EVALUATION OF PROTECTIVE STRUCTURES IN ARCHAEOLOGICAL SITES FOR IN SITU CONSERVATION OF ARCHITECTURAL REMAINS AND ARTIFACTS

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ABSTRACT

EVALUATION OF PROTECTIVE STRUCTURES
IN ARCHAEOLOGICAL SITES FOR IN SITU CONSERVATION OF ARCHITECTURAL REMAINS AND ARTIFACTS

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Artifacts are moved to museums after the excavations in order to provide an indoor protection, while the immovable findings remain exposed to environmental conditions and human activity. In order to conserve these architectural remains made of vulnerable material, mosaics and wall paintings in situ, covering structures are designed offering temporary or long-term sheltering, preserving and exhibiting facilities. The aim of the study is to evaluate these protective structures. In this study, national and international approaches in the conservation of archaeological sites are studied in order to form the theoretical framework. Following the theoretical research, problems facing excavation sites, in situ conservation, interventions and the presentation of the archaeological sites are studied. New building in an archaeological site is discussed in architectural and conservation perspectives and evaluation criteria are defined. Selected cases are studied according to their material selection, functional and physical efficiency, compatibility with the remaining and its urban context in terms of the determined principles. The study is concluded with the general remarks for a new protective structure for the preservation and presentation of the architectural remains in an archaeological site.

Keywords: in situ conservation, conservation in archaeological sites, protective structures, covering structures, protective roofs

ÖZ

ARKEOLOJİK ALANLARDA MİMARİ KALINTI VE BULUNTULARIN
YERİNDE SERGİLENMESİ AMACIYLA GELİŞTİRİLEN
KORUYUCU YAPILARIN DEĞERLENDİRİLMESİ

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Kazılardan sonra ortaya çıkarılan taşınabilir buluntular uygun saklama koşullarının sağlandığı müzelere taşınırken, taşınmaz olanlar çevre ve insan etkilerine maruz kalmaktadırlar. Kırılgan bir malzeme ile yapılmış bu mimari kalıntıları, mozaik ve duvar resimlerini koruyabilmek için, onlara siper olarak geçici ya da kalıcı koruma ve sergileme sağlayan üst örtüler tasarlanmaktadır. Bu çalışma ile koruyucu yapıların değerlendirilmesi amaçlanmaktadır. Çalışmada kuramsal çerçeveyi oluşturmak için arkeolojik alanlarda koruma konusundaki ulusal ve uluslar arası yaklaşımlar incelenmiştir. Kuramsal çalışmayı takiben, arkeolojik kazı alanlarını etkileyen sorunlar, yerinde koruma ve müdahaleler ile arkeolojik buluntuların sergilenmesi konularına değinilmiştir. Çalışma arkeolojik alanda inşa edilen yeni yapı konusunu mimarlık ve koruma açılarından tartışmış, değerlendirme kıstasları ortaya koymuştur. Seçilen örnekleri malzeme seçimleri, fonksiyonel ve fiziksel yeterlilikleri, kalıntı ile ve arkeolojik kent bağlamında uyumları gibi belirlenen kıstaslar doğrultusunda değerlendirmiştir. Çalışma arkeolojik alanda bulunan mimari kalıntıların korunması ve sergilenmesi için geliştirilen yeni koruyucu yapı tasarımı konusunda genel bir değerlendirme ile sonuçlandırılmıştır.

Anahtar Kelimeler: yerinde koruma, arkeolojik alanlarda koruma, koruyucu yapılar, koruyucu örtüler, koruma çatıları

In memory of my grandfather,

To My Dearest Family

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CHAPTER 1

INTRODUCTION

1.1 Definition of the Problem

Archaeological excavations are time consuming activities having a long and onerous process. In contrary with this slow process, when remains are exposed to atmospheric conditions, their consolidation and conservation must be decided immediately. The artifacts are moved to museums after the excavations in order to provide an indoor protection, while the immovable findings remain exposed to environmental conditions and human activity. After staying a long time underground in certain equilibrium of subsoil, exposure to the atmospheric conditions and confrontation with weathering factors result in immediate decay, deterioration and collapse.

Remains are incapable of protecting themselves from atmospheric conditions and defenseless to aging factors of time due to the loose of their original shells and fragility of their materials (Rizzi, 2007). Not intervening and leaving the site as it is found can be a choice of the excavator in a stable site, or can be as a result of lack of fund or time at the end of an excavation. Observations made in untreated sites, with the help of the simple recording, regular photography and monitoring instruments, would provide information about the processes of deterioration. This information would be used as a base for future intervention decisions (Oliver, 2008). However, in unstable sites, in most of the cases, not intervening would be a disaster for the exposed remains.

In almost every excavation covers are needed for the protection of the sensible, easily destructible material from moisture, rapid drying and mechanical damage (Schmidt, 1988). Reburial, wall capping and flashings, temporary sheeting, shelters and enclosures are some of the covers that used for protective reasons. In some cases one or more of these interventions are used in combinations for a

better protection. Each conservation technique has its advantages and disadvantages.

For between-season or long-term in situ preservation, reburial – intentional burial is used if there are no other means or the protection of remains and the information content is more valuable than their display. In reburial whole or a portion of remains are protected in their current location while maintaining their integrity (Bilsbarrow, 2004). While proposing reburial, adverse conditions have to be considered. Examples of such considerations include changes in the groundwater table level or flow characteristics, changes in pH conditions, chemical, biological and microenvironment within the new layer, effects of compaction with the addition of protective fill, changes in the surface topography that may cause future erosion and impacts of the burial over individual components of the archaeological site (Nickens P. , 1999). Thus, reburial needs the expertise of archaeologists, conservation architects, soil geologists and engineers. The accumulated layers over the remains should be recognizable in order to be differentiated from the original layers, the remains should be accessible and burial's effectiveness should be monitored in long-term (Bilsbarrow, 2004).

In many of the excavations, reburying is used for protecting the mosaics. In Nysa after the consolidation of vulnerable floor mosaics, they are closed with geotextile, and over the sheeting material 20 cm deep washed soil and 10 cm deep sifted earth is laid (İdil & Kadıoğlu, 2007). This method allows people walk over the mosaics while providing protection for the underlying material. After making the relevant documentation these are uncovered in case of maintenance and other emergencies. However these coverings prevent the visual access. At Woodchester in Gloucester, England a method has been developed for presenting the mosaics at an imperial Roman villa. Every tenth year during the summer season, walkways and platforms over the flooring are formed and the flooring is uncovered for giving the visual access for the visitors (Stubbs J. H., 1995).

Reburial is also common for adobe structures. However, it may be inappropriate in practice for higher walls, remains at the top of the hills where erosion could be

a destructive factor due to winds, rain water and melting snow. Precautions must be taken for the drainage of surface water and for redirecting the ground water (French, 1987).

Capping the wall tops is a method used for shedding away the water and moisture penetrating through the surface and preventing erosion of the material and formation of fissures and cracks (French, 1987). Types and purposes of the wall capping vary according to the climate, protected material and available resources. Precast blocks, coatings and plasters, and roof-like structures can be used as wall capping materials which are generally developed by trial and error. Materials rigidity, permeability and durability vary with the climate. The compatibility of the wall and capping in terms of water and vapor permeability, ingredients and expansion and contraction, intensity and direction of surface water flow from the capping, amount of overhang and incline, existence of drip edges, weight of snow that's piled up on the capping, drainage of the wall base and aesthetic impact of the capping on the wall and the site should also be considered carefully (Oliver, 2008).

In archaeological sites, during the campaign or till the next campaign, temporary sheets are adapted to protect the vulnerable pieces. Reed mats, tarpaulins and plastic sheets are the most available materials that may be applied against the rain and sunlight easily (Schmidt, 1988). These materials are widely used in the archaeological sites for the exposed remains. The use of polyethylene sheeting or another material that stops air and water permeability must be avoided in order to prevent condensation (French, 1987). These materials lead to water accumulation underneath the material, cause wetting and prevent the drying of the remains. The humidity provides the appropriate environment for microorganisms and plant growth.

Shelters and enclosures offer the desired conservation conditions for the remains while allowing their dissemination. However, constructing a structure in an ancient environment is introducing a new type of building within the site which is a product of the modern era, trends and technology. New construction contracts with the original site organization. Protective shelter is present day's requirement, protecting patrimony of the past. Generating a new and complete

volume in an area that contains remains of ancient buildings that are not preserving their unity would affect the overall perception of the site and remain itself. The decision about the type, scale and characteristics of protective shelter should be given considering some criteria. In the determination of the criteria, different approaches should be considered including the conservation, museological and architectural perspectives. Shelter's contribution and disadvantages on the site should be analyzed carefully based on these various approaches.

1.2 Aim and Content of the Study

The subject of this study is in situ conservation by the construction of a modern structure over the remains which have lost their roofs or architectural finishes used to protect them from the atmospheric conditions. These structures have been referred to by multiple names in the literature as protective building, roof, roofing, shelter, cover and enclosure.[1]

Shelter (n) is described as 'a place giving temporary protection from bad weather or danger', **cover (n)** is 'a thing which lies on, over, or around something, especially in order to protect or conceal it', **enclosure (n)** is 'an area surrounded with barriers' and **roof (n)** is described as 'a structure forming the upper covering of a building or vehicle' (Oxford English Dictionary). Within the context of this study 'protective structure' is used as the general term calling these constructions. These temporary or long-term protective structures are grouped into two as the shelters and enclosures. Partially closed and open sided structures are studied under the title of 'shelter' while fully enclosed structures are named as 'enclosures'.

While talking about protective structures for in situ conservation of architectural remains in archaeological sites, there are three main entries as both the archaeological site, historical monument and the modern addition. As many of the conservation problems do, this subject also coincide different disciplines as

[1] The same conflict also exists in Turkish, these structures are referred to with the names koruma çatısı, koruma yapısı, koruma binası, korugan, korunak; they are even entitled with specific names as the trademark of the archaeological site as Karatepe Saçakları and Çatalga like the Archaearium at Jamestowne, Virginia designed by Carlton Abbott and Partners.

archaeology, architecture and conservation. Therefore, while collecting the information, approaches from different disciplines are considered.

The aim of the study is to evaluate these protective structures taking into account the factors that lie behind the decision of conservation and the remains' and site's inherent characteristics. In addition to the main intents, due to the method of the study and research material, the study provides comparative information about the similarities and differences of conservation approaches in Turkey and abroad.

The aim is not criticizing any applications, not limiting the design of contemporary structures with rules and restrictions but rather developing guidance for the professionals of archaeological conservation through the evaluation of the existing state of the subject of concern and establishing a general checklist caring both the site and the new design.

Although, protective structures are started to be built in archaeological sites in the 19th century, being the majority of the structures after 1960s, the beginning of a literature on protective structures is only in the last 20 years of the 20th century (Roby & Demas, 2012). There is still lack of a source combining conservation and architectural approaches and forming a general checklist in the design of protective structures. The study tries to find a compromise and fill the gap between the purposes of architecture and conservation.[2] International cases are probed in many resources while, except of the famous cases, the applications in Turkey aren't studied in detail before. This study offers a commentary of the protective structures in Turkey from the perspective of an architect who has decided to work as a professional in the field of conservation.

1.3 Methodology

After the discovery of a site, excavations start whether for scientific or salvaging reasons. For transferring the cultural heritage to the future, the pillages are prevented and scientific excavations are promoted for gathering the information

[2] Thomas Roby and Martha Demas refer to the lack of a balance between the conservation and architectural aspects in some of the structures in the Literature Review published by J. Paul Getty Trust in 2012.

from the past. Conservation works are carried accompanying the excavations. For the conservation or presentation of a site, protective structures may be preferred. For defining the requirements of protective structures and minimizing their negative influence on the site the outline of the thesis is constituted as finding answers to some questions. The series of questions planned to be discussed throughout the study can be listed as;

What are the advantages and disadvantages of protective structures when compared with the other methods of in situ conservation? (Introduction)
Are there any requirements or rules published for the construction of protective structures? (For defining the limitations)
From which destructive forces do these structures protect the remains? (For defining the problems)
What is tried to be conserved and presented with protective structures? (For defining the requirements and needs)
How can architecture make a contribution on the conservation of remains?

Due to the nature of the subject matter, there are many points that need to be discussed. In general sense, this thesis study is composed of two parts, as the determination of the evaluation criteria through a literature survey and evaluation of the selected cases in Turkey. The cases selected in the scope of the thesis are the products of architectural design process before their decision of construction. The sites that have already become a part of the urban context are excluded from the study. The selected eight structures from Turkey are designed by architects and constructed for the protection of the architectural remains in the archaeological sites that are located far from the city, in their original context. Although the newly constructed structure in Aşıklı Höyük also answers the description it is excluded from the evaluation because some time on site is needed to see its contribution on the preservation of the remains.

In the first part of the thesis, national and international approaches in the conservation of archaeological sites are studied in order to form the theoretical framework. As conservation has a wider approach that includes the entire cultural heritage, it is impossible to limit a subject only with the archaeological sites. The studied documents are about archaeological conservation, in situ

conservation, conservation of materials, contemporary additions in historical settings and presentation of the heritage assets.

Architecture is the art and science of constructing built environments considering economical, functional, social, environmental and social issues. In the following part critical issues and technical parameters that affect the design and construction of a protective structure are studied. In this part specific problems of excavation sites are defined. For understanding the vulnerability of the remains and ensuring the required conditions for their preservation their material characteristics are studied. Intangible features of the sites that are conserved with the physical entity of the remains are discussed. Presentation and interpretation of the archaeological sites which is another objective of the protective structures is discussed following the problems.

In the second part of the study, decision of a protective structure and its contribution in the conservation of remains are studied with the worldwide selected cases in order to see the practice. The decision of restoration is both a comprehensive and a creative process. A new shelter in an archaeological site is a contemporary contribution and is a design problem for an architect. A protective structure design is a response to the issues defined in the previous parts. However there isn't only one solution to the defined parameters. In this last part, the process of a new design is studied. Conservation parameters are placed within the architectural design process. Following these preliminary studies, in the light of the information gathered so far, design criteria for a successful protective structure are formed taking into mind that, not each structure has to conform the checklist due to the different conditions of each case.

In the third part of the thesis assessment of the selected cases in Turkey is made. In order to evaluate the structures in accord with the defined criteria, information about the site and remain is collected including their main features as history, location, physical definition, condition and context. Design approach of the excavation team and their ideas forming the concept of the structure is studied finding answers from the literature. Assessment of the protective structures is made in terms of the defined criteria as their accordance with the

regulations regarding the conservation of cultural heritage, acquired success over the defined physical problems of the site, their contribution to the interpretation of the site, their respect to the inherent characteristics of the site and remains and the architectural quality. All the structures are experienced on site and assessments are made from a personal point of view.

The final section is arranged in three parts as the conclusions of the study material, a commentary and criticism on the study process and recommendations for further studies.

The methodology of this thesis is developed while making the literature and field surveys. The study is conducted with a series of questions and discussions from the discovery of a site to the end of the work completed within the site. Due to the nature of the subject matter, discussions extent and limitations had to be made for managing the study in the limited time. The field surveys provided the most of the information for the assessments. Although the assessments were done after defining a series of objective and automated criteria, there still has to be a subjective part as a result of the subject being a part of architecture. The soul of the archaeological site and new building is tried to be discussed and by experiencing the buildings on the site, impressions of the author are interspersed throughout.

1.3.1 Source of Information

While collecting information three kinds of study materials are used.

a. Visual Resources: Photographs, videos, architectural drawings, plans and maps of the archaeological sites in Turkey found in books and journals, on internet and taken or drawn by the researcher during the field surveys

b. Written Resources: Books, reviews, reports, articles on material conservation and preservation by means of protective structures, annual reports of the excavations and official websites of the excavations giving information about the current works on the site, questionnaire carried out with the manager or a team

member of the excavation, officers from the ministry and architects designing the protective structures

c. Oral Resources: Interviews with the manager or a team member of the excavation, officers from the ministry and architects designing the protective structures

Information is collected in form of information sheets in order to be used during this study and afterwards.

1.3.2 Information Sheets

There are 4 types of information sheets for analyzing the data collected.[3]

a. Protective Structures in Turkey

In order to form an inventory of the protective structures in Turkey, written and visual resources about the archaeological sites are studied. Since the written sources include a little information about the interventions, photographs obtained from various sources were the main materials while collecting the data. With the help of the information collected, protective structures are classified according to the protection they offer and characteristics of the remains protected.

- Sheltering area (covering a **P**art of a structure, covering a **S**ingle structure, covering two or **M**ore structures, covering **F**indings of one or more structures)
- Period of the remain (belonging to **P**rehistory, belonging to **C**lassical Period)
- Type of the superstructure (**S**helter, **E**nclosure)

A database is formed in ArcGIS using the information obtained with the help of this sheet. A map based on the Highway Map of Turkey including the boundaries of regions, cities and districts is drawn. Each site including one or more superstructures is marked on the map with points in their exact locations. In the

[3] Not all of the results of the study materials are included within the thesis. Results, formed charts and maps that are within the limited scope of the thesis are either used in the text where relevant or attached to the study with the appendixes.

attribute area of these points, information about the classification criteria is written. By means of this geographically referenced information, displays, analysis and cross examinations could be made.

Same kind of a sheet is prepared for the international cases. Some information obtained with these sheets is used while writing the part about protective structures.

b. International Documents

While browsing the charters accepted in international scale, a database is formed including the name, publishing information and subject of the charter, keywords about the intent and highlighted points within the charter. The sources for the documents were pertinent organizations', institutions' and bodies' official websites and published compilations.

While collecting the highlighted points from the international documents, articles especially about archaeological sites and the monuments of the earlier civilizations are mentioned in the priority. It is hard to exclude some part of the historical edifices just because they belong to a different civilization, a different time period or lay over a different portion of the earth. If the protective structures are accepted as additions or new buildings on ancient sites, and if the material and architectural elements we are dealing with are constructed in a different time period than ours as a product of a different technology, these two groups coincide in many points. Therefore the regulations for the other historical monuments are also noted.

As it can be seen from the recommendations, monuments in the archaeological sites are in a different group due to being out of use. Of course the monuments in the archaeological sites cannot be reused with new functions as the later period buildings, but especially the ones at the urban areas are functioning with their original uses, theatres - or converted into museums, memorials etc. If the monuments will revive again, also the recommendations for the living monuments should be taken into consideration. Any attempt in archaeological sites should inspire from the principles in other restorations. Studying the

regulations for the other fields of conservation is important to see the international recommendations. Due to these reasons regulations and recommendations about both groups have been studied.

In the light of this information, documents about archaeological conservation, in situ conservation, conservation of materials, contemporary additions in historical settings and presentation of the heritage that can be related with the interpretation of an archaeological site or a new construction are collected on the prepared chart with relevant information.

c. National Documents

Web pages of Legislation Information System and Official Gazette of Turkish Republic prepared by the General Directorate of Development of Regulations and Publishing, legislation related with conservation prepared by Ministry of Tourism and Culture and booklets published by Center of Continuous Professional Development of Chamber of Architects are used as primary sources. National documents regarding the conservation and preservation of cultural and natural heritage are studied in the same detail as the international documents.

The information collected from the national and international documents formed the theoretical framework of the study and the criteria.

d. Site Survey Sheet

An information sheet is prepared for the selected cases including wider information based on the Protective Shelters in Turkey Chart in order to gather the information for the evaluation of the construction. In the first part of the sheet, general information about the archaeological site including the name of the site, geographic location, natural features including the geographic, geological and climatic features, context of the site -period of the site with the types of edifices-, significance of the site as described within the documents -its intrinsic values-, ownership and sponsorship status, excavation history, summary of conservation work undertaken, present condition of the site and findings, state of presentation, statistical information about the density and

intensity of visitors and the conservation plan or program followed by the people in charge is written.

In the second part of the form, detailed information about remain is collected. Location of the remain within the site -helps to understand the geographic conditions, its neighboring edifices, etc-, significance of the remain, physical definition of the remain including its present condition, remains condition after excavation -in order to see the decay-, and summary of conservation work undertaken are written.

In the third part of the form, information about the superstructure is collected. The date and owner of the construction, physical definition of the construction -in order to determine its type-, and process of its design is written.

The information collected with the information sheet formed the preliminary studies for each of the cases while making the assessment of the protective structures.

CHAPTER 2

IN SITU CONSERVATION IN ARCHAEOLOGICAL SITES

2.1 Legal Framework and Regulations in the Field of in situ Conservation

Starting with discussion of in situ conservation of ancient remains, numerous international documents were published dealing with the subject in a general manner or specialized on the branches. These documents were adopted by different organizations whether dealing with cultural and natural heritage or interested in this heritage due to its social, economic, touristic, legal, administrative or other approaches. Although many of these documents aren't accepted by the Turkish government as a law, and they don't have any sanctions, they reflect the international vision of conservation and limit the interventions.

2.1.1 International Charters and Documents

Conservation of archaeological sites which is a subject of cultural heritage conservation is discussed in many international documents. Approaches to archaeological sites are differing in terms of the conservation of the movable and immovable findings. The concept of museology and antique collections which is related with movable heritage items has a deeper rooted history than the notion of in situ conservation of immovable remains. Conservation of archaeological sites has started to be discussed in the last decades in many international platforms and became a part of many international documents due to their nonrenewable character in terms of their natural and manmade elements. Although they are termed as heritage lately, they were a part of the heritage long before these discussions (Matero F. G.).

In the European Convention on the Protection of Archaeological Heritage, 1969, archaeological objects are defined as all the artifices and remains that are found to evidence of a particular civilization, discovered after excavations (COE, 1969). Since the property exposed in an excavation is also a part of the architectural heritage, the criteria defined for architectural heritage is also valid for archaeological sites (ICOMOS, 1990). Therefore, policies derived from the documents related with in situ conservation, interventions in an historical setting, contemporary additions, and integration of new and old and tourism should be included within the study for defining the framework of the operations and should be adopted to the archaeological heritage where it is possible.

One of the oldest documents related to in situ conservation of archaeological heritage that is needed to be mentioned is the Swedish Proclamation of 1666. In the proclamation further damage to the ruined monuments is prohibited, the carvings on the stones are told to be protected in situ. This was the first time that an action is defined especially for archaeological remains. In situ conservation is expanded from ornamentation to a larger scale with the contemporary restoration ideas allowing movement of a monument or detachment of an element from the monument only if there is a safety issue (ICOMOS, 1964) (ICOMOS, 1990).

In order not to lose the evidence related with the historical construction materials and technique and protect the inherited values of the monuments, a comprehensive research and documentation should precede the conservation interventions. For not doing any harm to this evidence, to make it reversible and recognizable or to allow further interventions and modifications when required, any restoration attempt should be kept in minimum (ICOMOS A. , 1999) (ICOMOS, 2003) (Matero F. , 2000). Because the priority is given to the survival of the monument, instead of renewing and replacing, caring well and maintaining is preferred (Rustin, 1889) (Morris, W. (et al.), 1877) (ICOMOS, 1964). Since the archaeological sites were the belongings of the past civilizations, and in the modern day somehow lost their original purposes, in order not to leave the dead monuments to be ruins strengthening is recommended (CIAM, 1904). Any completion is not accepted, while consolidation of existing dismembered parts (Carta, 1931) and anastylosis (ICOMOS, 1964) is allowed in order to ensure the

storage conditions. Any restoration attempts shouldn't misguide the audience and must be supported by concrete evidences (ICOMOS, 1964).

Each case should be considered uniquely and the decision about which conservation technique will be used must be given after a pre-survey about the existing state of the construction, proper decay analysis, study of the historical background, analysis of the usage pattern, social and economic aspects, and environment and study of building materials (ICOMOS, 1932) (UNEP, 1985). A multidisciplinary research should be carried on the identification of the factors risking the monuments including its current problems, failures, weathering processes, climatic conditions, biological agents, moisture, pollutants and loss of care. After this systematic study, a strategy should be developed for defining the future acts for eliminating the risks including the interventions, maintenance and monitoring (COE, 1997) (COE, 1988a).

It's excavator's duty, in the supervision of the State, to provide the sufficient conservation and preservation act during and at the end of the excavation (UNESCO, 1956). In the excavations and explorations the work of permanent protection should be done immediately for the remains that will be left in situ (Carta, 1931). Remains should be reburied unless a comprehensive protection cannot be achieved (ICOMOS, 1932). Archaeological excavation is any research conducted by a multidisciplinary team, by digging the soil or exploring its surface for the discovery of archaeological objects (UNESCO, 1956). The dissemination of the results should be provided, monuments and remains should be presented clearly to the public (UNESCO, 1948).

In the 20th century, with the comprehension of the heritage items as economical profits that may reinforce tourism attractiveness, adverse effects of urbanization and mass tourism on the cultural heritage is started to be seen. In order to control these modern movements, concepts of regional and physical planning is started to be discussed in the international documents.[4] A physical planning is required also in site scale when new arrangements are needed to be done in

[4] Although with the expression historical settlements not the archaeological sites but still living historic centers are referred and the concepts discussed in town and regional planning are out of the scope of this study, the recommendations about introducing new into old surroundings are noted in order to draw inspirations and develop a sensitive understanding for the new arrangements in archaeological sites.

archaeological sites. The treats of the urbanization and tourism could be minimized with the formulation of well-conceived regulation plans, legal framework and technical infrastructure (ICOMOS, 1967). Contemporary buildings and arrangements providing the services for the visitors, presentation or other social and functional uses may be required due to their contribution to the sites (ICOMOS (et.al.), 1974). In the neighborhood of the monument, special care should be attended while constructing new buildings, planting vegetation, erecting elements of publicity, building infrastructure, pavements and other disturbing applications (ICOMOS, 1932). Decisions about the new buildings should be given after a careful analysis process of the spatial relationships (COE, 1975). The elements forming the archaeological space includes the layout of the streets and lots, relation of open, semi-open and closed areas, physical characteristics of the built area with the scale, dimensions, structural system and materials, texture and color, environment of the surrounding area with its manmade and natural components (ICOMOS, 1987) (UNEP, 1985). New additions, demolitions or alterations disturbing the harmony within the site and monuments relation with its setting should be avoided (COE, 1992) (ICOMOS, 1964).

2.1.2 Legal and Administrative Regulations in Turkey

When the Turkish regulations are studied starting from the Ottoman Period, it is seen that also the national documents don't make clear definitions about dos and don'ts.

The transformation of the interest of ancient settlements in Ottoman Empire to a scientific archaeology is the result of the systematic excavations started in 18th century Italy. A century should have passed for the development of the western concepts in Ottoman Empire (Ahunbay, 2010). Madran (2002) connects the Ottoman ignorance, lack of knowledge and unconsciousness about the history and historical edifices with the errors and omissions in the Ottoman education system. Till 1838, history of the processors of the Ottoman Empire, their artistic and cultural systems wasn't a part of the taught curriculum (Madran, 2002). In contrast to the Ottomans, European researchers were interested in the

archaeological sites in Ottoman boundaries. The interest of the foreigners was due to two reasons; as contributing to the collections in European museums with new artifacts and learning about earlier civilizations and publishing the information for scientific reasons. Consequently, ancient sites in Anatolia were discovered and started to be studied by the foreign archaeologists before their native colleagues and remains of the past brought from Anatolia took place in earlier institutionalized European museums (Kundakçı, 2002). First excavations in the Ottoman Empire were started in Egypt (1798) and in Iraq (1802) (Cezar, 1971). Many foreign excavations were conducted on Ottoman territories with the permission of the Sultanate. The findings in the excavations were moved to European Capitals and displayed in the museums (Ahunbay, 2010).

As a consequence of the westernization and modernization movements, sensibility and interest to the antiques, ancient history and archaeology among the Ottoman intelligentsia increased. Excavations by the foreign archaeologists and uncontrolled export of the antiques to European museums started to be criticized causing a pressure over the government (Şahin G. , 2007). According to Madran (2002), after 1960s, Ottoman started to be more sensitive while European excavation teams were reckless about the heritage in Ottoman boundaries. Europeans had been disapproved of leaving these valuable artifacts in ottoman territories (Madran, 2002).

As a result of the shift in understanding and the need of controlling the foreign excavations and abductions of antiques abroad, consciousness about the cultural heritage and their conservation started in Tanzimat Reform Era and the following Constitutional Monarchy Periods (Kundakçı, 2002). Heritage consciousness was started with the movable finds at the beginning (Madran, 2002). The first initiative as a museum was in 1846, by Ahmet Fethi Paşa in Saint Irini displaying the gathered collections by Sultan Abdülmecid during his journey in Yalova, in the yard of the building which was used as storage at that time (Şahin G. , 2007).

The works in this field involved the immovable assets later (Madran, 2002). In 1856, the settings of the Obelisk and Serpent Columns on Sultan Ahmet Square is cleaned and surrounded with fences (Şahin G. , 2007).

Although the assets of the foundations were being conserved for centuries, the consciousness about the immovable assets of the period was only about the archaeological remains, Ottoman Antiques Law of 1869 and its revisions in 1874 and 1884 involved only the archaeological heritage. The conservation and utilization of the archaeological immovable assets were carried out by the museums (Madran, 2002). With the attempts of Grand Vizier Ali Paşa, Saint Irini was rearranged with the items displayed and the Imperial Museum (Müze-i Hümayun) was established in 1869 (Başgelen, 2006).

Last Ottoman Antiques Law of 1906 was also used in Republic Era and had been the only law in force till 1973.

Law Nr. 2863 on the Protection of Cultural and Natural Heritage dated 1983 leaves the maintenance, repair and landscape plans of the immovable finds to the research team (KTVKK, 1983). The decisions of the research team for the requirements of the site are included with the site management plans that are prepared for 1, 5 and 10 years, landscape plans and restoration projects and submitted to the Council for the Cultural Heritage. These projects are applied after the approval of the Council (KTVKK, 2005).

Law Nr. 2863 allows arranging open and closed maintenance, conservation, restoration, exhibition, parking, storage and service areas outside the ancient settlement in archaeological sites with a permission after a survey on the construction area proving that there are no underlying remains that needs to be protected. Restoring the existing buildings and refunctioning them is also allowed (KTVKK, 1998). A land use plan is required with more detailed excavation and restoration reports and landscape and architectural application projects. In the museum of Aphrodisias, Sebasteion Hall, the sculptures taken from the excavations are exhibited. Since the site wasn’t excavated totally, the place selected for the site museum was coincided with the remains of late Roman habitation. The museum is constructed over the remains of the ancient building. Through a window on the floor, the foundations of the ancient building can be seen. The museum provides direct visual access through the large openings on the walls to the remains on the site.

2.2 Problems Facing Excavation Sites

Archaeological sites are limited in number and nonrenewable resources containing information about the theory, knowledge, method and technique of the past civilizations (Nickens P. R., 1991). These areas face a series of specific problems that need special care and extra precautions for transmitting them to the future with their full significance.

In the first stage of their existence, ruins were complete structures, likewise their contemporary successors, designed as a whole with their structural and architectural elements. Drainage systems, foundations, floors, exterior walls, floor and wall finishes, windows and doors and ornamentations capped with a roof. When the original roof of the building is partially or totally collapsed due its deficiency or an external force, other elements remain exposed to environmental conditions (Oliver, 2008). Wall and floor finishes, mosaics and wall paintings are the materials that are designed for interior conditions. Without their protective shells and layers, these materials start to crumble and deteriorate. As a result of the aging factor of time, these structures were reduced to a state that has no relation with its original function and appearance (Rizzi, 2007).

Earth and stone accumulation over the ruins provide a relatively stable environment. Substances of artifacts and architectural remains alter after staying buried underground without daylight, being biologically, chemically and physically in a different condition for centuries. These materials become brittle and need careful maintenance due to the sudden changes of ambient conditions. If the required conditions wouldn't be provided, immediate decay of these fragile materials might occur.

In the excavations of Gordion between 1950 and 1973, hundreds of wooden objects dating back to 8th Century BC, many of which were in a very good condition, have been discovered. After a decade of their discovery, in 1981, Dr. Elizabeth Simpson, who took over the interpretation of the findings observed that the wooden objects started to corrode. In order to prevent the further

damage and preserve the wooden objects, a project was implemented. Most of these wooden objects could be conserved. These wooden objects composing the largest well preserved wooden artifacts collection from the Near East are displayed in the Museum of Anatolian Civilizations, in specially designed cubicles under controlled storage conditions. The Gordion experience shows clearly that, although the underground conditions were adequate for the preservation of the remains for centuries, suddenly changed new environment might not provide the required conditions.

According to the classification made by Oliver (2008), unexcavated sites are in a stable environment under protection of the burying soil being exposed to only the long term impacts of wind, moisture and temperature, while the sites still under excavation and above ground are more valuable to deteriorating factors such as the seismic activities, lightning, extreme weather, vandalism and impacts of the animals and plants. The transition from the equivalent to unstable environment should be in a controlled way in order to prevent rapid changes affecting the materials, such as cracks on the material, shrinkage of the clay and broken bonds as a result of quick drying (Oliver, 2008).

Natural factors affecting the sites are high winds, heavy rain and snow, accumulation of water around the site, hot days and sunlight. Archaeological sites are also defenseless against the natural catastrophes as earthquakes, floods, fires and other disaster as the erosions and heavy winds. Impacts of the animals and biological growth can be counted as natural factors. Human factors are the agricultural activities, real estate activities, inappropriate interventions, vandalism and intense tourism leading parking area and infrastructure problems, distortion on the paths and rubbish.

Actual challenge of the remains starts after their excavation. Changing the balance of natural and built areas, and removing the protective earth covers over the remains excavations are one of the destructive forces in archaeological sites. The problems of exposed remains are common due to the fragility and vulnerability of the materials that have lost their protective layers. With the disappearance of the features they assess once, they lose the competence of

protecting themselves. However, these materials need special consideration and further precautions due to the intrinsic characteristics they assess.

One of the valuable materials that need special attention during and after excavation is the earthen materials. Mud brick and mud plasters are traditional materials used widely in many parts of the world especially in the areas with hot, long and dry summers since thousands of years. Material is used not only for small scale residential buildings but also for elaborate monuments decorated with wall paintings, reliefs and mosaics (French, 1987). A large number of articles and papers have been written and studies and projects no less than that number has been conducted in order to classify the earthen materials, define the causes and mechanisms of decay, and find the best preservation method through reburying to reconstruction.

Mud brick is a mixture of clay, silt and sand of required proportions mixed with water and shaped in hand or molds, left for drying under sun. Sometimes as binding materials, chaff, straw or hair is added to the mixture. The ratios and raw materials change from one region to another (French, 1987).

The adobe structures are under a pressure due to extrinsic factors such as water - moisture (humidity, precipitation, and groundwater), salts, biodeterioration, atmospheric effects (pollution) and human activity (due to visitation, improper conservation methods, vandalism). The preventive restoration and conservation interventions common to all earthen archaeological sites can be summarized as; capping and flashings on the walls, coating with plasters (French, 1987). Shelters and enclosures, reburial and site stabilization, reassembly and reconstruction, removal and relocation, structural stabilization, constituting or renewing the drainage system, conservation of finishes, biological control and use of chemicals for consolidation and inhibiting water penetration are the methods used in the restorations of earthen materials.

A care on the adobe structures should be provided immediately after the excavations. Buried structures absorb the ground water highly saturated with soluble salts. When they are exposed they lose their contented water with evaporation and salts remain and crystallize either at the surface or below the

surface. The movement of the water and salts result in cracks on the surface and within the structure. This action repeats if the wetting continues due to condensation or rainwater. It is especially critical at the bases of the walls where there is a high humidity. Rain water is also destructive for the wall tops because of erosion (French, 1987). Winds destroy the fragile structures by chipping both the horizontal and vertical faces.

Earthen architecture is common to prehistoric excavations, commonly referred as *höyük*s, tells and *tepe*s in Anatolia. After their proper documentation, for further research underneath later building levels, these structures are generally removed. However, in some cases, if the structures are architecturally, archaeologically, historically important for educational reasons or contain other valuable elements such as wall paintings, reliefs or mosaics, the need for in situ preservation emerges (French, 1987).

Mosaics are the composite surfaces including small pieces called tesserae, which may be cut stone, pebbles, terra-cotta or glass, set in mortar or adhesive materials. The layers in a typical mosaics construction is the foundation of compacted earth and large stones which are finished with several layers of mortars. The mortar used for mosaics is a lime mortar with aggregates of sand, pebbles or brick pieces and these aggregates get smaller on the surface. The application of the mosaics on the floor and the wall are almost the same, on the wall mortar and the aggregates are finer. Rarely floor mosaics are set into mud mortar and wall mosaics are fixed with bitumen or natural resin based adhesives (Severson & Ersoy, 2002).

Pilferage excavations, mechanical damage caused by tourists or cleaning, encrustation, algae and molds, temperature changes, animal feces, ground water table, water from leaking roof or condensation are among the greatest risks to the mosaics (Ha'obsh, 2008).

Mostly encountered problem of the mosaics is the detachment of the tesserae from the mortar layers. Due to the attachment of the mosaics directly on the structural elements, protections of these materials are directly related with the

preservation of the mosaics. A structural problem causes cracks and detachments of the mosaic layers (Severson & Ersoy, 2002).

