

**A METHOD FOR THE ANALYSIS OF
SPACE PATTERNS IN HOUSING WITH
REFERENCE TO OPEN SPACE PHENOMENON**

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by

Yeşim TUNCEL

July, 1999

İZMİR

**TC YÜSEKÖĞRETİM KURULU
DOKÜMANİSYON MERKEZİ**

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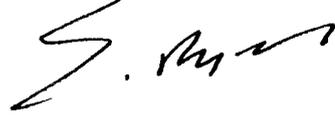
**A Thesis Submitted to the
Graduate School of Natural and Applied Sciences of
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**by
Yeşim TUNCEL**

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Ph. Dr. THESIS EXAMINATION RESULT FORM

We certify that we have read this thesis and that in our opinion it is fully adequate, in scope and in quality, as a thesis for the degree of Doctor of Philosophy.



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Dedicated to my sons.

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ABSTRACT

This thesis is a search on permanent and universal values of open space concept that satisfy physical, psycho-moral and social requirements of human being in house patterns. In order to find out the values that are hidden in open space, the interactions of openness and closeness of space patterns in case of housing surveyed in history and observed in today's housing patterns. This hidden language of open space and its degree of enclosure in architecture is not only a simple geometric space organization, instead it's a materialized and non-materialized image of the reality. In this study these relations have been introduced in a contextual frame by using general system and communication theories. Finally, an original typological model of analysis is being constructed in order to read this abstract language of open space and examine it in today's three different house patterns within their comparisons.

The Keywords

Open space, closed space, abstract space, void, architectural unit, materialized with non-materialized interrelations, livability, continuity, space patterns in housing, degrees and directions of enclosing, transparency, position, transition, composition, and wholeness.

Science code: 601. 01. 03.

ÖZET

Bu tezde; insanın, evi ve yakın çevre mekan örüntüsü sınırları içinde; fiziksel, psiko-moral ve toplumsal ilişkilerini yaşadığı açık mekan kavramı içeriksel olarak çözümlenmeye çalışılmıştır. Mekanda var olan gizli ilişkileri çözümlayebilmemiz için öncelikle tarihsel örneklerdeki açıklık ve kapalılık ilişkileri incelenmiş ve günümüz çok katlı konutlarındaki ilişkiler gözlemlenmiştir. Mimarideki açık mekan ve onun kademelenerek kapanma süreci sadece basit geometrik mekan organizasyonu olarak ele alınmamakta, açık mekanın nesnel ve nesnel olmayan öğeleri ve bunlarla kurulan ilişkilere dayalı çözümlenme araştırılmaktadır. İnsanın açık mekanla ilişkileri, genel sistem ve iletişim teorilerine dayandırılan, kavramsal çerçeve oluşturularak, çözümlenmede araç olarak kullanılabilir açık mekan tipolojisine dayalı bir model önerilmektedir.

Daha sonra geliştirilen tipolojik çözümlenme modeli kriterlerine göre örneklenen konutlar ve dokularda mekan örüntülerinin analizinin yapılması denetlenmektedir. Oda, 'mimari birim' ölçüğü olarak ele alınmaktadır. Oda ile açık mekan; odanın kendinden başka bir oda ile birleşme veya kendi içinde bölünme temeline dayalı olarak gelişen çoğalma ilişkileri, açık mekan ile bağlantılı olarak birimin konumu, örüntülerinin oluşumları, girişler, geçişler, sınırlamalar nasıl gerçekleşmektedir, mekanda zaman içinde değişimler nasıl oluşmaktadır diye yerinde analizler yapılmıştır. Örneklemeler günümüzde yaşayan konut dokularından seçilmiştir. Geleneksel doku örneği olarak varlığını, tüm olumsuzluklara rağmen sürdürebilen eski Türk mahallesi diye bilinen, Muğla, Karamahmet mahallesi; gecekondu dokusu örneği olarak İzmir-Çiğli, Güzeltepe mahallesi ve toplu konut örneği olarak Evka 2 Çiğli çalışma alanları olarak seçilmiştir. Farklı dokularda elde edilen açık mekan tipolojileri ve açık mekanda insanın fiziksel psiko-moral ve sosyal etkileşimleri ve mekan oluşumlarına etkileri, mekansal değişimler tipoloji kriterlerine dayalı gözlem, görüşme, anket, fotoğraf ve harita çözümlenme teknikleri birarada kullanılarak elde edilen bulguların birbirleri ve tarihsel örnekler ile benzerlik ve farklar açısından karşılaştırılmasını yapma denetlenmiştir. Çalışma, konut dokularında mekan açısından niteliksel değerleri araştırmaya yönelik tipolojiye dayalı içeriksel çevre çözümlenme çalışması diye de tanımlanabilir.

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CHAPTER ONE

INTRODUCTION

1. Introduction

In this thesis, it had been tried to put forward a typological method of analysis of open-closed space which can be used as a tool for understanding space patterns of housing with relation to its environment. This method could also help for analyzing space patterns of the traditional settlements, which need to be interpreted in order to use them for the construction and formation of the contemporary environment.

Human beings have to satisfy their basic needs in order to survive on earth. There are biological aspects such as hunger, thirst, sleep and sex ... and besides, some physical needs like defense, shelter, privacy and security. During hunting, picking periods; all these needs have been compensated by nature. Caves, hollows of the trees were first shelters of man, which he/she can find out in nature. Later on, as man has settled down, he/she started to build and construct reed, stone huts and tents as spaces for sheltering.

After becoming more and more modernized, industrialized, with the changes in lifestyles and functions, different types of buildings have been built up greater in number, such as schools, hospitals, hotels, shopping malls, apartments, mass-housing.... Within these variations, the houses and their space patterns with their nearby environment are the main subjects that had been dealt throughout the thesis. The subject could also be named as the typological analysis of open-closed space in housing environments that aimed to define and understand the qualitative values of space in a different perspective.

The relations of human beings in the house with its nearby environment are not adequately definable with the physical needs, functions and adaptation of man to nature. The things that she/he has done for herself/himself towards environment by building up over earth, are not only the materialized buildings. It could also be discussed about the abstract,

non-materialized relations of human beings in houses. They have differentiated relations with space in buildings and also with space that the buildings have been built in. As Göregenli, M., (1996) said that the building types, the houses, are very intimate living spaces where the social behavior takes place in and around. They are not only important by means of researches on environmental psychology, but also important for joining the environmental psychology and social psychology, because the houses are the oldest spatial barriers, separating man from others at every level, either it can be an individual, a small group or a family.

Throughout time, the relations of houses with their nearby environment have been changed as kinds of production of houses altered. The physical and the social environment instantly have been reversed. Man, had a chance to build up his/her own house before, according to his/her needs, lifestyle and preferences. After industrialization, he could not do much about his/her own house. Man's nature in building up a house, a nest of his/her own is limited. Today, as it is seen over the examples of producing mass housing, people have the ownership of their houses by drawing of lots. As Demirer, G., (1992) said that, human beings are at the point where the great number of people are unable to decide on their future. Man, together with his/her environment, became the objects of this 'production'. This is the critical point where it has to question the relations of; man-man, man-society and man-environment in order to discuss the problems in a specific holistic approach. With this point of view as Demirer puts forward, people have to put alternative policies or strategies which could construct and design the future from today on, for not permitting the critical habits of '*development*' to survive.

In recent years, a great number of mass-housing projects have been built over Turkey to solve the housing problem. This quantitative development was not able to solve the problem, because the results of the researches about the clients' preferences on environmental values are not at all positive and satisfactory. People said that they were not satisfied by means of the environmental quality. As İmamoğlu O, & İmamoğlu V., (T.C. Housing research, no.15, 1996) put forwards that; **the high-rise buildings are not capable to solve the problem of qualitative values in mass-housing. They also added that the preferences and expectations of the clients do correspond to an image of a two-story house.**

At the global scale and also in local case of Turkey, the increase in quantity in housing projects has generally brought a loss in the house presentation quality. People are questioning the development and the growth now. They are also discussing the *sustainability* with the *livability* in the settlements. As İmamoğlu O, & İmamoğlu V., (1996) have mentioned very briefly that, **people need to be careful in order not to mix the ‘quality of life’ with the ‘high standard of life’ which depend on the high life technology. The quality of a house, which is symbolized with its spatial phenomenon, is more than the high standard of the concrete or the quality of the material used.**

The livability as mentioned by National Committee (Ulusal Komite, Habitat II Kent Zirvesi, 1996) depends on **the spatial qualities and the properties of a settlement that directly affect the satisfaction of people and let them feel happy individually and socially by living in that settlement.**

The spatial qualities, characteristics of a settlement or a housing can be defined with the quality of being a human, also with the geography, time and the connections of the cultural codes. As Colquhoun stated, “...our ideas about pleasant and meaningful urban environments are based on our actual experience of living and working among the buildings and city structures of the past.” (Colquhoun, 1981, p.83.).

It could be said that, today’s housing projects at global scale are almost prototypes of each other, without paying any attention to the geographical context and differences in cultures. “Yet today when we look around our built environment, even looking at formerly exotic cities in the so-called Third-World we find a kind of international ‘sameness’.” (Koerte, A. 1986, p.20.).

In today’s building habits the most important thing is, as Başakman, M., (1991) stated that, there is a need to define and interpret the positive values of the traditional environments to enlighten the contemporary design, by defining the basic principles and the criteria.

The researches that aim to analyze or evaluate the house and settlement problems are not sufficient, if they only analyze the problems quantitatively from economics and social perspective by means of statistical data. Besides, there is a need of an integration with past, in a wide cultural perspective, in order to get more qualitative results for offering

contemporary houses with their patterns for a rich life to live. As National Committee (Ulusal Komite, Habitat II Kent Zirvesi, 1996) mentioned that the houses in Turkey; although they still have problems in distributions, after reaching the adequate quantity of production, people have started to deal and pay attention to the quality problems of the houses with their environments. With sharing the idea of not having enough quality both in the houses and environments; the different social groups are originating the reasons of these non-qualified properties in housing from different points of view.

1.1. Definition of the Topic

In this thesis, it had been tried to analyze the origins of these non-qualified properties mentioned in the paragraph above. A typological analysis depending on the livable relations of open space with closed space in housing patterns were done. The subjects of the thesis are the spatial characteristics and qualities of the house and its nearby environment where life takes place ordinarily, with the principle of livability. It had been tried to construct a typological model to define and interpret comparatively the spatial patterns of past that are living in the cultural codes with different housing patterns of today for an enlightenment to improve the life in housing.

1.2. Definition of the Problem

There is a very rapid change that takes place in the built environment by adding up, new high-rise blocks and the mass-housing projects. Within these global dynamic transformations of space that are also mentioned before as international “sameness”; has arisen the question of, “What are we losing and lacking about life and livability?” These problems are getting more critical with the urban transformation in the coming decades, stated as;

..by the year 2015, urban population in developing countries double in size and, for the first time will surpass the rural population. Fully 88 percent of the world's total population growth will be located in the rapidly expanding urban areas-and 90 percent of that urban growth will be absorbed by the developing world. (Livable cities for the 21st century, World Bank Report, 1996.).

The cities, particularly the cities of the ‘developing’ countries have to face severe environmental problems of these transformations. The housing rights of urban population

with space transformations from open to closed units are going to be the basic problems in the future. 'A quarter of the earth's inhabitants today is living in totally unacceptable conditions. More than 100 million people are completely homeless with absolutely nowhere to live.' (Mansson, T., 1995, p.66.). As mentioned, in the Expert Group Meeting on 18-19 January 1996, in Geneva;

Adequate housing is a basic aspect of everyday life that facilitates satisfaction of most other human needs. Perhaps second only to food as an immediate need for subsistence, those who do not have access to adequate housing are exposed to a wide range of detrimental factors that make the fulfilment of other basic human needs extremely difficult. For those lacking adequate housing, basic rights of shelter, security, privacy and dignity are virtually impossible to uphold. (Expert Group Meeting, Hic News, V.2, N. 2, p.8.).

Housing as a place to live is necessary for all human beings. The unsatisfied conditions of housing and housing patterns are depressing the people. **'Physical and psychological health, even life itself, depends on the possibility of individuals and families to use and enjoy a secure place to live.'** (Expert Group Meeting, Hic News, V.2, N.2, May 1996).

1.2.1. The Non-Positive Transformations of Housing in Turkey

Both at global scale and also in case of Turkey, the rapid modernization, with high population growths and high urbanization level in the cities bring us the differentiated type of house productions. What could be seen as solutions, presentations in today's housing are the various productions from the traditional, conventional, and mass-housing for different social-economic groups' needs.

Today's urban fabrics in Turkey have been assembled with the traditional house patterns that are getting older and slum-like as time passes, the squatter settlements, the planned productions of the apartment buildings in parcel order, (which is also named as 'yap-sat' type). Finally, the cooperatives and the high-rise buildings had been produced by local or private organizations. **These alterations, in the fabrics of cities and space were taking place rapidly without paying any attention to the values of traditional patterns. The quick physical diversion and transformation of space without any interpretation of**

past, affect the people and they feel as foreigners. It could also be named as *alienation to space, time and also to themselves. People are getting more and more displaced and forced to leave their living habits. There is destruction in space and in life also.*

As Keleş, R. & Geray, C. (1990) said that all the developing countries, which try to integrate to capitalism, are forming their cities for some of the advantage seeking groups instead for the sake of people. Throughout the 20th century, we see the adaptations of this *negative model* which serves as an advantage group model, that is named also as the 'profitopolis', as a model of settlement and a model of lifestyle all around the world. In the last 30-40 years, it has been also seen in our country that these dynamics of the global system are determining the future of the cities.

The architectural changes of houses and also with the modernization in other cases were interrupting the relations of people with their pasts. It could be said that the positive relations of traditional houses are not being interpreted and transmitted enough to the houses and house patterns of today. These rapid alterations in the spatial patterns also do not allow the continuity of the traditional positive social relations. As Şahinler, O. (1984) mentioned that, the neighbouring which is the magnificent component of our traditional life is now very limited to the staircases of the today's apartments which was taking place in the streets before.

With the variations in traditions and changes in values, attitudes and behaviors according to different social groups, status, sex, age... as Gür, P., (1996) put forward; design of houses for social groups and society instead for an individual are getting more complex. Man also has no chance left for building up his/her own spatial life, by adapting his/her own needs and preferences. In the past, the owner of the house generally constructs, builds and creates the house which fits to himself by trial and error method. After the industrialization man has not been permitted to change and construct his physical habitat. A contradictory view, states that the clients should come before the design and production so that the designers should function as the consultants or as a link between the user and the housing industry.

It could be said that if the future design principles expect to get people live socially and physically coordinated, there is a great need to pay attention to the cultural spatial

characteristics of past which let man relax and feel belonging to that place. As Kongar, E., (1979) stated that it will not be non-scientific, if there are different expectations about the futures of the societies with different pasts, because the 'past' had built up 'today', where 'today' is going to build up the 'future'.

Eldem, S.H., (1968), also emphasized these quality lacking, disapproved and non-positive transformations in cultural habits of living. As he puts forward that a great difference between the old and new lifestyles arise with the variations in pleasure and views. He points out that there is no understanding left about the beauty of old Turkish house. The new lifestyle which was considered as European, the love of cubic houses and getting away from garden and nature have transformed our culture of habitat

In the traditional lifestyle, the garden and nature were very dominant. This is called the interaction of open space at house scale, which was lost gradually. How can we understand and identify the interrelations of the open space with the houses (closed space) are the problems of this thesis.

In Turkey, the negative results about the environmental values could easily be seen, by analyzing the production of mass-housing that aims to lower down the house necessities. The general results at the end of post-occupancy evaluations (P.O.E.) with the clients proved us that the houses are *non-sufficient quantitatively* and people *try to change* them as possible. (T.C. Housing Researches, 1994, no.4). The open space patterns of these mass-housing, do not let the people to gather, unify and give happiness to them by being there. These open spaces which have presented to the people are *non-identified, unused* spaces between buildings and also they are not giving a chance for the people to socialize.

1.2.2. The Differentiation of Closed-Open Space Relations in Housing

The first diversions of the traditional patterns have been seen in the apartment houses that were built after the first period of Modernization. In this period, the new house and settlement types have arisen, especially in the seaport cities where modernization has been applied quickly. These new types like as the apartments, row houses and the suburb houses in gardens which all similar to the ones that could be seen in European cities. The division

of land into parcels, streets and squares is the basic principle of these types of the new house units.

This transition of patterns from traditional to new type by modernization which, was only seen at the seaports, later has diffused to Anatolia after 1923, the period of Republic of Turkey. The plan based applications, opening of new roads and streets with apartments, residences were all the new types of the built environment. The changes in spatial patterns are continued up to now with the building of the cooperative houses, mass-housing and squatter settlements. The squatter settlements although with their full of disadvantages, are characteristic, because man still produces his/her own house depending on his/her own needs, rights and preferences. These settlements are built by the problem solving decisions of the countryside based, rural communities. They have similarities with traditional houses due to their properties above mentioned. The mass-housing organizations are the recent, great in scale spatial decisions of the planning period which are based on the priorities of economy and technology. From another point of view as Gür, P. (1996) depending on the researches about the environment-behavior, stated that the design phenomenon of Architecture can not be identical to the solutions of the economical and technical problems. This thesis puts forward that, the mass-housing must be *life-producing* for the community and the society instead of being the *mass-producing*. This type of house production with the priority of life lets people to have livable spatial patterns even in architectural and urban design scales. Nowadays, also the Western countries are questioning themselves about the values, meanings of life, livability and qualitative life culture.

...Modern architecture and planning have failed in many instances to realize the richness and complexity of human life. Our German term 'Seelenblindheit' means blindness of the soul (of our inner eyes) as result of having been forced to work and live in boxes-that is office container boxes for work, 'rabbit cages' for flats, boxes to move horizontally called cars, boxes to move vertically called elevators-it's boxes wherever you go, avoid communication with each other. Mind you this not the fault of modern movement as such, but of our way to live our way doing things, of arranging our physical habitat. (Koerte, A., 1986, p.20).

...not only to growth and change, but also to ethical values in the making of present and future policy and decisions. ...it has been discovered that cathedral and market alone were not enough to make people really enjoy the city. ...we will need to be clear about what we prize. We will need commitment, both volitional commitment and financial commitment, to incorporate our higher values into the built material world. (Bonkovsky, 1986, pp.6, 14,18).

What we can see today in progress in the West - we can call it a 'silent revolution' - reflects a transformation of our basic values from materialist values to non-materialist ones like questions of lifestyle. (Granvik, M., 1995, p.75).

1.2.3. The Un-identified Relations of Open Space in Housing

In today's contemporary design principles about space in housing and their patterns especially in the mass housing projects, it has been observed that there are not enough understanding and sensitiveness about the need of spreading life to open space. Although, there is a need of an adequate housing for everyone, what is escaping our notice, is that the necessity of the need of life which is going on in the open space out of the closed units.

The relations of open space with each unit of the house both in the apartments in parcel scale and high-rise blocks in mass-housing scale are not enough. The life in open space, which has tried to get into the house with the design of balconies, has not produced an satisfactory solution. The balconies are not yet fulfilled by means of life, functions, dimensions, forms and privacy...

The open spaces which called as the community spaces or the public spaces in the mass-housing projects have aimed to use as communal space but these are not used or very little used spaces, when they rationalized to the clients. They look like the non-owned spaces instead of communal spaces. These non-cared spaces could be called as "wasted" spaces. The scale of these wasted "areas" with their meaningless emptiness for the flats, are surpassing by having to build up blocks increasingly away from each other in order to rise them higher.

1.2.4. Non-Positive Features of the Durability of High-rise Building

When the high-rise housing blocks with their non-related open space life styles once built, they stay there for along time and are stable. The non-positive features about the high rise houses will be very long living. People are being forced to live in these high blocks, boxes with the limited open spaces. They can not change, arrange the blocks and their spaces by themselves. The people who are living there can make very limited additions to the closed and open spaces. They could make limited changes in the closed spaces, like as changing colors of the wall, curtains...etc. The limited contact with the ground in high-rise blocks cause people to lose the chance of getting direct interrelations with the life in open space both at individual and social levels.

As Tekeli, İ., (1996) indicates that the great amount of source for investment has been lost without solving the problems of quality. What is more important than this loss, as he continued, is that forcing people to live where they can not be happy because of the long-living, stable spatial structure of the site. On the contrary, **trying to get rid of this unlike spatial characters for higher livability standards means, much more cost.**

1.3. The General and Specific Purposes

In this thesis, with keeping the thoughts and ideas above in mind and initiating with the house units of Anatolia; it has been aimed to analyze the relations of the closed units of house with open space while they are getting together and interacting to form patterns, compositions. This is a study of looking at the qualification criteria of the housing from another point of view and identifying with a typological model based on the physical, psycho-spiritual and socio-cultural analyses. The general purpose of the thesis is to analyse the open space with relation to the closed spaces of traditional housing in order to carry them to the future. While the developed countries are discussing the non-positive features of their life-styles, there is a need of an impulse for not having the same mistakes. The cultural codes could be defined and carried on to the future. Towards to this aim, a method has been tried to evolve in this thesis. It could be also stated as a research, about the spatial identification of the environmental quality of the house and its nearby environment with reference to open space concept within cultural continuity.

1.4. Questions the Research Searches to Find Out

- In which ways the standard living quality in housing could be enriched by constructing positive relations between open-closed spaces?
- Which method of analysis can help us to define the abstract language of open-closed space relations?
- What is the differentiation in the organizations of building shell, which is, constructed both by closed-open space (void, absence) from traditional to contemporary housing patterns and housing unit within historical transition alterations?
- Can the solutions of the analyses help us to enlighten and develop the quality of housing designs for today and the future?

1.5. The Procedure of the Thesis

As the theoretical framework; the conceptual and empirical analyses on space, have been proceeded for construction of the methodology, in order to recognize; achieve a conceptual understanding, contextual defining and an inherited meaning of open space phenomenon. In the thesis, the housing tradition of Anatolian cultures by means of continuity within a wide perspective had been studied. The typological analyses of house that were done before by means of architectural scope have also been searched in general. After all these analyses and others, *an original typological model has been constructed and offered for the analysis of space patterns in housing with reference to open space*. The house patterns in Karamehmet-Muğla, Güzeltepe-Çiğli, and Evka 2-Çiğli have been analyzed depending on the relations of open-closed space by means of the physical, psychic and social levels.

In testing the typological model, three patterns, which symbolize the different city fabrics of today, have been chosen. These are the traditional settlement in Karamehmet-Muğla a squatter settlement in Güzeltepe-Çiğli and a mass Housing Project of Evka 2-Çiğli. It has been observed how the open-closed spaces are getting together or diversifying in rich variations. It has been tried to configure *a relation* with measurements of quantitative objectives, observations, face to face communication data, to the perceptive, appropriated and preferred values of people. It has been tried to search, the understanding and attitudes of the people who live in these city fabrics towards the open-closed space. In this thesis a

comparative study of the three patterns with their contexts of open space has been tried to construct and an outline of the differences or similarities has been achieved.

1.6. Limitations

The main constraints and limitations in the thesis are the using of questionnaires. The people in Muğla and the squatter settlements have low incomes general. Sometimes it was very absurd and senseless to ask some of the questions when they are in need of food, water and sanitary. It could be stated that an intensive necessity of using observations in the field has arisen when data and information of the questionnaire failed and were not enough for evaluation and generalization towards occasions.

As Maslow has pointed out the process of self actualization can only start after other needs, like the need of food, security and love. It can be also said, that as the base of life the organization of materialized to non-materialized needs of every unique human being categorized in his/her own cognitive structure.

1.7. The Crucial Importance of the Topic

The importance of the thesis is to point out the unavoidable relations of closed with open space. When this phenomenon has been investigated from the continuity of culture point of view, it could have been noticed that in the traditional patterns these interrelations of closed with open space, with the house's own open-closed spaces were very crucial and intensive. These are the relations which give human beings a chance to sense or perceive his /her inner with outer environment and to feel himself/herself and the others as a whole.

These are all the positive features of life for human beings that help to carry them up to identify themselves spatially and temporally. The thesis is important to attract the attention to the quality of life by means of the relations of human beings with the categorical hierarchy of open space (void) in housing that has been destroyed and devoided human beings to get out of the life cycle.

CHAPTER TWO

RESEARCH METHOD

2. Research Method

By giving a shape and form to our material world, Architecture structures the space, in which men live and move. There is a general tendency to discuss the problems of material world (the built world in this thesis case) in terms of simple and general physical variables, such as building height. These types of analyses could be done only with the facts that are given or named as 'a study of objects' the physical criteria do not only help for an understanding, conceptualizing the space problems. There is a strong need of understanding behind the object world. A different type of analysis method with the materialized-based ones has been tried to set, in order to get a general conceptual view of space context.

The reference point of the thesis for understanding space concept is, to get a new perspective on the concept as a totality of open-closed units. This new perspective which has great emphasis on open space has been based on the theoretical framework of pro-determinism that analyzes the reality from the actual and virtual realities' point of view. The actual realities of the materialized realm (the built) with the virtual realities of the non-materialized realm (the non-built.) together construct the general *reality* concept. The concept of space could have been unidentified if the interpretations, experiences and definitions were based on only the actual realities but denying the virtual ones. This general reality concept is based on a holistic thought systematics.

As Öner, Y., puts forward that, this is the type of thought systematic that still exists in the essence of our culture which also survives in the dialectic of East and originates from the dialectics of Chinese and Indian. (Öner, Y., 1993, p.202.). The thesis is based on the general perspective mentioned above. With the relations to these general approaches of

theoretical base (pro-determinism), the changes and differences of the space concept have been also examined by means of Critical Realist Philosophy, which criticise the actual realms. (Bhaskar, R., 1989.).

2.1. A Conceptual Analysis of Open Space Context

Throughout the history, the concept of space changes by the interpretations of concepts and systems of thought in philosophy, art, science and particular scientific disciplines. From each point of view, it has been understood and defined in universal, psychological, social economic ...etc. levels with rich variations in life styles. As Güvenç, B., (1973) indicated that the quantity of these contradictive approaches could develop in great richness, if 'the levels of evolutionary space analyses' such as 'mythological', 'ethical' and 'logical' dimensions are included. The concept also could be defined differently by closely related disciplines such as urban design and architecture.

Mostly during defining contextual meaning of the concepts could not be denied precisely. Differentiated defining, approaches and contradictive explanations have been arisen even in the fields of disciplines that are bound tightly and interrelated to each other. Nowadays, the chaos in these increasingly goes on.

The problems about the definition of space concept:

- Definitions are not put forward clearly and simply.
- General attitudes in defining are reductionary.
- Concepts are analyzed as contradictive dualities.
- Constrained meaning of space concept is given in limited, deficient dimensions.
- Definitions are given the perspective of contradictive philosophies.

Examples could be given for dualities of space concept in related disciplines such as: architectural space / urban space; interior urban / exterior architectural space; interior architectural / exterior urban spaces; natural space / man-made space, global / universal space, existential space... etc.

These dualities, which inform us to sense them as differentiation, build up the difficulties in understanding and defining the concept of space. It can be said that, there is a 'chaos' in

the context of the concept. The word space can not have an absolute and unalterable definition because of this chaos. Even the perception of space depends on the deepness of cognitive experiences, conscious and unconscious subjective accumulations, cultural background...etc. the concept of space does not depend on personal and subjective definitions. Numerous different understandings, definitions and experiences about space could be seen in the Architectural History. Although it is a very long journey, in this thesis space concept will be analyzed under two general topics.

2.1.1. Understanding Space as a Whole

The understanding of space concept in Architecture is generally as a whole (unity). In this holistic approach understandings differ by the changes in the concept of whole. The thought of whole in some cases has been limited to Geo-systems (earth) and in others unlimited with Helio-systems (sun). So, the global based understandings could be called as 'geo-centric' and the cosmos based understandings as 'helio-centric'. When *holistic approaches* are discussed, limits have to be put or let unlimited.

2.1.1.1. Geo-centric Definition of Space

This definition depends on the things exist, their energies, their relations at micro-medium levels that all take place on and around the world. This holistic concept of space is limited with the earth and atmosphere. All the relations of livings and non-livings and their lower level relations that take place on this Geo are included in this definition.

2.1.1.1.1. Micro-level Definition

There are also spaces of living and non-living organisms which deal with the studies in chemistry, biology, physics, micro-biology, micro-physics, genetics, bio-energetics...etc. All these *matters have energy relations, which can not be observed with bare eyes*. In a cell, an atom or in their lower levels the energy transfers, energy changes, energy absorption, and energy outfits with their order-disorder are taking place at micro levels which is called micro-cosmos.

In architectural literature, analogies between biological cell and a room could also be seen. The room is mentioned as a cell or defined as an atomic unit in Architecture. As Göyünç, N., (1996) mentioned about Ottomans that the small room, 'oda' or 'odaha' is

named as 'hücre' which means the cell in Turkish. The cell has a cellular membrane, the atom has an electron shell and the room has walls to form a boundary from the open space and others. This analysis is going to carry us to use the room as an architectural unit like cell being a biological unit and atom being an atomic unit.

2.1.1.1.2. Medium-level Definition

In Geo-graphic space, the space concept is limited with atmosphere. The cultural and physical geographies give us various definitions of space. Man and his/her built environment with earth and its natural environment define the space. These types of understanding are all Geo-centric. All the observable livings and non-livings with man with his/her point of location and the moment where he/she is, define the specific space which is also called a *place*. This is the medium level, the geographic definition of space and it differs whether its determinants are physical, cultural or both.

Physical geography - topographic, climatic, geologic, geomorphologic space concepts, populations... etc. are all physical definitions of space. These are not varied easily from man to man and in time. However, this conceptual context could be used as a definition of place instead of space.

Cultural geography - there are variances on Earth depending on human beings and their cognitive experiences through in time. In today's world, the term 'globalization' and all other terms are Geo-oriented definitions of space and related to human beings living in groups in social context such as; rural, regional, vernacular, economical, defense systematics, political, sociological, psychological, anthropological, ecological, technological, historical dimensions...etc. Man with his/her knowledge on and about earth culturally defines various space concepts. This means understanding the earth and himself/herself in temporary terms. There are always changes and transformations of these types of definitions of space. What could be said about these types of definitions, which are dynamic and evolutionary?

Physical-cultural geography - together identify space with the relations between Geo-conscious human. The land (soil), water and air with all the living and non-livings in micro-medium levels and their overall relations in time form the understanding of space.

2.1.1.2. Helio-centric Definition of Space

This is the macro level of defining space. Man defines space with universal, cosmic concepts, all relations between Earth-man-universe. The cosmology and cosmography study the things with their interactions in cosmos. All the interactions taking place over the universe have effects on earth and visa-versa. This type of understanding relates to studies of space geometry, time, matter-energy relations, light, electromagnetism, rays, heat, electricity, thermodynamics...etc. It is an abstract, cognitive space concept. This is a macro-level expanded approach. In some cases it is defined as *void* as Güvenç, B., (1976, p: 56) has mentioned. He puts forward, if there was not any reference point, the universe would only be a void (vacancy) and none (nothing). However, on the other hand, the phenomenon, which is called as space that exists in this conceptual void, could be perceived with senses. It could be realized in these definitions that, there is a variation in the use of abstract universe (void) concept and perceptual space concept. In Architecture, Zevi also used the word *void* to define space. As he said, "Architecture, however, does not consist in the sum of width, length and height of structural elements, which enclose space, but in the void itself, the enclosed space in which man lives and moves." (Zevi, B., 1993, p.22).

In the ethics of Tao, these relations of man-universe could also be seen. In Tao's beliefs, the inner world of man reflects the universe. That means, what man has out also has it in. The inner world of man is micro-cosmos, and the micro-cosmos with macro-cosmos are a unity that can not be separated. Upon the existence of Tao's beliefs, Şen, C., (1996) said that man was a harmonious collaboration of *ch*'s (a kind of energy - a potential power) of earth-sky unity. Within these relations, man is not independent from earth-sky unity and also earth-sky unity is not independent from man. The cosmic space generally is symbolized as sky and has deep meanings in the beliefs, religions and ethics of eastern cultures. This cosmic space and its circumstances, such as light, heat, cosmic rays and their electricity, electromagnetism, are all seen in architectural literature in diversified ways.

Louis Kahn said, "Architecture comes from the making of a room. ...the room is place of mind. ...the room is not a room without natural light." (Giurgola, R., 1994, p.15). What he mentions here is the deep relation of mind and natural light. The natural light (sun) shines on earth and human beings take it in to the room for his/her biological life, perceptions, sensations, and evaluations. His environmental cognitive experiences depend on the sunlight

but this is not all. Besides these recognition, light is also 'the wellspring' of laws of nature whether known to human science or not. As Kahn said;

Matter is extinguished light. When light ceases to be light it becomes matter. Silence has a tendency to express something, and light creates, gives it form. The creative spirit has two aspects, one luminous and the other non-luminous. The luminous becomes light, flame, and matter, from which emerge means, possibilities and evidences. In consequence, the mountains, the rivers and air are extinguished light. So too we ourselves... The expressive and creative forces unite to form inspirations. (Giurgola, R., 1994, p.16.).

This is the relation of matter-energy. As Einstein stated it, that matter is another form of energy. They are one-another. There are no differences between them. There is a change only with their outer phase as Kahn said, luminous/non-luminous. As Uygur, N., (1995) indicated that, when these dialectic terms analyzed; it could be seen that they are the concepts, which do not let each other out. Instead they unify, need, replace and transform to each other.

Norberg -Schulz, in *Genius Locii* (1980) defines the architectural space with relation to natural space. In his analogy, the earth is the floor, the sky is the ceiling and the vertical boundaries such as the trees and mountains are like the walls of architectural space. *Genius Locii* is the 'spirit of space'. He mentioned this togetherness of architectural and natural space in his other book as;

In architectural space, as in existential space, place, path and domain form an integrated whole. Together they constitute what we may call a 'field'. The concept of field is used in natural science to designate the spatial aspects of a system of interacting forces, and has been taken over by Kurt Lewin to describe man's location in a psychosocial context. An architectural field also consists of forces, which ought to be balanced in a state of dynamic equilibrium. (Norberg- Shulz, 1971, pp. 59-60.).

In today's world it could be said that there are different type of fields which interact at different levels. These fields can also be classified as material and non-material, as mentioned under the topic of 'Alan' in Turkish. (Encyc.Britannica, vol.1.). Electric field, magnetic field, psychological field....are some examples of these. The material ones could be

noticed, whereas the non-material ones could not be noticed but could be recognized by the experiments like the electrolysis to define electric fields or with the help of bio-organic receptors to define psychic or spiritual fields (feelings, emotions, thoughts...). The concept of *field* also extends to describe man's location in a psychosocial context as Kurt Lewin states above quotation.

There is a need of a very wide perspective and an open-ended view for understanding this non-materialized world. These non-materialized fields are potentially there and they are energetic. In studies at micro-macro levels, some interactions about them are identified. It could be said that there are relations and interactions among the lower particles of atoms in micro-world (microphysics/quantum physics.), which could not be identified, perceived and empirically analyzed with our biological senses. Also these kinds of relations and interrelations are going on at every level of existence.

