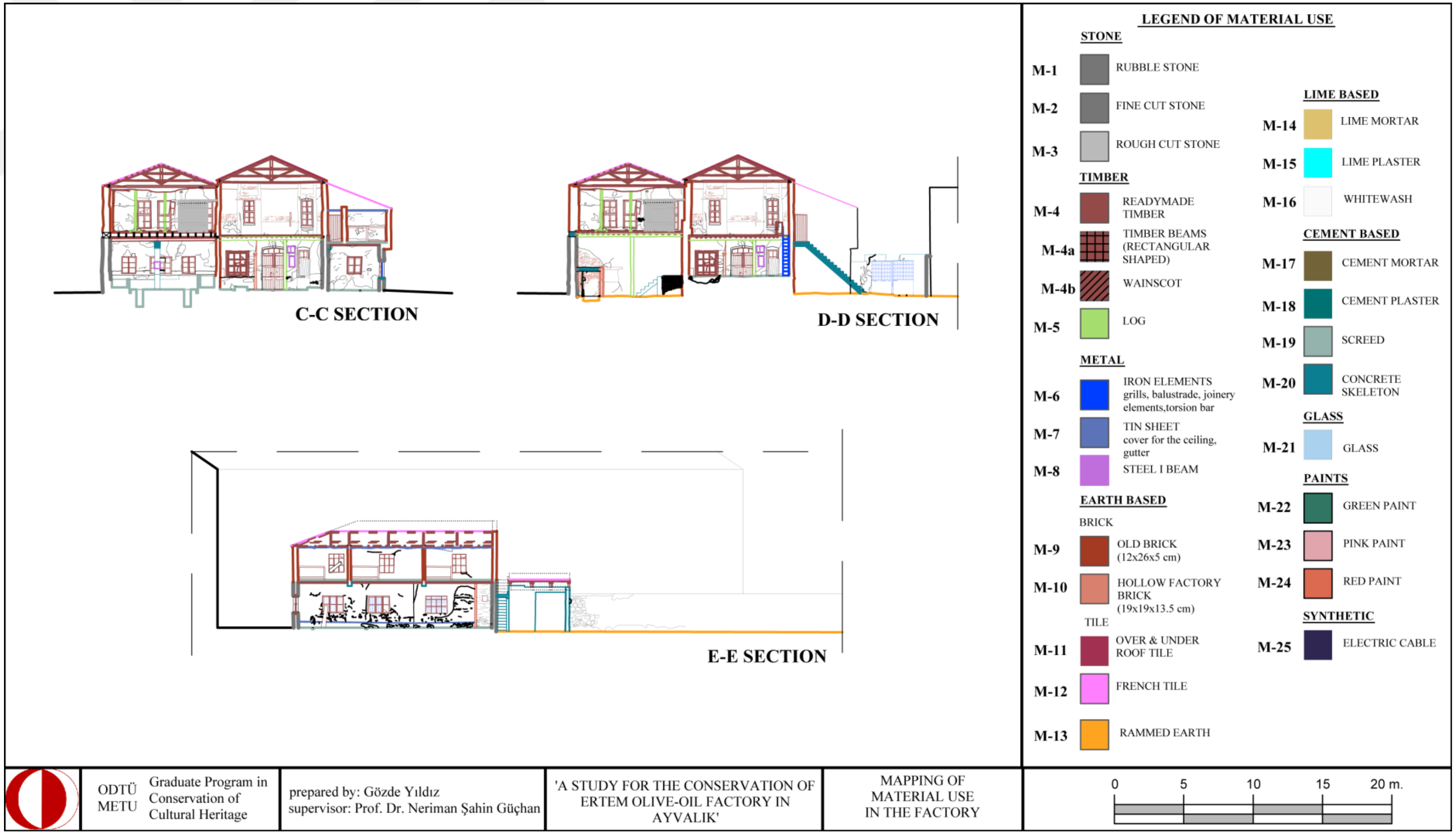



Figure 121: Material Use in the Factory, C-C/D-D/E-E Sections

### 3.4.2. Definition of Construction Technique and Structural System

In this section, the elements forming the construction system of the factory are defined with their construction techniques. First, the main structural system of the factory is defined in order to better understand the each structural unit forming the blocks' behaviors and their construction techniques. Basically, there are two types of structural systems which are used to the factory that consists of three blocks: masonry load bearing system and reinforced concrete skeleton system. The 1st and 2nd Blocks (Sabunhane and Yağhane Blocks) are constructed with masonry load bearing system, while the 3rd Block (Annex Block) is constructed with concrete skeleton system which is added at the factory in the third phase.

Masonry system is a concept which composed of vertical and horizontal elements for transferring the loads. Vertical elements transfer the loads vertically to the ground, while the horizontal elements transfer the loads to the vertical elements. They work together as a system. The structural system of 'Sabunhane Block' and 'Yağhane Block' is load bearing system which is composed of masonry walls and posts as vertical members and flooring beams, roof trusses as spanning and roof members which behave as horizontal elements. The exterior walls are the main load bearing walls which transfer the loads of the superstructure to the foundation. The superstructure of the blocks consists of timber trusses that distribute the loads to the bearing walls. The spanning elements of the floorings also transmit the loads to the bearing walls. In the both blocks, reinforcement elements are used as bonding material at the junction of the ground floor and the first floor.

The structural system of 'Annex Block' is concrete skeleton system which is added at the factory in the third phase. It consists of beams and columns. The concrete beams of this block are attached to the existing bearing wall of the 'Yağhane Block'. The walls of the 'Annex Block' are stone at the ground floor and briquette at the first floor as infill material of the concrete skeleton. The superstructure of this block consists of one way slope timber roof structure. For this block, the main structural body is concrete skeleton system which works with the load bearing wall of the 'Yağhane Block'.

The elements forming these structural systems are described under six main headings which are masonry elements, posts and concrete skeleton, openings, reinforcement elements, spanning-roof elements and flooring elements.

***Masonry Elements***

Masonry construction technique is widely used in the factory since the main structural body is masonry system. The walls of the ‘Sabunhane Block’ and the ‘Yağhane Block’ are constructed with the masonry technique whose types are classified according to their materials and techniques. There are mainly two types of masonry walls in the factory which are stone masonry and brick masonry walls.

Stone masonry walls are defined under two types. The first type is rubble stone used with brick pieces binding with lime mortar. It is primarily observed at the ground floor walls of the 'Sabunhane Block' and south part of the south-western wall of the G-08 [olive-oil production unit].

Figure 122: Masonry walls; left: rubble stone with brick pieces with cement mortar; middle: rubble stone with lime mortar; right: rubble stone with brick pieces with lime mortar

All exterior walls of 'Sabunhane Block' are constructed with this technique. The finishing of the exterior walls changes from space to space at the exterior surface, while the interior surface of the walls are always plastered or white washed. The thickness of the exterior walls is approximately 55-60 cm. In addition to this, the corners of the ‘Sabunhane Block’ are made by using large cut stones. Some interior walls of the ‘Sabunhane Block’ of which are the walls of G-03 [distillation pools], G-04 [pirina] and G-05 [storage for pirina], are also constructed with this technique as seen from the discharge of the plaster. They are always plastered or white washed but still the texture of the wall is visible. This type of interior walls is approximately 45 cm in thickness.

Figure 123: Large corner stones on the corner

The second type is rubble stone used with brick pieces binding with cement mortar. This type of wall is observed at the courtyard wall which is adjacent to the north corner of the ‘Sabunhane Block’. The thickness of this wall is 50 cm.

Brick masonry walls are also defined under two types. The first type is solid brick with 5x12x26 cm in dimension binding with lime mortar. The thickness of the walls is approximately 45-50 cm. This type is primarily observed at the walls of the ‘Yağhane Block'. All exterior walls of this block are constructed with solid brick masonry binding with lime mortar. While the finishing of the exterior surface of the exterior walls changes from space to space, all interior surfaces of them are plastered and are white washed. In addition to the ‘Yağhane Block’, this type of masonry walls are also seen at the first floor walls of the ‘Sabunhane Block’.

The second type is hollow brick binding with cement mortar. This type of walls are seen in the Space G-04 [pirina]. It is also seen for the closed openings at the façades. This type indicates the alteration or addition in the factory.

In addition to the masonry walls, there are walls which are constructed with concrete skeleton system. They are seen adjacent to the ‘Annex Block’ which confine the shelter. And the courtyard entrance wall is also concrete wall. Besides, in the Space 1-02 [soap production unit], there is a secondary place which was constituted by 20 cm thick wainscot walls.

***Posts and Reinforced Concrete Skeleton***

In the factory, timber posts which are another load bearing elements, are used at the ground floor and first floor where no massive component was used in the transfer of the roof or flooring loads to the ground. They differ as rectangular or circular sections. They are log types of material approximately 20x20 cm in dimensions.

In addition to the posts, there is concrete skeleton system used in the ‘Annex Block’. This block was added to the factory later which was constructed with concrete beams attached to the brick masonry wall of the ‘Yağhane Block’. And this skeleton system was filled with stone and factory brick. And they are always plastered.

***Openings***

There are two types of brick arched openings in the factory which are classified as openings in the brick masonry wall and openings in the stone masonry wall. They are located at the top of the windows which are arch shaped.

The brick arched openings in the stone masonry wall are observed at the ‘Sabunhane Block’ where the W06 (See Figure 101) type of windows is located. The brick arched openings in the brick masonry wall are observed at the ‘Yağhane Block’, where the arch shape windows are located.

### *Reinforcement Elements*

There are two types of reinforcement elements that are seen in the factory. The one is seen at the brick masonry wall bonding with timber lintel 4.65m above the ground of the ‘Yağhane Block’. The other one that is concrete lintel, is seen at the ‘Sabunhane Block’ where the stone masonry walls (ground floor) and the brick masonry walls (first floor) are connected. Timber lintels which are located at the top the openings are also seen.

### *Spanning & Floor-Roof Elements*

Timber flooring construction which are consisted of primary and secondary beams, is the main spanning element in the factory. The first floor covering of the ‘Sabunhane Block’ and the ‘Yağhane Block’ is timber board which differs in shape and type. They are attached to each other by nailing. For the construction of the floorings in the factory, primary beams are placed perpendicularly on wall plates which are rough shape and approximately 15x15cm in size. And secondary beams with 8x15cm sections are set on the primary beams at the opposite direction. And cut timber boards are nailed to these secondary beams. As finishes, generally in the factory the bottom layer of the floors are left expose that can be seen from the ground floor. Only the spaces of G-02 [office], G03 [distillation pools], G06 [boiler room] are covered with timber boards adjacent to each other.

The top layer of the floors are composed of different types of timber boards. The Space 1-01 [olive-oil preparation] is covered with 25cm wide 3cm thick timber boards at the north-east/south-west direction that sets on secondary beams at the opposite site. The Space 1-02 [soap production unit] is covered by 16cm wide 3 cm thick timber boards at the south-north direction that sets on the secondary beams 45 degree angled.

The roof of the ‘Sabunhane Block’ and ‘Yağhane Block’ is gable roof with four surfaces. As roof covering material, over & under tiles are used in the ‘YağhaneBlock’, while french tiles are used in the ‘Sabunhane Block’. The roof structure of the ‘Sabunhane Block’ and ‘Yağhane Block’ is timber truss system.

While the ‘Sabunhane Block’ has 15 trusses, the ‘Yağhane Block’ has 8 trusses. The members of trusses are the main beam with 11x20cm in size, the main rafters with 9x15cm in size, diagonal and bonding beams with 5x10cm in sizes and the ridge purlin with 11x20cm in size.

On the other hand, for the ‘Annex Block’, the floorings are concrete slabs at the ground and the first floor. The ceiling cover is timber board which is seen from the Spaces G-09 and G-10. The roof of this blockis gable roof with two surfaces. As roof covering, french tiles are used. The roof structure composes of timber members that is seen partially from the demolished parts of the ceiling cover. This timber roof structure is covered by tin sheets that can be seen from the first floor of the ‘Annex Block’.

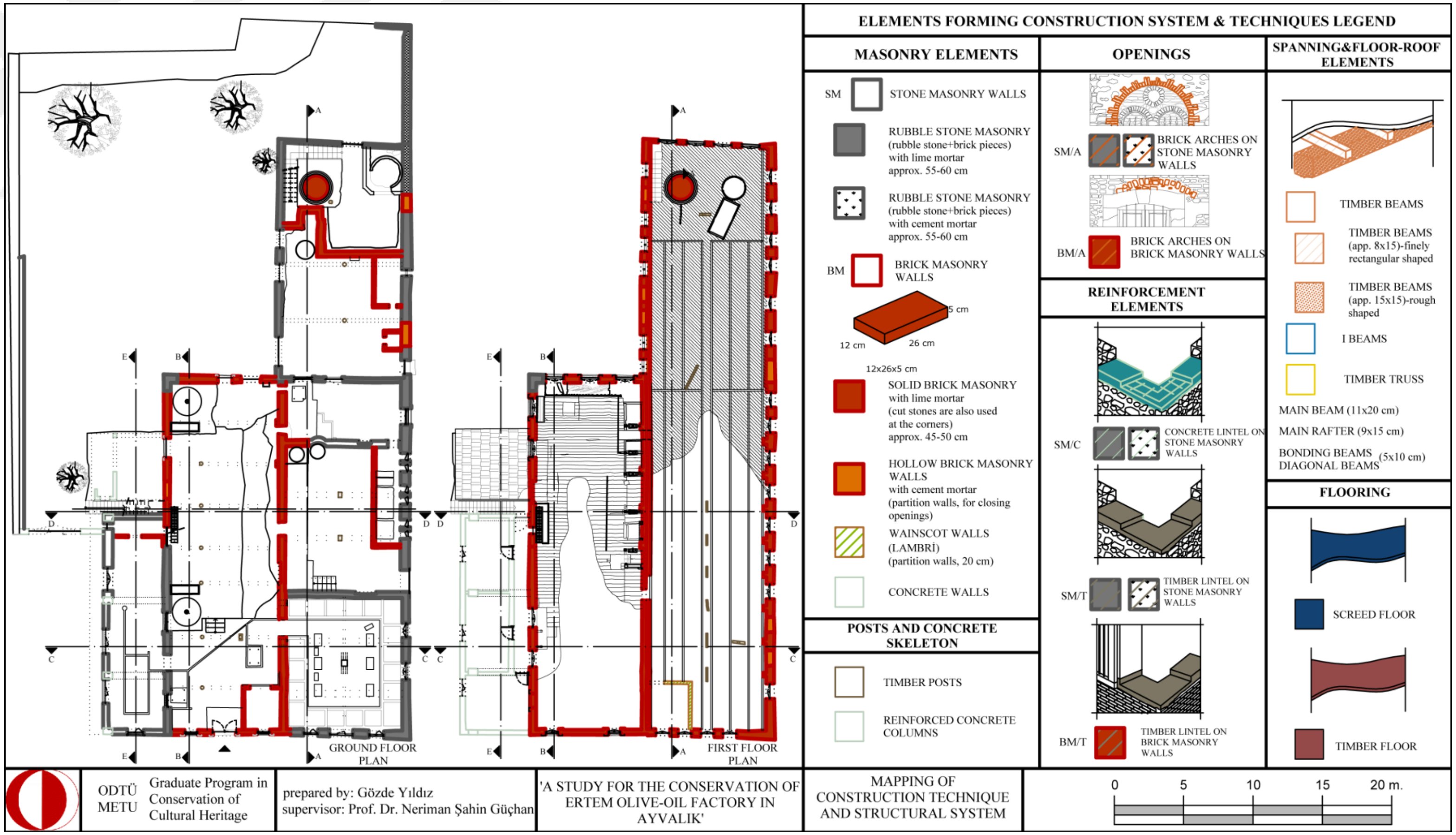



Figure 124: Elements forming the construction system, plans

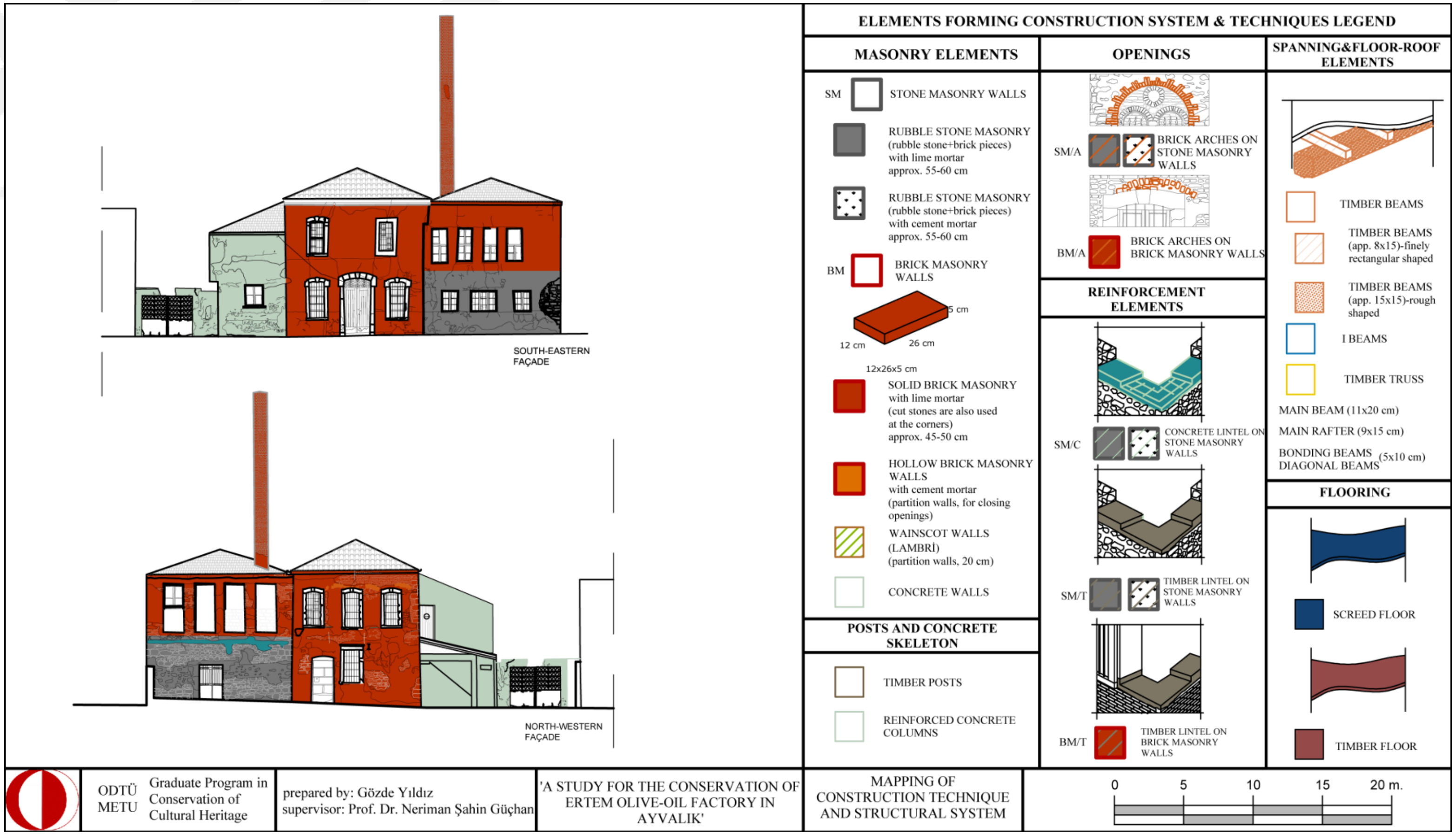



Figure 125: Elements forming the construction system, façades

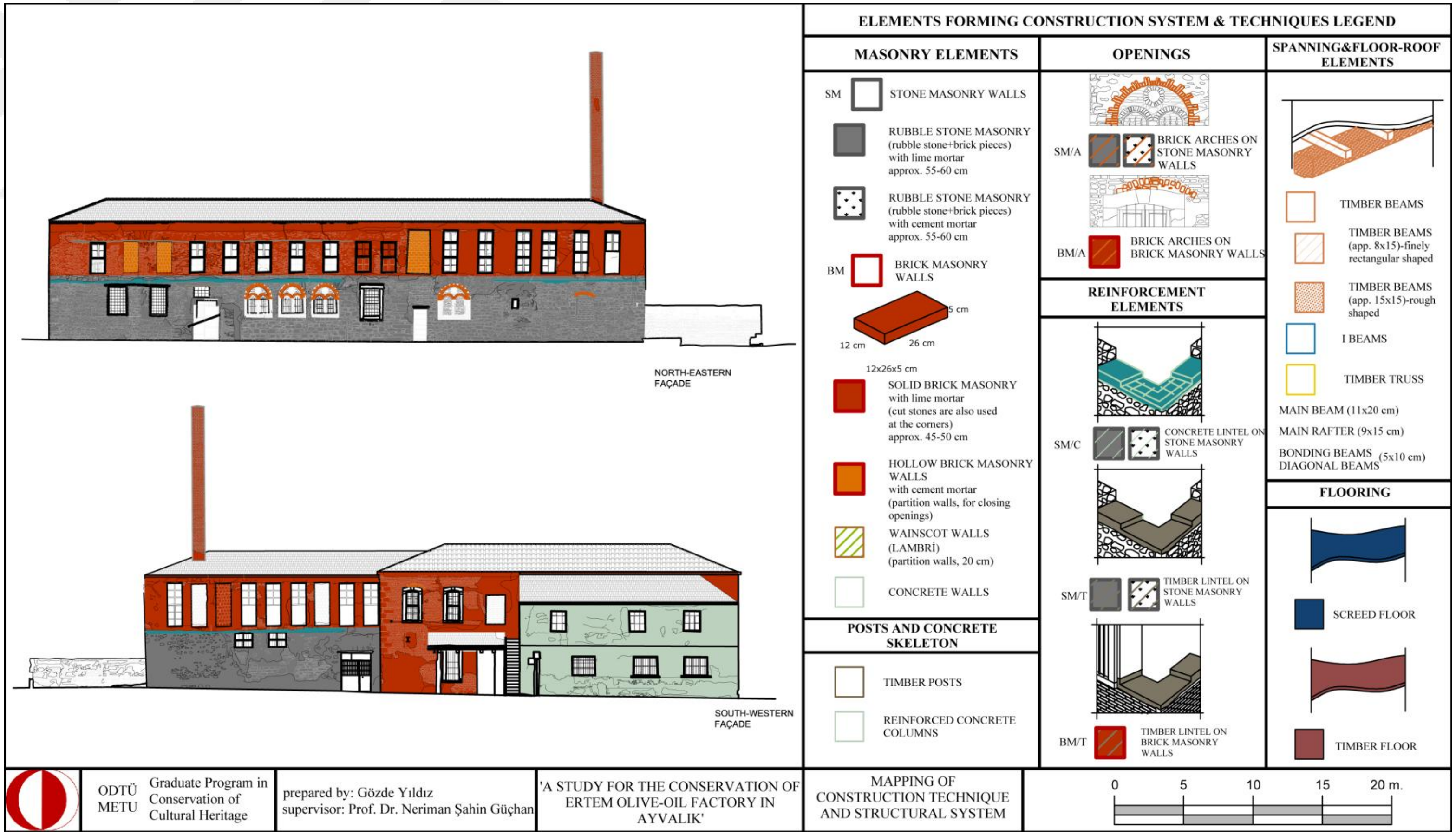



Figure 126: Elements forming the construction system, façades

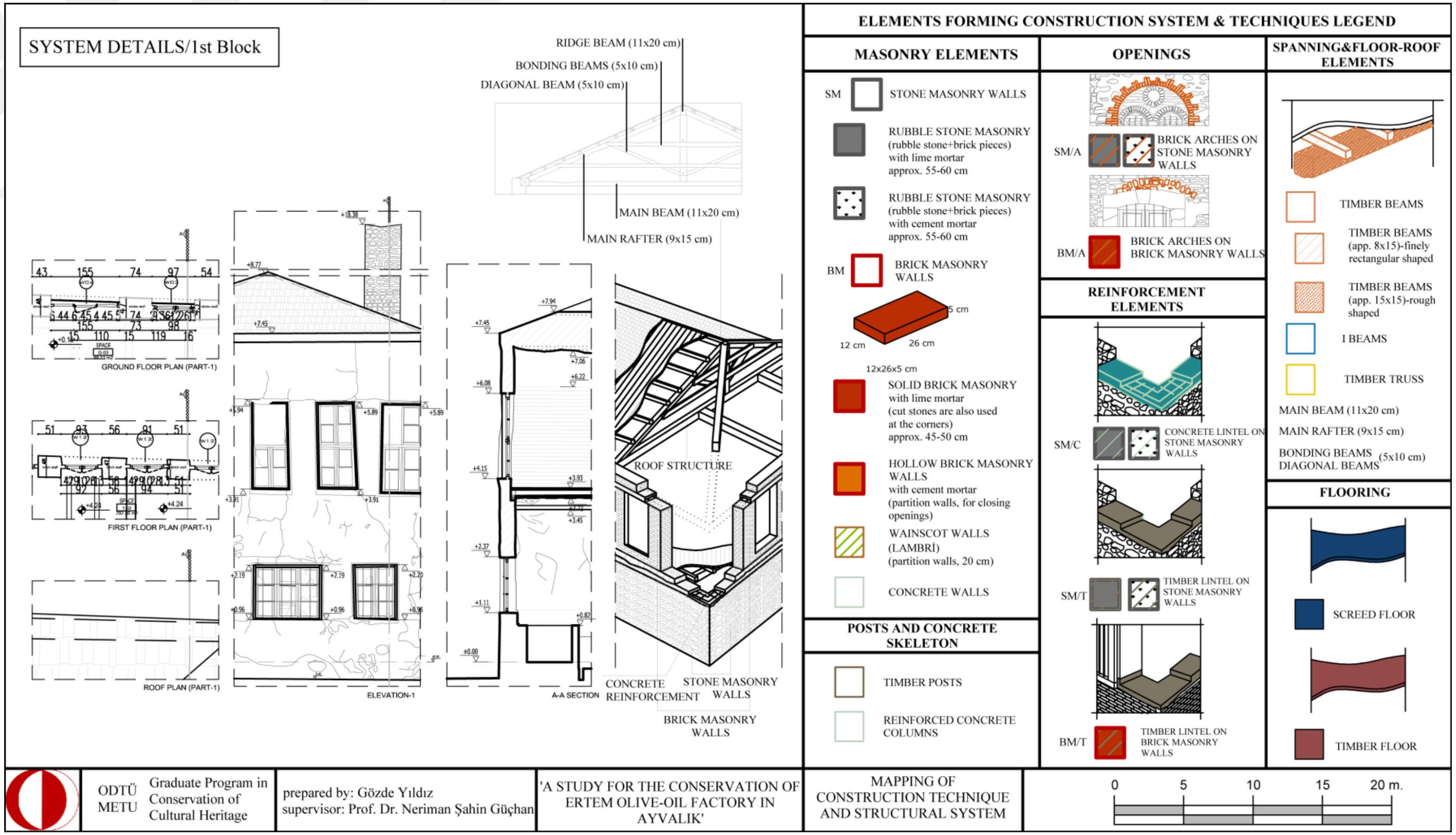



Figure 127: Structural system of the ‘Sabunhane Block’

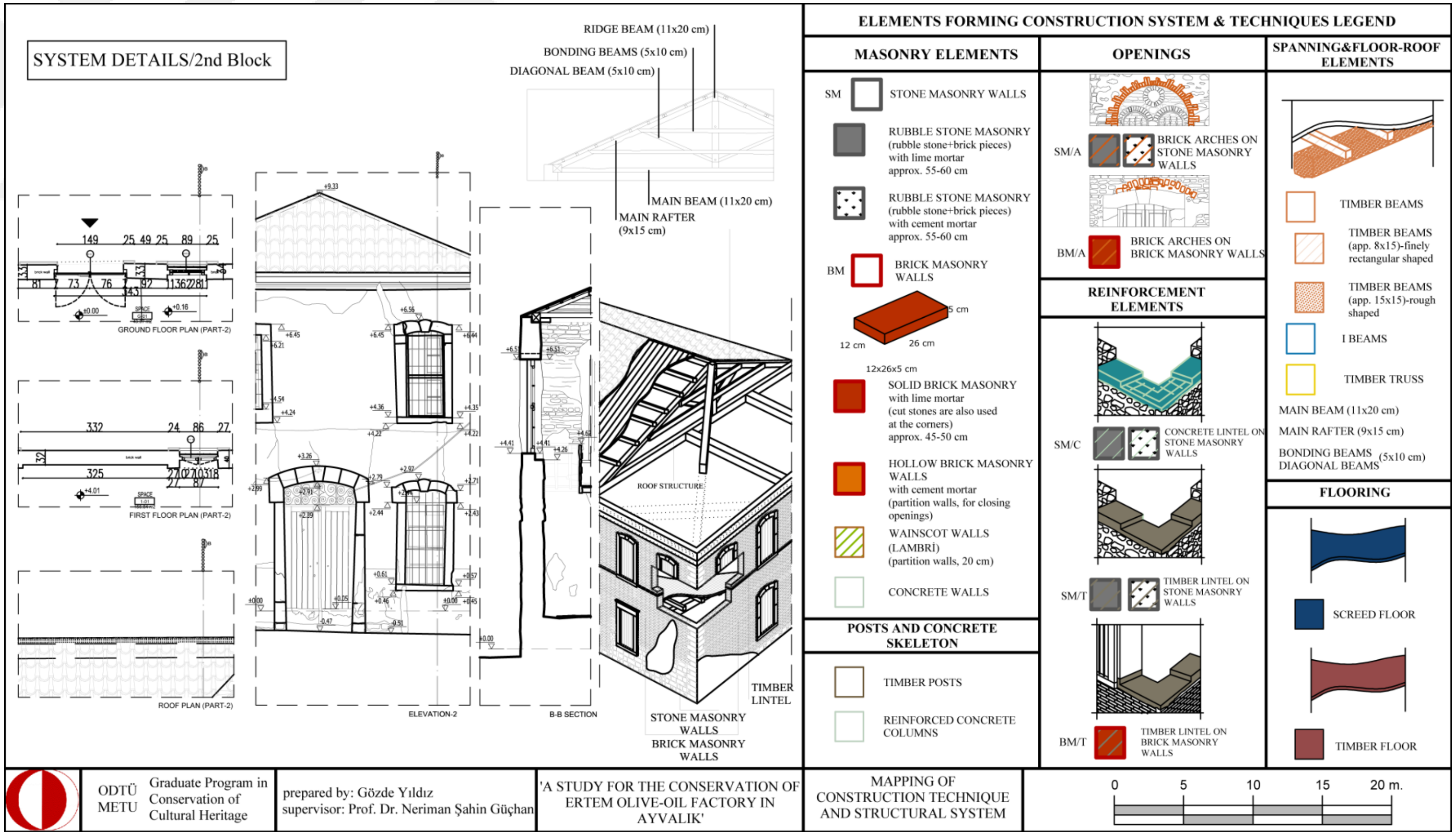



Figure 128: Structural System of the ‘Yağhane Block’

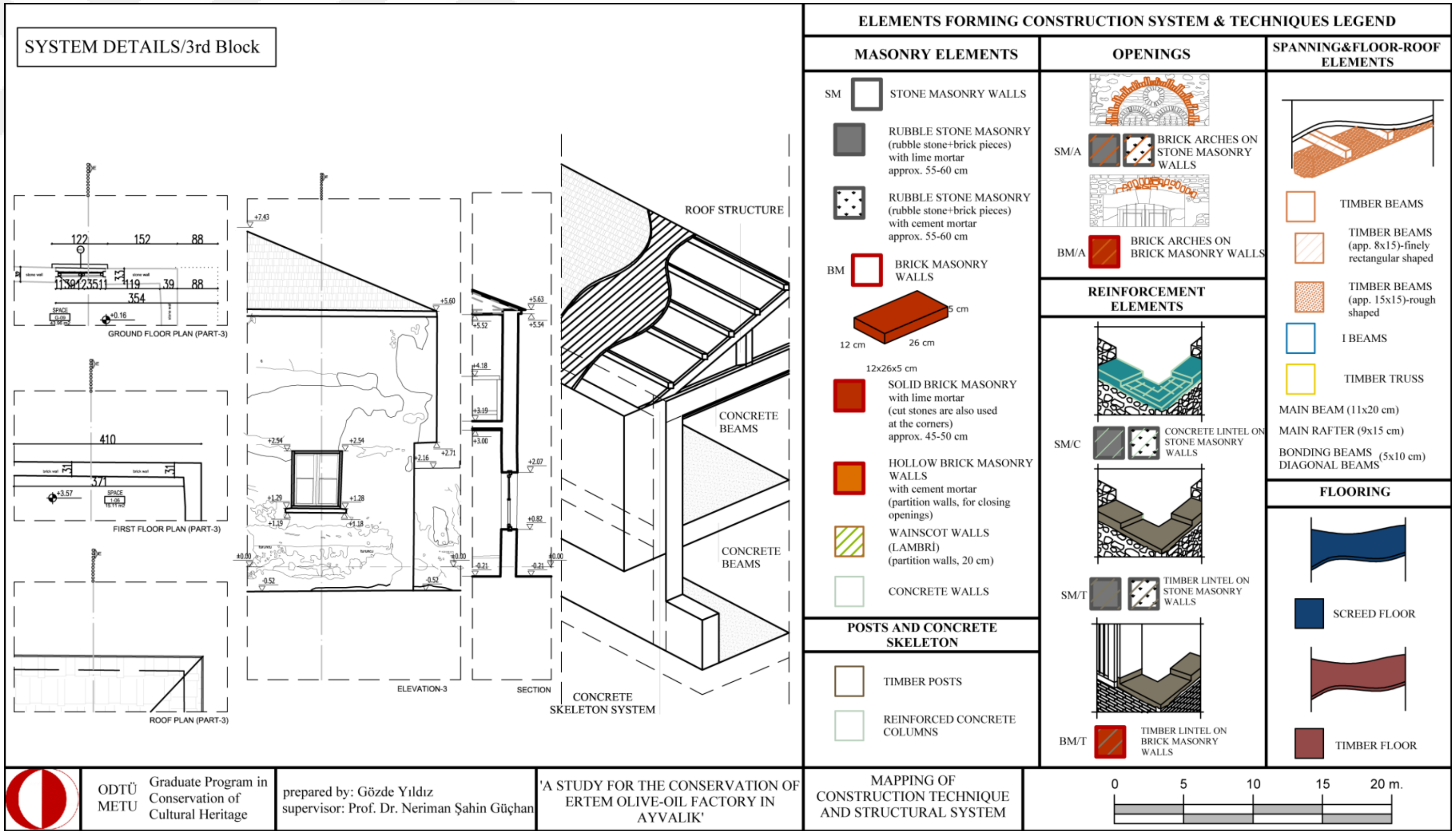



Figure 129: Structural System of the ‘Annex Block’

### 3.4.3. Definition of Structural Problems and Material Deterioration in the Factory

Survey & mapping decay related to the condition of the existing fabric and physical problems are carried out under two headings: **material deterioration and structural problems**. This survey is based on visual observations done in the site study. Material decay forms are defined in three main titles which are **material loss, surface degradation, discoloration & deposits**.

***The loss of materials*** which has slight damage in the factory, is categorized as partial/unit loss and flaking:

*Unit loss* which is a damage form that occurs by break off the material or loss of it in large fragments. This type of damage is observed for stone, brick, mortar, plaster, timber and screed in the factory. This type of loss occurred by break off the material, is mainly detected on the stone and brick ornamentations that frame the windows or doors such as the types of W02, W02', W12, W06. In addition to this, loss in timber is also observed at the windows and doors as them having wooden joinery. But the main problem of the loss in timber is detected at the timber trusses of the roof structures and timber floorings in the first floor of the factory. Loss in binding materials such as in mortar is important for the physical condition of the building due to causing the weakening of the structural members. Loss in mortar is also very common damage that is observed in the factory. There are two main reasons for loss of mortar: rising damp and man-made actions.

*Flaking* which is a damage form that occurs in layers on the surface. This decay is only observed for the plasters. It is mainly detected at the interior walls and plastered façade surfaces.

***Surface degradation*** which has moderate damage in the factory, is categorized as surface erosion, disintegration, formation of holes and fiberisation:

*Surface erosions in stone and brick* is a damage form that occurs on the surface of these materials. This decay is observed on the façades of the factory which consist of stone and brick masonry walls; stone and brick ornamentation of the doors and windows such as the types of W02, W02', W12, W06.

*Disintegration of mortar* is a damage form that occurs on the surface of the materials in granular sizes as powder. *Detachment on plaster* is another damage form that occurs in irregular shaped pieces on the surface. These decays are observed on the surfaces of the interior and exterior walls of the factory.

*Formation of holes and fiberisation* are damage forms that occur on timber surfaces. These surface decays are seen at the first floor coverings of the factory which are made out of timber and at the spanning elements and roof trusses whose members are consisted of timber. The formation of holes on the timber surface is occurred due to the *insect and softening by fungi*, while the fiberisation formations are occurred due to *the UV lights*. This decay form causes the weakening of the structural resistance of the timber element.

***Discoloration & deposits*** which are the indications of changes in original color of materials, is categorized as follows:

This decay form may be caused by either physical or chemical reasons. In the factory, mainly at the south-eastern façade, darkening on masonry walls is detected due to rising damp. On some stone surfaces, especially on the ornamentations that frame the windows and doors, efflorescence caused the white deposits on the surface of the stones due to deposits of salts. The deposits of biological forms cause a green color change on the surface of the timber elements as a result of microbiological attack that may cause softening and discoloration of timber element. Depending on fungi whitening and darkening can be seen. On plastered wall surfaces including both interior and exterior, darkening is observed due to stain. In addition to this, on the metal elements such as staircases, balustrades, window and door joinery, discoloration is detected due to oxidation.

***Structural problems*** are categorized in the factory as structural cracks and deformations as sagging and bending. But it should be pointed out that there are no serious structural problems in the factory.

To start with the *cracks*, structural cracks are seen in the factory which are defined as 'wide and diagonal cracks located on the masonry walls, above the openings that are approximately 0.5-2.5cm wide and 0.2-0.8cm deep in size. They are located at the north-eastern façade and south-eastern façade of the factory which are mainly observed on the corners of the openings. During the interviews that were made with the former-owner of the factory, it is understood that these cracks occurred because of the earthquake.

*Sagging* which is observed at the timber flooring elements, indicates that some structural elements of the factory lose their strength and/or deformed which causes the displacement of the original location of these elements. This problem is detected at the Spaces G-04 [pirina], G-05 [storage for pirina], G-06 and G-07 [boiler rooms] which are the spaces of the 'Sabunhane Block'. At the north-eastern sides of the spaces, sagging problem is observed due to timber loss and decay.

*Bending* problem which is observed at the timber members in the factory, indicates that structural members of the timber elements lose their strength which causes deformation on the trusses. Having considered that trusses are the mechanisms which are designed to restrain the corresponding forces with their structural members ability, timber decays due to the shrinkage and compression of timber elements, cause the loss of material strength for each member of the truss. In addition to that, the joints of the trusses are failed in tension and they cause suffering of trusses in the factory. Besides, these problems as for the roof structure cause of the leaking of the gutters in the factory which resulted as material decays that mentioned above due to the rain water penetration.