When a mosaic layer is discovered in an excavation, some precautions should be taken in order to prevent the damage. Use of big and heavy tools like shovels and picks, movement and extra weight over and around the mosaics should be avoided. Displaced and missing tesserae cause further damage to the mosaic layer. After the excavations, the rapid drying of the mosaics should be refrained in order to prevent the salt crystallization on the surface of the mosaics. In order to provide the suitable conditions, a temporary shelter may be constructed (Severson & Ersoy, 2002). Without a proper drainage system, salt crystallization cycles caused by the evaporating water containing dissolved salts continue within the mosaics and the soil beneath them. Salt crystallization cycles gnaw into the surface of tesserae causing severe damage. A balanced temperature under the shelter and proper drainage system preventing water penetration and keeping the soil dry would prevent salt crystallization (Ha'obsh, 2008).

Mosaics are one of the valuable materials that need a different approach due to the fragility of the material and its presentation. Keeping the mosaics away from water and sunshine is crucial in protection. Wetting the mosaics may temporarily enhance the appearance and colors of the mosaics. However wetting procedure may weaken the mortar and cause detachments (Severson & Ersoy, 2002).

Mosaics attract the interests of the history robbers due to their economical values. When their security in situ cannot be achieved, for protecting the mosaic from the harmful effects of pillages, mosaics are moved to museums.

Wall paintings are other materials that need special attention. Wall paintings are forming a thin layer between the environment and the structural elements. Their inseparability from the architectural elements physically and aesthetically, their vulnerability and fragility and the expenses for their consolidation, monitoring and study requires an interdisciplinary approach (Park & Preusser, 1987). They are both a brittle material like the adobe structures due to the material characteristics of the plasters; and their presentation is valuable due to the artistic features they contain like the mosaics.

According to the official records of General Directorate for Cultural Heritage and Museums, by the year end 2009, there were 9272 registered archaeological sites in Turkey (KVMGM, 2009). In 2010 309 excavations were carried out including the surface explorations, museum, highway and dam salvage excavations (KVMGM, 2010). These statistics show that, only a small part of registered archaeological sites are still under scientific research. After most of the excavations, immediate measures are taken and sites are left to their fate.

It's important to understand the needs and requirements of archaeological materials due to the causes of deterioration and adopt new technologies and developments in appropriate ways respecting the value and meaning of the findings for treating and protecting them in situ. Miscalculations and inappropriate methods may cause further damage to the heritage items. Each case should be considered uniquely and the most appropriate conservation method should be applied. Regular monitoring of the structures is required for testing the efficiency of an intervention.

2.3 Presentation of Archaeological Sites

The aim of the archaeologists producing a chronological and stratigraphic reconstruction of the sequence of events has evolved into a tool for learning and comprehending ancient societies' social, economic and political habits. The knowledge acquired as a result of the excavations is no more the interest of archaeologists alone, and required to be shared with the wider public. Therefore, in the presentation of the archaeological sites, the aim is not only displaying what people can see, but making them imagine what they no longer can see (Frangipane, 2010). Interpretation and presentation of a site is required for the visitors in order to cultivate the delight, admiration and appraisal of a place (Shalaginova, 2008).

Presentation and interpretation of an archaeological site is defined in the ICOMOS Ename Charter as "public explanation or discussion of a cultural heritage site, encompassing its full significance, multiple meanings and values".

Interpretation of a sites meaning is regarded as an integral part of its conservation (ICOMOS, 2005).

The works carried in the archaeological sites, including the excavations, conservation and presentations and safeguarding, are very expensive. In order to balance the expenses with incomes, and ensure more funding, better presentation is required for attracting the public (Frangipane, 2010). Shalaginova (2008) describes the heritage presentation process as "a communication process" in order to enhance public awareness for acquiring public support in management and presentation activities (Shalaginova, 2008).

Tourism is an effective force if it can be carefully managed. Many governing institutes try to benefit from tourism and attract domestic and foreign tourists using the cultural heritage within their territories. There is mutually benefitted relationship between the tourism and the cultural heritage. For satisfying the expectations of the tourists and requirements of cultural heritage tourism, tendency and allocated time and funds for restoration and presentation of the monuments and sites is increasing. Tourism is also beneficial improving living standards of the residents. Its positive impact on the residents increasing the business opportunities, welfare and convenience, awareness of the town's value by the residents and respect of the visitors leads to increased investment on conservation and interpretation of the monuments and on the environmental and architectural issues (COE, 1989).

However, tourism may also become a destructive force. The conclusion text of International Colloquy on Tourism and Leisure in Rural Areas in 1988, pointed out the two adverse effects of tourism as the destroy of the fast and uncontrolled development on natural settings and unbeneficial form of tourism [mass tourism] that has no income and profit for the host village and local people (COE, 1988b). Negative effects of tourism such as the overloaded tourism affecting the infrastructure of the ancient city including traffic, garbage, and pollution, damage to built and natural environment should be managed carefully (Nickens P. , 1999). In the Charter for Sustainable Tourism adopted in the World Conference on Sustainable Tourism held in April 27-28, 1995 in Spain, the fragile and non-renewable character of the resources is emphasized and the need for a

balanced and sustainable cultural tourism, respecting to the sources on the danger of extinction, instead of mass tourism is mentioned.

Presentation of the archaeological remains cannot be considered without their location and natural surroundings. International Cultural Tourism Charter on Managing Tourism at Places of Heritage Significance in 1999, definition of heritage is broadened including the natural environment and intangible practices as a whole. The conservation and revitalization understanding of archaeological sites is mostly based on presentation of the preserved remains of structures as individual historical and cultural objects without any interaction with their immediate and wider surroundings. The meaning of a building in its natural setting is no different than an archaeological object in its context. Hodder and Scott (2003), explain the relation of a material within its context in their book "Reading the Past" with these words: "The cultural relationships are not caused by anything else outside themselves. They just are. The task of archaeologists is to interpret this irreducible component of culture so that the society behind the material evidence can be 'read'. How does one go about such 'reading'? It is often claimed that material objects are mute, that they do not speak, so how can one understand them? Certainly an object from the past does not say anything of itself. Handed an object from an unknown culture archaeologists will often have difficulties in providing an interpretation. But to look at objects by themselves is really not archaeology at all. Archaeology is concerned with finding objects in layers and other contexts (rooms, sites, pits, burials) so that their date and meaning can be interpreted. As soon as the context of an object is known it is no longer totally mute. Clues as to its meaning are given by its context." (Hodder & Hutson, 2003).

Erecting protective shelters over remains are preferred due to their contribution to the tourism of an archaeological site by offering visitor's comfort and ease of interpretation as well as the conservation aspect (Roby & Demas, 2012). However, construction of different protective structures over remains is also criticized due to their interruption of the site, prevention of the view of its authenticity, entirety and obstructing sites bygone appearance, real values, meanings and relation of its various functions (Roter-Blagojević, Milošević, & Radivojević, 2009).

2.4 Inherent Characteristics of the Remains

The "concept of cultural heritage" referred as "monuments and sites" in the Venice Charter has been expanded also covering "groups of buildings, vernacular architecture, and industrial and 20th century built heritage" in the last fifty years and combined the natural and manmade heritage with the concepts of "historical gardens, cultural landscape and natural heritage". Dealing with the social aspects of the subject and questioning the identity, the concept has been broadened comprising the intangible values for a better understanding of cultural identity, creativity and diversity (Bouchenaki, 2003).

The information within the site is both in physical and non-physical form. The remnants plan layout, form, dimensions, construction materials and techniques and movable artifacts contain the physical form of information which can be seen, touched, analyzed and compared while descriptive information recorded in historic books, traces contained within and carried by the architecture and the interrelation of the remains with each other and the natural surrounding is the non-physical form of information that reflect the living traditions and customs, construction processes and values of the habitants (Yulin, 2008).

Transmission of the information depends on the personal interests, experience and knowledge. Yulin (2008) defines "heritage values" as the "people's overall views and behavior about the heritage". What people understand about the cultural heritage and how they treat it depends on these values. The different attitudes of general public, governments, archaeologists and other specialists towards the heritage items is shaped through their education, special interests and knowledge.

Concepts studied in this part of the study include the non-physical aspects on the interaction of the historical assets and the audience, depending on his knowledge and experience on the remains. Inherited values comprising the significance, authenticity and spirit of place are the notions which have been stated in many international documents and widely influenced the practice of conservation. The aim of the conservation is not only preserving the physical -

tangible qualities of an asset. The spiritual - intangible characteristics should be conserved with the monuments. To make the topic more concrete, Terrace Houses of Ephesus might be given as an example. In material aspect, these were constructions made of bricks and stone, ornamented with marbles, stucco and mosaics. Expanding the subject with the social aspects, these were the houses of rich people, built over terraces in an adjacent order and used for centuries. Architectural quality of public and private spaces, ornamentations reflect the living customs and traditions of the period. Construction materials and techniques have traces of the technology and knowledge of the period's craftsmanship and the creative process of monuments. Scenes depicted on the walls, motifs and pattern on the floors, figurines used for ornamentation reflect the artistic sense of the period. Moreover, current conditions of the monuments are due to the affects of nature and time after their abandonment. Without the information of what is conserved, and how important it is, necessary precautions cannot be taken. Therefore comprehensive value and significance assessment is critical while making decisions about the future of a cultural heritage. It is one of the primary steps before determining the conservation policy (UNESCO, 1994). The policy concentrated on the material values may "lead to a dead end" and turn the monuments into "museum objects" without the comprehension of their spiritual message and inherited intangible values (Petzet, 2003).

Although it seems a complex issue, Davis (2005), clarifies the place and its inherent characteristics in five titles as the sense of location, physical form, change, inhabitants and viewers (Davis, 2005). Firstly, a place has a sense of location. The position of a place on the earth cannot be changed. The geographic location of a place has influences on its topography, climatic conditions and natural setting. Secondly, a place has a physical form constituting its appearance. The physical tissue of a place is the combination of its natural and built environment. Thirdly, all the places change. History of a place is written observing this transformation. Changes in the places due to the internal and external factors, does not always end with the lost of their identities. Fourthly, places are identified by the human that live over them. The cultural habits, composition of their communities, functions as a result of their rituals influence the meaning of the places. And finally the criteria people develop in identifying the places depend on their personal histories and lifestyles.

Orbaşlı (2008) defines conservation as the sustainable management of change. Conservation includes the comprehension, safeguarding and if necessary maintenance, reparation, restoration and adaptation of a historical property in order to provide the protection of its significance. It is not only an architectural concern, but also a social and an economical issue, involving the history of an edifice, present day needs and requirements and future sustainability judgments (Orbaşlı, 2008).

2.4.1 Significance

Significance is the nonphysical wealth of a cultural asset which makes the concrete entity be worth of protection. According to Orbaşlı (2008), 'significance of a building or place of historic, architectural and cultural importance is its most defining value, the loss of which will devalue its cultural significance' (Orbaşlı, 2008)

In Burra Charter significance is defined as the 'aesthetic, historic, scientific or social value for past, present or future generations'. Places of significance help understanding the past embellish the present and will be important for the posterity. While making the assessment of cultural significance studies of various disciplines is required. All the information about the place and its fabric such as its historical development, the functions and the relations between its components should be collected. (ICOMOS A. , 1999).

The preservation and presentation technique chosen for the cultural asset is critical in the continuance and enhancement of the significance. Burra Charter defines conservation as 'the processes of looking after a place so as to retain its cultural significance and interpretation is all the ways of presenting the cultural significance of a place' (ICOMOS A. , 1999). According to the Norms of Quito, accepted in 1967 by the Organization of American States, the proper exhibition of the cultural heritage within its context and environment must be ensured in order to provide its conservation, prevent deterioration and demolition and to enhance the public awareness and its significance, (ICOMOS, 1967).

In order to assess the significance of a site, its specific values should be determined.

2.4.2 Value

Values of a place are related with its natural and cultural setting, physical fabric, function and social and economic context attributed by people with various backgrounds. These are the projections of significance of an asset that it gained when the time it was in use and within the time it has aged. Values may be tangible or intangible and vary according to different social and cultural groups. Thus it is not possible to determine a series of criteria acceptable for everyone (UNESCO, 1994).

According to the Burra Charter, aesthetic value embraces the physical perception of an object recognized and interpreted through one or more senses such as its form, scale, material, color and texture and the smells and sounds associated with it. A place may have historical value because it has influenced or witnessed an important event. Scientific or research value of a place depends on the information it involves. The information being rare, typical, illustrative or finely conserved is didactic and may contribute to further studies (ICOMOS A. , 1999).

In Burra Charter social value is defined as 'the qualities for which a place has become a focus of spiritual, political, national or other cultural sentiment to a majority or minority group' (ICOMOS A. , 1999). A cultural asset may have various social values for different social groups.

Although the terms cultural value and heritage value were used many times in international terminology, 1992 ICOMOS Charter for the Conservation of Places of Cultural Heritage Value defines cultural heritage value as 'possessing historical, archaeological, architectural, technological, aesthetic, scientific, spiritual, social, traditional or other special cultural significance, associated with human activity' (Madran & Özgönül, 1999).

The categories of values may be developed according to the character and significance of the remains or sites. Technical value (CIAM, 1904), architectural

value (UNESCO, 1968), archaeological value (COE, 1966), contextual value ((ICOMOS, 1983), prestige value (COE, 1991), spiritual value (CSCE, 1991), environmental value, symbolic value (UNEP, 1989), financial value (COE, 1996) are the values attributed by various international documents focusing on different aspects of the importance of cultural heritage.

A specific value of a cultural asset can be accepted as the primary value, however other values should also be considered. Heritage should be treated inseparably with its integrity. According to the Conclusions and Recommendations of Workshop on the Methodology of Studying and Presenting the Spatial Development of Historical Buildings and Towns adopted in 1988 'the value of an architectural entity is its entire building stock - monumental and modest buildings and open areas defined by them, the preserved and the destroyed buildings, the exposed and the covered, those known and those yet to be discovered through future research' (Madran & Özgönül, 1999). A part or component of the heritage should not be cut loose from its context. An archaeological site is perceived as an entity; isolation of a part of the site may distort the perception and diminish the contextual value.

2.4.3 Authenticity

Notion of authenticity emphasized on the physical qualities of the edifices started to be discussed in 18th century Europe. SPAB Manifesto, criticizing the stylistic restoration of the period without the respect to the historical background, is a reflection of the question started to be discussed in the conservation documents (Morris, W. (et al.), 1877) (Kwanda, 2007). Venice Charter, is the first document using the word authenticity, recommending the transfer of historic monuments to the future generations 'in the full richness of their authenticity' (ICOMOS, 1964), not describing the components forming the concept. In UNESCO's first Operational Guidelines for the Implementation of the World Heritage Convention of 1977, authenticity in design, material, workmanship and setting of a property were described as the criteria for selection. ICOMOS (1987), recommends not threatening the urban patterns, relationships between built and open places, physical appearance of the buildings and the functions in order to conserve the authenticity of an historical setting (ICOMOS, 1987).

Nara Document is a first adding the intangible values in the concept of authenticity referring use and functions, traditions, spirit and feelings (UNESCO, 1994). Definition of authenticity in the WHC Operational Guidelines is updated in 2005, adding the phrase 'language, and other forms of intangible heritage'.

Archaeological remains are "dead monuments" that have lost their practical use, defenseless to weathering conditions and aging of time in an accelerating decay close to their final disappearance, "between architecture and nature" (CIAM, 1904). Their original state is unknown. Any interventions to these sites change their intrinsic values, causing the architectural evidence and authenticity lost (Rizzi, 2007). Their present state is firstly damaged with the archaeological excavations. In order to protect them as found, they are replaced, relocated, reerected and reconstructed. Rizzi calls them made-up ruins, where modern additions compete with original materials in quantity (Rizzi, 2007).

In order to conserve the authenticity of an archaeological site, the significant components should be determined such as the natural landscape, standing manmade setting and its relation with the other remains, original fabric, relationship in between the open and built areas, street patterns, traces of the milestones in the history of the site, and its educational and scientific potential. Threats to any component would destroy the overall perception of the site. The authenticity of an archaeological site lies behind its fragility, incompleteness and transiency. The authenticity of an archaeological site is easily lost; therefore the interventions in an archaeological site should be limited to preserving it as it is and preventing further decay. The right response to a ruin site is keeping them in their present state in order to prolong its existence not as architecture but not being nature yet (Rizzi, 2007).

2.4.4 Spirit of Place

2008 ICOMOS Declaration of Foz Do Iguaçu defines spirit of place as the 'interaction between the material and intangible components of natural settings and/or of those built by humans'. Geographic and natural features, significance attributed by the societies, the development of the place and its relationship with

the fabric, the built environment, functions of the place or its components are the elements constituting or influencing the spirit of place (ICOMOS, 2008).

Petzet (2003), in his introductory lecture at the ICOMOS Symposium in Zimbabwe, "Place, Memory, Meaning: Preserving Intangible Values in Monuments and Sites", identifies the spirit of places with the words of Walter Benjamin, as the "trace" of time and "aura" of each monument and site even if it no longer exists or its hardly recognizable as "historic fabric". "The authentic spirit of a monument and site" is meaningful in its particular place, surrounded with its certain environment. In this particular cultural landscape with the time leaving traces on the construction makes it a monument (Petzet, 2003) that is worthy of preservation.

CHAPTER 3

PROTECTIVE STRUCTURES IN ARCHAEOLOGICAL SITES

After the excavations architectural remains are treated with various interventions according to their condition and desired dissemination. Preserving and presenting the remains in situ, in their original environment and context is the best way for maximizing their values and benefiting from them. Protective structures are one of these methods that allow the presentation of the site while providing control over deterioration factors. Early protective structures constructed in the archaeological sites, types of protective structures and important cases all around the world are studied in this part.

3.1 Approaches and Implementation of Protective Structures in Conservation

There is a wide number and variety of the protective structures all over the world for the purpose of protection, yet more some of them are still at the idea stage waiting for the decision or required budget, in different forms, materials and sizes ranging from small huts and metal pavilions to bulky concrete structures and high-tech steel trusses and tensile structures (Roby & Demas, 2012). Wide range of classification exists in the literature for sorting the protective structures based on material characteristics of ruins, material and scale of the protective structures, enclosure area and being temporary or permanent.

In this study two main classifications are defined as shelters and enclosures. Shelters are open-sided structures with a roof on top. Open-sided shelters may be efficient against the direct impact of rain and snow. Further precautions should be taken against wind, rain and dust carried by wind and surface water (French, 1987). Enclosures are designed for preventing the lateral impacts of the natural forces wrapping the structures in all sides and isolating them from the rest of the site. Enclosures give the opportunity of weather control, providing

interior conditions for the remains although it is more complex than the museums and existing buildings (Aslan, 1997).

The application of protective structures is commonly encountered all over the world including the archaeological sites in Turkey. In Turkey there are currently more than 50 sites with 75 structures for the protection and presentation of the architectural remains in archaeological sites of prehistoric and classical periods. The wide uses of protective structures bring to mind that, there are applications more than the estimated number that are not came out with a publication nor appeared in the resources browsed by the researcher. So far detected structures are included in the form of a list in the appendix section of this study (see Appendices).

One of the earlier attempts to protect a remain by building a modern structure was the protective shelter over the ruins of Casa Grande, Arizona in 1903 (Rizzi, 2008)(Fig. 3-1-2). The adobe building was constructed between 1200 and 1450 AD by the Native American Hohokam people (Rael, 2008).

Fig. 3-1: Casa Grande Ruins (1902)

Fig. 3-2: Temporary Protective Shelter

The structure was composed of timber posts embedded into the ground, supported by iron cables on the corners and covered with corrugated iron roof panels. The timber structure was replaced in 1932 with a hipped metal roof supported by steel trusses over four angler pillars (Fig. 3-3). There are openings on the roof standing about 14 meters away from the ground. Shelter designed by Frederick Law Olmsted Jr. was attempting to have an incongruous structure different from the ruins in terms of its material and design and forming a hierarchical order with the remains being in the foreground rather than blending with them (Fig. 3-4), (Rael, 2008).

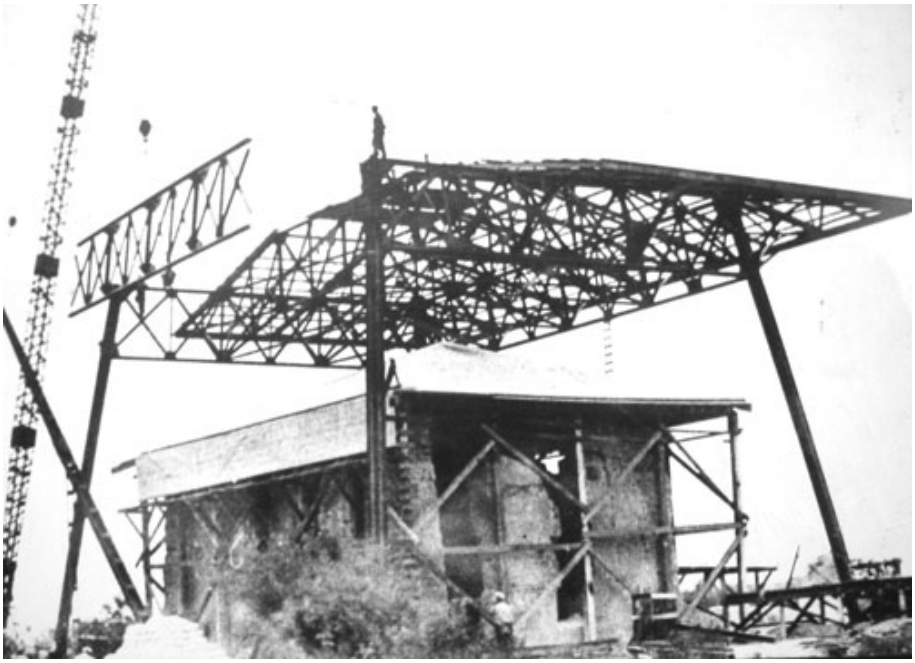

Fig. 3-3: During the Construction of the Modern Structure (1932)

Fig. 3-4: View of the Structure

Fig. 3-1-4 Source: (Rael, 2008)

One of the earliest examples of enclosures is the Villa del Casale in Piazza Armerina, Sicily (Fig. 3-5). Modern structures were designed by Franco Minissi in accordance with Cesare Brandi in 1957. It is a transparent reconstruction of the

original buildings derived from the archaeological researches (Rizzi, 2008) (Fig. 3-6).

Fig. 3-5: Reconstruction Drawing of Villa del Casale

Fig. 3-6: Aerial View of the Protective Enclosures

Fig. 3-5-6 Source: http://www.unipa.it/monumentodocumento/

The experience of the glass houses had proved that, modern structures also need maintenance. Due to some inaccurate interventions and the nature of the construction materials the protective structure doesn't provide necessary conditions for the remains and harm them with its side-effects. The metallic

supports started to corrode; glasses and plastic sheets went yellow. Steam and glare on the glasses and uncontrolled shadows hardens viewing the remains and it is not possible to control the microclimatic parameters such as the temperature, condensation and relative humidity with a transparent structure (Rizzi, 2008). Currently a new structure is being constructed replacing the Minissi's design.

Examining the cases, a sub classification occurs for protective structures as providing a temporary or long-term protection, although neither of them is designed for eternity. The estimated time of protection has a strong influence on the design, material selection and the budget of the project. Temporary structures are offering protection during one or more excavation seasons, at the end they are either totally removed or replaced with a permanent one. They are urgently built requiring smaller budgets and used for minimizing the destructive effects of weather on the remains and the excavators. Heavy rain hardens the excavation of a site and causes the traces to be lost. On the other hand, under the controlled weather conditions provided with the protective structures, remains "mature" and textures and colors become distinguishable (Barker, 1986).

Temporary precautions are generally the results of snap decisions for the conservation problems that emerge all of a sudden during or following the excavations. Easily and abundantly available materials are used considering the insufficient budgets of the research projects against the specific problems (Roby T. C., 1995). Unfortunately, the temporary precautions generally stay on the site for long times than estimated and become permanent due to lack of funds for better solutions or their terms never come because of the short-time campaigns.

Permanent structures are generally designed according to the short-term incomes of the temporary structures built on the area and other in situ interventions. Permanent structures are offering protection for relatively longer periods. After regular monitoring and analysis efficiency of the protective structures over the conditions for the preservation of the remains may be understood. According to the incomes of the studies examining the temporary structures on sites, there are three decisions that can be made. Temporary

shelter is removed, shelter would stay in place with renovations or a new structure satisfying the required conditions may be designed. An example of a temporary structure that turned into a permanent one is at the site of Caesarea, Israel which was the 'hexashelter' built for the preservation of Orpheus Mosaics in 1989 but remained in place with some alterations (Fig. 3-7), (Getty, 2009). The aluminum frame shelter with textile side covers and roof was selected for its ease to erect, lightweight requiring minimal foundations and modular design to expand in the future. When the shelter is decided to be removed, it may be easily without any destruction and an evidence of its existence. The shelter was centralized over two points, one on the Orpheus Mosaics and the other on the Herculaneum and Amazon Mosaics. The original side panels with polyethylene aerotextile fabric were renewed in 1990 with impermeable tri-laminated vinyl material against water (Fig. 3-8), (Agnew & Coffman, 1991).

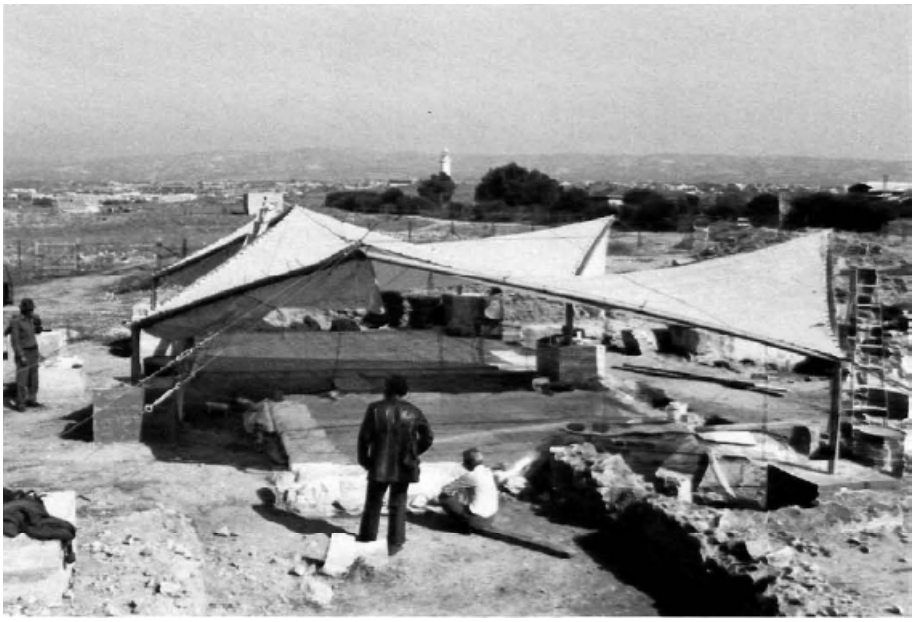

Fig. 3-7: Construction of the Shelter, Orpheus Mosaics on the Foreground (1989)

Fig. 3-8: Hexashelter in Israel
Source: http://www.getty.edu/conservation/field_projects/mosaics/mosaics_component1.html

One of the earliest applications of protective structures in Turkey is the temporary shelter built over the remains of a late Hittite Castle in 1952 and replaced by permanent Karatepe Eaves designed by Turgut Cansever in 1961. The information about the remains and shelter are given in detail under the title of "Protective Structures in Turkey" in this study.

Another early attempt to protect a ruin by a modern structure is in Konya over the mound called Alaaddin Hill (Fig. 3-9). Underneath the reinforced concrete shelter a wall with two consoles belonging to a Seljukid Palace called Kılıçarslan Kiosk is protected. A scientific study was conducted around the remains of Kılıçarslan Kiosk in 1941 by Turkish Historical Society under the directorate of Prof. Dr. Remzi Oğuz Arık. A cover for protecting the remains against weathering conditions was decided and first restorations were conducted by the same research committee. In 1956 the permission for building a protective structure could be taken and the shelter, designed by an architect from General Directorate of Ancient Arts and Museums MSc. İhsan Kıygı, still standing at the present day was constructed in 1961 (Akok, 1968).

Fig. 3-9: Alaaddin Mosque and Seljukid Kiosk
Source: (Özcan, 2009)

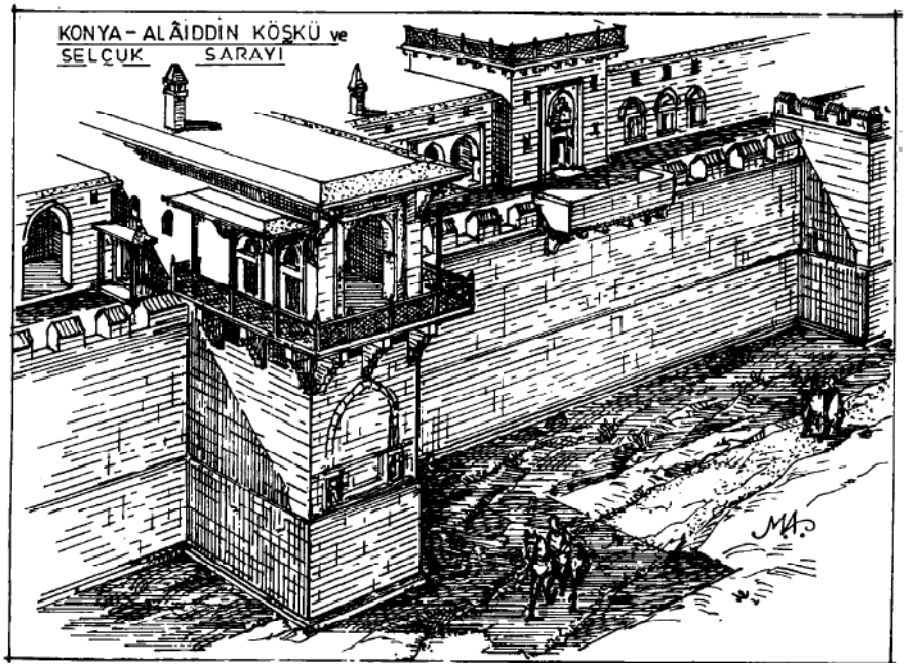

Fig. 3-10: Restitution of Alaaddin Kiosk by M. Akok
Source: (Akok, 1968)

M. Akok (1968) suggests that, although protecting with a canopy is a good decision, it is not reflecting the significance and suggests reconstructing the *cihannüma* - pinnacle for making the remain meaningful and imposing (Fig. 3-10) (Akok, 1968). The reinforced concrete canopy was corroded in the recent

years. In 2007, Metropolitan Municipality of Konya had applied Council for the Preservation of Cultural and Natural Heritage for the restoration but Council rejected the project and suggested repairing the canopy over the remains (Livaneli, 2007).[5]

Protective structures differ in size and mass covering a single remain to a whole site. Archaeological site of Alexandria Troas in Gülpınar has one of the smallest protective roofs in Turkey. The structure over a statue base with inscriptions is covering an area of 1 m^2. The roof covered with green asphalt composition roof shingle stands over wooden frames nailed around the base (Fig. 3-11).

Another example for the small size protective covers is in Hattusa for the protection of the hieroglyphic inscriptions on the stone walls of the cult chamber built by Šapiluliuma II around 1200 BC. The remains are used as vertical elements and iron sheeting was applied over for preventing the direct rain. In order to protect the remains from human destruction remains are circled with iron fences avoiding physical contact and assuring visual access (Fig. 3-12).

[5] The project is mentioned as a restoration project by the Municipality, however when the project is analyzed it is the reconstruction of the remains in accord with the restitution drawing of M.Akok. The decision of the Council was misperceived as an interest to the canopy rather than a sensibility for the remain and caused some raised eyebrows. Recent news about the subject shows that, the reconstruction project is accepted by the Council and will be conducted in the following days. Details of the subject may be found in the website of the municipality.

Fig. 3-11: View of the roof in Alexandria Troas

Fig. 3-12: View of the cult chamber with the protective additions

In prehistoric sites commonly with extremely fragile mudbrick remains protection against weather becomes crucially important. Şapinuwa, Hittite city at a distance

of two days from Hattuşa in Çorum, is one of these sites where the protective structures are covering the whole area. Easily built protective structures is the solution found by the excavation team against weathering factors and developed by trial and error (Personal communication with Mustafa Süel, June 22, 2010). The iron truss roofs are covered with corrugated iron sheets that are replaced with transparent glasses for giving visual access in the areas where circulation is over the roof level. Light superstructure with slim vertical elements doesn't require bulky foundations. Concrete foundations of the structure stand over the ground without destructing the underlying layers and making the removal easier. At the beginning of each season, maintenance of the structures is carried out. During the excavations when new remains are explored, structures are erected for the protection of the earthen materials using the same technology of the previous shelters (Fig. 3-13). When the site is seen from a distance and within the site perception of the remains is all but impossible with the shelters covering all over the site.

Göbeklitepe, the world's first temple dating back to 9600 BC, is another example of the prehistoric sites covered with protective structures where the rectangular trenches are used as modules. The vertical elements of the protective covers are built over the accumulated soil in between the trenches. Additions always with the same material following the modern grids seem habitual within the site with an impartial approach. The height and form of the structures doesn't differ with the underlying remain. They stand as a neutral element within the site while satisfying protective concerns (Fig. 3-14). In Göbeklitepe there is a preparation for a permanent protective structure. Salvage excavations are conducting for deciding and preparing the places of the foundations.

Fig. 3-13: A view of the temporary shelter in Şapinuwa

Fig. 3-14: A view of the temporary shelters in Göbekli Tepe

Source: http://toplumvetarih.blogcu.com/gobekli-tepe-goruntuleri/9761624

Protective structures are used extensively in historic preservation not depending on the belonging period of the remains, mass of the remains and ancient functions of the buildings. There are remarkable worldwide cases for protective structures that generate questions about the impact of the modern additions to the site. As generally referred, protective structures are preferred due to their clear understanding in differentiating the old and new, providing the required weather conditions. However, these structures aren't suitable for each remain. A metallic protective canopy was built over the amphitheater in the ancient city Heraclea Minoa located in the Province of Agrigento, Sicily in order to preserve the sandstone structure (Fig. 3-15-16).

Fig. 3-15: View of the Theater

Source: http://www.danonnarosa.com/eng/foto.php?sezione=3

Fig. 3-16: View of the Protective Shelter
Source: http://www.travellingsicily.com/sicily-from-inside/24- mediterranean -coast

The canopy following the form of the theater reveals the remain before exploring underneath the roof however changes the aura of the amphitheater itself. Locations of the theaters are selected carefully within the sites offering the spectators an amazing panorama. Striking panorama of the theater, the picture of the relation between the natural and built environment, was interrupted by the roof spoiling its relation with the natural elements.

Another kind of modern additions in archaeological sites is the buildings for movable findings. In case of Magnesia, the column capitals are moved and stored under roofs constructed by the excavation team. These are the valuable building materials in archaeological sites which needs extra precaution against weathering factors since the day they wait for the decision about their future.

In case of Saint Nicholas Church in Demre, due to the inadequacy of the structures or further requirements of the building, more than one protective structure is built for the preservation of the edifice. These structures built in different times with various materials form a roof complex over the structure and prevent the viewing of the historical building (Fig. 3-17).

Fig. 3-17: A view of the protective structures over Saint Nicholas Church

Protecting the archaeological sites with specially designed buildings is taken seriously worldwide in the recent years. The designs of reputable architects protect the remains of the past in archaeological sites.

The Vesunna Gallo-Roman Museum, France is built after a competition. Jean Nouvel is the designer of the protective structure. The remains of a Gallo-Roman residence are covered with a steel and glass construction. The wooden platforms and walkways that are going all around and above the ruins are guiding the visitors in the house and describing the daily life of the inhabitants. On the ceiling mirrored floor plan is drawn (Fig. 3-18-19) (ArcSpace, 2003).

Fig. 3-18: Vasunna Gallo-Roman Museum

Fig. 3-19: Mirrored Floor Plan is drawn on the Ceiling

Fig. 3-18-19 Source: (ArcSpace, 2003)

Another protective structure designed by a well-known architect is the cubicles by Peter Zumthor for the foundation remains of Roman buildings in Chur. The enclosure is also arranged as a museum for the small findings. The lightweight construction follows the outline of the ancient buildings is covered by wooden blinds (Fig. 3-20). Three buildings are connected to each other with a metal bridge at the estimated level of the original floor. From the two large openings on the street level, interior of the structure can be viewed without entering the structure. From the holes left on the roof and the permeable walls ventilation and illumination of the structure is provided. There are electrical appliances inside the structure for artificial lighting. With the help of the switch turning on the lights inside the structure placed beside the windows, night viewing is possible. The structure provides the security of the architectural remains and the movable objects presented inside (Fig. 3-21).

Fig. 3-20: Cubes of Zumthor in Chur

Fig. 3-21: Inside the protective structure

Fig. 3-20-21 Source: http://de.wikipedia.org/wiki/Schutzbauten_Welschd%C3%B6rfli

Although the cases protected under modern structures require specific conditions according to climate and topography, nature of the materials and objectives of interpreted features, there are a number of general requirements that each should fulfill. These are the efficiency of the protective structures in conserving the remains, the need to avoid further damage to the remains and underlying layers and compatibility with the remains and the settlement (Frangipane, 2010).