It means that if a physical penetration or interference take place, the material particle transforms to energy, acting as a material particle and energy at the same moment. If the location of particle is fixed, the movement could not be traced. If the movement is traced the location could not be fixed.

This obscure, indefinable field where all the known together with the potentially known interrelations take place, could be named as '*void*' or '*vacancy*'. **This does not mean that there is no existence in these fields or there is, 'nothing' or 'non'; instead it means that there are full energy existence, non-materialized realities (virtual realms) which are potentially there and yet, not materialized.** The materialized ones with the non-materialized, all together could define *the context of space concept*. These interrelations of materialized and non-materialized realities could define the space concept as an entity of relations as Baykan Seymen, Ü., (1988) has stated in categories below:

- A spatial entity assembled with the probabilistic interrelations scattered around which are not yet actualized. (Time factor). (A sub-set of space entity).
- A spatial entity assembled with the interrelations of the non-living materials. (Another sub-set of space entity).

- A spatial entity assembled with the interrelations of living materials. (Living systems). (A sub-set of space entity).

- A spatial entity assembled with the interrelations of consciously living materials. (Social relations). (Another sub-set of space entity).

In this thesis case, it could be said that in order to identify *the open space concept* and its relation to housing with man, there is a need to analyze these as energy fields with matters. **There are energy transfers, transformations between matter-energy field. Energy transfers at all levels, from macro to micro and also from micro to macro takes place.** In every material there is a potential energy and a kinetic energy around it, which is not perceptible. As it is said by Bachelard, G., (1995) that modern science had been demolished by epistemologically, when the nature of an element had been explained with the organization of electrical particles.

In this thesis, it has been put forward that these relations stated above take place even in case of man-house and open-closed spaces. The open space is the electrical field that full of energy, the closed space is the captured, enclosed part of the potential energy field. By the following original table (Table 2.4) it has been tried to analyze these interactions and energy transfers at every level of space.

The word '*psychic*' has been used in the table for defining the relation of man's inside, which is the inner world at individual level. The word '*spirit*' has been used for the relation of psychic with others in the whole or vacancy at the universal level. The word spirit generally is used in Turkish in a limited way, as soul. In this thesis case, it is used differently with connection to the words like *the aspiration*, which means a strong desire to do something; *inspiration*-, which means to stimulate or impel to some creative or effective effort. In Webster's New World Dictionary, one of the given meaning of spirit is that, "...the thinking, motivating, feeling part of man, often distinguished from the body; mind; intelligence." Another definition is "-life, will, consciousness, thought, etc.; regarded as separate from matter." As Kovel, J., (1991, p.31.) states that the spirit is **the other-ness which is very important for livability, full of power and more than direct perceptions. It is not there as a matter but it is powerfully and potentially there.** This is the non-materialized part of a unity, entity or the open space (void).

Table 2.1 The Holistic Space Concept with the Interrelations of Matter-Energy

energy..... matter-energymatter.....		
	geo-centric (world level)		helio-centric (universe level)
	micro-level	medium-level	macro-level
<i>non-livings</i> atoms elements molecules soil (land) water air (atmosphere) moon galaxy of sun other galaxies
<i>livings</i> receptors perceptions sensations nucleus cells tissues flora (plants) fauna (animals) human beings ?
<i>conscious</i> <i>non-conscious</i> <i>living</i> thoughts, feelings, emotions cognitions intuitions	individual-level psychic unity	social-level psycho-spiritual unity	universal-level spiritual unity

2.1.2. Understanding Space as a Unit

This is the definition of space in a limited way. This type of definition always has three dimensions and in most cases it is only named as the architectural space. As Özer, B., (1996, p.100, trans.) said that the architectural space is always three dimensional and other dimensions which added to it are always the extra dimensions of the cognitive context, cognitive experiences of individuals. The dimensions other than the three are relative to the one who experiences it.

In this thesis a unit of shelter or shell has been concluded as the lowest level of architectural space that has relations with the vacancy and abstract space (the open space). This lowest level of architecture is called as '*the architectural unit*'. The typological analysis model is going to be based on this architectural unit (closed unit) and its interrelations with the abstract space(open space).

2.1.3. Livability Level of Life

As it has been discussed above, the life, the system goes on at every stage with relation to each other at different levels. If the subject had been analyzed at the level of earth, which is named as 'Bios'; it could be seen that the organisms continue their lives over biosphere, which is composed of soil, air and water. The continuity of life depends on the survival of Bios. The ecological depressions of today are all against the destruction in the biosphere. The conceptions of men about Bios, their behaviors, attitudes toward it have changed in history. These relations could be examined in two ways; one is as the duality of man and nature; and the other is the unity, oneness of man with nature. Man rationalizes and dominates the nature with his/her mind, or unites with it by his/her feelings and sensations. As Nalbantođlu mentioned by quoting from Lawton that these are the 'human-centered and non-human centered views of man originate from the philosophies of Greece.' Shrader-Frechette (1991) in 'Ethics and Environment' has named these two extremes as '*technocratic individualism*' and '*environmental holism*'.

The World is at the point of 'ecological crisis' with these human based, 'anthropocentric' approaches and the population growths. Nowadays, the new political models like 'sustainable development', 'ecological equilibrium', 'suitable balance' and 'shared future' are being discussed. The aim of these works is not having more destruction in the balance

but to let life to live. As Lawton states, these are the humanistic ecological attitudes of today like in the philosophies that could be seen before Sokrates, which are evaluating man as a part of nature, as a unit of totality. According to these thoughts, all the livings are cooperated parts of the life pattern. Human beings are the ordinary elements like all the other organic and inorganic matters.

Life depends on the physical elements of bios; soil, air, water with the solar system for its light and heat. The organisms sustain their life with the energy they get from these elements but they are not enough. While all these materialized energy transfers are taking place, there are also non-materialized energy transfers take place in the open space at the psychic-spiritual levels of conscious livings. As it was said; 'We can built our environments which treat human in holistic ways. We can create cities where human creativity and freedom find expression.' (Bonkovsky, 1986, p.18).

Every human being needs a conscious and a high cultural level interrelations with his/her environment. In order to realize this, people have to let in high-qualitative spaces to live. (Ergeneçi, G., 1991, p.36.)

The life, with its characteristics of materialized and non-materialized relations could be mentioned also from different points of views:

...think of two environments: the forest and the city. We used to think of cities as living organisms - we tend to see the spaces between buildings as the very essence of the city, instead of the building themselves. A forest is not just as the city made up of trees; its secret, its beauty and mystery is dark spaces between the trees. This really is its true nature, just as the city derives its vitality from the interface of objects. (Koerte, 1986, p.20).

Bauhaus idea is, ... the 'gestalt' or total approach to psychology, art, the humanities and the environment. First formulated some 70 years ago, it is still too young to be fully comprehended. It is the essence of everything we hear these days about ecology and a kind of 'new humanism.' It is the essence of the idea of a 'Gesamtkunstwerk' (the total work of art) which has a long tradition in German art and philosophy - the search for inner 'one-ness' of matter and mind, a holistic approach to 'lebenswelt' (world of one's life) or microcosm. (Koerte, 1986, p.31).

2.1.4. Synthesis of Conceptual Analyses

It had been tried to get an identification of space with a conceptual understanding of its context by means of universal, global and micro level relations. The open space concept which the thesis has been based on is referred to the abstract concepts of ‘vacancy’, ‘void’ which has been discussed in Chapter II, p.19. The open space, the unity of the units consists of life and all the relations in it. The analyses of these relations could be based on the theoretical framework of pro-determinism. It analyzes the reality from actual and virtual points of view. The actual realities; the materialized and the virtual realities; the non-materialized construct the ‘reality concept’. So it could be said that *the vitality, the livability of a unit depends on the energy transference from and to the materialized and non-materialized realms of other units and visa versa, at differentiated levels*. These types of relations could be realized at all levels. The need of food is one of them. Without food, which is a materialized energy, man can not survive. Without light, the plant can not do the photosynthesis. The ‘abstract space’ contains too many materialized with non-materialized relations. Man interrelates with soil, water, air and other livings in micro and medium levels at the global scale. With the solar system and the other galaxies man also interrelates in macro level at the universal scale. These relations could be stated as it is shown in Table 2.1. Man, who is being a conscious living also communicates with himself and others through his thoughts, feelings and intuitions... These relations are getting more important when analyzed by means of house and its patterns in architectural context. The interrelations between an architectural unit-open space and their energy transference from each other are getting crucially important for the continuity of life of man in constructed space.

2.2. Literature Analyses of Open Space in Published and Unpublished Written Materials

In order to put forward the hypothesis and to form the model, the documents and the researches that have been done before on this specific topic will be mainly analyzed to find out relations of the house and settlement patterns with open space over Anatolia.

It could be said that the cultural codes in the collective social conscious are being reflected to the space. The culture of housing with its traditions is continuously coming up to these days with their changes and transference in the spatial patterns. The houses are the places where the continuity of culture defines itself by means of spatial manner. The

concepts of tradition and continuity are becoming more emphasized in this work which have been tried to analyze the housing patterns. As it was said:

...tradition must not be misunderstood as a static, historical legacy of historical, neither should it be seen as a project for the dynamic re-interpretation of the past. The word itself derives from the Latin 'tradere', which means continuing and handing over. The concept of continuity and permanence are inseparable from that of tradition. The process of continuity suggests a development through time and space in which change and stability, renewal and restoration, progress and conservation are implied without actually being specified. ...Tradition is emphatically not a rigid dogma, but a living, organic ecological project. It revivalism has nothing to do with obscurantist practices, reactionary customs on irrational. Tradition is always young, fresh and new; not a defense of old, the ancient, or the antique. It is a project about continuity, based on memory, commonsense, and experience. (Steil, 1987, p.6).

The concept of continuity in the housing tradition in Anatolia emphasized by the researchers. (Erdim, Eruzun, Kazmaoğlu & Tanyeli...). Nowadays, while modernization, globalization affects the cultures deeply, the interactions of the past and present in case of cultural identity became more important and discussed. Within a very wide perspective, as Said, E., (1996) puts forward about the cultural identity and continuity in the Modern theory of culture is very important. He stated, **as agreed universally that the cultures are heterogeneous and hybridized**. He added that all the definitions of cultures are going to be missing if they define the cultures and civilizations with a definite and identical ways rather than defining with the interactions and interrelations of the others'.

2.2.1. A General Historical Background of Traditional Houses and Housing Settlements in Anatolia

The heterogeneous culture concept and constructing base of a culture are getting more important when it is talked about the Anatolian civilization. As Akurgal, E., (1993) stated, Anatolia is a cultural totality, which has been build up by adjacent cultures of same historical periods and cultures that are on top of each other at different periods. He added that, as the local people who had the historical background information about 60 years ago know that there are approximately 20 different ethnic communities in every province of Anatolia. This

peninsula with its 1560-km length has also seven different climates depend on its geomorphology. As Akurgal added, Anatolia is a mosaic of cultures with its topography allows synchronic and diachronic relations, interactions of cultures to survive together.

The continuity, survival of tradition could also be easily seen in the example stated below. Such as, 'It is a well-known fact that cultural habits may survive long often they have become a memory. ...alone the etymological connection between 'oda' (room) and otağ (large tent) is an incontestable evidence of continuity.' (Housing and settlement in Anatolia exhibition-1996, İstanbul)

...so today we speak of 'cultural identity' in an attempt to resurrect the specifics of place, its essential character, its local ambiance. We delve into history, hoping for better understanding of 'continuity in tradition,' as Walter Gropius would have said,...(Koerte,1986, p.20.)

It could be said that the cultural habits, which have been spread to time, are forming the spatial patterns of house and environment in this continuity. Herakleitos states this, as '**Pante rai**' which means that the time never stops and everything flows within it.

When it have been look at the analysis of past as Sey, Y., (1996) stated that it could be seen the classifications which have been based on the material cultural data of the earlier periods (such as Mesolithic, Neolithic). Later the data have been classified in terms of the political unions, (such as Seljukides, the Ottomans). As it had been seen in the Exhibition of '*Housing and Settlement in Anatolia: A Historical Perspective*' the cultural background of the period of 12 thousand years have grouped. Such as, 'from Paleolithic to Antiquity', 'Antiquity Period', 'From Late Antiquity to End of Byzantine', 'Pre-Ottoman Period', 'Ottoman Period toward Modernization' and 'From Modernization till now'..

In some other studies, it could be seen the cultural based classifications about the house and settings in Anatolia as:

- The cultural data of Asia Minor before Turks.
- The cultural data of nomadic life of Turks.
- The cultural data of Islam and Persian
- The cultural data of Asia Minor in the political unions. (Seljukides, Ottomans)

It could be said that the traditions of the house and settings are a synthesis of the data in these groups. In this thesis, it has been tried to get a general, brief look for enlightening the relation of house with open space from the traditional point of view.

With leaving aside the Yarımburgaz cave near Küçükçekmece Lake, the oldest settlements that were found on the same land was starting from around ten thousand years up to date. They were presented us with the life modes of different cultures, as well as an enormous diversity that have been formed by different geographical positions and technologies.

The caves and the hollow shelters in the ground are the first culture of habitats of Anatolia. The caves are the shelters, which are having dark insides, and only *one opening which is the entrance of cave*. These are the shelters, which could be found naturally on earth. Man only was expressed himself/herself with designing the walls. The hollow shelters, which have been seen in Çayönü and Hallan Çemi, were the first constructions and changes on earth surface by man. They dug a hole into the ground and covered the roof with branches like as a dome. These round form shelters which generally have been used for defense were having an opening for entrance and an open communal space with a fire in the middle. As Soysal, M., (1996) puts forward that these round form of the house have been started to change when the settlement of the people has begun; as it was in Aşıklı Höyük. The reason of the change from round to the quadrangle form is because of its easy additive and divisional character. With the beginning of the agricultural production the space need for storage has been arose.

What it is being known about the late period settlement in Çayönü is that all houses are faced to the same direction with having flat roofs. They were looking like a two-story building where the storage took place at the basement and people were getting into the house from the roof with an open stone-stair from outside. The settlement also took place around a common field. The tradition of flat roof and getting into house from the roof were widely used. The everyday life was going on these roofs which were open spaces. As Soysal, M. (1996) stated that this type of usage of the open space and the entrances to house from the open space could be seen in Aşıklı Höyük of the Mid-Anatolia and Çatalhöyük near Konya (Figure 2.1).

Also in Çatalhöyük the houses have been built adjacent to each other and formed a *wholeness*, compact unity with their courtyards. This compact unity form of houses, which do not have openings, windows to streets and entrances from flat roofs were very defensive by themselves with the outside walls. There was not any need of special defense wall in these type of settlements. The rooms and buildings were get together like as a *külliye form* as Naumann, R., (1975) has stated. A similar type of defense walls with the sidewalls of houses could also be seen in Hacılar. (Figure 2.2).

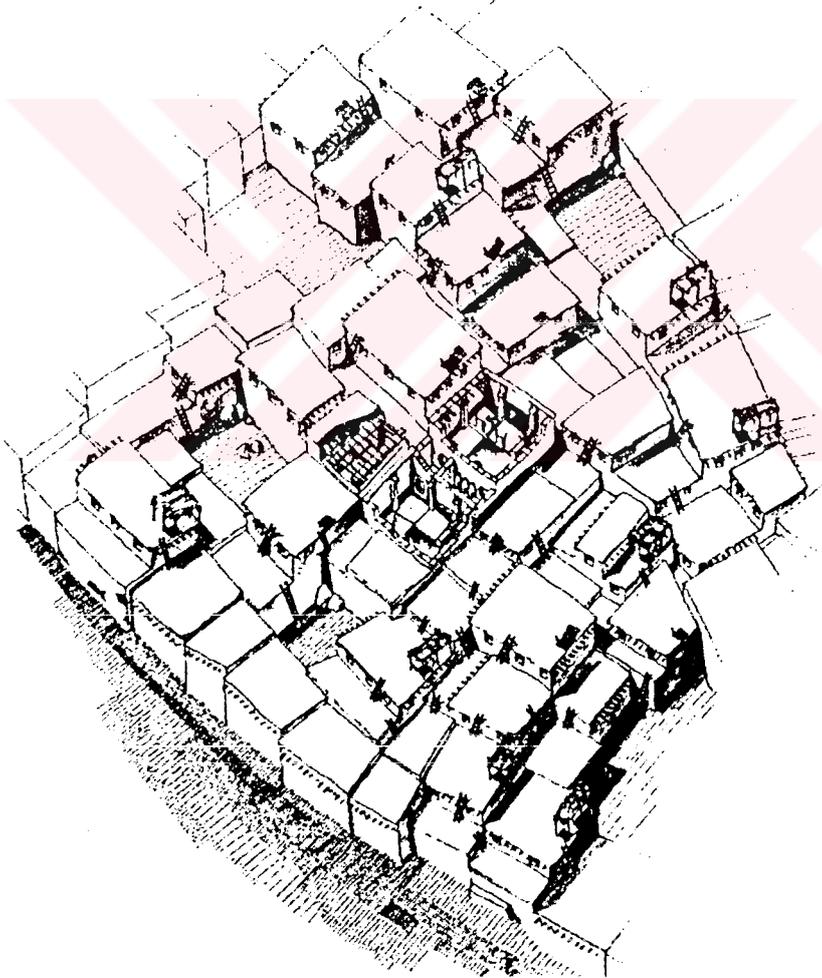


Figure 2.1 The Flat Roofs and the Life in Open Space at Çatalhöyük (Soysal, M. 1996)

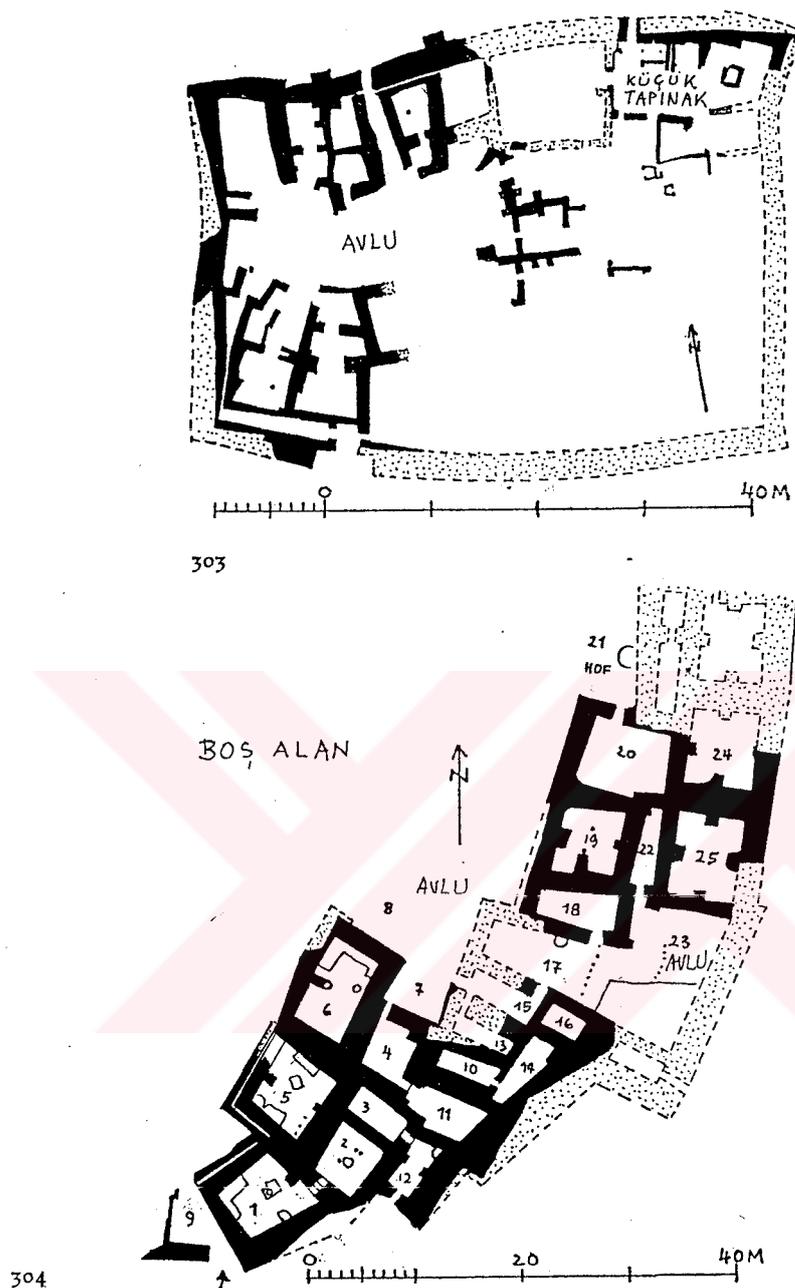


Figure 2.2 Hacilar: Defensive Wall by the Side Walls of Houses (Naumann, R., p. 246)

Later, the very powerful defense walls, the *casemates* have been seen in Mersin dated about four thousand years or before. The casemates (Fig. 2.3) which are etymologically analyze as “*chasma*-opening was altered to *casa*, a house and *matto*, dim, dark.” (Webster’s New World Dictionary, 1970). These were especially houses for the soldiers’ families and had an open space part with dark and dim closed space part.

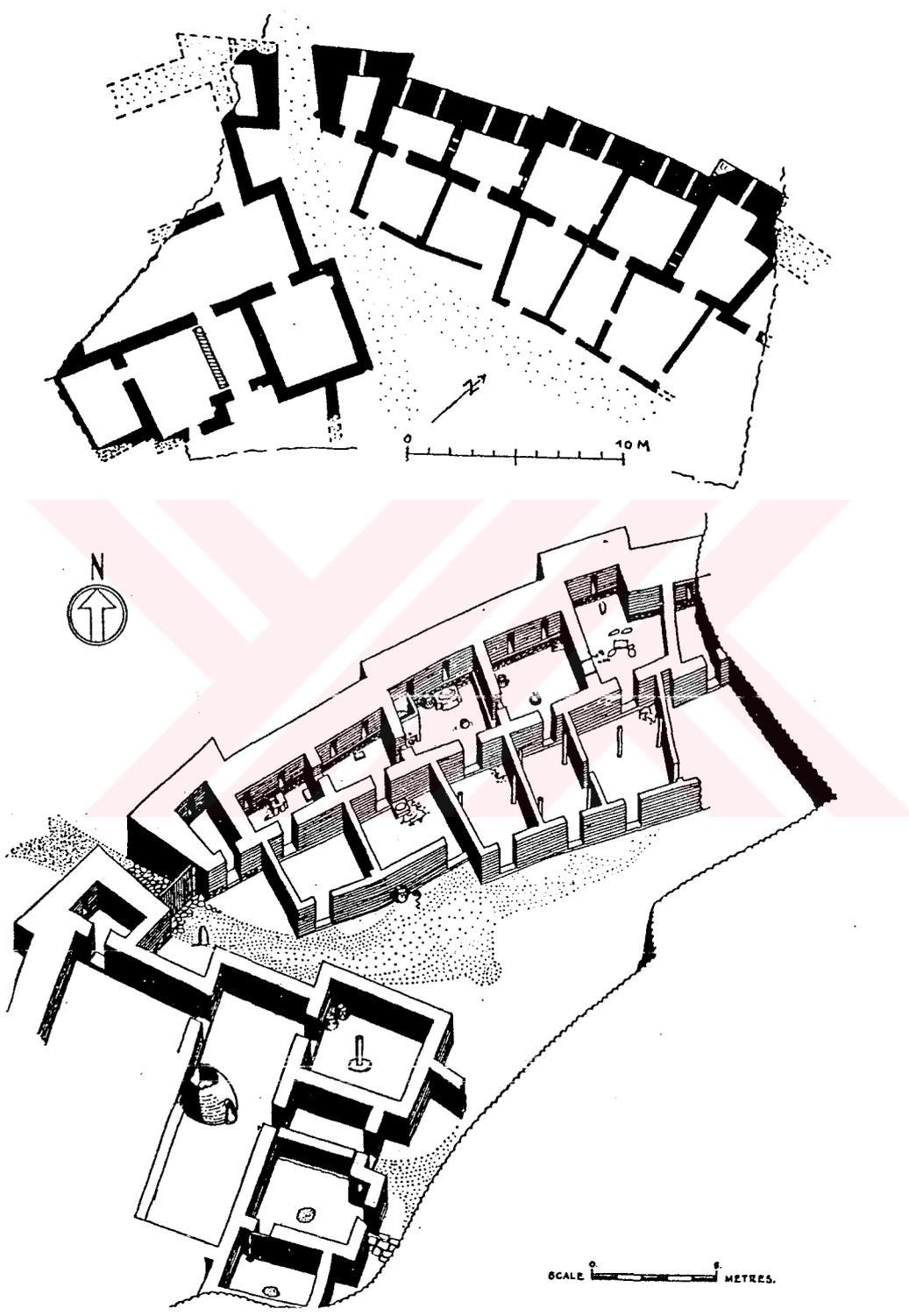


Figure 2.3 Mersin. The Casemates and the Defense Wall (Naumann, R, p.248)

The courtyards and double story houses have been used for the storage of food and sheltering of the animals from 7000 to 5500 years and carried on up today. The Can Hasan houses as Naumann, R., (1975) has stated that there were the two story house, adjacent to each and are having a basement at the ground floor. The entrances to these storage areas were from the floor of second story. (Fig. 2.4). Life at the flat roofs has changed to life at the courtyards. They were getting more and more food and animals in time, which have caused the defense as the main problem. As Soysal, M., (1996) states that this is maybe why they have built the city walls around settlements like as a castle of Hacilar, Kuruçay.

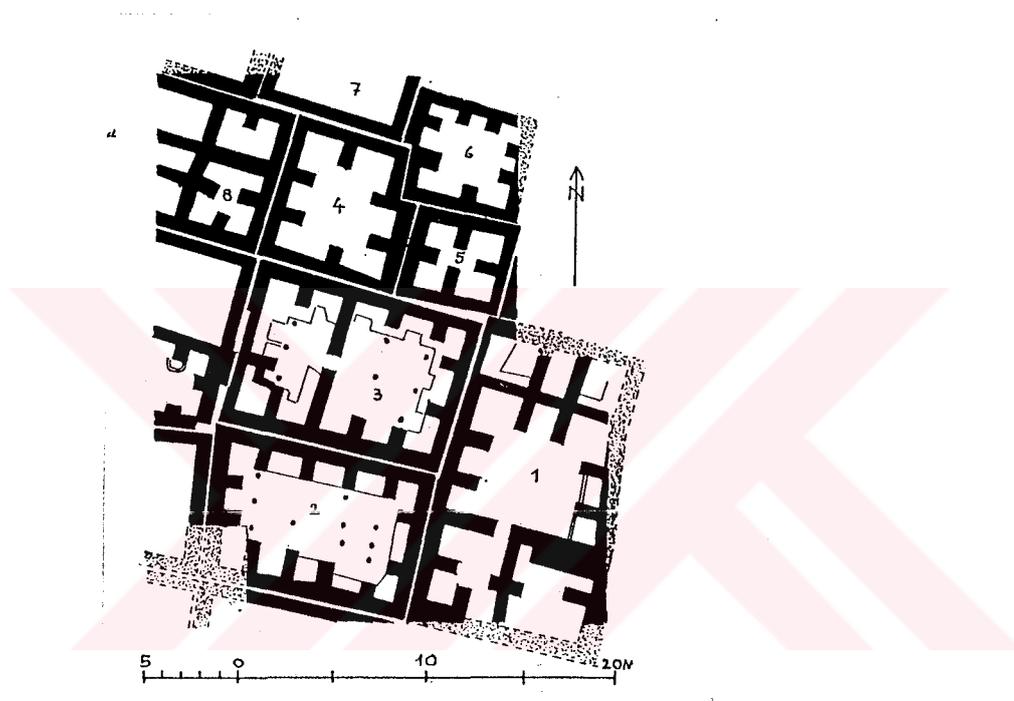


Figure 2.4 Can Hasan - 5000 B.C., The Adjacent Houses with Courtyards

(Naumann, R., p, 371)

As the trades have been getting more important, the cultural transferences from the neighboring countries have been noticed. At the Eastern Anatolia the plan type, which is called bit-hilani with its rooms at two sides of courtyard, developed. In the central Anatolia where Hattis were living a rectangular one-story house with the entrance at longitudinal side have seen. This is also defined as Hilani house or Hatti house according to Ency.Britannica vol 11, (1988). The entrance was in the middle and like an open room, which generally divides the open face to three with two pillars, and the two rooms at sides. In some cases there were also an open-shed in front.

The trade axes between Mesopotamia, Aegean and Mediterranean have great influences on the plan types and life in Anatolia. As Naumann, R. (1975) put forwards approximately in the same period, the *megaron* type of plan could be seen at Western Anatolia, in houses of Beycesultan (Fig. 2.5.), Demircihöyük and Troia I-II. This plan type was also used in large scale at the palace buildings. The megaron is a rectangular house type where the entrance at the narrow side. The outer walls of the houses used also for defence. Wycherly, R. E., (1993) defined the megaron as a rectangular covered room, with a front room or a front room with the pillars in front and sometimes with a little back room.

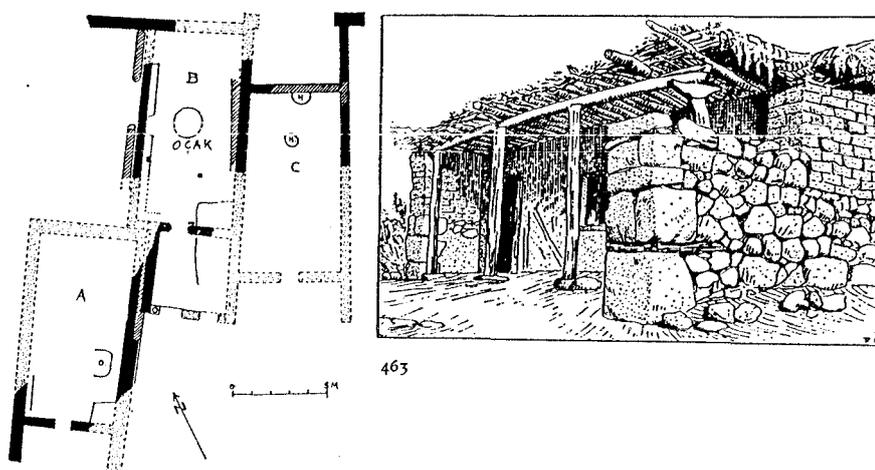
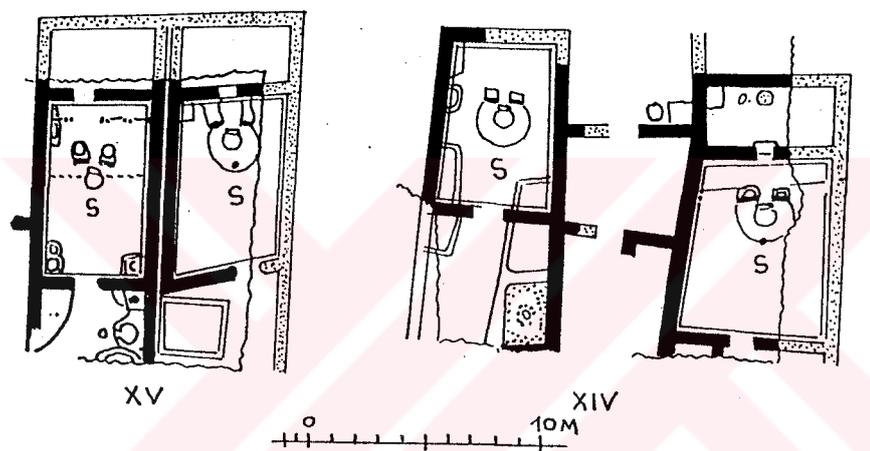


Figure 2.5 The Houses of Beycesultan 3000 BC (Naumann, R., pp. 358-359)

The different house types with megaron could also be examined in Troya and Poliochni settlements. As Naumann has stated (pp.349-351), the houses that were having rooms added at the sides or large houses with the main room could also be called as megaron type of house. He added that the use of the word *megaron*, which means *men's meeting room with a fireplace* has been limited if it is used only for the alone unit with its front open space like as it was in the houses of Karataş-Semayük.(Figure 2.6).

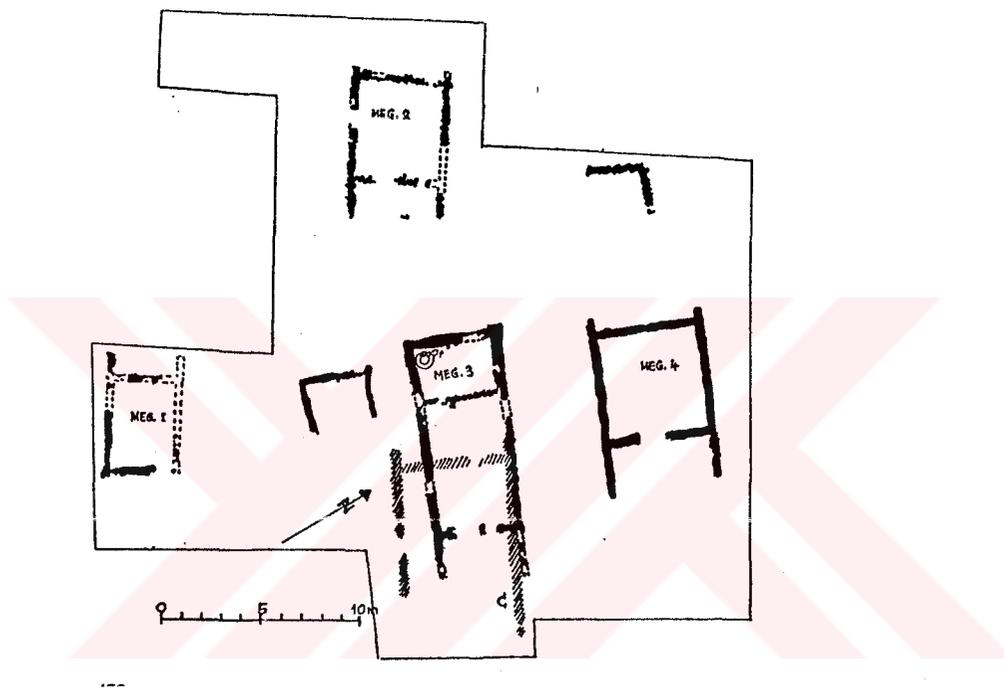


Figure 2.6 Megaron - as an alone unit with front open space (Naumann, R, p.363)

According to Naumann's classification the house types with relation to megaron could also be listed and seen in (Figure 2.7).