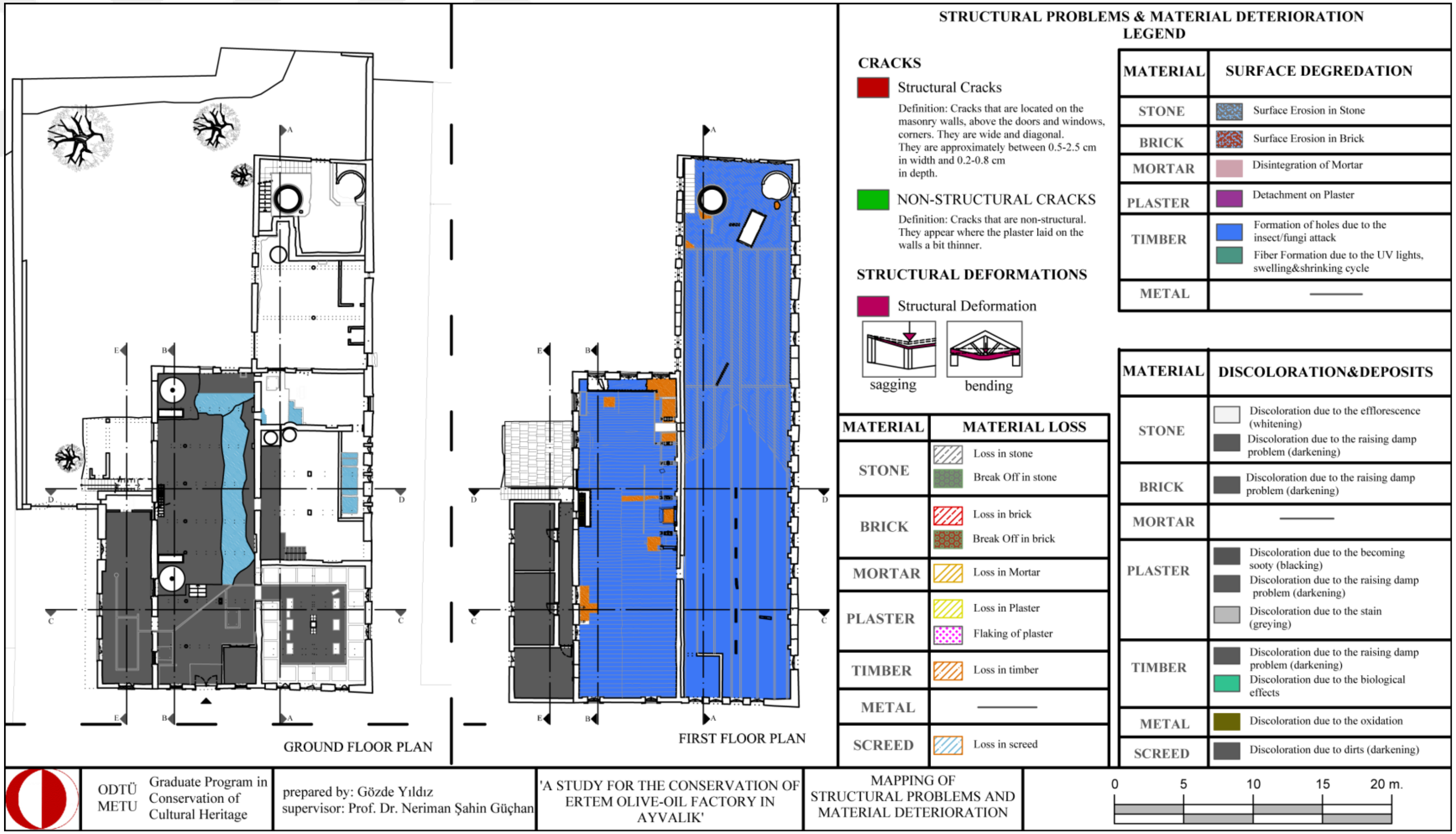



Figure 130: Mapping of structural problems and material deteriorations, plans

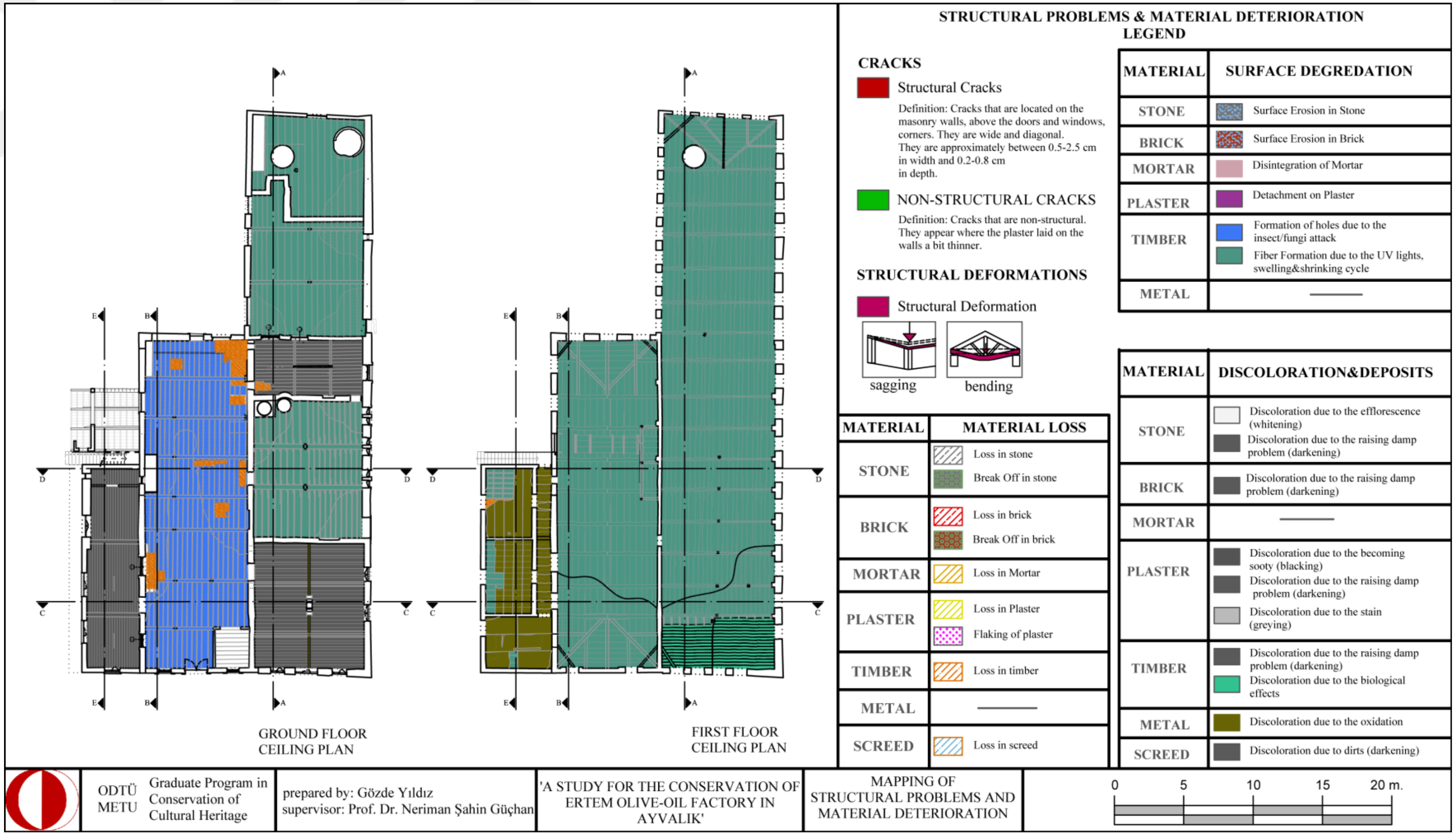



Figure 131: Mapping of structural problems and material deteriorations, ceiling plans

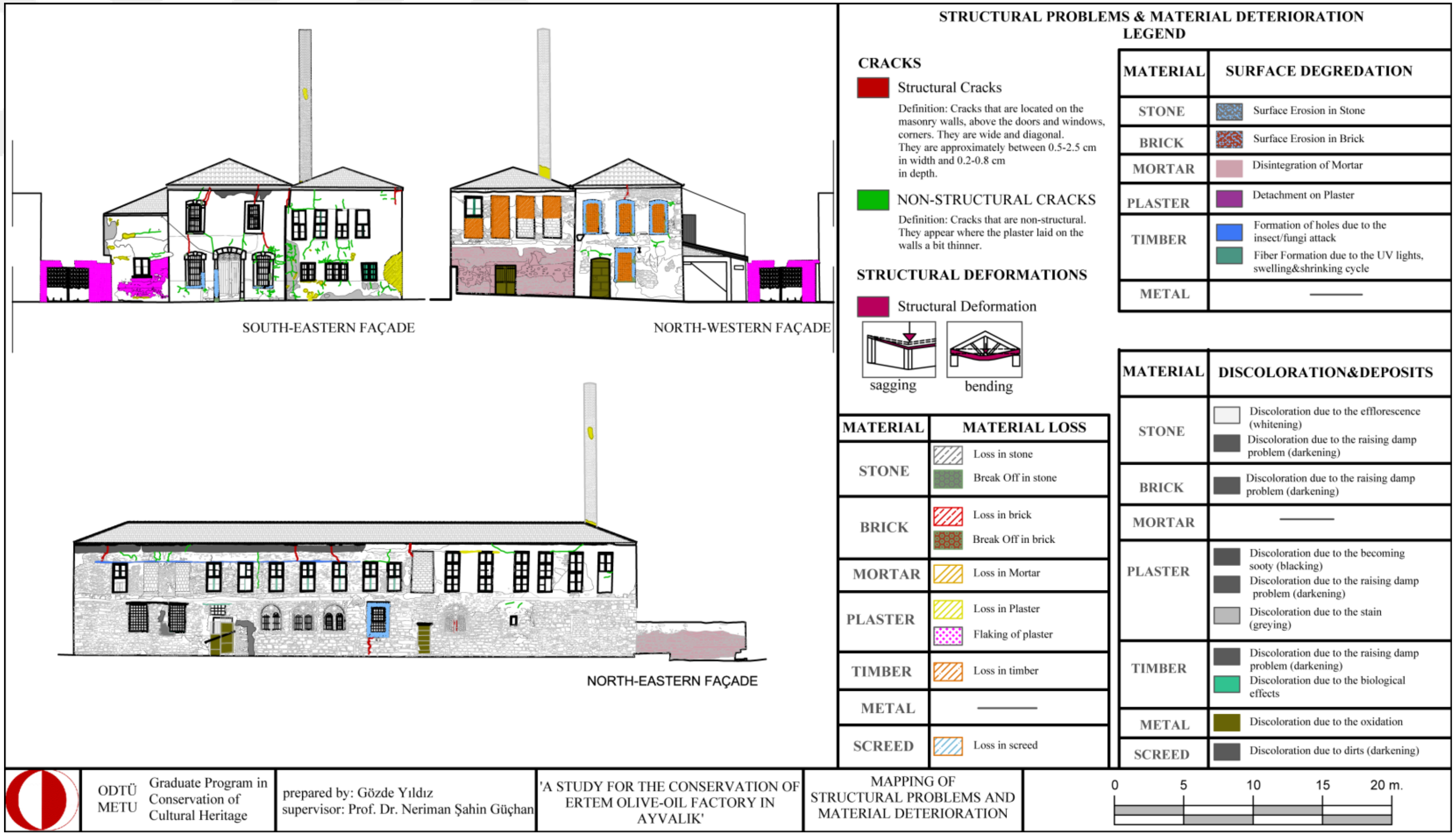



Figure 132: Mapping of structural problems and material deteriorations, south-eastern, north-western and north-eastern façades

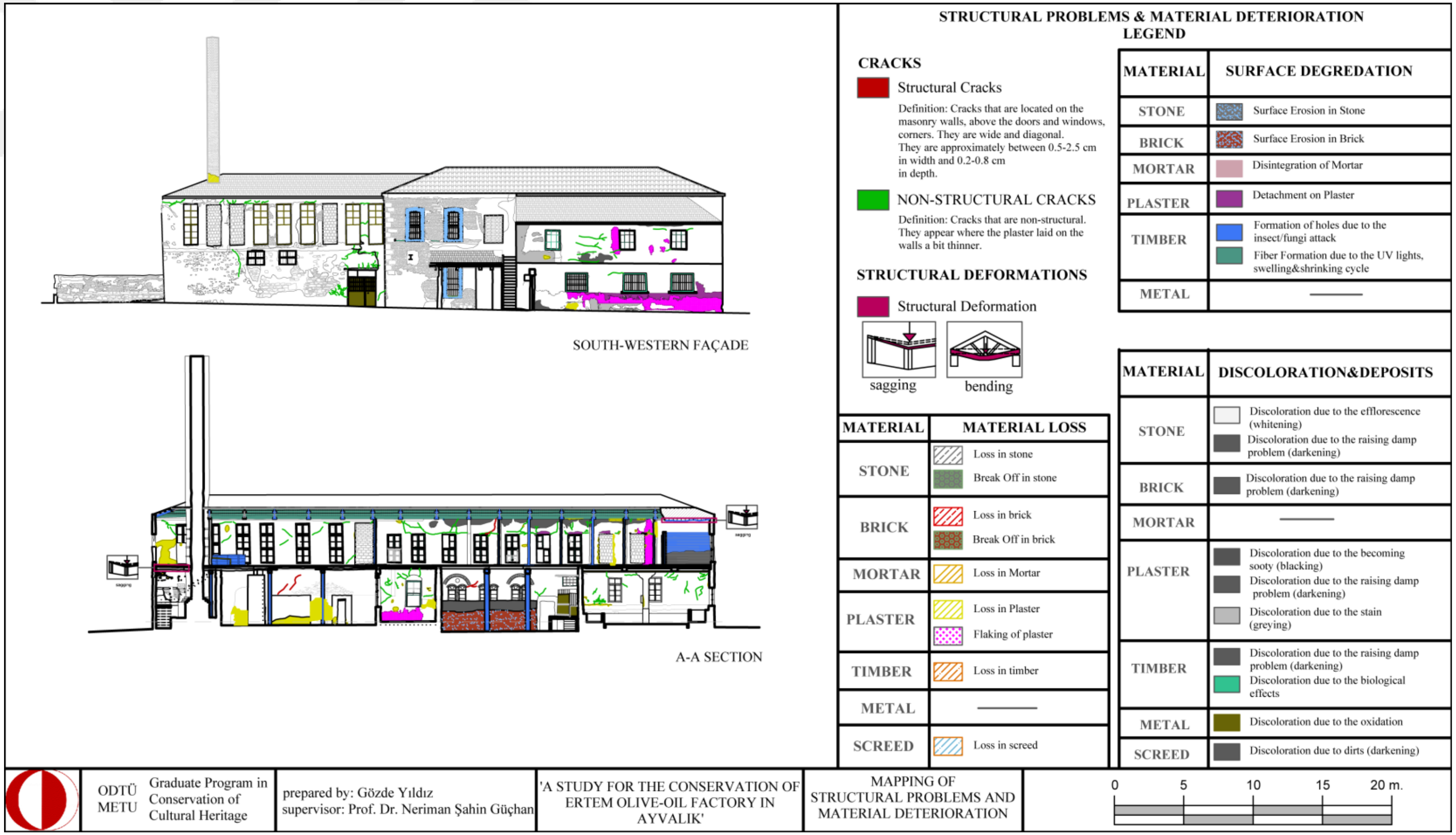



Figure 133: Mapping of structural problems and material deteriorations, south-western façade and A-A section

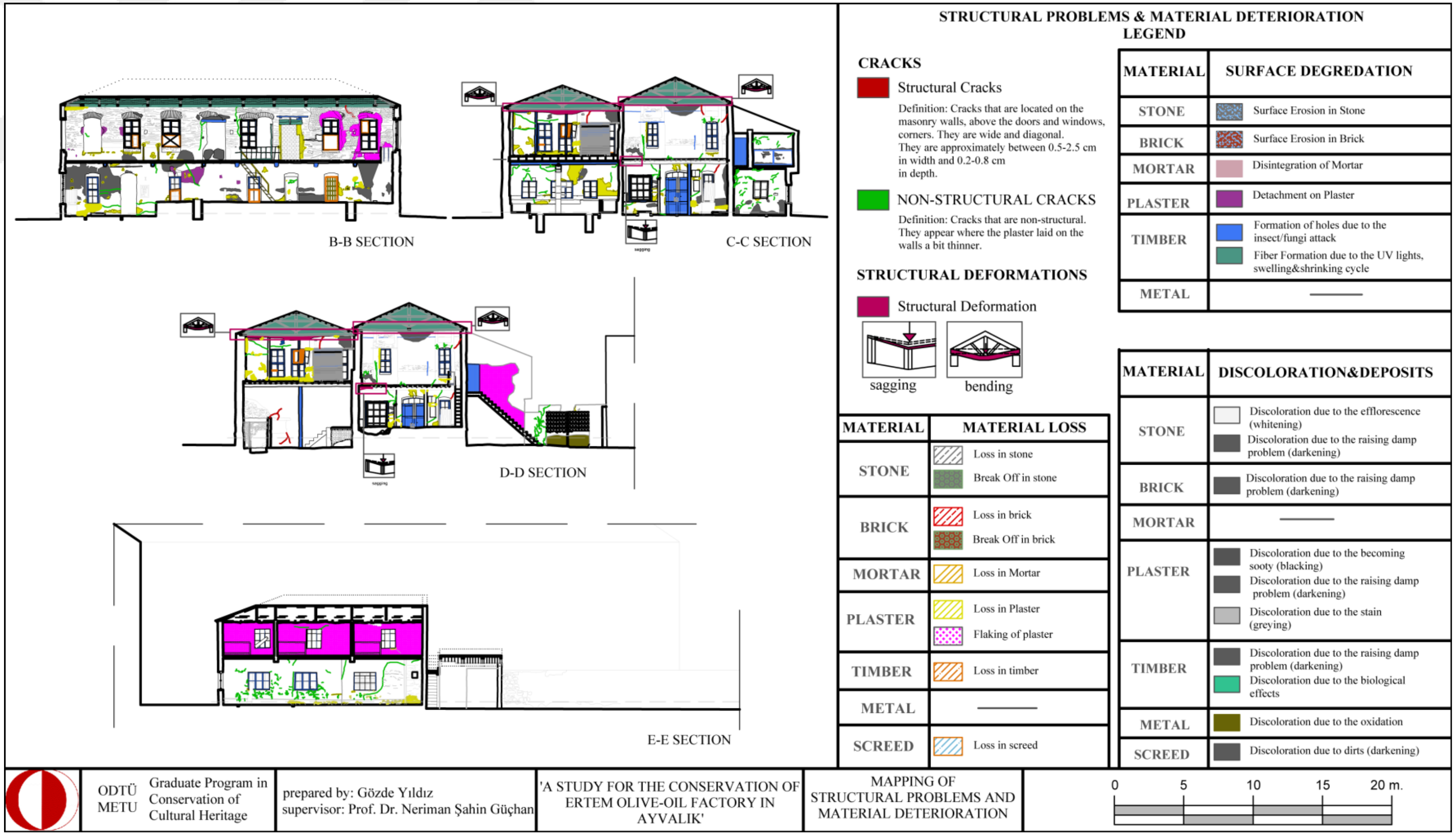



Figure 134: Mapping of structural problems and material deteriorations, B-B, C-C, D-D and E-E sections

### 3.5. Evaluation of the Current State of the Factory

The factory which is subjected to this thesis, is located at the today's commercial-touristic center of the town as being very important member of the city panorama that mentioned in the evaluation of the surrounding area with special emphasis on the factory itself (for further information see Chapter 3.1.; p.84-109). A part from the importance of the factory in city scale, the plan organization and space arrangements which are the reflection of olive-oil and by-products process, make the factory one of the significant examples within the region.

The factory which housed both olive-oil and soap productions, is two storey high building that was constructed with stone and brick masonry technique as similar ones in Ayvalık. Architectural and technical (process) elements of it which form the architectural characteristics of the structure have still survived as they are or with their traces. Its technological timeline may seem easy through its originality. In addition to those, one of the important technological elements, steam engine of the factory, is exhibited in Rahmi Koç Museum in İstanbul today. Therefore, as being one of the important examples that has survived until today with few changes of which are due to adaptation of the production process to technical developments or changes in active period, the factory is very significant example among similar ones within the region in order to understand the characteristics of these kinds of olive-oil & soap factories through its characteristics.

The information obtained from the documentation show that the factory suffers some physical problems. The reasons of these problems are mainly based on man-made actions and weathering condition.

To begin with, the building has not been used since 2000. Therefore, neglect and man-made actions are the main factors of these problems. Weathering condition mainly depend on humidity problem including rising damp and rain water penetration into the building that damaged the materials of the factory. Rising damp is one of the important agents of decay that is observed at the masonry walls of the ground floor. It is most probably due to the underground water coming from the sea.

It also causes the drainage problem for the factory. The second water source related to humidity is rain water penetration from the roof due to the timber decays of truss members and leaking gutters. It causes detachment of plaster of the first floor walls and loss of binding materials that affect the strength of masonry walls.

In addition to this, as a result of interventions related to process such as addition of the ‘Annex Block’ and the first floor of the ‘Sabunhane Block’, there are dilatation problems between the blocks. This problem is also resulted with rain water penetration into the factory that damaged the truss and upper parts of the first floor masonry walls. Environmental pollution is another agent of decay which is concludedas stain deposits through discoloration for the materials of the factory.

# CHAPTER 4

# ASSESSMENT OF THE BUILDING AS AN INDUSTRIAL HERITAGE

In the Chapter 3, existing state of Ertem Olive-Oil Factory and its surroundings had been defined. Such study has to be developed through changes and indications of the factory with analyzing similar examples in a comparative manner in order to reach to the original state of Ertem Olive-Oil Factory.

This chapter of the thesis constitutes of two sections. In the first section, comparative study which aims to emphasize the significance of the factory among others within the region and to evaluate the physical and architectural features of the factory, is given. As a next step, changes of the factory within time through evaluation of the traces are described. After, within the light of these information, the historical phases of the factory are presented.

In the second section, assessments related to general characteristics and existing state of the factory are given in order to constitute a base for conservation proposal of Ertem Olive-Oil Factory. All required information in detail which are obtained until here, are re-evaluated under the titles of 'values, problems and potentials' in order to realize for well-defined classifications which are directed to the decisions.

## 4.1. Comparative Study on Similar Buildings

Western Anatolia as a part of Mediterranean is an important olive geography with its natural features. Edremit Region is the center of olive and olive-oil culture since the ancient times housing a large number of olive-oil factories. These factories share some similarities with the others which are located in the region in terms of their common geographical, architectural and process characteristics, on the other hand, they differ in terms of their production capacities, production technologies which effect directly to the architectural features of them.

In this regard, in this part of the thesis, in order to evaluate and to reach to the original state of Ertem Olive-Oil Factory which is subjected to this thesis, comparative study is carried on. This study starts within regional (Aegean) scale study including Lesbos, Küçükkuyu, Altınoluk, Burhaniye in terms of sharing the similar culture with Ayvalık and ends with Ayvalık examples.

The main parameters for the comparative study are the characteristics of plan layouts, process structure and related equipments which affect directly the plan layouts and the characteristics of façades in order to understand the common architectural features of industrial buildings.

#### 4.1.1. Similar Factory Examples within Aegean Region

Throughout the Aegean Region, it is determined that there are 170 19th century olive-oil factories, 70 of which are registered according to the 2013 records as mentioned by Manisa (2013: 77). The differences of the geographical conditions in the region, cause the characteristic differentiations of the factories throughout the region in general (Manisa, 2013).

Aforementioned factories are mostly abandoned which caused the disappearance of the elements or they are converted into different functions that caused destruction of the originality of them. Therefore, it should be pointed out that it is hard to find original similar examples which have not changed, in order to evaluate in a comparative manner. Within the context of this regional scale comparative study, 5 factory examples are chosen according to their similarities of production capacities (scales), construction techniques, material use and originality of them. Agia Paraskevi and Vrana Olive-Oil Museums in Lesbos, İbrahim Burnaz Olive-Oil

Factory and Adatepe Olive-Oil Museum in Küçükkuyu, İbrahim Erdim Olive-Oil Factory in Altınoluk and Hüsnü Tolun Olive-Oil Factory in Burhaniye are studied.

In addition to those, the study on olive-oil mills in Küçükkuyu, Ayvacık by Manisa (2013: 77) is the secondary source for the study in order to see the other examples in the region. According to the evaluation for Ayvacık examples by Manisa (2013), it is understood that aforementioned buildings are located at the coastline which have courtyards at the seaside. Generally, they have two entrances: the one is from the coast and the other one is from the settlement part. All examples are single-floored buildings that include olive-oil production blocks which are rectangular shaped. Some of them also have depot blocks.

The characteristics differentiation of these examples are their ordinary chimneys which are shorter than other examples in the region. This feature is associated with that there is no settlement area close to these factories which affect the human health. Another reason for the differentiation of chimneys is soap production. According to the interview with former owner of Ertem Olive-Oil Factory, A. Servet Ertem (2016), it is understood that characteristics of the chimneys are related with buildings which include soap production blocks. It is because soap process has toxic waste which may cause danger for the human life. Therefore, the factory complexes which include the soap production and independent soap factories have long, dominant chimneys.

The general characteristics of these examples are as follows: all examples that are subjected to this study, are located close to the natural water sources. It is because discharging the waste water named 'karasu' from the factory in an easy way. Therefore, in the whole region, the sea becomes an important criterion for construction of the factories due to giving advantages for the process and transportation of the production through sea.

Aforementioned examples are in Neoclassical style which were planned as single, large spaces. They have rectangular plan types with one or two storey high and are constructed with stone masonry or stone and brick masonry techniques. Using cut stones at the corners is also seen in some examples. All of them have brick chimneys rising approximately 20-25 m or shorter as mentioned by Manisa (2013: 77) for Ayvacık examples as a common architectural feature which may be constructed circular or hexagonal shaped.

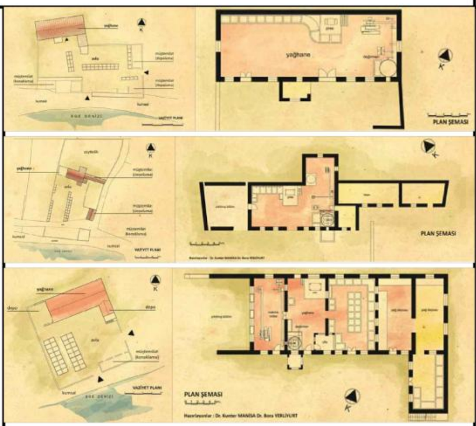
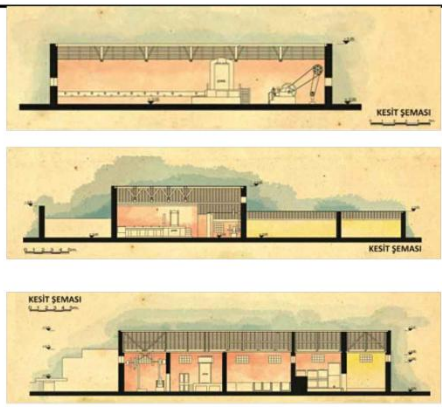
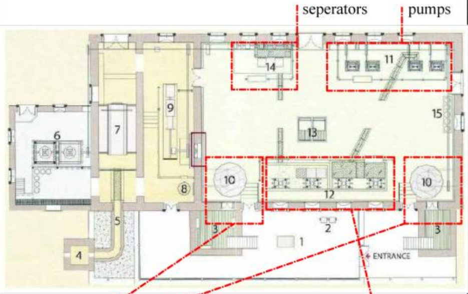
Most of the factories were constructed as a complex with soap block, depots, housing for the workers or residence for the owners. These units are shaped around the courtyard generally which are used for stacking of the incoming olives. While the olive-oil production blocks are changed as one or two storey high, the soap production blocks are usually two storey high. For the architectural elements, there are some common elements such as local stone jambs, brick arched above the openings, triangular façade pediment with circular window in the middle or triangular pediment with motifs symbolizing the olive-oil drops and brick molding encircled the pediment. But it is not possible to make a typology for these examples which do not follow any grouping.

For the process of them, production capacity and technology differs one by one for the each example. While the structure of the process is same in general, the equipments which affected the architectural features of the building, differ according to the technology and to the scale of the factory. Therefore, it is not possible to make a typology for the plans of them which shaped the process directly.

In general, olive-oil factories are one or two storey high. For the one storey ones, whole process is generated in the single, large space. Some examples also include flour production such as Agia Paraskevi example in order to provide the continuation of the factory management because of the fact that producing the olive-oil is seasonal field. For the two storied ones, ground floor of the factory is used for the main processing unit, while the first floors are used for indoor storage. It should be pointed out that the capacity of the factory does not depend on the storey heights.

Soap production blocks are usually two storey high. The first floors are used for the main soap process, while the ground floors are used for the preparation of the process. They have a large number of windows at the first floor due to the requirements of the drying process of the soap. Basically, the equipments of the process are same for all buildings: soap boiler and soap drying grid.

Table 11: Ayvacık examples (source: Manisa, 2013); Agia Paraskevi Olive-Oil Museum in Mytilene (source: http://www.oliveoilmuseums.gr/, last accessed on April 23, 2017)

| | SINGLE STOREY OLIVE-OIL MILL EXAMPLES-PLAN LAYOUTS | SINGLE STOREY OLIVE-OIL MILL EXAMPLES-FAÇADE LAYOUTS |
|---|---|---|
| AYVACIK EXAMPLES (source: Manisa, 2013) |   |   |
| Agia Paraskevi Olive-Oil Museum, Mytilene (source: http://www.oliveoilmuseums.gr/, last accessed on April 23, 2017) |    The factory has rectangular plan type that divided to machine and boiler rooms by division walls. In addition to that, there is also a place for flour mill. There are two olive mills, one flour mill and four press machines in the factory originally. |   **The factory is built with stone and brick masonry. The cut stones are also used at the corners. It has local stone jambs and brick depressed arched above the openings. It also has triangular façade pediment with circular window at the middle. There is brick molding that encircled the pediment. The entrance is provided with double-wing wooden door. It has polygonal shaped chimney at the north.** |

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| | 'A STUDY FOR THE CONSERVATION OF ERTEM OLIVE-OIL FACTORY IN AYVALIK' | prepared by: Gözde Yıldız<br>supervisor: Prof. Dr. Neriman Şahin Güçhan |

Table 12: Vrana Olive-oil Museum (source: http://www.molyvos.eu/activities/the-museums-of-lesvos/vrana-olive-press-museum/, last accessed on April 23, 2017); İbrahim Burnaz Olive-oil Factory and Adatepe Museum (source:https://www.adatepe.com/StaticPages/adatepe-zeytinyagi-muzesi/145, last accessed on April 23, 2017)

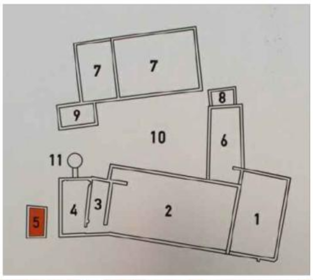
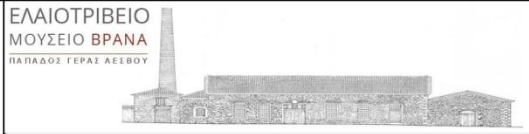
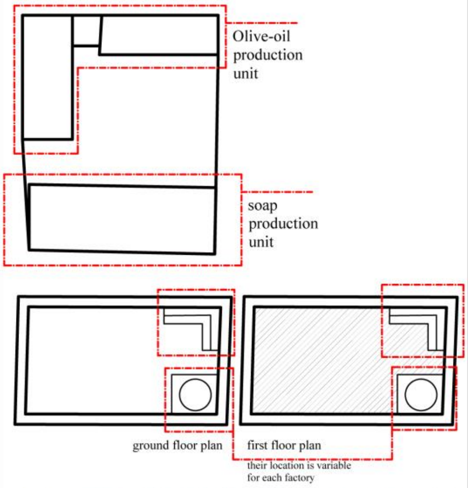
<table>
<tr><th></th><th>SINGLE STOREY OLIVE-OIL MILL EXAMPLES-PLAN LAYOUTS</th><th>SINGLE STOREY OLIVE-OIL MILL EXAMPLES-FAÇADE LAYOUTS</th></tr>
<tr><td>Vrana Olive-Oil Museum, Mytilene<br>source: http://www.molyvos.eu, last accessed on April 23, 2017</td><td><br><br>The factory has rectangular plan type with one storey main processing unit. There are machine and boiler rooms which are located adjacent to the west wall of the factory. There is also olive storage building that is located adjacent to the east wall of the factory. And at the north-east part of the factory, there is a soap factory with two storey.The mill and the presses that was served to the factory are exhibited in the museum today.</td><td><br><br><br>The factory is built with rubble stone masonry construction technique. This factory also has brick depressed arch and timber lintels above the openings. It has brick circular shaped chimney.</td></tr>
<tr><td>İbrahim Burnaz Olive-Oil Factory and Adatepe Olive-Oil Museum, Küçükkuyu<br>source:https://www.adatepe.com/, last accessed on April 23, 2017</td><td><br></td><td><br>Olive-oil production unit    soap production unit<br>The factory has rectangular plan type with one storey. There is a soap factory building which is converted to an olive-oil museum at 2001. In the museum, there is an exhibition model that shows the production process.<br>This olive oil factory is also two storey building. While the first floor of it was used as storage purpose, the ground floor of it was used as production unit.<br>The soap factory is two storey building. While the ground floor of it was used for boiler area, the first floor was used the main production unit.<br><br>The factory is built with rubble stone and brick masonry construction technique. The entrance to the olive-oil factory is provided with brick depressed arched double-wing wooden door that is located south of the building. Whole windows in the complex are brick depressed arched. But only olive-oil factory building's windows are with brick jambs. The cornice of the factory is spiked eave which is different than the others.</td></tr>
</table>

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Table 13: İbrahim Erdim Olive-Oil Factory (Kibar, 2008)

| TWO STOREY OLIVE-OIL MILL EXAMPLES-PLAN LAYOUTS | TWO STOREY OLIVE-OIL MILL EXAMPLES-FAÇADE LAYOUTS |
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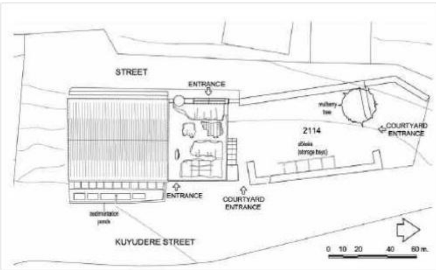
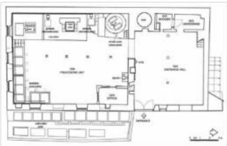
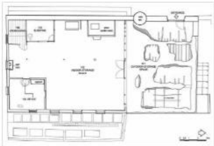
**İbrahim Erdim Olive-Oil Factory, Altınoluk** (source: Kibar,2008)

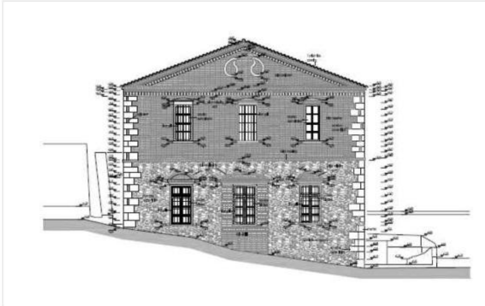
**ABANDONED**





The factory is consisted of a two-storey section in the southern part of the plot and a 'single-storey outdoor storage space' adjacent to the former on its northern side. The building has two entrances. The outdoor storage space is also accessible from the courtyard by means of a straight-flight staircase.
The ground floor of the factory is consisted an entrance hall and processing unit. The first floor of the factory is consisted of storage places.
The elements of production process are:
*Dökeks (storage bays)
*Ambar and its conically cuts wooden prism
*The grinder
*Presses with their pomparya
*Dynamo and pulley
*Water storage tank
*Boiler
*Polima (distillation pools)
*Sedimentation ponds



The factory is built with rubble stone and brick masonry construction technique. the triangular pediment with motifs symbolizing the olive oil drops on the façades, the triangular pediment of the outdoor storage space entrance and the reflections on the façades made of stones and bricks are significant architectural characteristics. This factory also has brick depressed arched above the openings.

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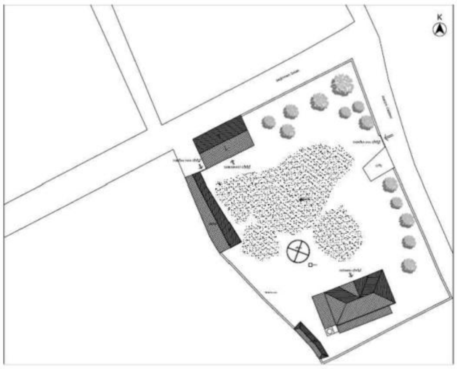
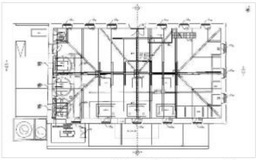
Table 14: Hüsnü Tolun Olive-Oil and Soap Factory in Burhaniye (Akın, 2014)

| TWO STOREY OLIVE-OIL MILL EXAMPLES-PLAN LAYOUTS | TWO STOREY OLIVE-OIL MILL EXAMPLES-FAÇADE LAYOUTS |
|---|---|

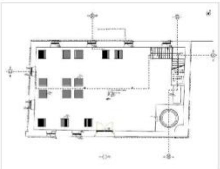
**Hüsnü Tolun Olive-oil Factory, Burhaniye** (source: Akın,2014)

**ABANDONED**

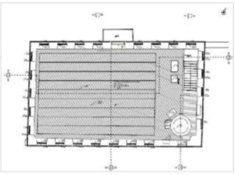




**Olive-Oil Factory Plan**

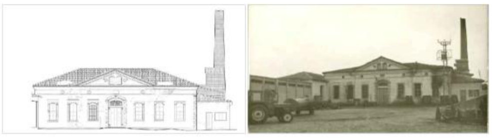


**Soap Factory Ground Floor Plan**



**Soap Factory First Floor Plan**

The olive oil factory is rectangular plan shaped and one storey building.
The soap factory is two storey building and in rectangular plan shaped.The ground floor of it was served for the technical and storage purposes. The first floor is the main production area.



The Olive-oil building was constructed with stone and brick masonry construction technique. The floor covering of it is screed.

Interior part of the walls is from ceramic tiles about 190 cm in height. The trusses of the roof is seen.

The soap factory building was also constructed with stone and brick masonry construction technique. The ground floor covering is screed, the first floor is from timber that called 'sabun tavlası'. The ceiling is timber cover.

ODTÜ METU — Graduate Program in Conservation of Cultural Heritage

COMPARATIVE STUDY
REGIONAL SCALE

'A STUDY FOR THE CONSERVATION OF ERTEM OLIVE-OIL FACTORY IN AYVALIK'

prepared by: Gözde Yıldız
supervisor: Prof. Dr. Neriman Şahin Güçhan

### 4.1.2. Similar Factory Examples within Ayvalık

Ayvalık is a pioneering place for olive and olive-oil culture in Aegean Region since its establishment. According to the 1923 records as mentioned by Bayraktar (1998: 12-13), there were 32 olive-oil mills and 28 soap factories in Ayvalık. Within the context of comparative study that is specific to Ayvalık, at first, master thesis written by Suna Kabasakal Coutignies (1987) titled as 'A study on the re-functioning of 19th century industrial buildings located in the center of Ayvalık' and the book named 'Edremit Yöresi Yağhaneleri' by (Efe et al., 2013) are used as the main sources. And the study is enlarged on the similar examples which are located at the northern part of the port, close to Ertem Olive-Oil Factory through the on-site investigations.

To begin with, all examples are studied according to their plan layout-process structures (that shaped the plan schema) and their façade characteristics. Within this context, Suna Kabasakal's thesis (1987) which typologically discussed the industrial buildings located at the southern part of the port, is taken as a base for evaluating the other examples located at the northern part of the port which are close to Ertem Olive-Oil Factory. According to Kabasakal (1987), factories are categorized according to only their façade features. It is because, for the plan layout of them, it is not possible to make any evaluation about the typology.

The main parameter for the façade typology is building entrances and symmetrical order of the façades. As a result, she grouped the buildings under three headings which are single storey with gable roof; single storey with triangle pediment; 2-3 storey with variable roofs (See Figure 135).

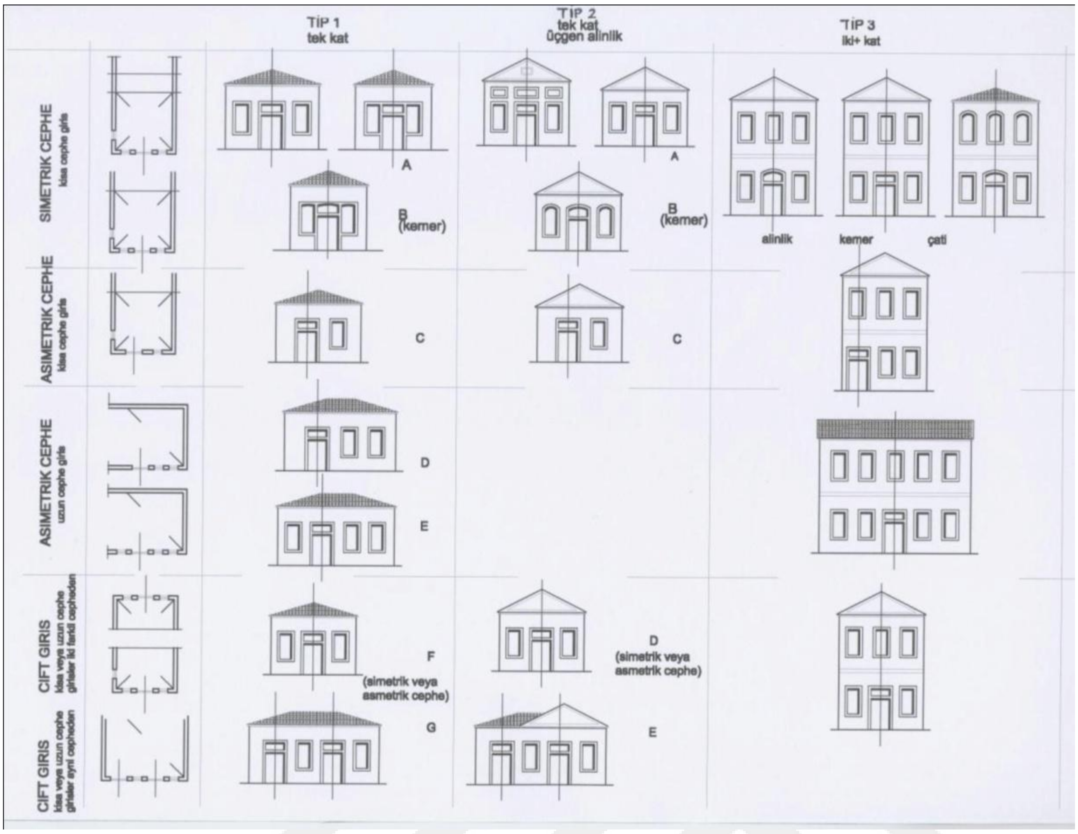



Figure 135: Façade typology of SunaKabasakal (1987)

The general characteristics of Ayvalık examples are as follows: windows and doors are usually framed with local cut stones, many of which are arch framed. The entrance doors are double-wing timber doors, above which there is a window with ornamented iron grills. The windows are variable example to example, but they are generally rectangular shaped or arched at their top and with iron grills. Some examples have triangular façade pediment with circular window in the middle or triangular pediment with motifs symbolizing the olive-oil drops. The main structural body of these buildings was constructed with local stone which has pink color, volcanic stone named *'sarımsak stone'*. While cut stone is used at the frames of the doors-windows and corners of the façades, main structure of the façades are generally made out of rubble stones or bricks.

In addition to those, for the plan layouts of these examples, general characteristics are as follows. It should be pointed out that this part of the comparative study is based on site investigations due to lack of information about the plans in the literature. According to the above mentioned sources, it is concluded that it is not possible to make a typology for the plan characteristics due to differentiation building to building. In order to evaluate the plan layouts of the factories, similar scale factories which have survived originally, are chosen. In general, the ones located at the coastline, are two-storey high which are also related with the capacity[31] of the factories. All of them have courtyards at the seaside part. They include olive-oil and soap production together or separately.

For the olive-oil sections, the ground floors of the factories are the main processing area, while the first floors serve as indoor storage for washing and cleaning the olives.[32] All process equipments are located at the ground floor. Ground floor coverings of them may be from screed. On the other hand, there are also some examples which are from local stone. The first floor coverings are from timber board. All examples of which are two storey high, have timber channels located at the first floor which provide the transportation of the olives from the first floor to the ground floor.

For the soap sections, while ground floors are used for preparation of the soap production, the first floor is the main processing unit. First floor coverings of the soap sections which are covered with timber boards in 45 degree manner, are common feature in every example due to being a part of process that is called 'sabun tavlası'. All examples have soap boilers that rises from the ground floor to the first floor which provide the boiling of the liquid for producing soap. These buildings have a large number of windows in order to provide drying the soap in an easy way. Some soap factory examples have balconies, while some of them do not have.