Although it is impossible to generate a structure that fulfills all the constraints perfectly and is widely acclaimed by the scientific authorities and public, there are some considerations that should be deemed during the construction process. A protective structure should minimize deterioration while not interfering with the authenticity of the remains and site, preserve the remains without restoring or completing all its elements, provide a secured area while not changing the relations within the site and perception of the archaeological fragments (Rizzi, 2008) and be distinctive but not incongruous with its design being the modern contribution over the testimony of the past. In order to maximize the efficiency of the structure, before construction, environmental analysis and determination of decay factors should be made. Designs of the shelters should be developed

based on these analyses taking into account the physical, aesthetical and financial considerations, interpretation and presentation purposes. If possible, the compatibility and efficiency of the structure may be tested with a model on the site over test walls and areas. After the construction, in order to observe the impacts of the shelter on the site, environmental and physical conditions within and outside the shelter should be monitored (Oliver, 2008).

With the miscalculations or the natural catastrophes, protective structures collapse harming the remains underneath or resulting in a different disaster. The shelter over Akrotiri's Minoan city was erected in 2000 as a temporary structure. Shelter was designed constituting a single space for the earthen remains of the prehistoric site. Inline of the roof compatible with the topography has a flouting appearance providing natural light on the intersection points of the roofs (Fig. 3-22). The shelter was collapsed partially in 2005 causing the death of a visitor. Till the works on roof in 2011 the site was closed to visitors.

Fig. 3-22: Modal Section of the Shelter in Akrotiri, Thera
Source: Doumas, C.

3.2 Design Criteria for Protective Structures

New building over the remains may contribute, as well as make harm, to the interpretation, significance and conservation of the heritage with its lay out, physical features, mass and materials. The design of the building is shaped in respect to the site, local conditions, available resources and the context.

Under this topic, there are three classifications of design process from general to specific. The outer ring constitutes the criteria which are common for the design of every type of new building. The middle ring is the problem of construction in an archaeological site. It needs extra concern due to fragile and nonrenewable nature of the workspace. The inner ring is the case-based approach. Local features of the site, material needs and the requested presentation change case to case.

Ching (2007), defines the art of creating architecture as a problem solving or design process (Fig. 3-23). The existing situation can not satisfy the needs and a new set of solutions should be defined in order to reach the desired condition (Ching, 2007).

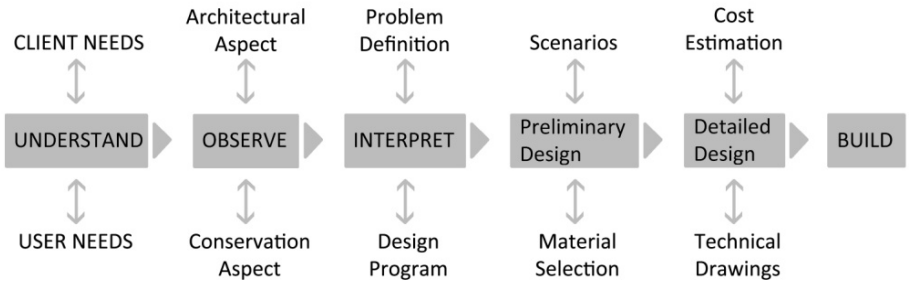

Fig. 3-23: Process of Design

The very first step of an architectural design process is the recognition of a problematic condition and consultation with an architect to solve the problem (Ching, 2007). In case of an archaeological site, client may be the Ministry of Culture and Tourism or excavation team at the helm of the excavation director responsible to the Ministry. The needs, desires and concerns of the client are in priority for an architect. The area of the design and subject matter are the

archaeological site and remains requiring extra precision. Targeted users are the excavation and conservation teams, researchers and tourists.

Second stage is the observations including documentation of the existing conditions of a problem and collecting the relevant information for the analysis (Ching, 2007). These are preliminary and field investigations for defining regional and site-specific features and developing a conceptual model of the site. Preliminary investigation is a comprehensive review of the available literature and existing field data related to the site and remain including the archaeological study, collection of climatic, seismic and visitor data and information about the possible natural disasters. Topographical and climatic features and site accessibility were critical factors in the location selection of the first settlement, archaeological data should be reviewed for understanding the development of the site (Ashurst & Shalom, 2007). The plan organization of the site should be studied with the reconstruction drawings in order to comprehend the original relationship of the structures within the site. For construction planning, environmental assessments, determining surface and groundwater levels climatic data should be obtained including relative humidity, temperature, sunshine hours per day, radiant heat, precipitation, water movements, seasonal winds, wind direction and velocity. Information regarding earthquakes should be taken into consideration. Since the archaeological sites are generally once destroyed by natural catastrophes such as the earthquakes, volcanic eruptions, flooding, avalanches and landslides, the same hazard may repeat within the area.

Field investigation is the site survey including topographical, boundary, geological and geophysical analysis. Site surveys include the drawings of the existing structures. Mappings help determining the weathering factors. Detailed surveys on the topography of the design area and site are required for resolving the drainage problems. Topography of the site affects the site climate. Its elevation above sea level, orientation, nearness to sea, hills and valleys, surface features and slopes are critical in the design. Archaeological sites are stratified areas including remains in different cultural layers. Geophysical surveys provide information about the non-visible elements on a site and reduce the required amount of costly excavation (Ha'obsh, 2008). Mapping buried underlying and

neighboring structures and artifacts are critical in placing the foundations and deciding on the future of the excavations.

Third stage, interpretation is the processing of the collected information. Problems of the site and remain, limitations in design and features wanted to be highlighted are defined and technical limits, goals, objectives and policies to meet those requirements are developed in this stage. This stage is critical since the solution highly depends on how the problem is understood, described and expressed (Ching, 2007).

Forth stage, preliminary design include the sketches, layouts, conceptual and schematic drawings, material selections and preliminary cost estimation based on the previous stages.

Fifth stage is the last phase of design process prior to initiation of the construction. In this stage preliminary sketches are developed into a set of working drawings and specifications so that construction details and costing may be finalized.

The contribution of the new design to the excavations, preservation and presentation of the site is important. Protective structures may include other functions or be part of a site arrangement with the buildings used for visitors or administrative services, paved and unpaved trails and parking areas, utility services and developed landscapes. Construction of a superstructure requires a multidisciplinary work of archaeologists, engineering consultants and architects.

Once the structure is constructed interior environment should be monitored with a control placed outside the structure. Monitoring of mosaics, underlying soil and interior environment in terms of temperature variations, relative humidity, observation of wetting from condensation or water penetration, water evaporation and salt efflorescence and efficiency and impact assessment of lighting and ventilation should be made.

3.2.1 Function

The conservation approach of the subject constitutes the main purpose of the protective structure as providing the essential conditions for the preservation of the remains. Material analysis, monitoring of the findings after exposure and efficiency of the previous interventions are the primary sources in the decisions of the new structure.

The museological approach regards the protective structure as having a role in revealing and presenting the values of the remains (Roby & Demas, 2012) that constitutes the secondary aim of the structures. In the case of presentation, exhibition of the remains, visual perception, number of visitors, services provided and activities prepared for the visitors within the shelter and impact of the new function over the remains should be studied carefully. Circulation of the visitors should be planned with a scenario while providing the interpretation of the remains. While deciding about the presentation, limiting the number of visitors inside the building, taking the tourist groups into account with a guide should be considered. The time interval they will spend in the building, efficient inner flow, services and other facilities offered for the visitors such as the information panels, walking paths, welcoming and exhibition centers also contribute to the interpretation of the archaeological site (Roby & Demas, 2012).

In some cases, the protective structures are built on the unexposed portions of the site. In this case, structure also protects the undergoing excavations. Although the ground of the structure is previously studied on estimated maps, by discovery excavations, drilling and non-destructive methods, the condition of the artifacts are generally unknown. The protective shelter should be adaptable in the unpredictable conditions. Excavations' privacy should be achieved while satisfying the interest of the visitors.

As being the latest addition of the modern era, these structures have a final purpose in terms of architectural approach. The structure is a contribution of time to the stratigraphy of the site. Being the final layer, structures respect to the cultural meaning and context of the archaeological site is what makes is unique and site specific.

A list of criteria derived so far related with the function of these structures is formed as follows.

- Supply the water drainage
- Protect the remains against environmental conditions and biological threats
- Protect against man and nature originating threats
- Control all kinds of water related cycles
- Protect the ongoing excavations
- Appropriate inner circulation for the safety and interpretation of the remains
- Security and safety of the remains and the visitors
- Reduce the effects of sudden environmental changes
- Contribute to the presentation and interpretation

3.2.2 Appropriate and Sustainable Technology

Flexibility and Change

Adaptation, expansion or removal of the structure in the future without any damage to the site and the remains it cover is important. In case of the unpredicted finds during the excavations, or sudden changes in the climate of the site, structure should be modified in accord with the new condition requirements. New discoveries around the structure may require the erection of new protective structures. Expansion or removal of the existing structure or generating a relation with the new structures should be planned before its construction.

The footbridges and information panels inside the structure should also be adaptable in case of the unexpected discoveries within or around the structure. The accessibility of the walkways for all the visitors should be provided with well illuminated paths, ramps and safety bars. Adequate signage is required inside and around the buildings.

Sustainability and Economical Issues

Appropriate material selection, preferably locally available and abundant materials, employment of local workman may limit the expenses of transportation and future maintenance. Uses of self cleaning, repairable and easily replaceable materials are critical for limiting the operation costs. Due to the construction of the building on a natural site, preferably renewable or recycled, non-toxic, environment friendly materials compatible with the original material should be chosen.

Ventilation, air conditioning, lighting selection is important for the presentation of the remains and comfort of the visitors. Preferably natural ventilation and controlled daylight may limit the initial and long-term expenses, reduce the damage to the environment and self-sufficiency of the building may be important for the sustainability of the structure. Due to the locations of the archaeological sites in the middle of nature, in case of the requirements of extra mechanical and electrical appliances, the structure may be designed environmentally friendly and self-sufficient with the solar panels or wind turbines depending on the natural resources.

The shape of the building, orientation should follow and brace the decisions previously mentioned.

Security and Safety

Protective structure should provide the security and safety of both the remains and the visitors. Excavation sites are quite dangerous with deep diggings, unstable remains, machinery and other natural and manmade barriers. Moreover, ongoing excavations need privacy. Keeping the visitors with adequate planning away from these areas is important.

The security of the valuable remains, such as the mosaics should be provided either with the enclosures or extra precautions around the shelters.

A list of criteria derived so far related with the technology of these structures is formed as follows.

- Adaptable in case of future expansions and removals
- Provide control over temperature and humidity by means of ventilation and air conditioning
- Provide control over interior lighting
- Use of stronger and lighter solutions with the water repellent, self-cleaning, semitransparent, etc. features benefitting from the advances in material science
- Self-sufficient, environment friendly design
- Compatible with and distinguishable from the original remains
- Completely reversible causing no further damage

3.2.3 Relation with the Site and Remain

The protective structure should be in harmony with the site and the remain it covers. Aim of the structure is protecting and presenting the remains. It shouldn't compete with the remains. However its contribution to the site is important. It shouldn't mislead the visitors with wrong assumptions.

The landscape and natural environment of the site is a part of its authenticity. The relation of the protective structure with the rest of the site, and its impact over the remains relation are critical.

A list of criteria derived so far related with these structures relation with the site is formed as follows.

- Interventions should be in minimum
- Not damage the remains underneath or around the protected area
- Respect and provide the interpretation of the authenticity and spirit of the site both with its natural and manmade elements

- Not attempt to complete the ruins with assumptions and misguide the audience
- Not break the relation of the protected area with the rest of the site
- Not cause the architectural evidence and intrinsic values lost
- Not create disparity within the remains

3.2.4 Response to Social and Community Needs

Protective structure should be planned with a respect for the social, cultural and spiritual rituals and practices. Different social groups -students for educational reasons, visitors of cultural tourism or people visiting the remains for religious reasons- have different needs and expectations. The targeted group should be designated in order to satisfy their needs.

Information panels, guiding signage should be designed multilingual and expressive in order to address all the visitors at different age, belonging to various levels of education, religion and nation.

A list of criteria derived so far related with these structures response to the social and community needs is formed as follows.

- Contribute to the presentation, interpretation and dissemination of the research results
- Offer other visitor facilities and services inside the structure
- Control the overloaded tourism foreseeing the risk of damage and polution done by the visitors
- Offer a balance between the conservation and presentation of remains
- Offer visitors comfort and ease understanding of the remains
- Respect to the social, cultural, spiritual rituals and activities within the site
- Presentation designed multilingual and expressive for all the visitors

3.2.5 Building Codes

A new structure in an archaeological site is not different than any other building. In its design and construction obey to the required building should be provided such as the accessibility, fire safety, structural stability, public health and structural sufficiency.

In case of a collapse, remains or visitors may be harmed. In order not to cause a further damage structural stability should be provided.

If there exists case-based safety problems such as the floods, earthquakes, fires or local winds extra precautions should be taken both for the safety of the structure, protected remains and the visitors.

The access routes of the protective structure and its interior circulation should be planned in case of an emergency.

A list of criteria derived so far related with the building codes is formed as follows.

- Fulfill the legal constraints defined for a new building and cultural heritage
- Constructible and maintainable within the limited budgets of the research projects
- Operable with the limited labor force of the research team
- Obey the standards for structural stability, sufficiency, fire safety, energy conservation and accessibility

3.3 Selected Cases in Turkey

Due to the wide range of structures used in Turkey for the purpose of protecting the remains, some limitations are obliged to be made. Although included within the inventory and referred in the text, for limiting the scope of the thesis, protective structures covering the remains belonging to Seljukid and Ottoman periods are excluded from the study. Due to the method of the study, evaluation

criteria are defined scrutinizing the legal framework, built cases and design process. Eight of the structures which are products of architectural or engineering design processes are selected to be evaluated. Before the evaluation the selected cases are studied in detail.

3.3.1 Ephesus

Ephesus, the former Hellenistic-Roman metropolis Asiae, is situated on the slopes of Bülbüldag to the south and Panayırdağ to the northeast. The city was bordered by the sea and the harbor on the west and so-called Magnesian Gate on the east. The city layout was composed of a network of streets and open areas structured in hippodamian system. The city is impressive with its direct access to the sea, defense system and well conserved city walls (Krinzinger, 2000 (a)).

Ephesus was always in center of attention as being the capital of the Roman Province of Asia Minor. The location of Ephesus was always known because the remains have never buried totally under the ground and it attracted many people due to the Christian pilgrimages made to St. John and the Virgin Mary's House (Wiplinger & Wlach, 1996).

Ephesus is still very popular worldwide with the ancient remains. According to the official records of İzmir Provincial Directorate of Culture and Tourism, by the year 2010, Terrace Houses are visited by 85.445 people with an increase of %12.1 compared to the previous year, making 234 visitors every day. According to the monthly statistics, on October, the most crowded month, 14.752 people visited the Terrace Houses with an average of 491 people every day (İzmir_KTM, 2011).

First archaeological excavations in Anatolia were started with the Ephesus Excavation in 1866 under the directorate of John Turtle Wood (Cezar, 1971). The reason behind the excavations is the passion of finding the Temple of Artemis in Ephesus. It is one of the Herodotus' Wonders of the World which was located correctly for the first time by John T. Wood in 1869 (Wiplinger & Wlach, 1996).

Austrian excavations in Ephesus were started in 1895 under the directorate of Otto Benndorf (Krinzinger, 2000 (a)). A multi-storey house, Terrace House I, standing on the northern slope of Bülbüldağ opposite the Baths of Scholasticia, was started to be excavated in 1957 by Franz Miltner. Fritz Eichler carried excavations in Terrace House I and II between 1960 and 1968 (Wiplinger & Wlach, 1996).

Terrace House I and II lies in between Curetes Street and Terrace House Street which is in parallel with the hippodamic system (Fig. 3-24). Area on which the houses were built has a trapeze shape due to Curetes Street not in accord with the hippodamian grid plan. Having settled on the slopes of Bülbüldağ, the area consists of several terraces connected with many steps between the houses. The oldest of these houses date back to 1stcentury BC, and some of them were used up to the 7th century AD. Terrace House I was formed by six individual apartments built on four terraces. Each apartment was consisted of individual rooms arranged around a peristyle. Houses were altered and reconstructed several times (Wiplinger & Wlach, 1996).

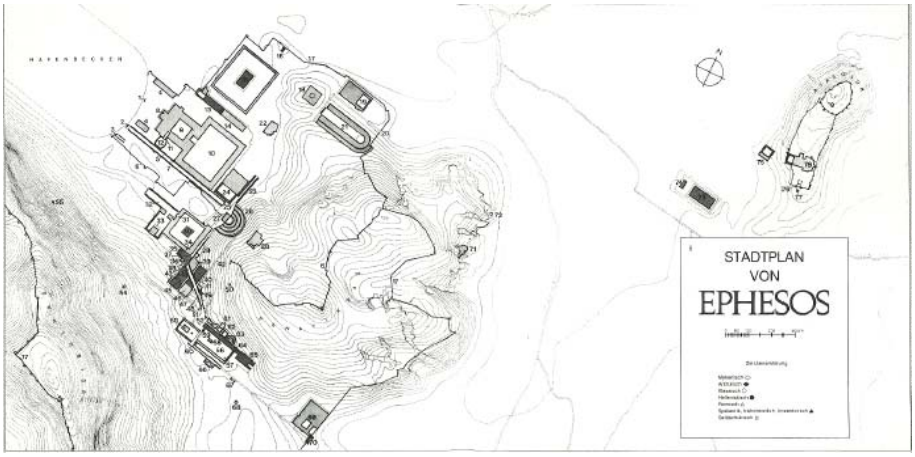

Fig. 3-24: Site Plan of Ephesus, Terrace Houses with Nr. 45,46
Source: (Wiplinger & Wlach, 1996)

During the excavations in 1960s, the stairway in between Terrace Houses I and II and on the west side of the stairs the latter housing unit 4 was discovered. It is the unit where the statue of Diana and wall painting of Socrates were exposed. The fresco was restored and moved to Selçuk Ephesus Museum (Fig. 3-25) (Krinzinger, 2000 (a)).

The discovery of additional units and frescos was resulted in a critical decision. Excavations were done without taking the necessary precautions and the moving of all the finds to the museum was inappropriate due to both the impossibility of the action in practice and the evolving conservation ideas about the in situ preservation of remains within their context rather than carrying the works of art into museums (Krinzinger, 2000 (a)).

Fig. 3-25: Fresco of Socrates of Athens, in Selçuk Ephesus Museum today
Source: (Krinzinger, 2000 (a))

Excavations in the Terrace House were conducted by Hermann Vetters in between 1969-1986 discovering the units 2-7 (Fig. 3-26-7). In this period, two restoration projects carried out with the ongoing excavations, namely the anastylosis of Celcius Library and sheltering project over the Terrace House II (Wiplinger & Wlach, 1996).

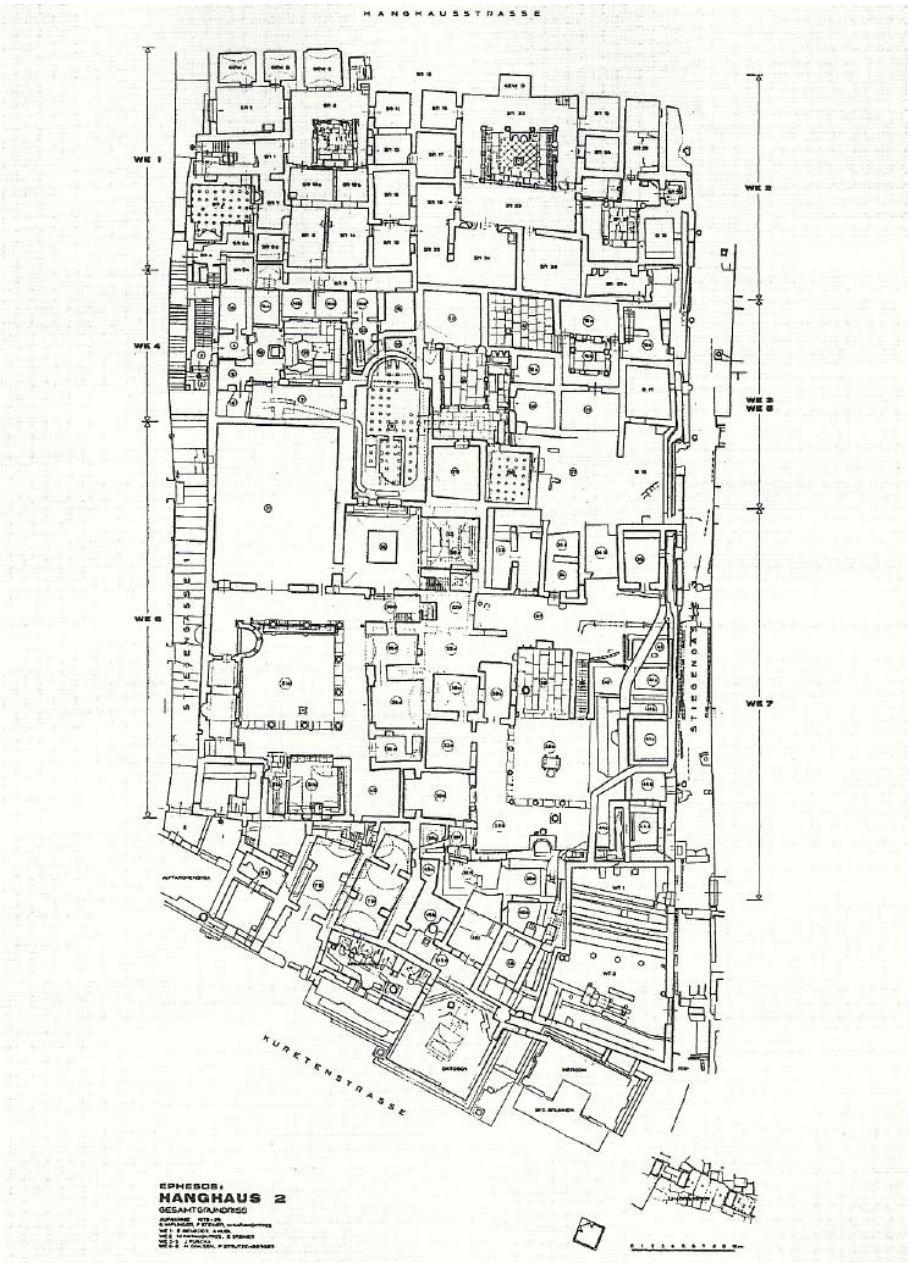

Fig. 3-26: Plan of Terrace House II

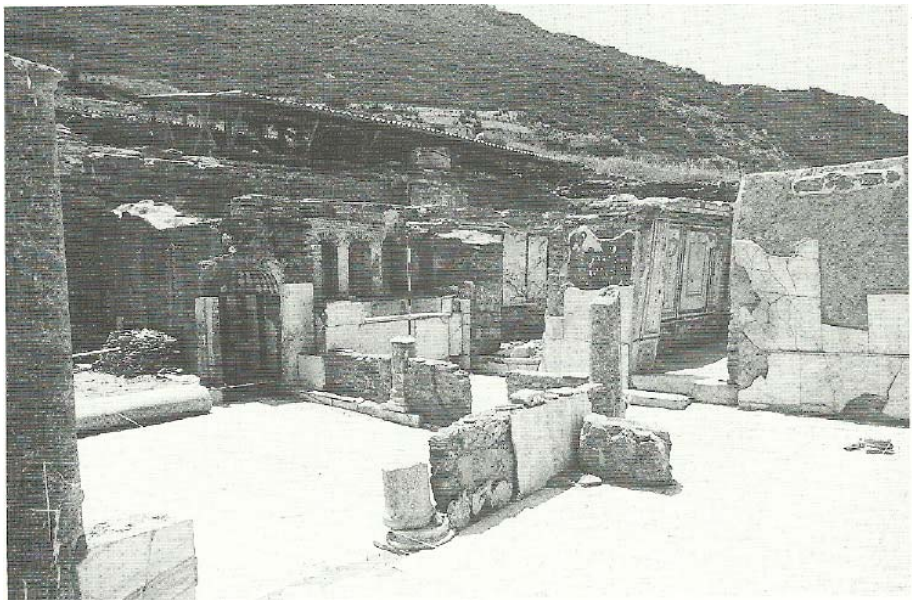

Fig. 3-27: Terrace House II, Unit 5, Peristyle Courtyard (1971)
Fig. 3-26-7 Source: (Wiplinger & Wlach, 1996)

After the decision of the in situ conservation, in 1969 a demountable shelter (Table 3.1) was built over the remains in order to protect them during the ongoing excavations (Fig. 3-28-9). The structure was composed of pre-fabricated steel trusses and 1-2 m long round steel pipes, originally used for scaffolding, and covered with corrugated asbestos cement roofing panels. Steel trusses and quick-built scaffolding was brought to the site, connected with clamps and asbestos panels were used for spanning the large openings (Schmidt, 1988).

The system was practical but since the lengths of the steel pipes were standard but remains were not, required pitches couldn't be achieved and resulted into individual roofs over the ancient dwellings. Individually erected shelters weren't composing an aesthetic view all in all. Also the shelter complex was insufficient in terms of the required conservation. Individual roofs weren't satisfying the need for the drainage of the water (Krinzinger, 2000 (a)), (Krinzinger, 2000 (b)). South part of the site was hot, especially in summer, requiring a shadow while the north part was cold, especially in winter, requiring better heating (Schmidt, 1988).

Table 3.1: Temporary Shelter for Ephesus (E01)

Remain	Terrace Houses II
Protected Material	Mosaics, Frescos, Marbles
Protective Structure	PcS
Construction Material	Leight weight Round Steel Tubes with corrugated asbestos cement roof panels
Construction Date	1969
Construction Area	150 m^2
Architect	Anton Bammer

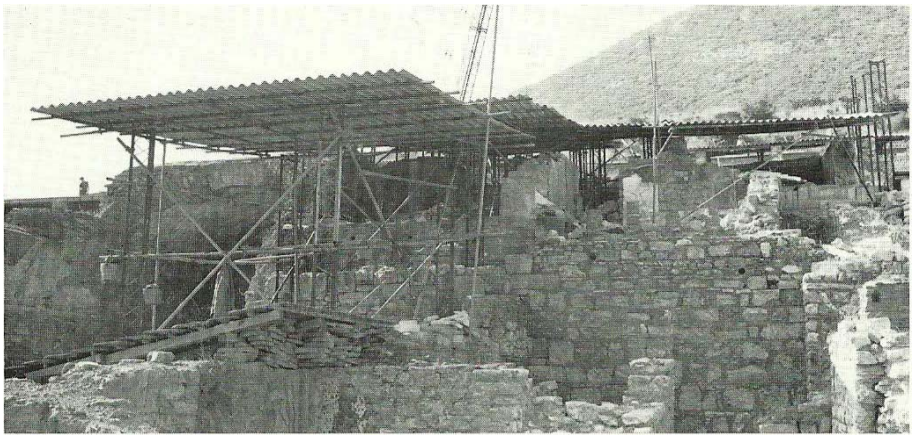

Fig. 3-28: Structure with Steel Trusses and Scaffolding Material

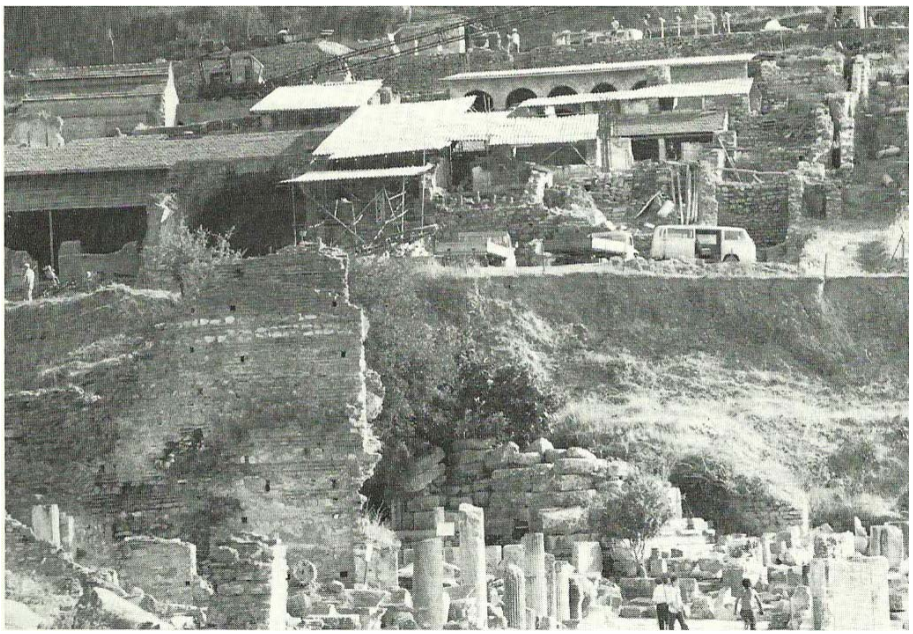

Fig. 3-29: Temporary Shelter of Terrace Houses II (1979)

Fig. 3-28-9 Source: (Schmidt, 1988)

Terrace Houses II having an area of approximately 4000 m2 was composed of seven housing units over terraces like the Terrace Houses I. Areas of the units differed leaving a larger unit at the west end (Fig. 3-30).

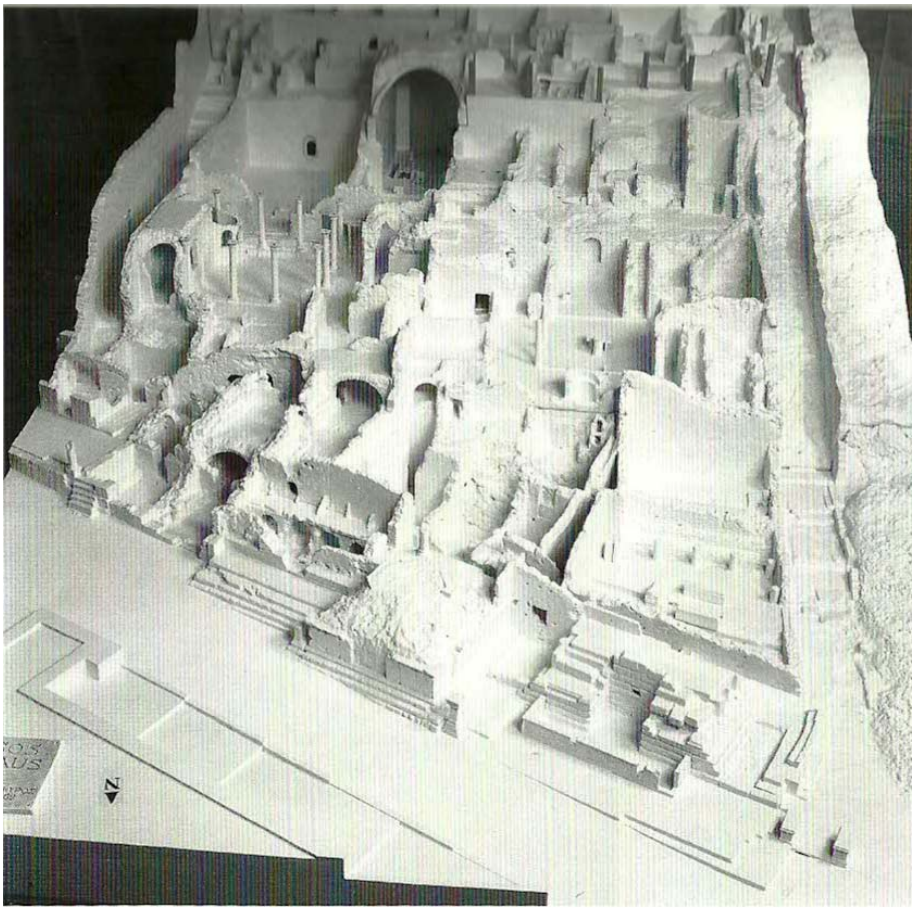

Fig. 3-30: Modal of Terrace Houses II out of Plaster
Source: (Krinzinger, 2000 (a))

In 1978, Gilbert Wiplinger designed a protective enclosure (Table 3.2) for Terrace Houses in the form of a dissertation. The plan was altered by an advisory committee and between 1978 and 1786 the structure was built on the accommodation units 1 and 2 (Fig. 3-31-2). The design of the gable roofs was based on the plans of accommodation units. Therefore, the roof surface was irregular with various forms and different angles of connection. Due the irregularities of the roof, each truss had a different length. An earthquake-proof substructure of reinforced concrete footings and steel beams with U-shaped concrete channels were going around the units following their outer limits, and

the upper structure was sitting over the substructure. The upper structure was formed with triangle wooden trusses standing over reinforced concrete construction and covered with red roof tiles (Schmidt, 1988), (Wiplinger & Wlach, 1996).

Table 3.2: Temporary Enclosure for Ephesus (E02)

Remain	Terrace Houses II
Protected Material	Mosaics, Frescos, Marbles
Protective Structure	PcE
Construction Material	Reinforced Concrete Construction, Wooden Trusses covered with roof tiles
Construction Date	1978-85
Construction Area	900 m^2
Architect	Gilbert Wiplinger

Static calculations of the structure were done by H. Endl and conservation works of the mosaics and frescos were carried out by K. Herold and his team. Financial supports were conducted by A. Kallinger-Prskawetz and the company Hochtief-Essen (Wiplinger & Wlach, 1996).

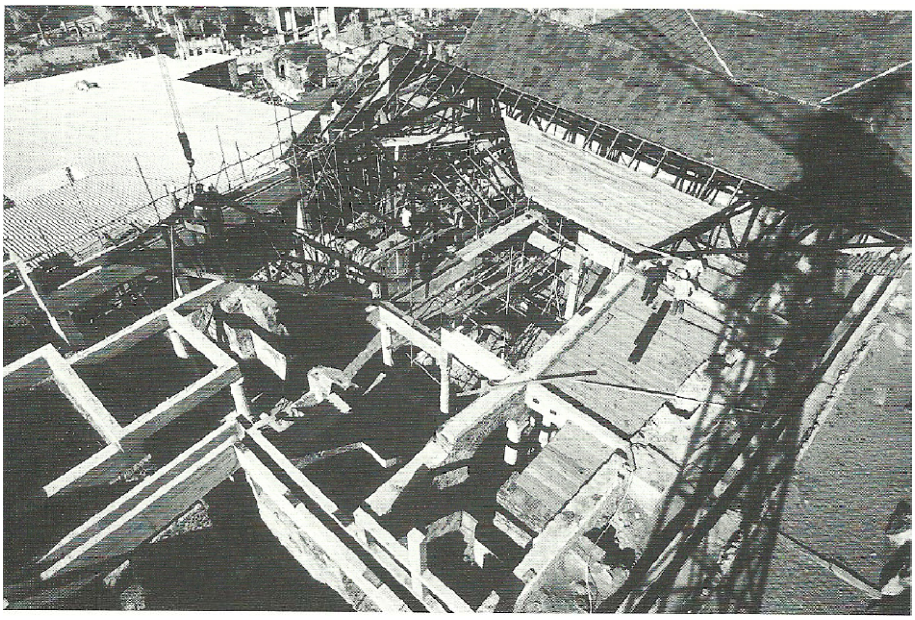

Fig. 3-31: Construction of the Enclosure Over Unit 2 (1984)

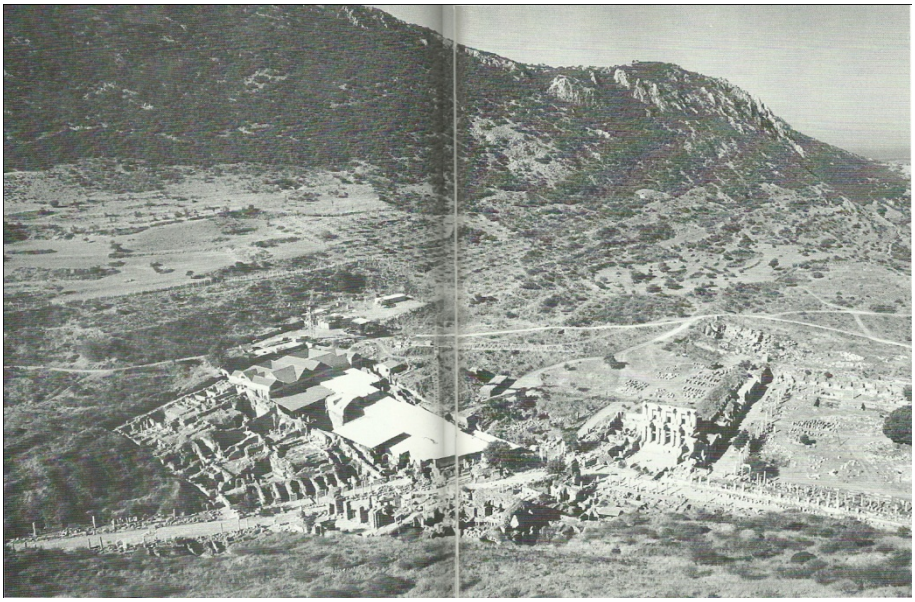

Fig. 3-32: View of the Site from the Panayırdağ (1994)
Fig. 3-31-2 Source: (Wiplinger & Wlach, 1996)

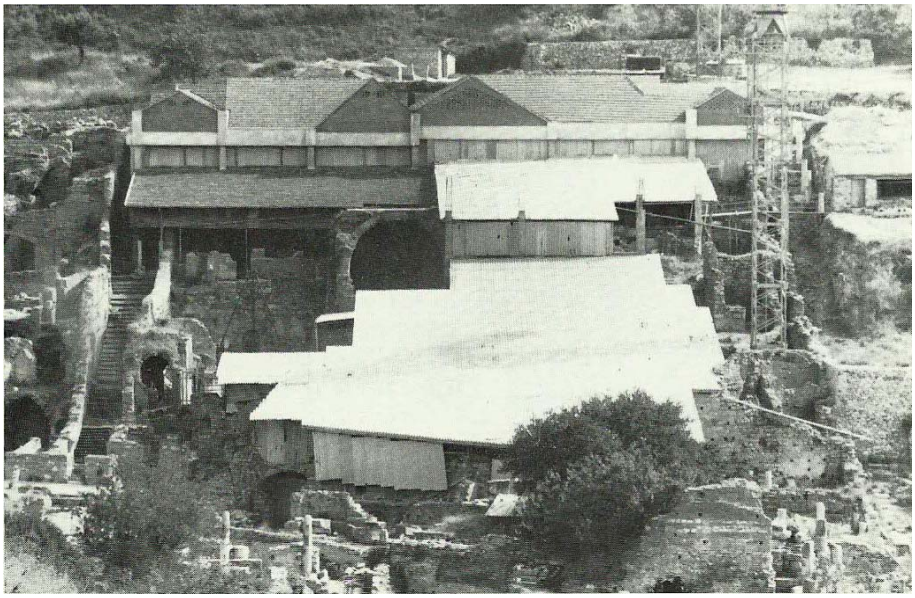

Fig. 3-33: View of the Enclosure from the Theater
Source: (Schmidt, 1988)

Wiplinger's shelter was the first phase of the shelter complex over the Terrace Houses. It was designed as a museum, providing indoor protection for the security of valuable remains and against weather conditions. The substructure was designed against 9 Richter scale earthquakes. Wiplinger tried to restore the

rooms with their spatial perceptions. The integration of the structure with the site was thought to be the differentiating form of the roof taking shape according to the underlying remains. For the interpretation of ancient courtyards, glass roofs were used achieving a controlled illumination inside. Small scale reconstructions were made in the lintels and architraves over the columns with reproduced bricks in the courtyards for better interpretation (Schmidt, 1988).