- Adjacent rooms at one side of the megaron (houses 1-4)
- Adjacent rooms at two sides of the megaron (houses 5-7)
- Large houses with a megaron, an extend courtyard and many rooms (houses 10-12)
- Houses without a megaron (houses 8-9)

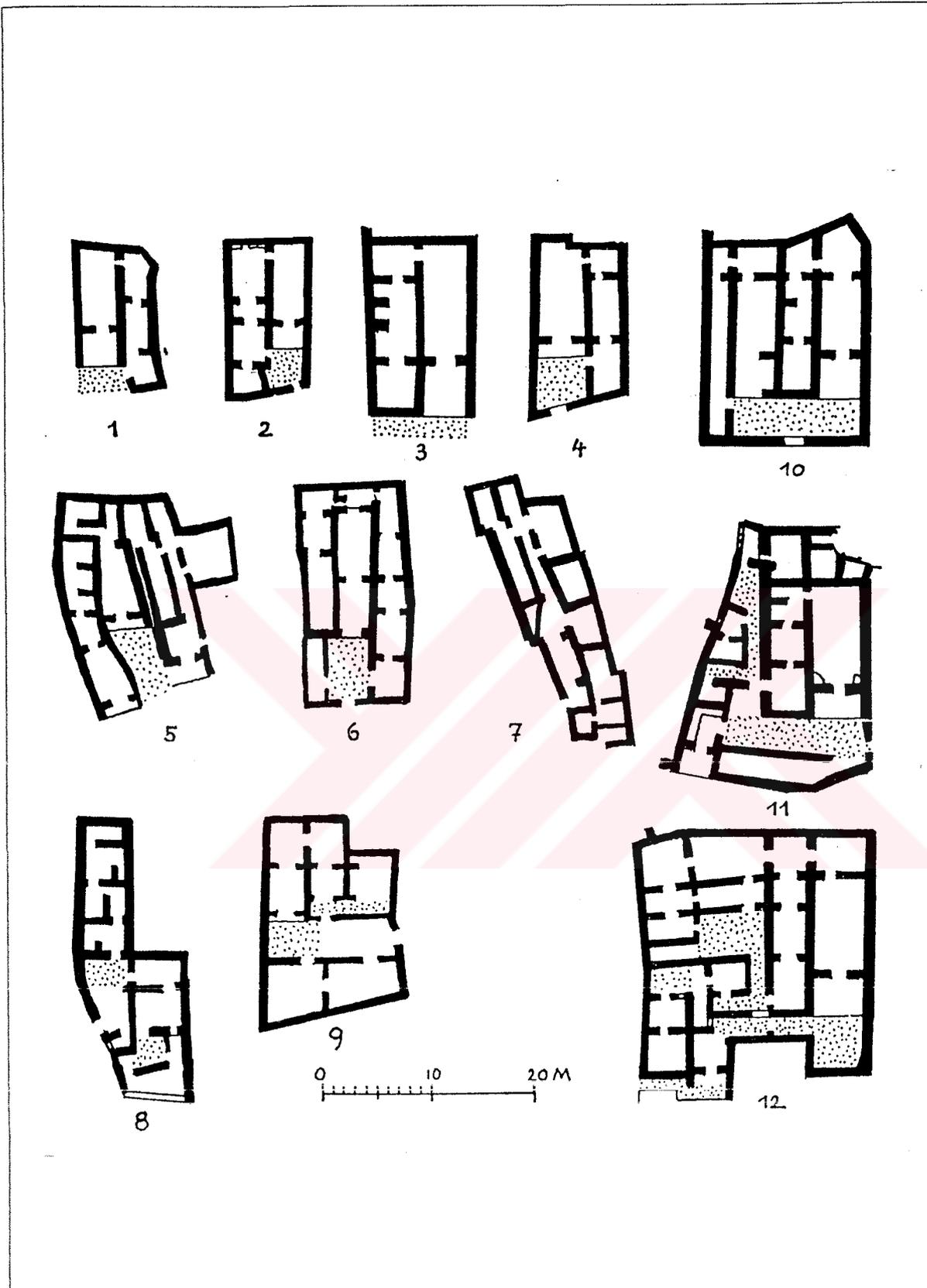


Figure 2.7 Relations of Megaron with other units of houses

Troya II (2,4,6,9,10,12) and Poliochni V (1,5,7,8,11), (Naumann, R., p.349)

As Akurgal, E. mentioned, the round, oval and square formed huts like as the one in Symrna (Fig. 2.8.) could be examined at the Antiquity culture of housing in the Western Anatolia during the Protogeometric Period (925-900 BC). Later as Acar, E., (Ege Mimarlık, 1994/2) put forwards that it could be seen the % 70 effects of Hattis and Phoenician cultures, from 8th to 7th century B.C. to the West Anatolian culture. After, they got ahead with the usage and integration of East culture for 200 years. He added that, in the second half of the 7th century B.C., the house with bath, house of Oinokhoe and the double megaron in Symrna, had been seen in (Fig. 2.9.) based on Akurgal.

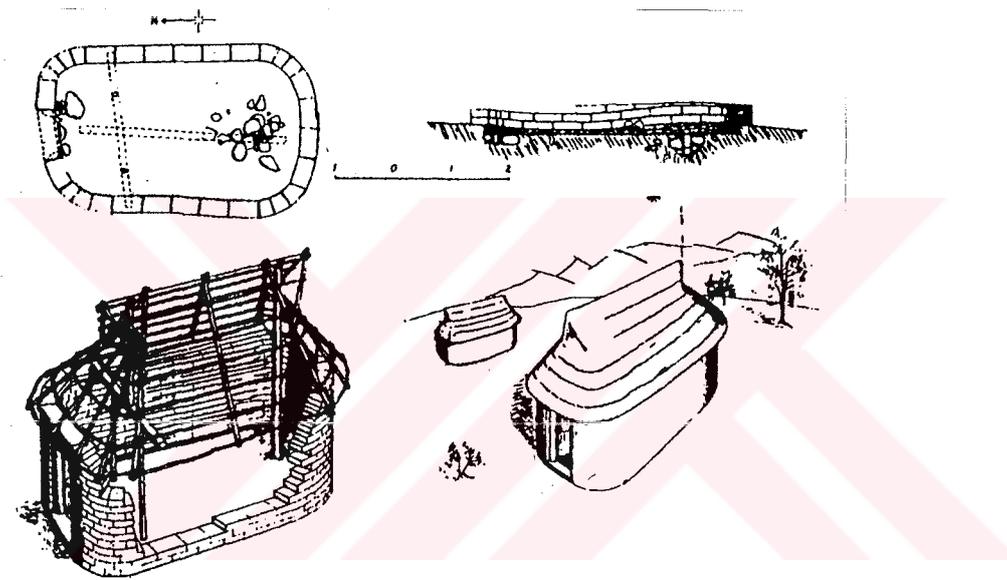


Figure 2.8 The Oval House from the Middle Protogeometric Period in Symrna.

(Akurgal, E., Eski İzmir, I, Fig.8 a-d)

After the 7th century B.C., the oval or apsidal plans gave way to the widespread 'megaron' type of buildings. Houses consisted generally of a single or double room. The two adjacent 'megara' in Smyrna dating from the 7th century B.C., are designed according to in antis plan and represent a transition stage towards the 'prostas' type of house. This development of the megaron in Symrna was later repeated in Miletos, Kolophon, Phokaia and Priene. (Quoted from Akurgal, E. by Abbasoğlu, H., 1996 p.395).

As Acar, E. states (Ege Mimarlık, 1994/2), when the space patterns have been analyzed, it could be easily found out that the cities have been enclosed by the defense walls starting

up from 9th century B.C. He added that the cities of the Aegean, Ionia and Aeolia were all having these security and defense walls and look as same as the cities of Hellen which were being called as '*polis*'. They had also the king, aristocrats and the middle class people were living together in these cities.

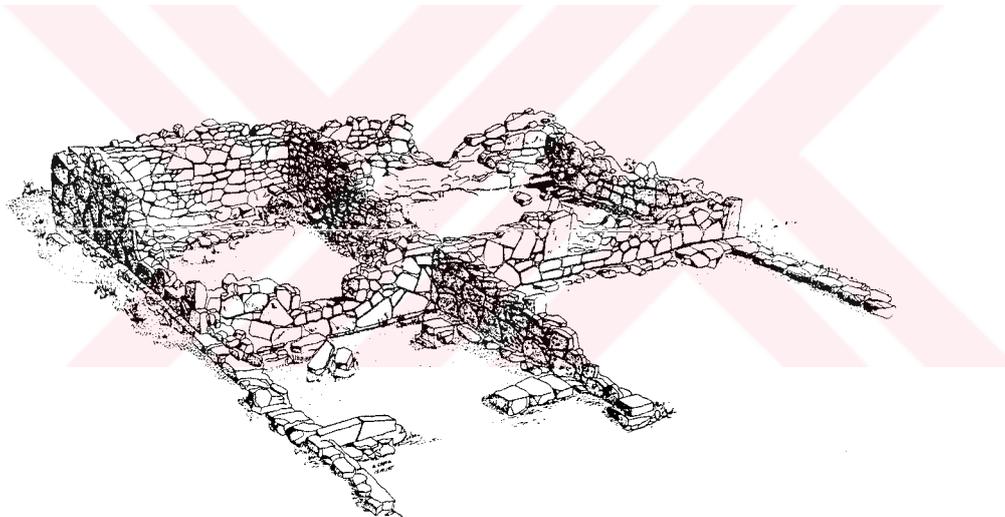
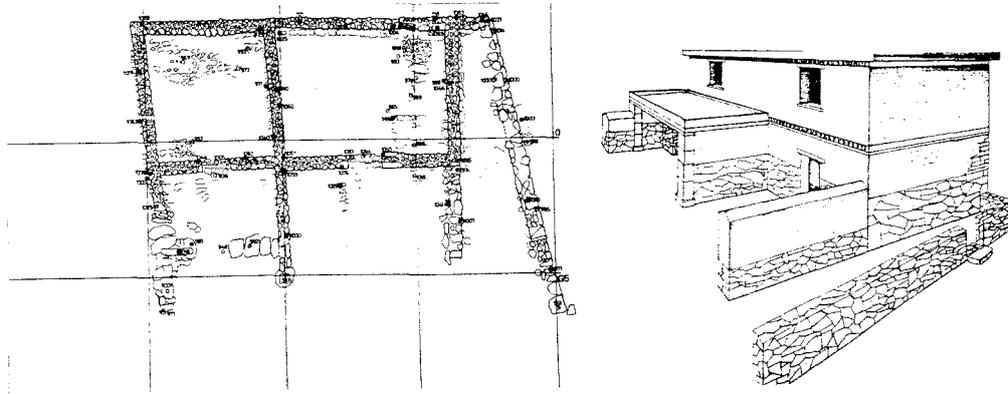


Figure 2.9 The Double Megaron with 4 Rooms (640-600 B.C)

2 rooms at the ground -2 rooms at the first floor (Akurgal, E., 16 a-b-c)

In the Classical period, the atrium houses could be seen. As Wycherley, R. E., (1993) stated that the main characteristics of these houses were their outlooks from the streets. They do not have any differences and exaggerations from their outsides. They are very simple and without having any aesthetic worry about the facades. The life was going on for each house in the internals with all its rooms and atrium. The entrance was not attractive, where all the windows and the doors of the rooms took place inside and open to the atrium.

The public housings of the West Anatolia were very simple in general as their plan types. The *prostas* type of plans could be seen in the settlement of Priene, near Söke. The houses of Classical and Hellenistic periods have been called in general as the *pastas*, *prostas* and the *peristyle* type. These were initiating the characteristics of these houses by means of the relations of open space. They are not only spread in West Anatolia. The similarities can also be examined with the houses of Greece, Italy. What they were having as common were the atriums and the transitions from simple to more complex plan types.

The *pastas* house which could be seen 2450 years ago were having a square plan. The *pastas* as Soysal, M. states that was the corridor of a group of adjacent rooms which they were being opened to it. We can see the type of *pastas* house in Olynthos, in Greece. Wycherley, R. E., (1993) defines that this *pastas* house (Fig. 2.10.) as the thin, longitudinal room with its two or three pillars of opening to the atrium. The rooms at north have been opened to the *pastas*. Abbasoğlu has also defined this type as a central courtyard surrounded by houses on three sides.

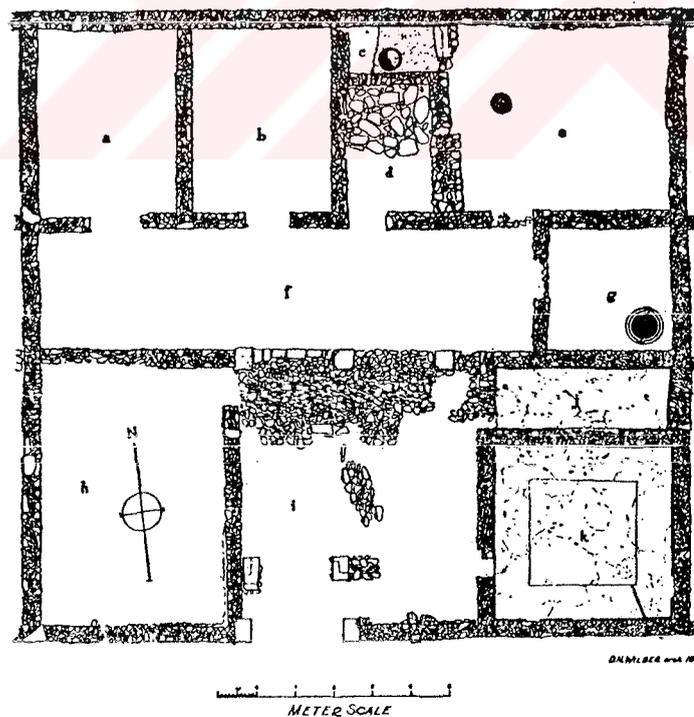
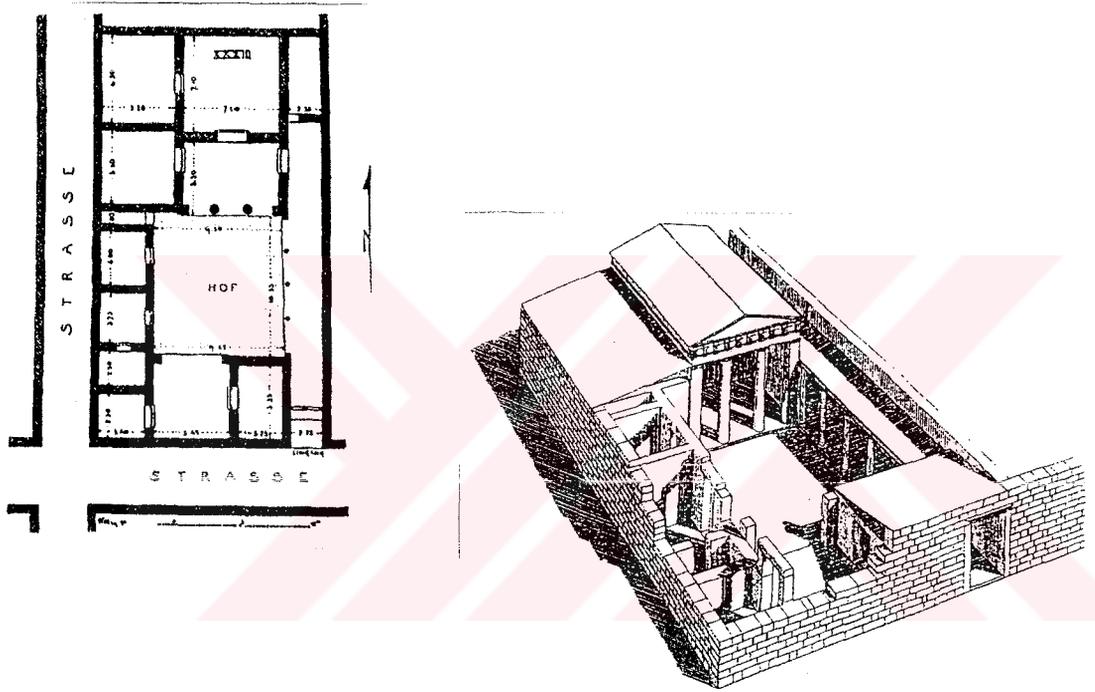


Figure 2.10 A Pastas House in Olynthos-Greece. (Wycherley, R. E., 1993)

The *prostas* type of house was having a rectangular form with a front gallery situated in front. As Abbasoğlu, H., mentioned this type (Fig. 2.11.) had mainly three parts, which were called as the *courtyard*, the *prostas* and the *oikos*. They have faced all to the south and in general they had only one door from the street to the courtyard. The courtyards were having to many functions and they were roofless. The entrance of house and some other rooms were from these courtyards. They also helped for transferring between the spaces of house. There were also used for the domestic usage like as cooking, storing and keeping animals. A cistern or a fountain has been seen also in these courtyards.



Res.6a,b Priene'de Klasik-Hellenistik Dönem'e ait XXXIII No.lu Ev; plan ve rekonstrüksiyon (M. Schede, *Die Ruinen von Priene*, Res.118).
Fig.6a,b House No.XXXIII from the Classical-Hellenistic Period in Priene; plan and reconstruction (M. Schede, *Die Ruinen von Priene*, Fig.118).

Figure 2.11 A Prostas House in Priene. (Abbasoğlu,H., 1996-based on Schede, M.)

After the end of the Classical Period it could be seen some other changes in the house types. As Soysal, M., stated that the main differences have been took place because of the changes in the societies. The priorities about the democracy, equal rights and social justice which affect the plan of houses and patterns in the Classical Period have been changed in the Hellenistic Period. The types changed from standard parcels and small *prostas* types, atrium types to the *peristyle* type of houses. The *peristyle* type of house (Fig. 2.12.) was the one, which has been surrounded by on four sides with colonnades in the courtyard.

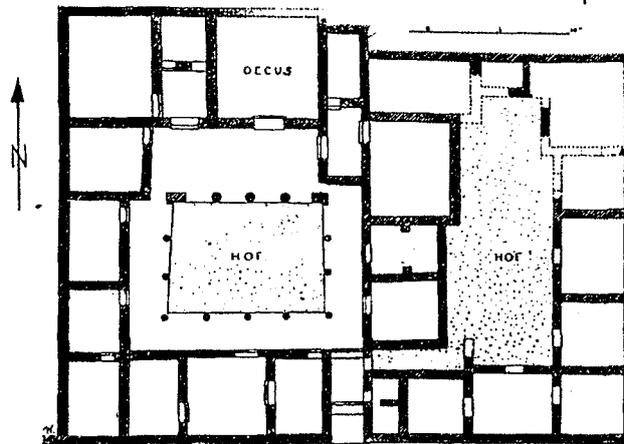


Figure 2.12 Peristyle House of The Classical-Hellenistic Period in Priene and Atrium & Peristyle House in Pompei and (Abbasoğlu, H., 1996-based on Schede, M.)

Later the usage of the peristyle type with in connection to the atrium houses has seen in the Roman Period especially in Italy. These types of houses had important connections with the open space. They were having all the greenery, flowers, statues, fountains with the peristyles and open galleries. As Norberg-Schulz, C., (1971) said that ‘The Pompeian house (Fig. 2.13.) which still represents an unsurpassed solutions to the private dwelling, is an *enclosed organism*.’ In the Roman period, the high rise *insula* type houses for renting could also be seen and examples of these at Ephesos were called as the slope houses.



Figure 2.13 Pompeian House 4th century B.C.-Italy (Norberg -Schulz, 1971, p.88)

The knowledge about the house of Byzantine was very limited. What it was known in general about these houses were that they were having very small sizes with a fireplace in it. It could also have seen houses in the cavities in Cappodocia during this period with the expansion of Christianity in Anatolia.

Later, the effects of the Nomadic and city life cultures of Turks have been seen after their migration to Anatolia. As Akurgal, E., (1993) states, Turks although they had their own

culture have been also affected by the Arabian, Persian and the existing cultures of Anatolia. In the Nomadic life culture it could be seen the usage of the *tent* as a house. The dome-shaped '*yurt*' which was named in Anatolia as '*topak ev*' or '*alaçık*' (Figure 2.14.) with the '*black tent*' (Fig.2.15.) were being the main tent types. As Bammer, A, (1996) said that there was also typical one could be seen in Taurus region of Turkey which is called as '*barrel vaulted tents.*' (Fig. 2.16.) or '*çatma ev*' in Turkish.

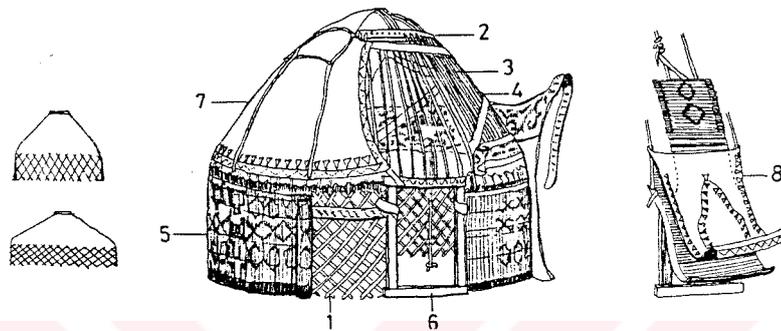


Figure 2.14 The Tent House of Nomadic Turks- *Yurt* -(Eruzun,C., 1980, 77.)

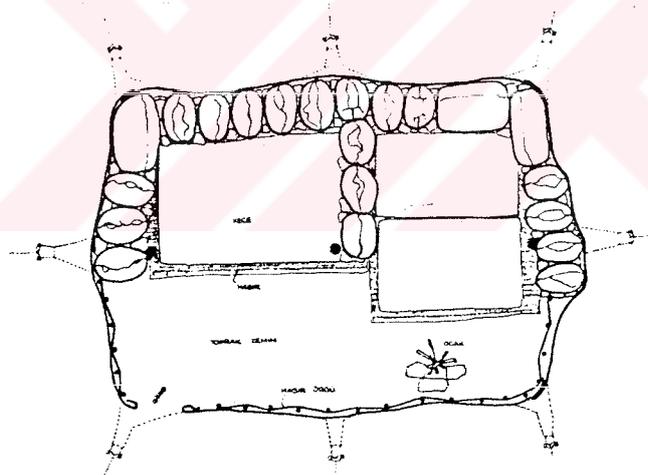


Figure 2.15 The Tent House of Nomadic Turks -*Black tent* -(Eruzun,C., 1980, 99.)

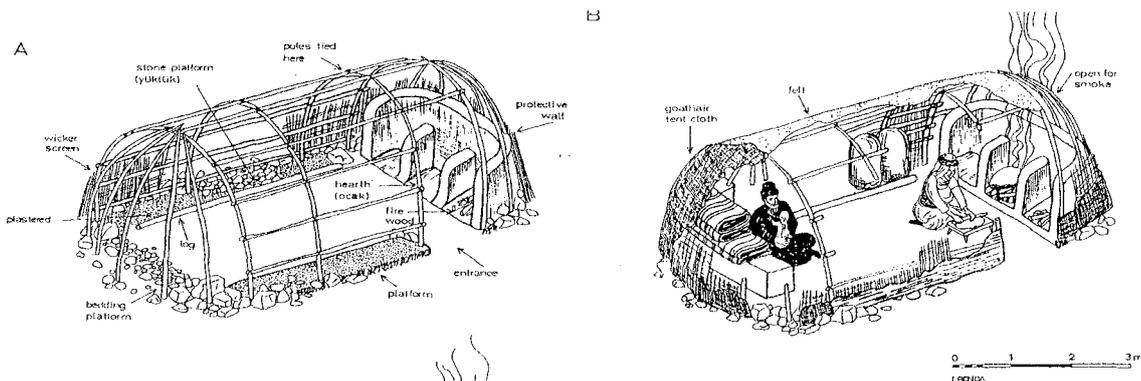


Figure 2.16 The Tent House of Nomadic Turks -*Barrel vaulted tent* -(Bammer, A.,1996)

A yurt always has a door, which was originally made out of felt, but nowadays it is most often made of woods. ...Yurts do not have windows; however the hole in the roof serves a window and a chimney. The felt mats, which surround the cylinder, can be rolled up giving more light and air in the summer. The cooking area is in the centre of the yurt, directly under the dome opening. Doors are always on the south side and there can be a standing altar across them towards the wall. (Bammer, A., 1996, p. 236).

Within the transference of human in space with tents, which have been seen in the nomadic life also, have been continued to another seasonal type of transference of people from cities to plateaus (*yayla*) depending on the breeding of animals and agriculture. It could be put forward that this tradition has been still going on in case of Muğla as it was observed and found out in the interviews in the site.

The culture of nomadic life and use of the tents as a house in Turks have been changed to culture of settled houses in time. The storage areas for food and animal have become important and affected the plan types. In general the houses with one floor had the storage adjacent to. (Fig 2.17.) or in the house as small units. (Fig 2.18.) Also in other cases the storage were taken place under the house in the basement floors. The houses with two floors have been organized by having the storage and places for animals in the ground level. (Fig.2.19.)

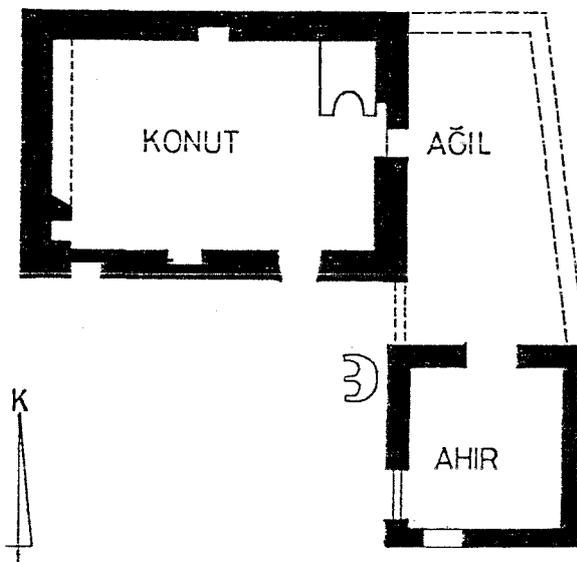


Figure 2.17 One floor settlement of Nohur Turkmen's house *with adjacent storage units*
(Cezar, M., 1977)

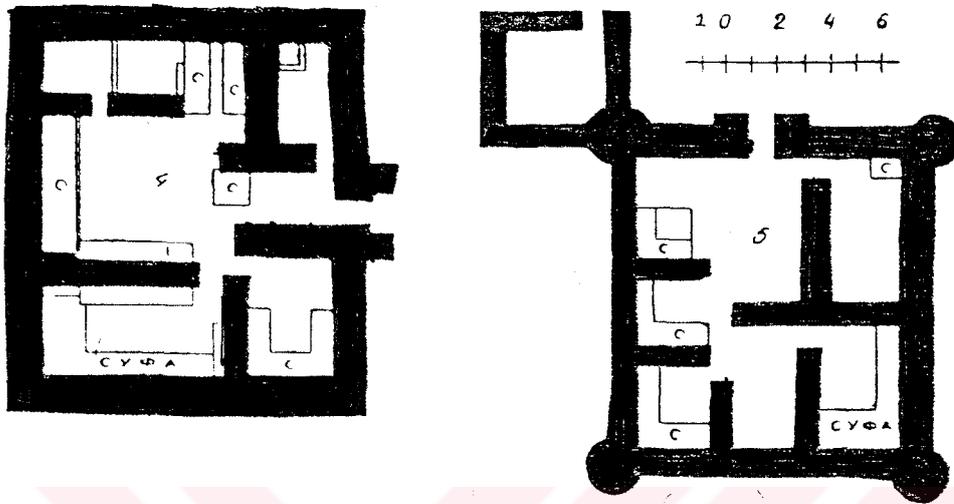


Figure 2.18 One floor settlement of house with 3 living-3 storage units in the house
Valley of Çu-Mid-Asia XI-XII Century (Cezar, M., p. 47)

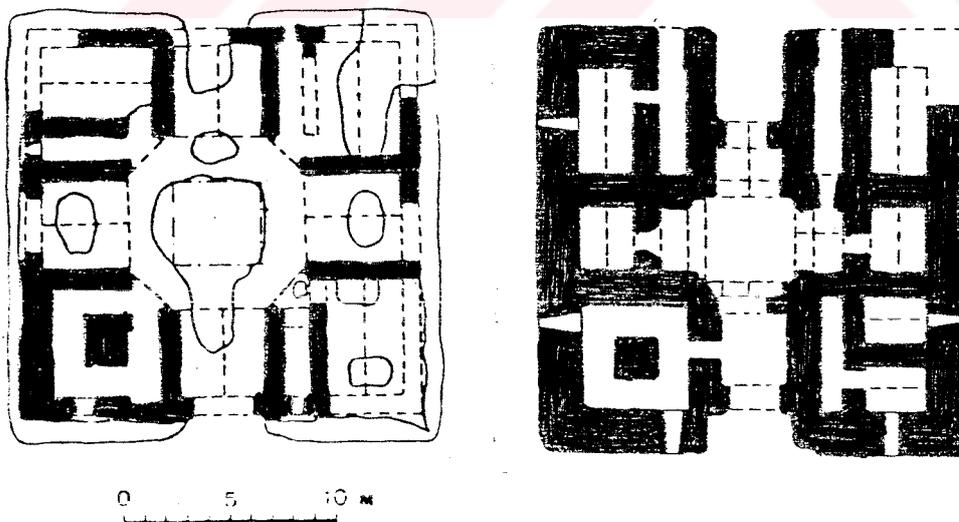


Figure 2.19 Two floor settlement of a house with storage in the ground floor
House in Termez XII-XIII Century (Cezar, M., p.217)

The changes and transformations of plan types with reference to additions and locations of storage areas could also be analyzed according to their plan schemes. As Cezar, (1977) puts forwards the schemes of Termez house (Fig. 2.19.) and Merv house (Fig. 2.20.) were very symmetric. As he had also stated that these schemes which were not met in the Antique Anatolian period and very similar to the plan type of the traditional house with the sofa in the middle.

The transformations were also continued during the periods of Seljukides, Ottomans. Within all the regional changes as Kuban, D.(1996) has stated: ‘evidently no regional style was pure. They were the interchanged forms and connected techniques.’

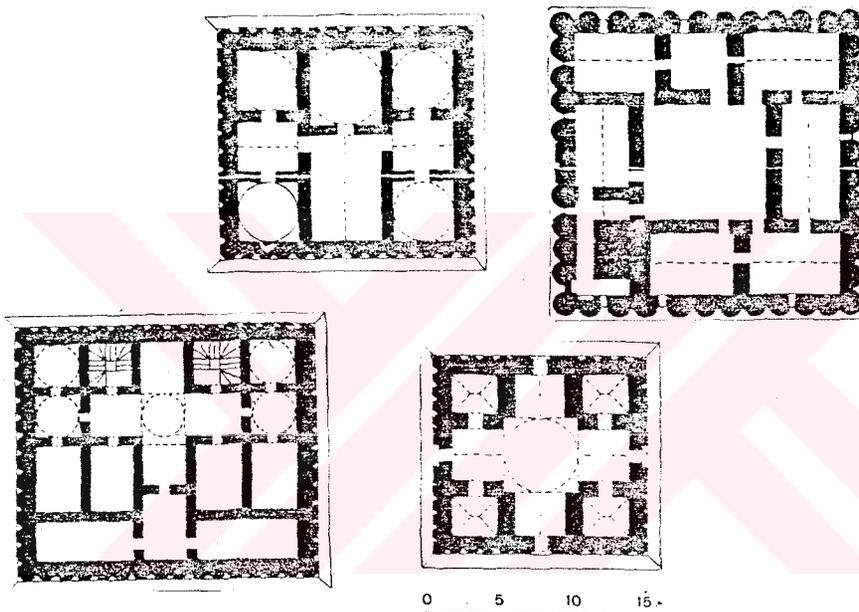


Figure 2.20 The Houses of Merv with inner Sofa IX-X Century
(Cezar, M., p. 218)

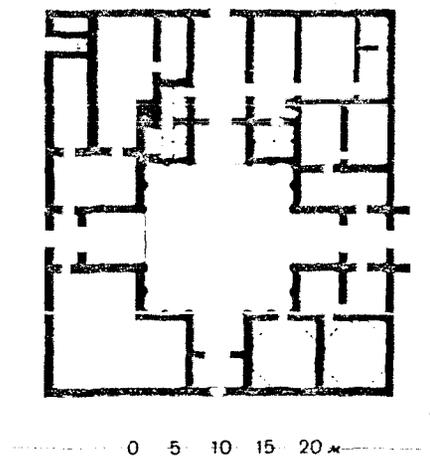


Figure 2.21 The Palace of Seljukides in Merv (Cezar, M., 231)

Although having the plan types with inner sofa, the plan types with outer sofa have also been analyzed in the house of Turkistan (Fig. 2.22). As Arseven, C., E., put forward that there are some similarities between the houses of Turkistan and Anatolian-Turkish houses. He stated that the Anatolian Turkish house has an open part, which faces to courtyard and takes different names according to the region it has been placed. In general they are called as *Hayat*. In other regions, they are called such as; *yazlık* in Kütahya, *hanay* in İzmir, *sergah* in Ankara. This open part of the house could also be analyzed within the historical background of Anatolian cultures and adjacent cultures of Mid-east. (Fig. 2.23), (Fig. 2.24).

As Arseven, C. E., (p.538) emphasized that, although the word **hayat** in general use have meaning of *Life* and *living*, it has been etymologically connected to **hayt** which means a place that is closed by walls like as the courtyards. This second use of the word hayat has limited use for the open parts of the houses.

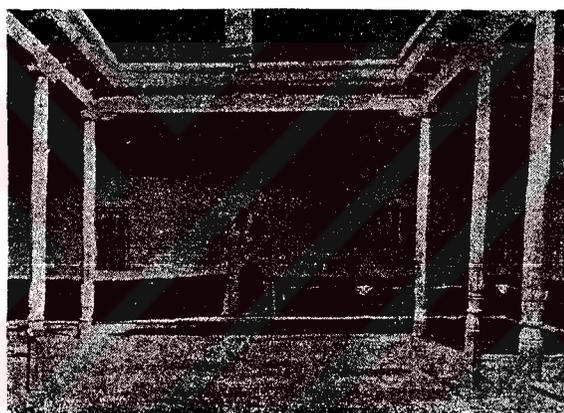


Figure 2.22 The Turk's house in Kum (Arseven,C., E., p. 23)

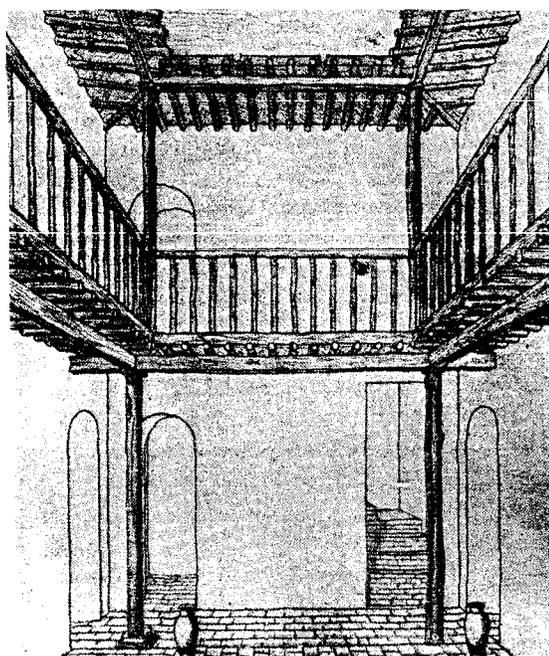


Figure 2.23 The Sumerian house in Ur (Arseven,C., E., p. 23)

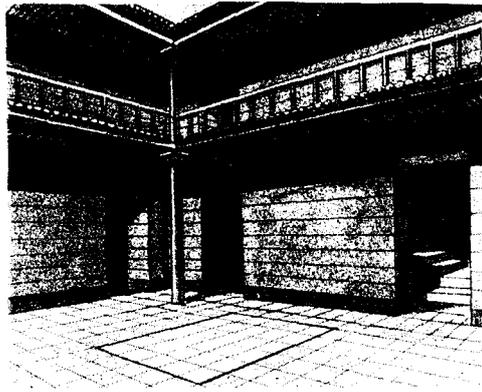


Figure 2.24 The Assyrian house (Ency. Larousse , VII, p.197)

The hayat house could also be seen in the village houses with one or two rooms and a flat roof. These are also have an open part in front of the room or rooms with pillars. As Arseven stated these tradition could also be seen in Hatti House. (Fig. 2.25).