[31]Here, 'the capacity' refers the scale of the factory. In other words, the factories which are housed both olive-oil and soap productions together

[32] For further information see Chapter 2/ 2.2.2.1. General Structure of Olive-oil Production Process in Ayvalık and Reflection to the Architecture, p.48-53

Table 15: Ayvalık examples; Sezai Ömer Madra Olive-Oil Factory and Sabuncugil Olive-Oil Factory (old photo: Efe et al., 2013)

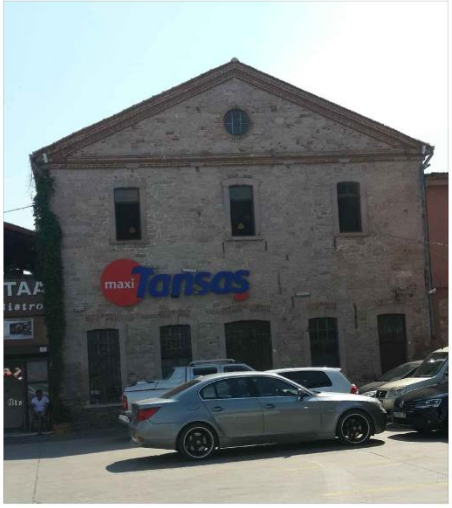
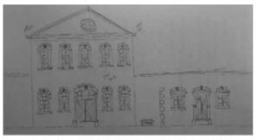
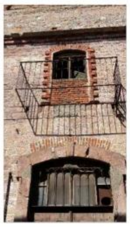
| | PLAN LAYOUTS | FAÇADE LAYOUTS |
|---|---|---|
| **Sezai Ömer Madra Olive Oil Factory, (TANSAŞ) Ayvalık** |   In the space of 101, on the common wall of the 101 and the additional mass, there is a closed window trace. The location of it and type of it is visible through the traces of both sides. |  **Old photo: Efe et. al., 2013**   **The factory is in type of 3D in terms of typology that was done by Suna Kabasakal.** **The factory was constructed with rubble stone masonry construction technique. The typical local stone jambs are seen as as contour of the windows and doors. There is also brick depressed arches above the openings. It has a triangular façade pediment with circular window at the middle of it. The brick molding encircled the pediment.** |
| **Sabuncugil Olive-Oil Factory,Ayvalık / abandoned** |    **The factory is two storey building with olive-oil and soap production together.** **As the similar ones, the ground floor is the main production area for olive-oil and preparation for soap process and the first floor of the factory for the storage-preparation for olive oil process and soap production area.** **Some equipments of the factory are still visible today. Old steam boiler is used as a water reservoir today.** |       **The factory is in type of 3D in terms of typology that was done by Suna Kabasakal.** **The factory was constructed with rubble stone-brick masonry construction technique. The typical local stone jambs are seen as as contour of the windows and doors. It has a triangular façade pediment. The factory has conic shaped brick chimney as typical for Ayvalık factories.** |

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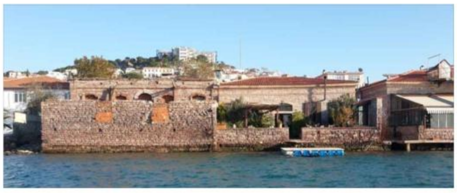
Table 16: Ayvalık examples; Hulusi Zarplı Olive-Oil Factory and Emin Süner Olive-Oil Factory (Zarplı's equipments photos: Terzi, 2008)

<table>
<tr><th></th><th>PLAN LAYOUTS</th><th>FAÇADE LAYOUTS</th></tr>
<tr>
<td>Hulusi Zarplı Olive-Oil Factory,Ayvalık /converted into shop</td>
<td>


**The factory is two storey building that produced olive-oil. As the similar ones, the processing unit was located at the ground floor and the first floor was for preparation for olive-oil and storage purposes.**

**Photos of process equipments: Terzi, 2007**
</td>
<td>


**The factory is in type of 3C in terms of typology that was done by Suna Kabasakal.**<br>
**The factory was constructed with stone masonry construction technique that is covered with plaster now.**<br>
**The unique feature of the factory is the chimney of it that is hexagonal shaped with cross decoration on it.**<br>
**The factory is used as a shop nowadays.**
</td>
</tr>
<tr>
<td>Emin Süner Olive-Oil Factory,Ayvalık /converted into boutique hotel</td>
<td>



**The factory is one storey building that produced olive-oil. The process was provided at that processing unit. It has also a courtyard at the sea part of the factory that was served for the storage.**<br>
**The factory had a grinder and two presses at the time that was worked. But the equipments are unknown as a documentation.**
</td>
<td>


**The factory is in type of 1D in terms of typology that was done by Suna Kabasakal.**

**The factory was constructed with stone masonry construction technique. The typical local stone jambs are seen as as contour of the windows and doors.**<br>
**The factory is used as a boutique hotel nowadays.**
</td>
</tr>
</table>

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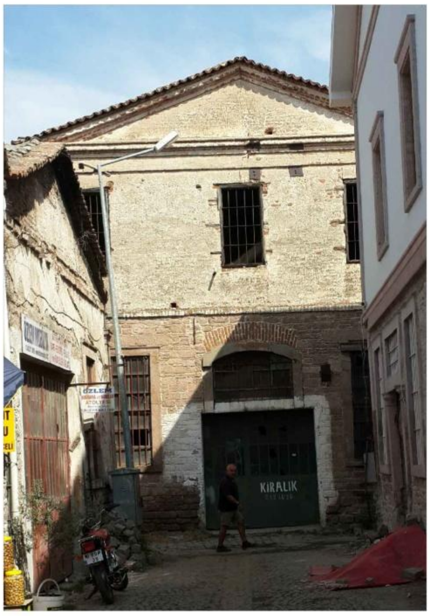
| ODTÜ METU — Graduate Program in Conservation of Cultural Heritage | COMPARATIVE STUDY AYVALIK SCALE | |
| | 'A STUDY FOR THE CONSERVATION OF ERTEM OLIVE-OIL FACTORY IN AYVALIK' | prepared by: Gözde Yıldız<br>supervisor: Prof. Dr. Neriman Şahin Güçhan |

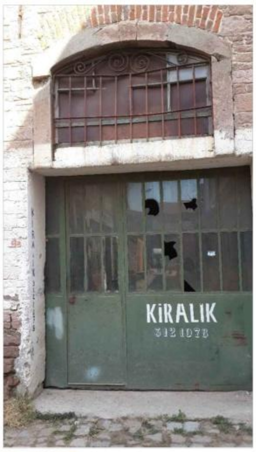
Table 17: Ayvalık examples; Sabuncugil Olive-Oil Factory

| PLAN LAYOUTS | FAÇADE LAYOUTS |
|---|---|

**Sabuncuoğlu Olive-Oil Factory, with columns Ayvalık/ abandoned**



**The factory is two storey building that produced olive-oil. The first floor of the factory was used as preparation for olive oil and storage while the ground floor was used the main processing unit.**




**The factory is in type of 3D in terms of typology that was done by Suna Kabasakal.**

**The factory was constructed with stone masonry construction technique. The typical local stone jambs are seen as as contour of the windows and doors. Brick depressed arches are also seen above the openings.**

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### 4.1.3. Evaluation of the Comparative Study

As a result of regional scale comparative study, it is determined that these factories differ according to the geographic conditions of the region. Each sub-region has its own identity that consists of different characteristics which changes from one to another. In general, it can be said that these buildings are located close to the natural water sources due to production process reasons. They are planned as singe, large space which are usually designed with neoclassical styles. All of them have brick chimneys in different shapes as a common architectural element.

In case of Ayvalık, it is not possible to make any evaluation for the plan characteristics of these structures, each of which are different in terms of equipment number that is related with the capacity of the factory. Because of that any plan typology cannot be derived from the studied examples. In addition to this, most of them are converted into different functions which causes destruction of the plan schema of these buildings that caused this result. Only evaluation for the plan layouts of them may be having rectangular plan shaped as planning large-single space. For the façade characteristics of them, within the help of Suna Kabasakal's study (1987), three different types of façade order are observed in the whole region which are single storey with gable roof; single storey with triangle pediment; 2-3 storey with variable roofs. But each type has differentiation inside of it from one to another.

Within the light of all obtained data, Ertem Olive-Oil Factory is a medium scale factory which is consisted of olive-oil and soap production units that shows the capacity of it. It is located at the coastline very close to the other pioneer ones such as Sezai Ömer Madra, Hulusi Zarplı, Emin Süner factories etc. As being the factory constructed with stone and brick masonry techniques in Neo-classical style, it is similar as the others in Ayvalık. All of them including Ertem Factory give the specific color to Ayvalık which comes from the local stone that was used in these buildings.

Ertem Factory has some unique architectural features such as arched window (W06) (See Figure 101) ornamented with brick that are located at the north-eastern wall of the soap block. This type of window could not be observed in any of the factories neither in region nor in Ayvalık examples. These specific characteristics give the significance to the factory among the others.

### 4.2. Changes in Time

In order to understand the building, to identify the changes throughout its history are an important topic. Ertem Factory, as being one of the industrial buildings, witnessed some phases due to changing technology. More importantly, changing technology became the end of these kinds of structures in time due to no longer useful as seen on Ertem Factory. Analyzing all changes phase by phase is also important for understanding the original state and historical development of the factory.

In this part of the thesis, changes in time are defined under the general titles of ' changes related with environment, technological changes and organizational changes'. In the Chapter 3, in order to better understand the plan layout of the building, technological and organizational changes of the factory with their environment in the phases were given in detail.[33] It is because, as mentioned in the previous stages, the plan layout of the industrial buildings is shaped by production process due to planning for these purposes. Here, aforementioned categorized changes are discussed with the evaluation of the traces in the building itself. Then, this evaluation will help to define the original state of Ertem Olive-Oil Factory and phases of it.

#### 4.2.1. Changes related with Environment[34]

This part of the study is based on mainly interview that was made with former owner of Ertem Olive-Oil Factory, A. Servet Ertem in 2016. During the interviews, it is

[33]For further information see Chapter 3, 3.3.1. Technological and Organizational Context: The Process Structures in the Factory defined through Technological Changes, p.113-124

[34]In order to compare the changes on existing situation, see Chapter 3, 3.1.2. Location of Ertem Olive-oil Factory in the Surrounding Area with Its Nearby Environment, p.104

understood that the factory was constructed as a complex which includes olive-oil mill, soap factory, depot, a residential unit and a summer house for its owner. The complex was located on two lots which are separated in the middle by 14th Street. It was bordered by an empty lot from the south part which was used as a garden for the Old Academy until the construction of district governorship on this lot in 1955. This empty lot and the factory were separated with a street which was purchased by Ertems' in order to add it to the courtyard of the factory in 1954. And this part of the street was also included to the factory lot through the deed dating back 1952 by Ertem Family. The residential unit that belongs to the factory complex was used until 1951 when Ertem Family came as the owners. At that time the summer house that was constructed with timber, was destroyed by them. And depot unit which is located at the eastern part of the residential unit, was used with the factory until 2000 by Ertem Family. In addition to this, Atatürk Boulevard was not widened until 1960s.

### 4.2.2. Changes due to Technological Requirements and Spatial Arrangements through the History

Ertem Olive-Oil Factory which is abandoned today, was used for same industrial purpose, 'olive-oil and by-products' since its construction until its abandonment. Due to this reason, the factory still has its originality. Almost all changes throughout the history are related with the production process which depends on technological innovations and related spatial requirements or spatial arrangements for making the process easier than before. These changes which were presented in the Chapter 3[35], constitute a base for the evaluation of the traces in the building and for the reflection of them to the architectural characteristics of the factory such as façade organization, architectural elements.

Within this context, here, traces of these changes as a result of the technological and spatial innovations are given in order to better understand the original characteristics

[35]For further information see Chapter 3, 3.3.1. Technological and Organizational Context: The Process Structures in the Factory defined through Technological Changes, p.30

of the factory. By doing so, questionable aspect of the factory finds the answers in terms of original architectural characteristics. At first, all traces are mapped on the surveyed drawings and they are evaluated as 'added elements, altered elements, removed elements and missing elements' within the lights of all information obtained until here. After, every single questioned element is given within a table with their photographs and descriptions. In this study, traces are numbered according to their locations which are identified in the surveyed drawings.

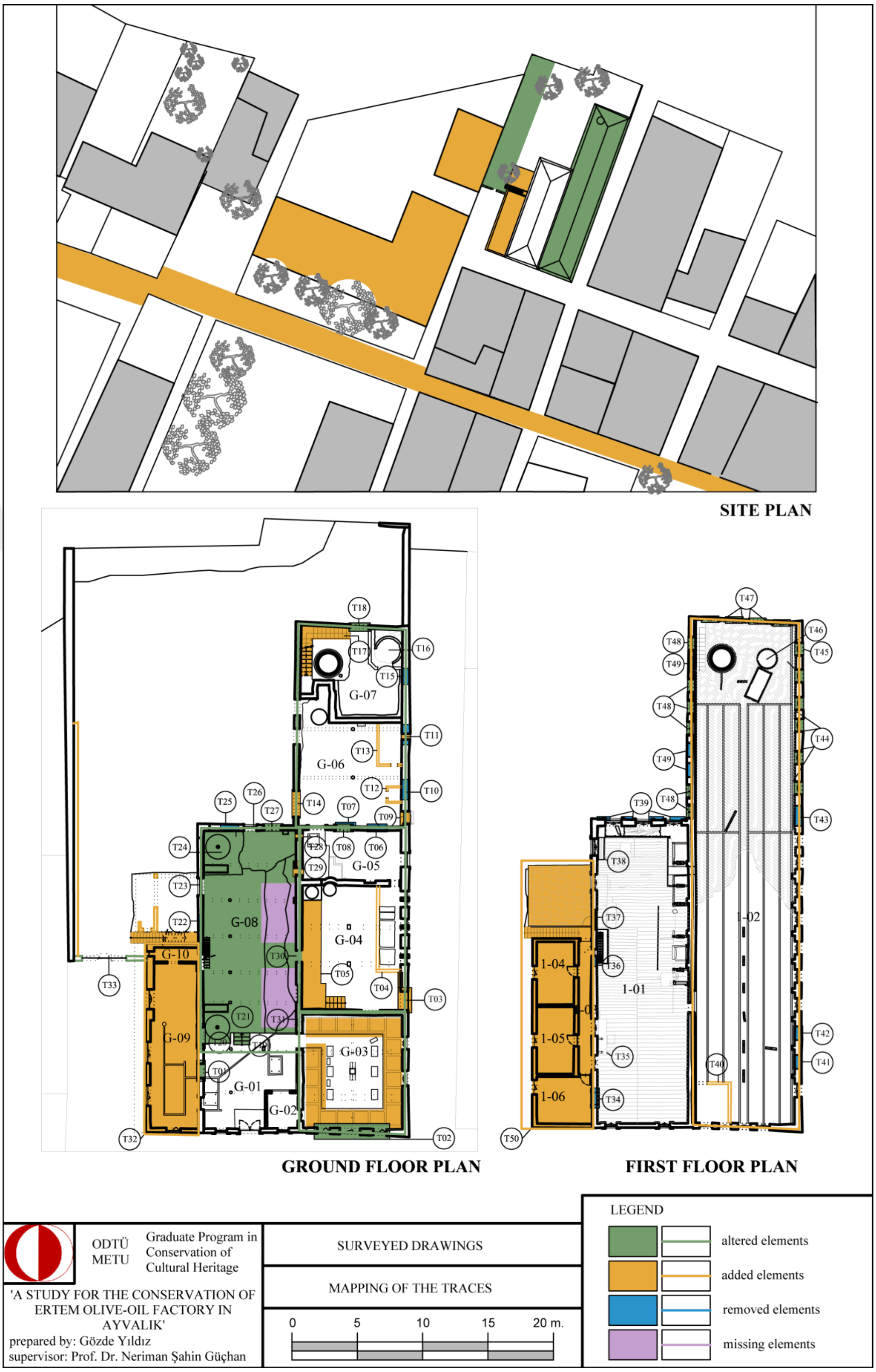



Figure 136: Mapping of traces in the building on plans

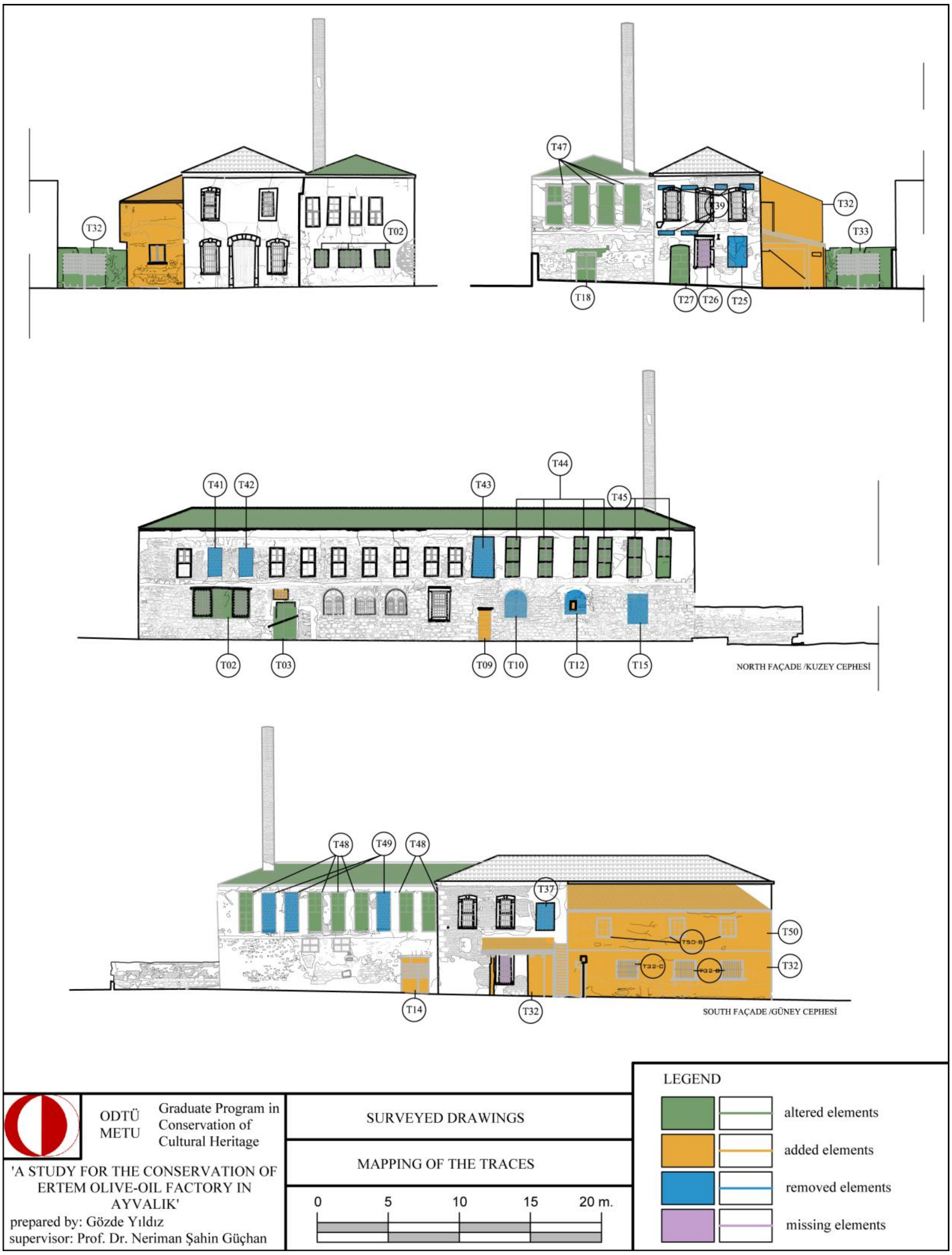
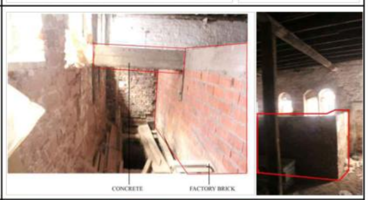



Figure 137: Mapping of traces in the building on façades

Table 18-a: Location of the traces, their photographs and descriptions cont'd

| SPACE | TRACE | | DEFINITION | VISUAL MATERIALS |
|---|---|---|---|---|
| G01<br>opening for additional mass | ALTERATION | T01 | This opening is located at the south wall of the space G01. It provides for passing to the space G09. There are two timber hung-sash windows with iron grills at the both sides of this opening. The highest part of it is at the same level with the windows. All this evidences indicate that is altered for passing to the space G09 which is additional mass of the factory. |   |
| G03<br>different types of windows of G03 space | ALTERATION | T02 | The space G03 is the place for distillation area. The windows of the place are in different type and size. This differentiation of the windows showes that they were altered. |  |
| G04<br>unqualified metal door o the north façade | ALTERATION | T03 | This door and window that is located above the door are additional. From the photos that are taken from interior and exterior, there is a trace as another opening that is closed near the door. Moreover, this door and window are looking unplanned from the façade organization. All these evidences show that is additional. |  |
| G04<br>unqualified partition wall made by factory brick | ADDITIONAL | T04 | In the space G04, there is additional walls that were made by factory bricks. The concrete girder and the wall from factory bricks show that is additional in order to create seperate place for prina. |   |
| G04<br>concrete floor | ADDITIONAL | T05 | In the space G04, there is a concrete floor for passing from the G08. We know that the floor level was changed because of the new machines at the space G08. Therefore this concrete floor was added in order to provide the transition between these spaces. |   |
| G05<br>arch traces on the wall | REMOVAL | T06<br>T07 | On the wall of the space G05, there are traces of arches. These traces show that there could be windows like the one that is located at that wall. (timber hung-sash window with iron grills) |   |
| G05<br>arch traces at the top of the iron door | ALTERATION | T08 | There is an iron door that is located near the window in order to provide the transition between the space og G05-G06. The arch trace that is located at the top of this opening indicate that is altered. |   |

LEGEND

- altered elements
- added elements
- removed elements
- missing elements

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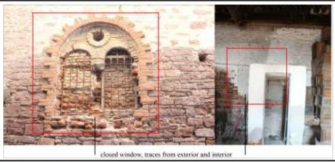
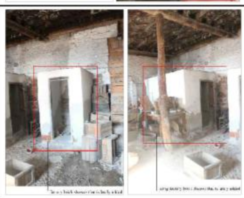
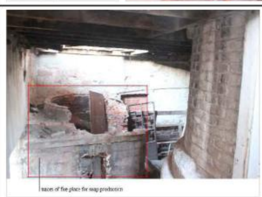
Table 18-b: Location of the traces, their photographs and descriptions cont'd

| SPACE | TRACE | | DEFINITION | VISUAL MATERIALS |
|---|---|---|---|---|
| G06<br>different arrangement of stone surrounding of the iron door that located at the north façade | ADDITION | T09 | In the space of G06, there is an iron door in oreder to provide the transition between the street 15th and the factory. But it could be additional because of the traces of façade arrangement. It is visible that the stone arrangement is changing surrounding of the door. |  |
| G06<br>removal of the original window | REMOVAL | T10 | In the space of G06, there is a trace that indicates the closed window. The trace of it is visible from the interior and exterior. It is because , addition of secondary places which were used for wc in the space G-06. |  |
| G06<br>removal of the original window and addition with the unqualified one | REMOVAL ALTERATION | T11 | This window was also closed as tra trace of T10, but here, there is also another window due to the requirement of new constituted wet area. |  |
| G06<br>unqualified partition walls | ADDITIONAL | T12<br>T13 | In the space of G06, there is additional spaces that is created by factory brick walls for wet spaces. They indicate that are additional because of the needings. |  |
| G06<br>unqualified iron door | ADDITION | T14 | In the space of G06, there is an iron door that provides transition between the courtyard and the factory. It looks additional because of the concrete surround of the door. It could be added lately for transition to the courtyard. |  |
| G07<br>removal of the original window | REMOVAL | T15 | There is a closed opening on the north façade of the factory. It is located at the space of G07, near the fire place for soap production. It indicates that there were an opening that was closed. |  |
| G07<br>soap boiler that partially survived | MISSING | T16 | The trace of the fire place for soap production is still visible in the factory. Some parts of it is missing. But its location can be read exactly from the remains of it. |  |

LEGEND

| | |
|---|---|
| | altered elements |
| | added elements |
| | removed elements |
| | missing elements |

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Table 18-c: Location of the traces, their photographs and descriptions cont'd

| SPACE | TRACE | | DEFINITION | VISUAL MATERIALS |
|---|---|---|---|---|
| G07<br>concrete stairs that looked new | ADDITION | T17 | In the space of G07, there is a concrete stairs for reaching to the first floor. The chimney is also located in the space of G07. The new material that is concrete indicates it is added. This is one of the big indicators as tangible for assuming that the first floor of this mass is added as mentioned by A. Servet Ertem. |  |
| G07<br>different stone arrangement surrounding of the iron door | ALTERATION | T18 | In the space of G07, there is an iron door in order to provide the transition between G07 and the courtyard. But the concrete lintel of the door indicates it could be added. |  |
| G08<br>floor level difference in the main process area | ALTERATION | T19 | In the main process area, in G08, there is a level difference because of starting to use new machines. It was made in 1986 according to the interview with Servet Ertem. So it is addition related changing technology. |  |
| G08<br>partially altered window because of the level difference | ALTERATION | T20 | At the wall of G08, there is a timber hung-sash window that partially altered because of the difference level (T19). The arched part of the window is closed. So it can be said that is altered. |  |
| G08<br>original sump for olive paste and traces of the grinder | MISSING | T21 | In the main process area, there is a trace of the grinder and sump for extra-virgin olive oil. In the factory, there are two traces of them. |  |
| G08<br>removal of the window | REMOVAL | T22 | In the main process area, there is a closed window opening near the stairs. The trace of the frame of original window is visible from interior and exterior. |  |
| G08<br>missing elements of the window | MISSING | T23 | In the main process area, there is a window as the other ones that are timber hung-sash window with iron grills. But the joinery elements of the window are missing. |  |

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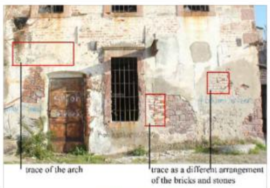
LEGEND
- altered elements
- added elements
- removed elements
- missing elements

Table 18-d: Location of the traces, their photographs and descriptions cont'd

| SPACE | TRACE | | DEFINITION | VISUAL MATERIALS |
|---|---|---|---|---|
| G08 original sump for olive paste and traces of the grinder | MISSING | T24 | In the main process area, in the G08, there is the trace of the other grinder and sump for extra-virgin olive oil. Their exact positions are visible through these traces. |  |
| G08 arch traces on the façade | REMOVAL | T25 | On the west façade of the building, there are traces of arches and different stone-brick arragements that indicates some removal architectural elements. It can be said that there were different façade arrengement according to these traces. |  |
| | ALTERATION | T27 | In the light of the T25, it can be said that the door and the window that are located at the west façade of the building could be altered. | |
| G08 missing elements of the window | MISSING | T26 | The window that is located at the west façade of the building has missing joinery elements. It should be as the others like timber hung-sash window with iron grills and framed by local stone as an ornamentation. |  |
| G08 openings which are not in human size | ADDITION | T28 | In the main process area, in the G08, there is an opening that looks for equipments. It should be added lately. |  |
| | | T29 | In the main process area, in the G08, there is an opening that provides transition between the G08 and G05. It could be addition because of its size and the shape of it. The dimension of it is approximately 60 cm. | |
| G08 traces of different openings | ALTERATION | T30 | In the main process area, in the G08, there is another opening in order to provide the transition between G08 and G04. It could be altered because o the traces at the same wall. So it can be said that is altered. |  |
| G08 traces of the pipes | MISSING | T31 | In the main process area, in the G08, there is a trace of pipes that provided the transition of the olive oil between the presses and distillation pools. They are still in the factory as a partially. |  |
| G09 different type of windows that looks new | ADDITION | T32/A | In the light of this mass of building, architectural elements of them, it can be said that part is totally addition. This window is not compatible with the original part of the factory. |  |

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LEGEND
- altered elements
- added elements
- removed elements
- missing elements

Table 18-e: Location of the traces, their photographs and descriptions cont'd

| SPACE | TRACE | | DEFINITION | VISUAL MATERIALS |
|---|---|---|---|---|
| G09 | ADDITION | T32/B | In the light of this mass of building, architectural elements of them, it can be said that part is totally addition. This window is not compatible with the original part of the factory. |  |
| different type of windows that looks new | ADDITION | T32/C | |  |
| G10 | ADDITION | T32/D | In the space of G09 there is partition wall that made by factory brick. In the space of G10 there is a half of the original timber hung-sash window with iron grills that serves the original part of the building. And there is an additional window that serves to the courtyard. All of these also show that is additional |  |
| different type of windows and openings that looks unplanned | ADDITION | T32/E | |  |
| COURT YARD | ADDITION | T33/F | Near this additional mass, there is a concrete stairs that provides to rach to the first floor of this mass. This is the only way for reaching to the first floor of this mass. This stairs was added because of the needings for the additional part. |  |
| | ADDITION | T32/G | Near the concrete stairs at the courtyard, there is a shed for the tractor. It is also addition. It has concrete columns, timber shed construction and french tiles on it. |  |
| new arrangements in the courtyard that looked new | ALTERATION | T33 | The courtyard door of the factory is altered. Because of the lot changings, the location of it was changed. Also materials of it looks compatible to the additional mass. So it can be said that is altered. |  |

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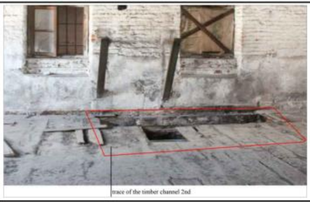
TRACES IN THE FACTORY AND THEIR DESCRIPTIONS

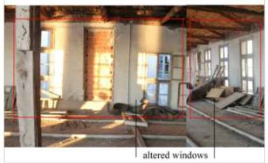
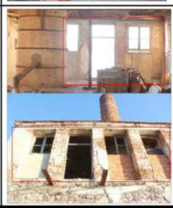
LEGEND
- altered elements
- added elements
- removed elements
- missing elements

Table 18-f: Location of the traces, their photographs and description cont'd

| SPACE | | TRACE | DEFINITION | VISUAL MATERIALS |
|---|---|---|---|---|
| 101<br>closed window | REMOVAL | T34 | In the space of 101, on the common wall of the 101 and the additional mass, there is a closed window trace. The location of it and type of it is visible through the traces of both sides. |   |
| 101<br>hole on the floor in rectangular shaped | MISSING | T35 | In the space of 101, exactly above the first grinder that is located at the space of G08, there is a trace of timber cubic channel for the olives. The elements of it is missing but it can be seen the location of it. |  |
| 101<br>same arch traces near the arch of window | REMOVAL | T36 | In the space of 101, near the stairs that provides reaching from the ground floor to the first floor, there is a timber window that has arch above it. But on the same wall, there is a trace of another arch and closed window traces that indicate the alteration of the place's of it. |  |
| 101<br>closed window | REMOVAL | T37 | In the space of 101, there is a closed opening by the factory bricks. It indicates that there was an opening before. |   |
| 101<br>trace of the timber cubic channel | MISSING | T38 | In the space of 101, exactly above the second grinder of the factory that is located at the space of G08, there is a trace of the timber cubic channel for the olives. The original channel is missing as the other one. But the location and size of it can be seen from the traces. |  |
| 101<br>arch traces on the façade that may indicate different window positions | REMOVAL | T39 | On the west façade, at the olive oil production building, there are traces of arches that indicate the original windows' location. The windows are looking original but the places of them may changed in time. |  |
| 102<br>wainscot partition wall | ADDITION | T40 | In the space of 102, where the soap production process is occured, there is an additional division walls that made from wainscot. It is addition. |  |

| | | |
|---|---|---|
| ODTÜ METU — Graduate Program in Conservation of Cultural Heritage | 'A STUDY FOR THE CONSERVATION OF ERTEM OLIVE-OIL FACTORY IN AYVALIK' | LEGEND<br>altered elements<br>added elements<br>removed elements<br>missing elements |
| prepared by: Gözde Yıldız<br>supervisor: Prof. Dr. Neriman Şahin Güçhan | TRACES IN THE FACTORY AND THEIR DESCRIPTIONS | |

Table 18-g: Location of the traces, their photographs and description cont'd

| TRACE | | | DEFINITION | VISUAL MATERIALS |
|---|---|---|---|---|
| 102<br>closed window | REMOVAL | T41 | In the space of 102, there is closed window by the factory bricks. It is seen from the interior and exterior also. |  |
| 102<br>closed window | REMOVAL | T42 | In the space of 102, there is closed window by the factory bricks. It is seen from the interior and exterior also. |  |
| 102<br>closed window | REMOVAL | T43 | In the space of 102, there is closed window by the factory bricks. It is seen from the interior and exterior also. But this one is altered window that can be recognized from the height of it. |  |
| 102<br>windows in the different height in the same space | ALTERATION | T44 | In the space of 102, there 2 types of altered windows in terms of their height. The original one is lowest one according to the interview with Servet Ertem. So it can be said that the others altered. |  |
| | ALTERATION | T45 | |  |
| 102<br>trace of soap boiler on the first floor covering | MISSING | T46 | In the space of 102, where the soap production process was occured, there is a trace of the soap boiler. The boiler is missing now. But it can be seen the place of it. |  |
| 102<br>different type of windows | ALTERATION | T47 | In the space of 102, there 2 types of altered windows in terms of their height. The original one is lowest one according to the interview with Servet Ertem. So it can be said that the others altered. |  |

LEGEND

- altered elements
- added elements
- removed elements
- missing elements

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Table 18-h: Location of the traces, their photographs and descriptions cont'd

| SPACE | TRACE | | DEFINITION | VISUAL MATERIALS |
|---|---|---|---|---|
| 102<br>different type of windows | ALTERATION | T48 | In the space of 102, there 2 types of altered windows in terms of their height. The original one is lowest one according to the interview with Servet Ertem. So it can be said that the others altered. |  |
| 102<br>closed window | REMOVAL | T49 | In the space of 102, there is closed window by the factory bricks. It is seen from the interior and exterior also. But this one is altered window that can be recognized from the height of it. |  |
| 103<br>104<br>105<br>106<br>unqualified mass and its elements | ADDITION | T50/A | In the light of this mass of building, architectural elements of them, it can be said that part is totally addition. These windows and doors are not compatible with the original ones. All of them are additional in the factory. |  |
| | | T50/B | | |
| | | T50/C | | |

| | |
|---|---|
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LEGEND
- altered elements
- added elements
- removed elements
- missing elements

### 4.2.3. Evaluation of the Changes

After determined all traces by evaluating them of which are added, altered, removed or missed, it is understood that they indicate two main changing reasons which are technological changes and space arrangements. As mentioned in the Chapter 3, there are two main events that caused the changes in the factory.

**The first one (1954) is interventions of Ertem Family in order to make the process easier than before. These interventions are not related with technological innovations. They are related to extend the capacity of the building. This event affects the factory as follows:**

-The Space G-03 which was used as soap boiler room, is re-arranged as distillation area due to the requirements of olive-oil process. With this intervention, the window organization is altered (see T02; in Table 18). But here, the main questioned part is that there is no evidence related with the previous window organization. During the interviews with A. Servet Ertem, it is only known that there were two windows and a door in the middle of them which are located at the south-western wall of the Space G-03. So this questioned part will be solved with the comparative study.

-By re-arranging the Space G-03 in which soap boiler was located, the soap boiler is moved to the Space G-07. With this intervention, on the north-western wall of the Space G-07, there are some removed openings (see T15; in Table 18), which may be window opening before this intervention.

In addition to this, the 'Sabunhane Block' which was used for the soap production, was not enough for the capacity of the factory. Due to this reason, they added another floor to the 'Sabunhane Block' in order to create a clear space for making the soap dry easily. As a result of this intervention, 'Sabunhane Block' became a soap factory with large program. The new added floor consists of a large number of windows for drying purpose. This intervention caused construction of the concrete stairs that is located in the Space G-07 due to requirement of the new added first floor (see T17; in Table 18). By doing so, the Space G-04 which was used for making the soap dry, started to be used for pirina recycling area.

-Another important space arrangement of Ertems' is creating a place for transportation of the incoming olives from the G-08 to the 1-01. Due to this reason, they cancelled one of the grinder in order to constitute a clear space for stacking the olives. And they were transferred to 1-01 with the help of cranes through created gap on the flooring of the Space 1-01. This intervention affects the north-eastern façade organization of the 'Yağhane Block'. And new iron door is added, while some window openings were closed (see T25, T26, T27; in Table 18).

**The second event (1986) that caused changes in the factory is technological changes and related space requirements. This event affects the factory as follows:**

-The main reason of this change was introduction of the electricity into the factory. Due to this reason, the platform which is approximately 1m above the ground floor covering is added (see T19; in Table 18). It is also related with the new equipments which are super-steel press and new setting water pumps. Correspondingly, in order to catch the level difference between G-08 and G-04, new concrete platform and its stairs are added into the Space G-04 (see T05; in Table 18). And here, the new secondary space for producing green soap is created by the division walls made by factory bricks (see T04; in Table 18). In parallel with this intervention, new iron door is added in order to reach to the space G-04 from 15th Street (see T03; in Table 18).

-The Space G-06 in which steam engine was located, was not used for technical are due to the introduction of electricity. So here, toilet spaces for the workers are added (see T13, T12; in Table 18). Accordingly, this intervention causes the removals of windows and adding of new door in the Space G-06 (see T09, T10, T11, T14; in Table 18). For the first floor of the 'Sabunhane Block', where the Space 1-02 is located, some window alterations are observed by enlarging the surface of the windows for making the soap dry easier (see T44, T45, T47, T48; in Table 18).

-And as a final intervention is addition of the 'Annex Block'. It is because, they needed a space at the ground floor for selling the olive-oil (see T32; in Table 18). The first floor of this block was designed for the resting place for the workers (see T50; in Table 18).

### 4.3. Phases of the Factory

Ertem Olive-Oil Factory has faced different interventions in time depending process necessities as mentioned above. Within the light of information obtained from A. Servet Ertem [former owner of the factory] about the historical background of the site and the factory, comparative study and evaluation of the traces, the historical phases of the factory are defined. As a result of this data, *three different phases* are determined for the factory throughout the time. The production process phases of the factory which are essential to know for comprehending the building, were presented in the Chapter 3[36] in order to better understand the general characteristics of the building. In addition to those, the main intervention groups which are the results of process phases and their effects on architectural characteristics to the factory, were defined in detail under the title of 'changes'. Therefore, here, all phases of the factory are presented with supported drawings and their reliabilities.

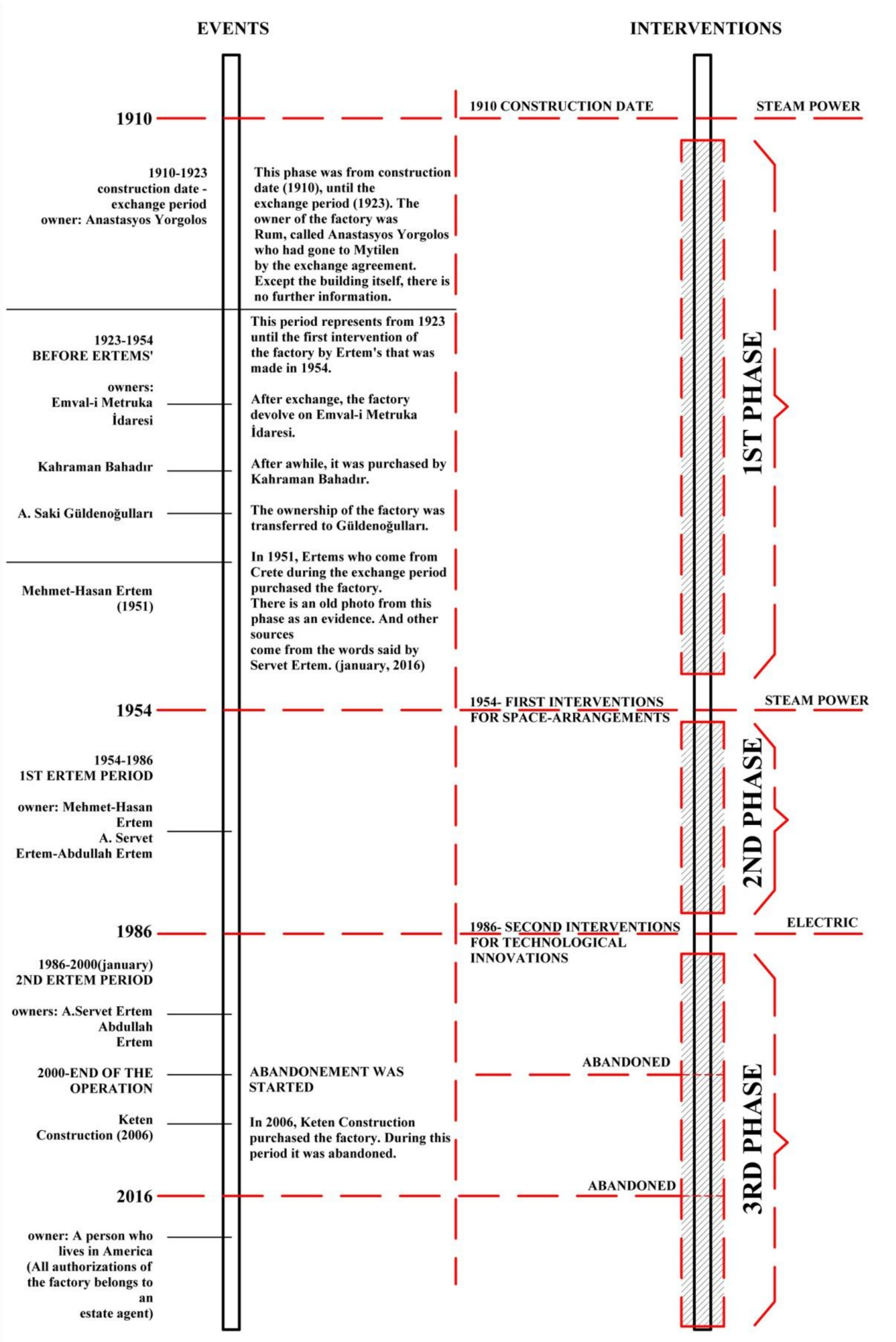
#### 4.3.1. Sources of information and Reliability of the Phases

This part of the study was prepared by using four main sources which are the building itself and its traces, oral-sources and/or old photographs, comparative study and architectural necessity. The reliability classification of these sources is as follows: the first degree is the building itself and its traces; the second degree is the oral sources and/or old photograph, the third degree is the comparative study and the forth degree is architectural necessity.

All phases are presented on the surveyed drawings with their reliabilities which are categorized in different colors in order to comprehend it as a whole.