The remaining walls weren't used as part of the construction system. Only the pillars in the peristyle courtyards were pierced and connected with a ring at the bottom and a reinforced concrete lintel at the top. Later additions to the units within time were respected, although some removals would improve the comprehension of units, nothing has changed (Wiplinger, 1985). Although the architectural elements, wooden trusses and concrete beams were dominant inside the structure, original remains, new additions and reconstructions were distinguishable. The reflection of overlapping units to the roof could be achieved, but integration within the site wasn't successful. Selection of the material as reinforced concrete was wrong for the desired lightness and transparency (Schmidt, 1988). Concrete use beside the remains was criticized in Venice Charter due to its incompatibility, behavior against water and salt and its irreversibility.

Restorations in Terrace Houses II continued with the anastylosis projects. In 1986, after the completion of the protective structure over the Units 1 and 2, construction work of the foundations and supports of the reinforced concrete substructure continued in the lower terraces of units 3 and 5. With the anastylosis projects carried out in the peristyle courtyard 24 in 1986 and unit 6's peristyle courtyard 31 in 1987-88, works in the Terrace Houses finalized and interrupted till the year 1995 to be continued after an international discuss on the other possibilities (Wiplinger & Wlach, 1996).

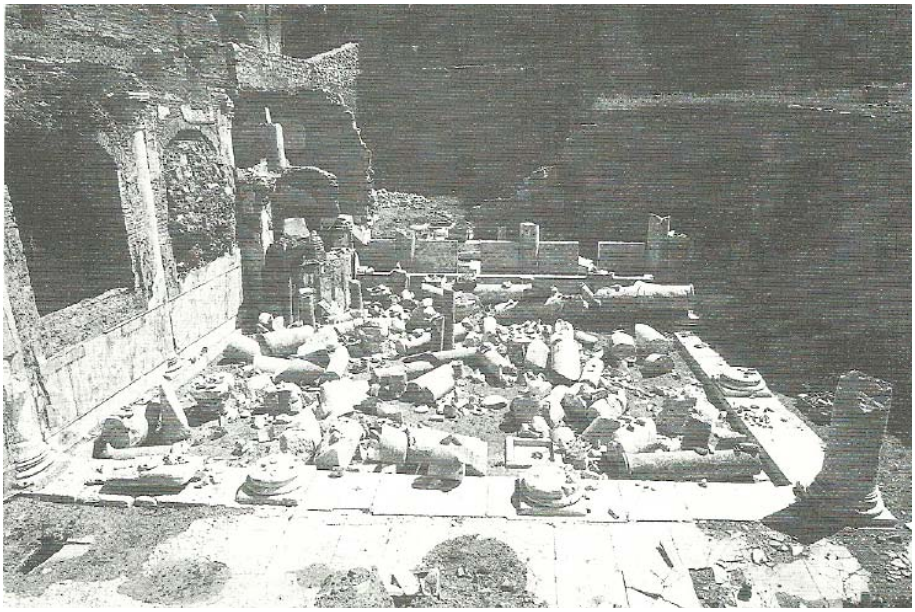

Fig. 3-34: Unit 6, Courtyard 31 after the excavation in 1979

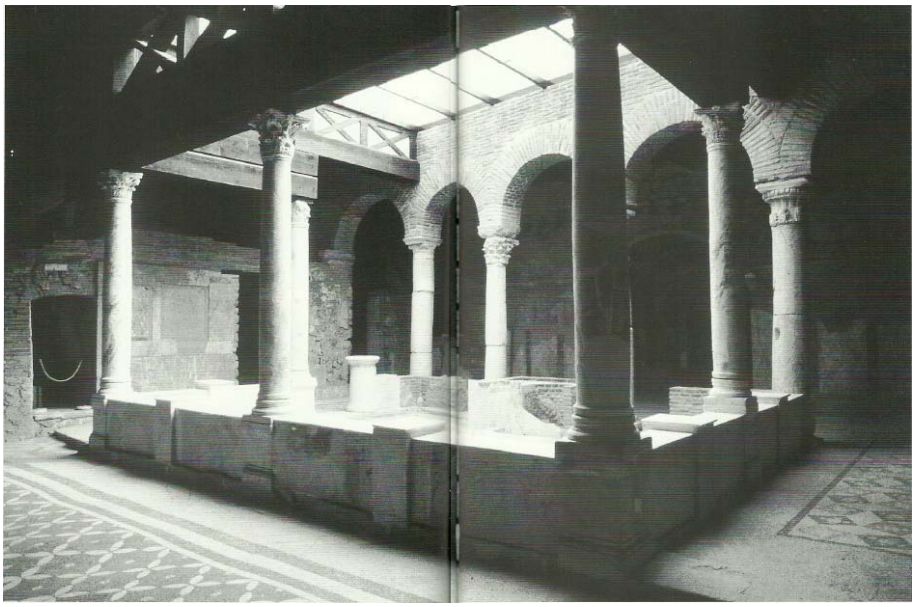

Fig. 3-35: Peristyle Courtyard 31 of Unit 6
Source: (Wiplinger & Wlach, 1996)

Wiplinger's project was stopped in 1986 due to its failure to satisfy the expectations. Krinzinger (2000b), defines the inabilities of the projects as insufficiency in providing the climatic conditions, material choice as the reinforced concrete but principally aesthetic unsatisfactory (Krinzinger, 2000 (b)). In 1987 an international competition was declared, by the Archaeological

Institute of Australia, in order to find new concepts for the protection of the houses (Schmidt, 1988). In the closed competition with the invitation of five participants, the proposal of Friedmund Hueber with his Projekt Nr.4 was selected. Hueber proposed a reinforced concrete roof over the remains following the incline of the slope (Fig. 3-36-7). Over the roof, second floor of the terrace houses would be reconstructed. Rest of the roof would be planted where the remains are single-storied (Fachjournal, 1989).

Fig. 3-36: Hueber's Proposal, Bird's Eye Perspective of the Houses

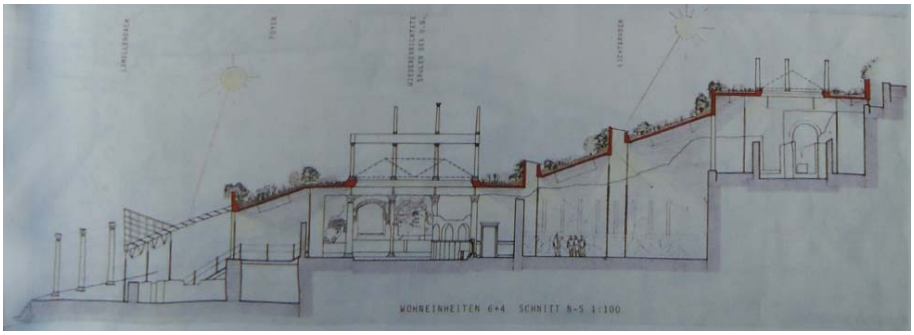

Fig. 3-37: Hueber's Proposal, Section of the Houses
Fig. 3-36-7 Source: (Fachjournal, 1989)

A two-staged competition was started in 1996 based on a document prepared with the contributions of international specialists defining the required conditions for the conservation of the remains of Terrace Houses II. The project proposed by the team of Wolfdietrich Ziesel and Otto Häuselmayer was chosen in between the participants for suggesting the most aesthetic solution. The structure was composed of three different materials as the non-corrosive light-weight steel construction over block foundations, textile roof membrane stretched over the steel frames and transparent polycarbonate slats on the façade (Krinzinger, 2000 (b)).

In 1997, Terrace House Commission decided to replace the enclosure over the residential units 1, 2 and cover all the houses with the proposed steel structure. All the reinforced concrete elements of the previous roof were cut and removed except for the architraves over the columns. In 1998 and 1999, excavations and surface surveys were done for placing the foundations. The steel structure was produced and assembled in Graz and transported to Ephesus. With the help of the cranes and mounted over the remains. The companies Metallbau Treiber KG was responsible of the steel construction and Radstadt for the façade construction (Krinzinger, 2000 (b)).

Table 3.3: Protective Enclosure in Ephesus (E03)

Remain	Terrace Houses II
Protected Material	Mosaics, Frescos, Marbles
Protective Structure	McE
Construction Material	non-corrosive light-weight steel construction over block foundations, textile roof membrane stretched over the steel frames and transparent polycarbonate slats on the façade
Construction Date	1997
Construction Area	4000 m^2
Architect	Otto Häuselmayer

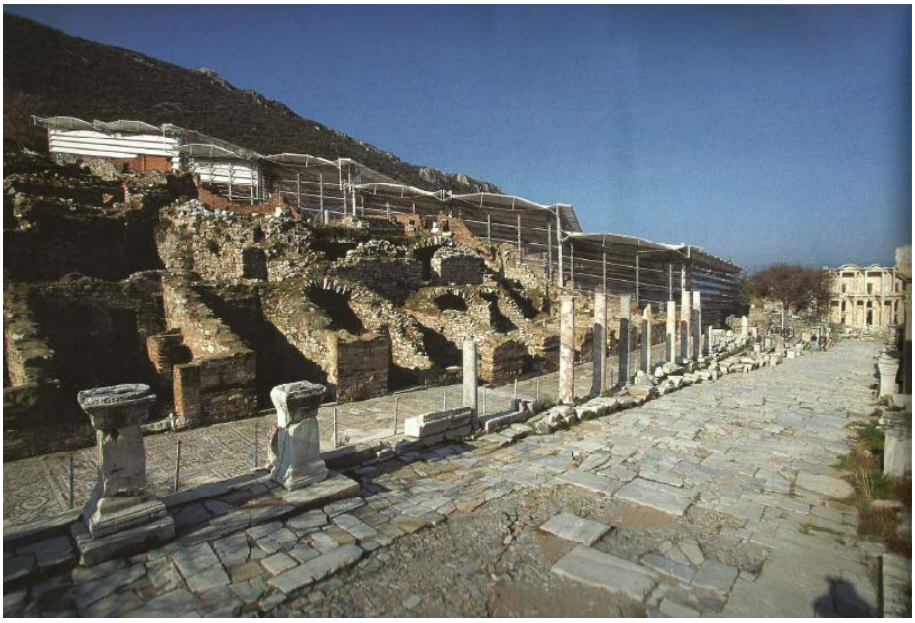

Fig. 3-38: View of the Protective Enclosure from Curetes Street

According to Krinzinger (2000b), when the protective structure is seen from the opposite slope, highly aesthetic quality and compliance with the incline of the slope produce a lively dialogue between the remains, overall archaeological site and technologically perfect modern structure. With the help of the wide span achieved by the steel trusses, the residential units with their frescos and mosaics can be seen simultaneously as a whole and individually for the first time (Krinzinger, 2000 (b)).

Fig. 3-39: Housing Unit 6, Peristyle Courtyard 31 (see Fig. 3-34-5)

The need for the protection of the Terrace Houses en masse is arising on account of their common features. These are the frescos on the walls, mosaics on the floors and marble architectural elements. Being the contemporary buildings, constructed one the same hillside and fulfilling the same functions are other common features. However, these are individual dwellings. There is no distinction in between these units projected on the shelter. Integrated approach, homogeneous light results in a lost of the small units composing the entity. It is hard to see the distinction between a courtyard and a small room. The leveling on the roof reflects the terraces beneath, not the individual houses.

Fig. 3-40: Individual Dwellings of Terrace Houses II

Source: http://www.oeaw.ac.at/antike/index.php?id=88

Fig. 3-41: Inside the protective structure
Source: http://www.selcuk.bel.tr/eng/selcuk.php?module=31

There are other temporary protective structures within the site in different scales blocking the access without any information about what is protected (Fig. 3-42-4).

Fig. 3-42: View of a temporary shelter in Ephesus

Fig. 3-43: View of a temporary protective structure

Fig. 3-44: View of a temporary protective structure

3.3.2 Pergamon

Under the reign of Eumenes II, the city was enlarged on the Acropolis. The old city walls were destroyed and two complexes, Gymnasium and the Sanctuary of Demeter were constructed. Due to the form of the Acropolis, these two constructions are not parallel to each other, but constituting a wide angle in between. The so-called Building Z is erected on the way to Acropolis exactly at the angle between the terrace of the Sanctuary of Demeter and the Gymnasium (Fig. 3-45). It is a peristyle building composed of many rooms, halls and atriums located around a courtyard; it is a square building covering an area of 1.500 m^2 (Fig. 3-46). Being located on a slope, the rooms were built on two terraces. Over the two stories there was a roof that cannot be defined at the resent day. The original function of the building is unknown, but it is estimated to be a public building, most probably a state guest house - Prytaneion (DAI).

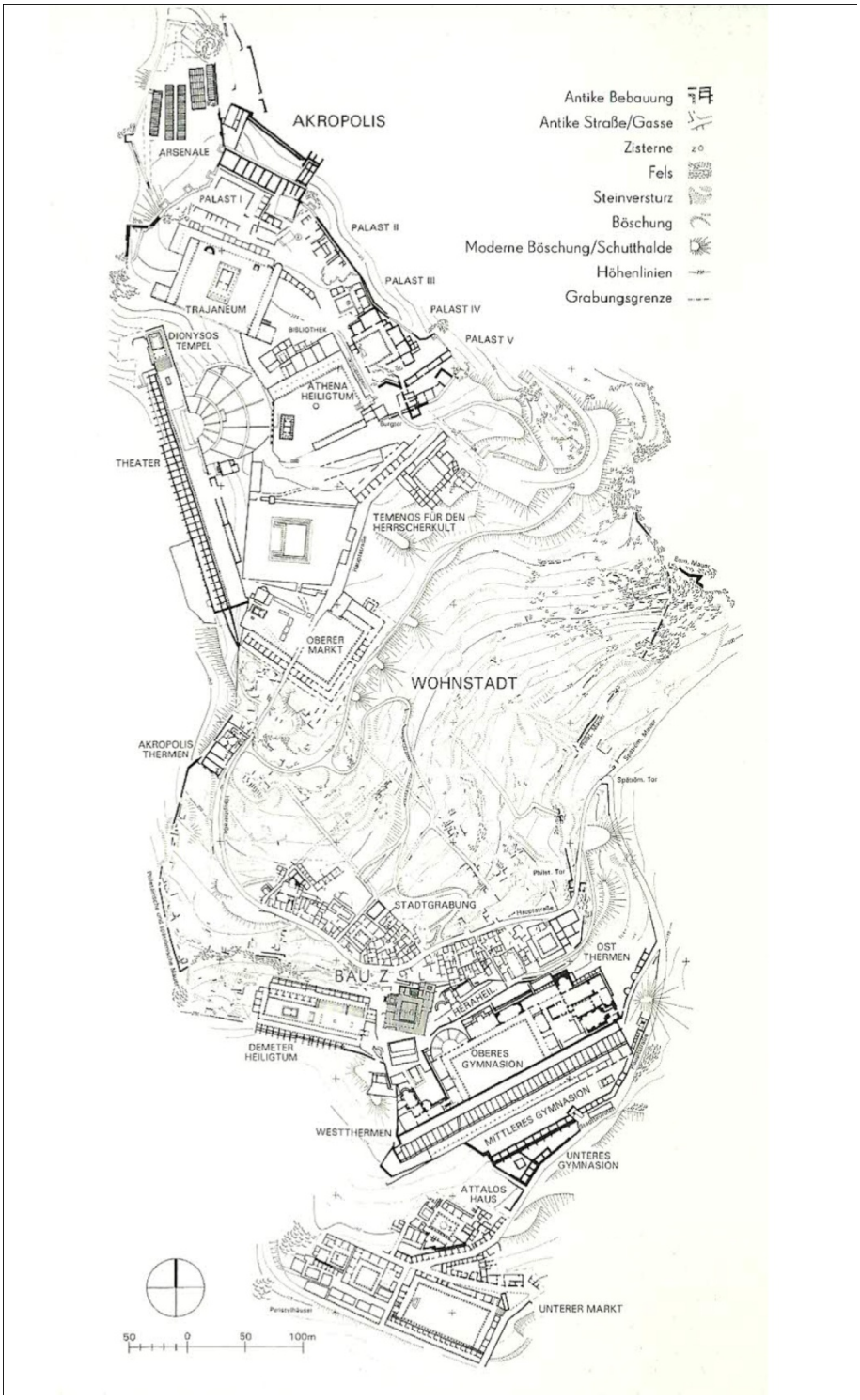

Fig. 3-45: Pergamon Site Plan

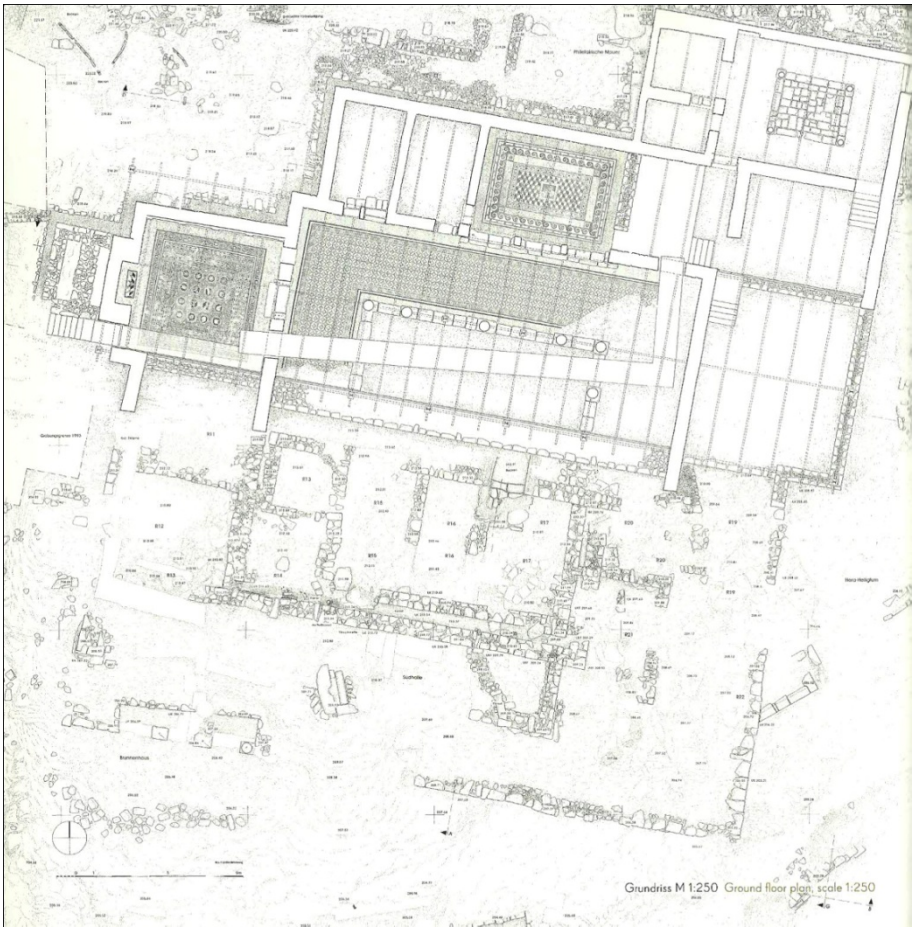

Fig. 3-46: Bau Z Floor Plan

Building dates back to 2nd century BC having remains of walls from an earlier period. The plan layout of the building, as it is seen in the present day, reflects Hellenistic times. Although the general lay out of the building was preserved till the Roman times, it was altered many times with additions. After an earthquake in the late 2nd century AD, the majority of the building was out of use. In the 12 - 14th century AD, a Byzantine settlement of farmhouses and a small chapel on the north settled over the remains. In the 1909 excavations by Wilhelm Dörpfeld, the northern part of the Building Z was unearthed and identified as a peristyle structure. Building Z mosaics are discovered in 1990 (Bachmann & Schwarting, 2005) and excavated till 1993.

As long as the archaeological researches reveal, Building Z had several phases starting from the date it was built until its destruction. In the early 2nd Century BC it was built having a rectangular form with a deep niche. The building is

supposed to have a cult function connected with its contemporary, Sanctuary of Demeter. In the middle of the 2nd Century, building was enlarged composing an L-shaped plan with a terrace at the corner and a courtyard in the middle. For protecting and exhibiting the mosaics and decorated Hellenistic stucco, a protective shelter is designed and constructed in between 1996 and 2004 (Bachmann & Schwarting, 2005).

Table 3.4: Protective Enclosure in Pergamon (P01)

Remain	Bau Z
Protected Material	Mosaics and Frescos
Protective Structure	ScE
Construction Material	Stone walls, steel upper structure covered with tiles, wooden ceiling, shedders on the façade
Construction Date	2004
Construction Area	1.500 m2

There are other protective structures in Pergamon over the ruins beside the Trajaneum and on the lower part of the Building Z (Fig. 3-47).

Fig. 3-47: Another Protective Structure in Pergamon

3.3.3 Sagalassos

Following the excavations in the late Hellenistic Fountain House, standing on the halfway between the upper agora and the theatre, excavations are extended to the square on the east and north of the fountain in 1990. On the level of the roof of the fountain, on the north of the square 13,50 m wide public building was discovered. The building was estimated to be a basilica with its symmetrical façade, still standing 3 m high with three large doors between two wall sections at the corners of the building. On the south side of the building, a sidewalk with the dimensions of 13,5 m x 4 m was discovered with well preserved black and white mosaics with a geometrical pattern. Mosaics with finer tesserae were also continuing inside the building (Waelkens (et.al.), 1992).

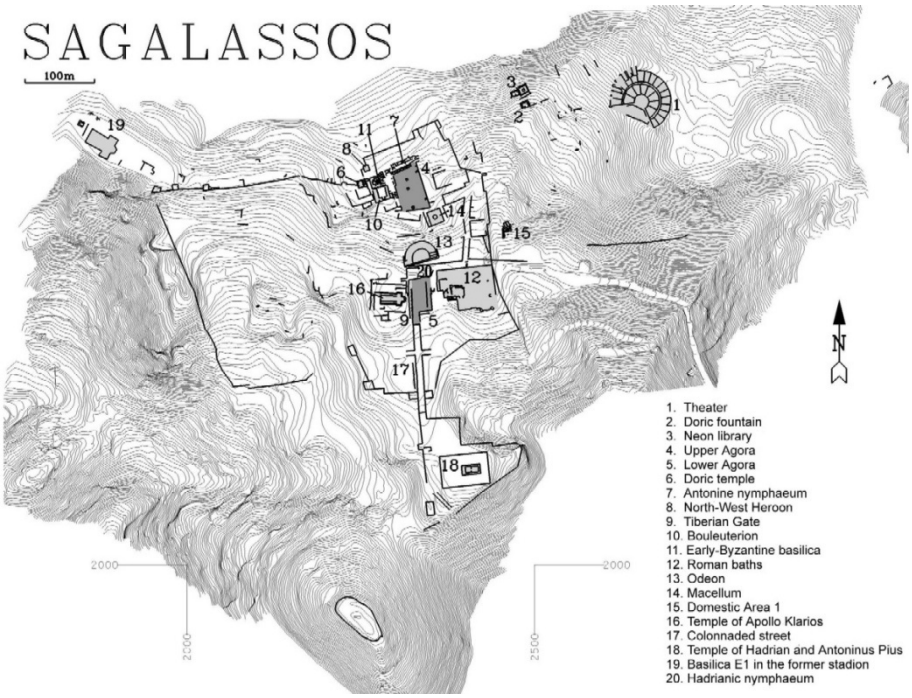

Fig. 3-48: Site plan of Sagalassos

Source: http://www.une.edu.au/a-ia/sites/sagalassos.jpg

Fig. 3-49: General view in front of the Library during the Excavations

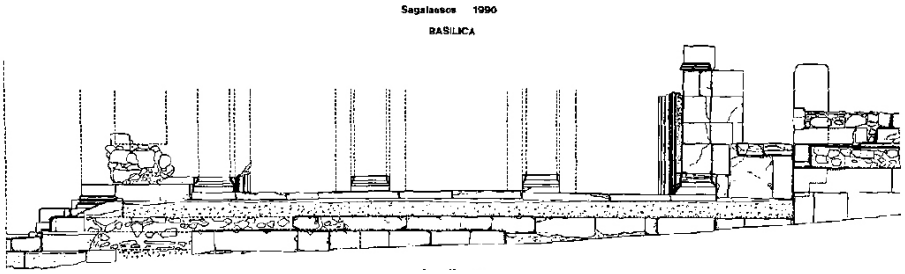

Fig. 3-50: Elevation of the Library

Fig. 3-51: Mosaic Floor in front of the Library
Fig. 3-49-51 Source: (Waelkens (et.al.), 1992)

With the total excavation of the building in 1992, the room with the internal dimensions of 11,80 x 9,90 m was explored with a higher quality mosaic floor. In the center of the mosaics there was a polychroma panel including the depiction of a scene from Iliad, *the departure of Achilles for Troy* surrounded with mosaics composed of black and white tesserae in a geometrical pattern. The walls on the east, west and north were still standing at the height of 3-6 m. The inscription

on the north wall giving information about the construction date was revealing that, the building was constructed in 120 AD by an inhabitant called T. Flavius Severianus Neon in the memory of his father and uncle. The function of the building was cleared as a library. Till the 5th century AD, when the elements of the building were dismantled to be used in other monuments, there were three phases of repair and reconstruction (Waelkens (et.al.), 1995).

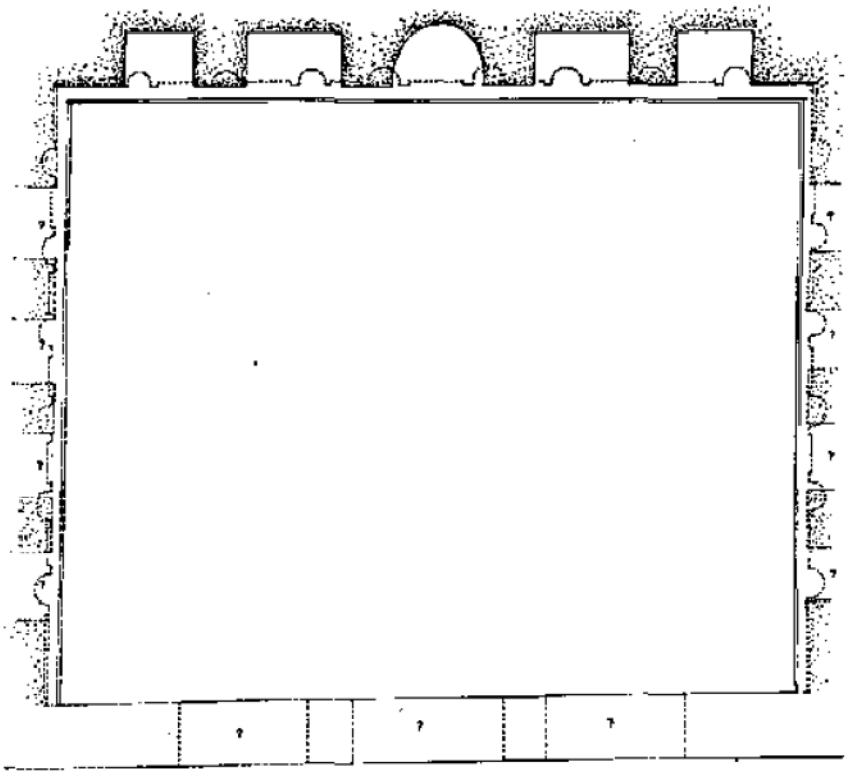

Fig. 3-52: Library Building, Phase 1 shortly after its construction in 120 AD

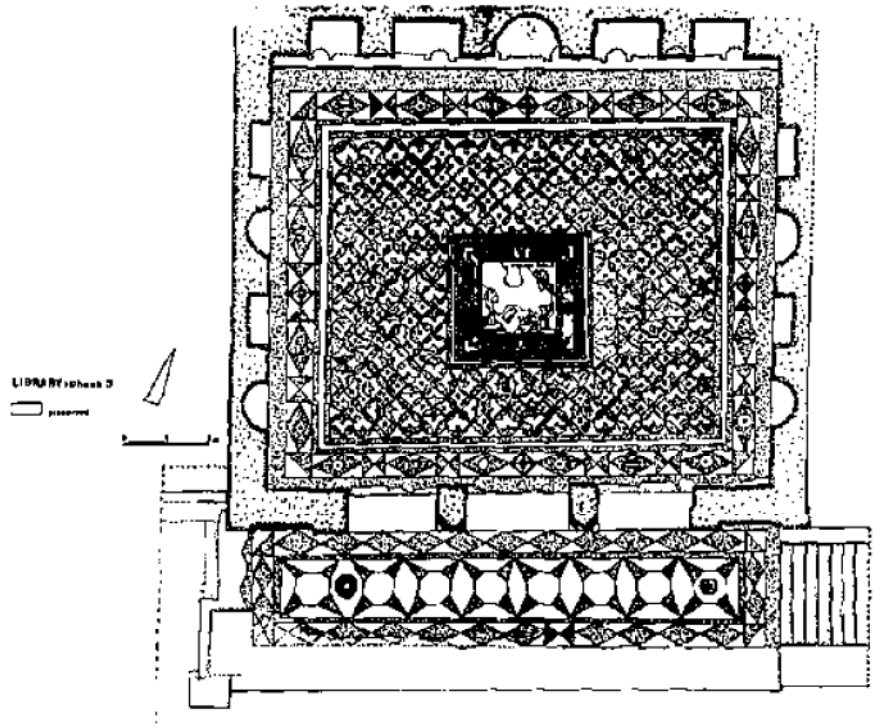

Fig. 3-53: Building Phase-3, Construction of the Mosaics

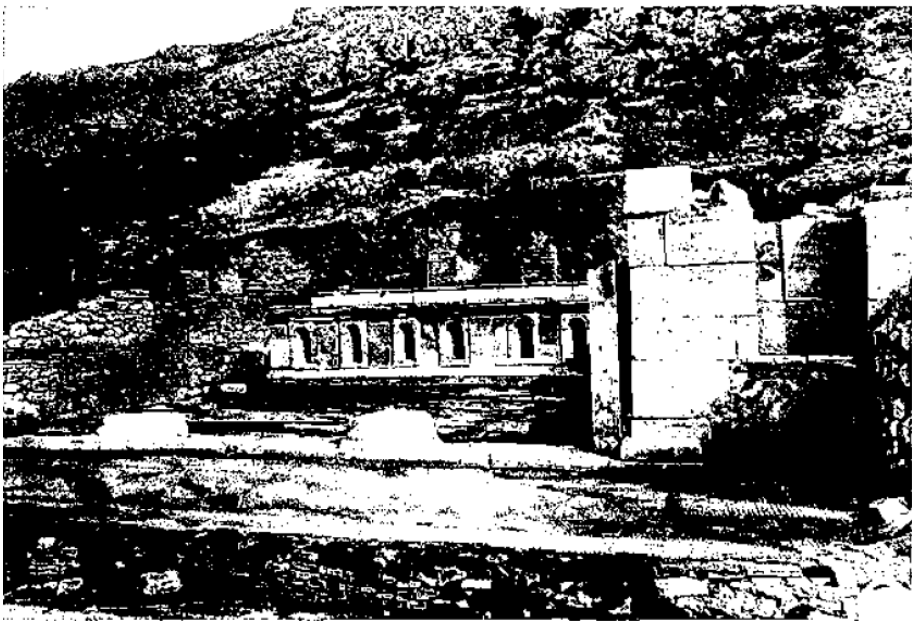

Fig. 3-54: View of the library from south after its Excavation

Fig. 3-52-54 Source: (Waelkens (et.al.), 1995)

A protective structure (Table 3.5) is designed over the remains of Neon Library. The construction of the enclosure started in 1995 and mostly completed in 1996. The construction of the building was financed by the Belgium Company ABB Insurance. It was a steel structure with five roof trusses supported on steel columns, covered with galvanised steel panels for assuring the insulation. In between the steel columns, mortared brick and rubber alternated walls were constructed. The 4th century AD mosaics underneath were consolidated by a team from Başkent Meslek Yüksek Okulu (Waelkens (et.al.), 1998).

The building is designed completely reversible and well integrated to the surrounding environment. The height and shape of the pitched roof reflects the original height of the earth fill and slope before the excavations started. The roof was covered with light porous volcanic material and plants were inserted in order not to look obtrusive with the surrounding environment. Inside the building wooden walkways were designed for the visitors (Waelkens (et.al.), 2000).

Table 3.5: Protective Enclosure in Sagalassos (SG01)

Remain	Neon Library
Protected Material	Mosaics
Protective Structure	ScE
Construction Material	Structure with steel columns and five steel trusses surrounded by masonry walls, with a pitched roof covered with galvanised steel panels Wooden walkways
Construction Date	1995
Construction Area	255 m2
Architect	Semih Ercan, Teresa Patricio

Source : (Waelkens (et.al.), 1998)

With the construction of the protective structure the probability of the reburial was eliminated. Between the years of the exposure of the mosaics and the construction of the protective structure the mosaics were covered with loose synthetic polymer netting and a soil accumulation of 0,15-0,20 m. The precautions taken were sufficient, and only a local grass growth is detected. After the construction of the enclosure, protecting the mosaics from sun, rain water and shielding the conservators from falling debris, consolidation of the mosaics started, Researches were continued in order to decide on the moving of

mosaics or relaying the mosaics on a newly constructed foundation (Waelkens, Kökten, Severson, Mertens, & Şener, 2000).

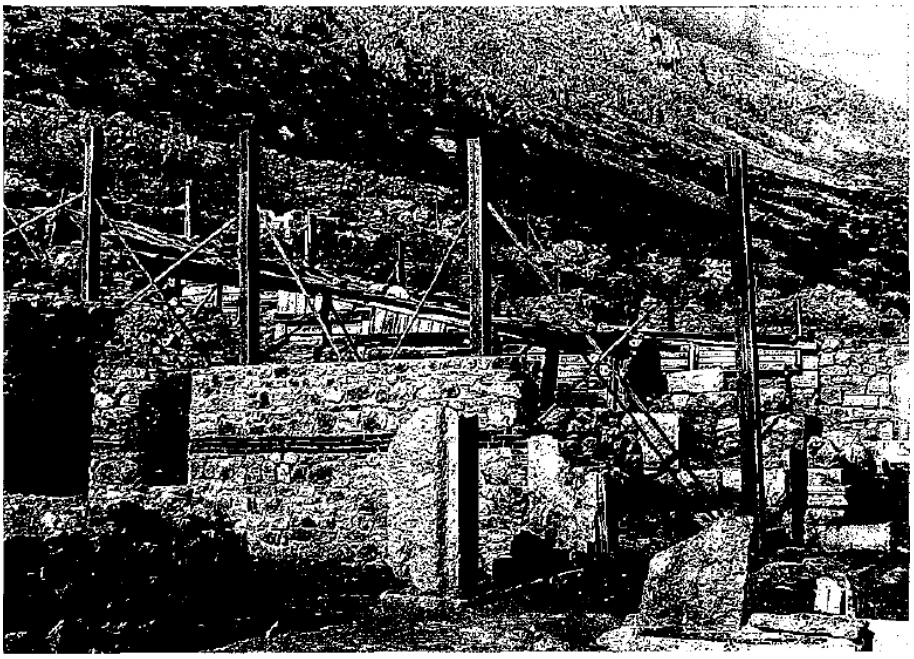

Fig. 3-55: During the Construction of the Protective Enclosure
Source: XVIII. Kazı Sonuçları Toplantısı V.2 (1997)

Fig. 3-56: View from the South of the Hellenistic Fountain

Fig. 3-57: From the Theater to the Library

Fig. 3-58: Inside the Library, with a view to the Northeast

Fig. 3-59: Wooden Walkways

Fig. 3-60: View from Düzen Tepe

The walls filling between the steel columns, projected from the original walls are plastered and painted. The front side of the building was closed with wooden netting in order to allow ventilation, illumination and integration of the interior of the library with the rest of the site. There are shutters in front of the wooden netting that may be closed and locked manually. The sideway on the south of the library room was differentiated with a leveling on the roof. Double pitched roof was converted to an eave on the south part. The entrance to the walkways is through a door on the west wall that may also be locked in order to control the accessibility.