Figure 2.25 The Hatti house (Arseven,C., E., p. 536)

In the example of Boğazköy house (Fig. 2.26), Naumann, R., (1975) also stated that there was an addition to the house with a coverage on top and one or two sided opening courtyard. He had also named it hayat by giving a meaning of courtyard.

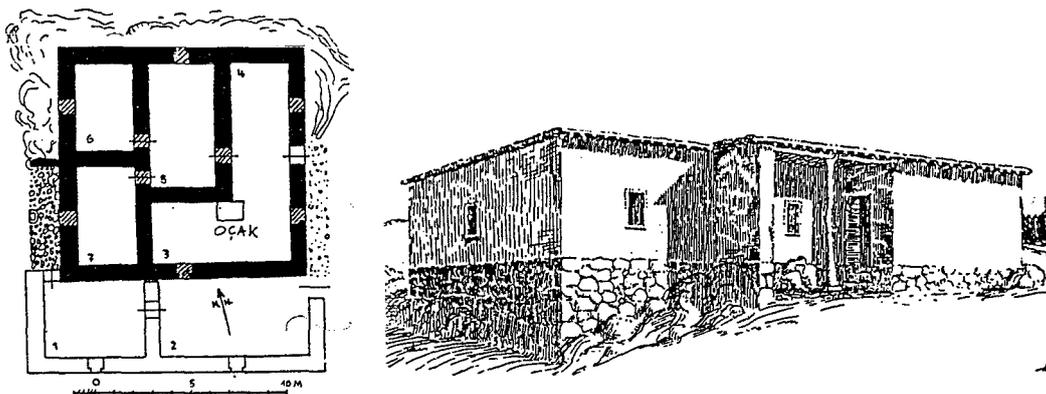


Figure 2.26 Boğazköy house, (Naumann, R., p.385)

2.2.2. Synthesis of the General Historical Background Analyses

It could be said that the Anatolian culture is heterogeneous. The effects of the adjacent cultures at same periods and also the effects of the ones that are on top of each other at different periods could be seen together in Anatolia.

•The need of a house and its relation to open space could be analyzed in every geography in all periods

The open part of the house could be analyzed within the historical background of Anatolian cultures and adjacent cultures of Mid-east. (Fig. 2.23), (Fig. 2.24). These open parts of the houses could also be analyzed at different scales and with different names in cultures stated above. *Hillamar* as an open gallery at Hatti house or *Iwan* as an open part between rooms in Syrian house, *talar* in Persian house, *pastas* or *prostas* as an open gallery with pillars in Priene, a *peristyle* as open courtyards in Pompeian house. These were also having similarities with open parts of the Traditional Anatolian house like as *sofa* and *avlu*.

What was common in these examples that the everyday life of the family in house has been spread out to open parts of the house. The open part of the house has a great role in the life of families. Life goes on with interrelation at every level (Table 2.4) in the open space of the house.

With reference to the historical analyses of oldest living units and their relations to open space could be in general listed such as:

- ***A closed unit as a house:*** These are alone unit of houses like as *caves*, *hollow shelters*, *simple megaron*, *Oval House* (Fig. 2.8) *tents of Nomads* (Fig. 2.14) , (Fig. 2.15), (Fig. 2.16). They have an entrance door as an opening and in some case a hole for ventilation.

-***A room with an open space in front-Megaron:*** It is also alone unit with one or more rooms passing from each other in linear direction. It has also one entrance. (Fig. 2.6)

-***Additive type of large houses with a Megaron:*** These have their own open space front of megaron or extended type of open space and courtyards as open space for the house units. (Fig 2.7). They have either one or more than one entrance.

-Additive type with open space in-between: Hilani type of building which have an open space gallery (hillamar) with two or three pillars take place between the two or three rooms. (Fig.2.28).

-Addition of a floor-the two storey houses: Çayönü houses with flat roof entrances and basements (Fig. 2.1), Boğazköy house with basement floor (Fig. 2.27), prosta house (Fig. 2.11) which has an open space with pillars and courtyard in ground floor and also an *open gallery* at the second floor. (Fig. 2.29), Termez house with closed gallery in second floor and storage in ground floor. (Fig. 2.19). Kültepe-Kaneş house with open gallery (Fig 2.30). The village house of Boğazköy dated to 1952 with pillars and open gallery. (Fig. 2.31).

-Atrium and Peristyle Houses: An open courtyard and open gallery with pillars and courtyard together. (Fig. 2.12), (Fig. 2.13), *Can Hasan* houses with open courtyards (Fig. 2.4), (Fig.2.22), (Fig. 2.23) and (Fig. 2.24),

-Adjacent Additions with other houses side by side: These are forming settlements like a *Küllie form*. They get together to form a whole. (*Wholeness*)-Çatalhöyük, (Fig. 2.1) Hacilar (Fig. 2.2), *Can Hasan* (Fig.2.4) and *Mersin casemates* (Fig. 2.3) with open room in front of the dim, dark closed room.

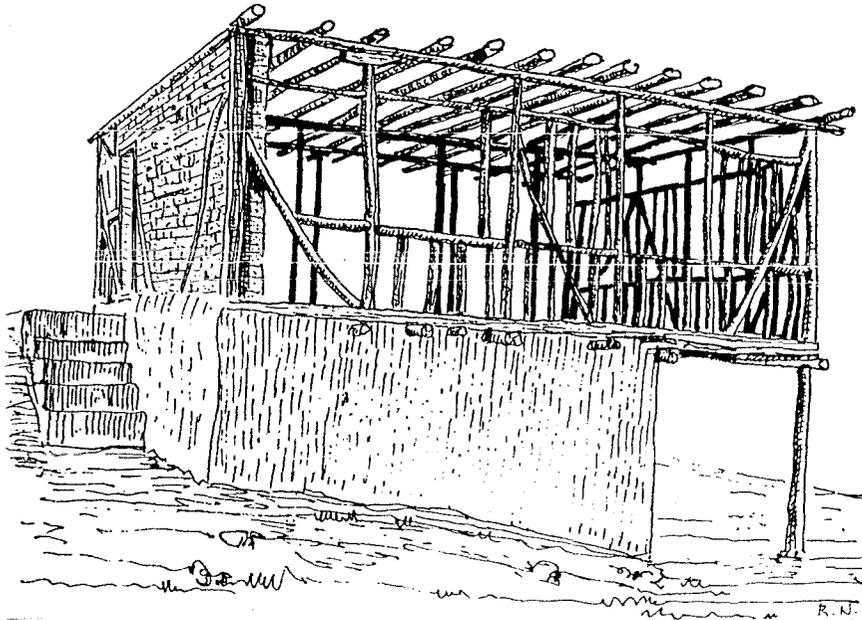


Figure 2.27 Boğazköy house with basement floor. (Naumann, R., p.372.)

-*Additions with other houses in a round form:* They get together in a round form as a whole with a round open space in the middle as a communal space.. (hollow shelters, p.27)

-*Compact unit of Houses:* These have simple geometric and symmetric schemes, which have units that formed by division of insides. (Fig. 2.18).

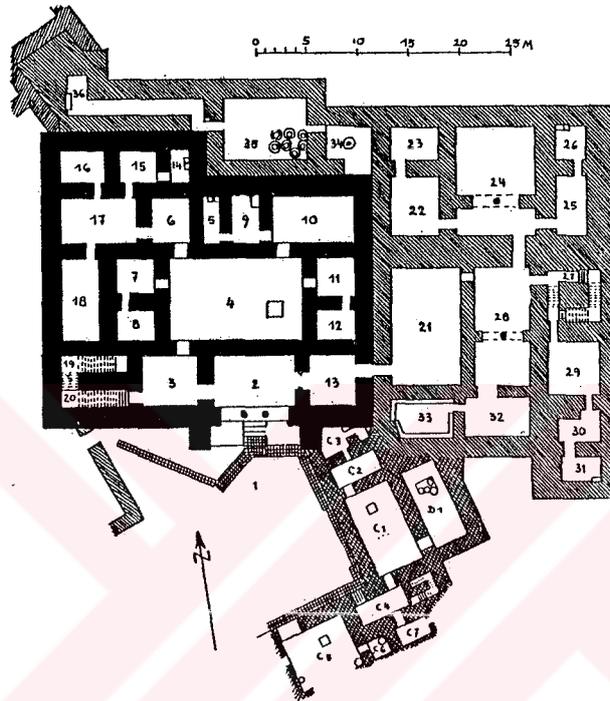


Figure 2.28 Tell Açına Palace- Hilani with two pillars (Naumann, R., p.417.)

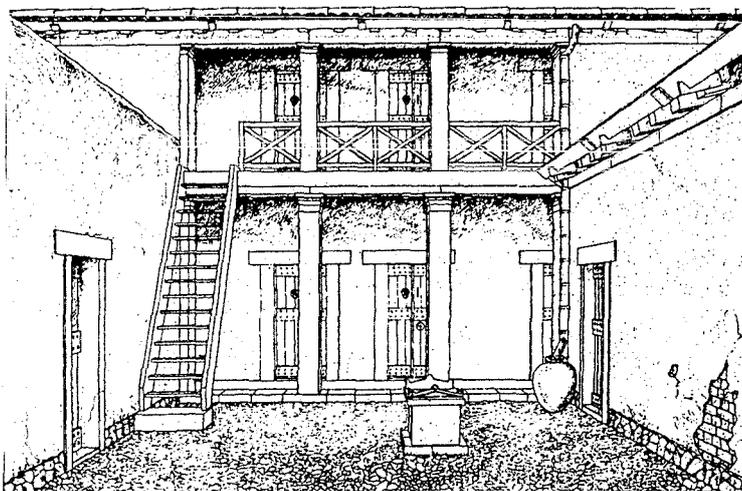


Figure 2.29 Prostas House with open gallery. (Abbasoğlu, H. p.398.)

•What were also analyzed in general are the security and defense systems. The walls and the entrances were the elements in these systems.

-No openings in the walls to the streets. (Fig. 2.1).

-Security and defense affects the location and orientation of houses. Locate side by side and closed at three sides. (Fig. 2.3) or four-sided closed units. (Fig. 2.4).

-There was flat roof entrances. (Fig. 2.1).

-Defense walls of the castle or intense sidewalls of houses have seen as a külliye form. Hacilar (Fig. 2.2), *Mersin casemates* (Fig. 2.3).

-Courtyards with having only one entrance *Can Hasan* (Fig. 2.4).

•What was also analyzed in common is the need of a place for storage.

-Storage with additions on sides. (Fig. 2.17).

-Storage at the basements. (Fig. 2.22), (Fig. 2.19), (Fig. 2.31).

•About the composition of units for getting new forms: It could be said that a house could only start at least with one unit. It could be increase in size with additions of rooms in time. These additions could be either for storage, service or a new unit for family members.

With having in mind all these general syntheses over historical analyses of Traditional Anatolian House above, it is going to be searched the different approaches on analyses models of traditional house over Anatolia that have done before in following part. (2.2.3).

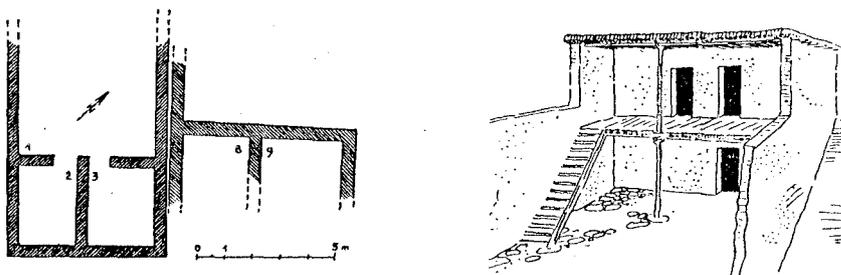


Figure 2.30 Kültepe-Kaneş house (Naumann, R., p.380.)

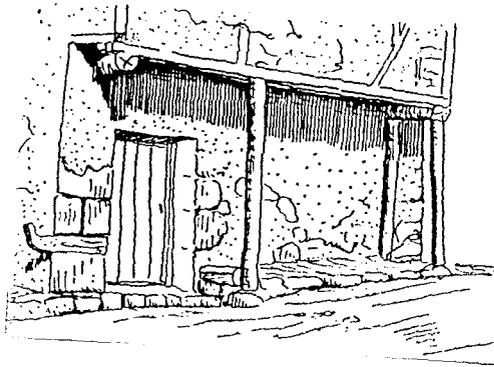


Figure 2.31 Village houses of Boğazköy-1952. (Naumann, R., p.388.)

2.2.3. The Models of Analysis on Traditional Housing over Anatolia

In the architectural studies it could be seen some classification, defining and understanding approaches about the traditional house. Some defines the houses with in relation to the regional characteristics and others try to analyze them with relation to their typologies. The house over Anatolia has got a synthesis at the Ottoman period. As Eruzun, C. & Ünügür M. (1996) said that the house and the settlements over Anatolia have got a synthesis with the existing agricultural, trade cultures and the breeding of animal one of Asian-Turks. They put forward that the religion of Islam was also affected the construction of house culture but it was not having the dominant effect.

2.2.3.1.Sub-Regional Analysis

The general tendency in the studies is to understand the built environment by means of production types like as; nomadic, agricultural or industrial. Within these classifications, the agricultural societies have been integrated more with the natural resources and surroundings than the industrial societies of today. Although the physical conditions of the site have great influences for building houses, they emphasized social and cultural properties more. In this general framework, the house has been named as ‘Turkish house’ of Anatolia-Turks. The general characteristics of this house were, as they stated:

- The forming of spatial patterns:* The room is the main spatial unit. The orientation of the room is important. It must have the optimum conditions. The shape was square or rectangular.

- The rooms have no functional differentiation:* They are multi-functional. In some of them we have seen the main room. Although they were not differed in their functions they were changed in their seasonal usage.

- These houses also have a transitional and also functional area in common:* They were called as; *sofa, hayat, sergah, divanhane* etc. These areas also defined as the transitions of the external spaces with the internal ones, which were used especially in the summer time with their cool and ventilated atmosphere.

•*Enclosed first floors.* They have said that the houses have enclosed from outside because of privacy at the first floors whereas they have opened at the second. The first floors usually have been used for the storage and the households.

•*The house patterns:* They have built in less dense, low and within the gardens. As they said that they have not met a house more than three floor high and without having a garden.

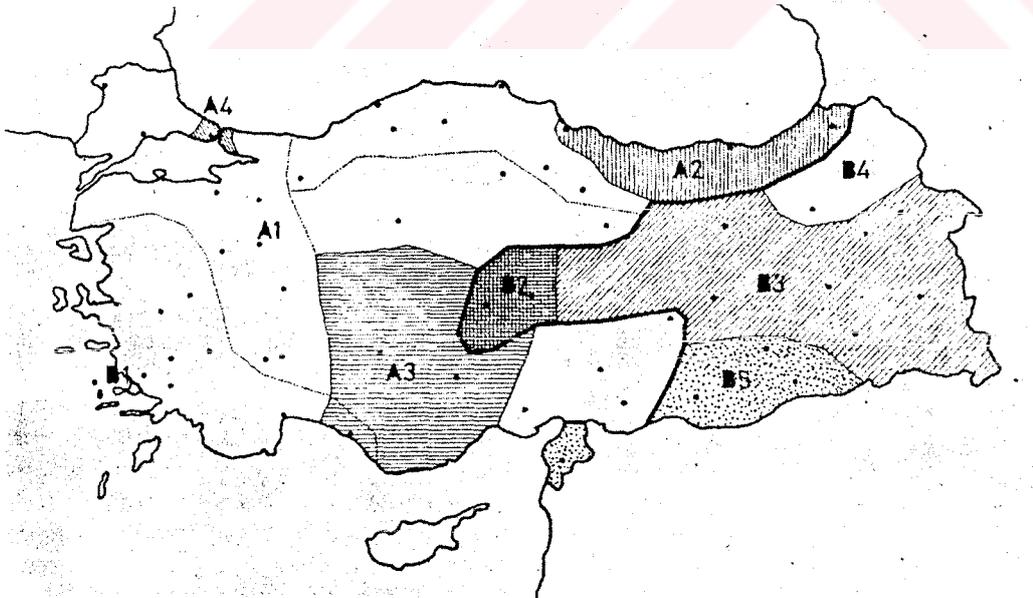
After these analyses, Kazmaoğlu, M. & Tanyeli, U., (1979) put forward that there were two main regional areas for the defining of the Turkish house in Anatolia as a synthesis. (Map. 2.1)

A. *Region of Original Synthesis:* (A1-West, North-West; A2-Eastern Black Sea;

A3-Konya Region, Istanbul regions)

B. *Region of Transition:* (B1-Bodrum, B2-Kayseri, B3- East Anatolia-Middle region

B4- East Anatolia-Northern Region B5-South-East Anatolia.)



Map. 2.1 The Architectural Differentiation of Regions at Anatolian-Turkish House

Kazmaoğlu, M. & Tanyeli, U., (1979)

2.2.3.2. The Development of Housing Plans by Reproduction of the Basic Unit (Additive Reproduction)

As Kuban has been stated (1996) that the traditional house although with its surviving regional differences “created a unique house style in Western Anatolia, the lands of its early dominion. The rise of style coincided with the rise of the Empire, reached its classical forms in the 17th and 18th centuries, and lived until the 20th.” (Kuban, D., 1996, p. 4). As he mentioned that this ‘*Hayat House*’ tradition which ‘is unknown style by the architectural historians outside Turkey and Balkans.’ have been developed within the security of the Ottoman Empire and it has some unique configurations about its form. As he states:

- A two-story house with having functional differences at levels.
- The plan type is historical: A ‘*piano nobile*’ plan or ‘*bayt*’ form of Islam which has two rooms at side and an *iwān* at the center with a large semi-open gallery before.
- The irregular ground floor, does not face to the street and having no windows.
- The Upper floors have been faced to the streets with the screened windows and to the courtyard and garden with an open gallery.

Kuban, D., mentioned that this open gallery which he has named as ‘*hayat*’ was being “...the core of design, the communication center of the house, an open air element, like a courtyard, a portico or a balcony.” (Kuban, D., 1996, p. 4). As he has stated in his earlier work (1975) the basic form of house was having three elements and they have affected the form with their additions. These elements were the room as the functional unity (Figure 2.32), the Iwan as the central open space between the rooms (Figure 2.33) and the opening gallery to the courtyard, garden or the sofa. (Figure 2.34).

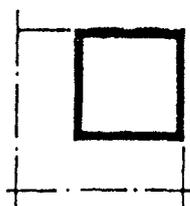


Figure 2.32 The Room - the Functional Unity. (Kuban, D., 1975, p.201.)

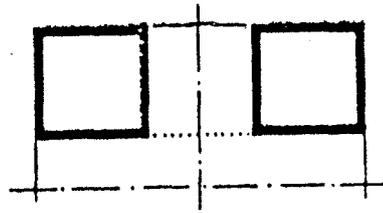


Figure 2.33 The Iwan - the Central Open Space between the Rooms
(Kuban, D. 1975, p.201.)

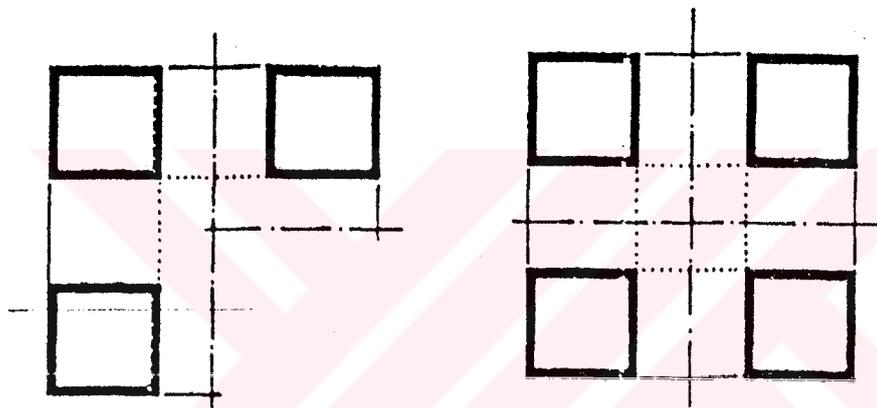


Figure 2.34 The Opening Gallery or the Sofa to the Courtyard
(Kuban, D. 1975, p.201.)

In his studies, Kuban did not give a classification about the typologies of house in Anatolia, although he states and defines the parts and the forming elements of house.

2.2.3.3. Typological Analyses

The concept of type and usage of typological analyses could be seen in the architectural studies. As Habraken (1985) stated;

The concept of type, I suggest, is much more than a means for classification and more than a way to indicate the historic origins of form. It is a complex form that lives within social body: a knowledge, familiar to a group of people by common experience. Types come and go with societies and their cultures. They are, to a large extent, those cultures. (Frank, K., & Schneekloth, L. H., (Eds.), 1994).

“The architecture’s history lies in its material and it is this material which becomes the object of analysis.” Rossi, A., (1985, p.5). “Typology, on the other hand, becomes the instrument, the ‘apparatus’... of time’s measurement; it attempts to be both logical and scientific.” (Einsenman, P., (Eds.) Rossi, A., 1985, p.5).

...the concept of type as something that is permanent and complex, a logical principle that is prior to form and that constitutes it. ...Type is thus a constant and manifests itself with a character of, necessity; but even though it is predetermined, it reacts dialectically with technique, function, and style, as well as with both the collective character and the individual moment of the architectural artifact. (Rossi, A., 1985, p.40-41).

As stated by Yücel, A (1976) there is ‘a typological continuity in history’. These kinds of studies are important because of their trials to understand and define the essence of past which was an abstract concept. Remembering and understanding **the essence of past** can be in two ways. As Özer, B., (1979) put forwards, it could be either the understanding of abstract principles, rules and methods of space patterns or understanding of relations, values of ritual behaviors, lifestyles. Kuban, D., (1975) stated that there were typical plan schemes of houses although they have changed in topography, climate, culture and geography. The typological studies of traditional houses could be classified and analyzed such as:

2.2.3.3.1. Typologies based on the

Basic Elements of Traditional Turkish House Plans

The traditional houses, as Eldem, S. H., (1968) said that were having mainly three parts which were named as the rooms, halls (*sofa*) and the stairs or transition areas. The other spaces like as the kitchen, the fireplace and others can be inside or outside and have no effect on the plan type. The rooms, which were the main element of plan type, were being independent as a unit of house with their own doors. The doors were opened to the sofa or courtyard. He had analyzed the houses depending on the basic character of sofa in four types.

- *Without a sofa*: This type is the most primitive one. It was used in generally where climate is hot. In colder regions these openings had been covered. In this type, one or more rooms were placed in a row. They have only one floor with passages in front. If they were having two floors then they would have got a balcony in front of rooms. (Fig. 2.35-2.36).

• *With an outer sofa:* In this type the rooms, were adjacent to each other and they were opened to the sofa. The iwan (*eyvan*) could be take place between rooms. Divan, or pavilions (kiosk) could also seen at one or both sides of the outer hall. These could also take place together in a house and changed in number. The growth of the plan took place by addition of rooms at with their halls in front. As Eldem stated, these plan types have got their maximum positions with the L and U shaped plans. (Fig. 2.37).

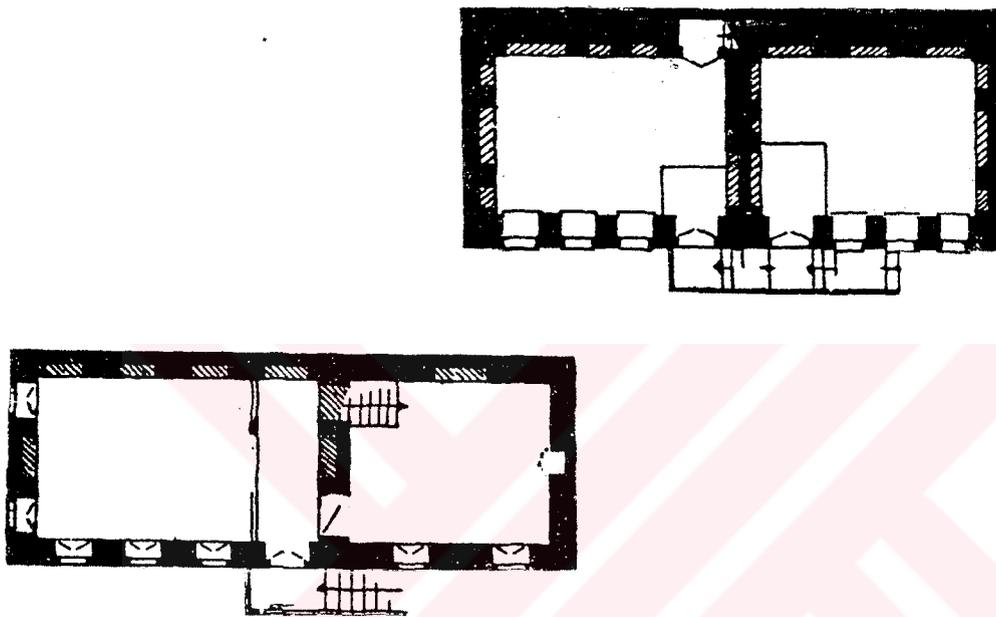


Figure 2.35 A House without Sofa -(Eldem, S.H., p.27)

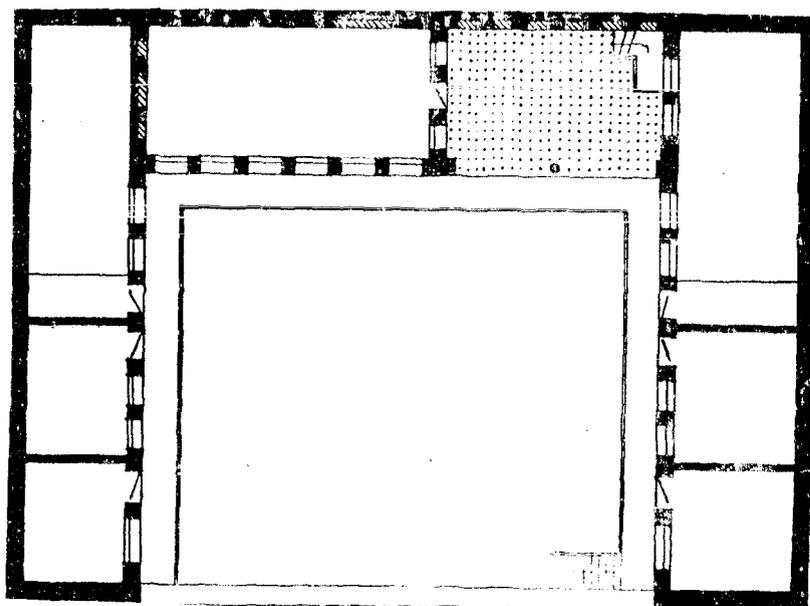


Figure 2.36 A House without Sofa with a Pillar of Iwan. (Eldem, S.H., p.28)

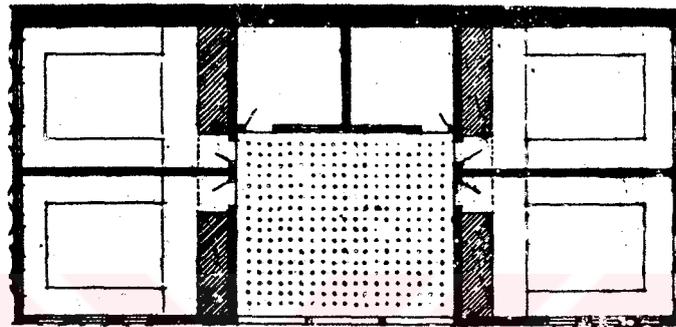
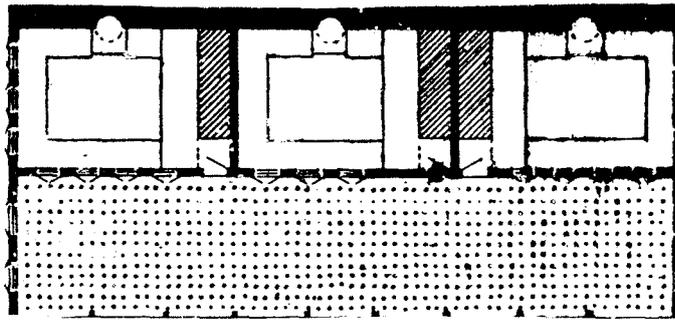


Figure 2.37 A House with Outer Sofa (Eldem, S.H., p.34)

With an inner sofa: This type which was named as ‘Zülvecheyn’ (Two-sided) or ‘Karnıyark’ (split belly) has seen very widespread and at the next stage after outer hall type. The usage of this type were surpassed the others from the 18th to 19th century. With this type as Eldem., S. H., stated that the communication of rooms and the sheltering of house have got higher whereas the contact with nature and the garden was lost. In the earlier examples of this type the hall was *opened with pillars* at sides which later being replaced by the windows. (Fig. 2.38).

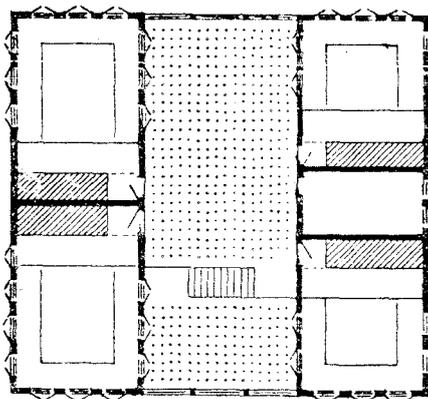


Figure 2.38 A House with Inner Sofa. (Eldem., S.H., p.93)

With a central sofa: The hall took place in the middle and the rooms were surrounding it. One or two of these were opened like as iwans (eyvan) in order to get light into the central sofa. (Fig. 2.39).

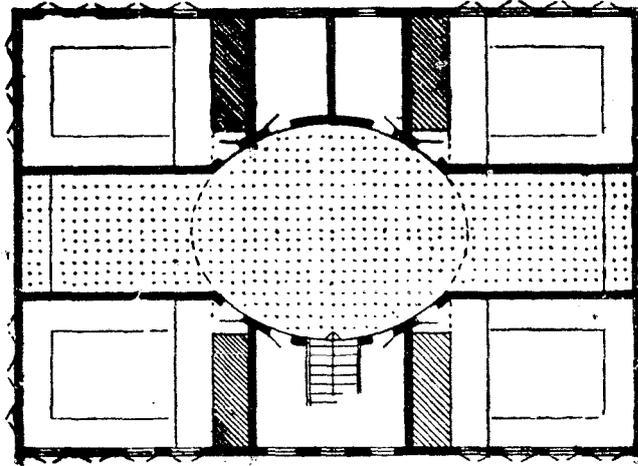


Figure 2.39 A House with Central Sofa (Eldem, S.H., p.93)

2.2.3.3.2. Typologies based on the Non-Differentiated Structures of Traditional House Plans

Erdim, M., (1980) in his study about 'the house unit in Anatolia' has been grouped the house spaces of the lower Euphrates region as;

- *The External spaces:* The courtyards, the flat roofs.
- *The Transitional spaces:* The sheltered space (*hayat*), the iwan (*eyvan*) which was used in general in one story houses that are one or two stairs from the ground. He also added that this unit of house could be placed at the sides or in the center and either they have been forming in square or longitudinally opened rectangular.
- *The Internal Spaces:* These are the main rooms, the other multi-functional rooms and place for animals.
- With relating to the above space groups of houses, Erdim, M., (1980) analyzed the houses with their non-differentiated forms which were the iwan and the shelter. Then the houses with iwan have been analyzed within two parts. A house at the side of iwan (Fig. 40), or a house with two (Fig. 41) or three rooms with central iwan (Fig. 42) are the examples of these types.

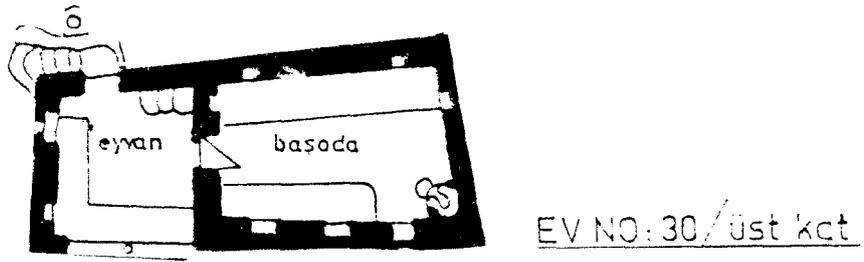


Figure 2.40 The Iwan House with One Room. (Erdim, M., 1980)

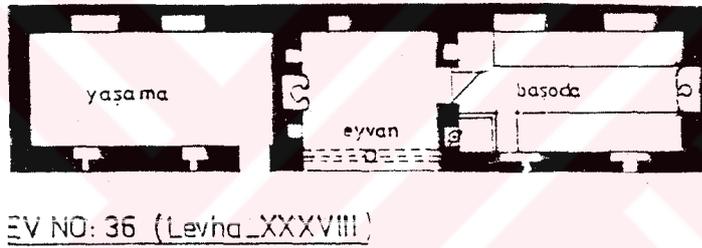


Figure 2.41 The Central Iwan with Two Rooms. (Erdim, M. 1980)

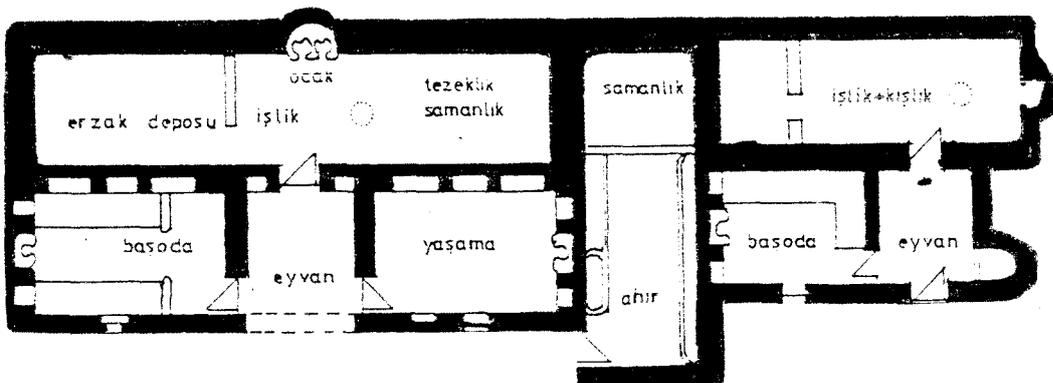


Figure 2.42 The Central Iwan with Three Rooms. (Erdim., M. 1980)

The houses with shelter: This type is generally double story house and has no chance to expand as he said. Also he states what is important about the house that it is exactly different from the house tradition of type of Iwan. (Erdim, M., 1980). (Figure 2.43).