[36]For further information see Chapter 3, 3.3.1. Technological and Organizational Context: The Process Structures in the Factory defined through Technological Changes, p.113

Table 19: Timeline of the Factory



#### 4.3.2. 1st Phase (1910-1954)

This phase of the factory (See Figure 139Figure **140**Figure 141) represents its construction date (1910) and until the first interventions of Ertem Family (1954) which was related with the space organization. During this phase, the owners of the factory are variable until Ertem Family came as the owners in 1951. It is not known any information related with the other owners periods specifically, except building itself and an old photograph taken in 1913. According to the interview with A. Servet Ertem, the factory was used until 1954 as its first phase which housed both olive-oil and soap production, but with small capacity. This phase of the factory is attained through mainly the information given by A. Servet Ertem and an old photo (See Figure 138) which was obtained from Evliyazade Olive-Oil Company. (See for the description of the phase, Chapter 3, 3.3.1., p.113-124; and technical changes of the phase, 4.2.3., p.257-268)

Figure 138: Old Photo of Ertem Olive-Oil Factory, dating back 1913 (Ertem Archive)

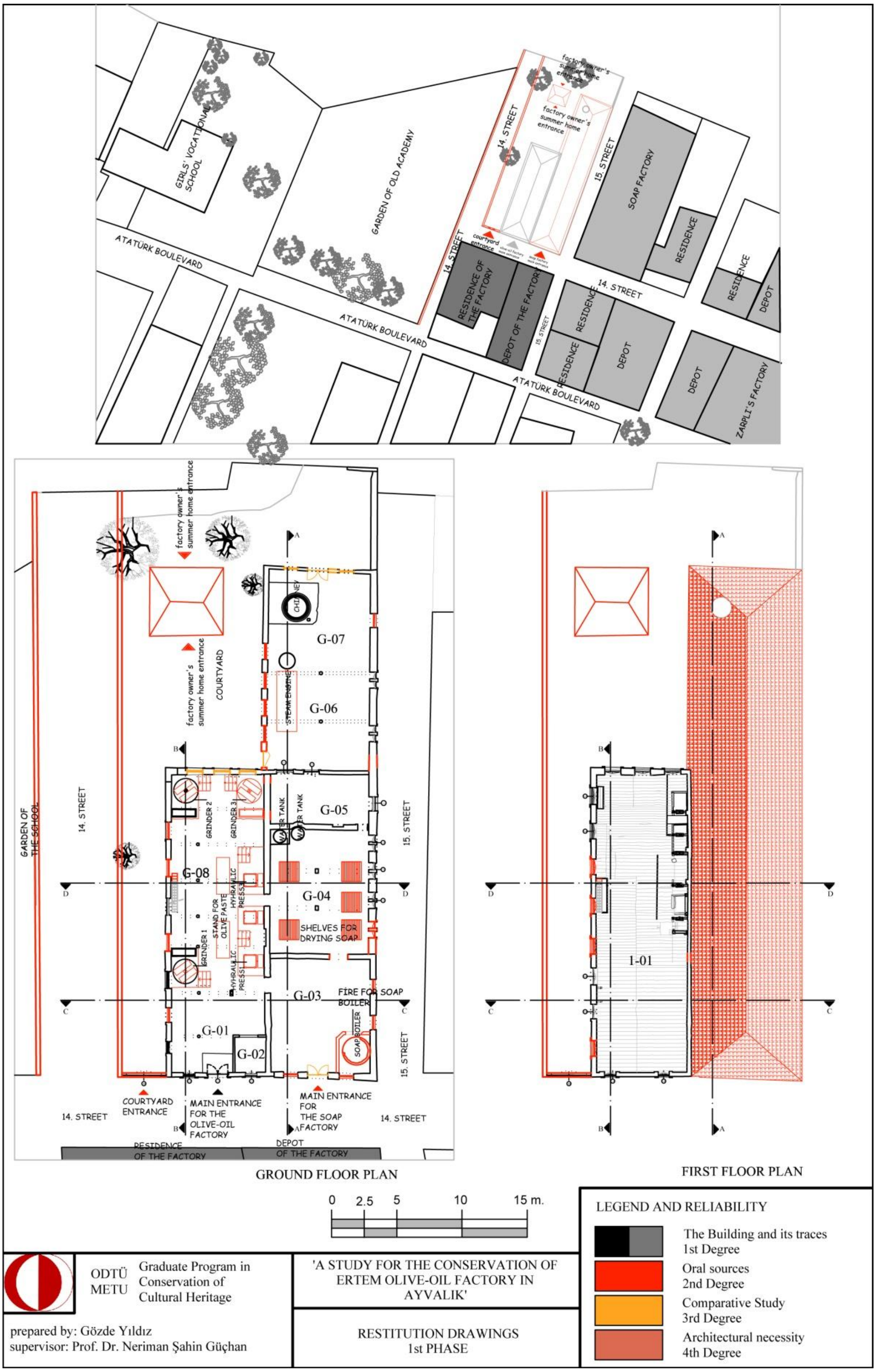



Figure 139: 1st Phase of the Factory, site plan and floor plans

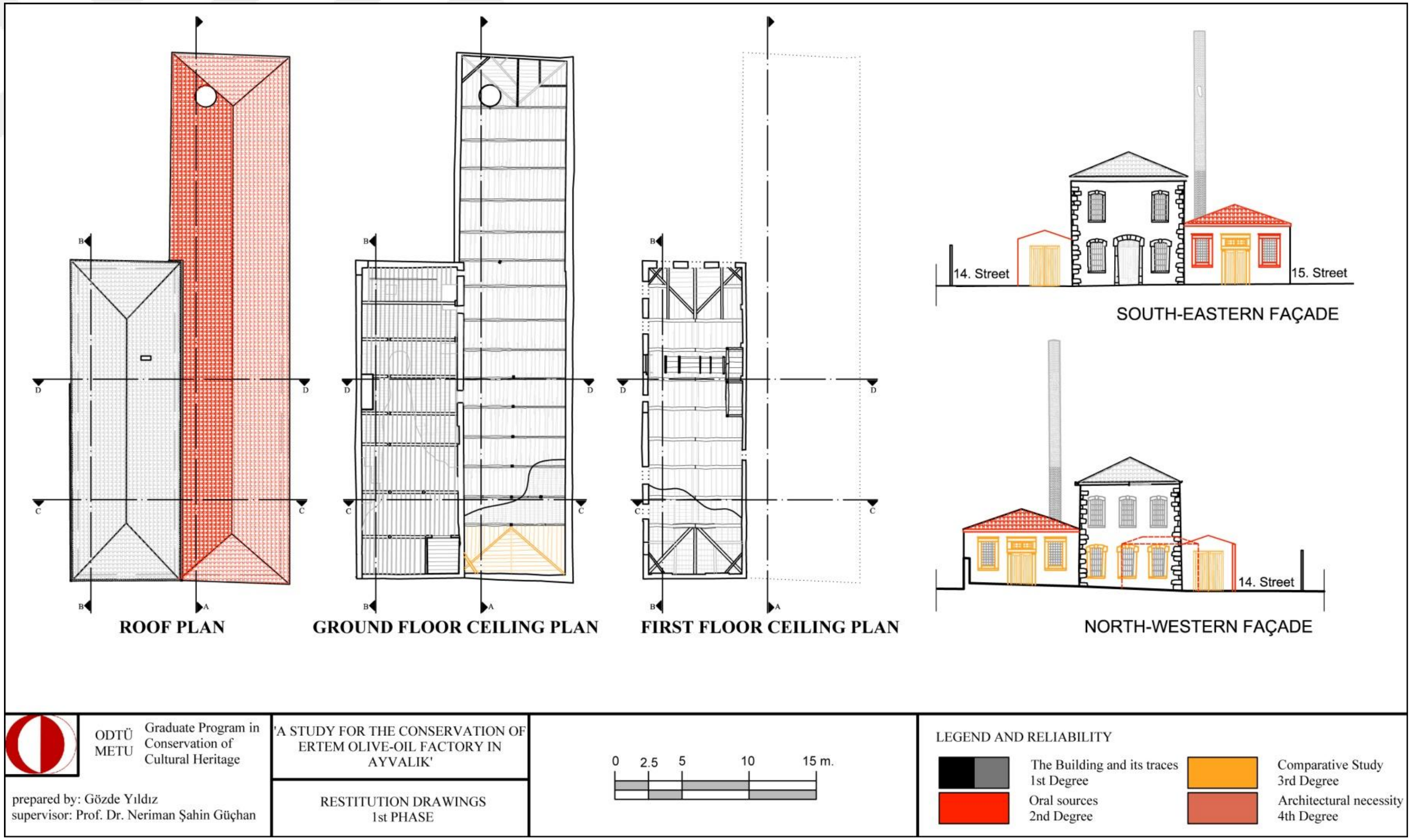



Figure 140: 1st Phase of the Factory, roof plan, ceiling plan and façades

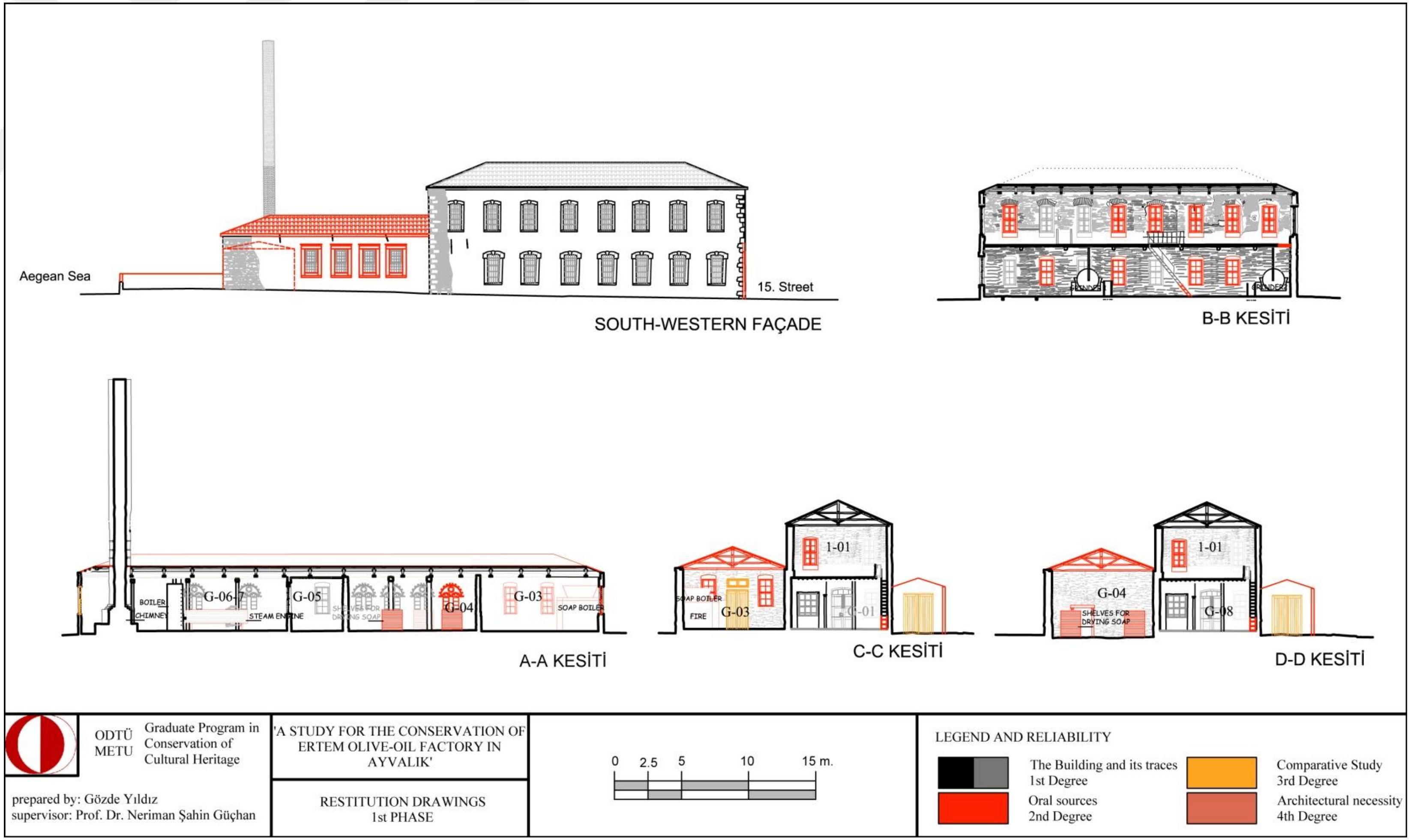



Figure 141:1st Phase of the Factory, façades and sections

### 4.3.3. 2nd Phase (1954-1986)

This phase of the factory (See Figure 142,Figure 143,Figure 144,Figure 145) represents the dates between 1954 and 1986 until the technological interventions which were done by Ertem Family. The changes occurred due to the requirements of the space organization. The main change between 1st and 2nd phase is extending the capacity of the factory. The factory housed still both olive-oil and soap production. This phase is attained through the information given by A. Servet Ertem and other sources obtained during the study such as historical background, comparative study and change evaluations. (See for the description of the phase, Chapter 3, 3.3.1., p.113-124; and technical changes of the phase, 4.2.3., p.257-268)

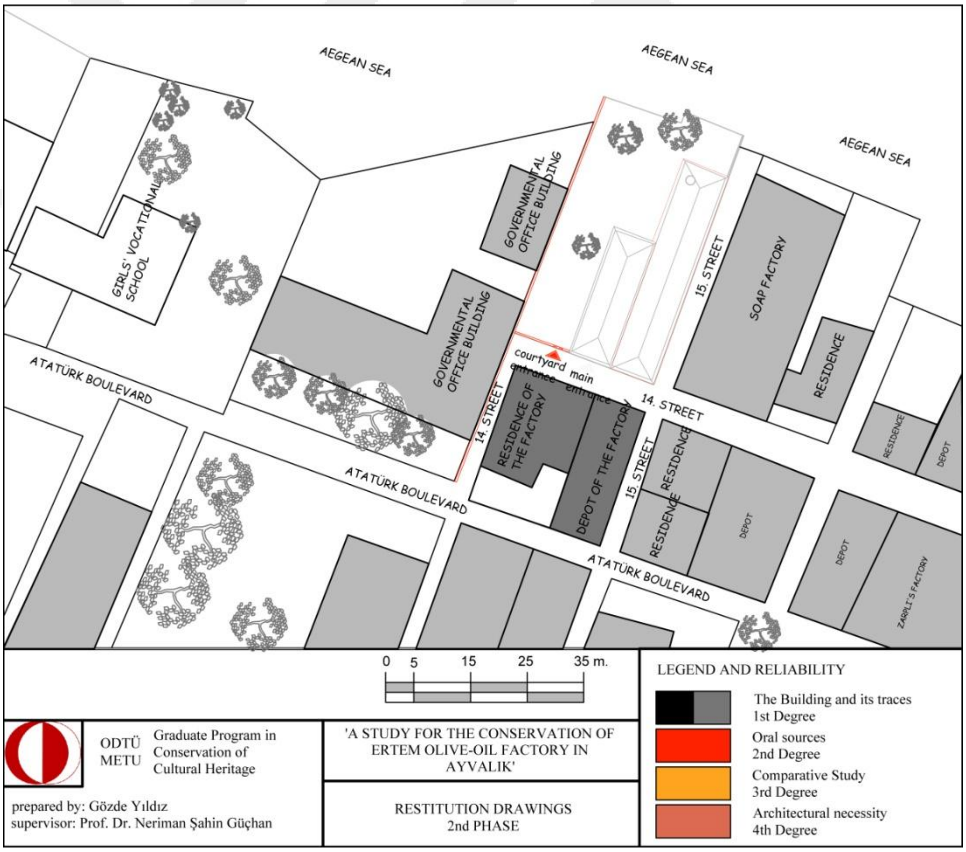



Figure 142: 2nd Phase of the Factory, site plan

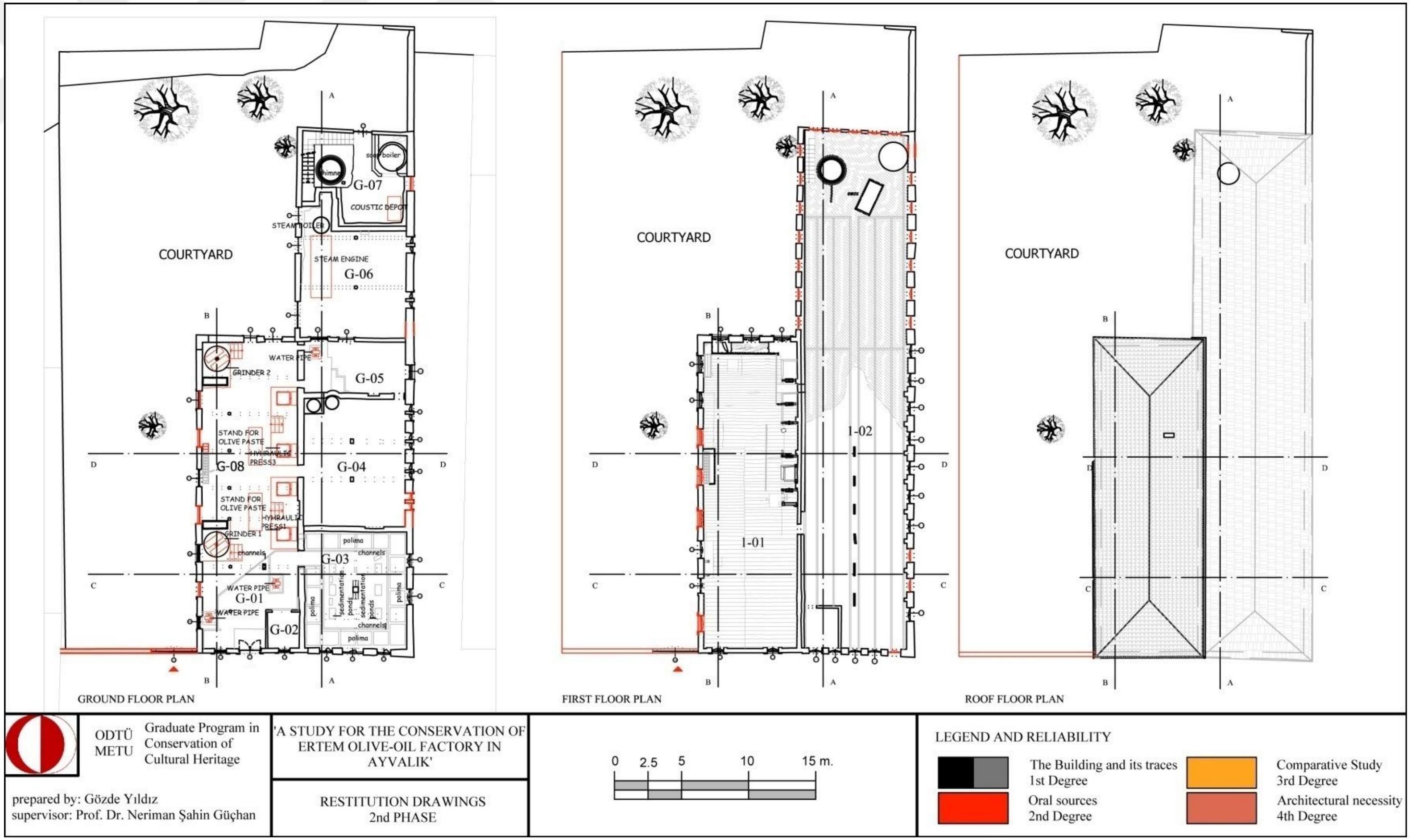



Figure 143: 2nd Phase of the Factory, floor plans and roof plan

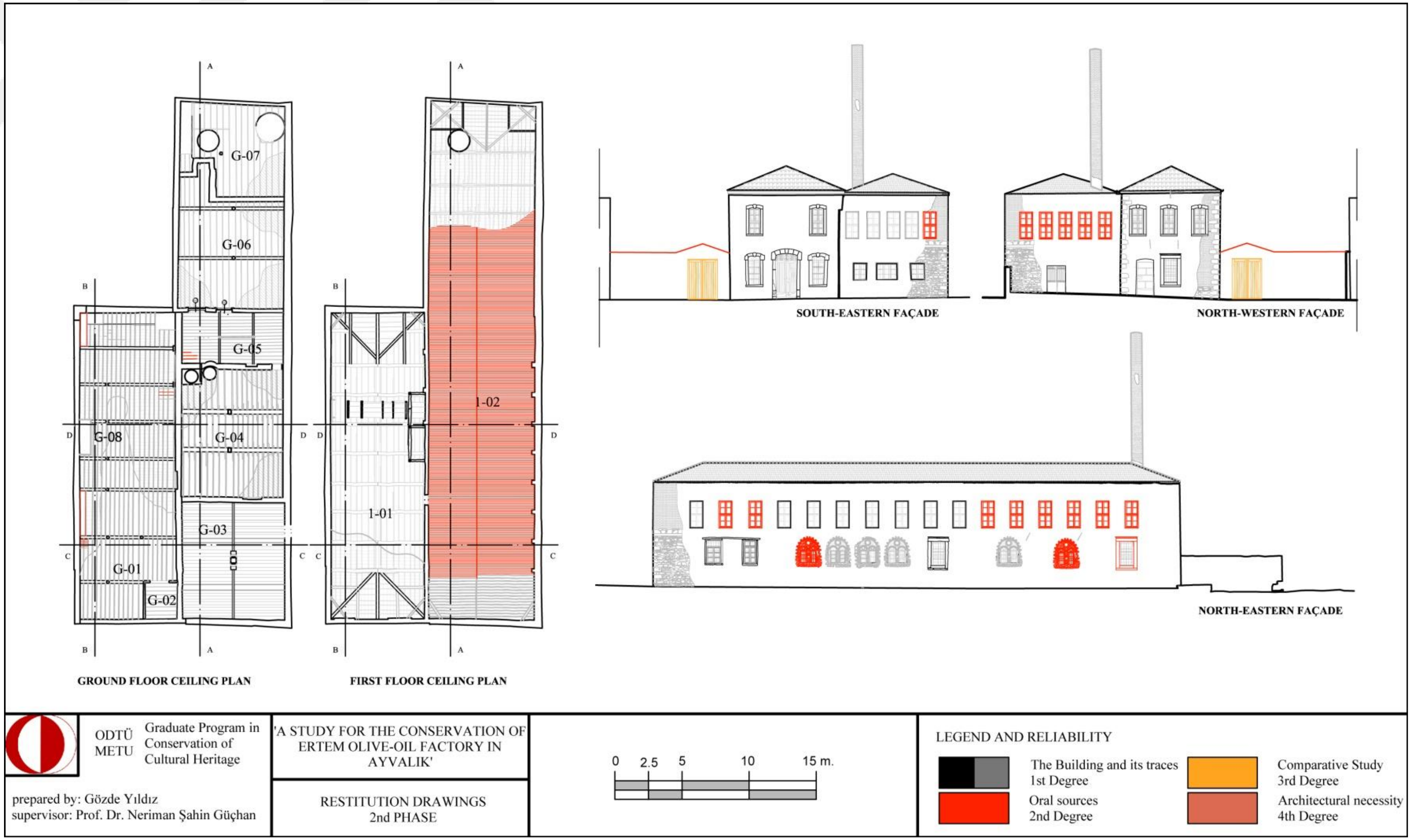



Figure 144: 2nd Phase of the Factory, ceiling plans and façades

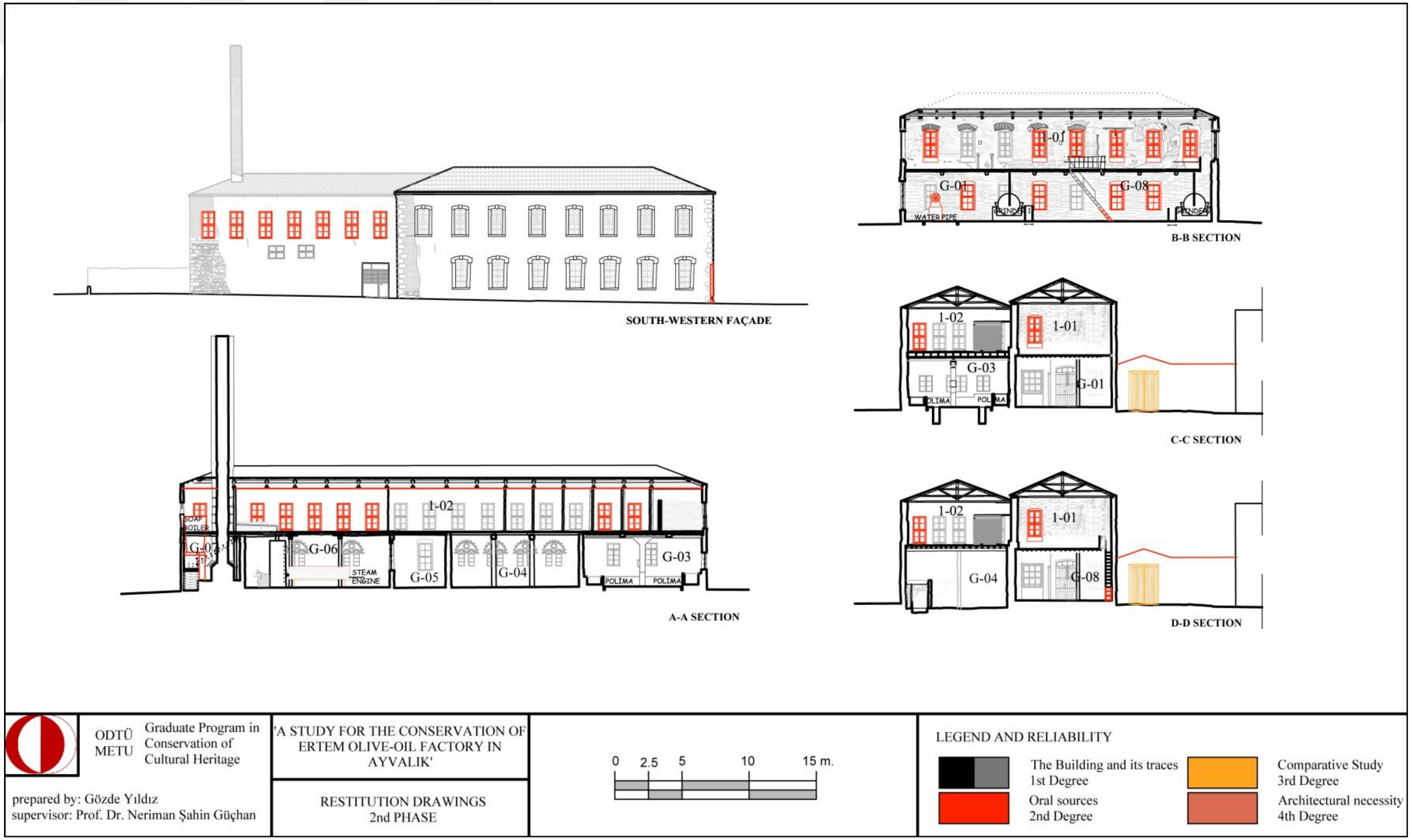



Figure 145: 2nd Phase of the Factory, south western façade and sections

### 4.3.4. 3rd Phase (1986-2000)

This phase of the factory represents the dates between 1986 and 2000 until the end of operation in the factory. The factory housed still olive-oil and soap production. The changes occurred due to the technological system changes. All changes are related to technological innovations due to introduction of the electricity into the factory. This phase of the building is attained through the information given by A. Servet Ertem, the building itself and its traces and other sources obtained during the study such as historical background, comparative study and change evaluations. (See for the description of the phase, Chapter 3, 3.3.1., p.113-124; and technical changes of the phase, 4.2.3., p.257-268)

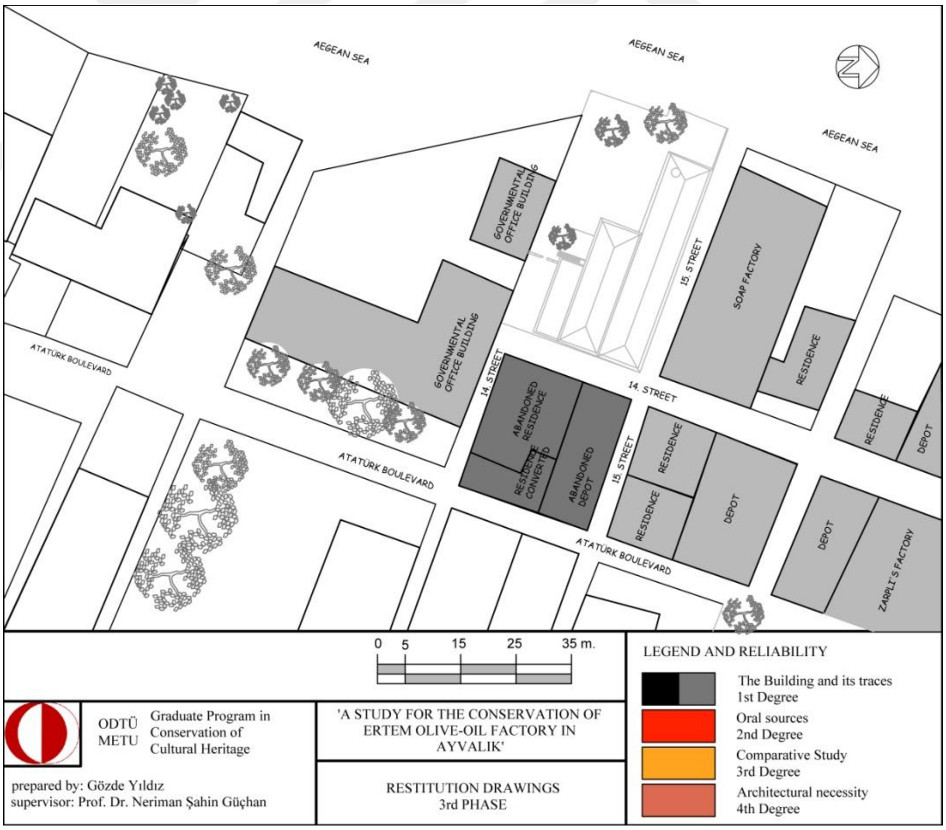



Figure 146: 3rd Phase of the Factory, site plan

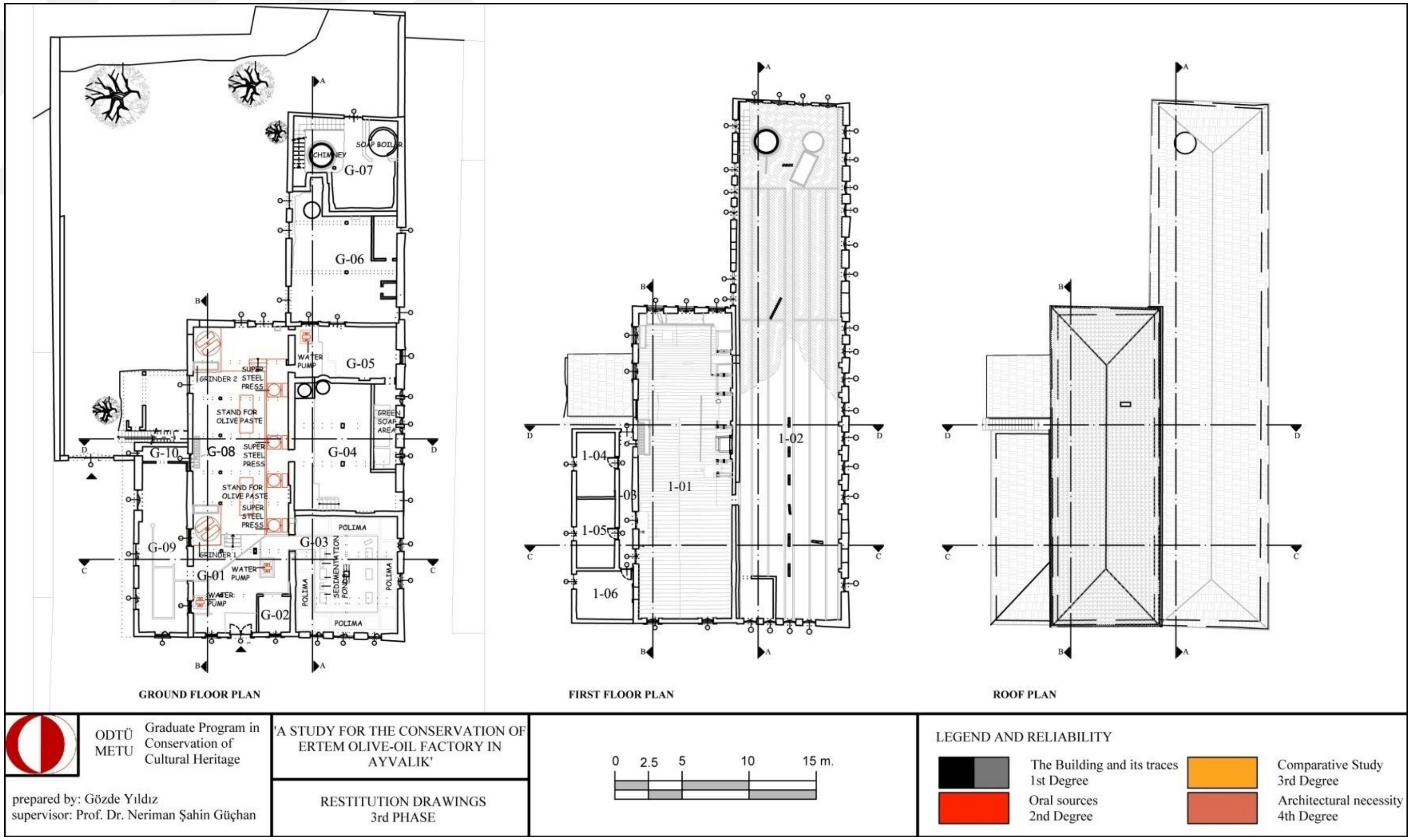



Figure 147: 3rd Phase of the Factory, floor plans and roof plan

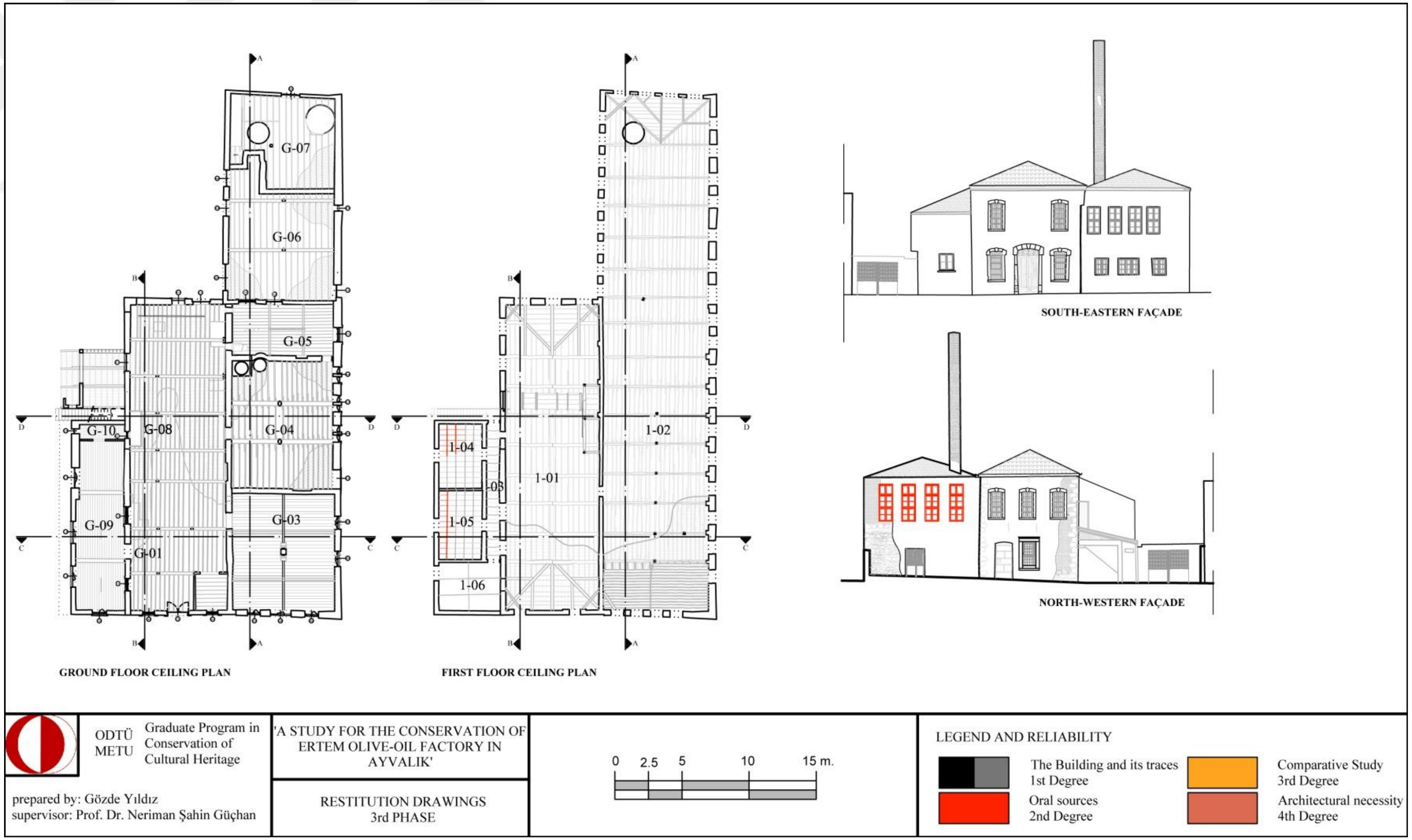



Figure 148: 3rd Phase of the Factory, ceiling plans and south-eastern, north-western façades

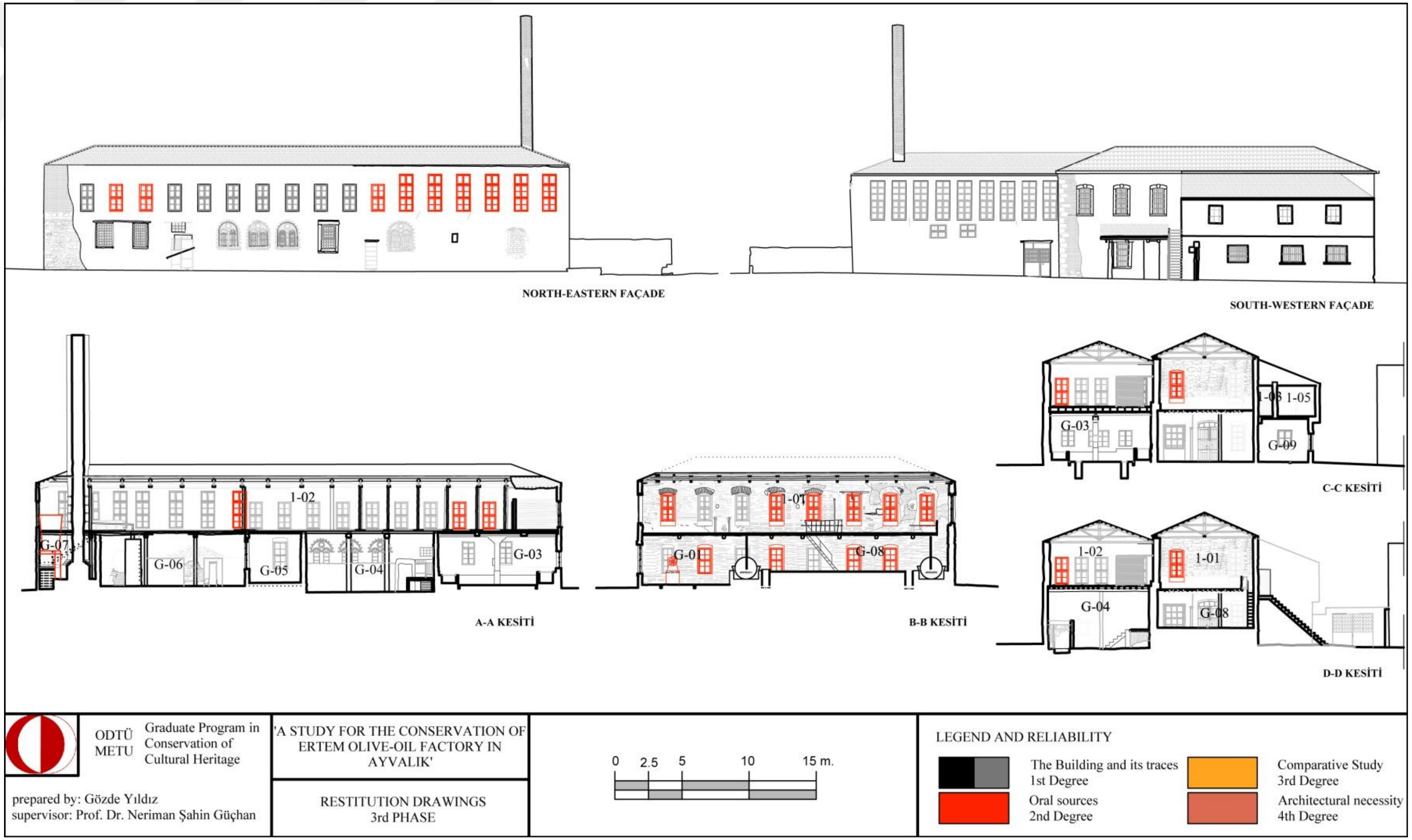



Figure 149: 3rd Phase of the Factory, north-eastern and south-western façades, sections

After the end of the operation in 2000, it was not used including present time. In addition to this, during its abandonment just when the factory was studied for this thesis, between January 2016 and December 2016 ,some changes occurred such as closed openings, new added courtyard door. These changes will be presented with photograph documentation that was taken by the author (See Figure 150).

Figure 150: The factory in December, 2016 - photos from left to right: new courtyard door; closed openings on the 'Sabunhane Block'; closed openings located at the north-eastern wall of the 'Sabunhane Block'; iron grills are removed from the W06 which is the unique type.

**4.3.5. Evaluation of the Phases**

As it is seen the factory has been used by several owners for the same purpose as a factory for producing olive-oil and by-products. During its active time, it has faced three different phases which are all important for the historical development of the factory.

Conversion from the first phase of the factory to the second phase, is important in terms of the new re-arranged comfortable spaces that provide the convenience for producing the products. In addition to that, this phase has positive impact on the factory in terms of its capacity through the changes made at that time.

Conversion from the second phase of the factory to the third phase, is also important in terms of adapting the innovations of technology at that time. This phase also has positive impact on its capacity by new changed technological system of the process. Although, aforementioned phases of the factory are all crucial for the history of it, there are also negative impacts to the factory in terms of related technical interventions to the architectural elements.

All actions made under the name of changes throughout the time have a meaning for the history of the factory. The results of these actions, on the other hand, may have negative impact to the factory such as closed original openings, unqualified additions that damage the original structures, etc.. For instance, through the third phase interventions of the factory, new added block, 'Annex Block' is important addition due to being the requirement of the technological changes. On the other hand, it damages the original structure of the factory, to the 'Yağhane Block' through closed openings of the south-western wall of the block. In addition to this, again through the third phase interventions of the factory, closed and/or altered openings and new added iron doors due to space re-arrangements, caused the damage to the originality of the façade organization of the north-eastern wall of the 'Sabunhane Block'. Even these interventions damage the building itself, they are coming from valuable actions throughout the time fundamentally.

### 4.4. Assessing the Factory through Values, Problems and Potentials

In this section of this chapter, assessments related with general characteristics of Ayvalık and Ertem Olive-Oil Factory, are submitted in order to generate a base for decisions and preparation of conservation proposal.

This evaluation is prepared by referring to general assessments regarding the building and its environment presented in the previous chapter and the first section of this chapter.

From this point of view, the factory and its environment are re-evaluated within the light of information collected through assessments, historical background about Ayvalık and factory, comparative studies within Aegean Region and specific to Ayvalık, changes in time and the phases of the factory. And they are classified as values, problems and potentials in this section of the chapter. All collected data affects the assessments directly, it is essential to consider all titles obtained until here, from beginning the problem definition in order to obtain the adequate decisions for the conservation proposal of the factory.

### 4.4.1. Values

*Values regarding Ayvalık*

Ayvalık is one of the crucial heritage places in the Western Anatolia located on a unique geography confined by the sea and hills, surrounded by important large number of agricultural lands (mostly composed of olive groves). In addition to its specific geography, its authentic traditional city pattern which is mostly preserved today makes the city important. Because of that, it was accepted on the tentative list of UNESCO in 2017. The values which make the city important are summarized as:

*Natural Value:* The unique geography of Ayvalık confined by the sea and hills as a border and surrounding important large number of agricultural lands mostly composed of olive groves has the natural value. Olive groves are not only the main component of the natural character of Ayvalık, but also the main source for the industrial landscape of the city. The olives specific to the region are characterized with their high-oil content. This specific feature of the olives makes the Ayvalık olive-oil unique in character (UNESCO, 2017).

*Symbolic Value:* "Industrial landscape of Ayvalık" defined by this unique geography, at the western edge of the inner city, represents an exceptional testimony to its olive-based industry from the 19th century onwards in Western Anatolia (UNESCO, 2017).