3.3.4 Çatalhöyük

Çatalhöyük is a Neolithic site located near Çumra in Konya. The site was discovered in late 1950s. The first excavations were started by James Mellaart, and excavated between 1961 and 1965. The current excavations conducted by the Cambridge University of England under the directorate of Prof. Dr. Ian Hodder began in 1993 with site surveys and in 1995 with the excavations in the north and south areas (Hodder, 2008).

Fig. 3-61: View of the Mound (1997)

Source: (Çatalhöyük, 2011)

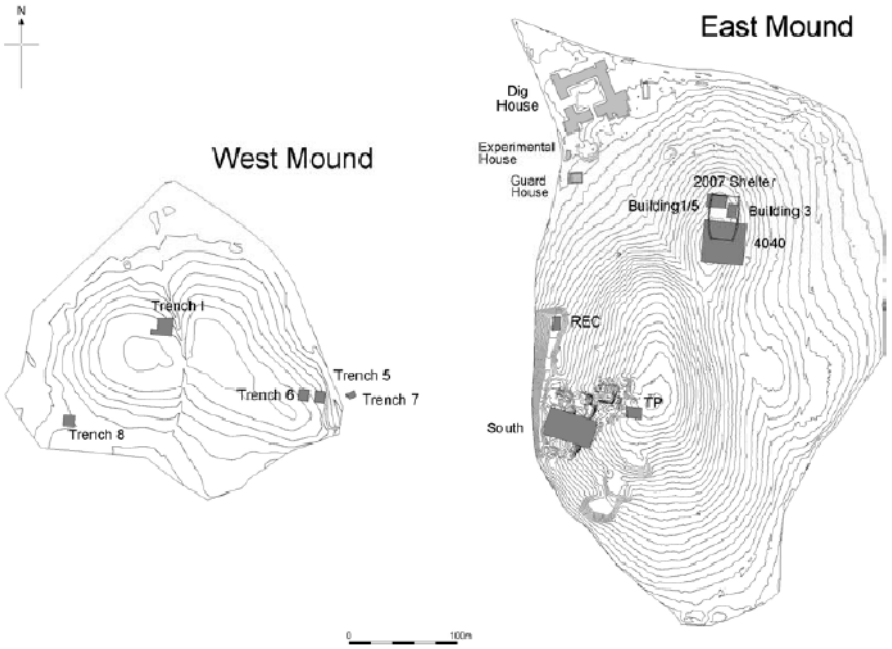

Fig. 3-62: Excavation Areas of Çatalhöyük
Source: Çatal News 2006

Fig. 3-63: Malleart Excavations, South Side
Source: (Özbaşaran & Cutting, 2007)

Çatalhöyük was a large Neolithic town with the inhabitance of 8000 people. The entrance to houses was through the openings on the roofs. The circulation within

the town was around the roof tops. The houses contain wall paintings and relieves carved on the walls (Hodder, 2008).

The site management plan for Çatalhöyük was prepared in 2005 by Aylin Orbaşlı and Louise Doughty and other members as part of the TEMPER Project (Çatalhöyük, 2011). Management plan contains detailed information about the background of the site, past and ongoing excavations, future actions. In order to provide a basis for the future actions and excavation and conservation decisions assessment of the values, threads and constraints was made and stakeholders were determined.

Çatalhöyük was inscribed on the World Heritage List in 2012, at the time that this study was conducted, as providing (ii) "a unique testimony to a moment of the Neolithic, in which the first agrarian settlements were established in central Anatolia and developed over centuries from villages to urban centres, largely based on egalitarian principles"; and featuring the Neolithic settlement (vi) "characterized by their streetless neighbourhoods, dwellings with roof access, and house types representing a highly circumscribed distribution of activity areas and features according to a clear spatial order aligned on cardinal directions" (WHC, 2012).

Çatalhöyük is significant as being one of the first agricultural sites outside the Near East, occupying a large area compared with its contemporaries and contains evidence of significant advancement in arts and craft traditions. Due to the nature of the materials used for construction in Çatalhöyük, remains are susceptible to water and highly vulnerable. After the excavations wall paintings are removed and displayed in Konya Museum, while the walls remain exposed. For the preservation of the wall remains, mud slurry is applied on the wall surfaces (TEMPER, 2004)

According to the management plan (2004), the south area offering a vertical section through the stratification and the 4040 area with the horizontal view of the Neolithic settlement have interpretive value (TEMPER, 2004). It's seen that, the positioning of the shelters is based on this argument.

A tent structure was built over the remains of Building 5 on north area for the objectives of conservation and presentation of the building in 1999. A walkway was designed around the remains with a series of information panels. The remains of the walls were consolidated. For re-adhering the delaminated plaster acrylic emulsions were used. Natural hydraulic lime grouting and mortar were used for the cracks (TEMPER, 2004).

Table 3.6: Temporary Enclosure in Çatalhöyük (C01)

Remain	Building 5
Protected Material	Earthen Architecture, Wall Paintings
Protective Structure	SpE
Construction Material	Steel Frame Structure covered with two-layered tent
Construction Date	1999
Architect	Lindsay Flack, Caitlin Moore, David Small, Paul Lapinski

Due to the shortage of the budget, the structure over Building 5 was decided to be consisted of steel frame structure covered with an opaque canvas. The steel construction was prepared by the company Cumra. The structure was designed by Lindsay Flack with the contributions of Caitlin Moore, David Small, Paul Lapinski. The building was designed as a simple shed, covered with two layers of tent with a slot on the roof (Fig. 3-64). The area in between two tents was providing ventilation with the circulation of air going through the opening on the roof. An iron bridge was designed covered with wooden panels as the walkway inside the structure overlooking the remains (Falck, 2000) (Fig. 3-65).

Fig. 3-64: During the Construction of the Tent Structure

Fig. 3-65: Temporary Enclosure over Building 5
Fig. 3-64-5 Source: (Çatalhöyük, 2011)

Fig. 3-66: Interior of the Temporary Enclosure
Source: (TEMPER, 2004)

Another protective shelter built in 1999 is the 'shade roof' over the south area. The project of the shelter was prepared by Lindsay Flack and Baran Özsoy of ARUP Engineering (Table 3.7) (Fig. 3-67). The first ideas for the roof were using local steel bar joist trusses covered with canvas. However, a sponsorship for the construction couldn't be found and the construction system changed as poplar

pole trusses covered with a canvas. Due to the problems statically, such as the shorter spans, the final form of the structure was changed as a light-weight tension cable net structure (Falck, 2000).

Table 3.7: Temporary Shelter in Çatalhöyük (C02)

Remain	South Area
Protected Material	Earthen Architecture, Wall Paintings
Protective Structure	MpS
Construction Material	Poplar pole columns covered with a translucent canvas
Construction Date	1999
Construction Area	120 m^2
Architect	Lindsay Flack, Baran Özsoy

Single pitch shelter was placed in north-south direction prevailing winds from the north. Poplar pole columns were placed over wood spreader plates which were supported with sand bags. Columns were strung by steel cables in 3 m intervals. Netting was prepared over the columns and a canvas was laid. The materials were supplied in Konya and construction was carried by the local workers. Shelter provided ideal working conditions with the shade it offers and natural illumination through the translucent canvas (Falck, 2000).

Fig. 3-67: Temporary Shelter on the South Area
Source: (Çatalhöyük, 2011)

First permanent shelter of Çatalhöyük was constructed in 2003 on the South Area (Table 3.8). The interpretation of the excavations on the south area was important due to the The shelter covering an area of 45 x 27 m is designed by Atölye Mimarlık architects. There is a 8 m of ground level difference between the two ends of the shelter. Entire excavation area on the south part is covered with the Summit Area excavated by the team from Thessaloniki between the years 1996 and 1998 (TEMPER, 2004).

Table 3.8: Protective Shelter in Çatalhöyük (C03)

Remain	South Area
Protected Material	Earthen Architecture, Wall Paintings
Protective Structure	MpE
Construction Material	Concrete foundations, steel space frames covered with fiberglass panels
Construction Date	2003
Construction Area	1.300 m^2
Architect	Sinan Omacan, Rıdvan Övünç

Site specific technical problems that the shelter had to cope with were the extreme weather conditions and decisions about the foundations. The foundations of the structure should have been minimalist due to the

archaeological deposits underneath, and strong enough for the wind and snow loads. The design of the shelter had to be compatible with the climatic conditions of high wind uplift, heavy snow and hot summers (TEMPER, 2004).

The reinforced foundations were designed encircling the trenches. The positions of the footings were fully excavated and documented. Work of the heavy vehicles was not permitted within the site and much of the work was done by labor force. Another issue that considered carefully was the impact of the shelter to the mound (TEMPER, 2004).

The structure was composed of steel space frames covered with fiberglass panels (Fig. 3-68-70). The panels were translucent allowing 50% light penetration inside. Side panels were designed as removable in order to allow opening in the summer season. Drainage channels were excavated around the building (TEMPER, 2004).

Fig. 3-68: View of the South Shelter

Fig. 3-69: Interior View of the South Shelter
Source: (Çatalhöyük, 2011)

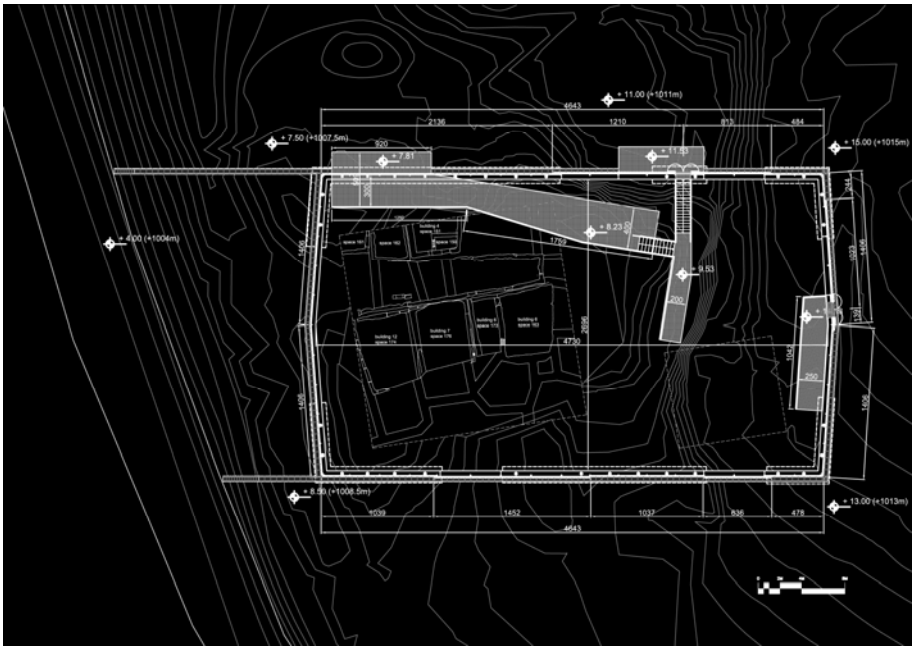

Fig. 3-70: Technical Drawings of the Shelter - Plan
Source: (Omacan S. , 2011)

For the preservation of the discovered earthen architecture, paintings and relieves and undergoing excavations the second permanent shelter of Çatalhöyük is designed on the northern part of the East mound over the 4040

area by Sinan Omacan and Rıdvan Övünç of Atölye Mimarlık. The planning of the shelter was started in 2004 and the construction works started in 2007. Construction of the shelter is completed in 2008 in 13 months. The aim of the shelter was to display the excavations and the remains throughout the year while providing a place where excavation could continue in summer. Shelter conserves the remains perfectly while providing a suitable environment for the excavations and fits the site and the remains very well (Hodder & Farid, 2008).

Table 3.9: Protective Enclosure in Çatalhöyük (C04)

Remain	4040 Area
Protected Material	Earthen Architecture, Wall Paintings
Protective Structure	MpE
Construction Material	Steel space frame covered with fiberglass panels
Construction Date	2008
Construction Area	1300 m^2
Architect	Sinan Omacan, Rıdvan Övünç

Shelter with the dimensions of 43 x 26 m covers an area of app. 1300 m^2. In 2007 excavations were conducted on the footing trenches of the shelter. During the planning of the shelter economical factors, long-term stability, access and view of the buildings were carefully considered. Building 5 was included within the shelter because the lifespan of the temporary shelter was over. Remains were reburied and the shelter was dismantled. (Hodder & Farid, 2007). The cost of the shelter construction was $105.000.

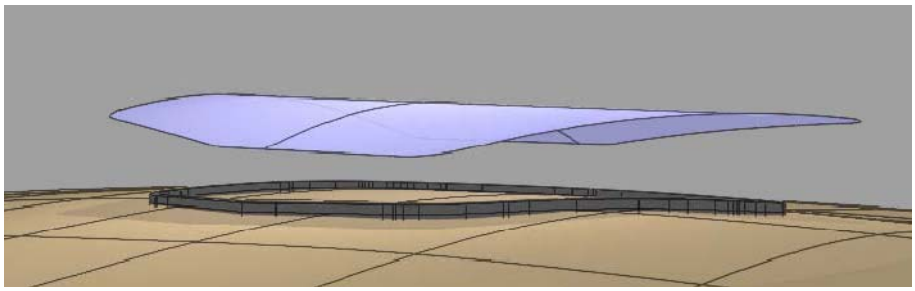

Fig. 3-71: Conceptual Drawing of the Shelter

Fig. 3-72: Reburying and Covering the Area with Sandbags

The structure was composed of wooden arches with various heights having the same diameter over the reinforced concrete foundations. Wooden purlins were fixed over the arches and covered with translucent induline polycarbonate panels (Omacan S. , 2011). The doomed superstructure made of compressed wood was brought from Austria and polycarbonate panels from France. The panels on the ends and sides of the shelter are removable. The construction was carried by a local Konya company. An interlocking wooden planking walkway was designed by Karis Eklung standing over sandbags. Information panels were placed within the walkway.

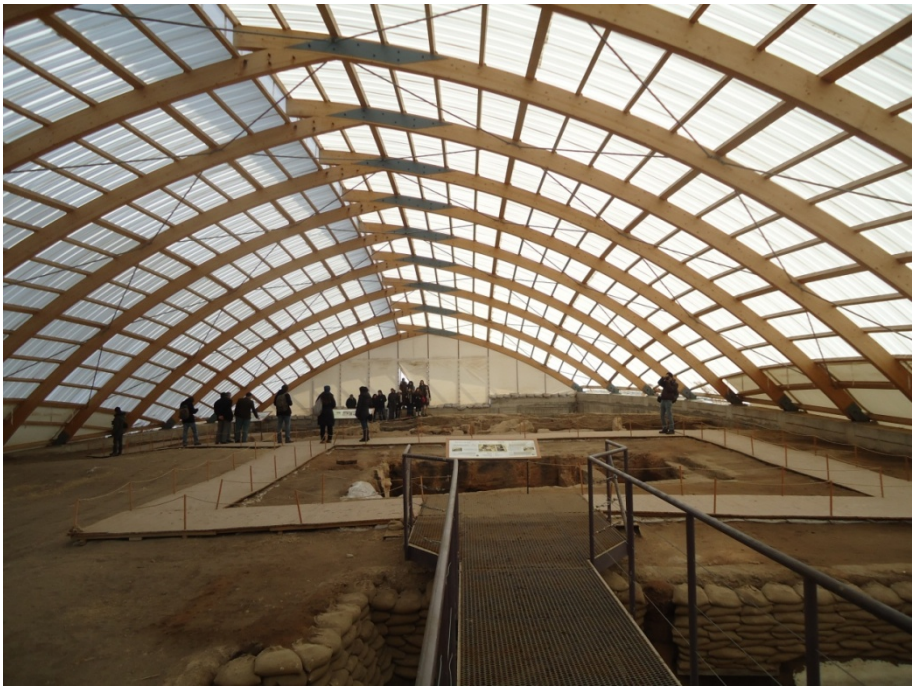

Fig. 3-73: Wooden Walkways within the Shelter

Fig. 3-74: View of the mound from the East with the Shelters
Source: Çatal News 2009

In 2008 a burnt structure was exposed under the shelter of 4040 and named as Building 77 (Hodder, 2008). Visual observations and regular monitoring reveals that the microclimate of shelter 4040 isn't suitable for burnt remains being more vulnerable than the others due to the extreme changes between the buried and exposed conditions. Although the relative humidity and temperature changes were similar to the previous shelter over the Building 5, fluctuations under the new shelter cause damage due to the instability of the microclimate. The flaps not closing properly in winter and opening for the comfort of the visitors affect the environment within the shelter adversely (Çamurcuoğlu, 2010). In 2010, deterioration has detected on the walls and plasters of Building 77 causing them softening even on the areas consolidated the previous year (Hodder, 2010).

Some alterations in the protective structure are required for competing with the impracticalities (Çamurcuoğlu, 2010).

Fig. 3-75: During the Construction (2007)

Fig. 3-71, 75 Source: (Hodder & Farid, 2007)

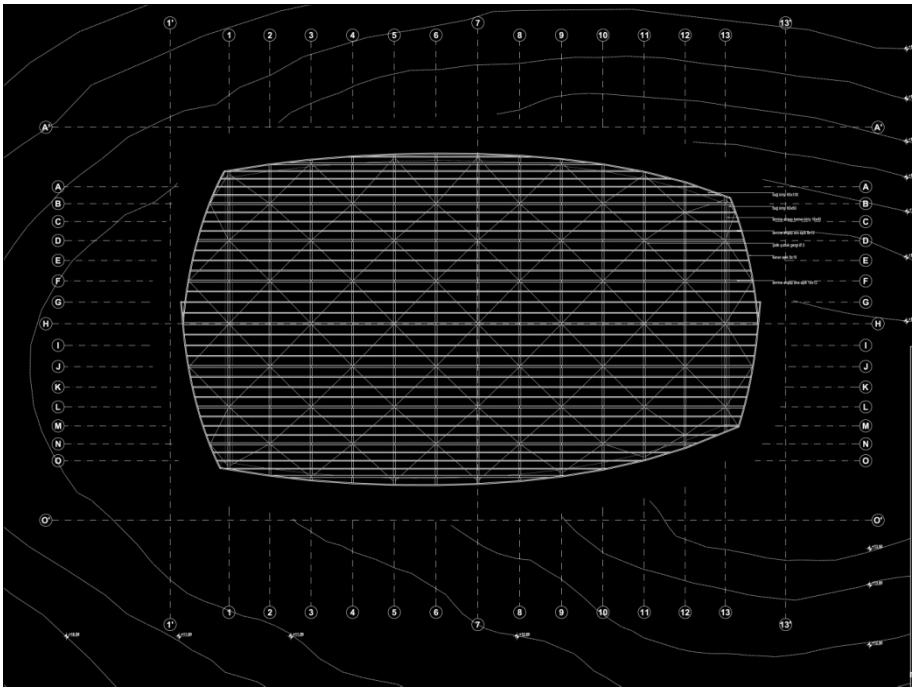

Fig. 3-76: Technical Drawings of the Shelter - Plan

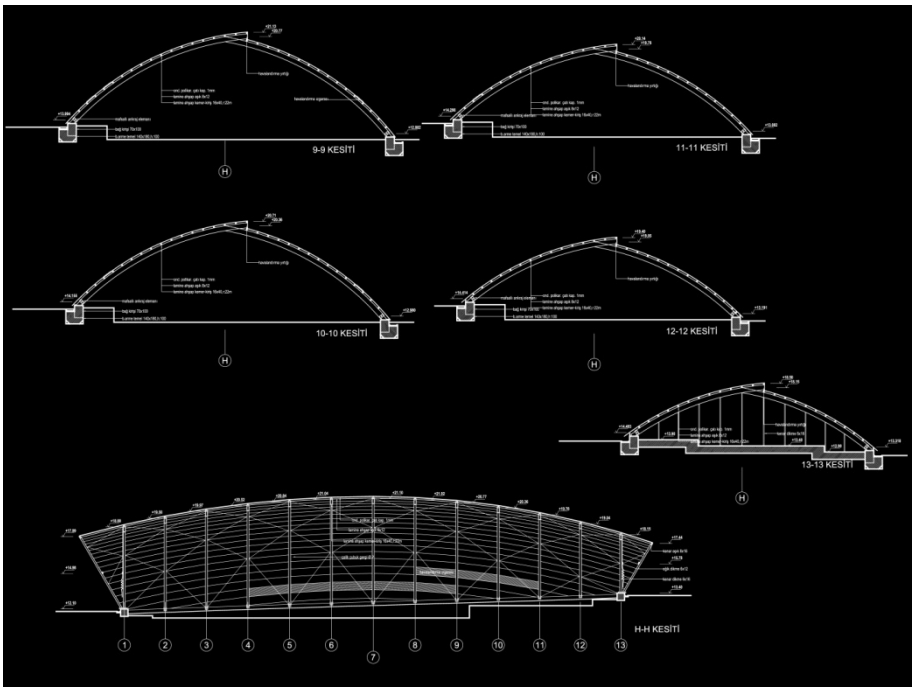

Fig. 3-77: Technical Drawings of the Shelter - Sections

Fig. 3-76-7 Source: (Omacan S. , 2011)

Various activities for the dissemination of the remains and the site are taken within the site. As part of the interpretation and visitor activities a visitor center is built in the courtyard of the excavation house. The replicas of wall paintings and small finds and informative panels are displayed in the visitor center. An experimental house was built between the years 1990 and 2002 under the guidance of Mirjana Stevanovic meeting the recommendations of the ICOMOS Charter for the Protection and Management of Archaeological Sites for the purpose of experimental research and interpretation. Reconstruction of a Neolithic house is not a replica of an original house but furnished with the common features of the excavated houses such as the wall paintings, platforms, hearth and ovens (TEMPER, 2004).

A site museum designed by Cengiz Bektaş is planned since 2005. The museum made of mud brick is decided to be 1.5 km's away from the site, near Çumra. However the excavation team faced financial obstacles and needed financial assistance. Resembling the Çatalhöyük settlement, the museum was planned like two hills with a welcoming center at the entrance and a playground for the children. Show rooms connected to each other with ramps were accessible addressing all the visitors. The dissemination of the findings were planned to be in layers imitating the stratigraphy in the archaeological site (Hodder, 2005).

Fig. 3-78: Museum designed by Cengiz Bektaş
Source: (Hodder, 2005)

3.3.5 Zeugma

Zeugma is one of the Greco-Roman towns situated on the banks of Euphrates River with Apameia, its contemporary on the east bank, in Belkıs District, Gaziantep (Kennedy, 1995). It is considered as one of the four most important cities of Commagene Kingdom. It was founded in 330 BC by Seleucos Nicator I and named as Seleuceia, also known as Seleuceia on Euphrates. The city was situated on the shallowest passable part of the river connecting Antiochia and Edessia therefore named as Zeugma in Roman times meaning bridge-passage (Ergeç, 1994).

Zeugma was mentioned for the first time in 18th century, in Pococke's travel notes with the name Zima located 20 km from Birecik. However, Pocoke's definition was obscure about the location and there is still a debate about the targeted city (Kennedy, 1995). Zeugma was discovered in 1917 by F. Cumont (Akyol, Kadıoğlu, & Demirci, 2011). Jörg Wagner has conducted surface surveys in 1971-72, discovered traces of Roman army in the area and published his

findings in his dissertation in 1976. Although the researches started in 1970s, salvage excavations were conducted more intensely after 1992 due to the construction of Birecik Dam which submerged and damaged Apameia wholly and Zeugma partially. The dam project with an area of 57 km^2 has submerged many sites and monuments including Tilöbür, Tilmes, Tilmusa and Horum Tills without sufficient documentation and research done. 1/3 of the archaeological site Zeugma, covering an overall estimated area of 20 km^2, was flooded by the lake formed as Birecik Dam with the area 4000-5000 m^2 discovered and conserved till 2005 (Başgelen, 2005).

First scientific excavation in Zeugma was conducted in 1987 by Gaziantep and Malatya Museums in two tomb chambers in the necropolis which had been attacked by unlawful excavations (Ergeç, 2000). In 1992, excavations of antiquity smugglers were noticed exploring mosaics beside Belkıs Village. Gaziantep Museum started an excavation in the area with the aim of discovering and moving the mosaics to the museum. In the excavations, surprisingly remains of a roman villa were discovered with frescos on the walls and mosaics on the floors. Excavation team decided not moving the mosaics but conserving them by reburying. However, due to the risk of vandalism and the need for the presentation of the mosaics, the area is conserved and protected with a temporary shelter. The shelter was constructed with iron profiles and covered with corrugated iron sheets. For the visitors an opening was left at the top with a removable cover. South side of the shelter and the opening was covered with wire-mesh for just giving a visual access but protecting the mosaics from smugglers (Ergeç, 1994).

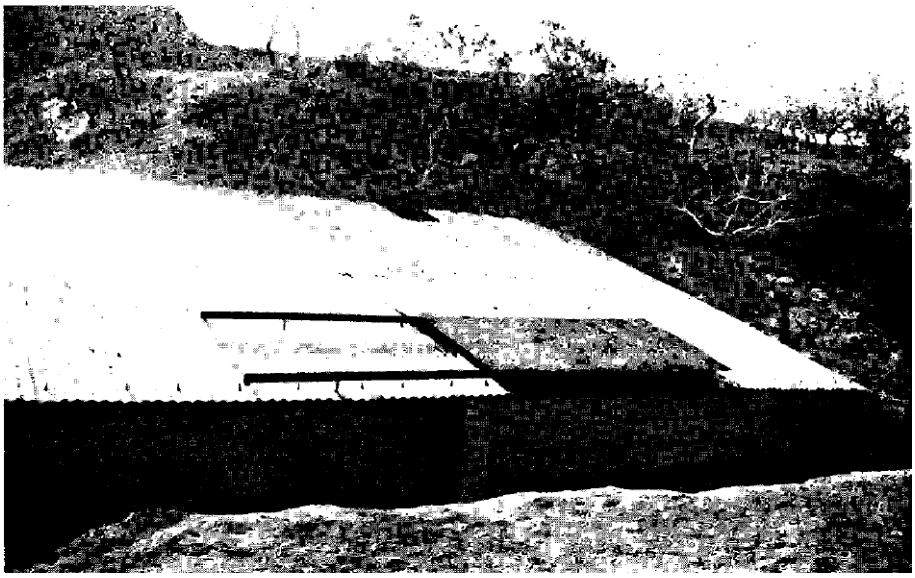

Fig. 3-79: Temporary Protective Shelter

Table 3.10: Temporary Shelter in Zeugma (Z01)

Remain	Two Rooms of Roman Villas
Protected Material	Mosaics, Frescos, Architectural Textures
Protective Structure	PcS
Construction Material	Iron profiles covered with corrugated sheets
Construction Date	1992
Construction Area	150 m^2

In the mosaics covering an area of 7,30 x 10 m, Wedding of Dionysos and Ariadne was depicted with Eros and seven other characters (Fig. 3-80). However, the precautions taken for the protection of the mosaics wasn't sufficient enough and in June 1998, 6 characters were carved and stolen (Başgelen, 2005).

Fig. 3-80: Mosaics depicting the Wedding of Dionysos and Ariadne

The excavations of Gaziantep Museum were continued till the year 1994 with the contributions of Prof. Dr. David Kennedy and his team from West Australia University in 1993. New discovered mosaics were moved and conserved in Gaziantep Museum (Ergeç, 1996). In 1994, Catherine Abadie-Reynal of Nantes University had carried out surface surveys and in 1996-2000 salvage excavations in cooperation with Gaziantep and Şanlıurfa Museums in Zeugma and Apameia (Abadie-Reynal, 1997). In 1996, during the constructions of the dam, mosaics were encountered and salvage excavations were conducted with the financial support of the company responsible with the constructions. In the excavations of Gaziantep Museum, a Roman Bath and some individual buildings around composing a military purposed complex were explored (Ergeç, 1998).

In 1997, Martin Harmann and his team joined the salvage excavations, and carried a number of studies on the roman military camp (Hartmann, Speidel, & Ergeç, 1999). In 1998-1999, in İskeleüstü location, salvation excavations were conducted by Gaziantep Museum, exploring an archive chamber with the dimensions of 4,55 x 5,10. In the archive room, 65000 clay bullas were found, being the largest discovery in scientific excavations (Başgelen, 2005)(Önal, 1998).

In 2005, systematic excavations were restarted under the directorate of Prof. Dr. Kutalmış Görkay. Görkay conducted excavations in Dionysos and Danae Terrace houses which were discovered in 1998 with the salvage excavations of Gaziantep Museum. In 2007 two more villas connected to these houses were discovered.

The protective enclosure over the Villas of Dionysos and Danae with the neighboring two houses was constructed in 2010. The aim of the structure was conserving the frescos, mosaics and architectural textures of the houses against the damage of weather conditions, and presentation of the remains in each season of the year. The place excavated by Ergeç, the villas housing the depiction of the wedding of Dionysos and Ariadne is disseminated under this shelter in the present day.

Table 3.11: Protective Enclosure in Zeugma (Z02)

Remain	Roman Villas
Protected Material	Mosaics, Frescos, Architectural Textures
Protective Structure	McE
Construction Material	Steel Structure, Glass
Construction Date	2010
Construction Area	1850m^2
Architect	H. Sinan Omacan, Rıdvan Övünç, Ayça Özmen, Ceren B. Övünç, Didem Teksöz

Air temperature was critical ranging up to 50°C in summer, and intensity of the sunlight hardened the visibility of the remains and the excavations. The structure was designed for meeting both the architectural and conservation requirements. Outer shell was formed against the weather conditions with the influence of the topography, while the inner shell was responding the demands of archaeology. Interior illumination and air ventilation was achieved with the space in between these two skins (Omacan H. S., 2009).

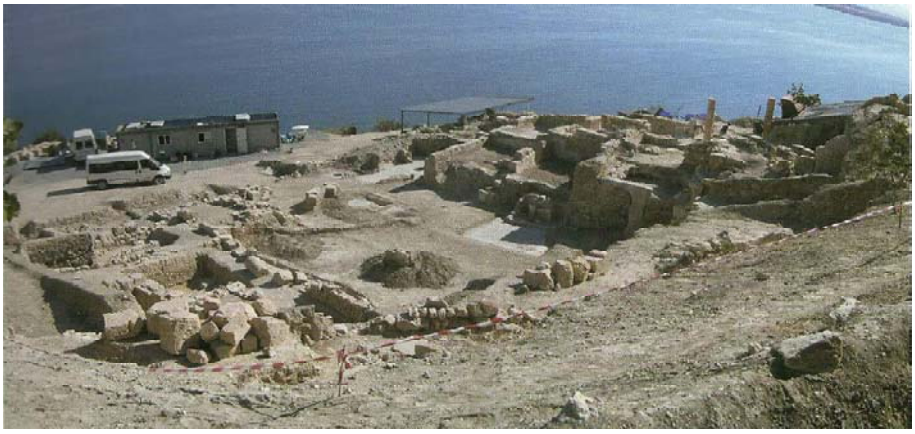

Fig. 3-81: Excavations of Dionysos and Danae Villas

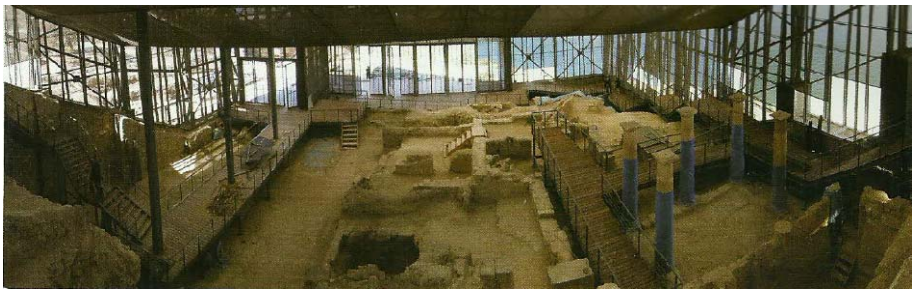

Fig. 3-82: Interior View of the Shelter

Fig. 3-81-2 Source: (Omacan S. , 2011)

Foundations of the structure were developed according to the locations of the remains on the site. After the preliminary drawings and surface surveys, the locations of the foundations were decided. The concrete foundations circulated the remains. With the help of the long span steel trusses, load bearing steel columns were placed upon the foundations, leaving a 30 m wide, singular space within the structure. Inner shell was composed of porous textile net and the exterior part was covered with a semi permeable, perforated metal plate. Materials were selected with the concern of achieving the ideal ventilation and illumination conditions inside the structure (Omacan S. , 2011).

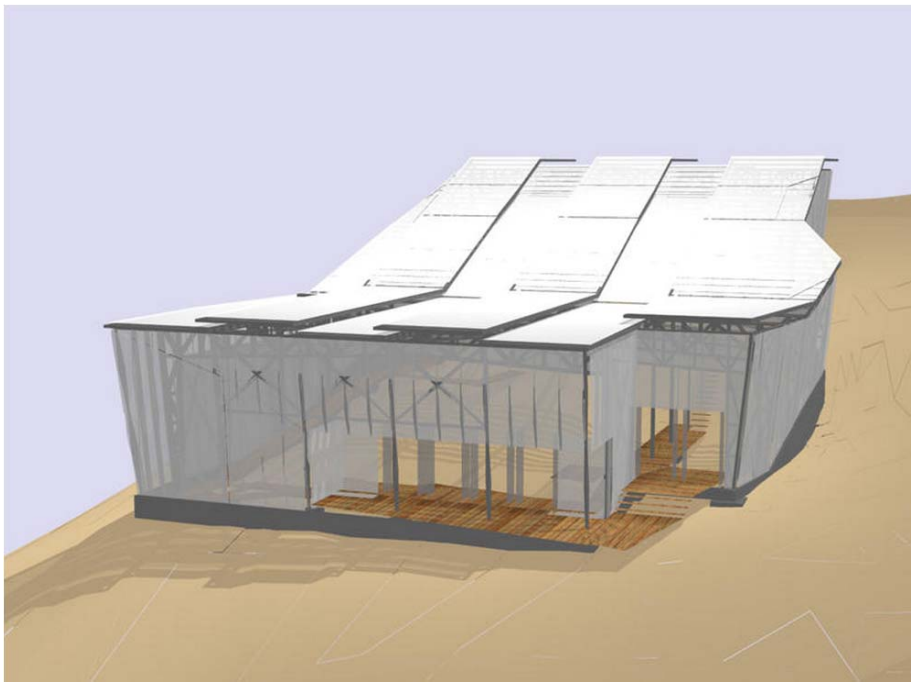

Fig. 3-83: Modal of the Structure
Source: Zeugma Archaeological Project

Wooden platforms within the structure were designed overlooking the remains from a level higher than the remains. These platforms with steel supporters are going all around the shelter and offer views from different angles.

Fig. 3-84: Technical Drawings of the Shelter - Plan

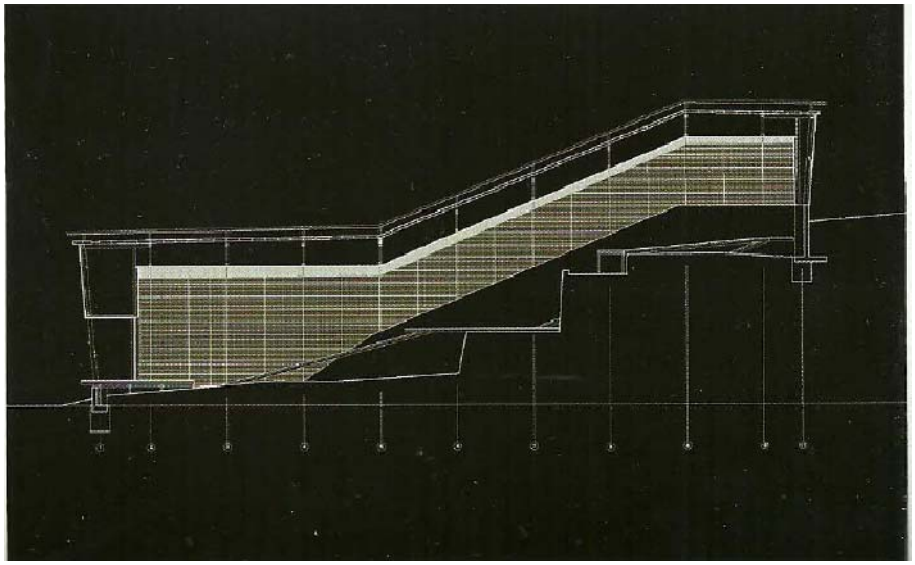

Fig. 3-85: Technical Drawings of the Shelter - Section

Fig. 3-84-5 Source: (Omacan S. , 2011)

3.3.6 Karatepe

Architectural discoveries of Karatepe, ruins of late Hittite Castle, are located 150 km north-east of Adana, on top of Anti Taurus Mountains. Karatepe is discovered in 1946 by the shepherds and reported to Naci Kum, Director of Adana Museum of that period (Governorate of Osmaniye, 2010). Excavations started in 1946 of the site are chronologically carried out under the directorate of Prof. Dr. Helmuth Thedor Bossert, Bahadır Alkım and Halet Çambel. Today, excavations are still done under the directorate of Prof. Dr. Halet Çambel (UNE, 2009).