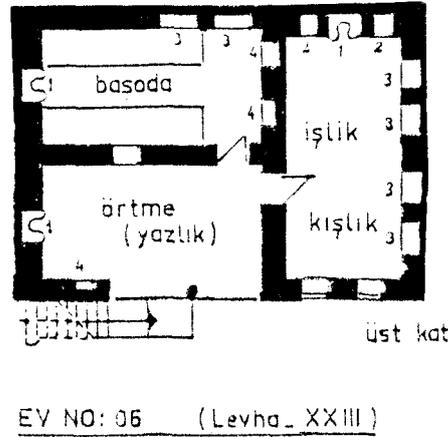


Figure 2.43 The Sheltering House. (Erdim, M. 1980)

2.2.4. Synthesis on Models of Analysis of the Traditional Houses over Anatolia

In this thesis it had been tried to construct a typological model of analysis of houses with reference to open space phenomenon that had been analyzed in 2.1. None of the analyses of traditional house, which have been discussed briefly above, have an approach from open space point of view. These studies were all very valuable but they could be criticized because of their limitations.

In Kuban's analysis, the room has been decided as the smallest functional unit. He has define the traditional house plans with the combinations of the rooms, iwan and sofa within two perpendicular axis. He puts forward that the two rooms and an open space in-between (iwan) is the basic characteristic plan type (beyt form) of Anatolian-Turkish period house which also have seen in the Mid-East traditions.

He has given an abstract model of house interiors but not emphasized the relations of house with open space. Although this axial model helps for understanding the house schemes it was limited to define the types with inner sofa or the types of adjacent rooms or other probable types.

The analysis of the 'Turkish House', which has been constructed by Eldem, has the sofa as the basic element of house. He has defined the houses whether they are having the sofa (inner, outer, central) or not. This analysis also has not related to open space and not enlightened the compositions of the units. The house has not taken in consideration as a unity of open-closed units. The courtyards, 'hayat', 'taşlık', 'iwan' have less meanings in sofa based defining.

The relation of open-closed units as a house totality could be seen in Erdim's analysis but he had named these as external spaces, internal spaces and transitional spaces. These type of differences in space definitions are limited and bring the difficulties for understanding and conceptualizing the space concept as it has been mentioned in 2.1, (p. 14). As he put forward, the courtyards are external spaces of the house which are named in thesis case as open space unit of the house unity. His method based on the original plan types, which have been seen in lower Euphrates. He had grouped the ones that have seen frequently in three types. An iwan with one, two and three rooms. The fourth type was the house with shelter. Although in his analysis he gave the compositions of units with relation to iwan; this could not help us for analyzing the other traditional house types over Anatolia.

There are also other regional typological analyses of houses that need to be mentioned such as the ones about Muğla. Aladağ, E., (1991) has analyzed the houses with their rooms, sofas and service areas like as Eldem. Ekinci, O. (1985) has analyzed the plan types and facades with relation to the position of staircases. Tosun, Y., (1983) has based his typological analyses of plan types in Muğla, Kula and Birgi, depending on having or not having an inner or outer sofa. The typological analysis which have published in Mimarlık (1981/11-12) was the most detailed one of Muğla that had done by students of I.T.U, 1979. What could be seen in this analyses is that not having the sofa as the basic determinant of the plan type. Besides having the sofa, the numbers of space units, their locations to each other and also the position of the sofa have roles in defining the house types. (Figure 2. 44).

Yürekli, H., (1979) has been tried to put forward a method in her study for recording the characteristics of the Turkish House by external survey. She has grouped the organization of spatial elements into two which, the hall and their exterior-interior relations. This type of classifications and naming has also taken the open space units as not being a part of the house unity.

MUĞLA (MERKEZ) GELENEKSEL KONUT PLAN TIPLERİNİN AKSİYEL GELİŞMESİNİ GÖSTEREN TİPOLOJİ TABLOSU

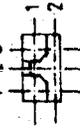
KATAY YONDE MEKAN SAYISI	3										5		
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SOFANIN KONUMU	önden	önden	önden	önden	önden	önden	önden	önden	önden	önden	önden	önden	önden
SOFANIN DURUMU	açık	açık	açık	açık	açık	açık	açık	açık	açık	açık	açık	açık	açık
DÜSEY YONDE MEKAN SAYISI	1		2			3			4		5		
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1-2 odalı çekirdek tipler

Yatay 3 düzey 2 hacimli, önden, yandan,
T ve L şeklinde büyük sofalı tipler

Ortadan sofalı çekirdek Ortadan sofalı tas ve
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1 2 3



• AKSİYEL GELİŞME GENELLİKLE KRONOLOJİK
GEÇTİĞİ KABUL EDİLMİŞTİR.

• KONUTLARIN ÜST KAT PLAN TIPLERİ VERİLMİŞTİR.

• PLAN TIPLERİ AVLU ALTTA, SOKAK İSTİSNA
KALACAK ŞEKİLDE ÇİZİLMİŞTİR.

• AKSİYEL GELİŞME GENELLİKLE KRONOLOJİK
GELİŞMEYLE ÇAKIŞMAKLA BİRLİKTE
İSTİSNALAR BULUNMAKTADIR.

Figure: 2.44-Muğla-the Typological Table on Axial Development of Traditional Plan Types Mimarlık (1981/11-12, p.25)

Günay, R., has also mentioned about the plan schemes of Turkish house. (1998). He has defined and classified plan schemes as the types with outer and open sofa with or without having a kiosk and iwan. (Figure 45) As he put forwards that the basic character of the plan schemes depends not on the adjacency of the rooms instead getting the room away and free by themselves with the extension of the sofa. This defining is similar with the thesis defining of types with the use of *adjacent* and *away* concepts which has been related to location of closed space (rooms) and open space (sofa, iwan, kiosk...) of the house unit.

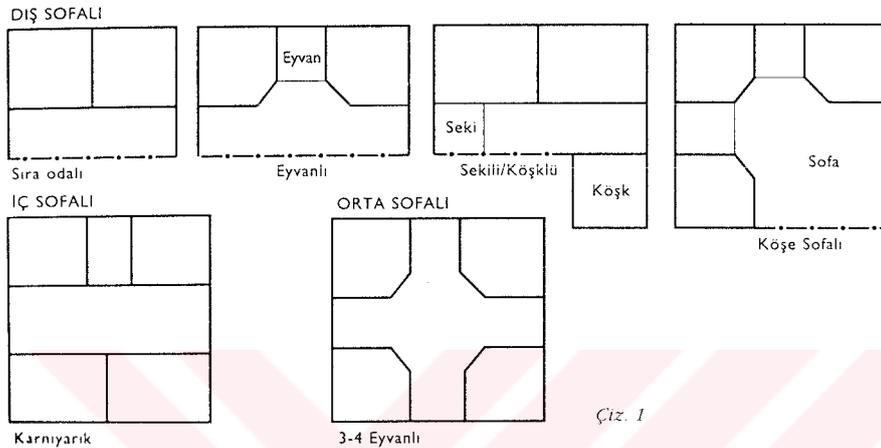


Figure 2.45 Plan Types of Turkish House. (Günay, R., 1998)

Güneli, Z. & Bekleyen, A., (1995) were analyzed Diyarbakır houses that based on courtyard plan types. (Figure. 46). This is similar to thesis approach, with having open space as one of the determinants but not enough to explain in general the plan types of traditional houses.

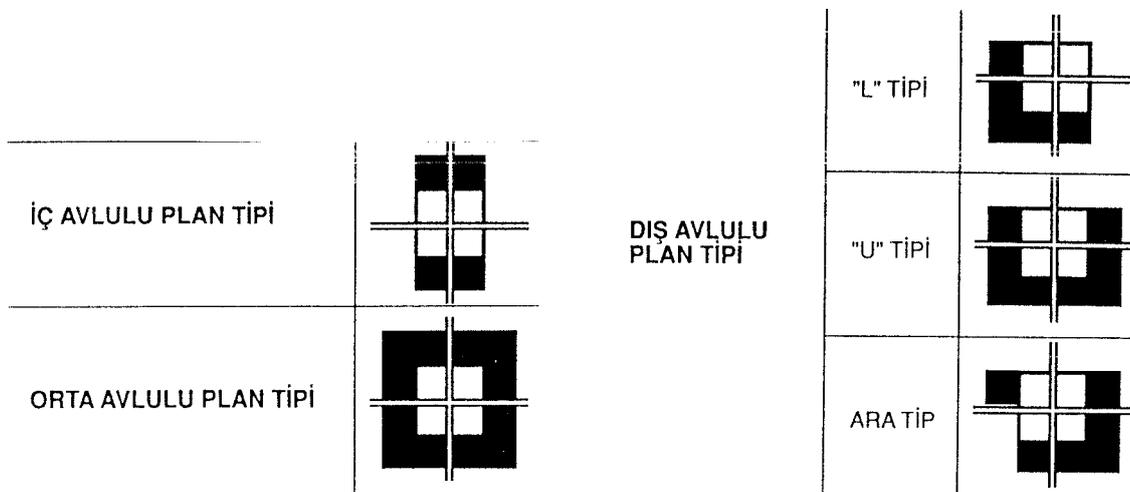


Figure 2.46 Plan Types of Old Diyarbakır House inside the City Walls (Güneli, Z., 1995)

Akyüz, E., (1993) has used in her research the terms, for defining varieties of space in analyses of similarities in Priene and İzmir house. (Figure 2.47).

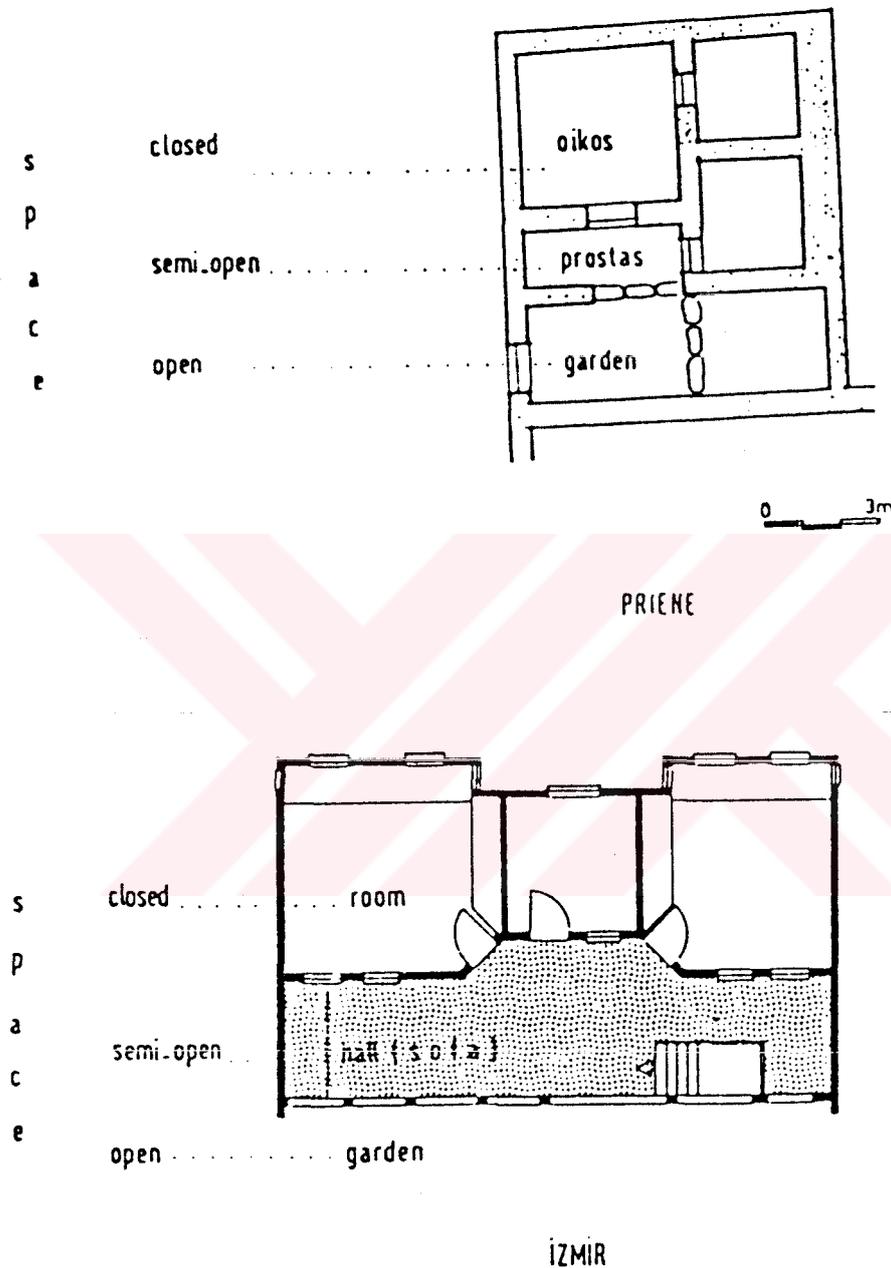


Figure 2.47 Similarities of *closed*, *semi-open* and *open space* in Priene and İzmir house.

Arel, A., (1982) has also mentioned three basic categorization in space configuration of Ottoman House. The *open-sheltered-closed spaces* with their interrelations are defined the space based on the duality of inside and outside.

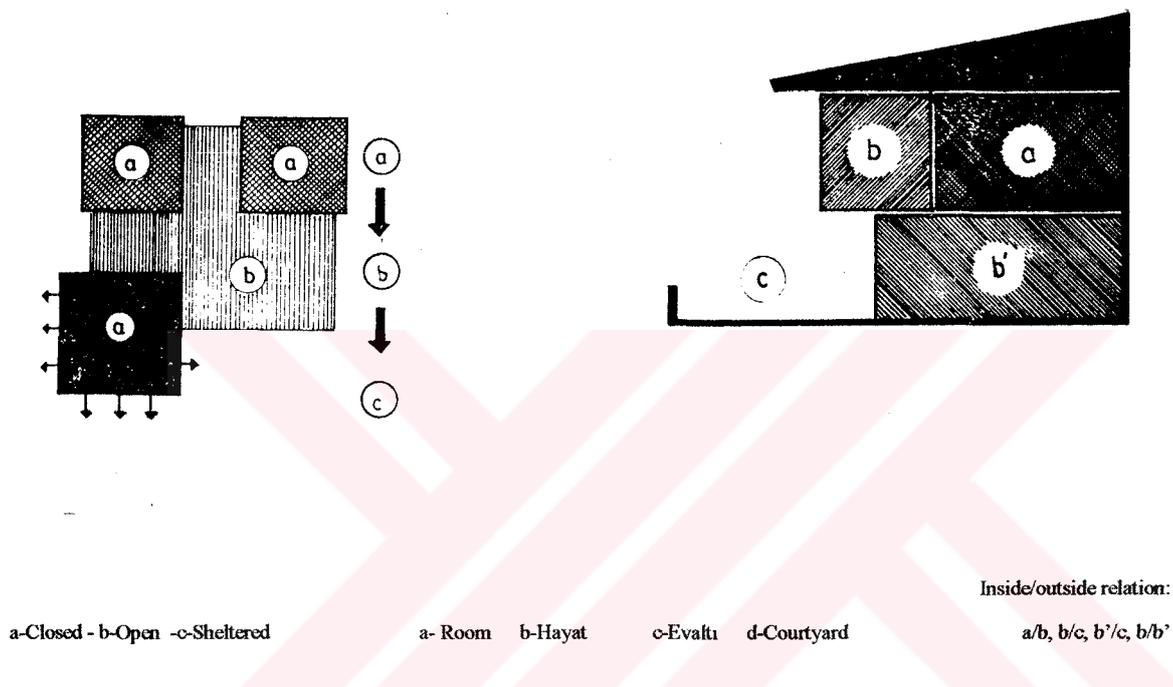


Figure 2.48 Open-sheltered-closed space and duality of inside & outside (Arel, A., 156-146)

All these valuable analyses that have done before are helped to improve construction of the thesis. The typological model of this thesis is not based on duality of space instead unity of open-closed space. It is not only based on axial combinations but also adjacent and probable other combinations. In this thesis also traditional house types are not only defined by sofa. The other open space units like as eyvan, taşlık, hayat also have taken into consideration in the general concept of open space and are defined with their interrelations to closed space units. Also in this thesis the semi-open or sheltered space concepts are not used. These terms are generalized and defined with the degrees of enclosing elements. These topics will be carried on and presented as Research Model (*Abstract Level I*) in Chapter III.

2.2.5. Models of Analysis in Contemporary Context

Nowadays, in the architectural design studies and building science, concept of energy is getting more important. The energy usage, controls in buildings and sources of energy are affecting building design and the spatial patterns of houses. (Hawkes, D., 1996). This could be named as energy based model of analyses of house and house patterns.

In some other models the construction of forms, spatial patterns of build environment were analyzed within relations to the *enclosure* and *wholeness* concepts. The Enclosure concept could be seen in the analyses of Balamir, A. & Asatekin, G., (1993), Krier, R., (1983) and Wholeness concept in the analyses of Christopher, A., and his work team.(1987, 1999).

These models which were discussed briefly in the following titles could be named in general as **contemporary relations of house and house patterns with open space.**

2.2.5.1. Energy Using and Saving Models (Micro-climate)

The arguments about the usages and saving of energy within relation to the design of buildings are stated as:

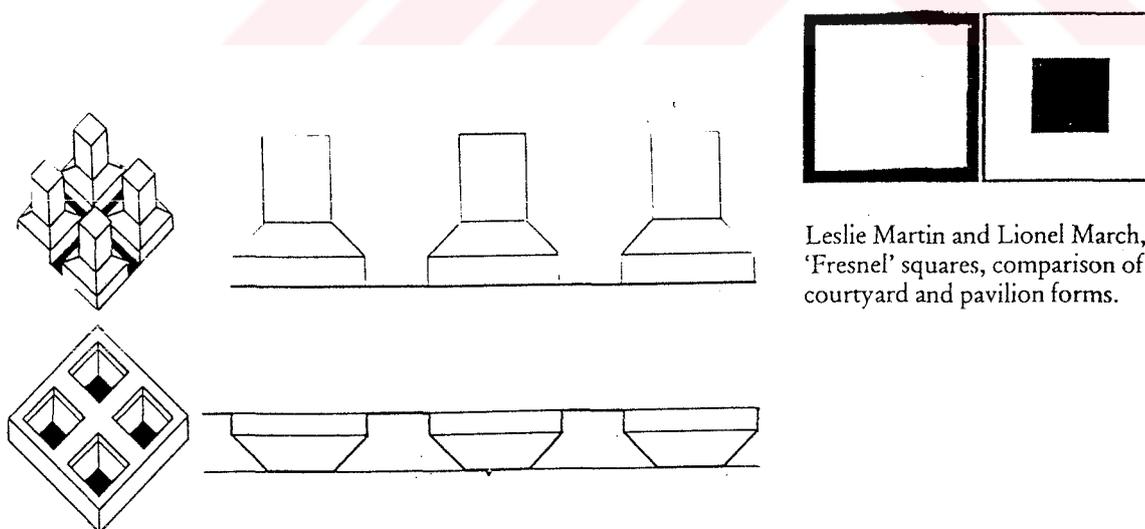
“...the difference between buildings that use ambient energy sources in creating natural environments and those rely predominantly upon mechanical plant to create controlled, artificial environments. ... During the twentieth century, mechanical and electrical service systems reached to a state of development at which they could replace all of the elements of the natural environment in buildings. At this moment the essential nature of architecture fundamentally changed. The historical struggle of all buildings to connect inside to outside could be replaced by the flick of light. The distinction of ‘selective’ and ‘exclusive’ lays bare the issue.” (Hawkes, D., 1996 p.15).

Hawkes, D., has stated with his interest in ‘the potential of the idea of type as a basis for environmental design’, that there are two design modes as *selective* and *exclusive* types (Tab. 2.2.). These two design modes have taken their starting point from the classical work of Leslie Martin and Lionel March (Fig. 2.47) which is about the distinction between courtyard and pavilion forms. (Hawkes, D., 1996 p.15).

Table 2.2 The General Characteristics of Exclusive and Selective Mode Buildings
(Hawkes, D., 1996)

<p>Exclusive mode <i>Environment</i> is automatically controlled and is predominantly artificial</p> <p><i>Shape</i> is compact, seeking to minimize the interaction between exterior and interior environments.</p> <p><i>Orientation</i> is relatively unimportant.</p> <p><i>Windows</i> are generally restricted in size.</p> <p><i>Energy</i> is primarily from generated sources and is used throughout the year in a relatively constant quantity.</p>	<p>Selective mode <i>Environment</i> is controlled by a combination of automatic and manual means and is a variable mixture of natural and artificial.</p> <p><i>Shape</i> is dispersed, seeking to maximize the use of ambient energy.</p> <p><i>Orientation</i> is a crucial factor.</p> <p><i>Windows</i> are large on southerly façades and restricted to the north. Solar controls are required to avoid summer overheating.</p> <p><i>Energy</i> is a combination of ambient and generated. The use is variable throughout the year with a peak in the winter and 'free-running' in the summer.</p>
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... the famous case of the Fresnel square, where a thin annulus at the outer edge has the same area as a stout square at the center, by the same geometry a peripheral ring of two story houses could have the same density as a single tower block for the site area.
(Hawkes, D., 1996 p.15).



Leslie Martin and Lionel March, 'Fresnel' squares, comparison of courtyard and pavilion forms.

Figure 2.49 Fresnel Squares, The Comparison of Courtyards and Pavilion Forms
(Hawkes, D., 1996 p.15).

As a result Hawkes said that “the transformation in environmental conditions and energy performance that follows from glazing over a courtyard is now well established and understood. It is still all too common, however, to encounter designs in practice that fail to recognize the parameters within which effective ‘selective’ performance may be achieved and which, as a consequence, revert to environmental pragmatism. The pavilion when applied to certain functions, is appropriate for the achievement of good ‘selective’ performance. If its long axis lies east-west, direct gain, sun-space or Trombe-wall techniques can be effectively exploited.” (Hawkes, D., 1996, p.111).

2.2.5.2. Enclosure Point of View Models

In another context, as Balamir, A., & Asatekin, G., (1993) were stated that the word ‘perimeter block’s’ (Fig. 2.49) has been used for defining space in Western city tradition and the ‘perimeter wall’ (Fig. 2.48) in traditional house and house patterns. As they put forward that the courtyard walls gave an ‘admirable place quality’ to Traditional Anatolian settlements and formed their defined, ordered and scaled open spaces.

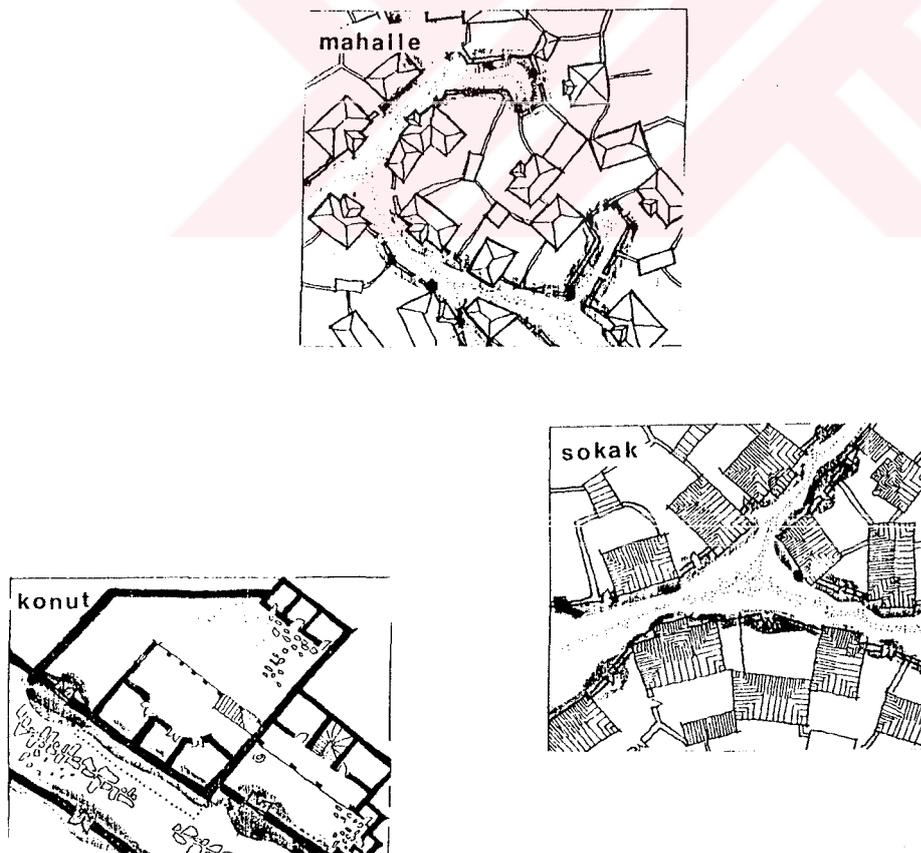


Figure 2.50 The Perimeter Walls of Traditional House and Courtyards (Asatekin & Balamir)

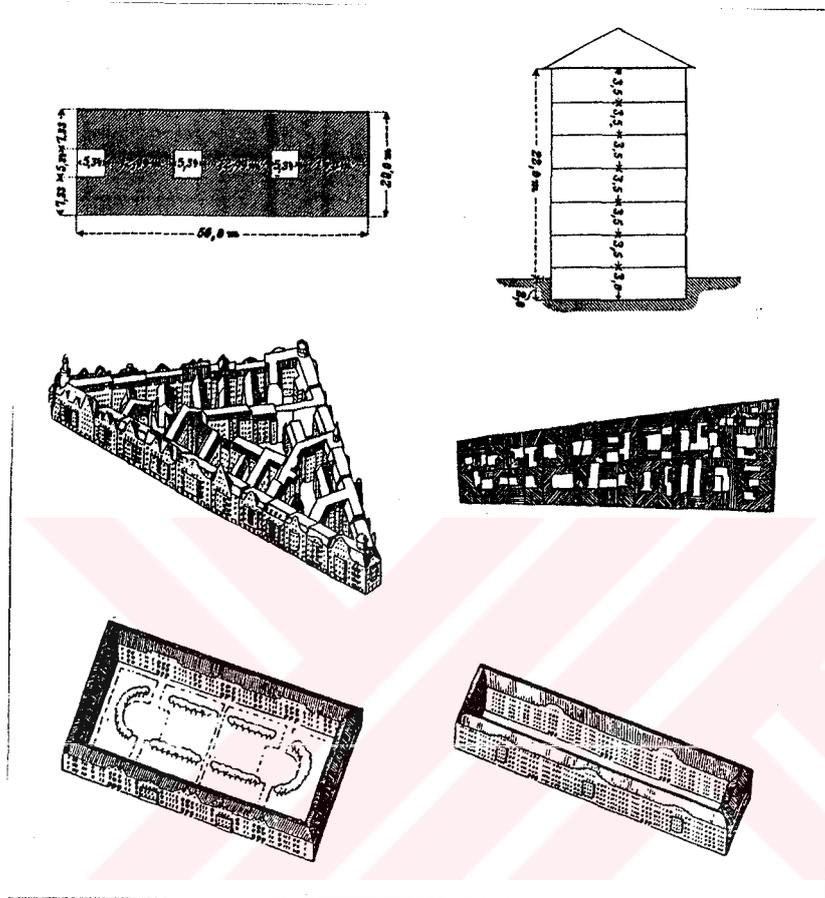


Figure 2.51 Perimeter Blocks - (Berlin Residential and Zoning Typology- Rossi, p.76).

The architect, Krier, R., (1983) also worked with the typologies of enclosure in his design of Poing Nord, New Town for Südhausbau-Ottmann, München with 12 000 inhabitants. (Fig. 2.50)

In the three models above the relations of open-closed could be easily seen. Although these studies based on developing a distinction between two basic modes of environmental control (exclusive-selective modes), or based on the typology of enclosure as seen in the models of analysis of Balamir, A. & Asatekin, G., (1993) and Krier, R., (1983). These models are analyzing the relations of built forms with open space but are not identifying how they get together to construct forms and their changes through time.

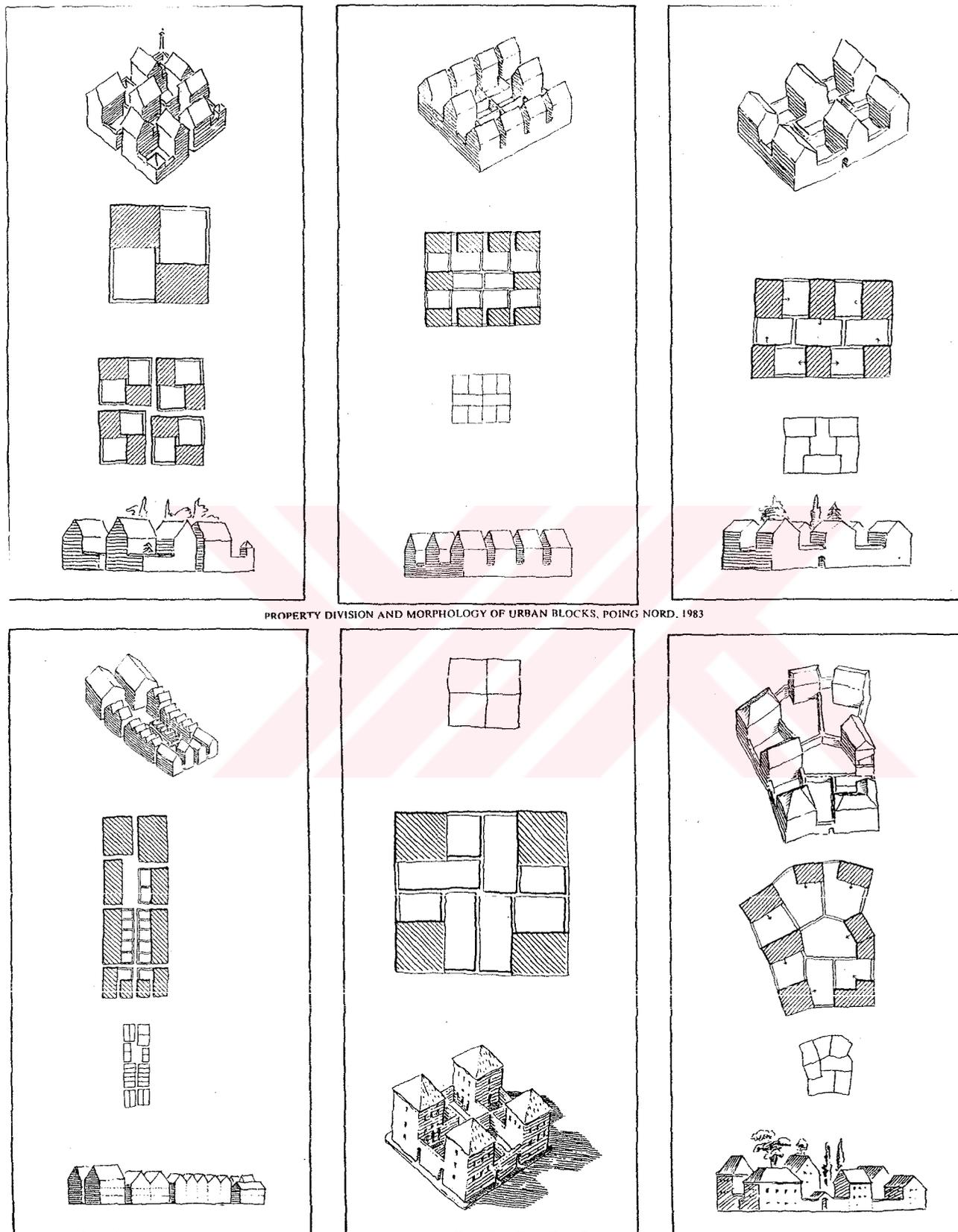


Figure 2.52 The Morphology of Urban Blocks with Enclosure (Krier, R., 1983).

2.2.5.3. Model of Wholeness

Christopher, A., and his work team (1987) have been constructed a theory of wholeness which based on an accurate vision of a specific structural quality of the old towns. As they have stated, 'Each of these towns grew as a whole, under its own laws of wholeness... and we can feel this wholeness.' They have added that this structural quality could not exist in towns being built today because there is not any discipline, which actively sets out to create it. They named the task of creating wholeness in the city as a *process*. Within this process, which is entirely different from urban planning and design work today, each new act of construction has to interrelate with the ones that has done before and works towards the creation of wholeness. As they put forward;

Every increment of construction in the growing city must be designed to preserve wholeness at all levels, from the largest level of public space, to the intermediate wholes at the scale of individual buildings, to the smallest wholes that occur in the building details. (Christopher, A., 1987, p. 29)

As they state, their work is only a beginning of an enduring, empirical, conceptual and theoretical hard work which has a crucial important base for both Urban Design (in relation with Urban Planning) and Architecture.

This group enlarges their theoretical structuring, in the book under the topic of **Nature of Order**, which is not yet published, but ready for publishing in 1999 which has written in four volumes. The main content of the book which was completed in three decades, as it is informed in some written materials about the work. (Salingaros, N., A., 1999. Reached through Internet, see Appendix I). In this monumental book as he stated:

...The Nature of Order has been in preparation for over thirty years, and encapsulates all of Christopher Alexander's theories. My own modest contribution has been to help Professor Alexander edit the manuscript during the past fifteen years. In this monumental book Alexander develops a comprehensive theory of how matter comes together to form coherent structures. Paralleling, but not copying, recent results from complexity theory, he argues that the same laws apply to all structures in the universe; from atoms, to crystals, to living forms, to galaxies. Human beings apparently have a built-in (through subconscious) understanding of these laws. Man's creations have the

option of following the same laws, or violating them. Those that follow them result in our greatest achievements, either as artefacts, as buildings, or as cities

...Far-reaching results on urban planning were given some years ago in Alexander's famous Article 'A City is not a Tree' (see the article by Roger Evans in the Urban Design Quarterly), and in the Pattern Language and A New Theory of Urban Design. His solutions were abstracted from and checked against urban sites that work, which is sufficient reason to apply them to urban sites that don't. He goes much further in the Nature of Order, Showing that the rules of governing the growth of neighbourhoods and cities arise from a fundamental law of nature. Alexander has discovered the process that governs the growth of a successful city-which is the same process by which organic and inorganic forms evolve. Surprisingly, the law concerns the process; not the form of the plan. This whole approach might seem unfamiliar to urban planners who think in terms of static images, though biologist will immediately recognize it as correct. These universal laws apply not only to 'traditional cities'--they apply to all cities, in every age in every culture, that enhance human activity.