*Cultural Value:* Olive and soap industry have important place in the economical life of Ayvalık at past and at present as well, it still continues today. Industrial activities of the town (olive-oil and soap) form the urban fabric of Ayvalık. The factories, depots, small workshops for olive-oil and by-products reflect the industrial identity of Ayvalık not only with their construction techniques, materials and architectural elements of the buildings, but also with all sensations such as dominant olive-oil smells that can be sensed within the every part of the town.

*Economic Value:* Each historic building in Ayvalık has economic value that can be gained through successful adaptive re-use projects. It is because all these industrial buildings located within the city center, close to the commercial zone of the city. In addition, if these re-use projects were done through comprehensive analysis, it may cause the transformation of the city which can be called economic revival.

*Socio-cultural Value:* Ayvalık is very popular city by the intellectuals and with its touristic character. Today, most of the people from İstanbul, Ankara purchase a property (the historical ones within the city center for re-functioning) from Ayvalık in order to stay there for seasonal periods. These people also give a cultural and economic value to Ayvalık and to the industrial buildings through their new functions such as art shop, music shop, gallery etc.

*Values regarding Ertem Olive-Oil Factory*

Although Ertem Olive-Oil Factory is a modest building in Ayvalık which was constructed in 1910 (Efe et al., 2013; Ertem, 2016), has carried all aforementioned city scale values indirectly as it keeps most of the original features. It is a part of the integrated industrial heritage of Ayvalık. The values specific to Ertem Olive-Oil Factory can be listed as:

*Architectural Value*: Ertem Olive-Oil Factory that is subjected to this thesis, is located at the today's commercial-touristic zone of the town (namely northern industrial zone) in which most of the important big scale traditional factory buildings are located. This area has unique panoramic view from the sea through these factories including Ertem Olive-Oil Factory. Its specific location which is one of the important members of the city panorama also gives a value to the factory together with its surroundings. Its big courtyard confined by the Aegean Sea is another significant feature of the factory. Thus, its direct relation with the sea, located within the city center create a value for Ertem Factory.

A part from all of those, the factory that was constructed with stone and brick masonry technique, has unique architectural elements as an *architectural value* such as the window which have not be observed neither in the region nor in Ayvalık that was obtained from the comparative study.

*Technical-Artistic Value:* The building has technical and artistic value due to including both olive-oil and soap production process traces. It is still possible to read the technological layers of the factory through history. This mechanical equipments that gives the technical value to the building, also creates an artistic value.

*Age Value:* Most of the traces of the architectural and technical elements (PPE) of the building are still existing as they are such as steam engine in Rahmi Koç Museum in İstanbul or with their traces as seen in the factory itself. Therefore, Ertem Factory, as being one of the examples that was constructed before the exchange period, which has survived until today with few changes that reflects its age, is a significant example with its originality among the other industrial heritage buildings/factories in Ayvalık.

By considering that industrial heritage places/buildings/complexes are designed with their contexts and their architectural characteristics together as inseparable contents, thus Ertem Olive-Oil Factory has *technological value* due to its context which forms the architectural characteristics of the factory. The factory which housed both olive-oil and soap production processes, has also witnessed the phases of the technology. As mentioned in the changes section (See Chapter 4, 4.2; p:256-268), technological innovations and their spatial requirements are the main contents of the building that caused the age value for the factory. More importantly, technology is the most important component for these industrial buildings because of being the end of them in time due to no longer useful for the requirements of the new technology.

*Use Value/ Economic Value:* The factory as an abandoned industrial heritage building has functional-use value through adaptive re-use. This is also related to the economical benefits that gives economic value to the building.

### 4.4.2. Problems

Problems regarding Ertem Olive-Oil Factory can be defined into two title considering the building integrated entity within the city. These are probems regarding Ayvalık and the building itself.

*Problems regarding Ayvalık*

The main vehicular traffic artery of the city is Atatürk Boulevard which has pretty dense traffic that pass the center of the town that is linear connecting south and north areas to each other. By passing from the heart of the city, this road creates a problem for pedestrians. Along the coastline, there are important wide empty areas which are originally empty lots or courtyards of the abandoned buildings. It should be pointed out that these empty lots or courtyards of the buildings which are the only places that provide the relationship between the settlement part and the sea, are used for private purposes or car parking areas today. So the relation between the town and sea is cut through these uses. This problem creates visual pollution in the city and nearby environment of the factory.

In addition, one of the important problems for Ayvalık is transaction of the properties. Today, most of the inhabitants prefer to stay in apartments, thus they sell their houses for purchasing the new one located outside the center. On the other hand, the historical buildings in the city center take the attention of intelligentsia, mostly from İstanbul and Ankara and accordingly, prices rise. This situation causes the seasonal usage for the buildings. As a result of this, the living population within the center decreased.

Moreover, it is also observed that half of the traditional buildings are derelict today. While few of them are re-used for commercial and touristic purposes in the northern industrial zone, others are mostly abandoned. Negligence creates physical problems such as material, structural decays. For the restored ones, the problem is irreversible interventions that damage the buildings originality. For instance the ones converted into a hotel, not only damage the site and building characteristics, but also cut the relation with the sea through privatization of the buildings just for guests. So, it is hard to find a place to connect with the sea as a visitor or an inhabitant. In this respect, new interventions which have been made under poor conditions with ignoring the values, harm the identity of the town. Those can be considered as physical problems of the city.

*Problems regarding Ertem Olive-Oil Factory*

For the case of Ertem Olive-Oil Factory, one of the important problems is ownership status which resulted in negligence. Since 2000 until present, the factory has been abandoned. After the relocation of industrial activities to the outer of the city center, the factory was sold to Keten Construction by Ertems' in 2006. At the beginning it was planned to convert it into a hotel by Keten Construction. However, this plan was cancelled due to the financial reasons. Immediately afterwards, it was sold again. The current owner of the factory is known as a doctor in the USA. This transaction was directed by the real estate agent in Ayvalık which was the authorized person as a proxy. Thus, negligence become the main problem beyond all. Throughout the site survey, between January 2016 and December 2016, even for short period, there have been lots of changes occurred related to vandalism.

The information obtained from the documentation show that the factory suffers some physical problems. Regarding evaluations of physical problems of the factory, it should be pointed out that these surveys and maps were done without laboratory studies. It was prepared by visual observation. The reasons of these problems are mainly based on man-made actions and weathering conditions. To consider that the building has not been used since 2000, neglect and man-made actions are the main factors of these problems. As seen on the changes section, due to abandonment, the factory loses its originality day by day through interventions done by homeless people or privileges who live in the factory in the present day.

Weathering conditions mainly depend on humidity problem including rising damp and rain water penetration into the building that damage the materials of the factory. Within the light of the documentation, the problems on stone masonry and brick masonry walls are mainly seen at the ground level of the building and the upper level of the building. Possible causes of these problems are rising dampness and rain water penetration due to the detail problems between the two different blocks. It is also observed detachment and material loss in the building because of the weathering problems. There are disintegration of the mortar and plasters on the façade that are mainly observed at the north-eastern façade of the building. The timber elements of the building such as bonding beams, flooring beams and trusses have fiberisation problem due to the water content and formation of holes problem due to the insect attacks. The biggest problem is seen on the roof trusses in the building because of the timber decay.

In the factory, there are structural cracks that occurred because of the alterations of the buildings' structural elements. All the timber elements decay caused the loses of their strength and/or deformed especially at the roof due to these problems. Another result of this problem is sagging that is observed at the timber floorings.

### 4.4.3. Potentials

Although the original character of the city is damaged with the new interventions, the industrial identity of the town is still visible. As mentioned in the values assessment part, all these features of the city such as existing traditional fabric with natural values of the site, are created potentials for the city. These features of the area also give touristic attractions to the site and to the factory. Existing commercial activities, touristic services in the city and surroundings of the factory defined in detail in the Chapter 3, give economic potential to the area.

It can be said that Ayvalık is an important touristic area with its boutique hotels, museums, festivals. This situation creates a potential for the site in terms of improving this touristic attraction.

Furthermore, the strong relation between Lesbos and Ayvalık is also an important potential. It comes from the history, as mentioned by Psarros (2004), Ayvalık was the agricultural hinterland of Lesbos and known as 'Coast of Mytileneans'. In the history, there was always continuous trade between these settlements. And the population exchange in 1923, creates another cultural, political-social common point for these settlements. In present day, these strong relations between Ayvalık and Lesbos is still continuing. These settlements represents the cultural integrity. For instance, settlers of Lesbos are still going to Ayvalık's bazaar, while settlers of Ayvalık are going to Lesbos'. The transportation network between Lesbos and Ayvalık as a result of this relation affects the touristic attraction of the each city as a potential.

Moreover, traditional industrial buildings of which almost half of them are abandoned today, have potential in order to increase the touristic activity in the town by re-using them (use value). Other half of the industrial buildings re-functioned for different functions such as hotel, cafe, restaurant, shop, art shop, museum etc. Thus these examples indicate the using potential of these buildings for variable functions. However, as being one of the important phenomena in the world, converted into museums industrial structures should be analyzed in terms of requirements of the site. In the case of Ayvalık and close environment cities, it should be pointed out that museums related to the olives and olive culture exist in Ayvalık and also in the neighboring cities such as Çanakkale, İzmir.

In addition to that, Ayvalık is chosen by artists to stay for seasonal artistic activities, works/workshops, festivals, etc. Thus, this is a potential for the site and for Ertem Factory in terms of re-functioning it for artistic purposes, even for seasonal uses.

Being located at the very center of the city, near the coast line, gives important role to the factory. Its specific location that directed to the sea, within the city center is a potential for the factory.

The architectural features of the factory such as original plan schema, spatial organizations, are important potentials in order to adapt the building into the new life. Moreover, its big courtyard confined by the sea is another potential for new uses. Accordingly, spatial characteristics, due to serving for special purpose, related production process, which consists of valuable elements or their traces such as grinder, wooden channels, sedimentation ponds, polimas, have big potential for exhibition purposes. They constitute specific ambient for new attributed functions. Therefore, the factory has functional potential by having specific elements inside of it. In addition to those, valuable gastronomic culture of Ayvalık has a big potential in order to give the second life to the building with the conservation proposal.

# CHAPTER 5

# GENERAL DECISIONS AND CONSERVATION PROPOSAL FOR ERTEM OLIVE-OIL FACTORY: 'EXPERIMENTAL MULTI-TASTE FACTORY'

Required information in detail and regarding assessments for the factory and its surroundings were done by defining the site's values, problems and potentials with Ertem Olive-Oil Factory in the previous chapter. Within the scope this study, these values are needed to be conserved, the problems are needed to be solved and the potentials are needed to be evaluated.

In this chapter, at first, general decisions which define conservation approach and design principles, are presented. And then, general decisions which define the new proposal for Ertem Olive-Oil Factory are identified with supported drawings and visual documents including not only physical interventions, but also new function and related management proposal to adapt the factory into the new life according to the present demands.

## 5.1. General Approach and Principles for Conservation Proposal of Ertem Olive-Oil Factory

Industrial buildings such as Ertem Olive-Oil Factory that is subjected to this thesis, are one of the main symbols of the socio-economic past of the towns as being cultural assets with their special mechanical and technical equipments which formed the architectural characteristics of industrial buildings. They lost their functions in time due to fast technological changes as seen on the case study, Ertem Olive-Oil Factory. Re-adaptation of such industrial constructions into the new uses by connecting them into their surroundings, is an essential way to conserve them. Moreover, these structures which are characterized as big size, flexible and large internal space, give lots of possibilities for adaptive re-use.

Existing situation of the factory is problematic today due to the negligence that causes physical problems. The main purpose of the conservation proposal is to solve primarily structural-material decays and later proposing new function with developed management plan in order to sustain it. Within the scope of this, general design principles are defined under three headings that are principles related with physical problems of the factory, principles related with changes of the factory and principles related with the new function, according to the values of the building and design principles and strategies on conservation of industrial buildings as seen in the selected case studies (See Chapter 2.1., p:25-63).

### 5.1.1. Principles related with physical problems of the factory and its environment

These principles are declared in order to constitute a base for the interventions for the treatment of the physical problems of the building and its close environment. To begin with, assessments related with the physical condition of the building and its surroundings are prepared by visual observation. It should be pointed out that these kinds of studies should be prepared via detailed structural and material analysis as a completed study with the specialists by related laboratory tests in order to reach to the best results.

-Main principle for this section will be limiting interventions to a minimum in order to avoid unnecessary interventions.

-To investigate the agents of the physical problems and to control them,

-To take into account seismic precautions due to having risk of earthquake. (Ayvalık is located on the 1st degree earthquake zone),

- To plan possible implementation techniques and selecting the appropriate materials for the deteriorated elements.

### 5.1.2. Principles related with changes of the factory

Changes are the important value (technical value) for the industrial constructions due to representing the technological innovations throughout the time as serving technological purpose. Therefore, for the conservation proposal of Ertem Olive-Oil Factory, all phases are considered as valuable. On the other hand, even these changes represent the different process phases which are valuable for the building itself as being a part of the industrial building and technological innovations, there are also some negative impacts on the factory through wrong or unplanned interventions. Within this context, related interventions will be based on these principles,

-All added and altered elements under the name of technological and organizational changes will be preserved in either way. If they harmed the original structure, they will be removed, but revealed with the new proposal which will be proposed in the project,

-Removals of architectural elements such as windows, doors will be completed as the original ones according to the reliability of them. For the original elements, intervention strategy will be as follows: if the original material or traces of them exist in the building, it will be preserved. If the original materials do not exist but known from oral sources or old photographs, it will be replaced according to their possible location, size, materials and techniques.

- Alterations related with architectural elements such as windows, doors will be replaced with the original ones.

-Missing elements, for the equipments, their traces will be preserved. The ones that do not exist today in the building, will be revealed according to their location and size by modern materials through the new proposal.

### 5.1.3. Principles related with new function

In the process of re-adaptation of structures, the design principles should be defined in order to constitute a base for the new function and related interventions. Within this regard, design principles for the conservation proposal as follows:

-New function proposal should be developed by considering all values and problems of the site and the building itself. In addition to this, it should have positive effects of the transformation on its close environment,

- New function will not over-load the existing structure capacity,

- New function proposal should be appropriate not only for the characteristics of the structures, but also for the user profiles.

- All interventions related with the new function will be done with new materials reflecting the present technology which will be selected according to their compatibility with the existing ones. In addition to this, new elements for the proposal should provide the environmental sustainability and should be designed in flexible manner by respecting the past of the existing structure.

- All interventions related with the new function should promote the reversibility, recognisability by considering the spirit of the place while preserving the authenticity;

- All interventions related with the new function should protect the existing structure's character and context by strengthening the spirits of the places;

- Contemporary interventions should be kept in minimum.

- It is necessary to re-interpret the new management plan which is based on new use that promotes spirit of the place and effecting the future of the place such as owner needs, social and cultural background of the building and its environment.

## 5.2. General Decisions and Description of the Conservation Proposal: 'Experimental Multi-Taste Factory'

This section of the thesis includes interventions related with each heading of which were defined above with determined general principles. It continues with new scenario for new function including its management proposal. And it ends up with the conservation proposal with supported drawings.

To begin with, Ayvalık is pioneer settlement for the olive and olive-oil industry as a major economic activity since its establishment. Due to developments in production technology, daily life, working style and the structure of urban space, there is a large stock of derelict industrial buildings within the city center which do not respond the new demands of present day. Therefore, transformation of these abandoned post-industrial heritage becomes a major issue through re-use projects of these obsolete structures. Currently, there are factories with large program which are more than twenty in number within the building stock in Ayvalık. Some of them are being used for new purposes of which are mostly cultural, touristic and administrative purposes. For instance, state owned ones Vakiflar Olive-Oil Factory and Kırlangıç Factory are being used for public interest. While Vakıflar Olive-Oil Factory was converted into Olive History Museum that represents the industrial past of Ayvalık, Kırlangıç Factory Complex was converted into administrative purpose for Ayvalık Municipality and social center for local people. On the other hand, those owned by private entity are generally converted into touristic purposes such as hotel, cafe which is shaped according to the stakeholders.

Within this context, Ertem Olive-Oil Factory which is subjected to this thesis, is chosen as a case study for developing a conservation proposal that may lead the other similar ones. It is one of the well-preserved industrial heritage buildings in Ayvalık that reflects typical traditional 19th century olive-oil factory within the city including both olive-oil and soap productions. It is still possible to read the technological layers -production system- within the factory through its originality. Thus, The building is an important example for learning the production process through its originality. Its specific location which can be considered as a landmark for the city, its direct relationship with the sea, its huge courtyard that creates a value for the town, make it a significance example among the others.

In addition to that, Ertem Olive-Oil Factory is typical medium scale factory used by family enterprises. Its ownership passed into different various private entities until today. Thus, this case study will be an example for developing a conservation proposal for the similar ones in Ayvalık owned by private person. Therefore, the new proposal for the factory should include public interest and its owner's favor as well (multi-functional).

The current situation of the industrial pattern of the town which is characterized as touristic-commercial center related with Ayvalık's culture that comes from the history (like local food culture such as olive-oil, soap, etc.) and cultural activities through existing important art centers (AIMA), gives the possibility to transformation of the site by using cultural tourism as a tool. In addition to that, as mentioned in the potential of the city, Ayvalık is chosen to stay by artists for seasonal periods and it caused new cultural events in some periods of a year. Thus, this character of the city can be used as a tool for cultural tourism.

Having considered that, re-adaptation of inactive historical industrial buildings has a significant potential to sustain the place by using current tourism trends that include local cultures such as artistic, gastronomic, industrial which address to all sensations. The sustainability of industrial buildings in Ayvalık, is only possible by reuse them in the tourism context by preserving their original features as mentioned by Yerliyurt and Manisa (2014).

Within this regard, Ertem Olive-Oil Factory is converted into 'Experimental Multi-Taste Factory' which is based on the theory of Pine & Gilmour (1999), named 'experience economy'. To begin with, through a new strategic experience based program which is always in transformation identified by Pine & Gilmour (1999), the factory will extend its life time. Accordingly, this new program that is in transformation inside of it through changed design experiences related with the culture of the town, will provide the sustainability of the culture of Ayvalık. While at the same time it includes a core unit which works everytime regarless of the experinced events in order to provide the management of the new program. Thus, new function will meet both public demand and owner needs. Regarding the authenticity of the factory, all interventions and decisions have been proposed within the framework of highly respectful principles. As a result of the conservation proposal, the factory will be preserved physically, culturally as well as economically.

### 5.2.1. Decisions for physical problems of the factory and its environment

***Interventions of physical problems of the site***

Within the information collected through documentation and assessment, some conservation decisions based on the determined principles should be evaluated for the site in order to solve the problems such as car parking. As mentioned in the Chapter 3, the empty areas which are located at the coastline as valuable places, are being used as car parking area by ignoring their values. This problem should be solved through effective planning for whole Ayvalık not only for providing the needs of users, but also for providing the relationship between sea and the settlement part.

Another important problem to solve for whole Ayvalık is infrastructure of it. This problem damages the urban fabric of the site. So in order to prevent this damage, it should be solved by specialists through new drainage system. In addition, it is under the implementation process according to the records of water and sewerage administration that was published in December, 2015 on the website ("Ayvalık News", 2015)

***Interventions of physical problems of the building***

As a starting point for the physical interventions of the building, it should be started with **preventing the agents of decay and damage**. Therefore, interventions related to **environment control** include control of humidity, temperature, light as well as atmospheric pollutions and traffic vibrations. This step will be the starting point for the intervention decisions (Feilden, 2003).

Within this scope, in order to eliminate the **humidity problems** such as **rising damp**; first the source of the problem should be minimized. Adequate passive moisture sinks to dissipate any penetrative moisture so as to make the system fail-safe (Hutton, 2012). This problem should be solved with precautions of adequate ground drainage system around the building (See Figure **162**, D1).

In addition to this, second water source related to humidity is **rain water penetration** which should be solved by re-detailing of surface drainage in order to minimize the water penetrations to the foundation and the surfaces of the building . As mentioned in the Chapter 3 (See Chapter 3.4.3.; p. 231-239), this problem occurred because of the decayed timber trusses and dilatation problems related with blocks. In order to solve them, after treatment of the decayed materials, re-detailing should be done for these problematic points (See Figure 163, D3).

***Interventions related strengthening and repair***

As a next step of controlling environment, after the establishment of the agents of the damages, possible implementation techniques and selecting the appropriate materials for them should be planned. This part consists of intervention proposals for each problem for the building in terms of strengthening and repairing.

The structural problems and deformations were defined in the Chapter 3 (See Chapter 3.4.3.; p. 231-239) which are few structural cracks, sagging and bending problems due to material decay of timber spanning and truss elements which caused the loss of material strength.

For the conservation of the factory, it is important to take into account **seismic precautions** due to having risk of earthquake. As it is known, Ayvalık is located on the first degree earthquake zone. Therefore, in order to take precautions for the seismic risk, detailed analysis should be carried on. Within the scope of this thesis, documentation related to existing physical condition of the building were done through visual observations which is not enough for seismic proposals.

During the site surveys, wide and diagonal cracks, named as structural cracks are observed that are located on the masonry walls above the openings at the north-eastern and south-eastern façades of the factory. It is understood that they were formed due to the earthquakes in 1948. According to the interview with the former-owner of the factory, A. Servet Ertem (2016), they are mostly stable cracks which have not changed in dimensions after the earthquake. Therefore, considering that these cracks are not serious in terms of their dimensions, stitching technique is proposed from some levels in order to prevent the enlargement of the cracks for the possible next earthquakes (See Figure 162, D2).

For the sagging problem which is generally observed in the 'Sabunhane Block', it is observed that they occurred due to material loss and deterioration of the timber beams of these spaces. Therefore, this problem will be solved by repairing solutions of the deteriorated timber elements and replacement of loss parts of them.

The bending problem which is the most serious structural problem for the factory, is observed at the timber roof trusses of the 'Sabunhane Block' and the 'Yağhane Block'. In that case, the reason of this deformation is not only related with deteriorated timber truss members which lost their structural strength, but also problematic joints of them. Therefore, in order to solve the bending problem, in addition to the repair of timber deteriorated elements, they will also be strengthen from their joints by metal clamps and tie rods. And, these metal elements will be coated with anti-rusty elements against the oxidation (See Figure 163, D3).

Besides the strengthening decisions, some related repairs should be done. For the **non-structural cracks** of the building, filling with grout or hydraulic mortar injections may be suggested. This solution would seal the cracks and protect the wall plaster from exposure to water.

For the **material loss** that occurred on the framing of the windows and doors, plasters and mortars may be solved by re-pointing with the original materials or same mechanical-chemical character with the original ones that would be decided with laboratory analysis.

Some portions of timber units such as flooring covers and trusses elements that decayed too much for repairing, will be replaced with the same type of material and technique. For the deteriorated timber elements of which are investigated in the

Chapter 3 (See Chapter 3.4.3.; p. 231-239) due to insect-fungi attacks, UV lights may be solved with the chemical products that protect the timber against these agents.

After solving the structural problem of the roof; tiles should be fixed where broken or missed, with the same type of material and technique. In addition to those, **cleaning interventions** should be carried out in terms of deposits, biological colonization and rusted layers. For this step of the work, it should be taken into account that the actual source of the dirt and soiled materials should be understood in order to prevent the irreversible damage.

First, microclimatic problems should be solved such as ventilation, heating and interior environment. After that, in order to achieve the best solution without damaging the building, some trial areas should be determined in the building. Then, the type of intervention should be proposed. There are multitude different cleaning methods which may be wet or dry, chemical or water based, abrasive or non-abrasive in the conservation market. There are positive and negative effects of these solutions. It is important to choose best solution for the building in order to block the removal of patina. After choosing the best type of intervention for the factory that may be nebulous spray, these problems should be removed. According to an article related cleaning methods for masonry structures, nebulous spray is one of the gentlest (Constantinides and Humphries, 2003). It is based on the principle of passing water through a very fine mesh or filter. The level of water can be controlled by electronically or by timers allowing pulse to avoid ever having water running down the face of the building. But it should be said that it has both positive and negative effects. It should be determined by specialists.

Table 20: Intervention decisions related to physical problems of the factory and new implementation decisions

## INTERVENTION DECISIONS RELATED TO PHYSICAL PROBLEMS OF THE FACTORY AND NEW IMPLEMENTATIONS

### D1 — Decision for the masonry walls

For the masonry walls, disintegration and loss of mortars will be re-pointed with the original character of material. If there is cement mortar on the wall due to the wrong interventions, they will be removed and re-pointed with the original ones.

The structural cracks which are defined as locating on the masonry walls above the doors, windows and corners ;approximately between 0.5-2.5 cm in width and 0.2-0.8 cm in depth, will be stitched.

The non-structural cracks which are defined as appearing where the plaster laid on the walls a bit thinner, will be filled with grout or hydraulic mortar injections.

### D6 — Decision for the masonry walls

All masonry walls will be cleaned according to the material techniques.

All incompatible materials that damage the original materials will be removed.

Some unqualified walls which are determined in the interventions of change phase, will be removed.

The new walls an divider to be implemented related to the new function, will be generated where required as seen in the restoration project proposal.

### D7/A — Decision for additional mass

The additional mass will be preserved as its structural layout. Non-harmonious façade and spatial organization will be re-arranged as seen in the restoration project proposal.

Plasters will be cleaned in order to get rid of deposits, rusted layer because of the rising damp, environmental factors such as sooty and stain.
For the material loss and flaking of it, it will be filled by re-pointing with the original materials. After this operation, interior parts of the walls will be lime washed as originality.
If there is a paint as a finishing element on the façades, they will be removed.

### D2 — Decision for the drainage

In order to eliminate the humidity problems such as rising damp; first the source of the problem should be minimized. Adequate passive moisture sinks to dissipate any penetrative moisture so as to make the system fail-safe. This problem will be solved with precautions of adequate ground drainage system around the building and re-detailing of surface drainage in order to minimize the water penetrations to the foundation and the surfaces of the building

New implementations to be generated related to the humidity problem (new drenaige system)

### D5/A — Decision for floors

Ground floor screed coverings will be cleaned and new project proposal for floors which is raised floor technique will be implemented

Screed and rf. elements will be cleaned from their soiled layers and completed where they are missed.

### D3 — Decision for the chimney

For the chimney, after treatment of bricks and mortar problems, it will be strengthened with fiber rein-forced bars

Fiber re-inforced polymer (FRP) bars

### Decision for repair of windows and doors

All windows and doors elements will be cleaned in the right way according to their material and completed where broken or missed.

Closed or altered windows and doors will be renewed with the original ones as determined in the restitution project proposal according to their reliabilities.

Some architectural elements which are damaged to the building originality will be removed. The opening will be bound with the same type of wall.

Stones will be cleaned from their rusted layers and re-pointed where they break off and missed. And they will be protected by surface protector in order to take precaution for the future.

Bricks will be cleaned from their rusted layers and re-pointed where they break off and missed. And they will be protected by surface protector in order to take precaution for the future.

Metal elements such as doors, stairs and balustrades will be emeried and painted with the anti-rusty paints against oxidation.

Timber elements will be cleaned in order to get rid of deposits, biological colonization and rusted layers. They will be completed with the original materials where they are missed.

Some timber elements that lost their strength because of swelling, shrinkage, insect and fungi attacks, will be changed with the same kind of material.

### D5/C — Decision for timber floors

Timber floors will be cleaned and completed where they broken or missed. Some beams that lost their strength will be changed with the same kind of material. By doing so sagging problem will be solved. And new implementation will be generated as seen in the restoration project where required.

### D4 — Decision for the roof

Timber trusses will be cleaned and completed where broken or missed. And they will be strengthen from their joints by metal clamps and tie rods. These elements will be coated with anti-rusty elements against oxidation.

Metal clamps for roof trusses strength.

New gutter system to be implemented

Roof tiles will be fixed with the original material where broken or missed .

### D7/B

The roof of additional mass will be removed and re-arranged as seen in the restoration project proposal. The new implementation will be flat roof that allows the reading of the building language by its height.

### Detail D5/B — Decision for floors

Ground floor earth coverings will be cleaned and new project proposal for floors which is raised floor technique will be implemented

Earth floors will be cleaned. And unqualified materials will be removed.

The elements to be removed

New implementations to be generated related to the new function

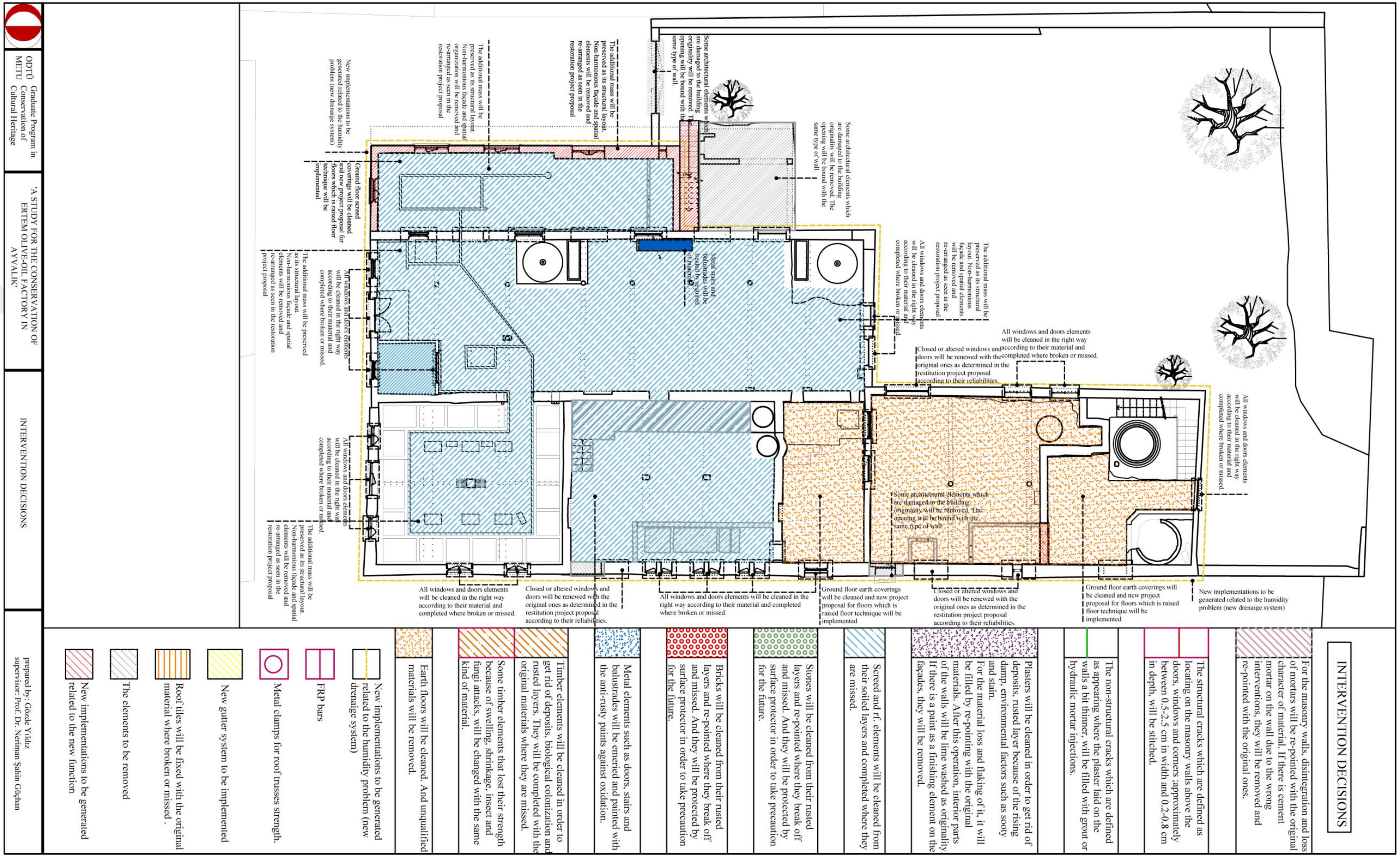



Figure 151: Intervention decisions related to physical problems of the factory, ground floor plan

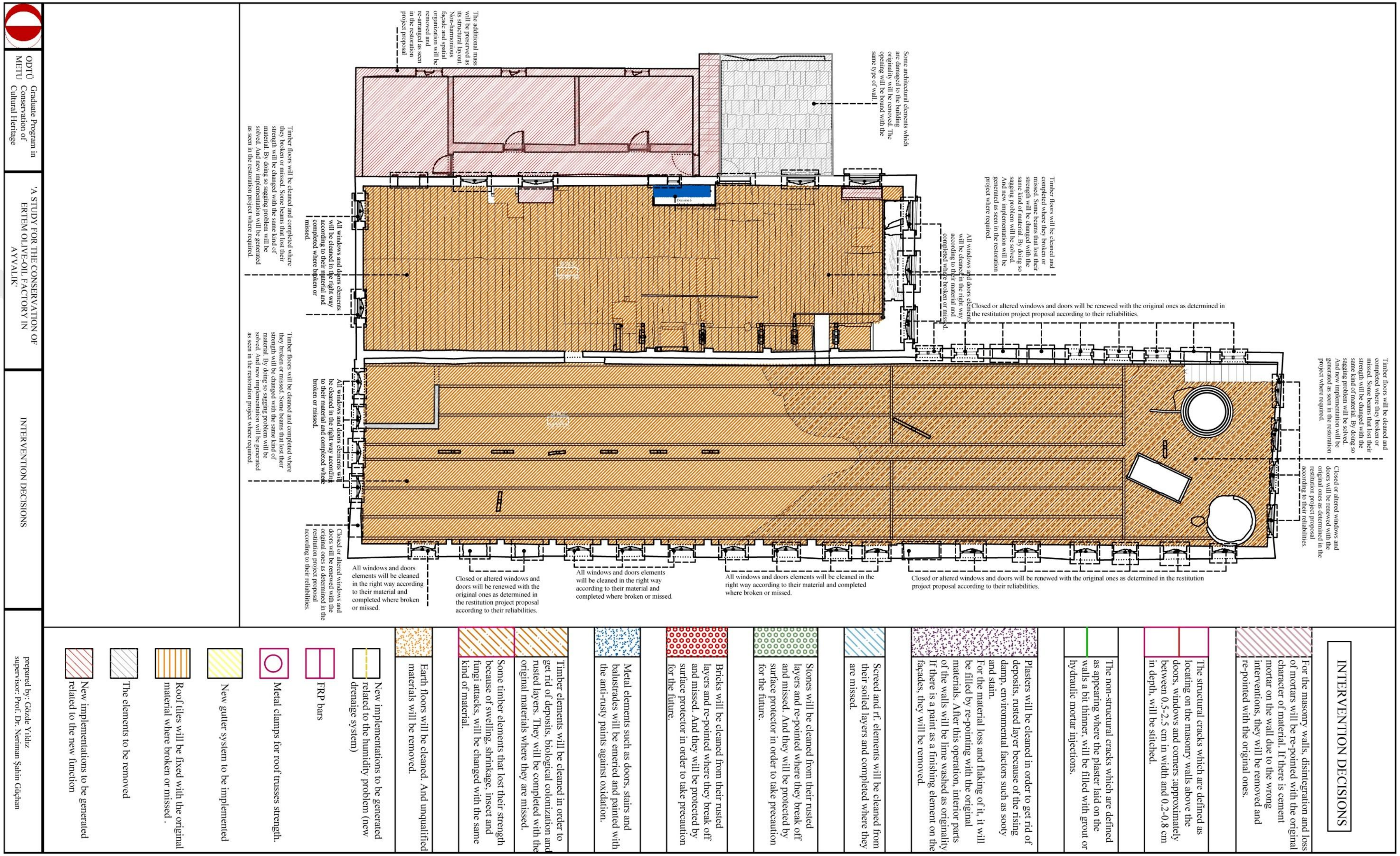



Figure 152: Intervention decisions related to physical problems of the factory, first floor plan