During the archaeological research, two porticos of the castle, castle walls and ruins of a structure built within the castle were discovered. The basement walls of the porticos, which were one meter high, made of basalt stone with late Hittite inscriptions, were highly impaired and deteriorated. The remains of southwest entrance were displaced and dilapidated. Statues found were relatively well conserved (Çambel, 1956).

In Karatepe, rapid changes in the weathering conditions adversely affected the remains. While the measured temperature was 65°C in the morning, rains started in the afternoon and temperature decreased to 15°C at nights causing new cracks and fallouts on the surface of the remains. After their exposure immediate decay was observed on the remains. The conditions of the basalt stone was declined due to the changes of temperature and weathering conditions. The analysis carried at the beginning and end of the excavation seasons revealed an increase in the cracks and deteriorations. Earlier interventions such as the wooden logs placed in between the statues started to be corroded and resulted in further damage due to the pressure on each other (Çambel, 1956).

The immediate decline of the remains emerged the issue of their long term conservation. According to Çambel (1956), inadequate decisions and mistakes during the excavations may result in destruction of the remains and safeguarding is a responsibility of the excavators. If the immediate protection cannot be realized, it would be better to rebury the remains. The duty of a

researcher does not only involve the excavation and exploration of the remains but also their safeguarding and continuation (Çambel, 1956).

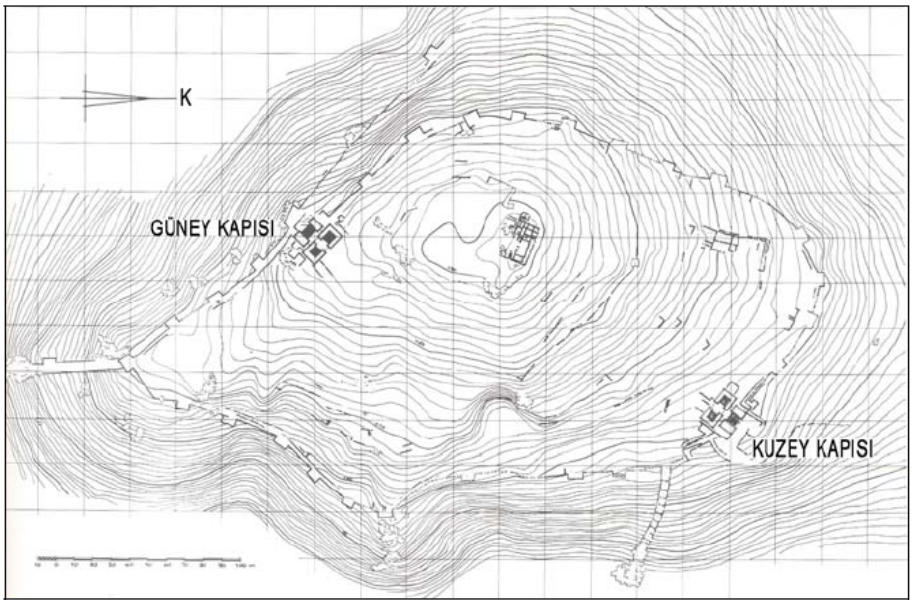

Fig. 3-86: Karatepe Site Plan

Fig. 3-87: North East Portico

Due to the location of the site, it was hard to move the remains to another place without proper roads and a good place for their protection (Çambel, 1999). In between the alternatives of reburying, moving the remains to somewhere else and in situ conservation, Çambel (1956) decided to build a protective structure

over the remains and safeguard them in their original places. In 1952, the decision of in situ conservation was given by the General Directorate of Ancient Arts and Museums and restorations were started with the supports of Turkish Historical Society and Italian Central Institute of Restoration of Rome. The interventions include reassembly of the inscriptions, sphinx, relief and statues and consolidation of the architectural remains (Fig. 3-88). The projects of a new concrete shelter were prepared by Franco Minissi. However, the conditions of the remains were unable to have a season without any protection. A temporary shelter (Table 3.12) was constructed over the remains, saving time for the new permanent shelter (Çambel, 1956).

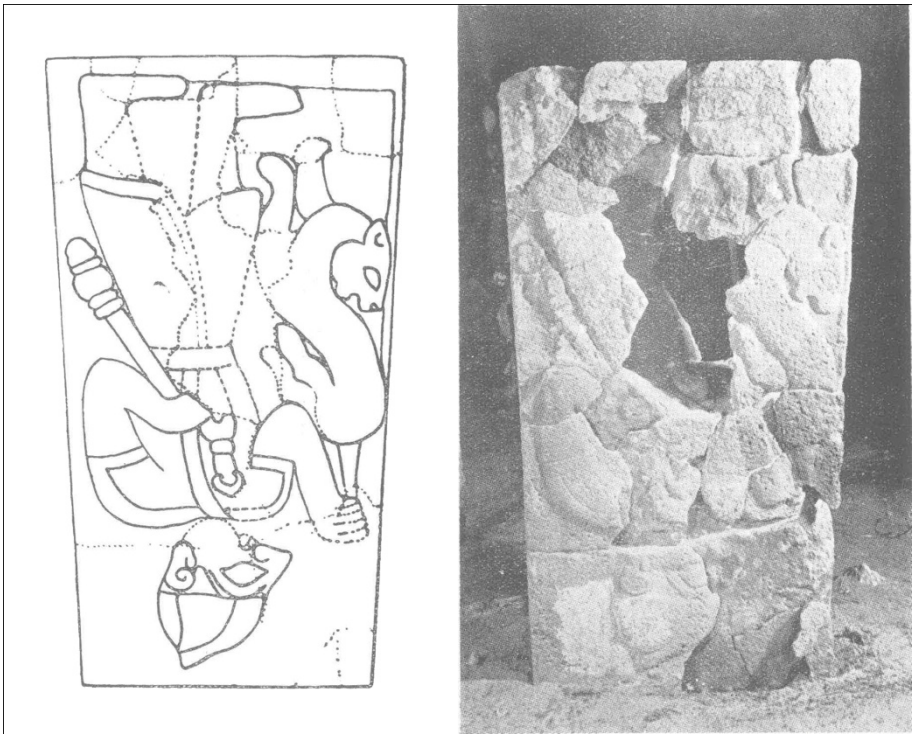

Fig. 3-88: Restoration of a hunt-scene Relief

Table 3.12: Temporary Shelter in Karatepe (K01)

Remain	Hittite Castle Remains
Protected Material	Basalt stone
Protective Structure	MpS
Construction Material	Onduline iron sheets
Construction Date	1952
Construction Area	ca 600 m^2

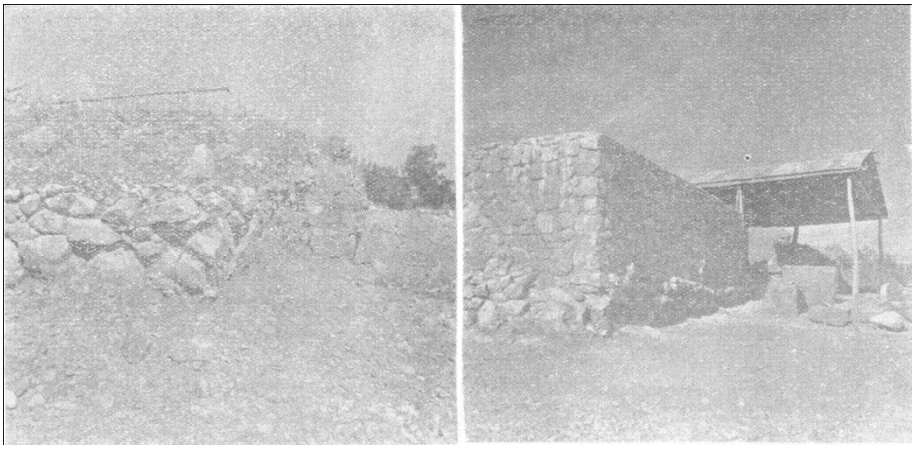

Fig. 3-89: Before and After the Consolidation of City Wall

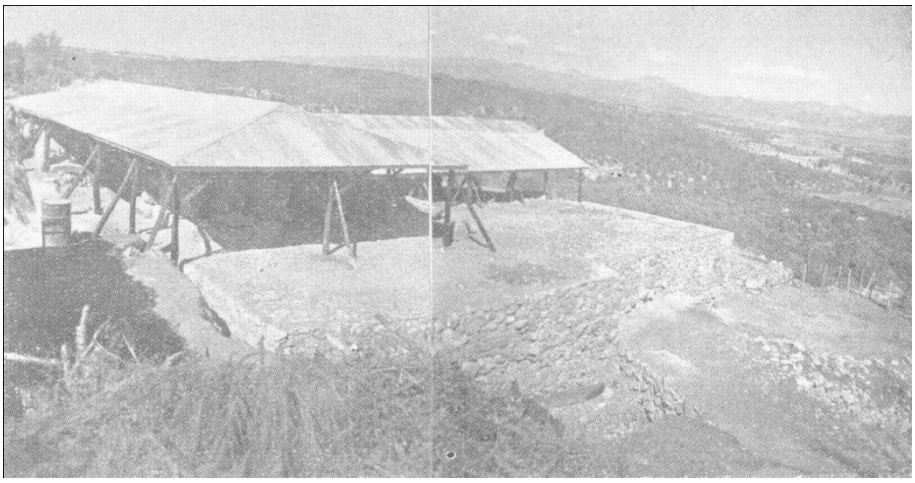

Fig. 3-90: General View of the Roof and NE Portico Front and Rear Towers

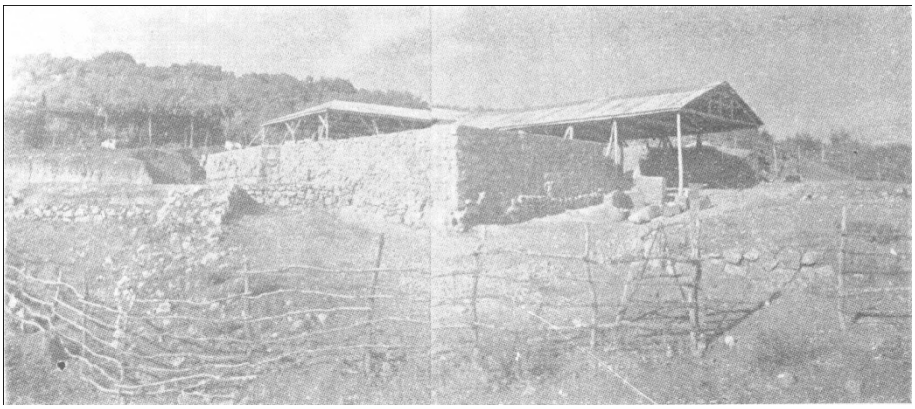

Fig. 3-91: General View from East

Fig. 3-87-91 Source: (Çambel, 1956)

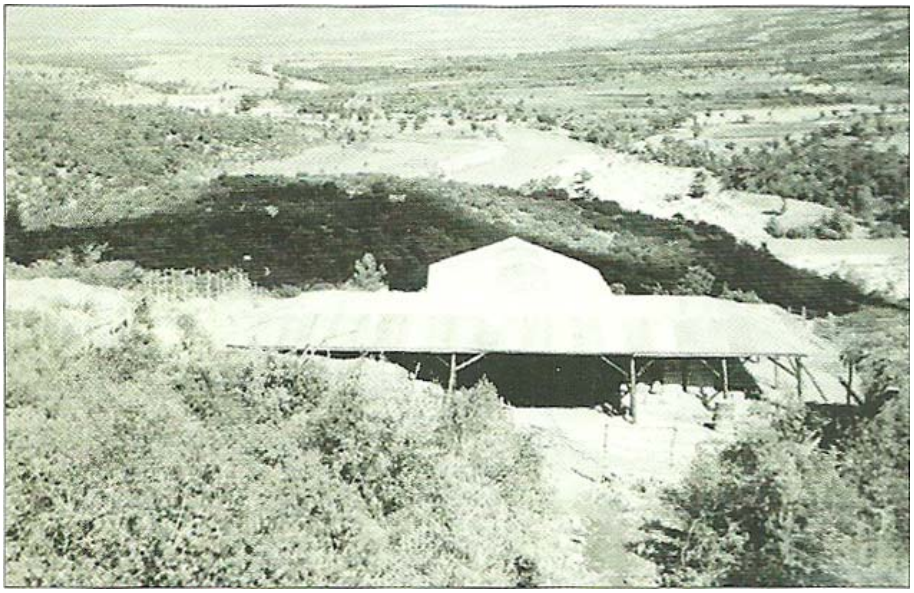

Fig. 3-92: General View of the Temporary Shelter

The excavations started as an archaeological research have evolved into a project including in situ conservation of the architectural remains, their presentation within the natural and historical context and preservation of the natural and man-made environment (Çambel, 2010).

The project for the shelters prepared by Franco Minissi was not applicable due to the material selections as prefabricated panels with twisted steel bars and fittings; Turgut Cansever's raw concrete shelter is selected.

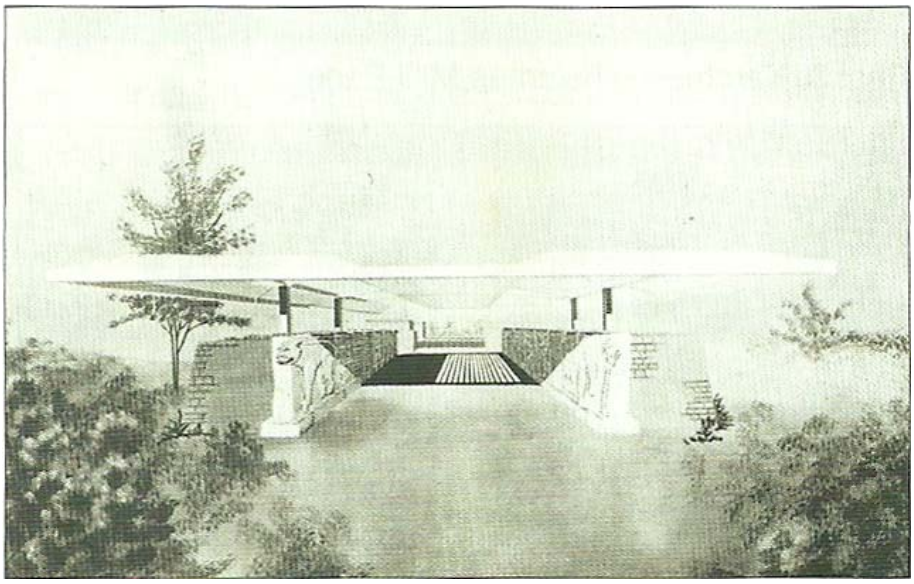

Fig. 3-93: Shelter Project by Frank Minissi

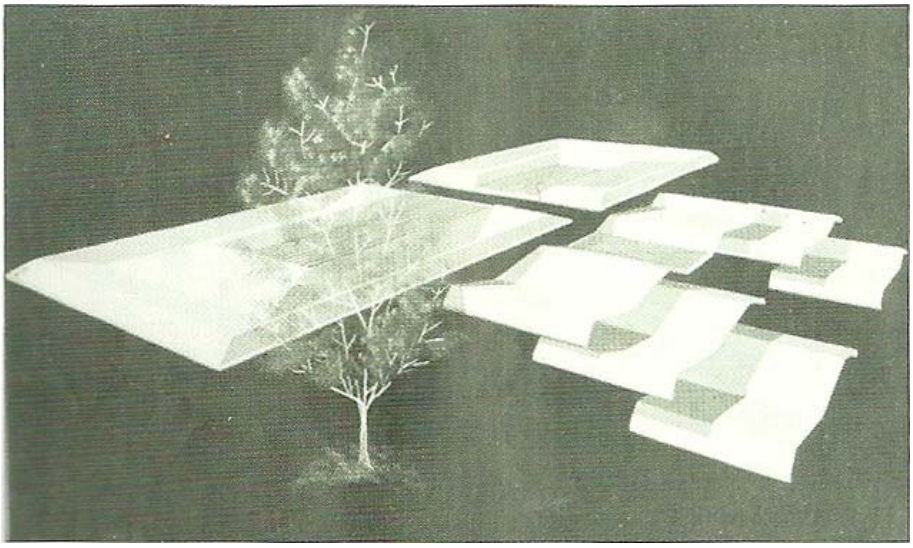

Fig. 3-94: Minissi's Project, Prefabricated Panels

In order to protect the remains in place, a protective structure widely known as 'Karatepe Eaves' over the findings is designed by Turgut Cansever in 1957 and the construction is carried out between 1957 and 1961 by Nail Çakırhan. In 1958, with the Ministerial Consent Order No: 6685-19, the area including the remains is pronounced as Natural Park. With the roof supported by concrete columns, an open air site museum is established, forming a first in Turkey (Governorate of Osmaniye, 2010).

Table 3.13: Protective Shelter in Karatepe (K02)

Remain	Hittite Castle Remains
Protected Material	Basalt stone
Protective Structure	MpS
Construction Material	Reinforced concrete structure with wooden and glass ceilings
Construction Date	1961
Construction Area	ca 1200 m^2
Architect	Turgut Cansever

Cansever's design is a complex with two protective shelters over the porticos and an excavation house.

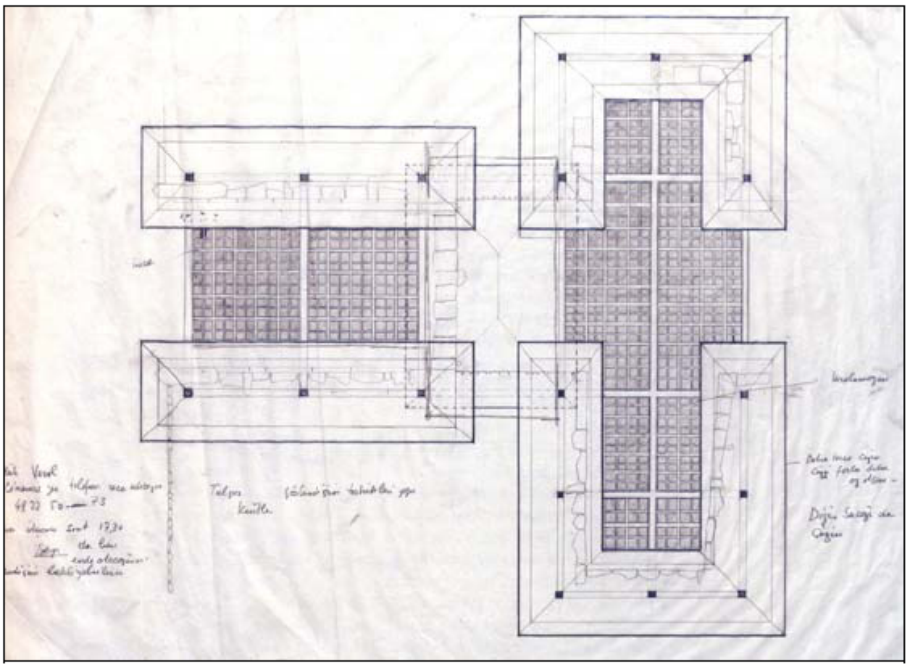

Fig. 3-95: Plan of Karatepe Eaves

Source: (Tanyeli & Yücel, 2007)

Fig. 3-96: Karatepe Eaves, SW Portico

Fig. 3-97: Karatepe Eaves, SW Portico

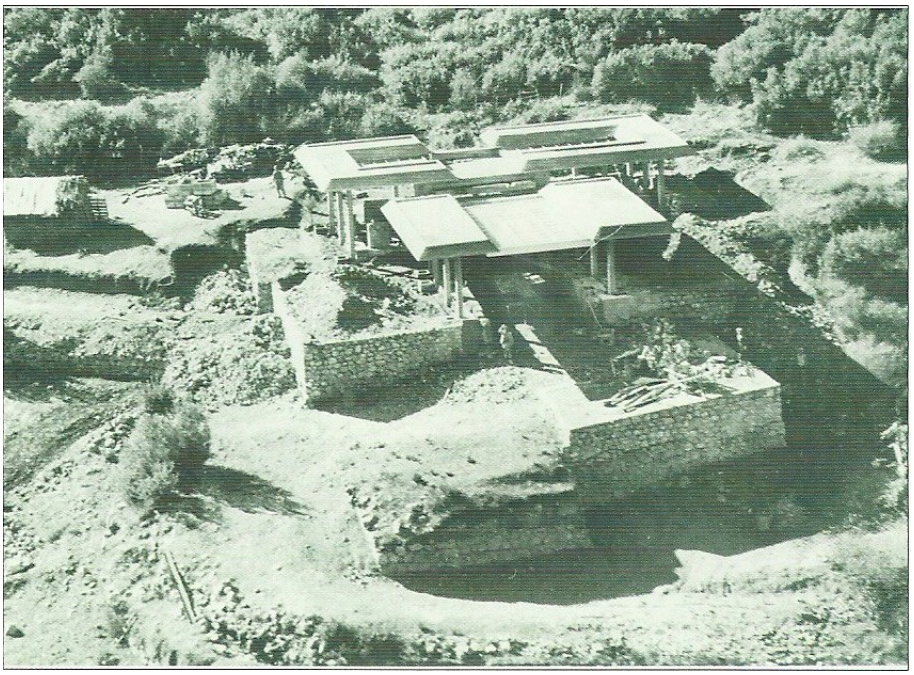

Fig. 3-98: Karatepe Eaves, NE Portico

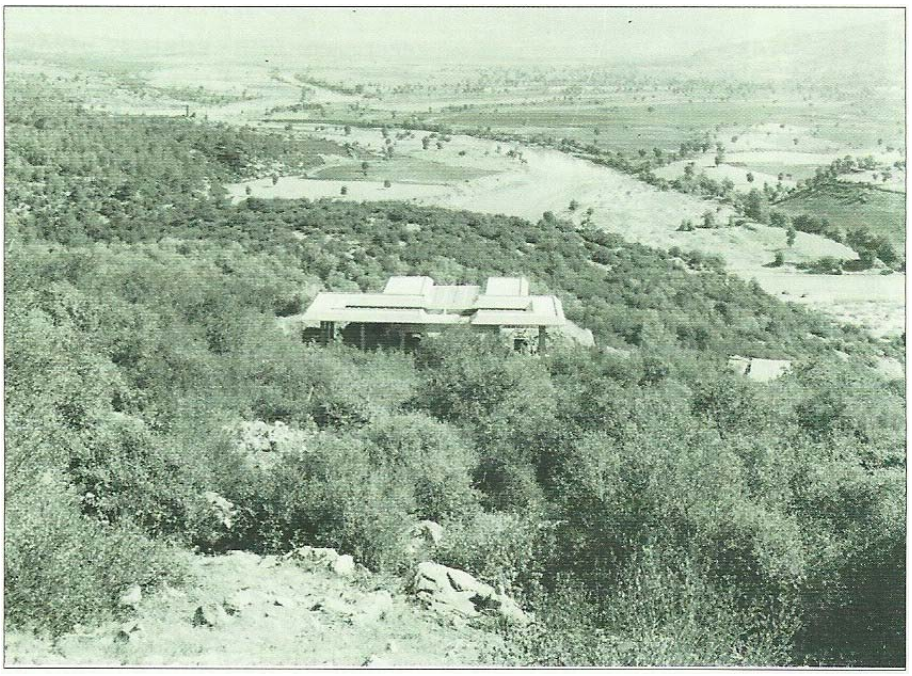

Fig. 3-99: Karatepe Eaves, NE Portico

Fig. 3-92-9 Source: (Çambel, 2010)

Fig. 3-100: Karatepe Eaves (same direction see Fig. 3-89)

3.3.7 Troia

Troia is in northwest Turkey, in Çanakkale. Troia is situated in a strategic position beside Dardanelles in between two continents, on the beginning of the passage between Aegean and Black Sea on a limestone plateau beside Mount Ida. The location of Troia has been a convenient place in terms of the natural and environmental conditions, cultural and economical activities. Mound of Troia hosted 3500 years of habitation with many civilizations on its layers having a height of 15 meters.

Troia has been mentioned with various names in the history. It is Wilusa or Truwisa in Hittite sources, Illion in Greek, Illium and Troia in Latin and Troy, Truva and Hisarlık Höyük in later times. It is a well known place as being the setting of War of Trojan especially described in Homer's Iliad.

The first settlement in Troia was in the 3rd millennium BC during the Bronze Age. The city was destroyed as a result of the Hittite invasions in the beginnings of 2nd millennium BC.

The legendary War of Trojan and the location of Troy was a speculation till the facts were achieved. In 1822 Scottish Journalist Charles Maclaren had reviewed the available material on the subject and mentioned the location of Troy on Issarlik Tepesi in the north of Anatolia (Maclaren, 1822). First surveys were conducted by Frank Calvert in 1865 and published in scholarly journals. In 1870-1890 Heinrich Schliemann conducted excavations with a permission of the empire and discovered many ruins. After his death, in 1893-1894 Wilhelm Dörpfeld conducted the excavations. The excavations in Troia were stopped till 1932 and C.V. Blegen made excavations till the year 1938. After an interruption of 50 years, excavations in Troia started under the directorate of Manfred Korfmann in 1988 (Korfmann, 1990).

The area of 13.350 hectare including the archaeological site of Troia was registered as national park in 1996. Troia was inscribed on the World Heritage List in 1998 based on the following criteria: (ii, iii) it is "of immense significance in the understanding of the development of European civilization at a critical stage in its early development"; (vi) it is "of exceptional cultural importance because of the profound influence of Homer's Iliad on the creative arts over more than two millennia" (WHC, 1998).

In the excavations on the G6 trench, remains of citadel walls belonging to layer II, which was known as burnt city till Schliemann's excavations, were discovered in 1997, and in 1998 a Megaron building was explored (Fig. 3-102). Megaron structure inside the citadel walls had a typical plan organization with an ante and main room with a round hearth at the centre. The walls of the remain were over 1,5 m covered with white roughcast (Korfmann, 2000). Citadel walls were standing with a preserved height of over 4 m with a reddish color due to the fire. Excavations of the megaron were ended in 1999 with the exposure of the front side of the building (Fig. 3-102). Destruction of the cult building was dated to the years 2290-2200 BC by the analysis of C14 belonging to the Layer III, end of Troia II (Korfmann, 2001). Earthen citadel walls over stone foundations and the Megaron structure standing behind were restored and consolidated under the supervision of İsmail Tamtürk and Göksel Sağcı (Korfmann, 2004).

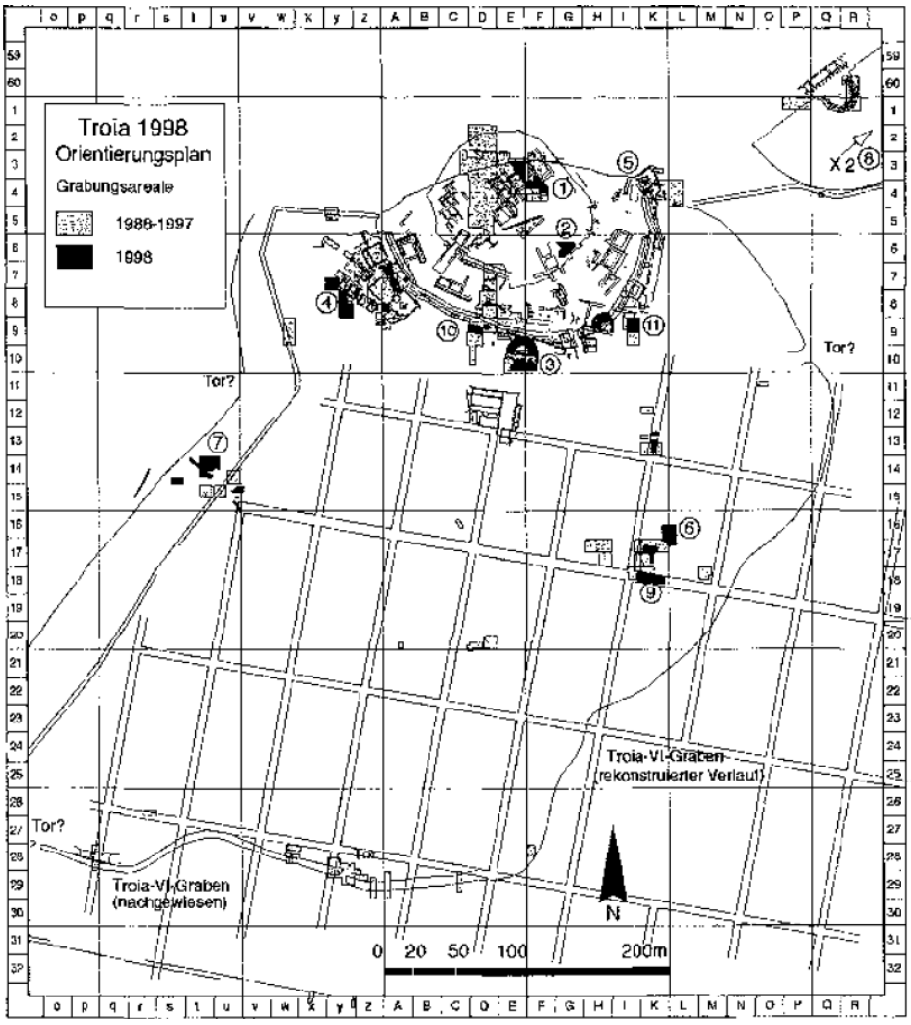

Fig. 3-101: Excavations of Citadel Walls and Megaron N.2 on map

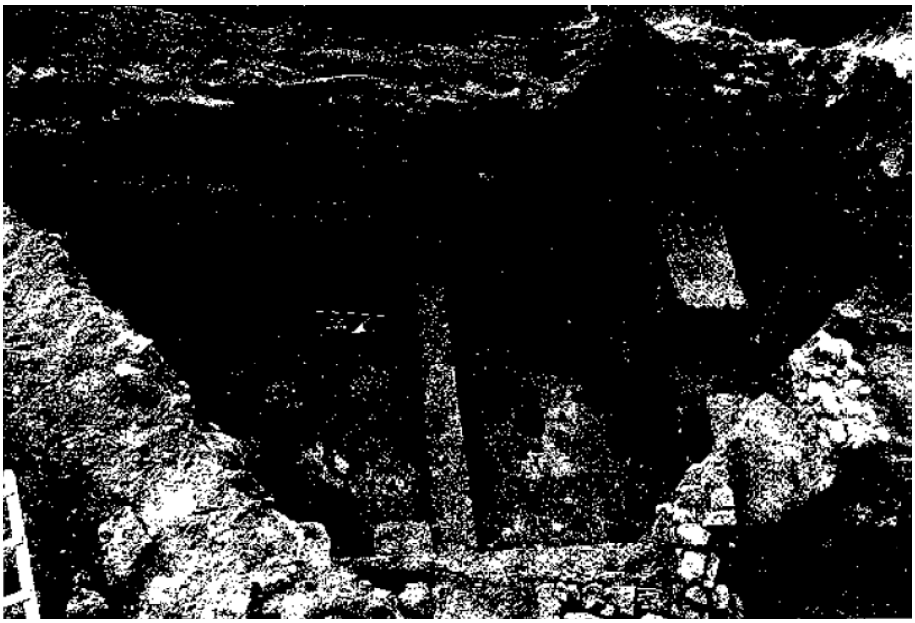

Fig. 3-102: Megaron after its Exploration

Fig. 3-101-102 Source: (Korfmann, 2000)

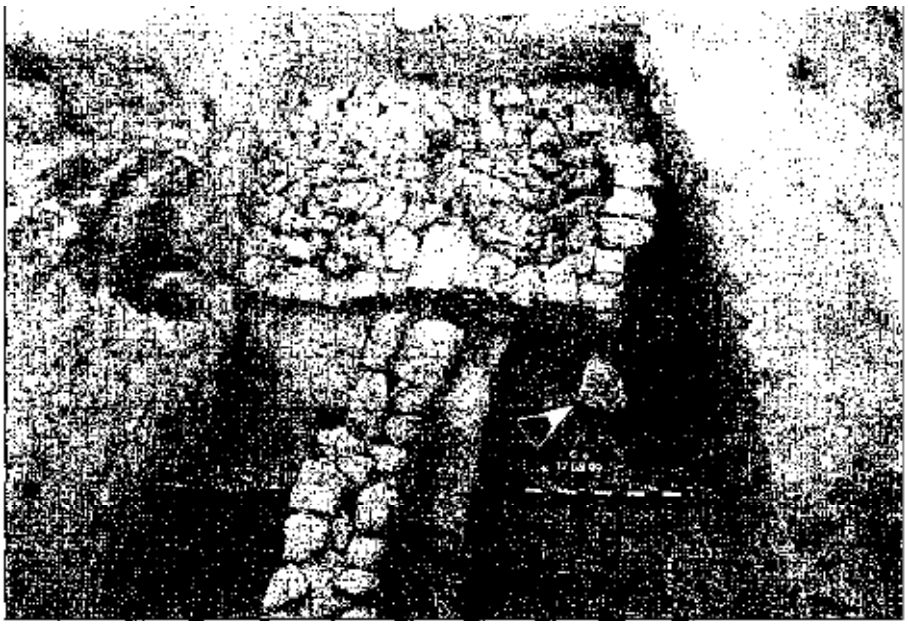

Fig. 3-103: Entrance of Megaron

Source: (Korfmann, 2001)

Citadel walls were reconstructed covering the original structure with hand-made mudbricks in order to conserve. The reddish color of the original materials was imitated in the reconstructions in order to preserve the burned image. In 2003, a

protective shelter was erected on the remains of Megaron Building. The steel frame membrane tensile structure is designed by Björn Rimner. The financial sponsorship was undertaken by DaimlerChrysler and Siemens A.Ş. (İstanbul). The surveys for placing the foundations were done before the erection of the structure. Calculations were made and precautions were taken estimating the area in centimeters (Korfmann, 2004).

Table 3.14: Protective Shelter in Troia (T01)

Remain	Megaron
Protected Material	Earthen Remains
Protective Structure	SpS
Construction Material	Steel Frame Membrane Tensile Structure
Construction Date	2003
Construction Area	700 m^2

The structure was designed as a landmark that can be easily seen from a distance in the boundaries of the conservation area. The height of the shelter matched up with the original height of the mound of Hisarlık when Schliemann had started his excavations in 1871. The sail-like membrane and the form of the shelter imitates the wind blowing from the north-east, which brought wealth to Troia. The remains of the megaron and citadel walls are the only mudbrick structures in Troia. The shelter emphasizes the significance and vulnerability of the structures beneath. It is important for the visitors to see the mudbrick walls, which were once composing the overall mound (Korfmann, 2004).

Fig. 3-104: Protective Shelter from the West

Fig. 3-105: Protective Shelter and the Remains soon after its Erection

Fig. 3-104-5 Source: (Korfmann, 2004)

Tourist routes planned within the site with information panels and recreation points, are leading the visitors to the shelter with its various perspectives on the way. At the beginning of the wooden walkways where the shelter can be seen at

a distance, a sign informs the tourists about the shelter imitating the appearance of the mound before Schliemann's excavations (Fig. 3-106).

Fig. 3-106: View of the Shelter and Information Sign

Another confrontation with the shelter before entering the area of Megaron, is beside the beginning of citadel walls with a perspective in between the trees (Fig. 3-107). On the information panel, significance and period of the citadel walls and interventions are described including the photos after the exploration and process of reconstructions. Information about the designer and sponsors of the shelter is given. An extra sign is put beside the information panel describing the shelter representing the winds contributed affluence of Troia (Fig. 3-108). The same sign welcomes the visitors under the shelter.

Fig. 3-107: View of Citadel Walls and the Shelter

Fig. 3-108: Information Sign

Route turns around the megaron under the shelter and leads to the other remains within the site.

Fig. 3-109: Entrance to the Sheltered Area

Fig. 3-110: Remains of the Megaron

According to the official records of 2011, of General Directorate for Cultural Heritage and Museums, there are 131 arranged archaeological sites and 169

Museums in Turkey that the entrances are under the control of the ministry. Troia is the 5th most visited archaeological site among 320 with 515.905 people. The ancient site was visited by 1500 people every day (KVMGM, 2011).