The first two volumes should be appreciated as a new approach to understanding structure, both natural and man-made. They span aesthetics, science, and architecture, and relevant to any complex process. Volume 3 is of immediate interest to architects and urban planners, as it contains a large number of examples of the building process from largest to the smallest scale. I am most deeply moved, however, by volume 4 of the Nature of Order, which is deeply spiritual work. The last of the four volumes transcends architecture, and plunges into what it is that connects us with universe. It reveals how superficial our century has been in addressing the fundamental qualities and needs of human beings. This volume promises to have a profound impact on our society; even our civilization. For that reason, it might ultimately be the most revolutionary aspects of the entire work.

As Block, P., (1999) in the article of Reviews of The Nature of Order put forwards;

The Nature of Order offers a golden thread that connects the innermost center of who we are as humans with the physical environment that we have the potential to create. It

is an intimate journey, which reunites our internal experience with the external world so as to create wholeness in the reader. It is written in painfully precise language in which the future of society has the potential to be written.

2.2.6. Synthesis of Models of Analyses in Contemporary Context

These models of analyses in contemporary context have also dealt with open space in a way. They were all tried to define the form of house or house patterns with reference to their relations with open space but have informed us differently and not generalized. These models could be sensed and analyzed as a totality, unity of open-closed units. *Peri* means around, surrounding or enclosing. (Webster's New World Dictionary, II ed.).

As a synthesis it could be said that, **when a materialized unit at any level (a pillar, a wall, a room, a block...) step by step add to each other (as an act of creation), in cyclic direction for enclosing the open space (void, potential energy field) to form a secure open-closed unity (cycle of appropriation of open space, change from self to other unit) it lets the abstract space free for other enclosings.** (Like as a peri-style, a perimeter wall, peri-meter block or peri-pheral ring of two story).

The main theme of the thesis is based on this crucial original proposal statement formulated above.

This construction of thought in this thesis has also been partially handled and tried to be constructed as a theory by Christopher, A., and his work team as wholeness. (1987). The formation of structure has been discussed and examined as an additive process of buildings to form a whole. It could be defined as an 'impulse', 'self-determined' and 'inward-covered' 'spatial configuration' of human beings.

The book of Alexander, C., (not yet published, but ready for publishing in 1999), **Nature of Order** with four large volumes which have mentioned briefly with the footnotes above (See Appendix I), is looked contextually similar but can not be yet compared with this thesis. The thesis construction of thought based on general open space concept to define the space constructions, configurations, relations (open-closed) and changes in general and in case of house and house patterns.

2.3. Summary of the Chapter

In Chapter II, it has been tried to get an identification of space concept with an understanding of its context by means of relations at universal, global and micro levels. The open space concept which this thesis have been based on is referred to the abstract concepts, '*vacancy*', the '*void*' which have also been discussed in this chapter (p.19). The open space, the unity of the units consists of life in it. The vitality, the livability of a unit depends on the energy transference from and to the materialized and non-materialized of other units at differentiated levels. This type of matter and energy relations can be take place at all levels. These relations could be examined in Table 2.1. Man, who is being a conscious living also communicates with himself and others through his thoughts, feelings, intuitions... All these relations are getting more important by means of architectural context of space concept at house and house pattern levels. In other words the relations at the level of an architectural unit with other units of abstract space (open space) and with other architectural units become crucially important for continuity of life of man..

Later in the chapter, the Anatolian house tradition have been analyzed in general within relation to the adjacent cultures at the same period and overlapping cultures of different periods. With the very rich cultural background there have many data to analyze. In general, the similarities and differences of the open space patterns and their usage over Anatolia have been tried to analyze for a better understanding of cultural continuity and identity in tradition. The question in these analytical searches is to what extend the traditions of open space patterns in housing are changed or unchanged in the duration ?

The need of shelter and the need of defense were the main starting points for man to build. The cluster type of settlements where the entrances were being from the first floor have seen frequently. The megaron with its front open space, and the two story double megaron which were adjacent to each other and with their openings at one side in front were typical in their relations with open space. The defense walls of casamates, defense walls of polis were also similar. The defense was being the most common character for defining the territories of house and communes. The megaron, the tent and '*oda*' have been analyzed as smallest units for sheltering by means of house. They all interact with open space with a door and usually have a chimney. It could be said that a house is a common building type of all times and of all societies. The house which is being a shelter, a physical

product and private space of smallest social unit protects man and family from outside disturbances and must be defensible. The front part of megaron, pastas, prostas and the peristyles of atriums were open space units, which have been analyzed. In case of ‘Turkish house’ or ‘Traditional Anatolian-Turkish’ house open spaces could be named in general as Iwan, sofa and courtyard.. Although all these historical samples of houses have similarities and differences about the usage’s of materials, techniques and geographies they were having the open space as a common value. When man builds on earth he/she organizes also the crucial relations with open space according to his/her culture..

Later in Chapter II, research about Turkish house those have been done before searched. These were the studies that have been tried to define organization of traditional house with reference to; *a functional unit* (Kuban, D.), a part of house-*sofa* (Eldem, S. H.) or to *non-differentiated plan types*. (Erdim, M.). Also some other works have been discussed briefly. (Aladağ, E., Arel, A., Akyüz, E., Ekinci, O., Tosun, Y., Yürekli, H., the students work of I.T.U., Günay, R., and Güneli, Z.& Bekleyen, A., and etc.). Although these are very valuable and have agreed research, they were partially defining the organization of houses. Within a holistic typological analysis of this thesis defining of space, organization begins with degrees of enclosing of open space to closed architectural unit. Then relations of closed unit with open space have been analyzed and adapted to the scale of house and house patterns.. What it had been tried to analyze is *an understanding of space patterns which has been related to the essence of space phenomenon and interrelations of the closed space with open space*. The open-closed relations were also discussed in contemporary context at the end of Chapter II. They are discussed either as an energy using, saving models, by Hawkes, D., (1996) or as surrounding walls of enclosure (perimeter walls, perimeter blocks...) in the analyses of Balamir, A. & Asatekin, G., (1993), Krier, R., (1983), or as theory of wholeness in Christopher, A., and his work team’s analyses. (1987, 1999.)

Throughout Chapter II;

-The conceptual context of open space (void, potential energy field) has been tried to identify with its livable relations of matter-energy. (See 2.1, Table 2.4).

-Then these livable relations have been analyzed on the built environment (in thesis case houses and house patterns) as a closed-open space relations, within a general historical span

of 10 000 years. The aim is to understand cultural meaning and continuity of space concept and organization in inherited social conscious with changes in time (See 2.2.1).

-Then the different approaches, the models of analyses on the Traditional Turkish House and house patterns have been in general tried to analyze. (See 2.2.3.).

-The different approaches, models of analyses about the formation of house and house patterns, which have been related to open-closed space organizations in contemporary context have been briefly analyzed. (See 2.2.5).

2.4. Conclusions of Chapter I and II and the General Statements in Formulation Hypotheses

The continuity of change brings us the concept of diversity in time with space. Space and time are not constant. **The constancy and continuity are in the cultural codes and by them the spatial identities could be transfer to the future.** What is actual, real is the moment. The moment always inherited the past in it and all together they can be build satisfied spatial patterns for people.

There is a continuous change at every level of life. All systems are changing less or more on earth with universe. What relates to thesis subject within these changes were that the spatial with social systems and their transformations in space. So it could be said that there is an abstract language of these formations. **The spatial transformations from open to close have been affected by culture of man but the essence of spatial configuration from open to close does not change.** The closed space could not be only three dimensional architectural unity. During the steps of enclosing man can also express himself/herself. His/her values, preferences, needs, way of living and doing things were all carried to the space that have been constructed by him/her. Later space which he /she has built affects man at physical, psycho-moral and social stages.

The spatial organizations of the house unit and its space patterns are depending on the relations with open space. The buildings (the man-made environment), in our study case the house are sub-systems in open space. In a system every unit has a relation with its parts that itself contained in and with the parts which it has been contained in. The sub-systems are all related with others. The specific sub-systems and classifications have shown in (Table 2.1.).

In this thesis case **the general system has been defined as an open space**. The house the unity of open with close spaces is a sub-set of general system or open space. The house as a sub-system has also contained open space in and has been contained by it. If man starts to surround (the act of enclosing) an open space with a wall or a shelter (the enclosing elements) it could be said that there is the need of identity, appropriation, defense and security of a unit from others. The others could be at all levels, such as wind, light as physical level, strangers at social level and owning a new place at psychic, inward level...). When, the room or the architectural unit has been closed entirely the total space left out as an open space for other units, entities to surround it for them.

The building is a formation, a production. **Every production, system could be define with order of their parts in association and their relationships for us to perceive it as a whole**. At the scale of a building (in thesis case a house); the room, the cell (oda, göz, hane...) is the smallest unit. The analyses of relationships of these units (rooms), their organizations with reference to open space could help to perceive spatial relationships in building (house) as parts or units or elements.

The entrances are the transition, conjunction points or a threshold between open-closed units. The relation between closed and open at entrances for man means changing in location and space by walking through. This change in space conditions from open to close, close to open takes place throughout the day and night.

The open system is the abstract space (void) or space which could be conceptualized as a whole. **All the matter-energy relations and transference are taken place in this general system. These could also named as materialized with non-materialized relations**. The materialized ones are definable with perception, with five senses (Table 2.3.) and the non-materialized ones are definable with insight thoughts, feelings, and beliefs... (Table 2.4.) The interrelations that could be seen in these original tables put forward the man's interrelations within the total system at medium level with all his/her perceptions and sensations.

Man has also thoughts, insights, experiences and emotions (Table 2.4.), which can not define by five senses and perception. These could be called as the non-materialised world of human beings. Man could knew whether he/she has or has not of these non-materialized

part but defining them with five senses, as perceived world is not enough for understanding. Like as the total perception, which develops as love, fear, thrust, happiness, ease, spaciousness or safety, and security... These are more emotional, thoughtful and cognitive relations of man with others that could be grasp with the whole mind.

Table 2.3 The Materialized Relations of Man in Time at Medium Level (Original)

non-living	water, air, soil	river, sea, lake, dust, smoke, minerals... (color, voice, smell, touch, taste...)
livings	animals, plants	birds, pets, domesticated animals, flora and fauna, greenery, landscape
conscious livings	individual- others family-others community-others society -others globality-others universality-others	the body..... A A+ relatives, friends....B B+ friends, neighbours, groups...C C+ organizations.....D D+ global organizations.....E E+ universal-organizations !

- The shaded area shows relation of man with others that could be realized at house scale, which the thesis interrelates.

Table 2.4 The Non-Materialized Relations of Man in Time at Medium Level (Original)

non-livings	Pleasure of the natural view, vistas, love and care of nature, spirit of natural place, feel of life cycle, (temporality of life)...
livings	Love, fear, hate, care of animals and other people, pleasure of growing plants, active learning of life cycle, images, enjoying the natural landscape...
conscious livings	Customs, beliefs, attitudes, rituals; individual and social conscious social concept like the family, relatives, neighbour, community, society, universality...

- * The non-materialized relations of man with others that could be realized at house scale which the thesis interrelates.

Table 2.5 The Materialized- Non-Materialized Relations of Man with the House (Original)

Building (material part)	the height, length and the width, color, materials, surface...
Building (non-material part)	feelings like happiness, ease, spacious of being there, safety, security, feel of space (void), vacancy, potential energy field... spirit of architecture (see p.20)

After the analyses of interrelations of parts (units) and discussing the general system and sub-systems; such statements could be formulated.

-The open space is a *holistic* space concept.

-The open space is the *general system*.

-The free, un-built open space is *infinite* and *full of life*. (void/potential energy field).

-The open space built up of all sorts of relations and interrelations. (Matter-Energy).

-The open space could be closed with the *degrees of enclosing*.

-The closed system could be defined by its *enclosing elements*.

-Every closed unit *captures* a part of open space for its own formation and leaves a *free* open space out for others.

-The captured space must *relate* to open space in order to let transference for *survival*.

-There is at least one *conjunction point or threshold* of open-closed space (captured space) units where the *moving* from open to closed and visa-versa takes place. Man could be transferred from open to closed by walking during the day and night.

-*The doors* which are the conjunction points in case of room, house...etc. are at the same time the threshold, the controlling elements of *security, privacy*.

-Windows are secondary conjunctions of open-closed space (captured space) at surfaces.

-Windows are letting more *energy transference* whereas less matter. It could be visualize the greenery, sky ...etc. and get light, sun through windows but in general they do not used for walk through. The open-closed space location of man do not changed through windows.

-Life goes on with *relations of individual at psychic-level* with *others*.

-Life goes also on with *relations of the family, neighbours and friends at psychic and social levels*.

-Life goes on with *relations of stars, sun, moon, planets...* at social-universal level.

Temporality

-Life goes on with other *non-livings*. Water(fountain, cistern), soil (greenery, mountain, river, trees....), air(breath, weather, wind, rain, humidity...) Changes in atmosphere.

Temporality

-Life goes on with other *livings*. Animals (birds, dogs,).

-There are some households, which need open space. (Cooking, drying vegetables, drying clothes.).

After stating the conclusions of analyses and some general statements in formulation hypotheses above, the study has been carried on to construct The General and Sub-titled Hypotheses of the Thesis.

2.5. The General and Sub-Titled Hypotheses of the Thesis

Hypothesis I: The open space (void) is the potential energy field. All materialized spatial configurations are based on this general non-materialized open space. Every materialized unit has a relation with the non-materialized potential unity. The transference of energy to matter, matter to energy could be realized at various levels. These could be listed briefly at micro-medium-macro levels of units. (Table 2.1).

Non- Livings	Micro Level.....atoms, elements, molecules.
	Medium Level.....soil (land), water, air (atmosphere).....
	Macro Level.....moons, galaxy of sun, other galaxies, univrse..
Livings	Micro Level.....cell nucleus, cells, tissues.....
	Medium Level....fauna(animals), flora (plants), human beings...
	Macro Level.....?.....
Conscious, non-conscious living	Micro Level..... psychic unity (individual level).....
	Medium Level..... psycho-spiritual unity (social level).....
	Macro Level.....spiritual unity (universal level).....

Hypothesis II: In this thesis, it has been put forward that definitions depending on the duality of inner and outer space concepts are not real (p.18). These are together a spatial totality. These could not be divided and partially analyzed in duality. With reference to open space unity (void-the potential energy field), the other sub-space units could be categorized and defined with the degrees of enclosing.

Hypothesis III: The open space is the basic element for space configurations. If a closed system (which has been stated as Architectural Unity); takes, owns and appropriates an individual part from the open space at any degree of enclosing, the relations stated above can be actualized.

Hypothesis IV: The formation of open-closed space configuration has affected and could be analyzed by: (see Abstract Level I)

- Degrees of enclosing
- Directions of enclosing
- Enclosed (captured) space concept
- Location and position of open space
- Compositions of units and changes in configurations
- Transitions with entrances

I. Space patterns formations, configurations and compositions in housing could be defined with reference to open space. A typological model of analysis could be constructed and proposed to use as a tool for defining and understanding the spatial formation in house and house patterns.

II. When man with his/her inward act of creation starts to surround, takes an individual part from the open space, it could be said that there is the need of identity, appropriation, security and defense of a unit from others.

Hypothesis V: The architectural unit (closed unit), could also be defined by its actual being within relations of *one*, (self/closed unit) with *the other* (open space unit). The organizations of open-closed space relations in architectural entity (the unity of open-closed space units) and the composed architectural entity (the unity of open-composed architectural units) could be defined in hierarchies. Every closed unit has to interrelate with open unity for livability. The increase in number of this interrelation forms and creates more livable relations in space.

(Self-other) other = (closed-open unit) open unity

(Architectural unit-open unit) open unity = (Architectural entity) open unity

(n Architectural entity-open unit) open unity = (Composed Architectural entity) open unity

* The open unity is the general system, which is named as open space. (Void-potential energy field)

Hypothesis VI: The inward act of creation or formation of composed architectural units is an additive process, which always contains its own open unit or having a direction to form an open unit during the enclosing steps.

Hypothesis VII: In the Traditional House (the unity of open-closed space) of Anatolia, the individual open space and the closed space have one to one corresponding relations with each other. The similarities of relations and formation of the open-closed unity could be seen in the span of ten thousand years. These relations and formations could be examined in the house of Hattis, Sumerian, Assyrian, in a house of Kum, in the megaron, pastas, prosta, peristyle type of houses and also traditional Turkish house in all regions of Anatolia.

Hypothesis VIII: The organization of open-closed space relations, and sequential spatial formations (formation as an additive process) in time - the organization of open-closed space relations in Architectural unity of open-closed units and Composed Architectural Unity of open-closed of houses in Squatter Settlements are similar with the Traditional Anatolian House.

I. The location of open space in the houses of squatter settlement is similar to the traditional open space location.

II. The usage of open space in the houses of squatter settlement is similar to the usage of open space in Traditional Anatolian House.

III. These similarities in the continuity of space configuration and organization are the results and could be defined as cultural continuity of spatial consciousness.

IV. This cultural continuity in spatial formation, which is seen in the squatter housing and settlement because, the interruption of formal planning and formal professional effectiveness of Architecture does not take place during the building procedures of these settlements.

Hypothesis IX: In today's mass-housing settlements and high-rise buildings the organization of open-closed space relations are un-identified. The open-closed space relations of house and the open-closed space relations of house patterns are un-identified. People can not appropriate, individualized, owned and used the open unity (open space) for themselves.

-There is no individual open space in the formation of housing units. The balconies can not be considered as individual open space. The crucial relations of life does not take place at the balconies The balconies which are offered as open space at flats are not functional by means of life, livable relations, dimensions, security, privacy..... The open-closed space relations are very limited in the flats by means of livable relations with open-space. So a flat could not define as a *house*. People can not appropriate and individualize these 'areas' as an open space and they have in general closed for appropriation, owning and usage of them as defined spaces. People can not integrate with the open space that they can not appropriated. The open space between blocks at the housing pattern scale are also not owned or shared by people like as the balconies of flats.

I. The location of the balconies and the open areas between blocks are not similar to location of open space in the traditional and squatter settlements.

II. The usage of the balconies and the open areas between blocks are not similar to the usage of traditional and squatter settlements.

III. The balconies and the open areas between blocks are not owned, appropriated, and used as open space. The relations with open space in flats are at open unity level, not at open individual unit level which is full of potential life-producing relations.



CHAPTER THREE

**THE ORIGINAL GENERAL
TYPOLOGICAL ANALYSIS MODEL
OF THE THESIS**

3. The Original Model for Analysis of Space Structure in Housing

In this chapter, the original analysis model of the thesis is constructed by the Abstract and Concrete Levels. The two Abstract Levels I-II (3.1 and 3.5) and three Concrete Levels I-II-III (3.2, 3.3, 3.4) are formulated as five typological sub-sets throughout the chapter such as:

(3.1) The Original General Model of the Thesis: *Abstract Level I*

**(3.2) The Original Typological Model of the Thesis
Based on Plan Structures in Muğla: *Concrete Level I***

**(3.3) The Original Typological Model of the Thesis
Based on Plan Structures in Güzeltepe: *Concrete Level II***

**(3.4) The Original Typological Model of the Thesis Based on Plan Structures
of Traditional Houses over Anatolia (including Probable Past and
Possible Future) in a Historical Span of Ten Thousand Years:
*Concrete Level III***

**(3.5) The Original General Abstract Typological Model of the Thesis:
*Abstract Level II***

In Architecture, there is still the need of a basic method of analysis and conceptual structure in order to have more detailed observations and to discuss the changing process of physical built environment. This type of analysis which has been referred to the praxis, must

originate from a higher level of conceptual formulations which explain the existence, nature, and aim of design with its relations to life. (Kuban, D., 1990, p.84).

The conceptual structure has been formed and based on pro-determinist theory of the livable relations of matter-energy in Chapter I-II, for a high level formulation to construct the basic model of spatial configurations.

There is a crucial need of formulation the rapid change of spatial patterns. The adaptation of *negative model* of settlements and lifestyles as Keleş & Geray have stated (p.6) are determining the future of 20th Century cities. The international sameness or international prototypes causes destruction in traditional positive social relations, cultural spatial patterns and consciousness. The rapid physical diversions and transformation of space without any interpretation of past influenced people and they have felt themselves as foreigners. This is the *alienation* of people to space, time and themselves and also life. The *livability* on other hand as mentioned by National Committee (p.3) depends on spatial qualities and properties of settlement that directly affect the satisfaction of people and let them feel happy individually and socially, living in that settlement and also in his/her house.

The abstract space (open space) concept is the base of the origin of conceptual framework of this thesis for formulating the livable relations of space. It had been tried to analyze the space patterns with reference to the context of open-closed space. It is the totality with its micro, medium and macro levels, which previously discussed. (Chapter II, p.13). The method, which has tried to conceptualize the context of open space, could be called as the pro-determinist method - the critical realist philosophy for understanding the problem. In Architecture and social thought, the approaches of positivism and phenomenology could be evaluated as the previous problem solving and design methods. The differences of these two approaches and the method of pro-determinism could be viewed in general at (Table 3.1).

Table 3.1 Differences between Positivism - Phenomenology - Pro-determinism

Positivism	Phenomenology	Pro-determinism
<ul style="list-style-type: none"> Standardly empirical variable must be perceivable by the five senses 	<ul style="list-style-type: none"> Radically empirical. Realize on all sorts of evidence more or less tangible. 	<ul style="list-style-type: none"> The basic relations under surface empirical reality. Based on relations and interrelations.
<ul style="list-style-type: none"> Emphasis on predefiniton of theories and concepts 	<ul style="list-style-type: none"> Avoids predefinitions, letting the thing be discovered on its own terms 	<ul style="list-style-type: none"> Definitions include materialized - non-- materialized realities at every level
<ul style="list-style-type: none"> Reductionistic. 	<ul style="list-style-type: none"> Holistic. 	<ul style="list-style-type: none"> Holistic.
<ul style="list-style-type: none"> Quantitative. 	<ul style="list-style-type: none"> Qualitative, interpretive and descriptive. 	<ul style="list-style-type: none"> Qualitative. Intrinsic values Quantitative Extrinsic values
<ul style="list-style-type: none"> Emphasizes causality, which may lead to prediction and control. 	<ul style="list-style-type: none"> Dubious about casual processes, noting that the world is one vast interconnected system. 	<ul style="list-style-type: none"> Emphasizes on both actual and virtual causality together.
<ul style="list-style-type: none"> Emphasis on certitude, whereby facts established should be certain and immutable. 	<ul style="list-style-type: none"> Dubious about certitude, recognizing that the world is ambiguous. 	<ul style="list-style-type: none"> There are transfers from virtual to actual at every moment of time. Complex determination, not ambiguous.
<ul style="list-style-type: none"> Predictive. The main aim is to generate laws predicting behavior. 	<ul style="list-style-type: none"> Dubious about the possibility or utility of prediction. 	<ul style="list-style-type: none"> Virtuality is full of possibilities. Potentially full of energy. Complex prediction
<ul style="list-style-type: none"> Repeatable and publically verifiable. 	<ul style="list-style-type: none"> Verifiable in terms of one's own experience. 	<ul style="list-style-type: none"> Unverifiable. General.
<ul style="list-style-type: none"> Independent of the idiosyncracies of individual observers. 	<ul style="list-style-type: none"> Idiosyncracies are crucial and often provide important insights. 	<ul style="list-style-type: none"> Idiosyncracies of individual observers are crucial for intrinsic values. Idiosyncratic and contextual
<ul style="list-style-type: none"> Aim is explanation, the search for causes. 	<ul style="list-style-type: none"> The aim is understanding, the search for meanings. 	<ul style="list-style-type: none"> The aim is understanding and changing to search causes for praxis.

*The information in the columns of Positivism and Phenomenology is based on Seamon, 1982, (Stevens, G., 1990). The third column is original and related to Pro-determinist method of Öner, Y., M., (1993).

3.1. The Original General Model of the Thesis: *Abstract Level I*

After having the methodological and conceptual base in Chapter II, in this Chapter it had been tried to define and classify the understanding about relations with using a typological model as an abstract language. In this abstract language the dimensions of open-closed space units are not in their actual measurements and scales, however their relations (open-closed space relations) are actual. The two squares, which will be used in the model (in Abstract Level I and II), to define open-closed units are; *the grey square* symbolizes the closed unit and *the light blue one* symbolizes the open unit. (Figure 3.1).

The room, smallest functional unit likes as a tent of nomads or as one room megaron is the symbol of the closed unit in this thesis typological model. It could be also called as *Architectural Unit*. Man has closed an architectural unit in open space for himself/herself, and then closed architectural unit of space has to open to the abstract space for man to live.

Open Spacefor Man's life closed to **Architectural Unit**

(security, shelter, activities, etc.)

Architectural Unit for Man's lifeopened to **Open Space**

(physical, psychological and social relations)

In order to close the open space, there is a need of enclosing elements. The space could be closed and formed step by step at a degree of pre-enclosing elements. (Figure.3.2), (Table.3. 2).

3.1.1. The Degrees of Enclosing

The place where man is on earth within the universal level could be defined only as a point with coordinates in Euclidean Geometry. The points and the groups of points as lines also help us to define only our closed unit as an architectural closed space.

As Hawkes mentioned, "... The key aspects of architecture could only be researched by identifying their architectural potential. And as buildings occupy land, there exist a basic geometry which relates built form to land use. Research in this zone is both mathematical sense, factual. But it is also architectural." (Dean, H. 1996, p. 6.).

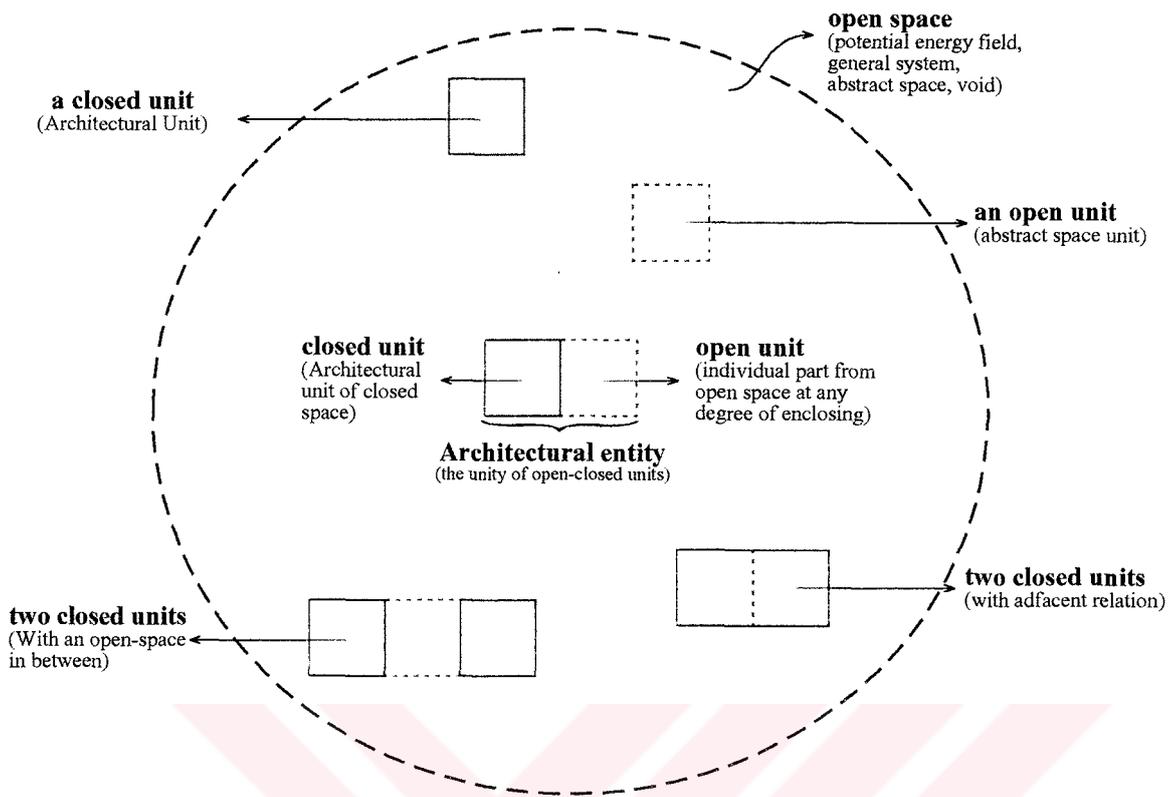


Figure 3.1 The Relation of Open-Closed Units in Open Space (Void or Potential Energy Field)

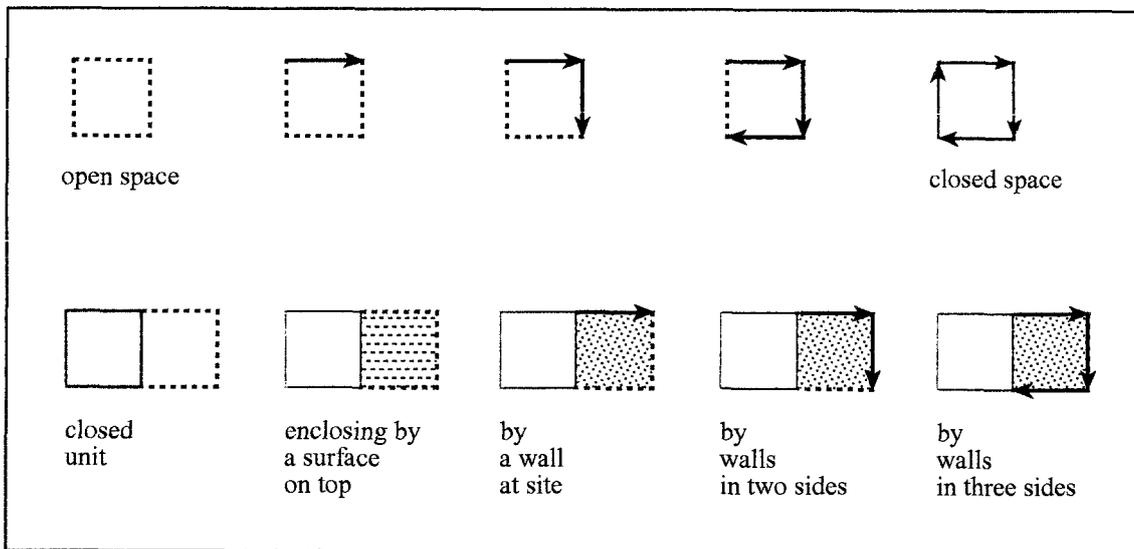


Figure 3.2 The Degrees of Enclosing the Open Space by Enclosing Elements (Appropriation of Open Space Unit)

The architectural unit originates with pre-enclosing elements. They initiate and give a sense of boundary. These were called as the *permeability of enclosing*. When they are strong they do not let transferences of energy and relations physically and also socially. They let in non-disturbances and do not let the disturbances. They also define the territorialities.

The open space has been changed to a closed space by building it up on earth's surface. With building up any kind of boundary (enclosing elements) either at sides, floor or the ceiling, the open space step by step gets closed or is still open at a degree. With this point of view it could be said that the streets, squares, courtyards, sofas are all open spaces or in other words they are enclosed open space at a degree.

Table 3.2 The Enclosing Elements

<i>permeable</i>	Transference continues at all levels. an open window, an open door, an open facade, floor or ceiling and balconies,
<i>semi-permeable</i>	Transference continues at a degree. screened window, pergola, pilotis, pillars, fences, curtains
<i>hard or non-permeable</i>	Transferences are limited wall, floor, ceiling surfaces without openings, courtyard walls, heavy curtains

3.1.2. Direction of closing

During the act of closing, man has to give a direction to his/her act. The point, lines and surfaces are used for giving a direction to this process of enclosing. A line, which is the sum of points also, symbolizes the surfaces in the definitions below. In every case when these points, lines and surfaces get together, they give a feeling of enclosing.

3.1.2.1.Linear Directions of Enclosing Elements

A Line with only one direction.....no-closing, separating 

Two lines with in one direction.....lowest degree of enclosure 

Vertical



Horizontal

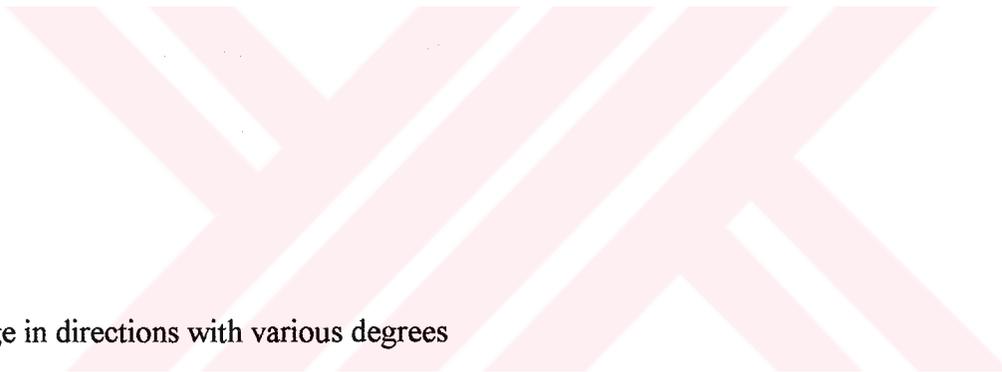


3.1.2.2. Cyclic Directions of Enclosing Elements

-Two lines change in directions with 90°.. a degree of enclosure (corner, pergola)



-Two lines change in directions with 90°.....degree of enclosure (sofa,eyvan, pergola)



Lines change in directions with various degrees



Line encircling.....closes the space



3.1.3. Enclosed Space

When man is building, he/she takes a part from abstract space, open space or a void and encloses it. If this void can not contact with the original open space or the whole, it will not permit man to live, like as in graves. In order to let life to take place in an architectural unit, the envelope, shell of the void must open to its nature. Every architectural unit must have at least one or more than one openings. The critical question here is how the interrelation of architectural unit composes a relation and interrelation with the abstract space. By taking the cube as the abstract unit (the closed unit in the thesis case) it could be said that it is possible for the openings to take place either, on top of, at the side, or below the closed unit.