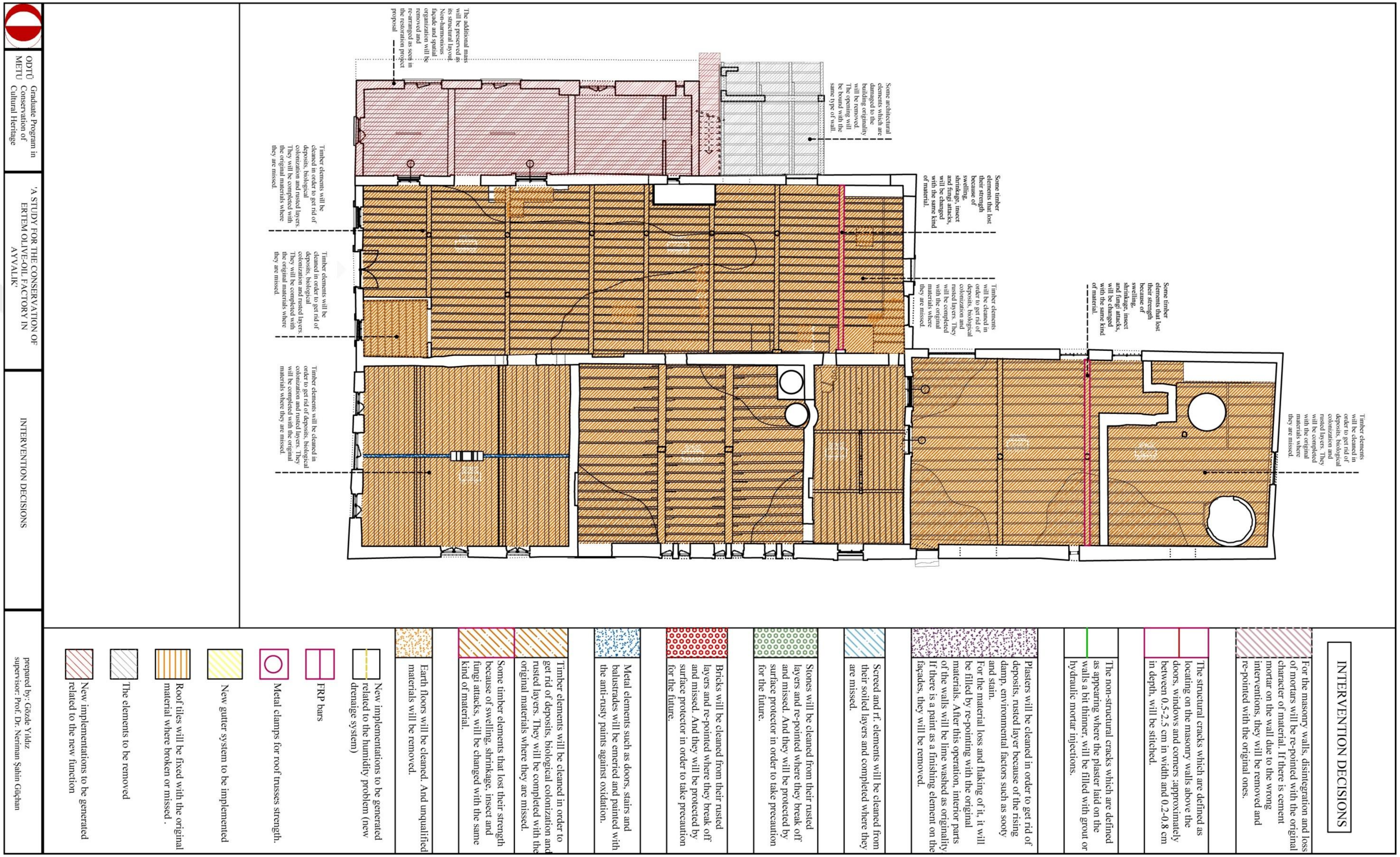



Figure 153: Intervention decisions, ground floor ceiling plan

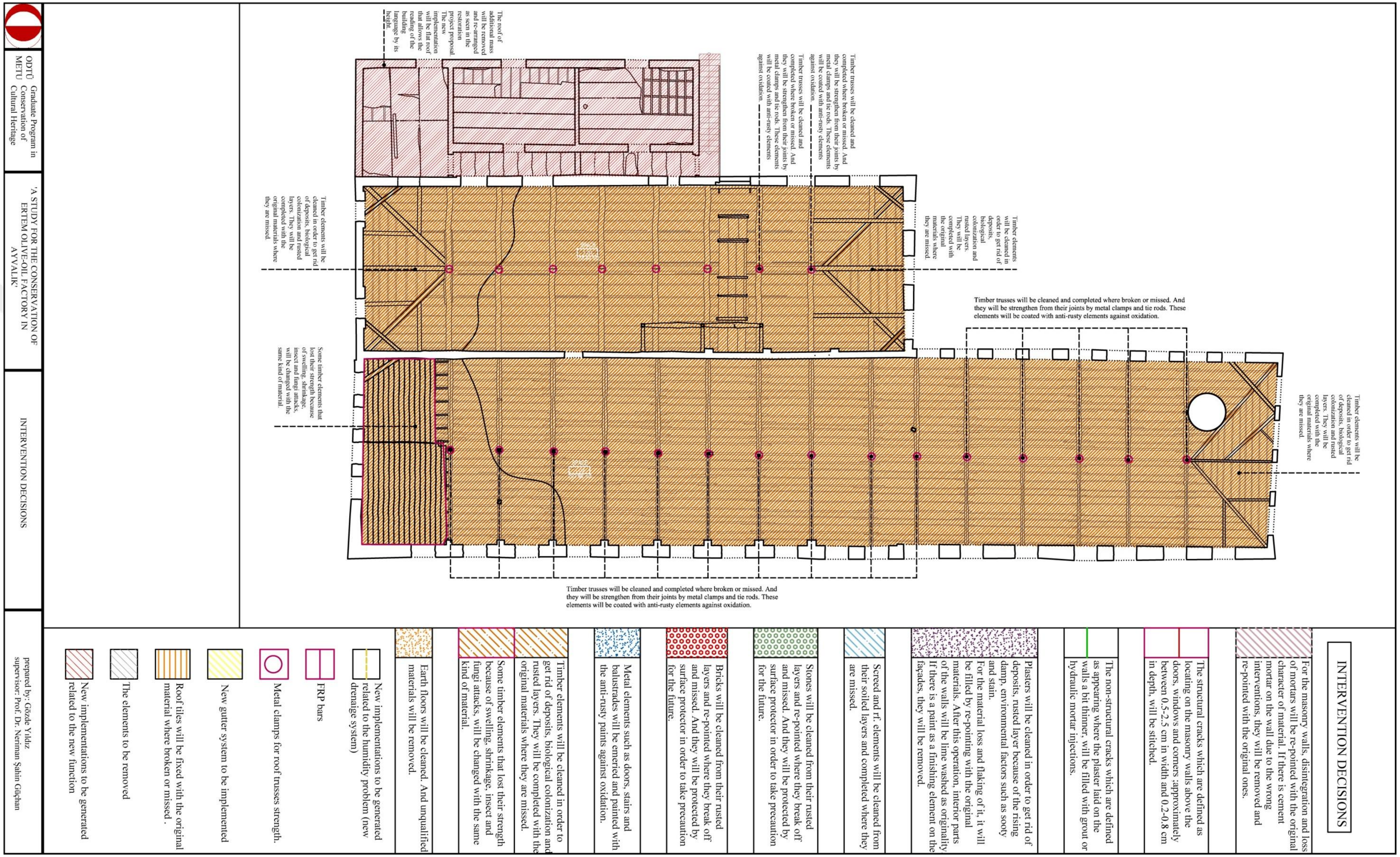



Figure 154: Intervention decisions, first floor ceiling plan

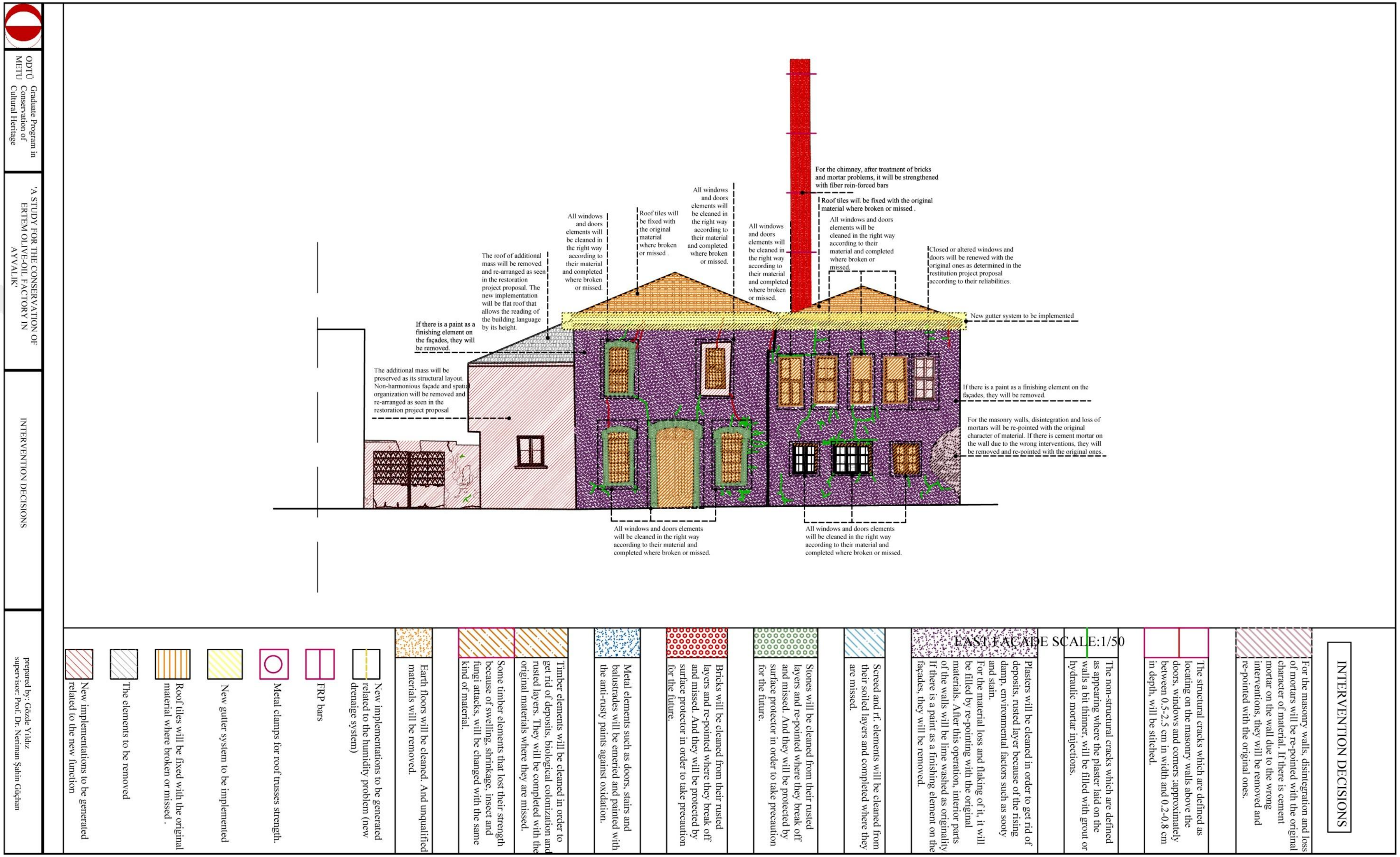



Figure 155: Intervention decisions, façades

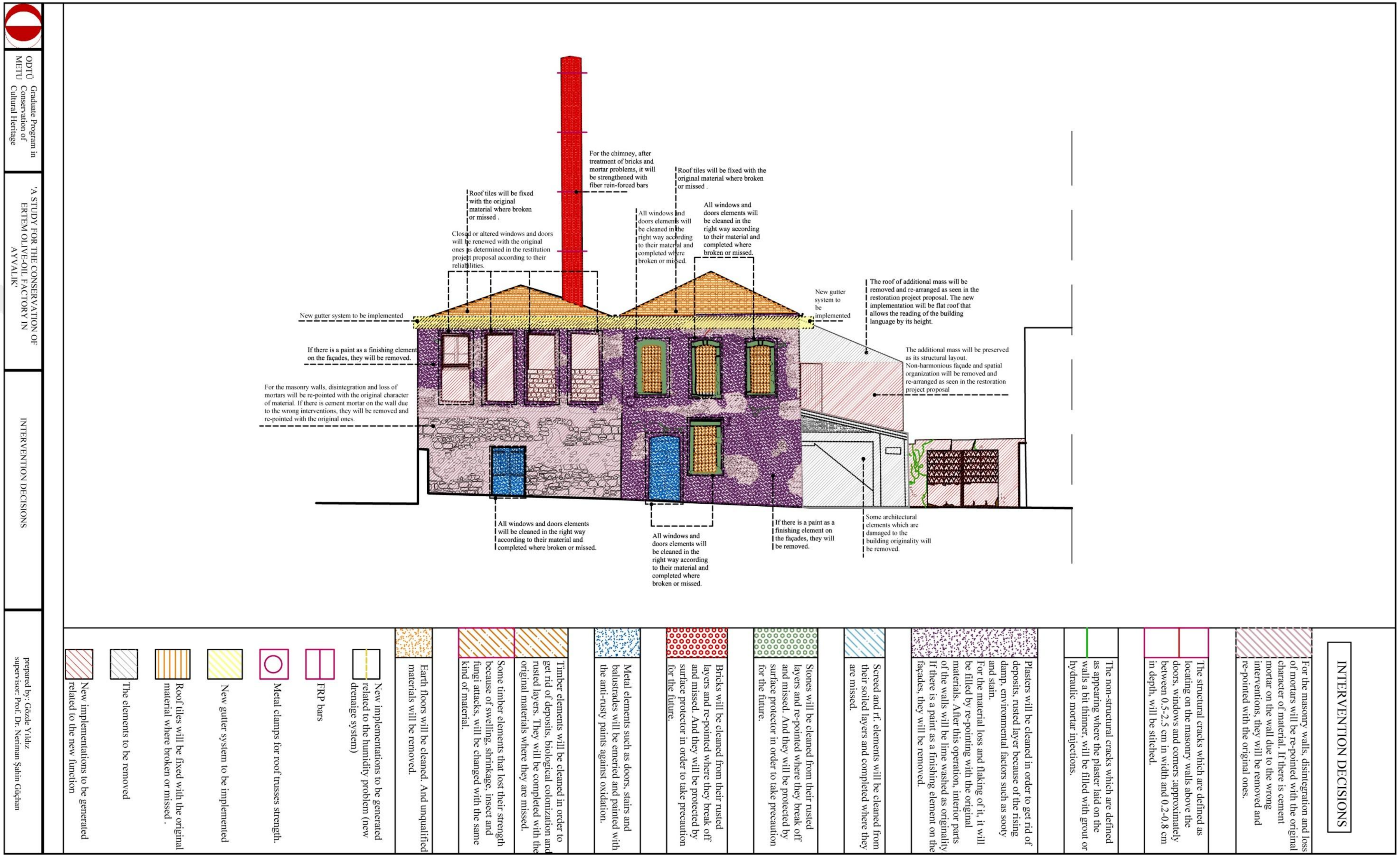



Figure 156: Intervention decisions, façades

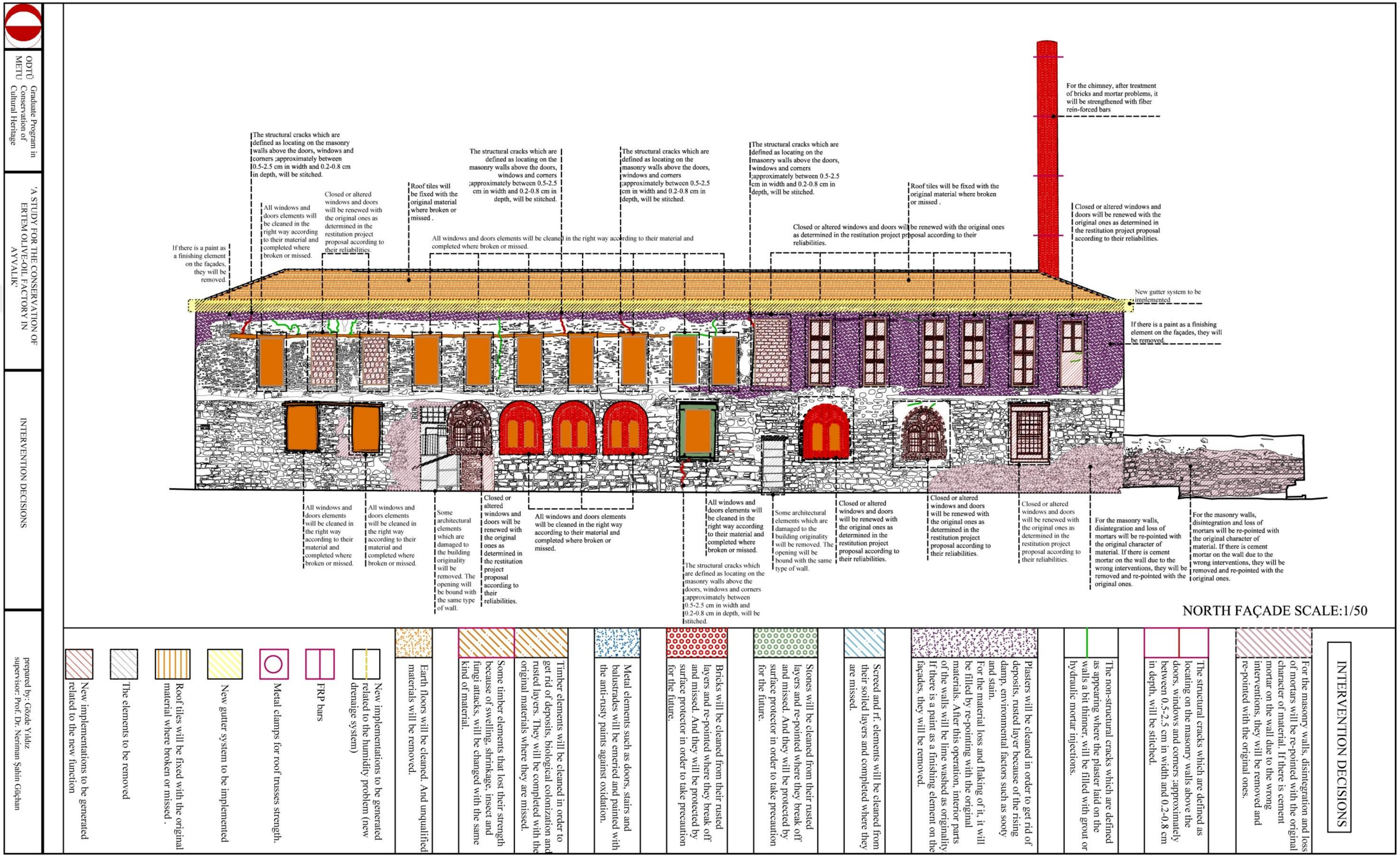



Figure 157: Intervention decisions, façades

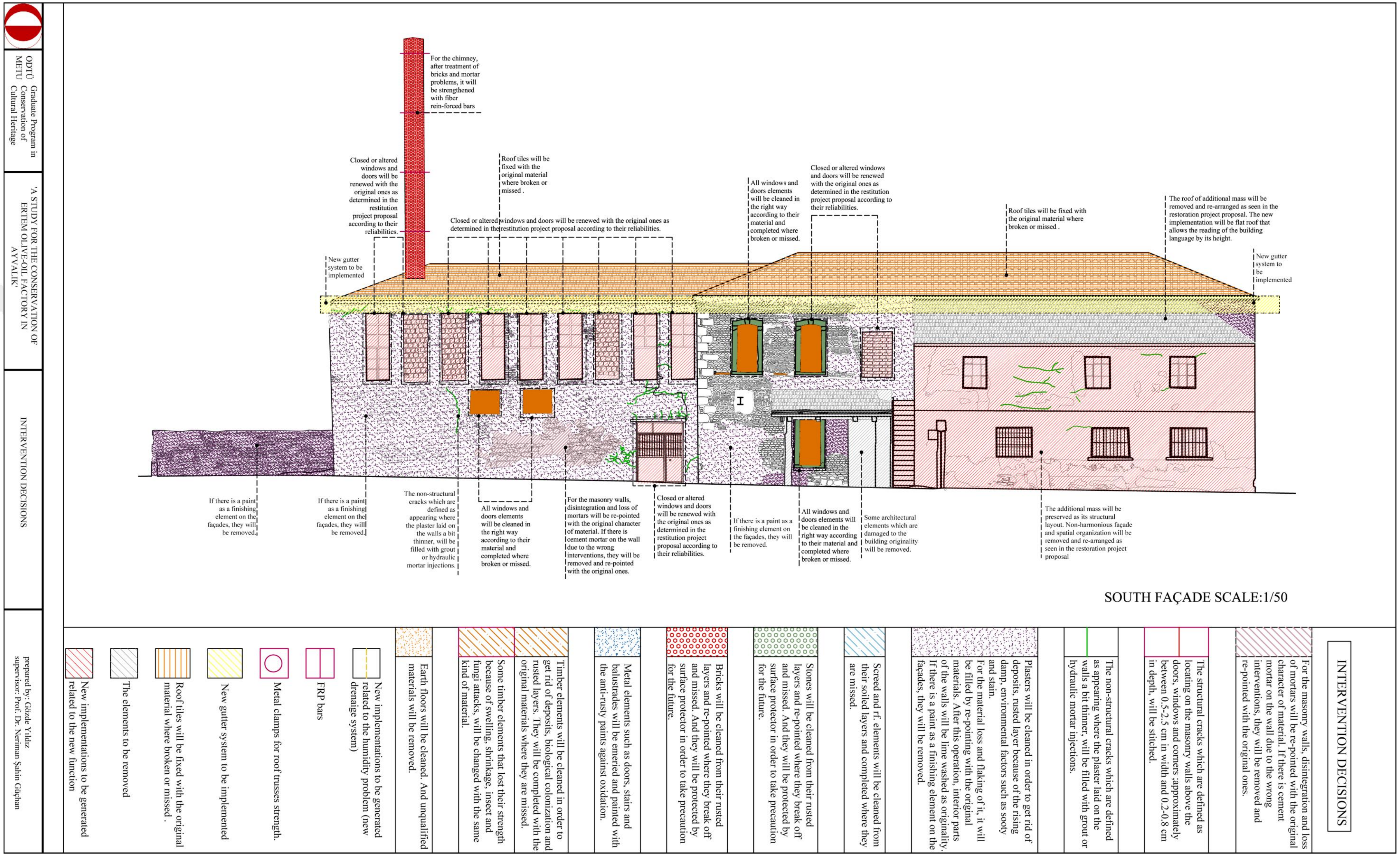



Figure 158: Intervention decisions, façades

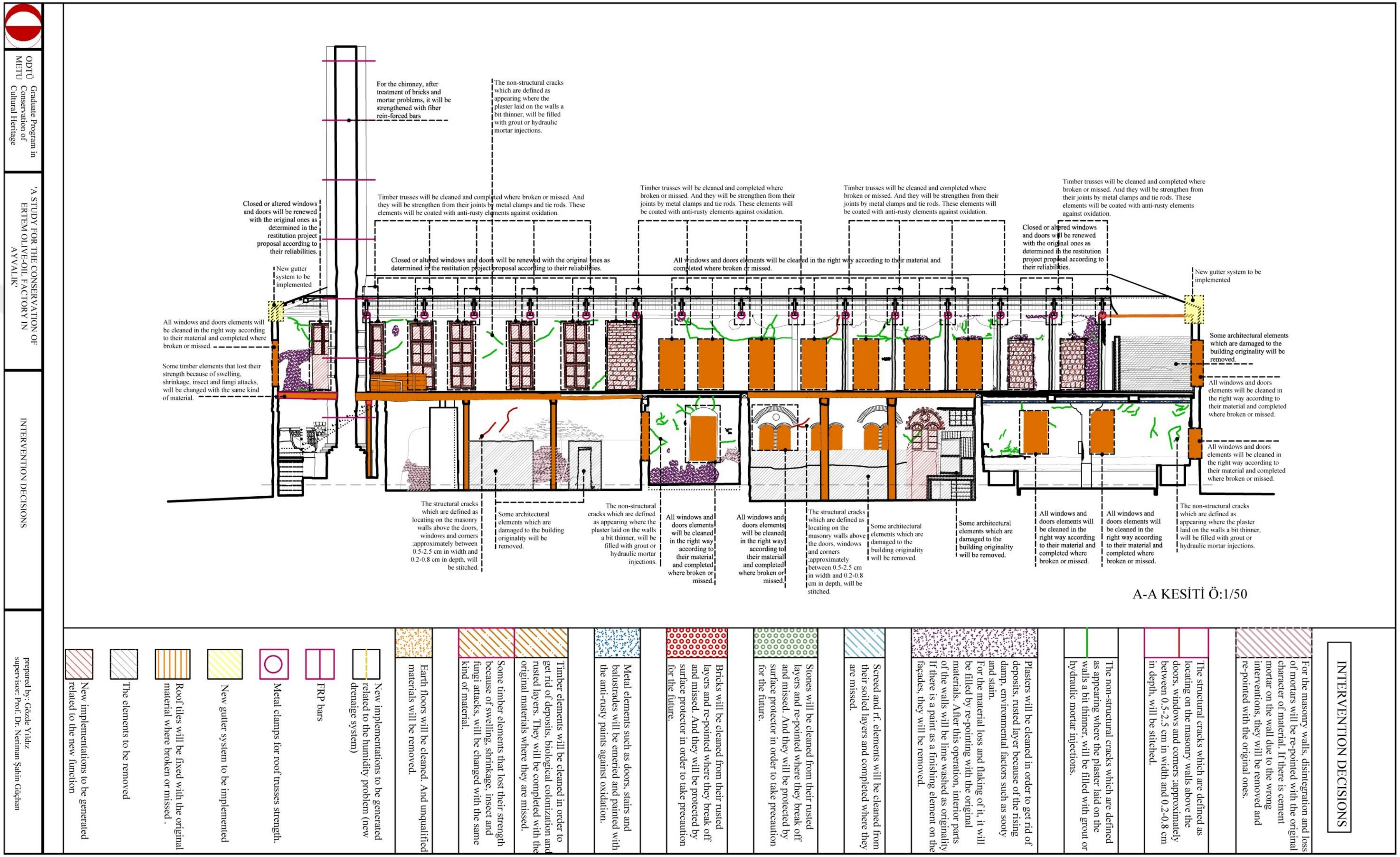


Figure 159: Intervention decisions, A-A Section

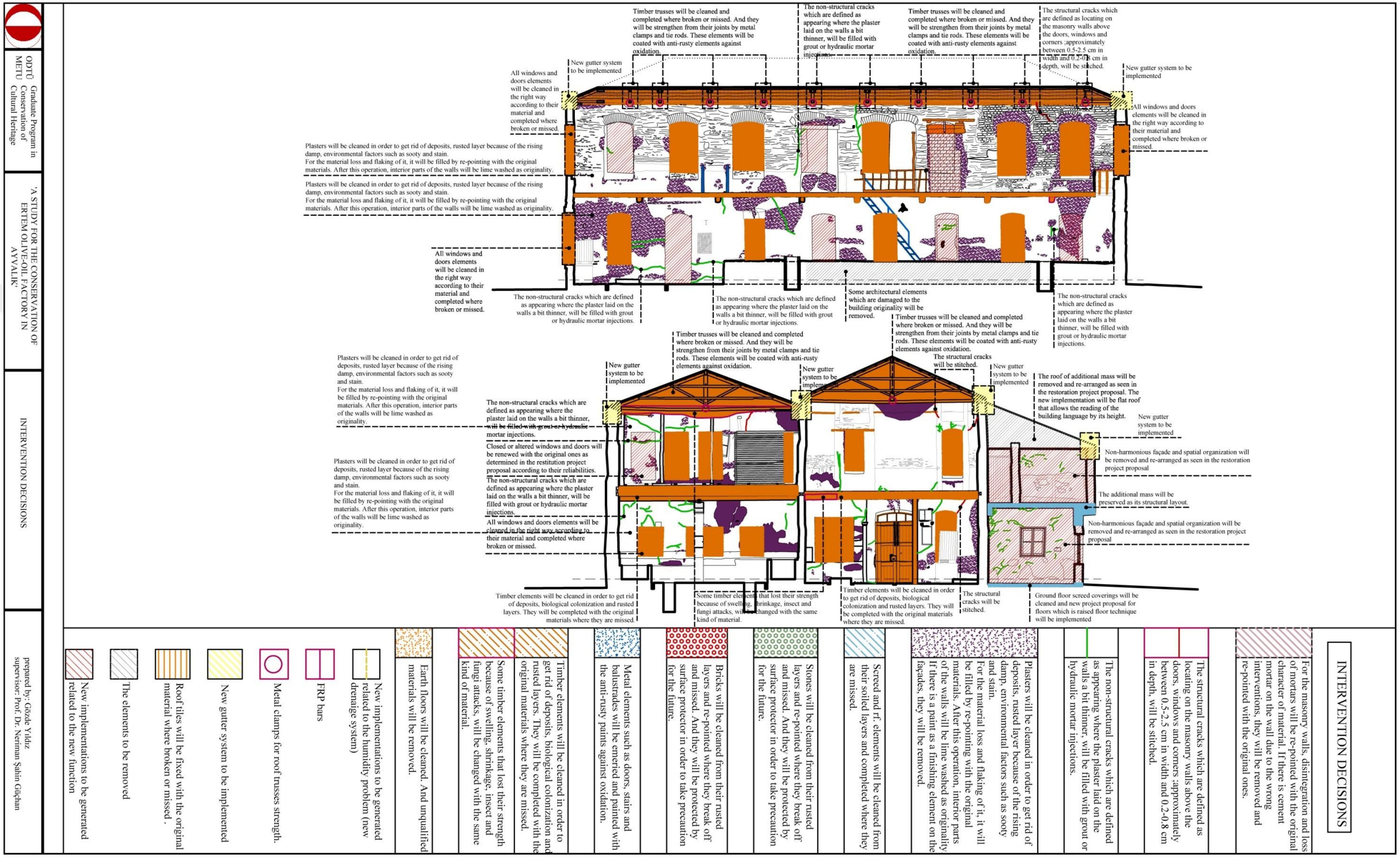



Figure 160: Intervention decisions, sections

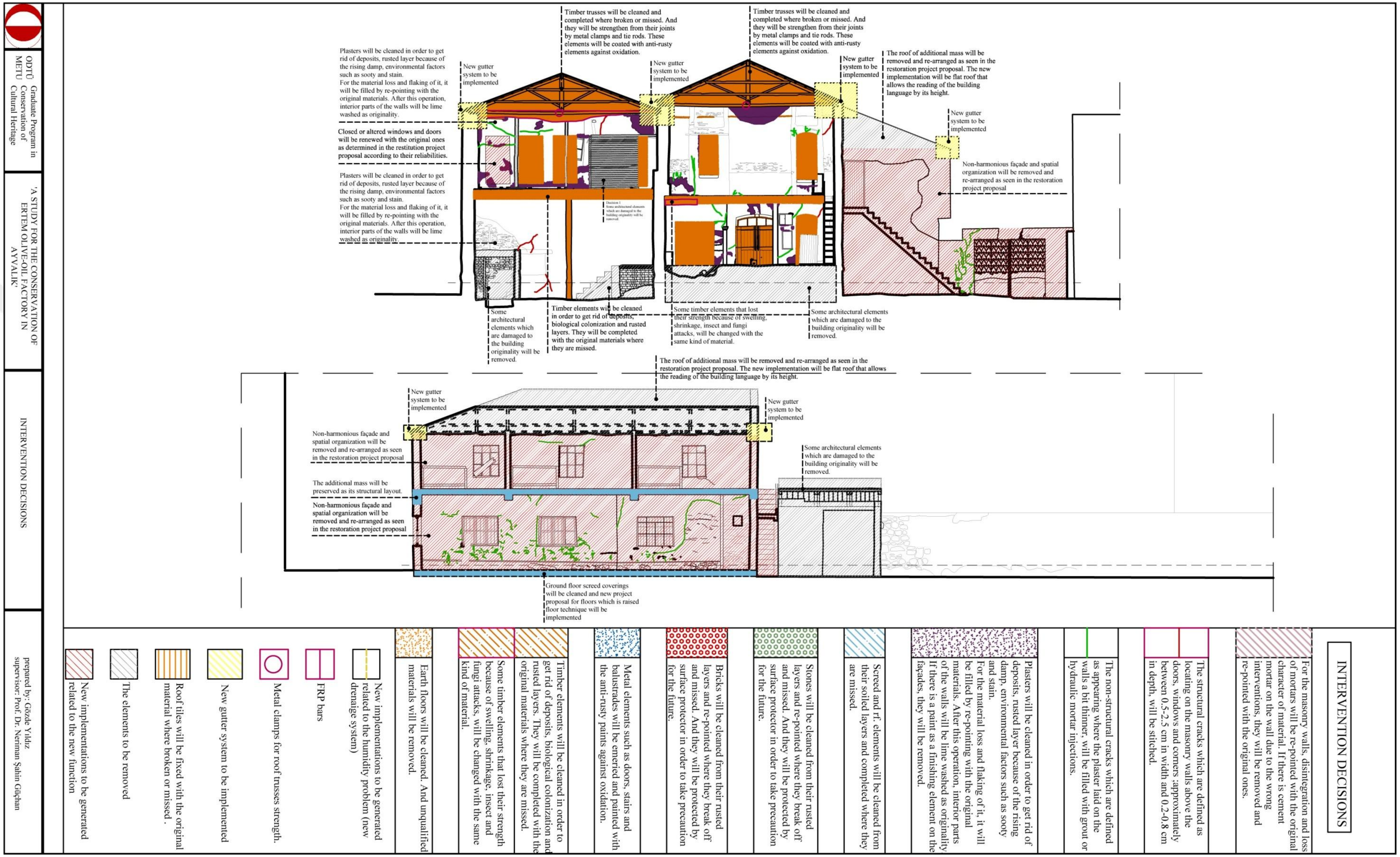



Figure 161: Intervention decisions, sections

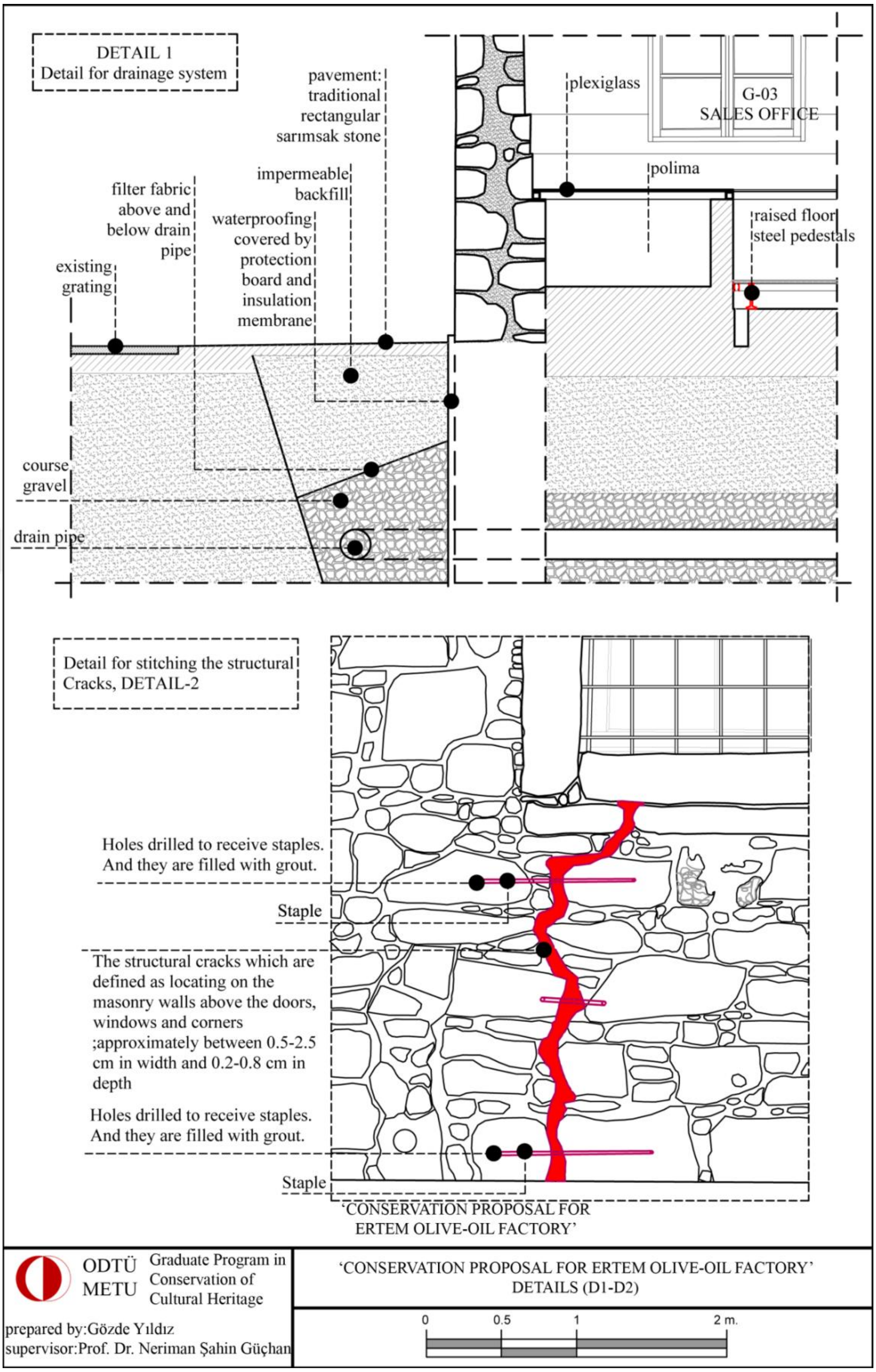



Figure 162: Detail for drainage system and structural cracks , D1-D2

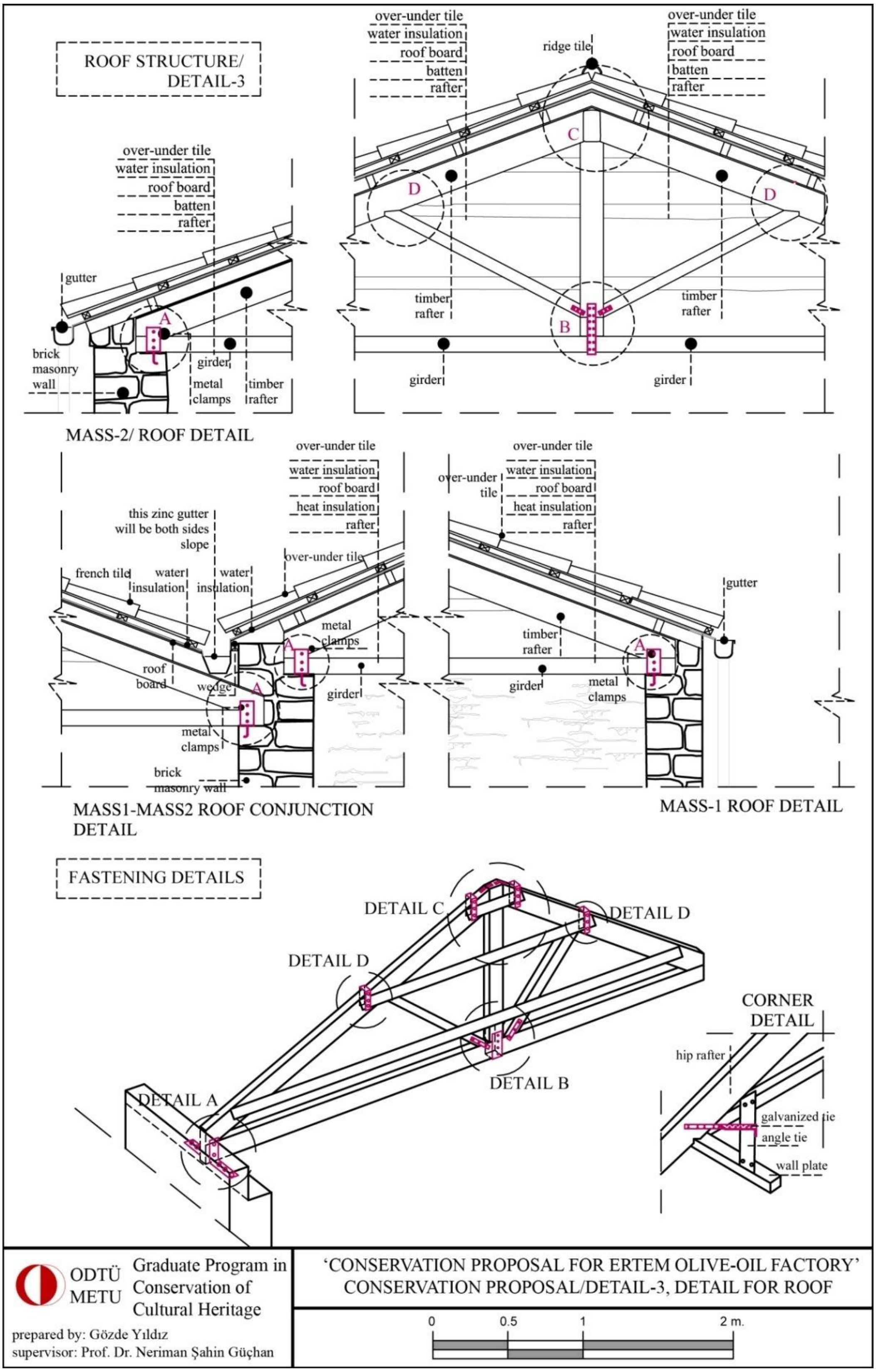



Figure 163: Detail for roof structure,D3

### 5.2.2. Decisions for changes of the factory

Industrial buildings as manufacturing structures, cannot think without their contexts which are related with their functions (technological functionalism). Their architectural characteristics is formed according to the process of the production type, process technology, and their capacity. As a result of the assessment for changes section, it is understood that Ertem Olive-Oil Factory which was used for same purpose, 'olive-oil and by-products' since its construction until its abandonment, has faced three phases throughout the time that were related with the context of the building.

While evaluating all phases of the factory in the Chapter 4 (See p:271-286), all actions as a reason of changes are considered as valuable, although they may have some negative impacts in terms of technical results. Within the scope of the conservation proposal, the main results of all actions which are the reasons of changes (re-arrangement of the spaces and technological requirements) are conserved. According to this (See Table 21, Figure 164, Figure 165),

-Additions and alterations of second phase of the factory which are due to re-arrangement of the spaces, will be preserved. All spatial organizations of the second phase will be revealed.

- Additions and alterations of the third phase of the factory were done because of the technological changes and related spatial requirements which are directed to production process. But this phase has some negative impacts to the originality of the factory. For the conservation proposal, the technological changes which are the traces of concrete bases of water pump, additional channels will be preserved as they are. In this phase, the 'Annex Block' was added to the factory as a change due to capacity requirement. This block is valuable in terms of being an action due to the technological capacity, on the other hand, it is unqualified by damaging the original structure. Therefore, this block will be removed, but it will be recognizable within the new proposal decisions. The screed floor of the 'Annex Block' which include the channels, will be preserved as it is.

Table 21: Intervention decisions related to changes

## intervention decisions related to the changes

### Additions

1. Additions that don't reflect any period, and distroy the original features of the building will be removed.
   - 3rd period addition shelter will be removed.
   - 3rd period additional partition walls will be removed.

2. Additions that reflects the significant actions in the historical development of the building will be preserved.
   - Second floor of the soap production building is 2nd period addition that reflects requirements of process of that time. It will be preserved as its originality.
   - Distillation pools are the 2nd period additions which is important for process. It will be preserved as it is.
   - 3rd period additional mass (the mass 3) is an important addition in terms of the capacity in the history development of the factory. But it damages to the harmonious and authenticity of the factory. Therefore, it will be removed but it will be provided recognizable by preserving as boundaries of the form.

### Alterations

1. Some spatial alterations that reflects the different process periods will be preserved.
   - Soap production area alterations are very significant as a 2nd period alterations such as soap boiler area is altered because of the requirement of distillation pools at that time.

2. Some spatial alterations related to process that damage the architectural features of the building will be preserved as a trace.
   - In the main olive-oil process area G-08, there was some 3rd period arrangements related to the system changes of process that creates a level differences between the ground because of the equipments. It will be preserved as reviving 2nd phase by preserving at the frames of grinders and presses.

3. Alterations of the architectural elements such as windows, doors which damage the authenticity of the factory will be replaced with the original ones according to the reliability.

4. Alterations of the architectural elements such as windows, doors which are as a result of important actions, will be preserved as they are.

### Removals

1. Removals which are architectural elements such as windows, doors will be replaced with the original ones according to the reliability.
   - Removal windows and doors will be replaced with the original ones in terms of materials and technique.

1. Removals which are process elements will be preserved. If they are known from the oral sources, they will be shown on possible positions and different materials.
   - The grinders will be preserved with the traces of them. One of them will be revealed with modern materials (plexiglass) as its originality. The distillation pools, sedimentation ponds, concrete base of water pumps will be preserved as they are. Soap boiler will be preserved as its traces with some repairs. And its missing part will be completed with net in order to show the originality.
   - The wooden channels for transportation of olives between first floor to the grinders are not survived today. In addition, steam engine is exhibited in Koç Museum. Presses are also not survived in the factory. But they are known from oral sources. Therefore, they will be shown on their location but differentiated with different modern materials according to the new uses.

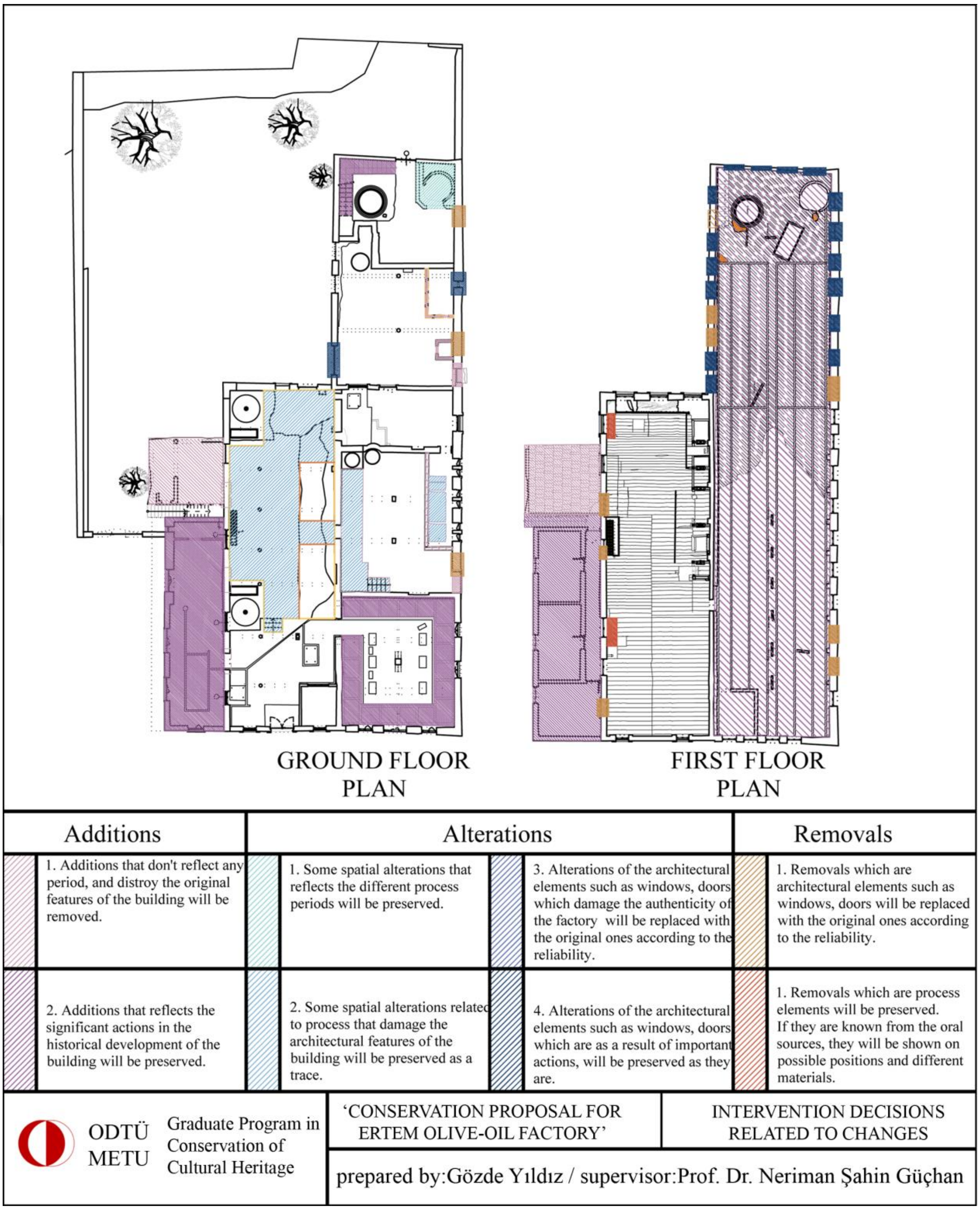



Figure 164: Intervention decisions related to changes, floor plans

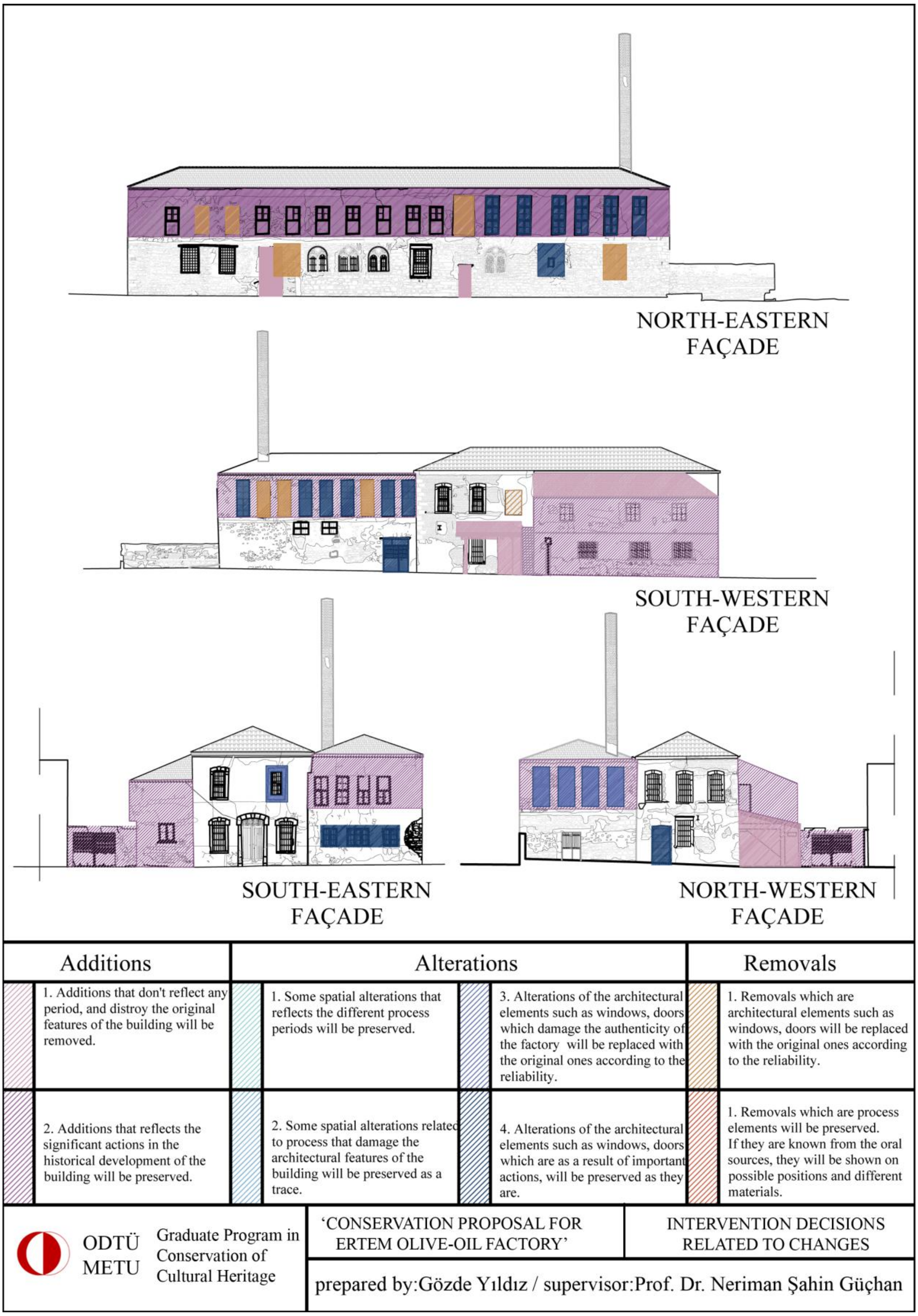



Figure 165: Intervention decisions related to changes, façades

### 5.2.3. Decisions for new proposal

The concept of 'experience economy' was opened to discussions by Pine & Gilmour (1999) as a first time. In today's competitive marketing environment, the products and their services are lapsed due to new demands of new life. This situation shows that it needs to re-organize them by adding value to their service for customers with memorable and satisfactory experiences (Pine & Gilmour, 1999).