After Troia the same kinds of shelters were applicated in the world. To protect the Ħaġar Qim and Mnajdra temples in the Island of Malta, after a competition project, two shelters are built in 2009 resembling the wind shelter in Troia.

Fig. 3-111: Shelter of Ħaġar Qim and Mnajdra Temples
Source: http://www.arcspace.com/architects/formtl/malta/malta.html

3.3.8 Arslantepe Höyük

Arslantepe Höyük is an artificially formed mound (höyük) 7 km away from Malatya, in Orduzu district close to west banks of Euphrates (Fig. 3-112). The name of tell site is derived from the lion statutes explored. Dimensions of the area is about 200 x 120, with the height of the cultural stratification close to 30 m. Arslantepe was occupied constantly from the late chalcolithic to late Hittite periods, earliest finds dating back to 5th millennium BC. In the 5-6th AD, the area was occupied by a roman village and in Byzantine period the area was used as a cemetery (Şahin H. , 2010).

Fig. 3-112: Aerial View of Arslantepe Höyük

A survey about the location of the höyük was made by H. H. von der Osten in 1927-28. First scientific excavations were conducted in the years 1932 to 1939 by L. Delaporte on the neo-Hittite levels (Fig. 3-113). C. Schaffer and his team carried studies on the central part of the höyük between the years 1947 and 1951, for determining the sequence of settlement periods. Italian excavations in Malatya started in 1961 under the directorate of Prof. Piero Meriggi of Pavia University (Puglisi, 1962).

Fig. 3-113: During the Excavations in Arslantepe

Mudbrick walls of the monument were well preserved with original white plasters, figurative frescos and an height up to 2-2,5 m (Fig. 3-114). Excavation team checked through the interventions in order to find the most suitable one. Consolidating the walls by rebuilding new sections over was refused due to the height of the walls and the conservation principles. Plastering was inapplicable on account of the frescos. Chemical consolidation was refused because the solutions wouldn’t penetrate inside walls having a thickness of 1-1,2 m (Frangipane, 2010).

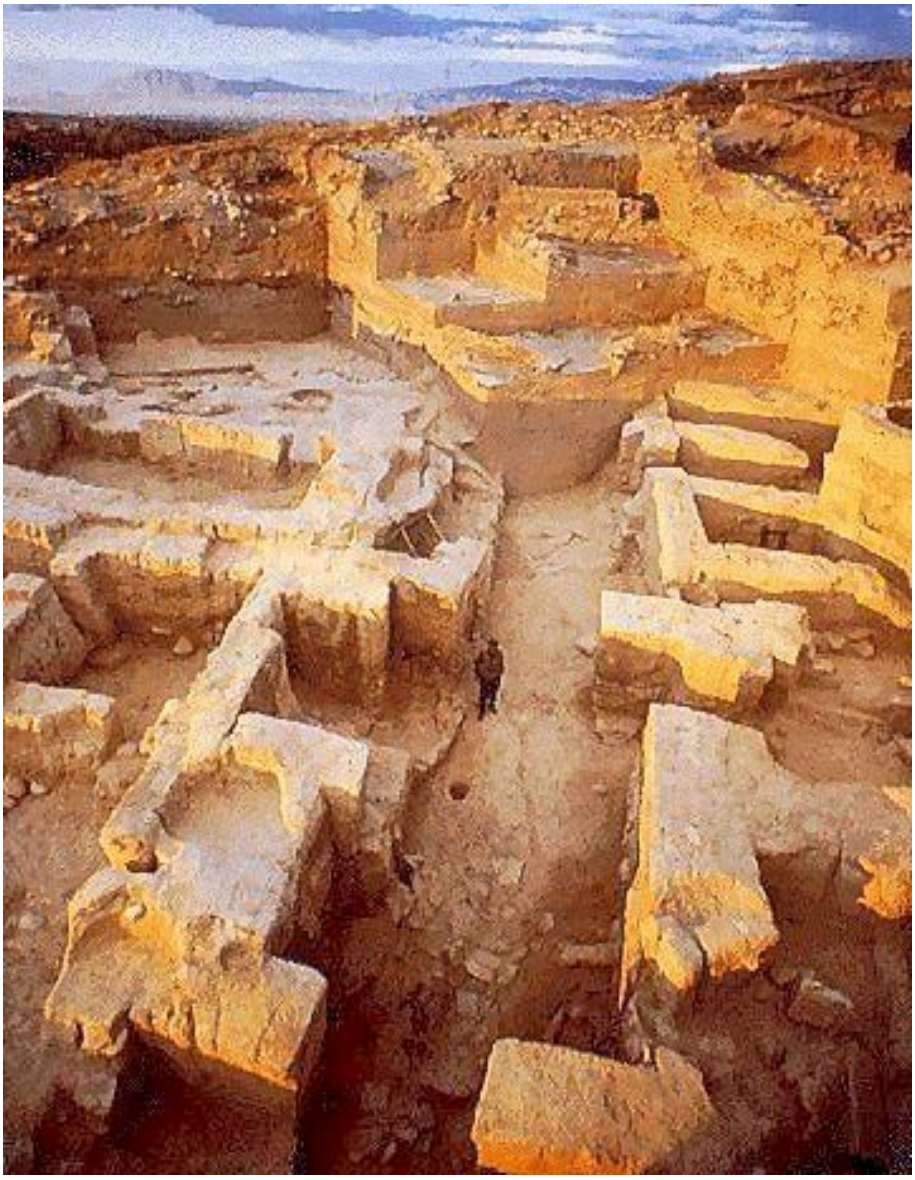

Fig. 3-114: 2,5 m high and 1,2 m thick Walls of Arslantepe
Fig. 3-112-111 Source: http://www.hittitemonuments.com/arslantepe/

After the exposition of the walls, temporary shelters were built over the remains after each excavation season in order to protect them, which were removed during the next excavations (Fig. 3-115). The protective shelter made of portable wooden material covered with corrugated sheet was effective in terms of protection, however didn't allow visiting (MAIAO, 2011). Visitor circulation under the shelter was hard due to the frequently used, poor vertical elements. Materials preventing the rain penetration were also blocking the day light precluding the dissemination of the remains.

Through the experiences of sheltering, it was discovered that, for maintaining the ideal conditions for the remains, water penetration should be avoided and air circulation should be provided. Over the frescos, double sheeting was applied just to be on the safe side. Erection of protective shelters was always accompanied with regular monitoring, annual checkups and consolidation of the cracks and erosion on the walls. The consolidation was achieved with the mortar prepared mixing mud with chaff in the proportions determined with the analysis of the traditional material. Wall paintings were covered with a coat of diluted Paraloid (Frangipane, 2010).

Table 3.15: Temporary Shelter in Arslantepe (AT01)

Remain	4^{th} millennium BC Palace
Protected Material	Earthen Remains
Protective Structure	MpS
Construction Material	Wooden post and beams covered with corrugated sheets
Construction Date	Each year at the end of excavation

Fig. 3-115: Temporary Protective Shelter of Arslantepe

Fig. 3-116: View of the Temporary Shelter
Source: http://wowturkey.com/forum/viewtopic.php?t=94946&start=10

It was decided to arrange the 4th millennium BC palace in situ as an open air museum in 2007. The project was prepared by Italian Mission with the financial supports of Governorate of Malatya and Malatya Provincial Directorate of Culture and Tourism (MAIAO, 2011).

There were a series of technical problems that the shelter should have competed with. The layers belonging to earlier period, underneath the palace building and other 4th millennium buildings, were decided not to be excavated. By this way, underneath layers would be preserved and the unique palace would be displayed. The decision and fragility of the beneath layers, brought a challenge about the foundations. Another technical problem that should be considered was the harsh winter climate of Malatya. During the winter months a heavy layer of snow was accumulating on the surface. The height of the shelter should have been corresponded to the height of the walls and terracing on the topography for easing the comprehension of overall structure (Frangipane, 2010).

Table 3.16: Protective Shelter in Arslantepe (AT02)

Remain	4^{th} millennium Palace
Protected Material	Earthen Remains
Protective Structure	MpS
Construction Material	Iron beams over metal posts resting on metal bridges constructed over the remains and fixed with reinforced concrete foundations constitutes the load bearing system.
Construction Date	2008-2011
Construction Area	2600 m^2
Architect	Giuseppe Berucci

The final design was prepared by Giuseppe Berucci from the Italian Ministry of Cultural Heritage and static calculations and technical drawings were the product of engineer Davide Pini (Frangipane, 2010).

Fig. 3-117: View of the Shelter

The structure is composed of iron beams over metal posts resting on metal bridges constructed over the walls and fixed with reinforced concrete foundations built directly on the surface. The shelter is not a single structure, rather a complex of shelters built over the remains on various levels and heights. This makes it possible to perceive the arrangement of the buildings beneath and their volumes. These modules may be removed or new modules may be added in the

future extensions. Without the intention of reconstruction, each building has its own roof made of wooden boards covered with timber clad. The overall structure is covered by a few layers of insulation panels. The timber cladding of the roofs inside, gives the visitors a perception of the original look of remains. The height of the shelter strengthens the idea of monumentality of the remains (Frangipane, 2010).

Fig. 3-118: During the Construction of the Shelter
Source: http://www.malatyayenigun.com/ilceler/arslantepe-ziyaretcileriyle-bulusacak.htm

Fig. 3-119: View of the Protective Shelter
Source: http://www.gezgininkalemi.com/2010/09/arslantepe-hoyugu-malatya.html

Fig. 3-120: Bridges over the Walls

Vertical posts are placed over the projections of the walls, this way posts don't disturb the visualization and reflect the plan organization of the ancient

structure. The color of the insulation materials over the roof is chosen close to the color of the ground in order not to disturb the appearance of the natural surroundings. The construction is composed of the locally available material and built by the local labor to ensure the maintenance and reduce the transportation expenses. The construction of the shelter is finished in May 2011 (MAIAO, 2011).

Fig. 3-121: Foundations of the Structure

The opaque roof helps the protection of the plasters from light and sun. Natural light and ventilation is provided through the openings covered with shatterproof glass over the large central courtyard and middle access corridor. In order to achieve the original atmosphere, it is planned to install white canvases under these lighted parts as it were in the open areas of the traditional buildings (Frangipane, 2010). 5000 year old wall paintings are protected under secondary roofs, covered by curtains (Fig. 3-125).

Fig. 3-122: Overall View of the Shelters

Source: (MAIAO, 2011)

Fig. 3-123: Openings for the Illumination

Fig. 3-124: Close View over the Roof

Source: (MAIAO, 2011)

Fig. 3-125: Protection of the Wall Paintings

Source: http://www.haber3.com/malatyada-5-bin-yillik-kerpic-duvar-resimleri-1045680h.htm

The preservation and presentation in Arslantepe is not only involving the physical remains of the palatial complex, monuments, spaces function and the architecture, but also the information gathered in the excavations, phases in the formation of first societies. The beginning of the political and economic control over the population by the elites, the development of administrative system, bureaucracy, control over the workforce and the mechanism controlling power are interpreted with the tangible heritage. Visitors are made to think about the idea lying behind the first societies. Information about the movable finds that are carried to the museum now is given within the place they were explored with the botanical palaeo-environmental data gathered through the analysis (Frangipane, 2010).

CHAPTER 4

EVALUATION OF THE SELECTED CASES

New addition to an historical environment requires a series of criteria defined for the conservation of the underlying remains and the overall perception of the archaeological site itself. The duty of the new structure is the conservation of remains physical existence and their inherent characteristics. However besides its contributions to the site, it has also a negative influence on the overall impression of the site as being alien to the context.

Each selected case is discussed with the criteria defined so far for the protective structure, as being the construction area an archaeological site, in terms of legislation, problems encountered in archaeological sites, presentation of the underlying remains, inherent characteristics of the site, and as being a modern addition to the historical context, in terms of material selection, form of the structure, compatibility, function, required budget and technology.

4.1 Ephesus

Archaeological site of Ephesus covers a large area with numerous remains. Throughout the site walking is not easy on the uneven, stone pavements. In very few places, wooden walkways are designed inside the structures. Terrace houses in Ephesus are reached after a long walk from Magnesia Gate passing the Odeum, Celsus Library, Theater and the Trajan's Fountain. It is across the Hadrian's Temple. Climbing up the Curetes Street, Terrace Houses is reached via few modern metal stairs through a separate entrance. The entrance is with an extra fee in specified visiting hours different than the Archaeological Site of Ephesus.

The walking path at the entrance of the terrace houses made of iron plates supported by steel structural elements transforms into glass panels inside the protective structure. The catwalk is designed as a bridge going around the

ancient walls, going through the vaults and offering different perspectives sometimes from the same level and sometimes over the remains. Vertical steel members step on the ancient floors with steel plate bases. Aluminum handrails are standing at both sides of the catwalks. Viewpoints are designed with information panels explaining the remains with drawings, and photos. Catwalk with many steps is not accessible for all the visitors.

Although there is information about what is inside, and explanations are given at viewpoints, there is so little about the restorations and interventions. It is a general problem for all the remains in Ephesus. There are many kinds of interventions, as a result of individual decisions such as reconstructions and anastylosis all over the site that are unstandardized, but little information is given about their decision processes, what was known and their construction phases. Especially the Terrace Houses have gone through different stages after their exploration. The traces of the previous interventions are still observed inside the protective structure.

The need for highlighting the distinction between the ancient and modern is emphasized with the material selection and construction technology. However, extraordinary technology and modernity of the structure makes it an alien on the archaeological site. The selection of textile as the roof covering material creates a warmer ambience and a soft light inside the structure. Slim structural elements give a lighter appearance. However the structure is still bulky and monumental compared to the remains underneath and the rest of the site. It is hard to talk about the architecture of the structure. As it is also emphasized in the literature about the protective structure over the Terrace Houses, with its huge shutters on the façade and long spans, the structure is an engineering masterpiece. However, it is apart from the warmer side of conservation in terms of the compatibility of the structure with its surroundings. The result is an elaborate and neat site museum for the dissemination of the remains without the spirit of an archaeological site, with the lost sense of ruins without dust and patina which are the traces of time.

It is hard to understand what is inside while approaching the protective structure. The protective structure interrupts the relationship of the houses with

the rest of the site. Without their archaeological context, ancient houses stand individually as the settings in a museum. The visual connection is also broken with the translucent side panels. Experiencing the protective structure inside has nothing to do with the negative influence from the outside. The structure forms a white background behind the ancient structures not disturbing the attention.

The brilliance of the ancient remains is well defined, explaining the daily life of upscale families. The works of the excavation team are also presented under the shelter. With the ongoing excavations and conservations of the remains, research is also disseminated. Inside the shelter the workplace of the professionals dealing with the conservation of small finds can be seen. It is hard to differentiate the individual apartment units under a single shelter while turning around over the catwalk designed in different levels following the terraces. There is no clue about the ancient roof structure covering the rooms, sometimes leaving spaces for the courtyards and forming a second storey. Although earlier shelter by Wiplinger may be criticized due to the material selection of reinforced concrete, reconstructional approach and the irreversibility, it was successful in the attempts of emphasizing the volumes of the units and idea behind the courtyards. Over the columns bonding timbers are used representing the atriums. Wiplinger's solutions can still be seen over some of the columns.

The construction cost of the shelter was high. Although in the present day the materials are available, at the time it was constructed, most of the materials were imported with the professionals for the construction. Although no harm caused due to the use of heavy machinery is mentioned in any of the resources, comparing it with the material selections due to the field in Çatalhöyük and the level of difficulty in the steep hillside of Bülbüldağ, it was a radical decision to bring construction machinery to an archaeological site. The bulky concrete foundations have harmed the remains around and narrowed the street in between two terrace houses. Except for these foundations, the structure hasn't caused further damage to the remains and could be removed. Repair costs are also high with imported materials and experts from foreign companies. Due to the height of the structure, repairs require additional equipments.

For keeping the visitors and their affect to the interior climate, from the entrance 10-15 people are let inside. The superstructure protects the remains and the visitors against rain and wind, and provides a controlled inner environment. The protective structure is a successful predecessor for the climate control. A computer model of the whole building was prepared before its construction and the construction was planned according to the obtained successful results with maximum light and minimum heat by natural means. However, there is no publication about the effects of interior conditions over the remains after the construction and the results of monitoring inside the structure. Although it becomes very hot in summer, it is still a bit cool and shade inside. In a site without any facilities and services except for the ones at the entrance, it offers a break for the visitors. There are no electrical and mechanical appliances, natural ventilation and lighting is used resulting in low running expenses. Expansions and distractions are not easy with the limited design of the structure.

4.2 Pergamon

The archaeological site of Pergamon is situated over Kale Mountain overspread on a large area revealing the ancient greatness of the city. Ancient structures were constructed over several terraces on the hillside. Acropolis is at the top with the Library, Trajaneum, theater and the foundations of Zeus Altar and can be reached via the cable car or the narrow asphalt road from the modern town. Building Z is on the lower terraces of the city climbing down the mountain. At the entrance of the site there are information panels, guard's house and parking lots. There are tourist facilities in the car parking area running by local people selling guidebooks and souvenirs.

Climbing up the hill takes almost three hours with pauses by walking; it is a bit tiring but definitely a rewarding route. It is possible to use the ancient route entering the site from Eumenes Gate located beside Kale district. For the suggested road, it is possible to follow the faded blue dots that are completely removed in some parts. The path following the ancient pavements and sometimes turning into goat trails in patches is climbing gently up the hillside offering a dozen of remains within nature and panoramic views over Bergama.

Leaving the ancient city walls on the right hand side, the Z Building is placed between the Temenos of Demeter and Shrine of Hera above the Gymnasium.

Around the building, cobblestone covered paths and staircases are arranged. There are three doors of the structure opening outside. The main entrance of the building is from the northeast corner from an opening left in between the walls and covered with blinds. Approaching the modern looking stone building, an information panel welcomes the visitors beside the road. The room entered first is the ancient atrium. The area around the atrium is covered with bricks. A single standing column is erected on the corner of the small courtyard with its original floor covering symbolizing the ancient atrium. The roof makes a raise at the top of the courtyard. The change in the roof level grabs the attention of the visitors and helps the interpretation of the ancient open space. These first rooms are arranged as a museum with the findings of architectural elements and a replica of a wooden door with huge nails.

In some rooms floors are covered simply with a layer of broken stones. Catwalks are designed as bridges over the mosaics covered with wooden boarding and grid irons. The ancient structure is constructed beside the hillside as terraces with floors in different levels. Staircases out of cut stone are placed providing access to these various levels inside the structure. One of the rooms overlooking the south is arranged as an open terrace offering a beautiful city perspective. It is in lower level with few stairs climbing down. The opening between the terrace and the adjacent building is closed with blinds. A door on the blinds is opening to the terrace covered with cobble stones. In the peristyle columns were erected and roof makes a shift for emphasizing the ancient open area. Third door opening outside is at the end of the visitor’s path in the room next to the peristyle and is connected to the lower terrace with a long staircase. Original plasters which could be rescued are placed on reconstructed stucco walls in this room for their exhibition.

There are information panels hanged on the walls at the entrance and inside the building. In Pergamon case, information panels are also explaining the interventions in the restoration of the building. The building phases of the

ancient structure, remains from these phases are explained with 3D site models. The ideas behind the material selection and reconstructions are well defined.

Due to the lack of information second floor was not reconstructed, only the first floor is raised up to 5 m. Although stone is used as the building material, additions over the ancient walls are distinctive with the red grout in between the old and new, a projection in elevation and a difference in the texture. However, due to the majority of the walls reconstructed ancient appearance of the ruin has disappeared and transformed into a brand new construction. New museum for the stuccos and the mosaics is just following the outline of the original construction.

Wooden ceiling, shedders on the façade and small openings create a warm ambition inside the building. Slim structural elements don't bother the perception. Volumes of the spaces, open and closed areas are easily interpretable.

Protective structure is covering the parts where the mosaics and stuccos are still preserved not the whole area of the building. Southern part remains unconstructed, with the remains of walls approximately 30 cm high that are left exposed with capping. Wall remains continue outside the building revealing the plan of the ancient structure.

The reconstructed structure is not reflecting the real interior conditions of the ancient structure. It is designed as a modern building derived from the remains of a ruin. Volumes are recreated following the outline; above a certain level in elevation predictions are used. However it is well explained and reflected with the modern materials. Traces of a second floor are found and roof is unknown. In these parts steel is used. Ancient structure expands towards south exceeding the limits of the modern structure. It is symbolized by the use of permeable blinds. The ancient remains aren't destroyed with concrete foundations or any other digging attempts, rather ancient walls are used as bases, new walls are constructed over and the upper structure steps on them. In order not to misguide the visitors, walls are left rough without the plasters and ornamentation and at a certain height.

Although there is no report about the monitoring results of the protective structure, good condition of the mosaics suggests that structure offers the required conditions for the remains. Their safety is provided with the walls and locked doors. The walls are limiting the structure and interrupting its relationship with the rest of the site. However different from the other cases, due to the comprehension of the structure as a built place with the walls constructed it doesn't bother people.

Sizes of the structural elements are small compared to the modern constructions with large spans. Except for the steel elements, local materials and labor force is used in the construction. Maintenance is easier due to the availability of these materials. No mechanical and electrical appliances are used in the lighting and ventilation. Natural ventilation and illumination is provided through the blinds and the openings between the roof and the walls. Except for the steel members and blinds, materials used in the construction are not alien to the site. Colors of the metal elements are selected harmoniously with the structure and don't annoy the visitors. Understanding the plan outline of the structure is easy without any need to follow the wall remains. Mosaics can be observed easily within the defined volumes.

When considered from this point of view, the dissemination of the mosaics within the ancient walls is advantageous. It is acceptable when the information obtained is enough to reconstruct a place for the better dissemination of the interior architectural elements such as the mosaics and stuccos. However, the reconstructional approach may be criticized due to the lost of the archaeological spirit and sense of ruin. The traces on the materials are lost and the result is the decision of the research team as what they want the visitors to see.

4.3 Sagalassos

Archaeological site of Sagalassos is reached from the center of Ağlasun village via a circuitous 20 minute drive. There are information panels, guard's house, car parking and recreation areas and toilet facilities at the entrance of the site.

The protective structure over the Neon Library can be seen at the entrance of the site, at the slopes of the mountain on the right. It is hard to understand the function of the building at first sight. It seems like another building like the guard's house built for a contemporary use. It is reached following the unpaved road and climbing up towards the theater. The unpaved road raises steeply leaving the Domestic Area behind and turning right beside the Roman Baths.

The protective structure is composed of alternated walls of stone with brick layers bonded in between steel posts placed beside the original walls of the structure. At the back and one side of the structure these are also acting as supporting walls holding the cumulated soil. There are small openings at the roof level on the walls and at about a meter height on the front wall for the natural ventilation closed with metal blinds. The front wall of the building is partially bonded. Openings are closed with wooden netting that allows natural illumination and lighting. These openings provides outside view integrating the inner area with the rest of the site. There are shutters in front of the wooden netting that may be locked manually providing extra security for the mosaics inside. The superstructure is composed of 5 steel trusses over the steel posts. Main space of the library is closed with a double pitch roof covered with earth for forming an eco-roof that would make the structure hidden within the natural landscape. The roof incline follows the gradient of slope and height of the soil fill before the excavations. Double pitched roof is converted to an eave on the south part. The differentiation both in its height and material emphasizes the side walk on the south of the library. There are no plants over the building. The roof can be perceived clearly with its eave and the perception of the protective structure is not much more different than the guard house standing at the present day entrance of the site. The misunderstanding continues till getting closer to the building.

The perspective in front of the Hellenistic Fountain is the first place where the perception of the building starts to change. Getting closer to the ancient library, observing the hidden treasure inside the modern walls through the openings of the wooden netting and finally getting inside the library is a long journey ending with a paradise.The structure in Sagalassos is a smaller one like the Building Z of

Pergamon, easier to comprehend and compatible with the site due to the material selection as the stone and terracotta hiding the steel structure.

The entrance of the building is on the opposite side of its approach, on the southwest corner. The iron door opened when the visitors arrive is locked in the rest of the time. Without the provision of the guard, the building can be seen through the openings in the front of the building. Walkways are designed inside the building bridging over the mosaics. The wooden vertical elements step directly on the mosaic floor. At two sides of the bridges access of the visitors is prevented with handrails composed of ropes hanged in between the wooden posts.

There is an information panel inside the building beside the door. It gives information about the phases of the building and its significance. There is little information about the protective structure and other conservation interventions.

Experiencing the library inside has nothing to do with the negative inspiration of the outside walls. Except of the color of the plastered walls with yellow, which may be granted as a contribution as the background. Combination of the ancient with wooden walkways and wooden netting under the shadowy ambient and sightseeing through the holes of the netting were carefully planned. The openings in front of the building reduces the impact of the building by providing transparency, enables natural light and ventilation and ensures the connection of the site with the interior. Ventilation windows are left on the roof level for the air circulation. Except for the steel structural elements, local materials are used in the construction by the local builders. Maintenance costs are low without the mechanical and electrical appliances and locally abundant materials.

Similar to Pergamon experience, the limited structure within walls don’t bother the visitors. It is easier to comprehend an ancient volume when there are not much distracting components around. In Sagalassos case modern elements are not reconstructed over the existing walls and not all of the spaces are regenerated. However with the information on the panel and following the remains, the structure can be visualized in three dimensions. Walkways are built over the side walk in front of the main room of the library following its ancient

function. With the walkway, a differentiation on the roof and the remaining walls of the main room it is differentiated from the side walk easily.

Salt inflorescence on the walls points out the water penetration from the uncovered earth behind the building. The projected walls act as a buffer area ready to be sacrificed and prevent the water running into the remains.

4.4 Çatalhöyük

Çatalhöyük Archaeological Site is one and a half hour's drive to Konya. It is situated on the northern part of Çumra, 12 km's away from the village.

At the entrance of the site a sign with the written rules about the visit in Çatalhöyük is situated. Guard's house, visitors welcoming center, car parking areas and the reconstruction house are at the entrance of the site. Small welcoming center is arranged for informing the visitors at the start of their tour. With the information panels, photographs and replicas of the findings, information about the site, its history and the research conducted are given. The reconstruction house is a replica of the houses explored in Çatalhöyük reflecting their characteristics. A hole is bored on the wall for letting in the visitors. Walls of the reconstruction house are painted with the replicas of the wall paintings.

The sightseeing in Çatalhöyük is envisioned as a guided tour in the leadership of the sites guard. Otherwise, it is hard to follow the undefined walking paths within the protective structures and other uncovered trenches of the site. It is a spontaneous path formed in the course of time with movements of the excavation team and the visitors. It makes a loop all around the archaeological site going through the protective structures and approaching close to the uncovered trenches. It is hard to walk on the unpaved walking path in a rainy day with no protections over and the path is sometimes unsecure without barriers. It is hard to understand if there are still remains to see and visitors are allowed going further. Especially the path is barely seen beneath the second protective structure. Going further to the uncovered trenches and completing the visiting loop in the rugged terrain requires acrobatics. All this complication would

be solved with a site plan at the entrance of the site and with the descriptions of the remains within the site.

Two protective structures are seen at the beginning of the path. They are both single standing and alien looking in the flat terrain of Konya. The path leads visitors directly to the recently built protective structure over the 4040 area which is attuned to the terrain better than its predecessor with its soft, shallow curves. It's lying on south - north direction. Due to its form the structure resembles more elegantly designed hangar buildings. It looks like an entrance of a tunnel with its porch welcoming people and its form first getting thicker and at the end bowing to the ground. Its aerodynamic shape allows the wind to flow more smoothly in both directions. In winter, with its white roof coverings and the canvas closed to the openings on the sides, it doesn't form a contrast with the snow-covered site.

The upper structure is formed with 14 arches each composed of two quads intersecting at the top. With the continuation of the west quads, after the intersection at the top, a shift on the roof is achieved. The opening in between is closed with perforated iron providing natural ventilation. There are openings on the sides that are closed with canvas in winter and can be opened when required. Wooden arches are supported with the concrete foundations built all over the structure. It can be observed inside the shelter that, these concrete blocks are interrupting the continuation of ancient walls. Some parts of these walls were sacrificed with the construction of the structure.

Canvas stretched at the entrance and covered on the side openings are supported by sand bags at the bottoms against the stiff breeze. Entrance to the shelter is through the doors opened on the canvases. Inside the shelter there are wooden walkways and perforated iron bridges underpinned with sandbags and timber saddles. These walkways are arranged overlooking the wall remains. There are viewing points beside the remains with the information panels explaining each remain with drawings and close view photos taken after the excavations. Protective structure contributes to the dissemination with its environmental control and the soft light through its roof coverings. With its wooden arches it makes a contrast with the earthen remains. With its simple but

stylish design, and the continuing texture achieved by the repetition of structural elements with soft fluid lines, it doesn't distract the visitors' attention and constitutes the background of the exhibition.

The walking path leads visitors outside, from the opening at the opposite side of the entrance and climbs up to the hill. Following the way gropely, without any information about what is coming next; other protective structure constructed over the south area is seen. Although it's coming in the second place following the walking path, the construction of this structure is earlier than the previous one. It is the total opposite of its subsequent in many ways. It is lying on east-west direction. It has sharp lines with strong angles. Following the topography, its double pitched roof inclines towards west with sharp broken lines. It is yellowish in color.

There are three gates of the structure some of which are achieved by removing the façade coatings. The entrance of the structure on the east opens onto the upper terrace overlooking the remains. The lower terrace is reached by the path going outside the structure. The path gets into the structure again from the long edge and gets out at the opposite of the first entrance. In the viewing points at the upper and the lower terraces remains and site's stratigraphy is explained with information panels.

The upper structure is composed of steel space frames supported by vertical steel columns connected with angle braces. High concrete foundations encircle the remains all over the structure. There are gutters outside the foundations for the site drainage. The facades and the roof are covered with fiberglass panels. Roof panels don't coincide at the top, rather leaving an opening for the ventilation. The complex and space frame roof structure is displayed. It doesn't prevent the dissemination of the remains. However, especially on the corners, it takes too much space, takes the stage and distracts attention. The modern addition comes to the forefront of the ancient structure. The interior space is too crowded with the steel structural members.

Leaving the second protective structure behind, visitors reach the uncovered trenches. By straight and narrow path, one completes the sightseeing beside the

guard’s house, at the start line again. The walking path is not accessible for the handicapped for getting around the site on their own. it is possible to renew these paths with better information facilities, offering secure travel in each season. The earlier protective structure with a steeper slope requires better planning.

The design of the structures following the slopes gives clues about what is disseminated inside. Inside the protective structure lying in a linear way, the horizontal settlement is displayed, and the structure with a slope displays the vertical stratigraphy. Although both structures are designed by the same architects, they differ in many ways. Both the excavation teams and architects experiences play an important role in these dissimilarities. Also the topography affects the perception of the protective structures. Both structures are reversible except for their foundations.

All the construction materials are prefabricated and not locally available. Costs are relatively high at the construction stage. However maintenance costs are low because there are no mechanical and electrical appliances that require extra running costs. The fiberglass panels used in the covering of the space frame structure are getting dirty within time which defaces the appearance of the structure. Any additions or demolitions within the structures are impossible due to their design.

The earthen remains are very fragile and needs extra precautions related with the weather control. These protective structures can offer the required conditions with adaptations such as the removal of the façade coverings, and replacement of the covering materials. The burnt layer exposed in the recent years showed that the protective structure needs such an adaptation in order to preserve the remains. Regular monitoring under these structures gives the opportunity to take the precautions before it’s too late.

These structures are interrupting the overall impression of the site. With new explorations, new structures would be erected within the site resulting in a series of new buildings sprinkled all over the mound.

4.5 Zeugma

Archaeological site of Zeugma is situated in Belkıs Village, 10 km away from Nizip, district of Gaziantep. There are no access facilities from the center to the site. Visitors go to the site through their own means. On the way leading to the site, neolithic caves of Zeugma, Roman Military Camps[6], the hill where the acropolis of Zeugma is situated can be seen.

In the entrance of the archaeological site, some tourist facilities are arranged with the guards house that are not in use in the present day. After the gate of the site, the protective structure of Zeugma is reached through a road covered with cobble stones. At the entrance of the site, information panels explaining history of the site and showing the site plan are located. Another information panel apprises visitors about the landscape planning which is carried by Gaziantep Special Provincial Administration. Before the main entrance and following the way to the protective structure, remains submerged in the Birecik Dam Lake are observed.

At both sides of the road and beside the dam lake, pistachio trees are accompanying the visitors. At the end of the cobble stoned road, containers of the excavation team, the protective structure of Zeugma and toilet facilities are located. The construction details of the protective structure and the remains protected underneath the roof are explained with the help of the information panels.

The protective structure of Zeugma is a monumental structure made of modern materials. Steel trusses are carrying the roof panels. There are two shells closing the structure all around, interior layer composed of iron netting and the outer layer semi permeable perforated metal plate. There is ca. one meter distance between these two layers where the structural vertical elements are nested. They are used as vertical shafts where the downspouts are hided. The vertical steel columns are connected to the concrete base circling the ancient remains all around. These concrete bases are covered with stone walls inside the structure.

[6] Harmann conducted salvage excavations in the area in 2007. The detailed information could be achieved from Kültür Bakanlığı Kazı Sonuçları Semineri booklets. Brief information about the excavations is given in this study under the title of Zeugma in the previous chapter.

Some panels on the inner shell are designed as centre pivoted openings. Two gates of the structure are glass doors with slatted shutters.

The slope of the roof follows the ancient terraces providing the remains adequate ceiling heights. Two shelled system is also followed on the ceiling providing insulation inside the structure. The structural elements are seen behind these curtains. The outer shell of the roof is sliced and designed in different levels. Fresh air is taken in between these shifted roofs and from the openings on the outer core.

Interior of the structure is spacious with very few vertical elements. The height of the roof doesn't prevent the visualization of the whole interior area. Inside the structure wooden walkways are designed as a continuation of the welcoming terrace offering an overview to the site and the dam lake. The wooden ways follows the three vertical columns at the entrance, goes all around the structure mostly following the corners and in some areas overhangs towards the center and provides different perspectives of the remains and interior area. These wooden walkways are supported by small steel columns pressing down on the ancient floors with large base plates. On the left hand side, the width of the platforms is designed wider in case of assembling a lift for the disabled people.

The first cost of the shelter is relatively high at the construction stage; however the expanses for the maintenance would be low. Although these are not the local materials, the structural system is easily produced and installed. Maintenance of the structure and small repairs within the structure may require additional support due to the height of the structure. Steel material doesn't rust, corrode or bend easily. The outer core with iron plates may corrode within time. The dust and dirt cumulated in between the pores of the iron plate wouldn't disturb the appearance of the structure. There are no mechanical and electrical appliances that require high running costs. Although the outside weather temperature is very high, natural ventilation is provided within the structure. Natural lighting is used.

There are no information panels inside the structure. The borders of the four villas are not well defined. However that information is given on the information

panel at the entrance of the structure indicating the different villas with different colors on plan view. According to the site plan, there are other villas adjacent to the ones covered with the protective structure. The protective structure cuts this continuation and limits them with modern borders. With the concrete foundations, some of these ancient walls are sacrificed.

The cobble stoned road ends beside the protective structure in front of the toilet facilities. Following the pathway beside the lake, ongoing excavations protected with temporary shelters and other trenches that are under the water at the present day can be seen. The temporary shelter protecting the deep trenches is more primitive than the permanent one, with iron trusses carrying corrugated iron sheets. Another shelter is for the protection of the professionals working on the findings. Due to the limited design of the structure it is impossible to make an expansion. With the construction of another structure beside the present one, the archaeological site will lose its authenticity and a modern town will be created with museum buildings adjacent to each other.

The protective structure is promising in a city where moving the discoveries to real museums became a habit. For the dissemination of the mosaics in situ, this structure is offering the required conditions and contributes to their comprehension. Mosaics found in these villas aren't moved back to their real places, they are still disseminated in Gaziantep Museum. The security problem is solved by building an enclosure that keeps the rubbers off the mosaics. Returning these mosaics to their context would be better for their significance.

Due to the nature of the protected remains and structure of the shelter, it may be compared with its precedent over the Terrace Houses II. Both of the structures are designed constituting a singular space for numerous adjacent residential units. The similarity of the topography on the hillside was resolved making a graduation going down accordingly the inline of the slope. Both structures are limiting the conception of the overall site. The ancient remains underneath are treated as museum objects and the covering structures have no reference to them. Both have harmed the adjacent remains due to their bulky concrete foundations. Both structures are fulfilling the modern needs of the remains and providing adequate places for the visitors. Both are distinguished

contributions of the modern day to the ancient structures without any intent of completing the loose, fragile remains. The protective structures are reversible except for their foundations. Dismantling the structures will result into wide holes around the ancient structures.

4.6 Karatepe

Archaeological site of Karatepe Aslantaş is reached from the center of Osmaniye via a 50 minute drive on Kadirli direction taking the road leading to the Aslanlı Dam on Araplı Bridge. There are limited access facilities from the center to the site outside the summer season. Guests visit the site through their own means. There are information panels, car parking and recreation areas, guard's house, site museum, toilet facilities and excavation house at the entrance of the site.