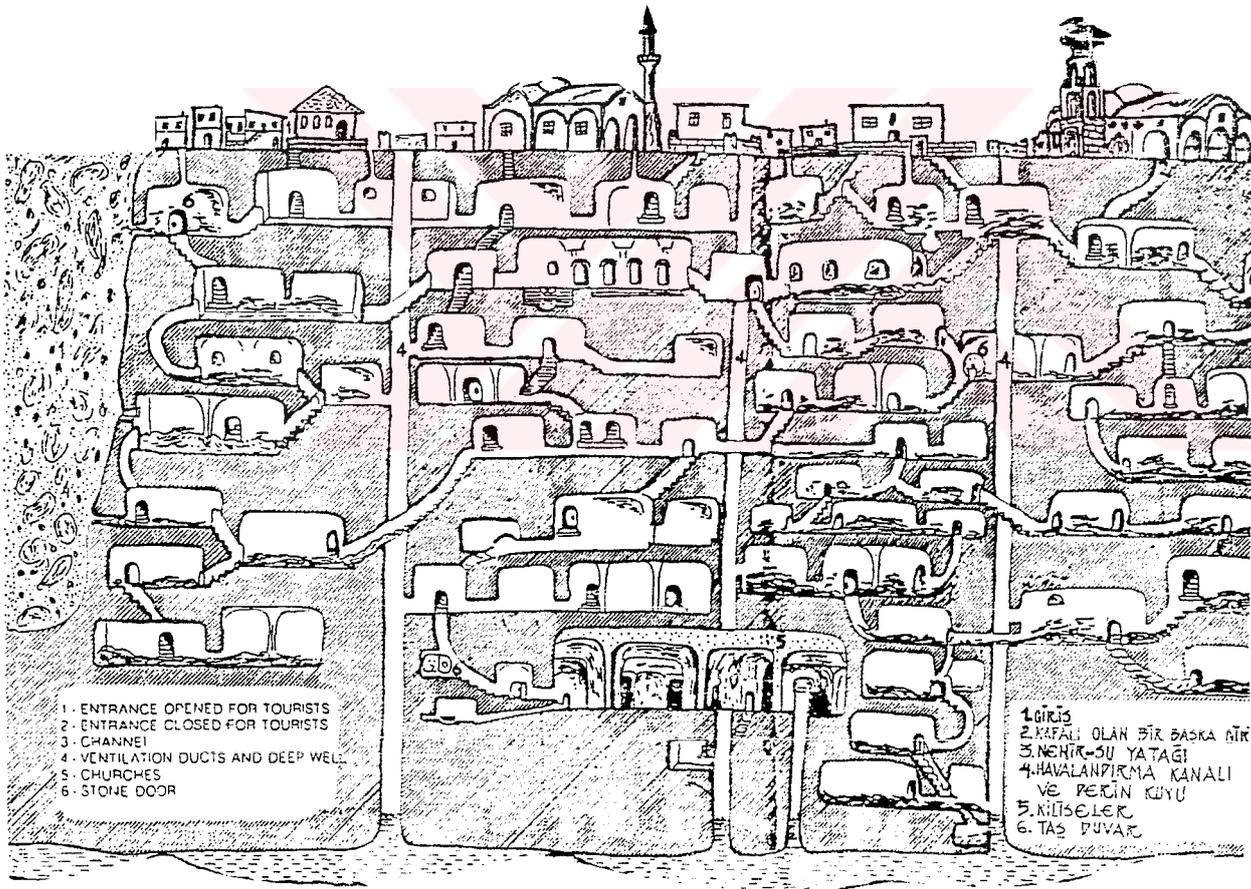


Figure 3.3 The Ventilation Ducts of an Underground City

3.1.4. Position of Open Space with Relation to Closed Space (the closed Architectural Unit)

The question here is where the *open space unit* of house locates in relation to the enclosed architectural unit. This is the relation of open-closed units in thesis case.

3.1.4.1. Location of Open Space Inside (Captured Open Space)

The abstract space (void) has been captured for the unit by enclosing at all degrees. The unit contains the abstract space in its inside. This is the space like in a box, a can or a tomb. It is not suitable for life. There must be at least one opening in order to contact or relate the total life outside (nature, society, etc.) There is a need of at least one opening for air ventilation and entrance. The underground spaces are also this type of locations of closed unit, which have been stated. The very early shelters of man were caves and they only had one opening. In case of the underground cities like as in Kaymaklı and Derinkuyu, Cappadocia, Turkey; the openings are the air channels (ventilation ducts) which were the contacts with life, air above and also water below (Fig. 3.3). A fully enclosed space can be called as an *isolated or captured space*. In order to live in an enclosed space as mentioned there must be at least one opening. The openings of the architectural unit could be the doors and windows either at the sides, on top or below as symbolized. (Figure 3.4).

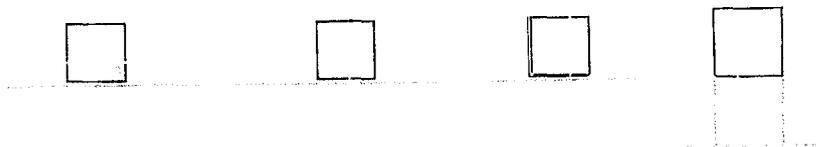


Figure 3.4 The Openings of a Unit to Whole

3.1.4.2. Location of Open Space On Top of Closed Unit

In this position, the open space is on top of the architectural unit (closed unit). All the terrace uses, flat roof uses and entrances could be taken place on top. With a door or window and a stair man can get into this open space unit. The flat roof usage in Çatalhöyük is an example of this type of relation. In a high rise building the relation and contact of open space on top is impossible for lower flats. The relations of flats with roof are shown in (Figure 3.5). The architectural units, which relate to figures listed below in order:

- Architectural unit.....ground floor
- Architectural unit.....ground floor + basement
- Architectural unit.....ground floor + first floor
- Architectural unit.....ground floor + 1st floor + 2nd floor

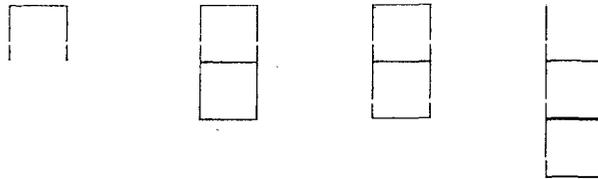


Figure 3.5 Relation of Open Space on Top with the Floors

This kind of opening functions for contact with sky and takes light and atmosphere in architectural unit. When there is an atrium in a high rise building, it could be said that there is a need for a contact with sky. The high-rise buildings have open ceilings in order to get light in, from sky Space of the high rise building, which is the basic unit of architecture with the whole inside, has transferred to its origin (void) by ceiling. The shopping malls (Figure 3.6), the peristyle house (-Figure 2.10, p.31), Pantheon (Figure 3.7), İmamoğlu House (Figure 3.8) and Yurt (Figure 3.9). have all these types of on top relations with open space.

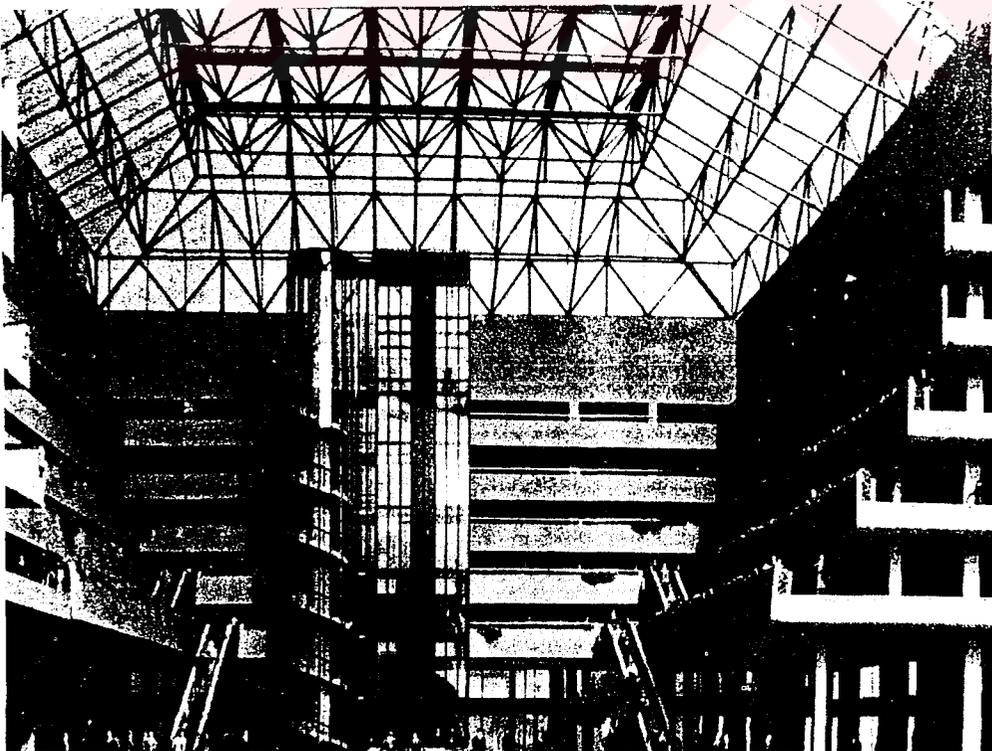


Figure 3.6 The Relation with the Open Space on Top (Norberg-Schultz, 1971, p.47)

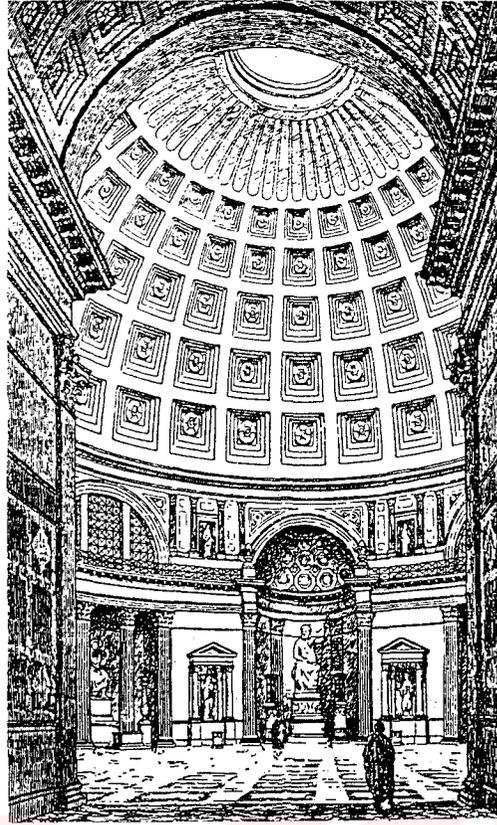


Figure 3.7 The Open Space on Top-Pantheon (Arseven, C., E., p.27)

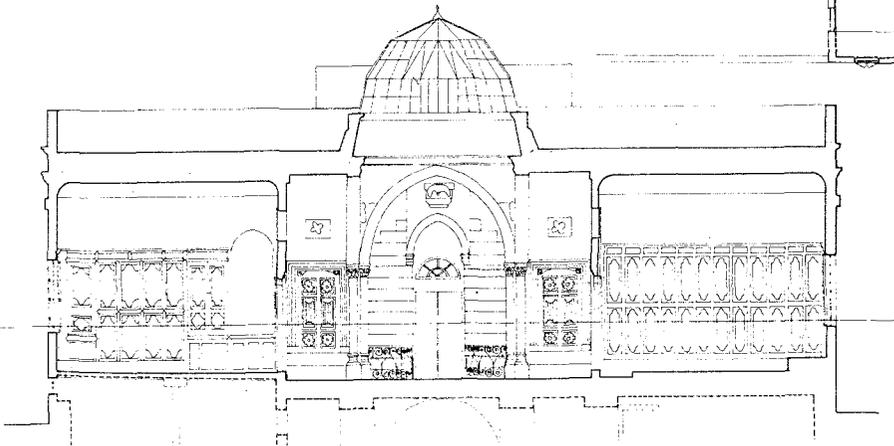
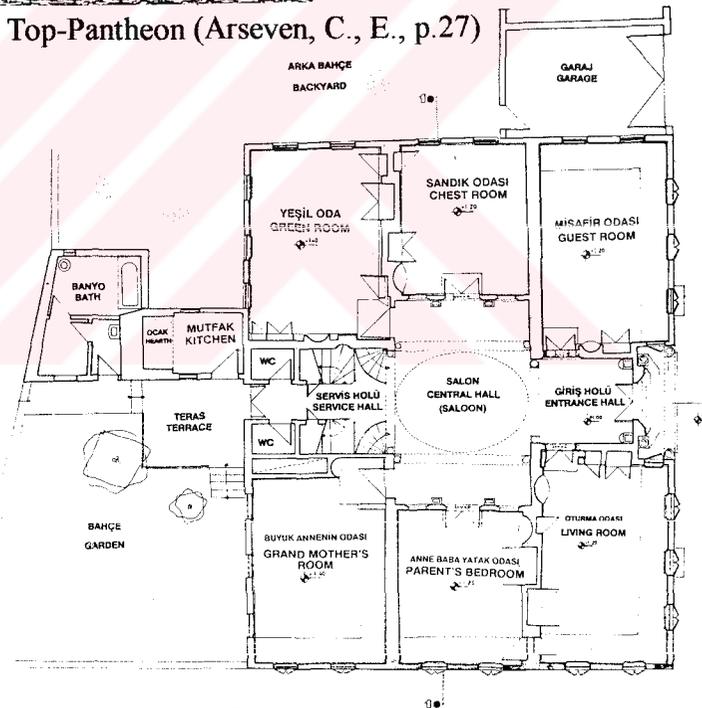


Figure 3.8 The Open Space on Top-İmamoğlu House (İmamoğlu, V., p.159)

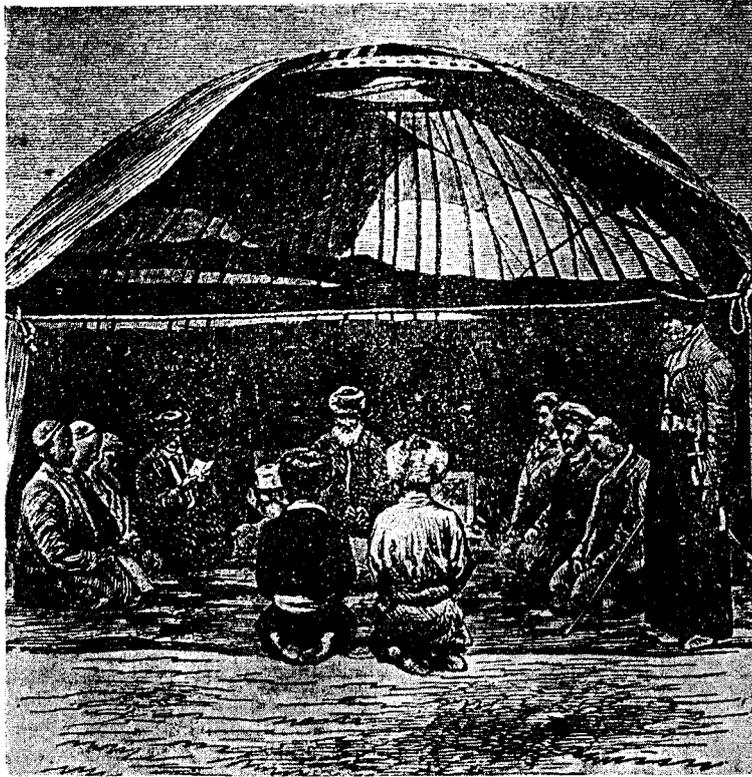


Figure 3.9 The Open Space on Top-Yurt (Arseven, C. E., p.26)

3.1.4.3. Location of Open Space Under the Closed Unit

This is the relation of open space unit, which takes place under with closed architectural unit. The closed unit is at 1st floor and structure carries the unit. The *Unit d'Habitation in Marseilles*, Le Corbusier, is one of examples. The storage unit of cereals in Karadeniz, called, as 'serender' (Figure 3.10) is another example. The room for storage has been held up because of defense of food from animals. There are colonnades or other structural elements. Stairs are used to get into closed unit. 'Çardak' is also a construction with same principles and have open space relation with under and also at other sides. (Figure 3.11)

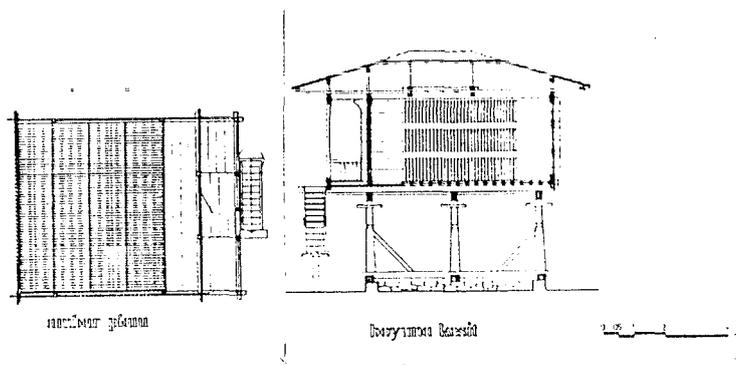


Figure 3.10 Location of Under-*Serender*-Black Sea (Eruzun, E., 1980)

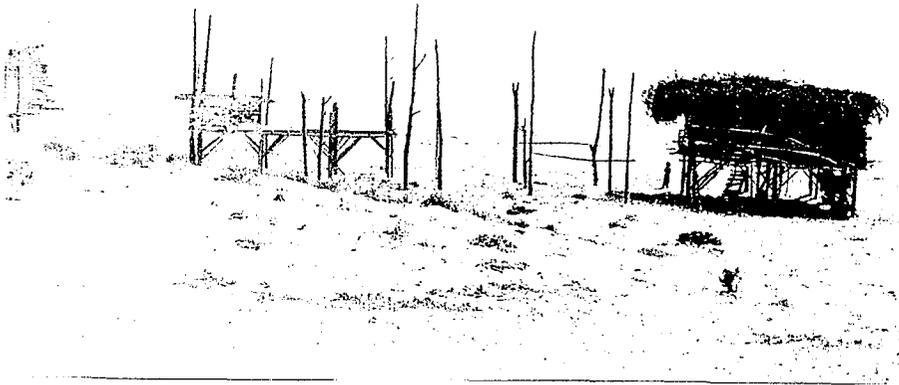


Figure 3.11 Location of All - *Çardak* (Bammer, A., p.238)

3.1.4.4. The Location of Open Space Near the Closed Space

The open space takes place near to architectural unit. The windows and doors in this case take place at the side surfaces. If the discussion is about only one architectural unit, and a man living alone there are not any problems. People get in and out of his/her room or house into open space and in this unlimited space he/she can sense and feel whatever he/she wants. But when there is one more architectural unit or two or three, four and etc., space within distance between these is need to be identified. Whose space is it? Are the units going to get together or are they going to stay apart? Are they going to share the open space in-between them? How can they get organized?

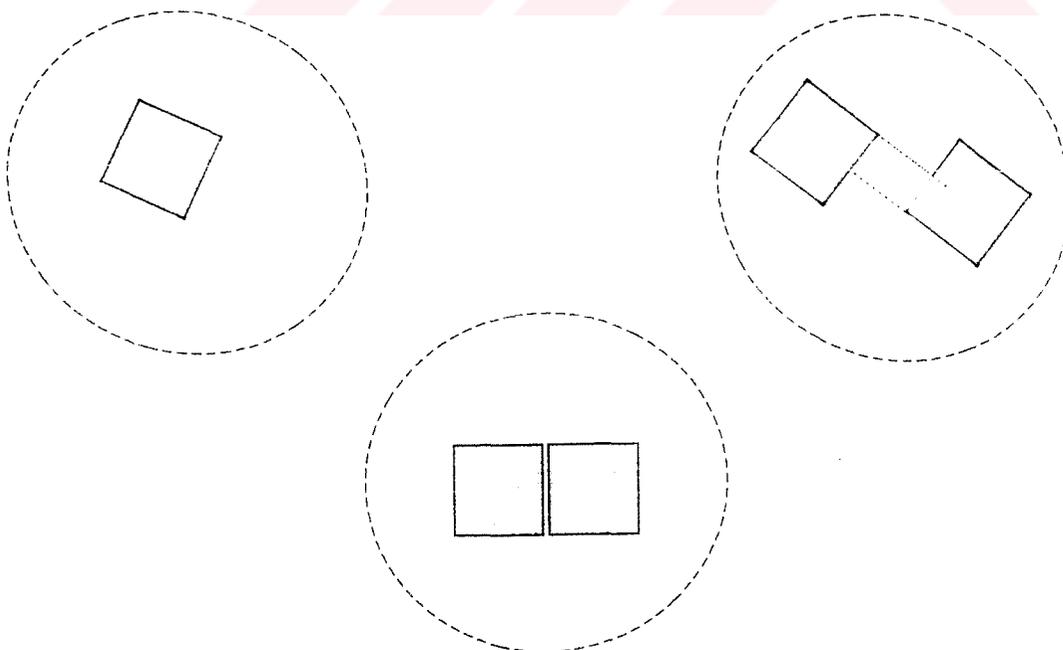


Figure 3. 12 Location of the unit: Alone- Adjacent-Between (in distance)

3.1.5. Composition of Units

Although the units can stay alone, they can also gather to form groups. When they get together the problem of organization arises. This is the relation of one (closed space unit) and the other (open space) in forming patterns.

relations	the other					
one (self)	Adjacent with the non-materialized unit (open space)			Between with the materialized unit (closed space)		
unit	direction		distance	direction		distance
	one	two		one	two	
	linear	cyclic		linear	cyclic	
1						
2						
3						

Table 3.3 The Composition of Units for Forming a Pattern



3.1.5.1. One (Closed Unit) and The Other (Open Space-Void)

This the relation of open space with the architectural unit alone in the abstract space has been discussed above in Abstract Level I, 3.1.4. This is possible for the unit when it takes places as scattered settlements in nature.



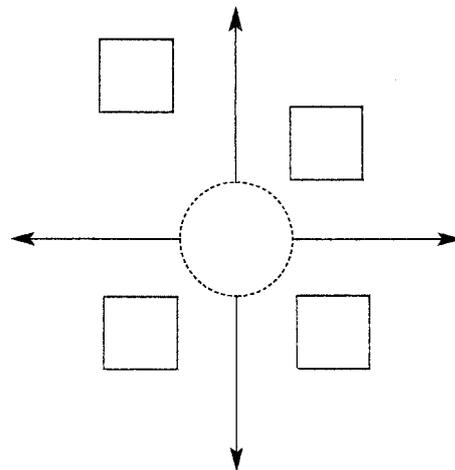
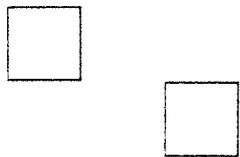
3.1.5.2. The Adjacent Relation of The Architectural Unit with Open Space Unit

In this type of space relation the non-architectural (non-materialized) open space unit which is limited in the degrees of enclosing (3.1.1) gets together with the closed unit to form a house. The enclosing elements of open space can be a fence, a wall, etc. and their directions are the important elements to be analyzed. These units or elements can get together within directions and distances between.

Before discussing these compositions of units, an explanation should be made about some important points while they are forming a new form.

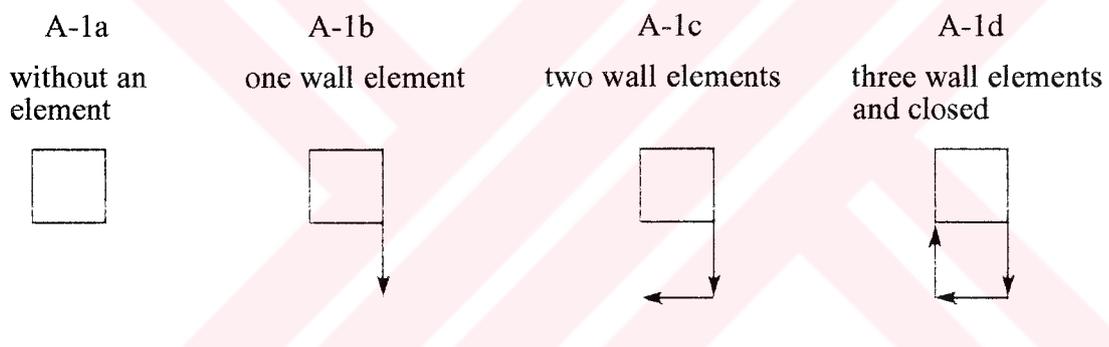
The compositions can *rotate* for new positions.

They can be also placed in an *inverse* turn.

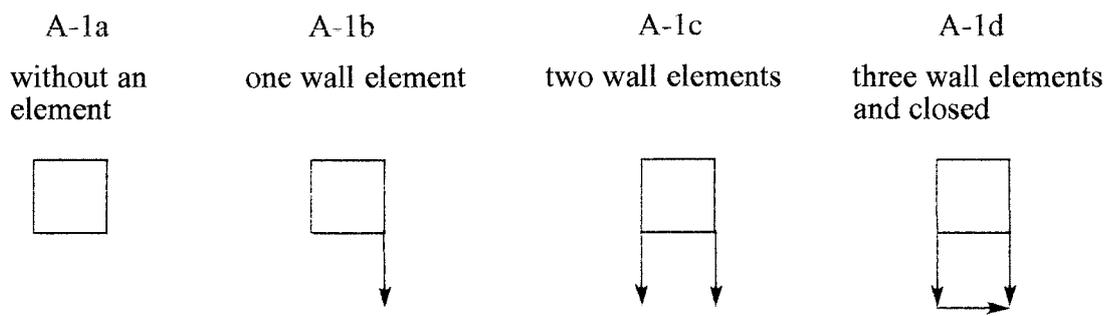


3.1.5.2.1 The Adjacent Type of Composition of Unit with Elements: Type A-1

Cyclic composition: In this type of relation the direction of the element changes vertically every time when a new unit has been added.



Linear composition: In this type of relation the direction of the element does not change. Every time an addition is made adjacent to the corner of the closed unit and it continuously can be added in one direction.

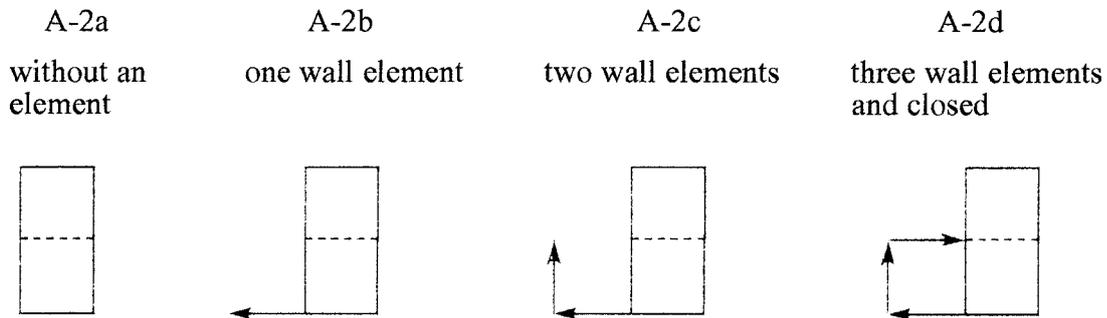


Composition with an element in distance

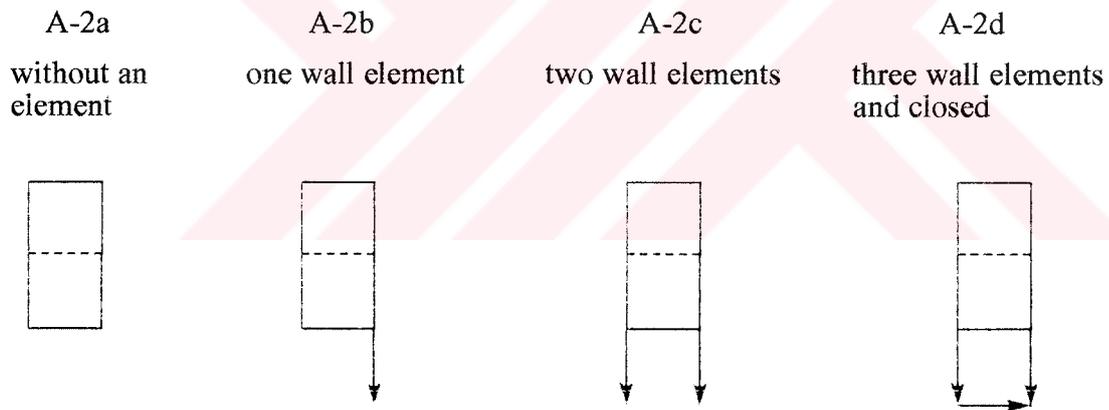


3.1.5.2.2. The Adjacent Type of Composition of 2 Units with an Enclosing Element: A - 2

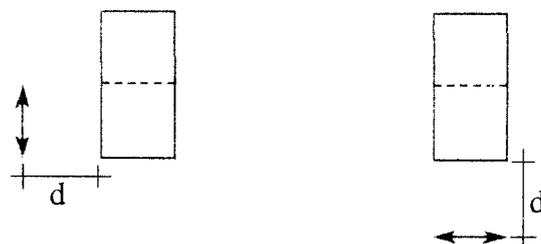
Cyclic composition:



Linear Compositions:



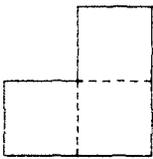
Composition with an element in distance:



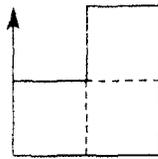
3.1.5.2.3. The Adjacent Composition of 3 Units with an Enclosing Element A - 3

Cyclic composition:

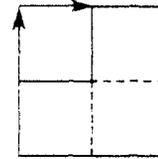
A-3a
without an
element



A-3b
one wall element



A-3c
two wall elements
and closed

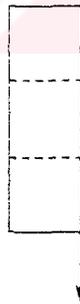


Linear composition:

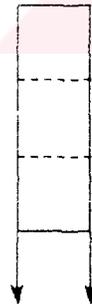
A-3a
without an
element



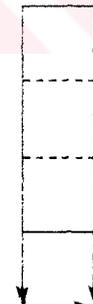
A-3b
one wall element



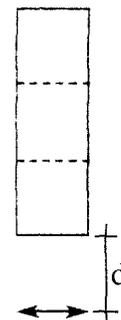
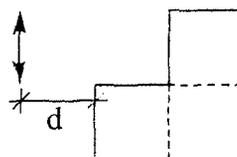
A-3c
two wall elements



A-3d
three wall elements
and closed

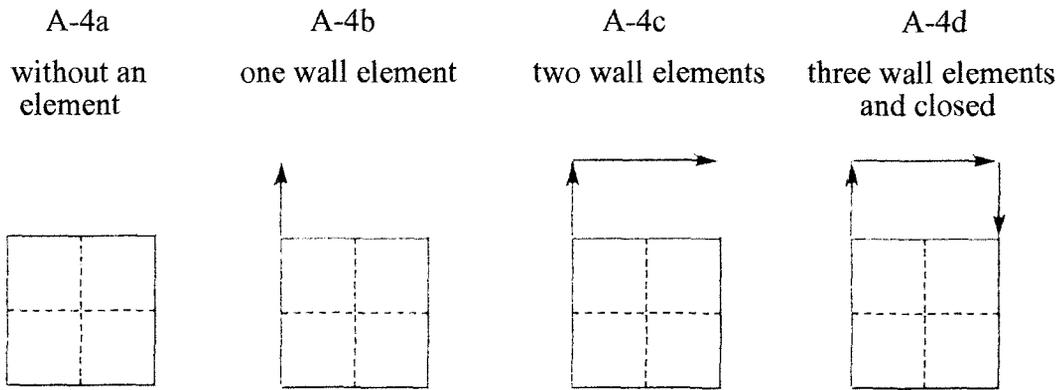


Composition with an element in distance:

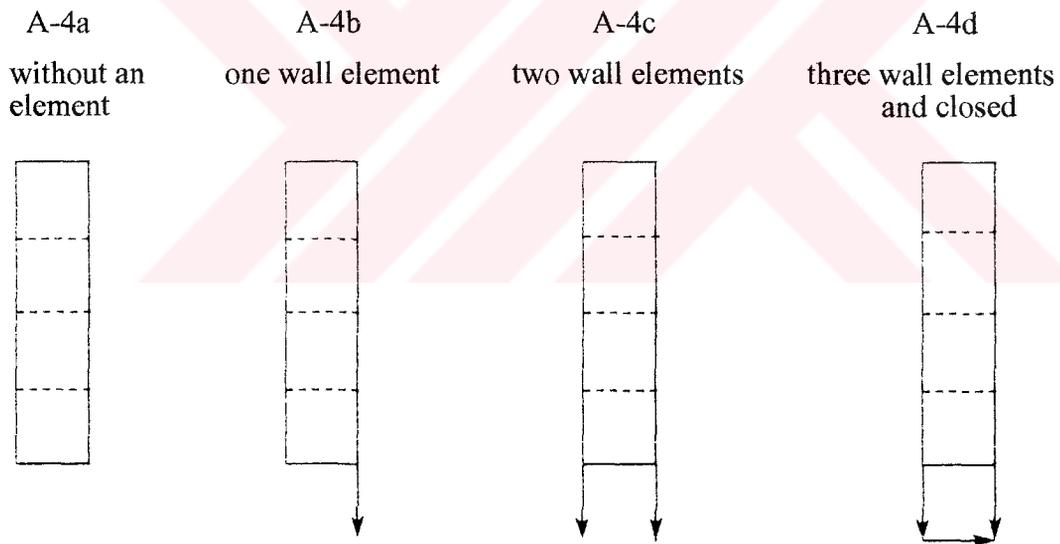


**3.1.5.2.4 The Adjacent Composition of 4 Unit
with an Enclosing Element A · 4**

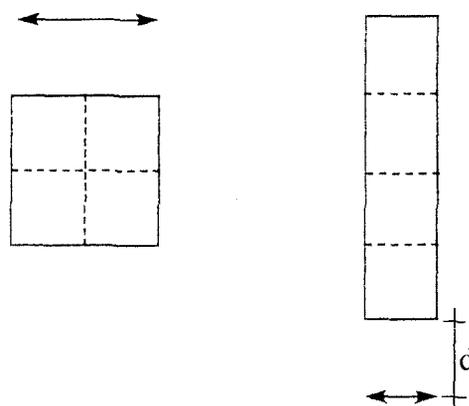
Cyclic composition:



Linear composition:

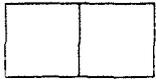


Composition with an element in distance:



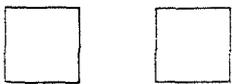
3.1.5.3. The Between Relation of Two Architectural Units with an Open Space Unit

This could be another type of architectural unit. The one (closed unit) and the new one (the second closed unit) which are going to relate has two different types of relation.



The Adjacent Position:

This type of organization with no distance between. The units are placed together side-by-side. They can slide on the same surface or not. These sliding relations would not be discussed. These types of compositions could be felt as one. The high-rise blocks with no balconies can be thought as an example to these relations. They can form units vertically, horizontally and cyclic as A-1.