Within the context of industrial heritage, it can be argued that contents of the industrial buildings which include the processes and products, are lapsed due to technological changes and new demands as seen on the case study. As a result of this lapse, these structures which housed for the producing the products as a cultural rituals, became derelict. However, these structures have big potentials by housing the traces and real ambient of these cultural rituals (production process) in order to re-use them with a sense of feeling, learning, experiencing. According to the Pine and Gilmour's 'experience economy' theory (1999), there are basically four fields: 'education, entertainment, escapism and esthetics'. And these fields depend on two dimensions: 'participation (active and passive) and connection (absorption and immersion). All these parameters show that the experience theory is a concept in transformation such as products and/or service (Radder & Han, 2015). In short, for the proposal, 'experience economy' theory experiences educational activities/events and/or entertainments presented for the visitors in a passive or active way (getting involved or not) within aesthetic places.

Therefore, designing experience which is linked with the space, ambient, people, is a crucial point according to the theory. As mentioned in the Chapter 3, in the evaluation of the site and surrounding of the factory (See, p:85-103), it is assessed that the study area in city scale, is the center of Ayvalık that includes all type of culture which belongs to Ayvalık. Therefore, in order to develop this potential of the site by giving the priority to these cultures, tourism is a crucial field which can be integrated with this concept. As a result of this, the sustainability is also provided through this experience-based new function concept which is always in transformation by itself.

### 5.2.3.1. Scenario for New Function (Programmatic Approach)

Having considered above mentioned aspects, the integration of the tourism and Pine & Gilmour's concept (1999) will constitute a base for the scenario of the re-adaptation proposal for Ertem Olive-Oil Factory. It is a comprehensive phenomenon that includes **target population and stakeholders (user profile), management plan proposal, new function and related architectural program** for the new demands. All these components should be parallel to the site character, building features and the concept.

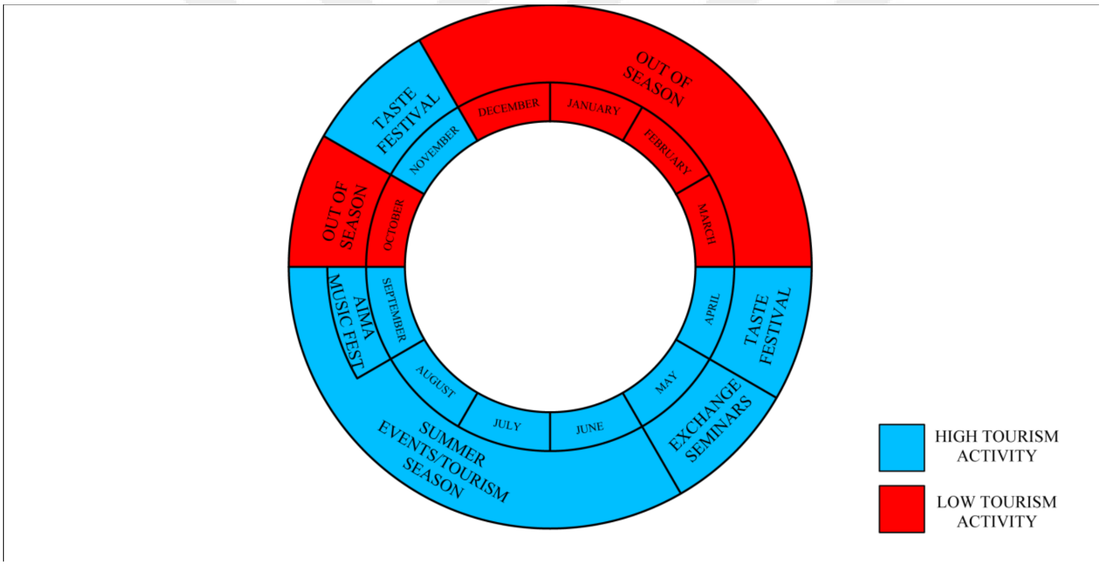
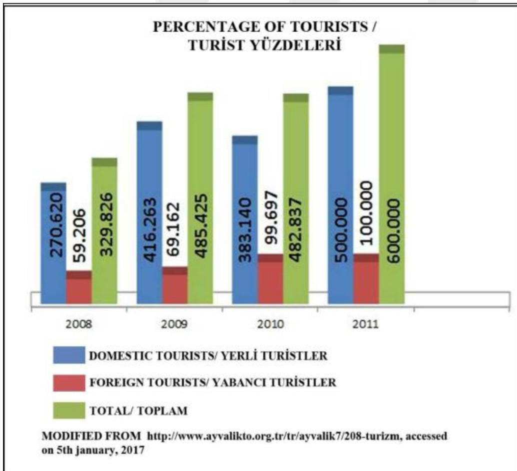



Figure 166: Chart shows the event calendar of Ayvalık within a year (prepared by the Author)

First section of the scenario is determination of **target population**. It is presented according to the touristic activities held in Ayvalık season by season. In this regard, touristic events calendar is prepared in order to reach the effective scenario. For the activities related to the events (See Figure 166), three social groups are taking into consideration during the re-functioning process. These are tourists, local visitors and inhabitants of Ayvalık. Touristic activities of Ayvalık are distributed into two different main zones in a year which are festival periods, summer season period and out of season period. In this regard, it may be assumed that while the target of population is expected in high dense in the tourism season period, low dense target population is expected in the rest of a year. Therefore, the new scenario should answer this dynamic of the town in order to provide the economical and the functional sustainability of the proposal since it belongs to the private entity.

Table 22: Left: percentage of the tourists coming to Ayvalık between 2008-2011 (source: http://www.ayvalikto.org.tr/tr/ayvalik7/208-turizm, last accessed on January 5, 2017); Right: sector distributions of economy in Ayvalık between 2000-2010 (source: Gökdeniz & Erdem, 2015)




**SECTOR DISTRIBUTIONS OF AYVALIKS' ECONOMY BETWEEN 2000-2010/ AYVALIK EKONOMİSİ SECTORY DAĞILIMI 2000-2010 YILLARI ARASINDA**

| SECTORS/ SEKTÖRLER | 2000 (%) | 2010 (%) |
|---|---|---|
| TOURISM AND RELATED SECTORS/ TURİZM VE TURİZME BAĞLI SEKTÖRLER | 52 | 63 |
| INDUSTRIAL SECTOR/ ENDÜSTRİYEL SEKTÖRLER | 30 | 21 |
| AGRICULTURE/ TARIM | 6 | 6 |
| PUBLIC/ KAMU | 5 | 5 |
| FISHERY INDUSTRY/ BALIKÇILIK | - | 2 |
| OTHERS/ DİĞERLERİ | 7 | 3 |

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The second part of the scenario is **management plan** proposal. This factory will be used by the private enterprise. So the application of the scenario for new function should be decided according to the enterprise's demand. This reality is also formed the scenario of the new function.

The experience-based **new function** (See Table 24) is the following section of the scenario. It includes four areas which were mentioned in the Pine and Gilmour's theory (1999). As seen in the case study, industrial buildings behave like exhibited objects due to their very nature characteristics that include technological elements and their reflection to the architecture. Therefore, they have naturally the character for *education* which offers to the visitors to learn something through the building itself, panels on the walls, 3d simulation areas, information corners or didactic events (through educational value).

The Education should be linked with 'entertainment' in order to offer valuable service to the visitors. And as mentioned by Pine & Gilmour (1999), when they overlap, they become 'edutainment'. In this regard, **architectural program** will be shaped according to these experience-based theories through 'edutainment approach' by using the esthetic of the spaces and determined events of Ayvalık and target population.

Within the light of theoretical aspect of the scenario, the new function scenario is defined as **'Experimental Multi-Taste Factory'** (See Table 24,Table 25). Taste Factory will be a cultural and social center of Ayvalık by referring the taste festival, music festival, harvest and related events which have very important place in the economy and culture of the town. Taste festival (Tadım Festivali) is generated twice a year in Ayvalık that has a significant role for olive industry which is also related with the factory. Similarly, music festivals which are organized by AIMA are another important event for Ayvalık in order to introduce the town to the tourists (See Figure 168).

Within this context, Ertem Olive-Oil Factory is very appropriate place that can be housed for these festivals (See Figure **166**) with its historical background. According to the new scenario (See Table 25), the factory has core unit which is very important for the low dense activities in the out of season period. For this reason, café and sales office areas which will be served as commercial purpose for every time period within a year, are organized in order to manage the factory economically due to having private enterprise.

For the experience-based designed events, flexible spaces are planned for each festival and/or any other organizations. Basically, these festivals are the opportunity to give an advertisement for the firms which are related olive-oil, soap, exhibition objects, galleries, art shops etc.. Therefore, re-functioning the factory for this purpose will also create very positive impact in terms of economic to the factory itself for the tradesman of Ayvalık.

Table 23: Proposal Description

| **1.PROJECT** | **'EXPERIMENTAL MULTI-TASTE FACTORY' (Former Ertem Olive-oil and Soap Factory)** |
|---|---|
| **LOCATION** | Ayvalık, TURKEY |
| **AREA** | 1155 m2 closed area, 565 m2 open area |
| **DURATION** | NA-proposal for the thesis |
| **COST** | NA |
| **OWNERSHIP** | Private Entity |
| **2.PROGRAMMATIC APPROACH** | Converted into multi-purpose use that housed festivals (cultural purpose) |
| **ARCHITECTURAL PROGRAMME** | Cafe<br>Sales Office<br>Service Units<br>Flexible Event Units (Multi-purpose Halls)<br>Didactic Area (Seminar) |
| **3.DESIGN PRINCIPLES OF INTERVENTION** | Alteration to the existing fabric: Low |
| **Material Relationship** | All the characteristics of the new elements depend on the character of the existing building. Interventions are in minimum. |
| **Structural Dependence** | Preserve the existing structure as it is. |
| **Formal-Spatial Organization** | Old formal-spatial organization is preserved. |
| **4.TECHNICAL ASPECTS** | -supported with the technical specifications for new program |

Table 24: Scenario for new function

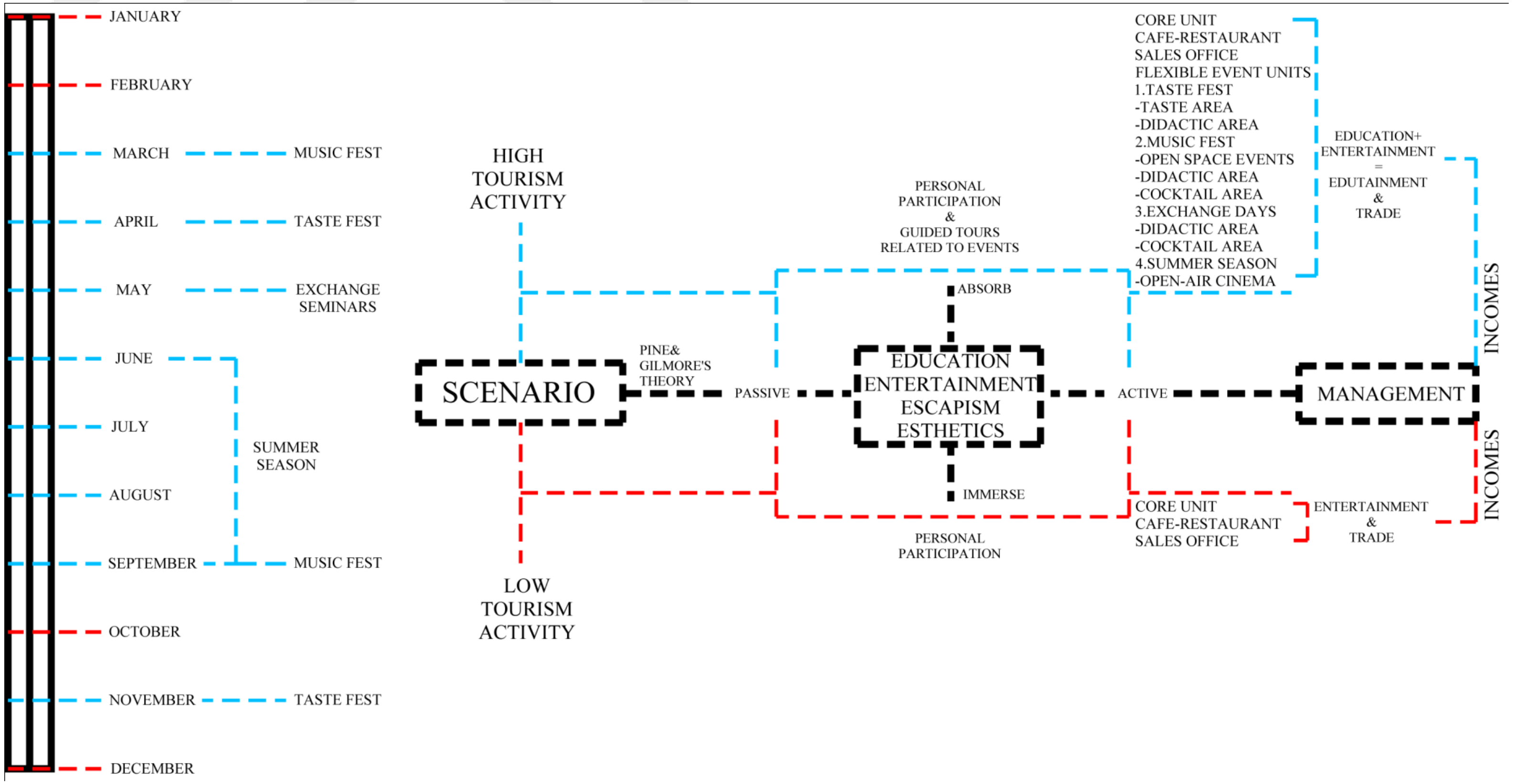
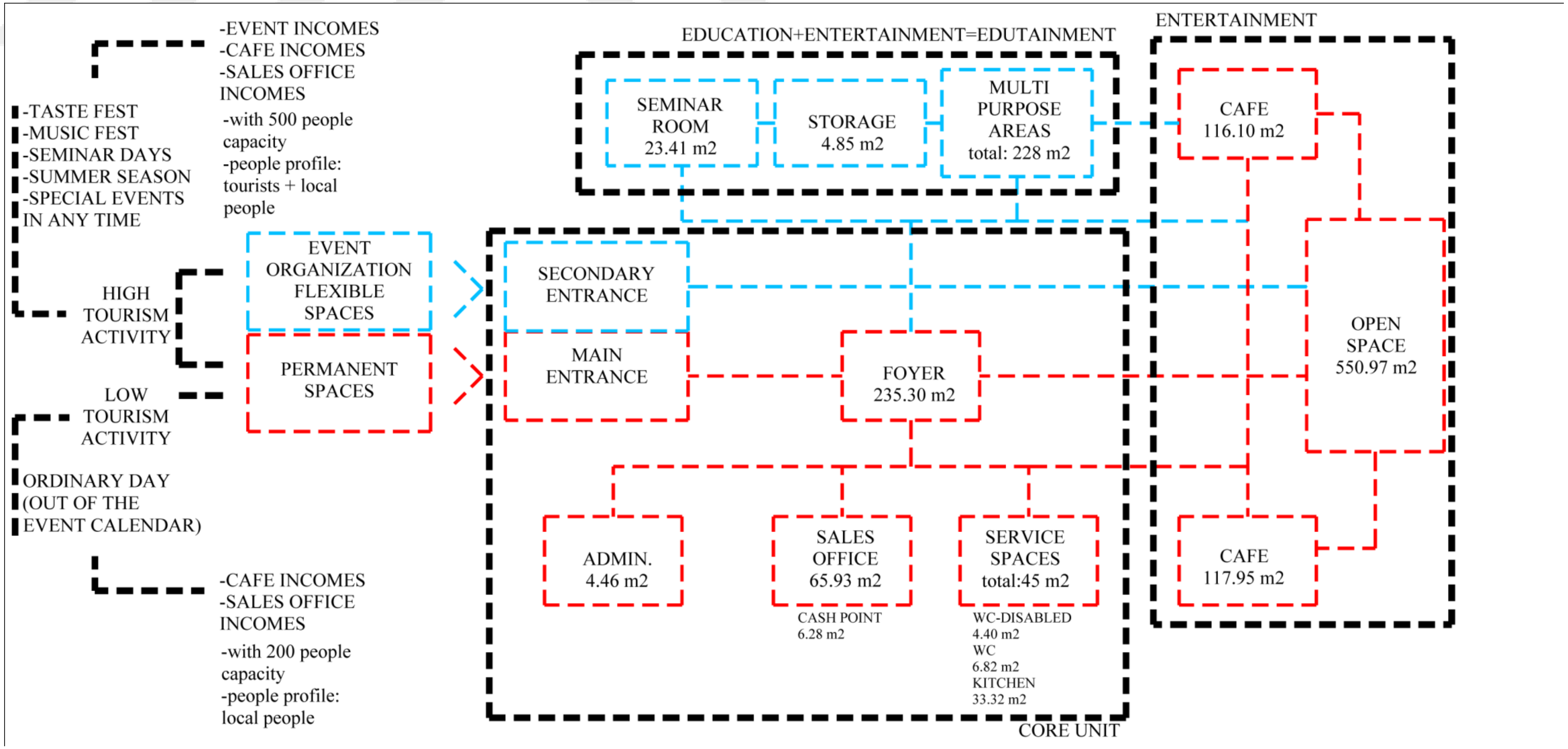


Table 25: Theoretical program for new scenario



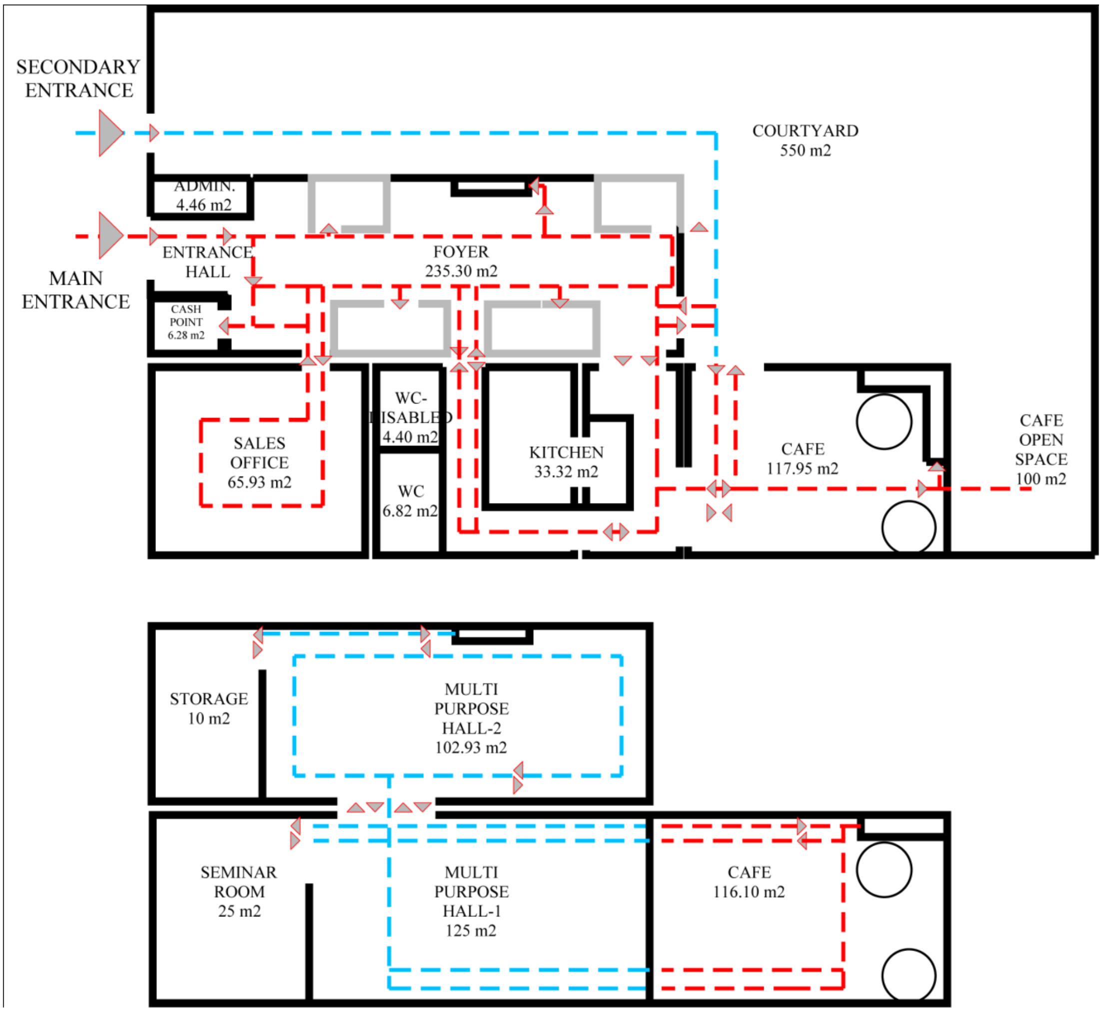



Figure 167: Applied program into the Ertem Factory

In detail, new scenario will include these features:

The project proposal identifies two entrances which already exist in the existing plan schema of the factory. The main entrance is provided through original entrance that is located at the original olive-oil production block, named 'Yağhane Block'. And the courtyard entrance will be used as a secondary entrance only when event organizations will be held (See Figure 169, Figure 170).

While moving towards inside, at the right side, sales office and its cash point unit are planned in the Spaces of G-02 [office] and G-03 [distillation pools] by using the visual contact between these spaces through an original window. Moreover, G-03 is the place which is naturally exhibitive area by having 'polimas', 'sedimentation ponds and channels'. For the conservation proposal, this space is found appropriate for sales office function due to giving possibility to use these exhibitive objects, 'polimas' for the new objects in order to sale them which may be local objects related with Ayvalık culture. At the left side, the administration unit is planned which is new designed due to the requirement of the new scenario (See Figure 169,Figure 170,Figure 172, Figure 174, Figure 175).

After passing the entrance hall, moving through the Space G-08 where the olive-oil process was generated, one can feel the ambient of process through the traces of the PPE. This space is planned as foyer in the conservation proposal. Here, the traces of grinders are still existing. One of them will be revealed with the plexiglass (because of being light material) in order to show the tool. And the other one will be preserved as it is and surrounding walls of this grinder will be served for 3d simulations for the process in order to generate the learning process (See Figure 169, Figure 174, Figure 175, Figure 180). While doing this, it will create the curiosity through visual connection on the visitors.

Between these two grinders, there is an original iron staircase which will be used only during event organization days. In addition to this, for the presses which are not existed today, the location of the presses will be differentiated through level difference on the ground as sitting area for the visitors (See Figure 169, Figure 180). On the walls, there will be panels for information of the presses in order to take the curiosity of the visitors.

Between these sitting areas that are planned on the location of the presses, there is an opening for passing to the service place. The Spaces of G-04 and G-05 are planned as service units in the conservation proposal. While passing from the G-08, the toilets are located at the right side of the space which is planned also for disabled people (See Figure 169). And the other half of the space G-04 and the G-05 are planned as an open kitchen for the café. The visitor may pass to the café directly from the service area or from the Space G-08[foyer] (without using the service spaces). For this purpose, G-05 is planned as a transition area for passing to the café (See Figure 169).

The Spaces G-06 and G-07 are planned as café in the conservation proposal. These spaces where the chimney and the basis of the soap boiler are located, have the exhibitive characteristics with the tools of these cultural rituals that are the parts of process. The café is designed with modern sitting furniture within these authentic places. Here, for the soap boiler, its base is covered with wire as a transparent material in the boiler shape that continues to the first floor part, in order to take curiosity of the visitors (See Figure 179). By doing so, this metal wire will give the possibility to enter the light from the first floor to the café area which creates a quality space for the users. In addition to this, it is possible to pass to the courtyard through an original door that locates on the south corner of the Space G-06 (See Figure 169Figure 170). And behind the chimney, there is a concrete staircase which existed in the factory, that provides the reach to the first floor of the café. Users may chose to spend their time wherever they want (See Figure 169,Figure 170,Figure 172,Figure 174,Figure 175,Figure 179).

When passing to the first floor of the 'Sabunhane Block', through this concrete staircase, the upper part of the café is welcomed to the visitors. This space also has the exhibitive characteristics by having the chimney, the part of soap boiler and some soap process tools for exhibition (See Figure 171, Figure **179**). This area, the Space 1-02 is very valuable due to having connection with the sea. All tables for the users are arranged according to this valuable view.

Other parts of the first floor are planned as flexible spaces for the event organizations (See the alternatives, Figure 171). At the south part of the Space 1-02, seminar room is planned for aforementioned events such as interactive event sessions. After conversation sessions of related events, there will be a places for cocktails, taste event, exhibitions, dance show, music show etc.. For this purpose, 1-01 and half of 1-02 are planned as multi-purpose area for aforementioned events (See Figure

171,Figure 180). And as a result of the multi-purpose usage, the storage is essential to plan. Therefore, south part of the Space 1-01 is planned for storage. Within the scope of conservation proposal, the first floor of the factory is designed totally flexible (See Figure 171,Figure 172,Figure 173,Figure 174,Figure 175,Figure 180).

The courtyard of the factory is one of the most valuable parts of the building. It is planned for open space activities and related event organizations (See Figure 168,Figure 169,Figure 170). During the organization time period, the visitor may enter directly from the courtyard entrance. While moving towards the sea, one can feel the traces of the 'Annex Block' which will be preserved with its floor covering. There may be some installations such as light, object, etc. in order to experience the space. At the west corner of the courtyard, the stage for musical events is planned. While this area may be used for concert, dance show, etc.., it may also be used as open-air cinema during the summer season. At the north side of the courtyard, in front of the 'Sabunhane Block', open-space of café is identified for the summer season. It will be linked with the sea through designed decks in order to provide the connection with the sea. And it is possible to reach to the building inside through three openings of which are all original. Two entrances provide the entrance to the café and the other one provides the entrance to the Space G-08 which is planned as foyer.


Figure 168: Conservation proposal, surrounding organization points and site plan

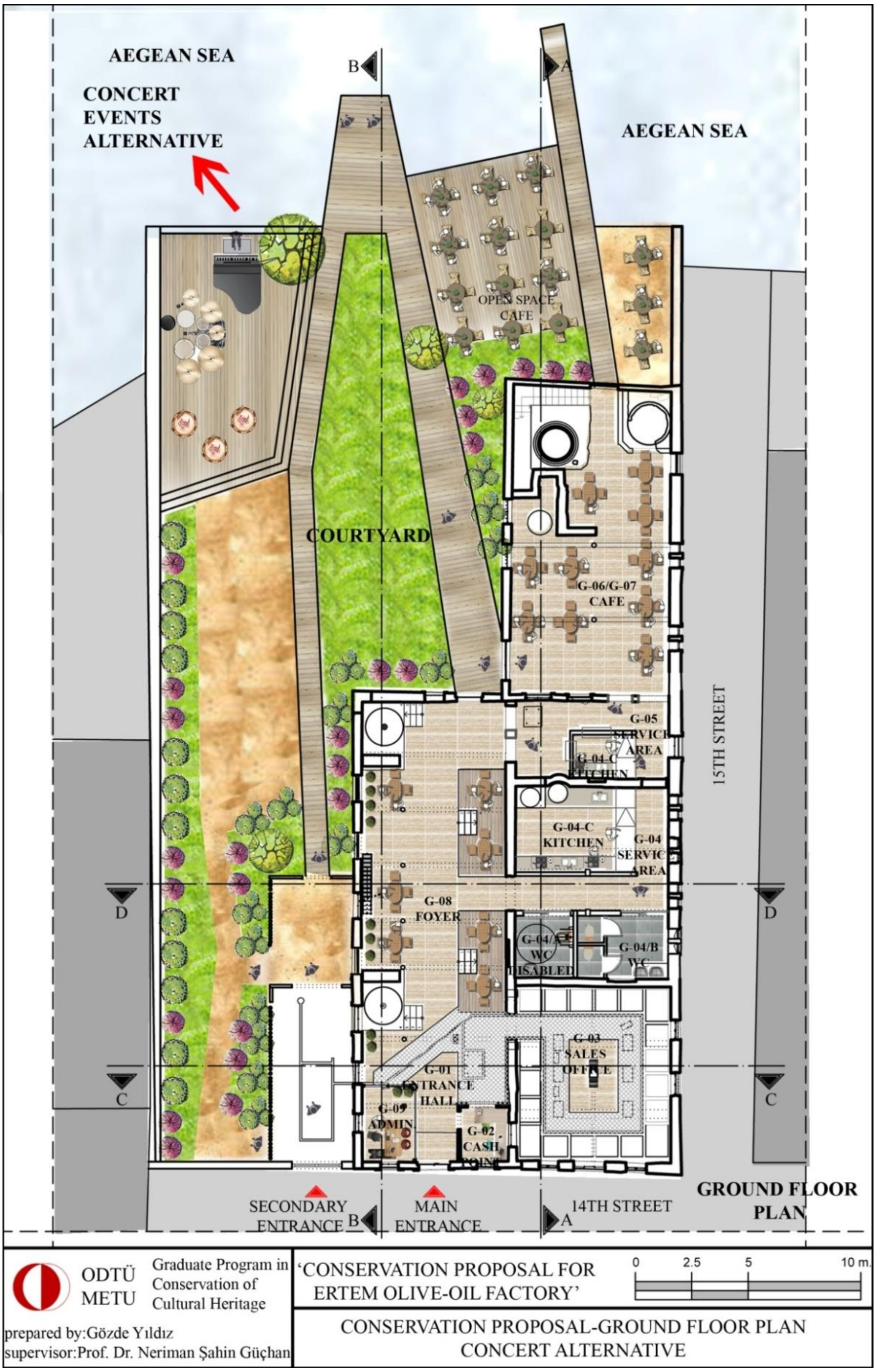



Figure 169: Conservation Proposal, ground floor plan,alternative-1 for the courtyard

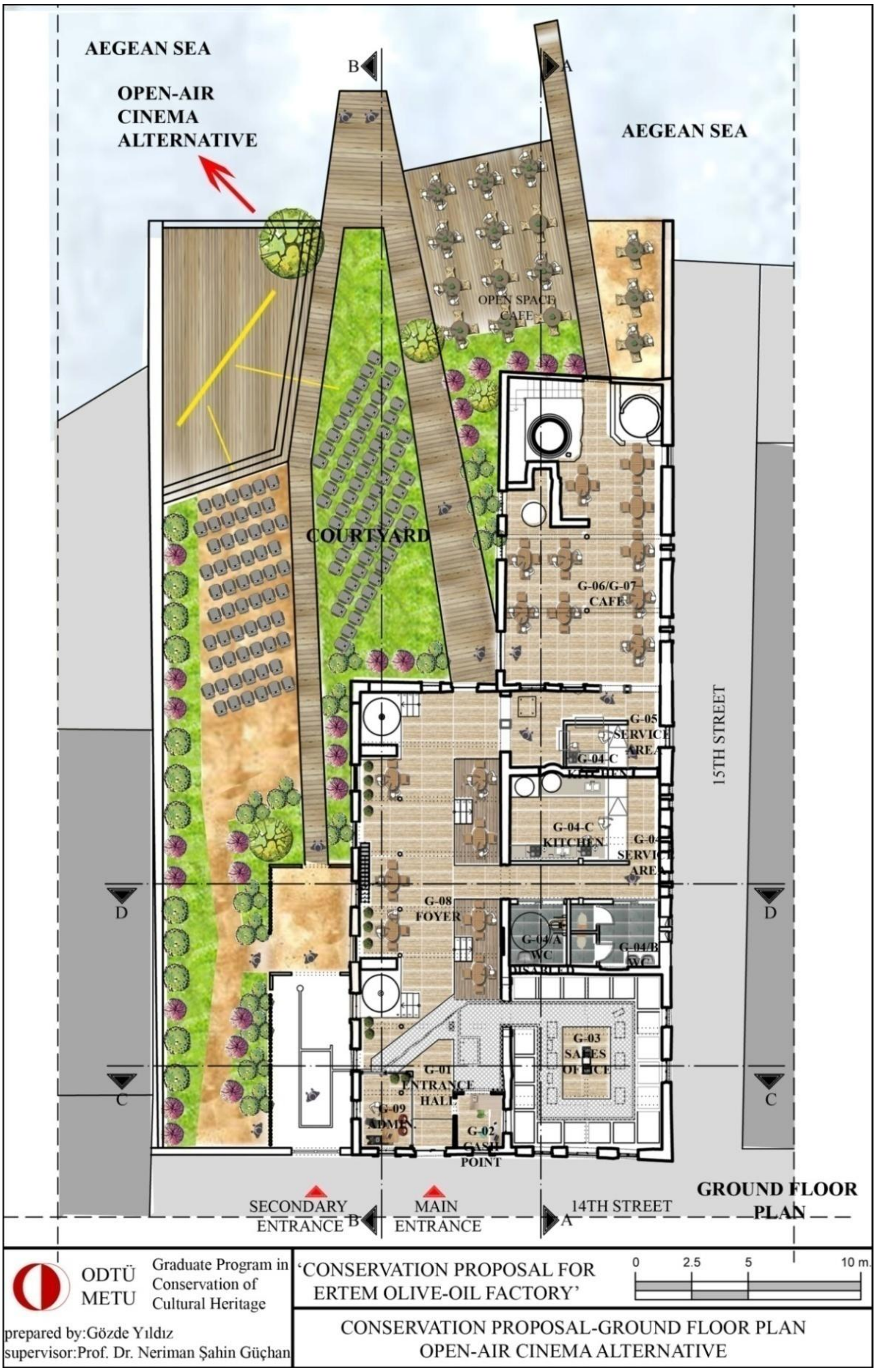



Figure 170: Conservation Proposal, ground floor plan, alternative-2 for the courtyard

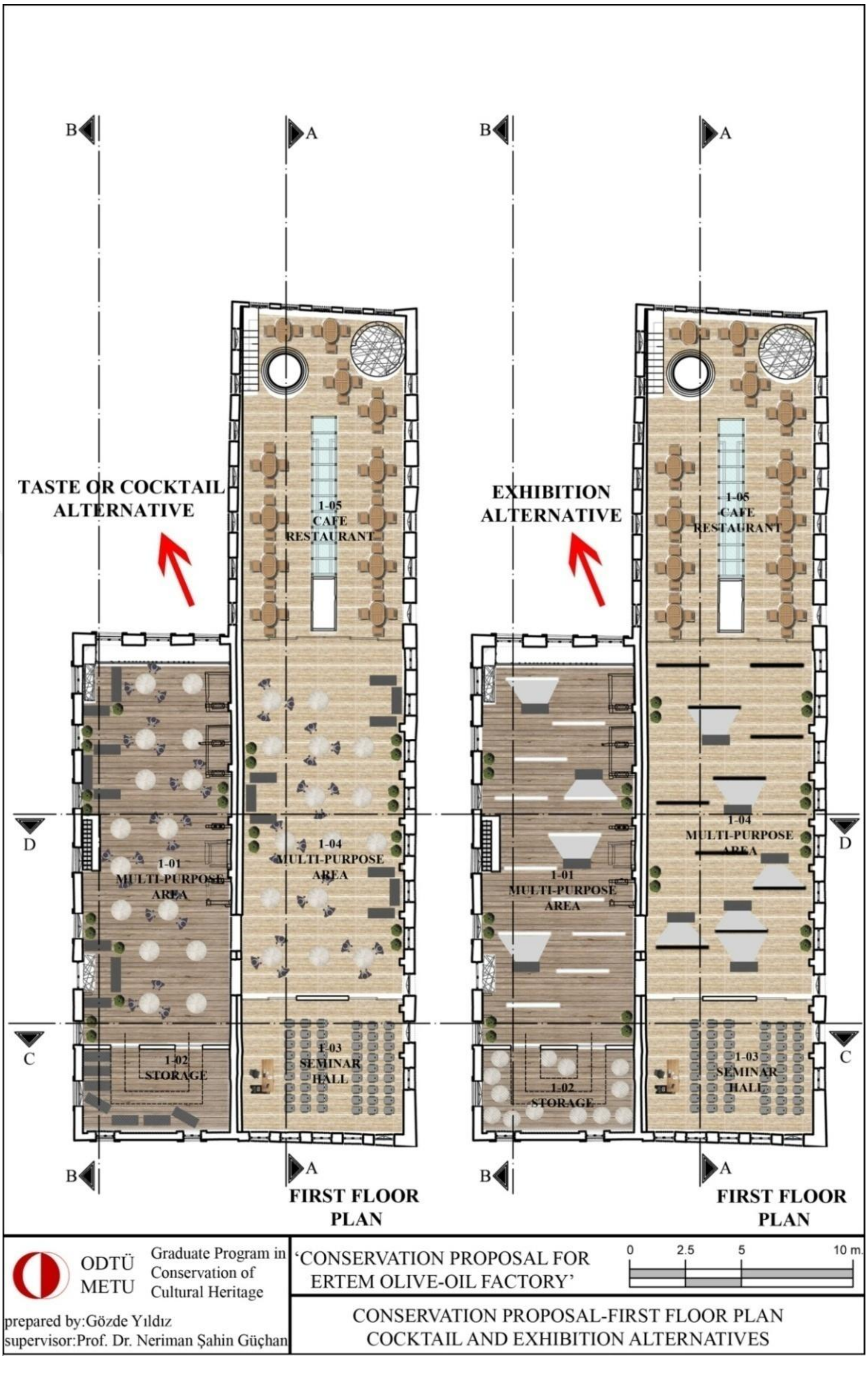



Figure 171: Conservation proposal, first floor plan, two alternatives of multi-purpose areas

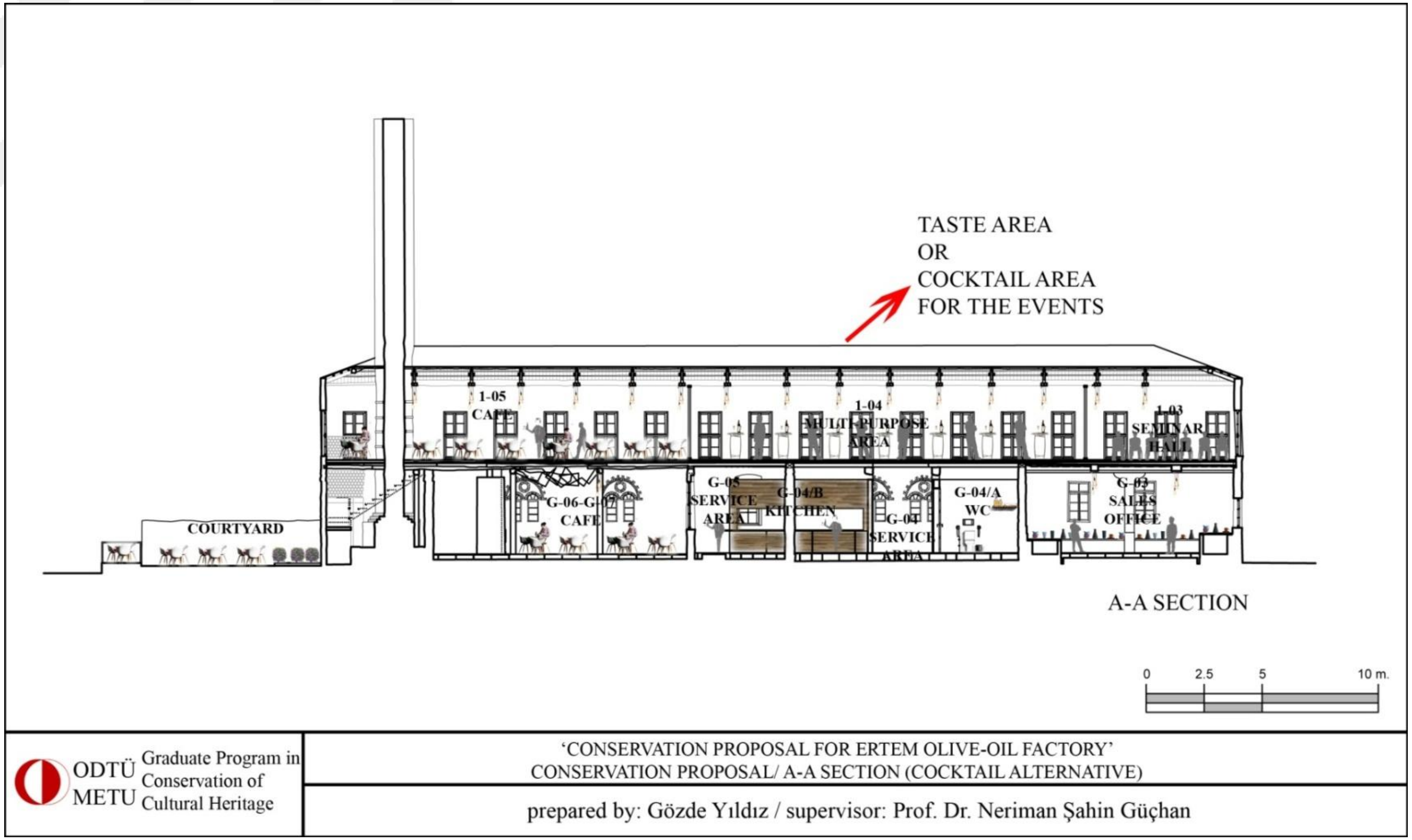



Figure 172: Conservation Proposal, A-A section, multi-purpose area- taste area or cocktail alternative