The asphalt road coming from the city continues till the parking area at the entrance of the site. There are tourist facilities surrounding the parking area and beside the road leading to the entrance of the site. Bilingual information about the site is located beside the entrance defined with a stone wall at about 1 m height. A dirt path starts surrounded with after this wall where the site's name is carved on. The ticket house is located on the path on the left side. The Site Museum is located just passing the guard's house. Museum building is composed of individual units which are the video room, toilet units, welcoming center where there is information about the excavations and conservation of the remains, display area for the movable remains and the guard's house. There is a square at the starting point of the visitor's route surrounded with museum building, recreation area and a statue of Halet Çambel beside the path leading to the excavation house and a bilingual information board at the center with the site plan. The earth path starting at the square continues inside the site following the city walls leading the visitors to the porticos and making a loop back to the same square.

The pathway following the reconstructed city walls are passing under the protective structures on south and north porticos. These well defined unpaved paths are offering a trekking in between the trees and the remains. The route is supported with stairs, handrails in steep parts and viewpoints overlooking the

dam lake, continuing city walls and the surrounding area including Domuztepe. Natural stone is used for terracing on the unpaved road forming small stairs and for the reconstruction of the city walls. Except for the entrance of the site, welcoming square and the museum, there is no information inside the site about the remains or the site.

Concrete structures are protecting the underlying basalt sculptures, gate chambers, orthostats ornamented with inscriptions and reliefs and towers with their large eaves from the rain. With the help of the leveling on the ground, drainage of the surrounding water is achieved. On the top of the structures, in between the concrete frames glass panels are used for allowing light while preventing the rain water. Wooden grids under the glass panels are providing a shadowed soft light under the shelter.

In the middle of a forest, concrete structure is forming a contrast with the natural surrounding and the underlying remains, reminding the human touch both in the past and in the present day with a different construction technology of the time they belong. The sharp look of the concrete structure is softened with wooden grids. Concrete structure stands on slim concrete columns that are not interfering the viewing. The structures have nearly a symmetrical layout following the passage and side rooms underneath. An individual, higher shelter protects the ancient Hittite Storm God. Protective structures don't interfere in the relation of the remains with the rest of the site without the side walls.

Eaves of Karatepe and excavation house within the site were designed as a complex by Turgut Cansever and built by Nail Çakırhan. This was indeed a pioneer act in many aspects when the conditions of its time are considered. The decision of in situ protection and protecting the remains by means of protective structures were a great afford by Halet Çambel. The project is also important including the management of the site and providing the cooperation of the villagers for securing the future of the site. Although the excavations in Karatepe ended, works on the site didn't stop. Site planning including the visitor facilities on the site, walkways, platforms and maintenance of the finds goes on. The museum building is added to the complex later with other buildings on the site.

Karatepe Aslantaş open air museum is different from the other cases in terms of the location of the site in a striking natural environment, presentation of all the remains both in situ and in the site museum and the farsighted, large minded and scaled actions involving the stakeholders and local people for the preservation and maintenance of the finds, site and the surroundings.

4.7 Troia

Troia Natural Park is reached with a secondary road from İzmir - Çanakkale Highway which is followed to the left on Çanakkale direction. Before the entrance of the natural park some tourist facilities were arranged running by the local people. Archaeological site of Troia is reached through a forested road after entering the natural park. The panels on the road give information about the natural park, World Heritage Center - Troia and stake holders having role in the presentation of the site. At the welcoming square a replica of the famous Trojan horse is located. Museum's Shop offering food, beverages and selling books and souvenir with Troia theme, excavation house, reception center prepared by the excavation team giving information about the history of the site and excavation, toilet facilities and parking areas are circling the square.

Tourist routes planned within the site with information panels and recreation points start at the point of the Trojan horse. First view of the site can be seen on top of the horse. Troia's remains belonging to various periods are defined with different colors. This color alphabet is also used in information panels for better comprehension of the site's stratigraphy. The route makes a loop in and around the remains and end at the square again. On the route there are benches for resting. Multi language information panels are provided for the better comprehension of the remains.

The walking path gives various perspectives of the shelter on the way. At the beginning of the wooden walkways where the shelter can be seen at a distance, a sign informs the tourists about the shelter that it resembles the appearance of the mound before Schliemann's excavations (Fig. 3-106).

Another confrontation with the shelter before entering the area of Megaron, is beside the beginning of citadel walls with a perspective in between the trees (Fig. 3-107). On the information panel, significance and period of the citadel walls and interventions are described including the photos after the exploration and process of reconstructions. Information about the designer and sponsors of the shelter is given. An extra sign is put beside the information panel describing the shelter representing the winds contributed affluence of Troia (Fig. 3-108). The same sign welcomes the visitors under the shelter. Tourist route turns around the megaron under the shelter and leads to the other remains within the site.

With the information panels and perspectives of the shelter on the way, confrontation with the shelter and the remain underneath becomes exciting. It is a surprising, secret place entered through an ivy-mantled hall. The light underneath the shelter creates a harmonious ambiance for the megaron remains. The wooden walkways circling the megaron provide a view at the same level of the brick walls.

The shelter is a tensile membrane tightened over two steel space trusses. With the help of the gorgeous trusses the large span could be passed. The structural material is preferable in terms of strength, durability and aesthetics. Although the deep structural elements enhance the monumental look of the shelter, they diminish the number of structural elements. There no vertical elements interfering the interior space. Modern materials are distinctive from the ancient materials. Disassemble and movement of the structural elements is easy except of the bulky concrete foundation. The footing competes with the monumentality of the brick structure. Although the footing remains in the background it is easily recognizable being diverge and massive. Using the brick walls for supporting the trusses resulted into extra strengthened walls disturbing their ancient character. Membrane used for the covering provides a controlled, soft light for the dissemination. It is also a light building material adding a small weight to the overall structure. The color of the membrane doesn’t look defiant within the site.

Although the shelter doesn’t protect the remains against lateral weather effects of rain and famous Troia winds, megaron’s bricks are conserved and protected

by the reconstructed walls against water penetration. The trees over and the shelter prevents the water evaporation. Musty smell of damp earth is felt under the shelter. The humidity in the soil might harm the walls although it isn't observed on the surface due to the reconstructions. The structure is constructed without walls, but the cumulated soil, walls of the other structures and trees prevent the comprehension of the remains with the rest of the site. However it doesn't interfere the sense of the archaeological site and the authenticity of the remain. Brand-new brick reconstructions overshadow this perception.

The first cost of the shelter is relatively high at the construction; however the expanses for the maintenance are low. It is easily produced and installed. The requirement of heavy machinery in the installation depends on the weight of the trusses. Maintenance of the structure is easy. Steel material doesn't rust, corrode or bend easily. Dirt and dust is washed with the rain. Although the structural elements are easily dismountable, due to the finite design of the structure it is not expansible.

The shelter offers a comfortable place for the visitors with the shadow it provides. The earthen remains underneath are emphasized within the site with the modern construction.[7] The inner space it created is commodious providing enough circulation space for the dissemination of the remains. There are no mechanical and electrical appliances raising the running costs. Natural ventilation and lighting is used. The walkways and information panels aren't accessible for the disabled visitors. The metal structure offers a safer place in case of fire and resistance against pests compared to the wooden structures.

4.8 Arslantepe Höyük

In the present day, the road leading to the archaeological site is passing through the modern town. In the entrance of the site replicas of the inscriptions found during the excavations and lion statues that give the name of the site are presented. Following the entrance path, the ancient settlement and the residential houses of the inhabitants are interpreted with the reconstruction

[7] The significance of the earthen remains are explained in detail in the description of the site on the previous chapter.

houses located on the left. The guard's house stands on the right just passing the reconstructions. The first view of the protective structure is seen in this area.

The path guiding the visitors enriched with information panels giving wide information about the excavation, explored movable and immovable remains and their interpretation starts after the guard's house. By following the numbered panels, it is easy to go around the mound and comprehend the remains. Outside the shelter the path is covered with slate. The ground of the path within the structure is covered with matting; the differences in the elevation are solved with stairs made of wooden logs. There are glass floor coverings where the underneath remains are needed to be presented. Original wall paintings can be seen from a distance in the guiding paths, providing the security of the plasters. With the help of the paths visitors are kept out of danger. Due to the circulation scheme planned in between the wall remains, it is easy for the visitors perceiving the height of the walls and experiencing the remains from eye level.

Guiding path underneath the shelter goes up to the mound and offers a bird's view of the other remains in the site. Early Bronze Age remains, a tomb belonging to 2900 BC, late Hittite castle are some of these remains beside the palace complex.[8] Some trenches with earthen remains are left exposed to open air while some of the areas are protected with individual temporary shelters that are preventing their visual access. These structures are out of visitors' reach and left without explanation. The different types of protective structures interfere with each other and deface the overall view of the site.

Arslantepe is an important case with the interpretation of the intangible concepts and presentation of the analysis and small finds together with the immovable physical remains. Information panels are carefully prepared for transferring the knowledge bunched together by various professionals working in the excavations. Together with the heritage items, aim of the excavation and its process are explained. On the guiding path, the stratification in section and excavation process can be comprehended by observing the portions of the mound that are left exposed intentionally without cleaning.

[8] Explored areas within the site and ongoing excavations with new outcomes can be found in various archaeological resources. Due to the limited scope of the study, these remains are just mentioned for creating the general image of the site and aren't studied in detail.

The selected remain for the public dissemination is the palace complex dating back to 4th millennium BC. It constitutes the core of the presentation within the site. Being protected with temporary roofs for long years, the permanent protective structure over the remains of 4th millennium BC Palace is completed in 2011.[9]

The protective structure is composed of iron beams over metal posts resting on metal bridges constructed over the remains and fixed with reinforced concrete foundations built directly on the surface. The places of these over ground foundations were carefully planned in order not to damage the over and underground remains. However, concrete as the material selection for holding the vertical elements is not compatible with the remains. Salt in the concrete may diffuse into the soil and the remains underground. With the flexibility of the load-bearing system it is easier to rearrange, remove or add members for the future decisions. It is also possible to remove the structural members totally without any damage to the remains. The distinction of the modern materials as iron bars and concrete foundations makes them easily differentiated from the original remains. Making the structural elements slim and light becomes disadvantageous in terms of their required number. The structural system carrying the roof reticulates the ancient walls in all sides and makes it look askew and imprecise. The modern touch is observed around every corner with its appendages wrapping around the ancient structures. In the construction and probable removal processes the walls may be destructed due to the abundance and closeness of the structural elements to the wall remains.

The shelter is a complex of multi leveled roofs emphasizing the plan organization of the architectural remains belonging to different structures. These modules are built successfully fragmental for reflecting the arrangement and volumes of the buildings beneath. Inside the roof, over the building remains wooden boards covered with timber cladding is used reminding the ancient ambience. Courtyard and corridors are emphasized using materials with different light permeability. Natural light is provided through the openings covered with shatterproof glass

[9] Remains, temporary structures and the permanent roof completed in 2011 are studied in detail under the title of Arslantepe in the previous chapter.

over the large central courtyard and middle access corridor. In between the shifted roofs and on the open sides of the structure natural ventilation is provided. Over the walls with plasters extra precaution is taken constituting cable suspended wooden panels. To these panels curtains that are covering the paintings and can be opened when the visitors arrive are hanged. On the outer side of the roof insulation panels are used.

The height of the roof strengthens the idea of monumentality in corporation with high wall remains and reflects the level of the earth before the excavation. Therefore the unexcavated portions of the earth constitute walls around the construction. Rain water accumulated over and seeped away from the mound continues threatening the remains. The shelter cannot keep the underlying remains away from the lateral effects of water and the wind. Later additions to the roof structure on the corners prove the attempt to prevent adverse effects of weather. These additions with corrugated iron sheets are interrupting the aesthetic appearance of the building. Drainage pipes aren't planned in the overall design and disturbing the inner appearance of the structure. The site drainage around the structure isn't planned carefully.

The roof over provides shadow for the visitors in hot Malatya weather. Because there are no artificial walls constructed around, relation of the area with the rest of the site isn't limited. Although there are positive aspects of the wall-less structure, it is disadvantageous in case of safeguarding. Protective structure doesn't limit the entrance and only security precaution is the guard staying on the site and the low fences all around the excavation area.

The material selected for the construction is locally available and the structure is built by local labor reducing the transportation expenses. Any attempt for the maintenance and repair can be done by a local builder without a requisite for any material specialization. Running cost related with the electrical and mechanical systems of the structure are low. Natural ways are used for the ventilation. There are no appliances for the night lighting. The information panels and visitor paths are not accessible for the disabled people. There are no appliances providing audio support, etc.

As the studied cases showed, it is hard to define a concrete series of criteria that would be used for assessing all the structures. There are no rights or wrongs for the subject, as soon as the required preservation conditions for the remains could be achieved. Each case has its own circumstances with its own problems and significance.

Although constructing numerous protective structures on site in Çatalhöyük is criticized, Karatepe case shows that, rules change when the natural surroundings and the layout of the remains are creating the adequate conditions. Shelters are supported providing the integration of the remains with the site. However, their deficiency in preventing the lateral forces brings water penetration problems in Arslantepe case. In Troia, the deficiency of the canopy was made up by reconstructions, changing the view of the remains after their excavation. In Ephesus, Pergamon, Sagalassos and Zeugma cases, shelters wouldn't provide the safeguarding of the valuable mosaics and wall paintings against vandalism. Enclosures are required solved with bulky foundations in Zeugma and Ephesus while reconstruction is preferred in Pergamon. The requirement of making a selection between enclosures and shelters is solved with adaptation of the structures in Çatalhöyük. The criticism of enclosures in interrupting the relation of the remains with the rest of the site, changes in Chur case. The separation of the remains from the rest of the city seems positive due to the location of the site in the middle of a modern settlement.

The impact of the shelters on the site experience differs in each case. It is certain that the aim of bringing prestige to the site is also lying behind the decision of protective structures. Conservation by protective structures is advantageous in many terms, however for providing the required conditions for the remains, it is important to make careful analysis of the deterioration factors and continue monitoring after the erection of modern buildings.

CHAPTER 5

CONCLUSIONS

After the excavations architectural remains are treated with various interventions according to their condition and desired dissemination. Preserving and presenting the remains in situ, in their original environment and context is the best way for maximizing their values and benefiting from them. Protective structures are one of these methods that allow the presentation of the site while providing control over deterioration factors.

Throughout the study some answers were tried to be found which constituted the outline of the thesis. With the answers that have formed the preliminary studies, criteria for the construction of protective structures are defined. Architecturally designed protective structures in Turkey are selected as case studies. The importance of case based analysis is emphasized throughout the study. Background information of each selected case in Turkey is given for defining their unique conditions. Assessment of these cases is done with the criteria defined.

The publications about the protective structures in international literature are generally reviews of specific cases. There are individual attempts to form a checklist for the design and assessment of protective structures. **Are there are rules or recommendations for a new construction in an archaeological site?** Due to the lack of documents specified in protective structures and the issue of protection of the different types of cultural heritage coincides in many points, national and international documents related with the cultural heritage are studied in order to constitute a framework for the issue.

In legal perspective, international documents constitute the general outline for the interventions in archaeological sites. Dos and don’ts are given without

specific explanations of what is right. Constructing new buildings in archaeological sites have legal obligations changing from country to country according to the laws about the cultural heritage.

In order to understand the vulnerability of the remains, and find the best conditions for them, their material characteristics should be known. **What is conserved with protective structures in archaeological sites?** Interior architectural elements such as the mosaics and stuccos and earthen construction materials need protection due to the transformation they had within time. These materials have lost their layers which used to protect them against weathering conditions.

When we enter an archaeological site, we cannot see its original state due to the huge collapse and decay. We only see some remains of historic constructions that do not form a unity. Although the picture is tragic, it is the thing that constitutes the spirit of the site. The ruinous state is the result and trace of time. The authenticity of the site is implicit in the transformations it had during its lifetime. An archaeological site has educational, technical and historical values that it possess within the time, which should be preserved with the authenticity and spirit of the place. Archaeological sites are important for today's society's identity. The aim of the conservation is not only the protection of the physical fabric. These intangible values are what turn a piece of stone into a heritage item.

For taking the relevant precautions the reasons behind the deterioration should be defined. **What are the destructive forces having influence on their loss of cultural significance?** Causes of deterioration are not different than troubles of the rest of the cultural heritage. However, some of these factors are directly related to archaeological sites due to their locations in the middle of nature. These additional deteriorative factors are studied. In archaeological sites, monuments loss of function and inhabitants leave it without maintenance. As a natural consequence of the problems originating due to the natural and human forces its fall accelerates. Their economical values attract the interest of rubbers that makes them subject to their destructive aims.

Changing the place of a rock or adding a new element in an archaeological site is affecting this overall perception. When the addition is in large scales like the protective structures, which constituted the main topic of this study, it affects all the balance of the site. It is a type of construction that contracts with the original site organization. Protective shelter is present day's requirement. Deciding on the construction and constructing a structure requires careful preparations. Since each case is unique with its own characteristics and circumstances, the protective construction should reflect the answers for the questions defined in these specific conditions. Likewise its evaluation should be made taking in mind all these factors.

Studying on the selected cases, since there are no general rules listed for the design of these structures, it is seen that they are developed by trial and error method with the experiences of the research team. Before the erection of the permanent structures, due to the urgency of the precautions, temporary structures are constructed. These structures are either developed into or replaced with the permanent ones by correcting their inadequate features. Since each case is unique with its own characteristics, the specific features and problems of archaeological sites of selected protective structures are defined.

An addition to an historical environment requires some preliminary studies. While giving the decision of a new construction the characteristics of the sites original state and present day's condition should be analyzed. In site scale, the sites plan, topographical properties, urban development and historical background, architectural and archaeological characteristics and weather conditions are the critical issues. Each intervention in a historical context is changing it in some way. Depending on restorations, the degree of the change and its impact on the site differs. Interventions that are taking the attention to specific features of the site and potential tourism density are also important factors. In building scale, the material, construction system and technology, architectural elements and spatial organization of the ancient structure should be considered. When the point comes to the form and scale of the addition the criteria differs. Architecture is away from formulas and depends on the personal intentions of architects. The design specialist takes the concrete inputs and makes an interpretation. The aim is the conservation of the site. Construction

material, structural system, construction technique, drainage system and installations, spatial properties are selected in order to achieve a proper environment for the remains. However, new volume differentiates the perception of the ruin underneath with its colors, textures and form. Compatibility of the selected materials with the remains, their color and texture and abundance within the site changes the overall balance. With the area it covers and the new height it erects; it changes the harmony within the site. Its reversibility, number and size are critical. The cost of the construction is also important due to the limited budget of the research projects. The future of the construction should be foreseen considering future extensions, maintenance and repair requirements, replacement and dismounting probabilities. There are billions of opportunities to build a structure providing the necessary conditions.

Throughout the study for classifying the protective structures two categories are defined as the shelters and enclosures. They both have pros and cons compared to each other. The microclimate created within these structures is different due to their lateral protection. It is easier for the enclosure to control the lateral effects of water and wind. Another difference is the access they offer. Enclosures are limiting the access of the visitors. They are advantageous in the areas where robbery is an important problem or for the fragile remains that the maximum number of visitors can be controlled. The general problem of enclosures is due to their nature of limiting the space. The interrelation of the remains with the overall site is interrupted due to the artificial walls bonded in between the ancient structures.

If there are ongoing excavations underneath the protective structures, longer view should be taken. Although with the current research methods it is possible to foresee the buried materials and structures that will be explored without excavations, remains uncovered may still require different conditions. In case of a new discovery of a material that requires additional precautions, protective structures should be adaptable.

Observing the protective structures in sub classifications in terms of the protected material it can be said that economical value of the materials play an important role in the selection of the type of protective structures. Since mosaics

are valuable from the viewpoint of the history thieves, these materials require extra precautions in the site. Protection of the mosaic with shelters is impossible in Turkey's conditions due to the lack of consciousness, secluded place of the sites and very few security guards placed within the site. When there is a risk of robbery as in the cases of the mosaics, enclosures are preferred for the protection and presentation.

The maintenance of the protective structures is going on with the same method of their construction, by trial and error. When deteriorations occur, structures are improved with adaptations. When there is no need for extra precautions or adaptations, only the small repairs of the structures and regular conservation of the remains are done. However, in some cases when the deteriorations start to occur on the surface it would become too late due to the inner breakdowns. Herein lies the vital importance of the monitoring.

Due to the obligations and against the international reactions, protective structures' design and aesthetical aspects are explained in reports and articles written by the excavation team and published as booklets. However, in most of the cases, there is almost no scientific research on the environmental and condition monitoring of the protective structures published comparing the situation before and after the construction. In Ephesus case, the environmental conditions were carefully analyzed which is a must before the erection of a contemporary addition. Required conditions for the remains were defined and computer aided models were made for testing the new microclimate of the protective structure. In Çatalhöyük case, due to the deterioration of some of the burnt remains requirement of some adaptations in the protective structure are noted in the seasonal reports. In many of the cases, in final reports, regular conservations of the remains protected underneath the structures at the beginning of the excavation season takes place. However, in none of the cases analyses before and after the construction of a protective structure is published.

It is also important to make a site management plan and give the decisions accordingly. In Çatalhöyük case, decisions in accord with a plan set a good example in the practice. Management plans and schedules should be made considering the future actions, and the needs of the exposed remains.

Author of the thesis confronted with many contradictions, inconsistencies and conflicts throughout the study due to the very nature of the subject covering many aspects. These parts aren't excluded from the study since they are reflecting the argumentative nature of the study matter. Due to the wide range of the subject, limitations of a master study and lack of previous studies, some arguments couldn't studied in detail but formed an approach to the topic in more general sense. Further studies might be done concentrating on the technical or intangible aspects of the topic. Beginning with the discussions of excavations, defining the authenticity of archaeological sites, concentrating on the relationship of the structures with the remains and the rest of the site, building technology and construction materials of protective structures are suggested subjects that needs to be discussed in detail.

Since the study is concentrated on the architectural aspect of the topic, and no analyses were included, the study is still lacking in terms of conservation. A further study may be useful including the results of the material analysis made on the fragile materials involving measurements taken before and after the erection of the protective structures.

Although one of the main intents of the study was forming an inventory for the built protective structures, due to the prevalence of the applications, the study couldn't be finalized. The constituted list added in the appendix is covering the majority of the structures, but there can be still more that are not listed here. The study can be notable for taking the first step.

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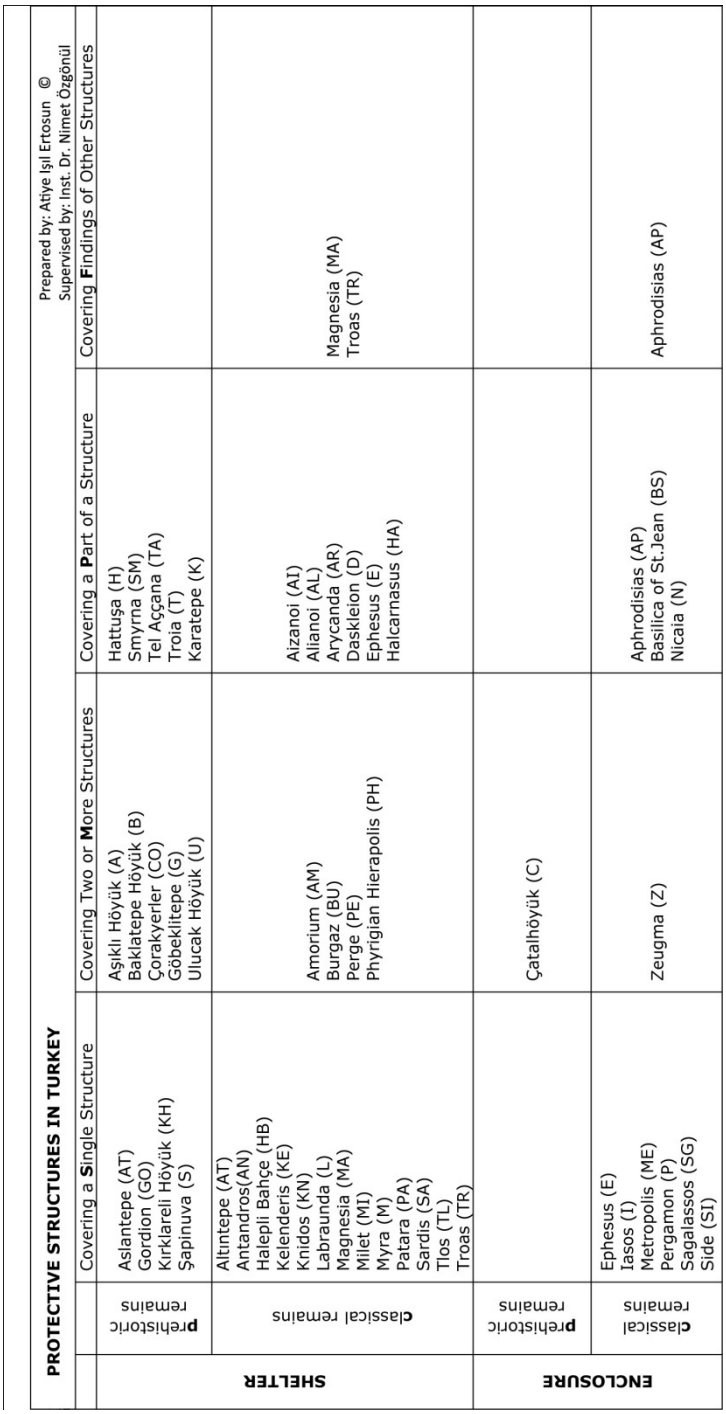
APPENDIX - A

CLASSIFICATION OF PROTECTIVE STRUCTURES IN TURKEY



PROTECTIVE STRUCTURES IN TURKEY		Prepared by: Atiye Işıl Ertosun © Supervised by: Inst. Dr. Nimet Özgönül			
		Covering a **S**ingle Structure	Covering Two or **M**ore Structures	Covering a **P**art of a Structure	Covering **F**indings of Other Structures
SHELTER	**P**rehistoric remains	Aslantepe (AT) Gordion (GO) Kırklareli Höyük (KH) Şapinuva (S)	Aşıklı Höyük (A) Baklatepe Höyük (B) Çorakyerler (CO) Göbeklitepe (G) Ulucak Höyük (U)	Hattuşa (H) Smyrna (SM) Tel Açşana (TA) Troia (T) Karatepe (K)	
	Classical remains	Altıntepe (AT) Antandros(AN) Halepli Bahçe (HB) Kelenderis (KE) Knidos (KN) Labraunda (L) Magnesia (MA) Milet (MI) Myra (M) Patara (PA) Sardis (SA) Tlos (TL) Troas (TR)	Amorium (AM) Burgaz (BU) Perge (PE) Phyrigian Hierapolis (PH)	Aizanoi (AI) Alianoi (AL) Arycanda (AR) Daskleion (D) Ephesus (E) Halcarnasus (HA)	Magnesia (MA) Troas (TR)
ENCLOSURE	**P**rehistoric remains		Çatalhöyük (C)		
	Classical remains	Ephesus (E) Iasos (I) Metropolis (ME) Pergamon (P) Sagalassos (SG) Side (SI)	Zeugma (Z)	Aphrodisias (AP) Basilica of St.Jean (BS) Nicaia (N)	Aphrodisias (AP)

Table A. 1: Classification of Protective Structures in Turkey

APPENDIX - B

DISTRIBUTION OF PROTECTIVE STRUCTURES IN TURKEY

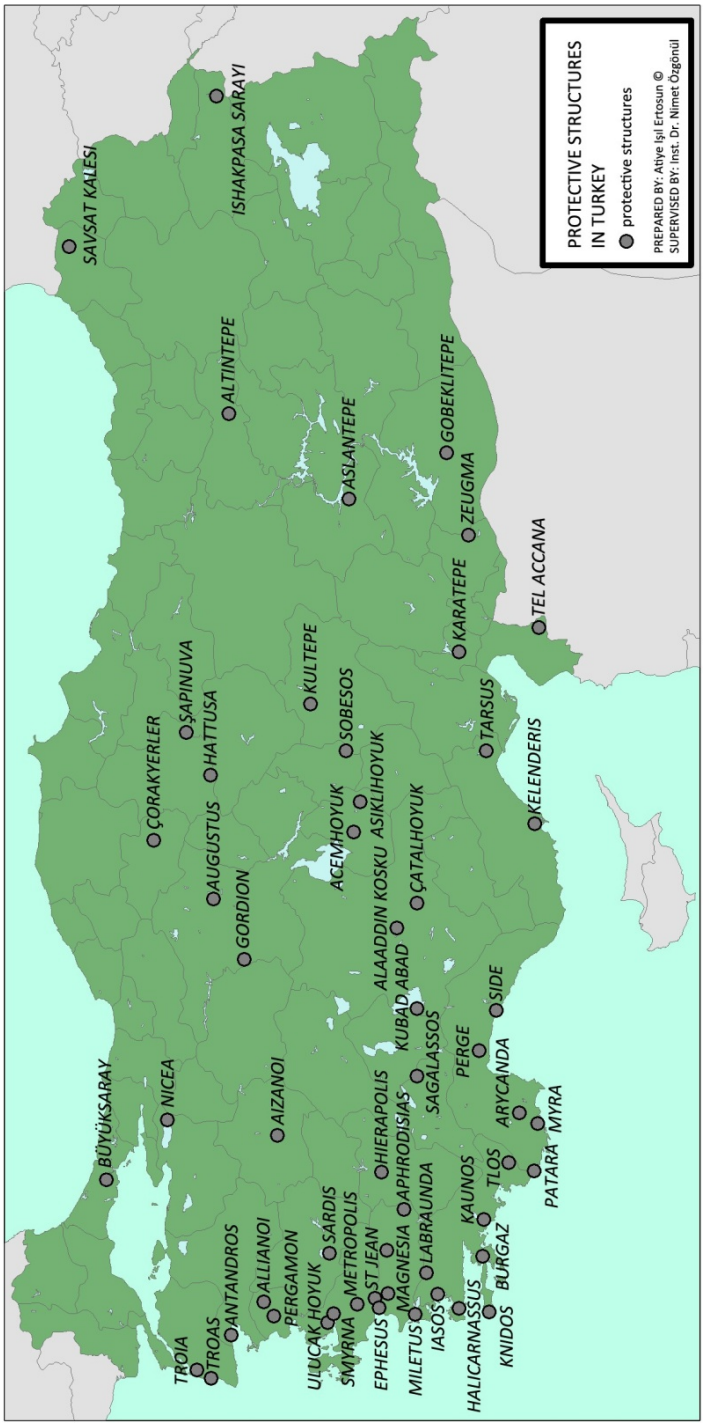


Figure B. 1: Protective Structures in Turkey

APPENDIX - B

DISTRIBUTION OF PROTECTIVE STRUCTURES IN TURKEY

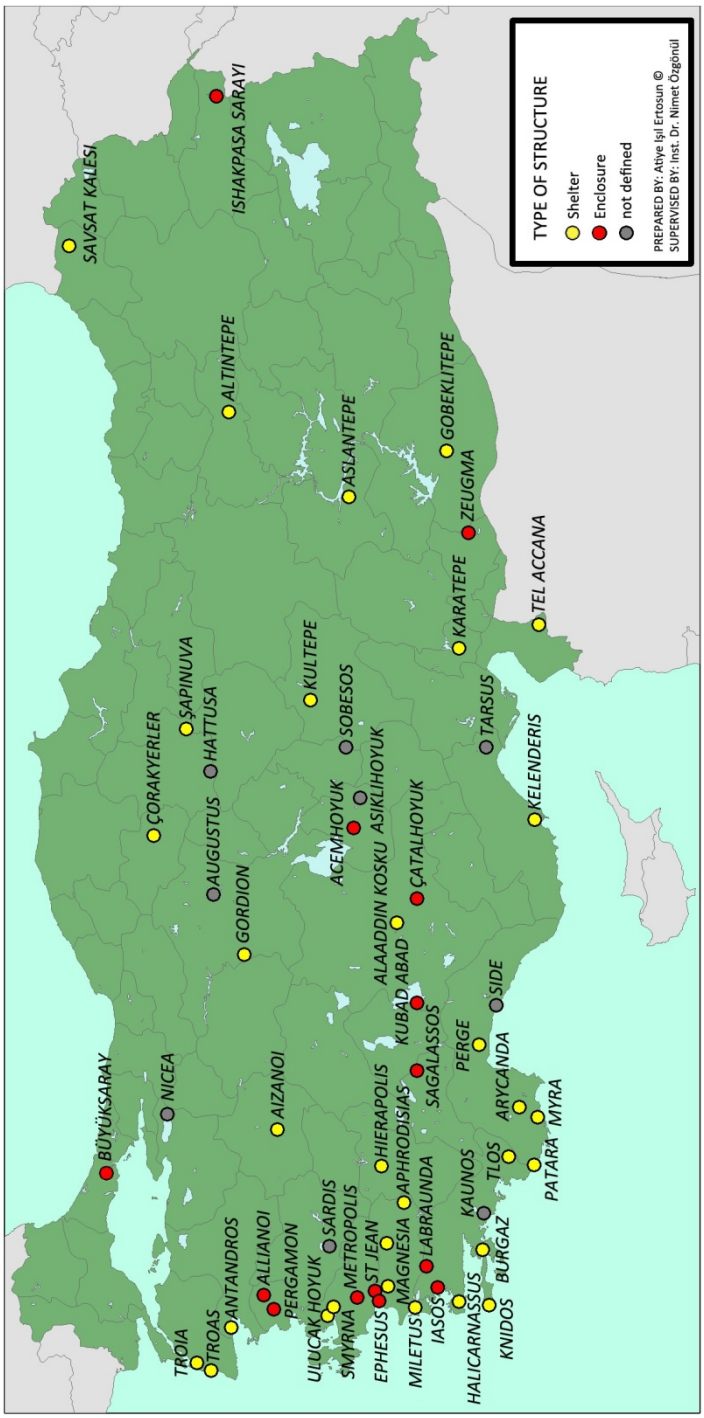


Figure B. 2: Types of Protective Structures

APPENDIX - B

DISTRIBUTION OF PROTECTIVE STRUCTURES IN TURKEY

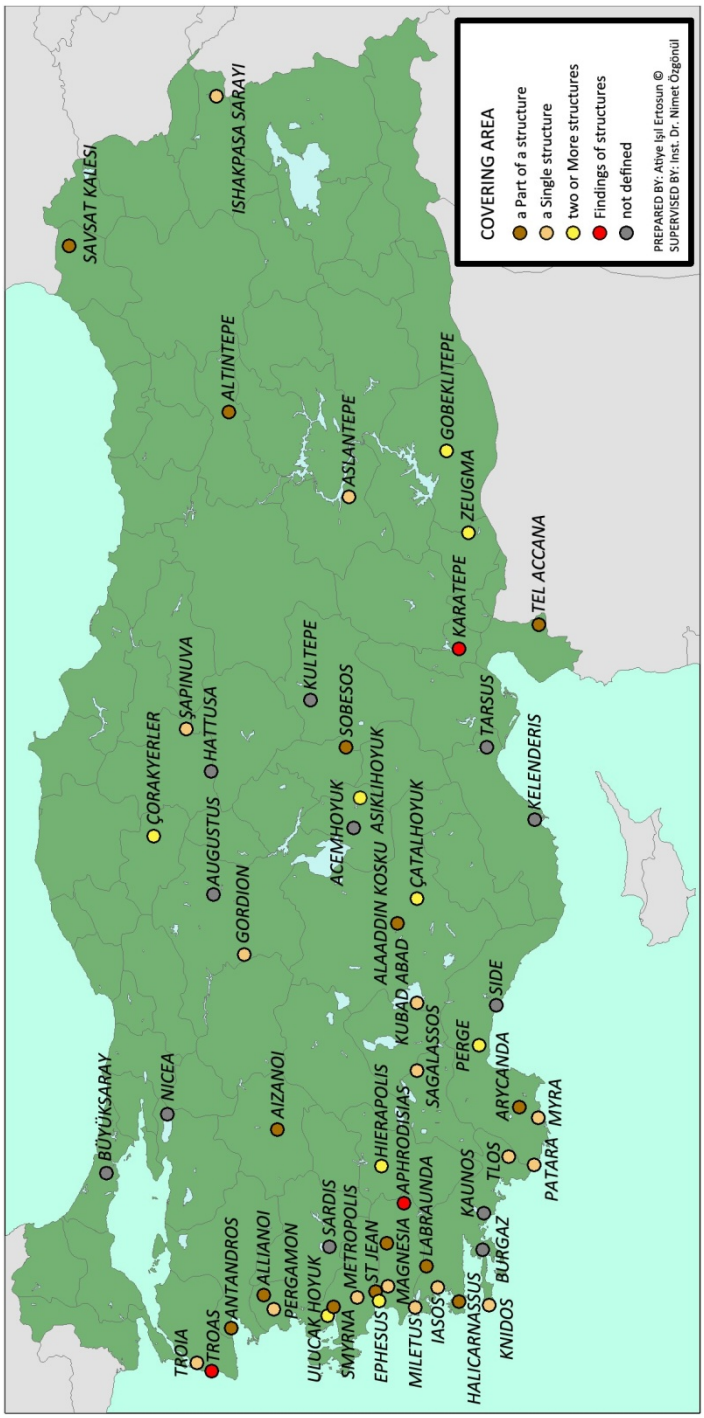


Figure B. 3: Covering Area of Protective Structures