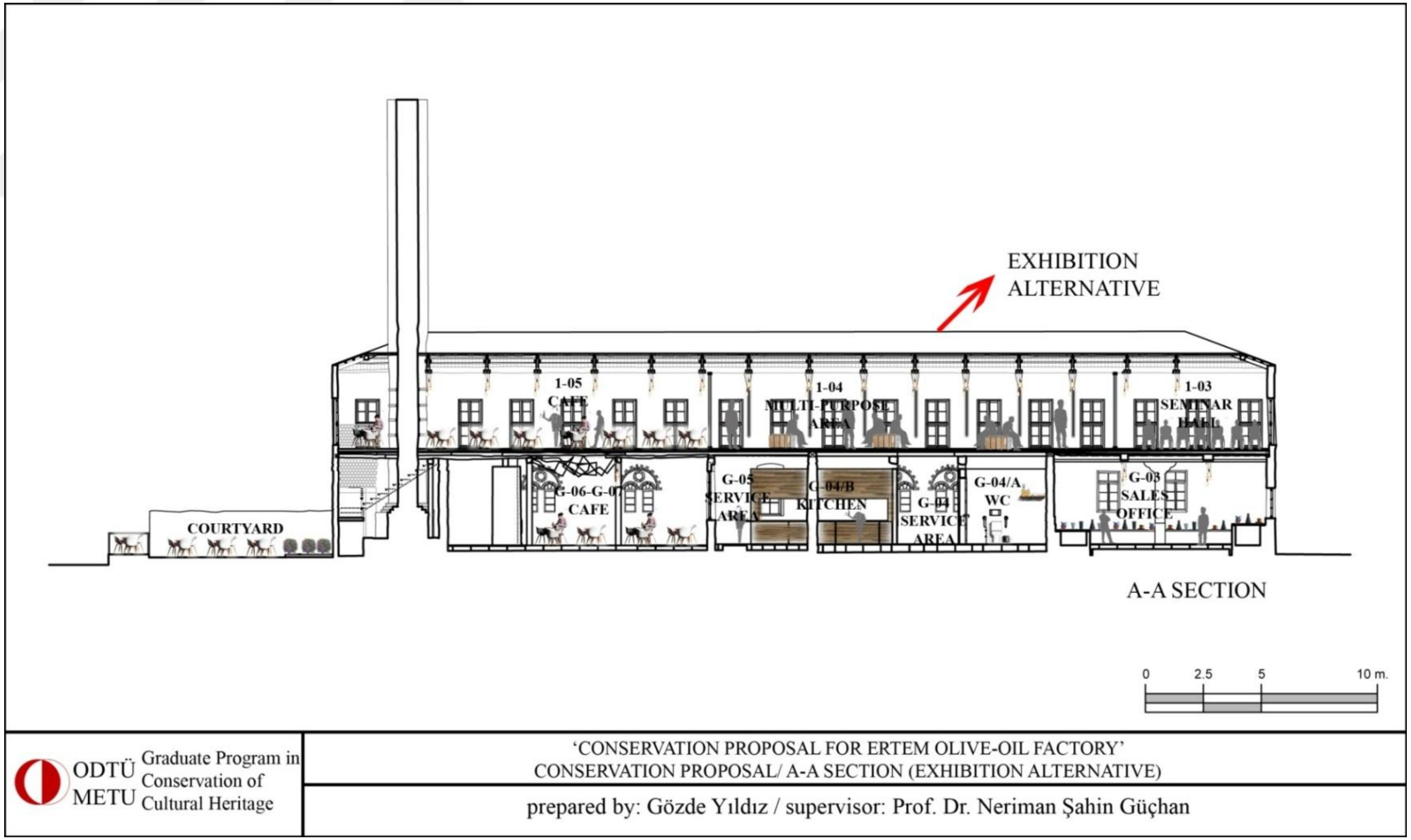



Figure 173: Conservation Proposal, A-A Section, multi-purpose area-exhibition alternative

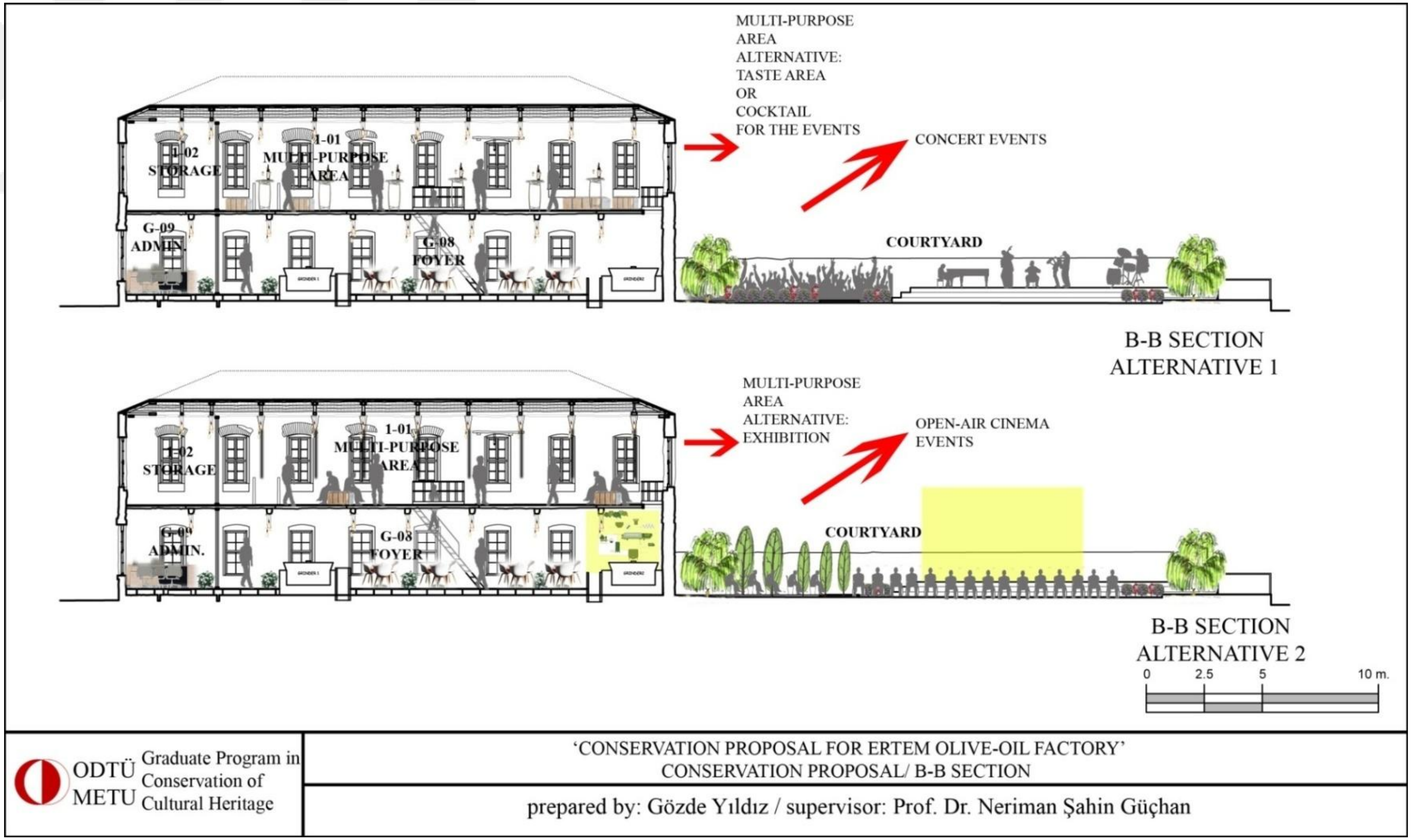



Figure 174: Conservation Proposal, B-B section, two alternatives of multi-purpose areas and courtyard

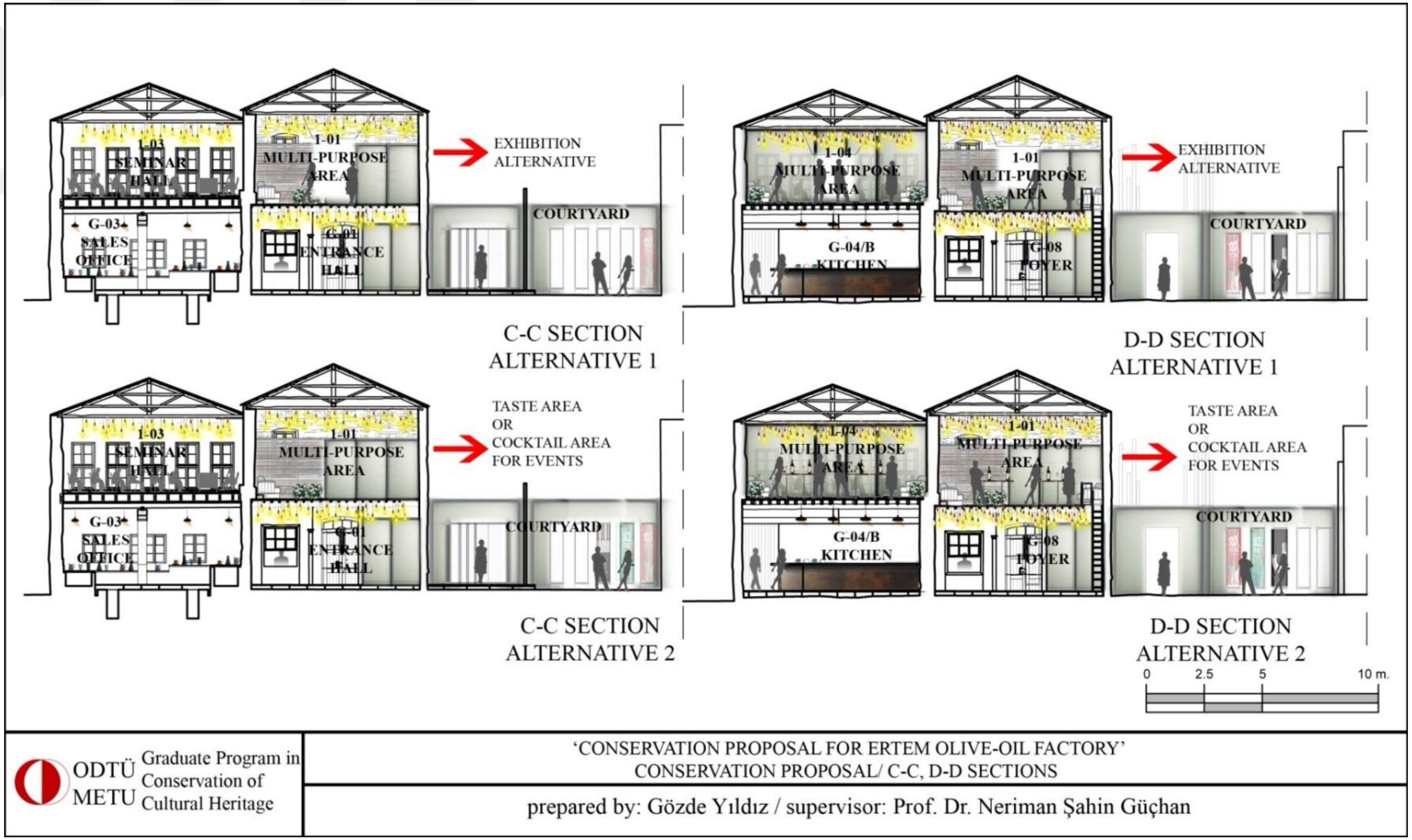



Figure 175: Conservation Proposal, C-C and D-D sections, two alternatives of multi-purpose areas

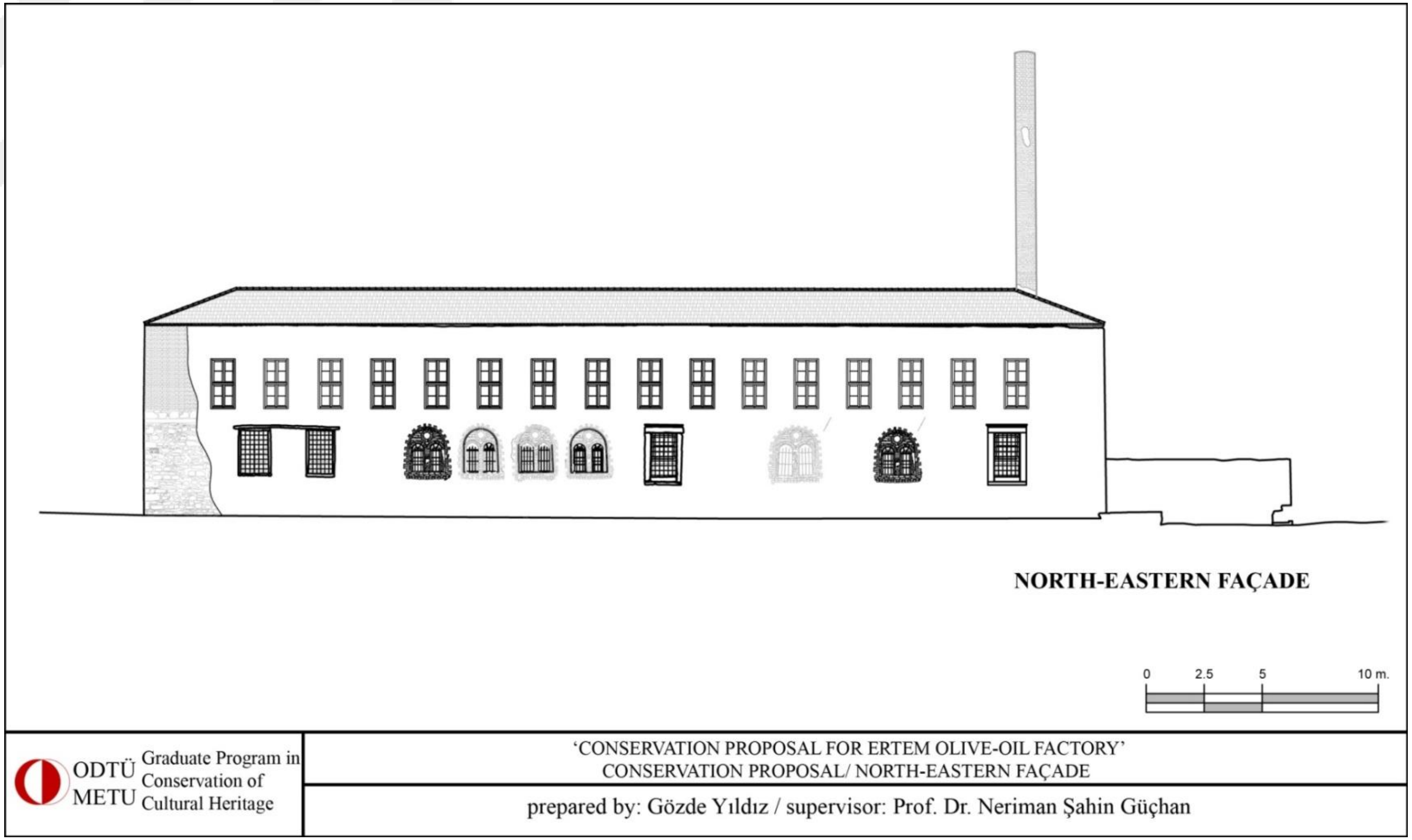



Figure 176: Conservation Proposal, north-eastern façade

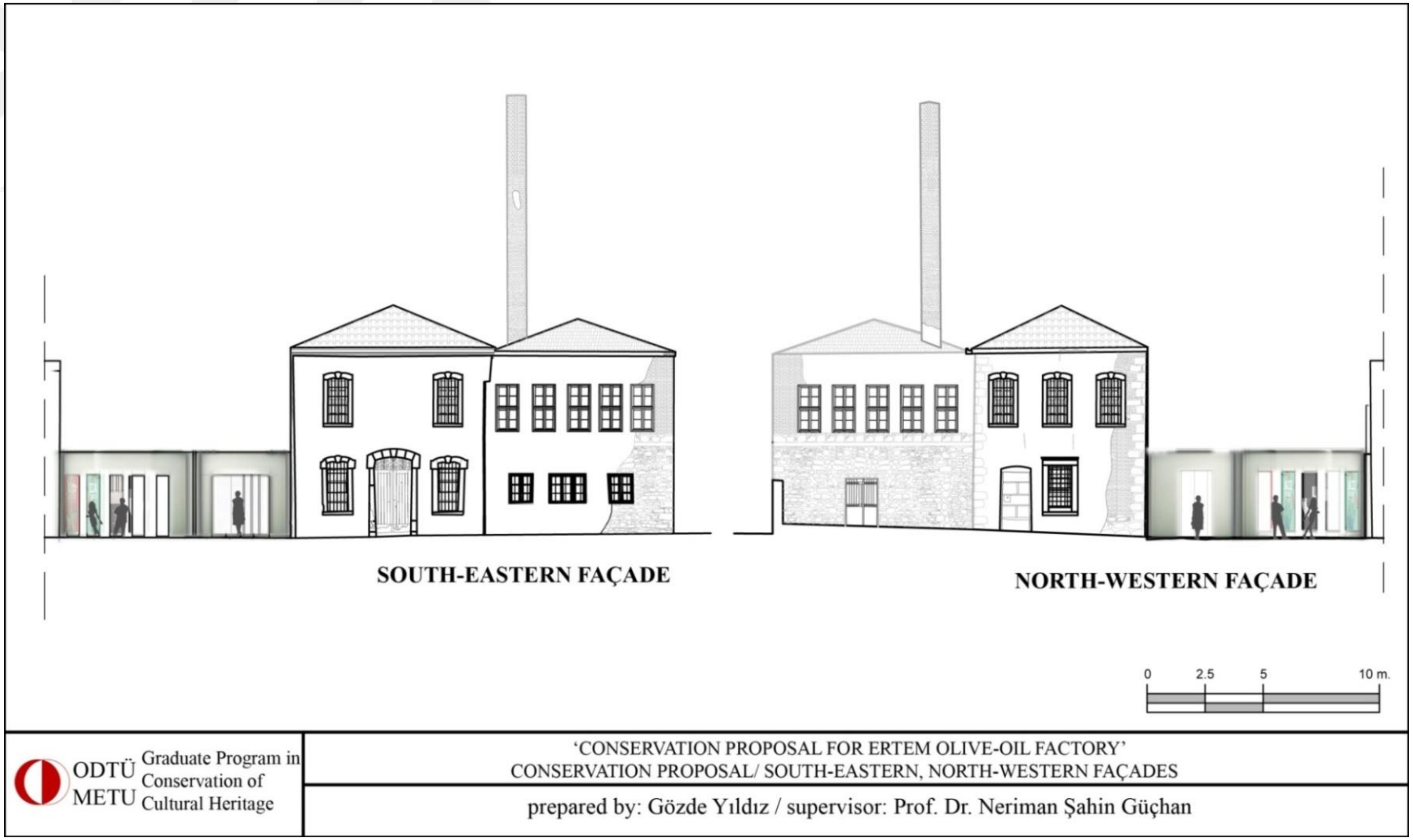
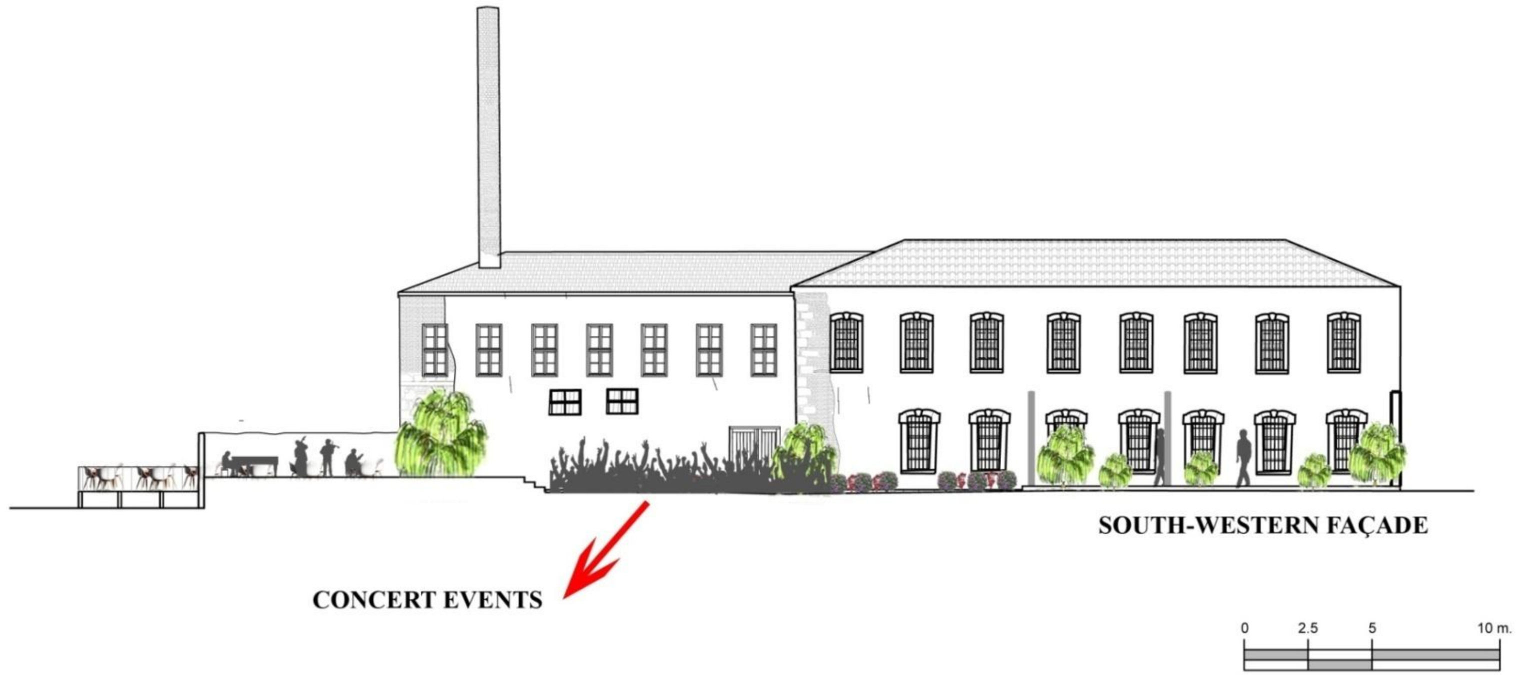



Figure 177: Conservation Proposal, south-eastern and north-western façades




ODTÜ METU Graduate Program in Conservation of Cultural Heritage

'CONSERVATION PROPOSAL FOR ERTEM OLIVE-OIL FACTORY'
CONSERVATION PROPOSAL/ SOUTH-WESTERN FAÇADE

prepared by: Gözde Yıldız / supervisor: Prof. Dr. Neriman Şahin Güçhan

Figure 178: Conservation Proposal, South-western façade


Figure 179: Conservation Proposal, 3d images: top and middle: first floor cafe area, soap chamber and boiler proposals; bottom: ground floor cafe area, view of soap boiler proposal


Figure 180: Conservation proposal, 3d images: foyer and multi-purpose area alternatives

#### 5.2.3.2. Intervention Proposals Related With New Function (Design Principles)

Physical interventions related with new function scenario are designed by considering all evaluated values and authenticity of the building composition. But there will be some specific arrangements for the spaces related with their functional requirements. The new used materials and details will be different than the authentic ones in form, in material, in texture, in color and in detail. In this regard, new physical intervention proposals will be defined as below:

In general definition, the new proposed details are prepared according to new function requirements and exhibited objects which can be defined as existing elements and non-existing elements that are known from oral sources. In the proposal, main physical intervention is re-detailing of floors. It is because of the original elements of floors which are the channels that are 25cm deep under the floor covering, concrete bases of water pumps that are 20cm upper from the floor covering, sedimentation ponds that are approximately 1m deep from the floor covering and soap process floors level differences (sabun tavlası). These elements of the building have to be exhibited and adapted to the new function requirements. Therefore using elevated steel deck is proposed for these places in order to solve the level differences problem. This raised floor system is arranged with different details according to the space features in the project proposal (See Figure 181,Figure **182**).

In the Spaces of G01-G03 and G-08 which are used as entrance hall, sales office and foyer in the new proposal, there are channels, concrete base of water pumps, traces of grinders as an existing original elements. There were also presses which are not existing today but known in terms of possible location and material from the oral sources. In the project proposal, it is suggested using elevated steel deck as a raised floor which will be differentiated with different materials according to the requirements in the same raised floor. Therefore, **steel graded floor covering** is proposed for the exhibited objects on the floor which are channels and concrete base of water pumps (See Figure **181**,Figure **182**). By doing so, the new material will allow to exhibit the original objects while providing a clear circulation ground. And the rest of the spaces will be covered by laminated timber covering on the designed raised floor in a reversible way in order to provide the requirement of the function.

For the G-03 Space in which polimas are located, will be used for sales office as mentioned in the new scenario. Here, polimas will be covered by plexiglass (See Figure 181) that allows the exhibition of object by transparent nature of material, in order to provide a stand for sale objects.

The Spaces of G-04 and G05 which are used as a kitchen for the cafe-restaurant and toilets, its original floor cover is rammed earth. Within the requirements of the new function such as hygienic flooring requirements causes some arrangements in this space. In the project proposal, it is proposed that laminated wooden floor covering is used in these service spaces. This detail also will be in the same raised floor structure by differentiated with the different materials, thus, new intervention will not harm the original coverings (See Figure 181,Figure **182**).

The Spaces of G07-G08 which are used as closed spaces of cafe-restaurant, there are existing original elements which are chimney and soap boiler and non-existing elements known from oral sources which are steam boiler and caustic depot. In the project proposal, these spaces will be covered by laminated timber covering due to hygienic requirement. The furnishes of the spaces will be harmonious with the ambiance of the space (See Figure 179).

The Space of 102 which is partially used as the continuation of cafe-restaurant and multipurpose hall, its original floor covering is special timber arrangement related with soap process. There are some timber laths which creates level differences related with the soap process. In order to design a clear floor covering for the new function, raised floor structure also will be used in this space. Here, it is important to chose the light and hygienic material for the raised floor. Therefore, it is proposed that almost whole area will be covered with laminated timber covering, but in the café, it will be steel structure with glass in a reversible way in order to show the original floor arrangement. For the designed places such as seminar rooms will be separated by acoustically isolated glass separator that can be opened and closed (See Figure 182).

The Space 101 which is used as a multi-purpose area for the event organizations, the original material of the floor is preserved. There will be movable stands for renting by locals for the festival, cocktail tables, exhibition panels according to the type of event. Exhibition objects may be directly put in the space or may be hanged to the roof trusses according to the exhibition concept (See Figure 180).

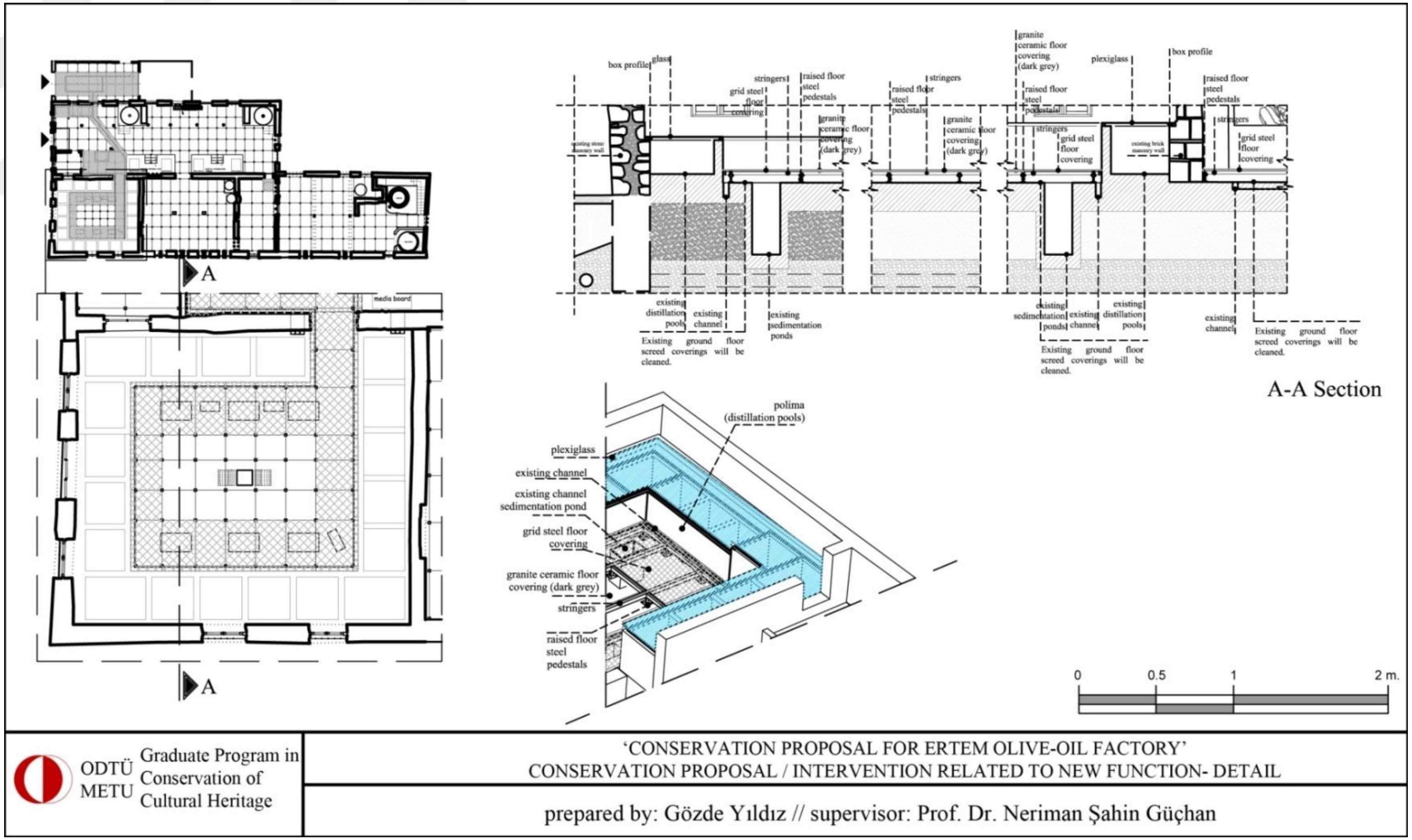



Figure 181: Conservation Proposal, new implementation, detail for the ground floor, N-D1

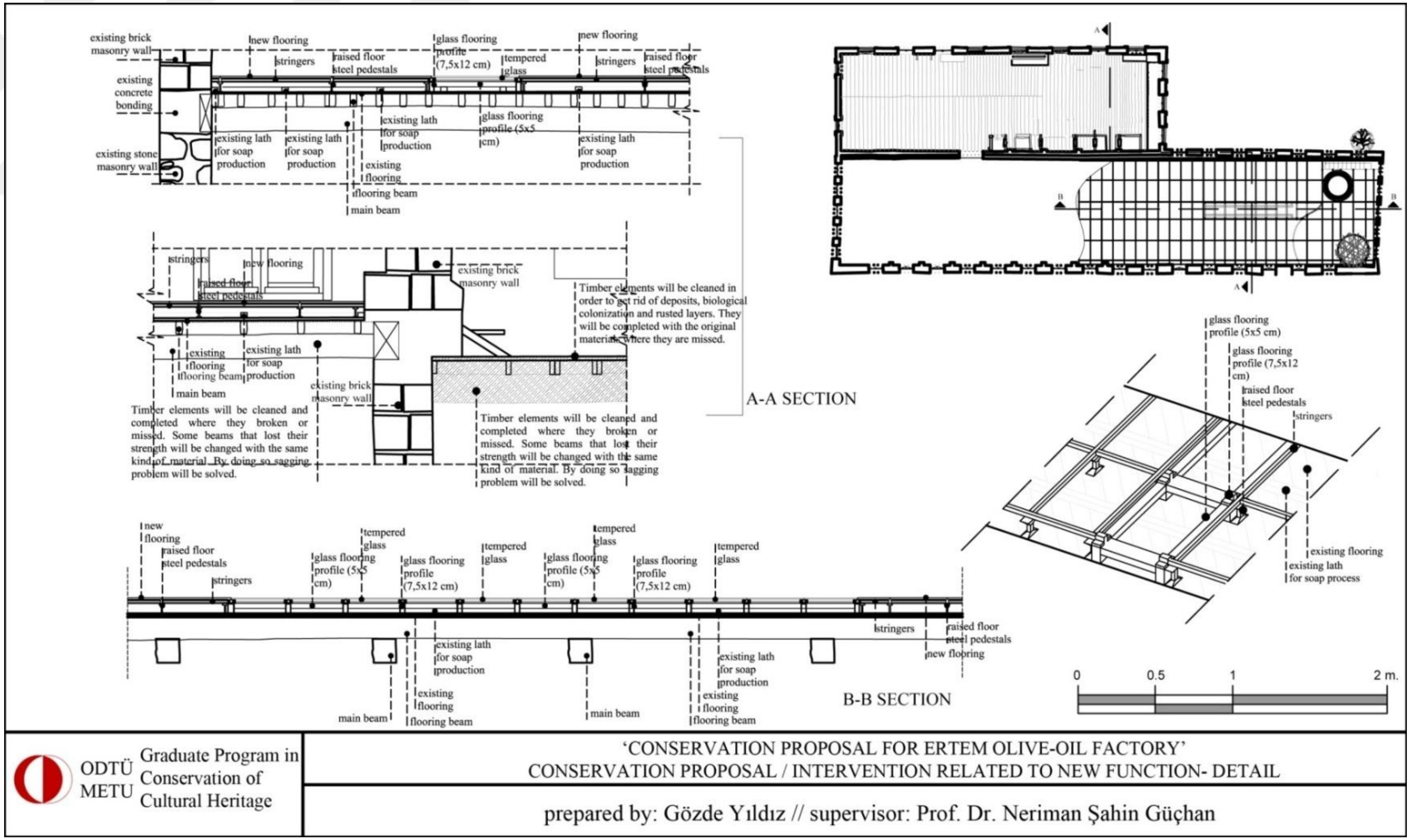



Figure 182: Conservation Proposal, new implementation, Detail for the first floor, N-D2

#### 5.2.3.3. Technical Specifications for New Additions (Technical Aspect of Re-use)

One of the important steps for the proposal, technical specifications are determined for the project which are electrical installation, heating and ventilating system installations and water and sanitary system installations. These implementations will not be harmful for the authentic composition of the building.

For the electrical installation, it is proposed that electrical wires inside of the fireproof rectangular cable channels will be used in the project. They will not pass inside the plasters. There is an electric box on the ground floor in the building. It will be removed and replaced with the new one on the same location. And this operation will be done by experts.

Heating and ventilating system will be provided through room type split systems in order to provide their microclimatic conditions. The control of the active air circulation will be provided by naturally due to having lots of opening in the building.

Clean water supply will be installed in a good workmanship by experts. The outlets of the kitchen and toilets are collected under the spaces of G-05 and G-06. They will be connected to the city's network.

## 5.3. Conclusion

Conservation of industrial buildings has been a quite important part of maintaining the units of industrial developments of the community. Industrial buildings usually lost their functions due to the fast technological developments and changing within production/consumption systems. This inevitable functional loss caused the obsolete structures which are regarded as industrial heritage. It is essential to conserve and recover the post-industrial landscapes together with the all elements associated with the industrial activity.

Adaptive re-use is an important strategy towards conservation of industrial heritage. Generally, 'use value' of the industrial buildings is the most important factor while re-functioning these structures. The transformation of industrial buildings started to launch through a large number of re-use projects after 1980s all around the world. These heritage beings are started to be seen as an instrument for economic revival. Therefore, re-using former industrial buildings for new functions represents an alternative through sustainable solutions for conservation of these important heritage places.

Ayvalık is one of the crucial industrial heritage places in the Western Anatolia located on a unique geography confined by the sea and hills, surrounded by important large number of agricultural lands (mostly composed of olive groves). In addition to its specific geography, its authentic traditional city pattern which is mostly preserved today makes the city important. Because of that, it was accepted on the tentative list of UNESCO world heritage list in 2017.

Ertem Olive-Oil Factory which was chosen as a case study for this thesis, is one of the well preserved factories that keeps most of the original features in spite of being a modest industrial building in the city as a part of the integrated industrial heritage of Ayvalık.

Accordingly, this study primarily seeks to develope a conservation proposal for Ertem Olive-Oil Factory by considering the conceptual framework focusing on adaptive re-use startegies for industrial buildings towards conservation of them.

Within this scope, the first step is an accurate conservation method or approach for industrial buildings. The conceptual framework of this study started with the definition of 'good practise' and re-evaluated through five selected good adaptive re-use examples. The proposed conservation method or approach of the study was developed by synthesizing the good practise parameters which were reviewed from contemporary literature such as Rogic (2009), Brooker and Stone (2004), Feireiss and Klanten (2009).

Thus, by benefited from the aforementioned contemporary literatures, this study investigated the industrial heritage buildings for adaptive re-use in three parts, namely 'programmatic approach', 'desing principles of intervention' and 'technical aspects'. They are all integrated parameters inside of them. Technological value of the industrial buildings (production process of the industrial activity and related equipments) is the key point for each of the parameters of good practise. Therefore, technological value of these buildings is the guiding context for adaptive re-use of industrial buildings in general.

Accordingly, industrial buildings are generally converted into multi-functional uses and/or museums. It is because of their technical values that are production equipments unfolded inside of them which also give 'aesthetic value' to these buildings. They represent a symbolic and commemorative value for the collective memory as being a witness of the industrial-technological history. Thus, in order to conserve these buildings, minimum intervention is essential for the success. And it can be provided by using the technological functionalism as a guide for the design principles which is also the limiting factor for adaptive re-use. Moreover, ownership statue of the buildings is another important factor while re-functioning them. That's why re-adaptation of industrial buildings is always problematic in the world.

As a result of this conceptual study, understanding the buildings and their contents (industrial activity) by considering their environment together with knowledge of the industrial and socio-economic history of the heritage place is a must. And then the building should be assessed according to 'programmatic point of view' by considering the ownership statue also. After this, it should be evaluated according to 'design principles' which categorized in three parts, namely material relationship, structural dependence and formal-spatial organization in order to decide the degree of the intervention. And as a last step technical aspect of intervention should be taken into consideration in order to provide the new requirement by preserving the existing structure. Thus, as a first output of this study is proposing an approach for adaptive re-use of industrial buildings in order to conserve them.

Regarding the presented case, Ayvalık is pioneer settlement for the olive and olive-oil industry as a major economic activity since its establishment. Due to developments in production technology, daily life, working style and the structure of urban space, there is a large stock of derelict industrial buildings within the city center which do not respond the new demands of present day. Ertem Olive-Oil Factory which is the main subject of the thesis as being one of the abandoned factories within the northern part of the city center was documented and studied with its environment named as 'northern industrial zone'.

As a result of the case study, first, northern industrial zone was described with its preserved traditional industrial fabric, characteristics of the existing building stock and existing adaptive re-use examples that were investigated according to the proposed approach (good practise strategies) within the scope of the study. Thus, identification of the existing situation of northern industrial zone is the second output of this thesis study. Accordingly, the current situation of the industrial pattern of the northern industrial zone which is characterized as touristic-commercial center related with Ayvalık's culture that comes from the history (like local food culture such as olive-oil, soap, etc.) and cultural activities through existing important art centers (AIMA), gives the possibility to transformation of the site by using cultural tourism as a tool.

In addition to that, identifying the olive-oil and soap production process by exemplifed on the case study as one of the well preserved factories in Ayvalık is another output of this thesis study. Ertem Olive-Oil Factory which is the typical example of 19th century olive-oil factory in Ayvalık helped to define olive-oil and soap production process by reading the technological layers _production process_ easily from its originality.

Finally, the proposed approach for adaptive re-use of industrial buildings was exemplified on Ertem Olive-Oil Factory which is a typical medium scale factory used by family enterprises. Its ownership passed into different various private entities until today. Thus, this case study will be an example for developing a conservation proposal for the similar ones in Ayvalık owned by private person. It was converted into 'Experimental Multi-Taste Factory' based on the theory of Pine & Gilmour (1999), named 'experience economy'. Having considered that, re-adaptation of inactive historical industrial buildings has a significant potential to sustain the place by using current tourism trends that include local cultures such as artistic, gastronomic, industrial which address to all sensations. The sustainability of industrial buildings in Ayvalık, is only possible by reuse them in the cultural context by preserving their original features as mentioned by Yerliyurt and Manisa (2014). Accordingly, this new proposed program that is in transformation inside of it through changed design experiences related with the culture of the town, will provide the sustainability of the culture of Ayvalık.

### 5.4. Further Discussions

A significant number of industrial buildings/complexes disappeared without any documentation and systematic study being done. There is a need to accomplish comprehensive study of different cases both from theoretical and practical aspects. This work can be done for different case studies since industrial buildings reflect the characteristics of their branch of industry. Thus it may change for each case.

Moreover, by referring the proposed approach for adaptive re-use of industrial buildings within the scope this study may be developed from managerial aspects by considering different parameters and interdisciplinary perpectives and it may be adapted to different cases.

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# APPENDICES

## CONSENT FORM

Ben Gözde Yıldız, Ortadoğu Teknik Üniversitesi, Mimarlık Fakültesi, Kültürel Mirası Koruma Programı'nda yüksek lisans öğrencisiyim. 'Ayvalık Ertem Zeytinyağı Fabrikası, Koruma Projesi Önerisi' konulu yüksek lisans tezimde fabrika sahiplerinden Servet Ertem ile yaptığım görüşmeleri, tezimde kullanabileceğime dair kendisinden onay aldım.

Gereğini bilgilerinize arz ederim.

GÖZDE YILDIZ

A. SERVET ERTEM