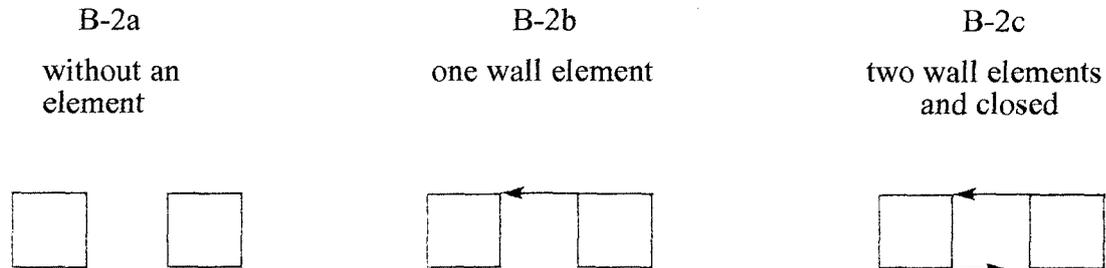


The Between position:

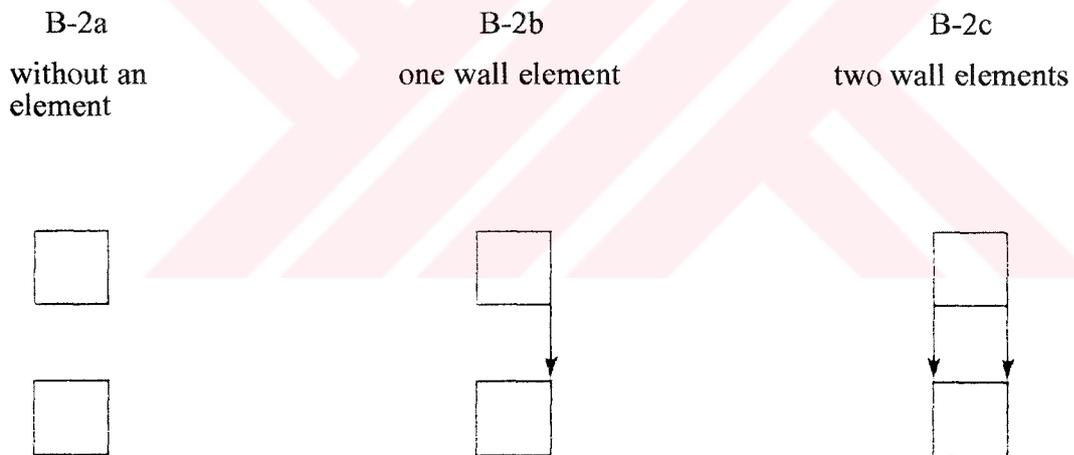
This type of composing also can be additive. If the distance is short, the space between could be enclosed. At the second step it could be fully closed or the eye can perceive it as a composite unit. When the distance is too far, they are not perceived as a composite unit. In the between type of relation the position of units are generally located in a little distance from each other. This distance is what should be needed to define. If the distance is too much, then the concept of architectural space is lost, even though the concept of open space is still there. What is needed is to form and perceive both of them together.

**3.1.5.3.1. The Between Type of Composition of 2 Units
with Enclosing Elements: B -2**

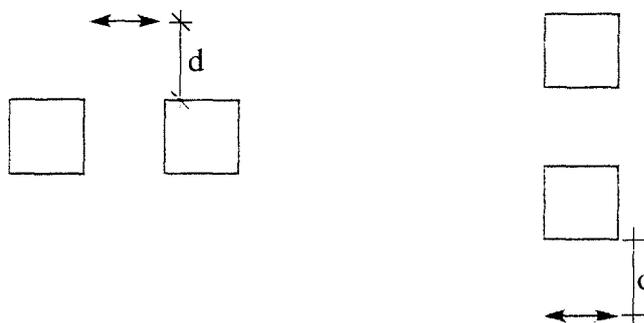
Cyclic composition:



Linear composition:



Composition with an element in distance:

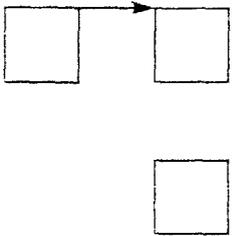


**3.1.5.3.2. In Between Type of Composition of 3 Units
with Enclosing Elements: B - 3**

Cyclic composition:

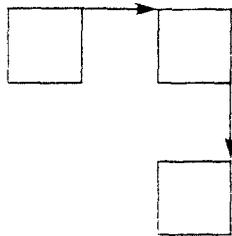
B-3a

one wall element



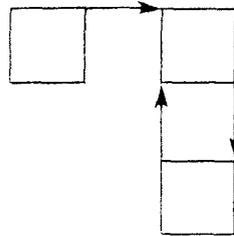
B-3b

two wall element



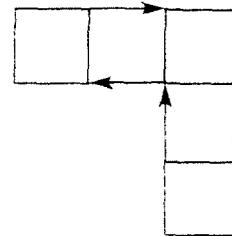
B-3c

three wall elements



B-3d

four wall elements and closed



Linear composition:

B-3b

one wall element



B-3c

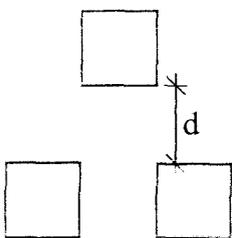
two wall elements



Composition with an element in distance :

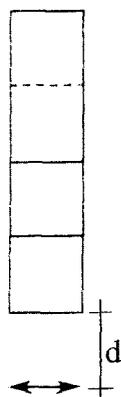
B-3b

one wall element



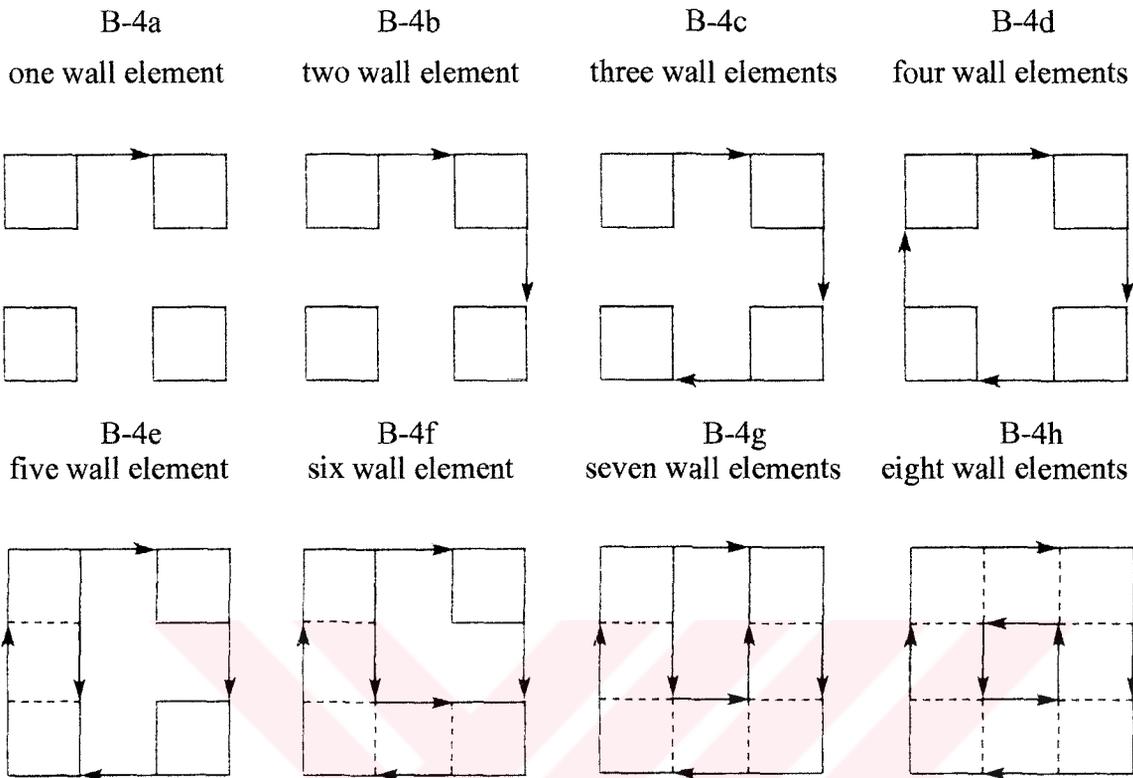
B-3c

two wall elements

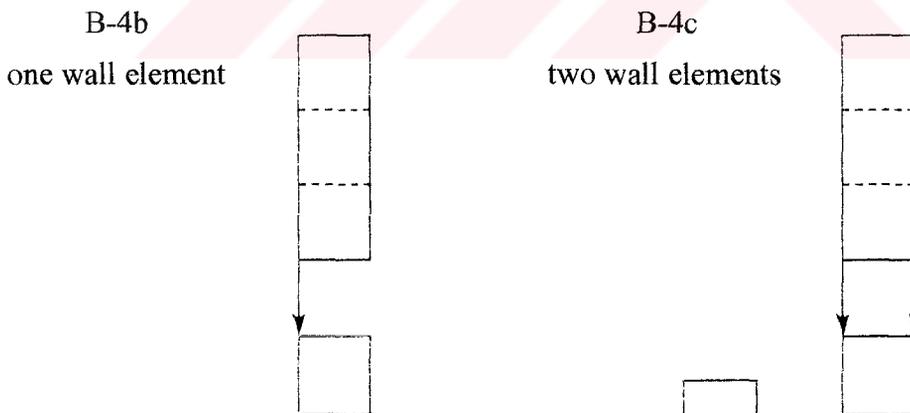


3.1.5.3.3. In Between Type of Composition of 4 Units and more, with Enclosing Elements: B - 4

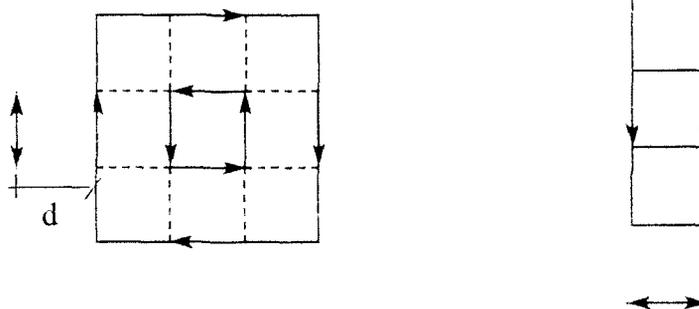
cyclic composition



Linear composition

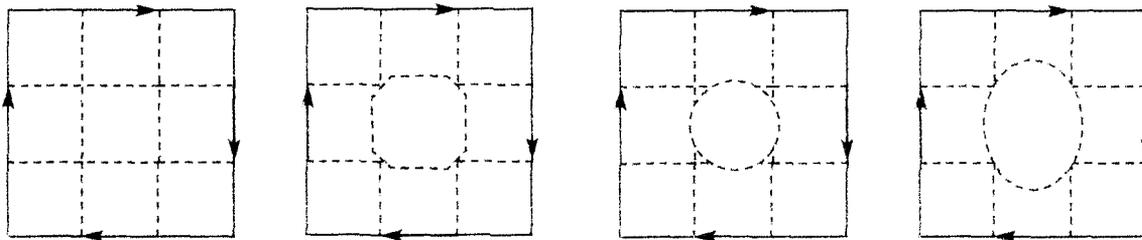


Composition with an element in distance :

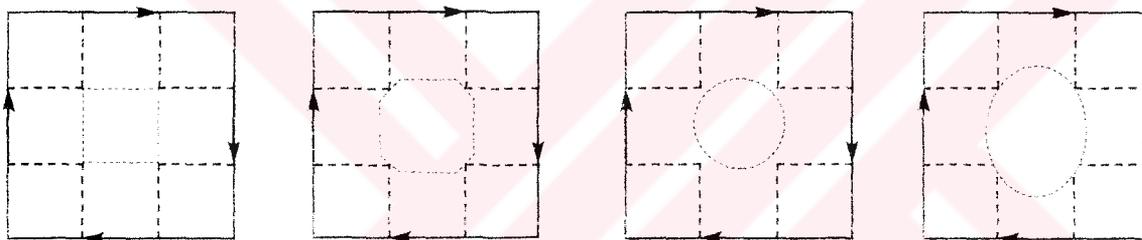


cyclic composition (With 9 Units)

Form variations of enclosed space with non-open space relation on top.



Form variations of enclosed space with open space relation on top.



Open space relation on top (See Figure 3.8).

All these relations of open-closed space could be diversified by an addition of a new unit or units. With an increase in units new types could be formed, but **the logic of enclosing** does not change. At each case, the closed unit gets an open space unit for itself and let the other (*the unity of open space-void-abstract space*) out. This is also named as appropriation of an open unit for forming an architectural entity. In this thesis, *the compositions of open-closed units or the additive formation of types* have been limited with four closed units. These compositions or types could be seen in *Abstract Level I*, which has been presented in (Table 3.4). Although these abstract types in Abstract Level I, could be seen in built environment as they are defined, they could be also seen in combinations as composed architectural entities. The combinations of an adjacent and between units could be seen in Abstract Level II, (Table 3.5). There is also another possibility about these types which need to be mentioned. The wall elements, which are used as *symbolic elements* could be varied with having different enclosing degrees and elements. (Table 3.2). These variations could be seen in a pergola or ‘Çardak’ which have constructed with greenery or at a side wall of ‘Hayat’ which have constructed like as a wooden fence. (Figure 3.13).

3.1.6. The Transitions of the Space

In co-relation of open-closed space, there must be openings. The openings predominates the interference of energy between open-closed spaces. The materialized and non-materialized *interrelations* and *transference* at every level are always placed at openings of the system (entrances). At micro level, the entering of minerals, proteins, fats, and etc. are placed at cellular membrane. In case of a house differentiated energy transference between open-closed space could be actualized by windows, chimneys and doors. These openings can be organized in various forms. The relations of openings are also changed whether they are near or away from each other. According to their permeability, they let or do not let the relations, transference to be actualized. The **distance, location-orientation** and **permeability** are affected the amount of energy transference at each level. When, relations of doors and windows are considered as thresholds, intersection points of open-closed spaces, the physical and social life of house could be better understood. These relations could be controlled with opening types and their locations. The locations of openings are placed either near or far, face to face or adjacent and also permeable or non-permeable. The relations of open-closed units could be easily analyzed with location and orientation of entrances in adjacent and between units.

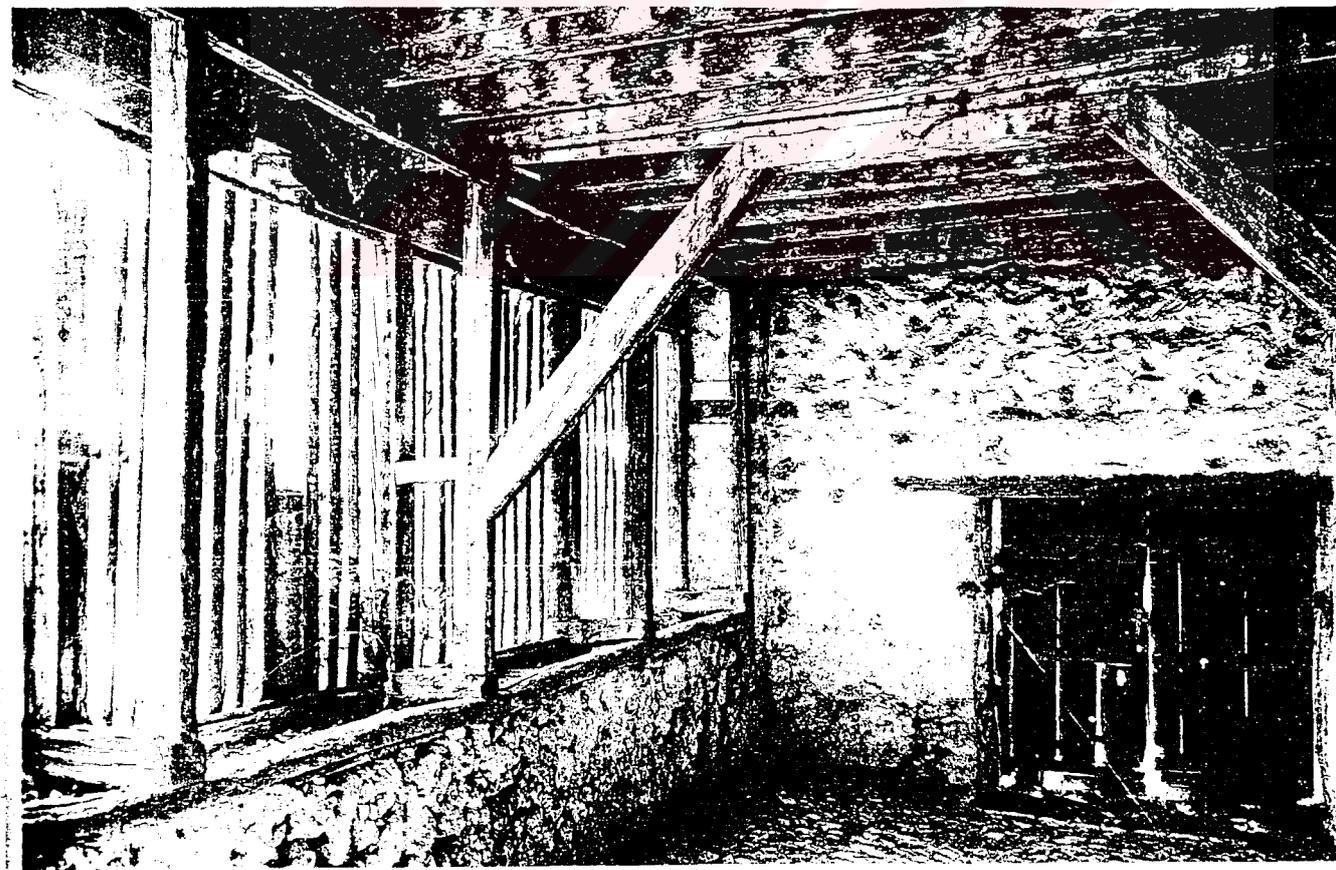
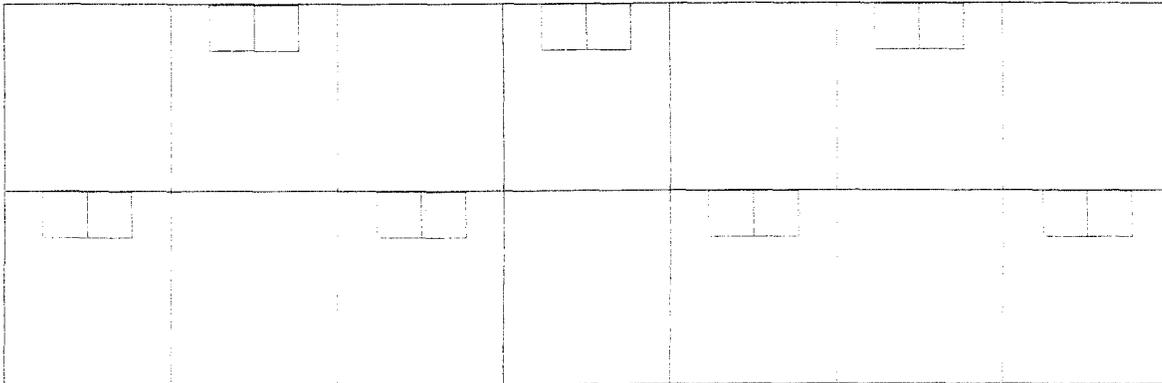


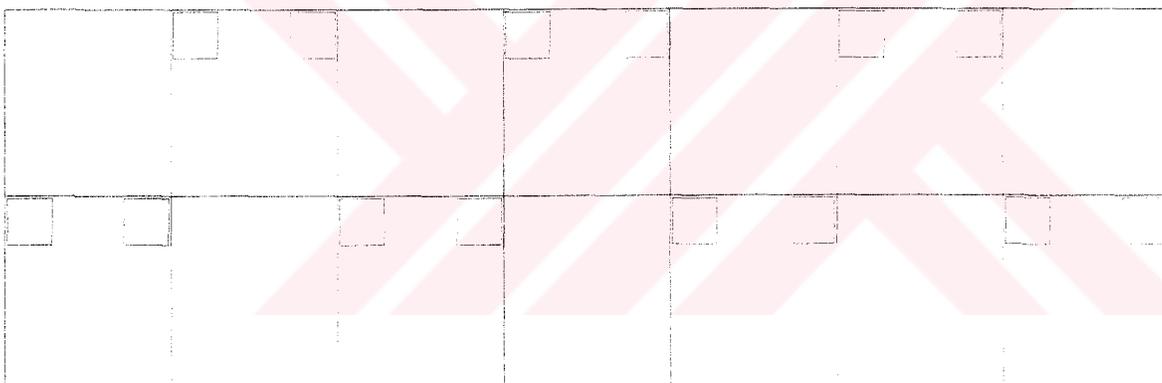
Figure 3.13 Construction of Side Walls of '*Hayat*' in Safranbolu with Wooden Fences.

(Günay, R., 1998, pp 157-158)

The Entrances of Adjacent Units



The Entrances of in Between Units



3.1.7. Synthesis of Abstract Level I

It had been tried to construct an Abstract Model which based on the elementary relation forms (*Architectural unit-open space unit*) with open space unity (*void-potential energy field*). These relation forms could be construct step by step, under the topics or criteria such as; the degrees of enclosing (3.1.1), *direction of closing* (3.1.2), *position-location of open-closed units* (3.1.4), *composition of units and changes in configurations* (3.1.5) and *the transition of open-closed units with entrances*. (3.1.6). The aim of the Abstract Level I is to use it as a basic tool for forming of spatial configurations of any concrete spatial analyses and typology formations and the highest Abstract Level of Typological Model (Abstract Level II), (3.6) for the analyses of architectural unit, open space unit, and open space formations.

This Typological Model is proposed to use and could be used both for analyzing explaining the existing spatial essence of houses, house patterns and predicting spatial procedures in probable design projects. The houses of the three sites were analyzed with using this abstract model as a tool while the model also has been tested in these three sites.

The changes in time have also affected plan types. There are not any absolute plan types. With *subtraction* of a unit or units from the last form of houses, it could be possible to get original types and by *addition* of a unit or units to original type, it could be possible to reach today' plan forms. This could be also named as *additive process* of structuring open space.

3.2 The Original Typological Model of the Thesis Based on Plan Structures in Muğla : Concrete Level I

In testing the Model (Chapter IV), houses of Karamehmet-Muğla has been selected as an example for traditional housing settlement in today's housing patterns. The site has been also defined in detail in Chapter IV, with data analyses of Questionnaire. The Abstract Model of the thesis has been used as a tool in site for getting more information about plan types and understanding formation and configuration of house forms and housing patterns. The **Concrete Level I-Original Typological Model Based on Plan Structures of Karamehmet-Muğla** has been presented in (Table 3.5). The types of Karamchmet-Muğla are concretized such as:

Type MĜ-A1: The *adjacent linear type* with two closed units and one open unit, and their differentiation in time.

- The two adjacent linear units with one floor and a flat roof. (*Toprakdam*)
- The additions of two adjacent linear closed units with one open unit (*sofa*) at second floor.
- The stair is at open space.
- Enclosing the open units *or* addition of an adjacent cyclic unit at first and second floors.
- Enclosed units* with one entrance and open space
- New additions of linear or cyclic are probable.

Type MĜ-A2: The *adjacent cyclic type* with two closed units and one open unit, and their

differentiation in time.

- The two adjacent cyclic units (one is smaller for storage, the other is larger for living), with one floor and a flat roof. (*Toprakdam*)
- The additions of two adjacent cyclic closed units at second floor by a stair at closed unit
- Constructing a new stair at open space and having an open unit-*sofa* at second floor.
- The addition of an adjacent cyclic closed unit at first floor.
- The enclosing of open units or addition of an adjacent cyclic unit at second floors.
- Enclosed units* with one entrance.
- Open space left for new additions of linear or cyclic.

Type MĜ-B1: This is a *simple type of between location* of closed units. These are having two closed units with entrances facing to each other. They are in general one floor houses with basements. The additions could be seen in Table 3.5. This type has changed to other types either with enlargements of adjacent linear or adjacent cyclic directions.

Type MĜ-B2: This is a *between cyclic type* with two closed units, which have located in between relation. The between open space is shared by two enclosed units.

- Probably, there are not any stair at the very early forms.
- They have built stairs in general in between open space (*evin altı*) and reached at two closed units with a between open space unit (sofa) at second floor.
- They have closed open spaces, either the one at second floor or the other at first floor and in some cases they have closed both of them at same time.. The house has become an enclosed unit with one entrance.
- The open space has been left for new cyclic or linear additions.

Type MĜ-B3: This is a *between cyclic type*, which has two closed units, which have located in between position. The form of between open space has given a chance for fifth and sixth closed unit additions which could be also located in between relation. The probable types with five, six, seven, or eight units are not seen in site but these could be possible to construct or seen in other sites.

Type MĜ-B4: This is a *between cyclic type an adjacent cyclic addition of closed unit*. It is more developed one and probably later built than the others above. It has been constructed with three closed units in ground floor and two at second. Later they have closed a part off open unit (sofa) and add an adjacent cyclic closed unit at second floor. In some cases they add an adjacent linear closed-open unit for expanding the house in parcel.

Type MĜ-B5: This is also a *between cyclic type* but different in some cases from others. It could be said it has combination of properties that have seen in Type MĜ-B2 and Type MĜ-B4. The additions of fifth and sixth units are similar to MĜ-B2 but it is also similar to MĜ-B4 with larger sofa all through wide face. There is also two exception that have seen in this type. One is having two facade opening at the beginning of construction of house and the other is having a main door entrance from street with stairs.

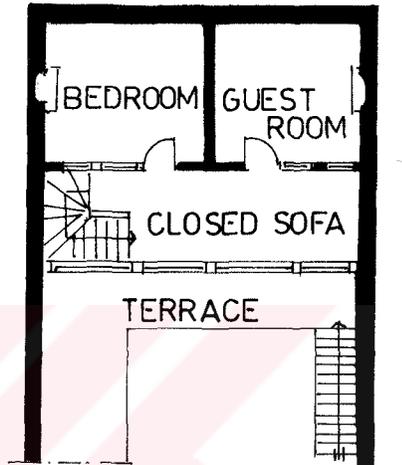
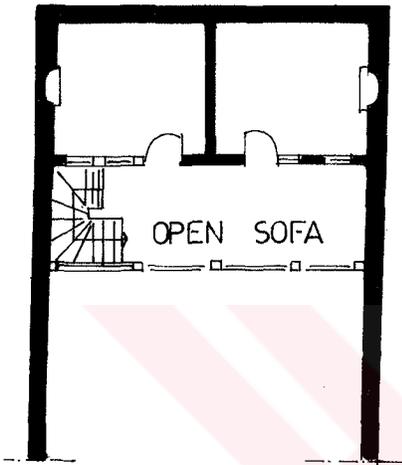
3.2.1. The Data of Plan Schemata of Karamehmet-Muĝla

The above mentioned concrete types of Muĝla, are defined by using the typological Model of the thesis. These types are referred and limited with analyses of 39 house. The houses of other districts in Muĝla could be analyzed with using this model and similarities and differences could be compared with the generalizations of Concrete Level I. The plan construction of some houses, which Concrete Level I has been based on, could be seen in presented scemata after (Table 3.5).

Typological Analyses of Houses - Muğla	Concrete Level I	Abstract Level II
Karamehmet Mahallesi	Muğla type	Open-closed space Type
SAVRAN SOK./8 Birsen Bulut	MG - A1	2 al

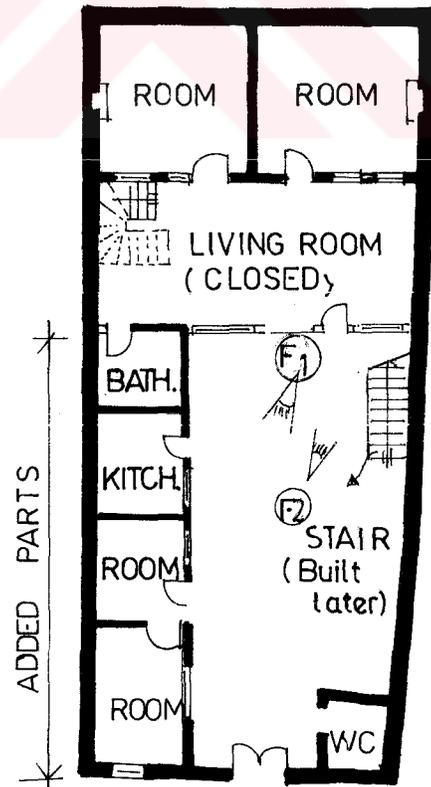
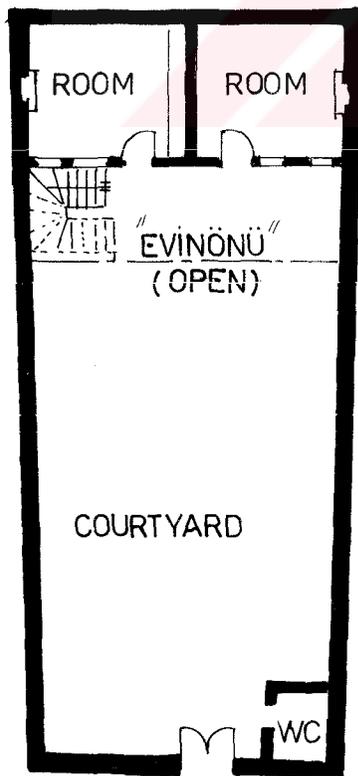
BEFORE

AFTER (1997)



FIRST FLOOR

FIRST FLOOR



GROUND FLOOR

STREET
GROUND FLOOR

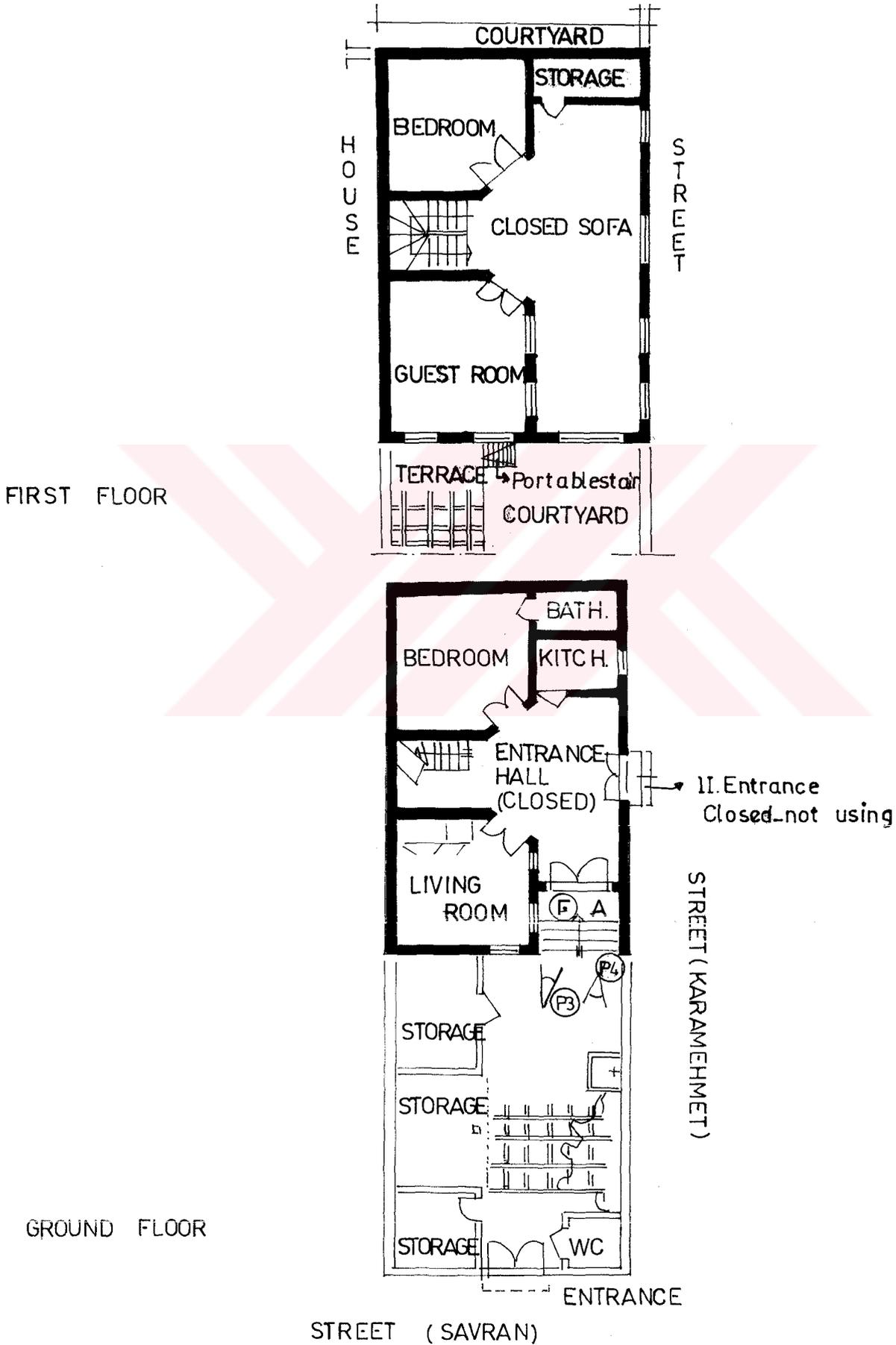


Photograph 1 Adjacent Addition in Courtyard



Photograph 2 Change in Stair Position

Typological Analyses of Houses- Case of Muğla	Concrete Level I I	Abstract Level II
Karamehmet Mahallesi	Muğla Type	Open-closed space Type
SAVRAN SOK./2 Ayten Köşe	MG_B5	$b_c + a_c$





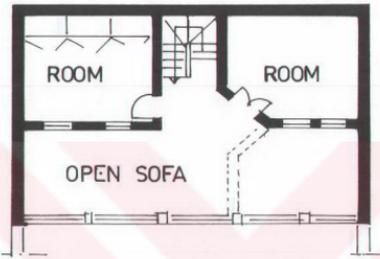
Photograph 3 Entrance of House
from Open to Closed Units.
Type MĠ-B5



Photograph 4 Entrance of House
from Street to Courtyard

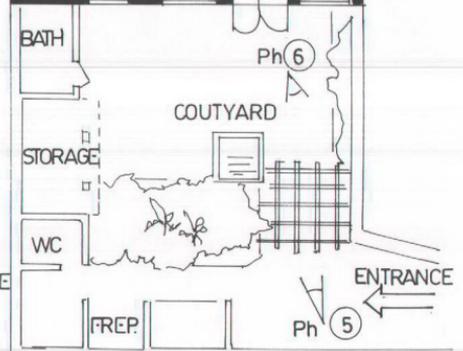
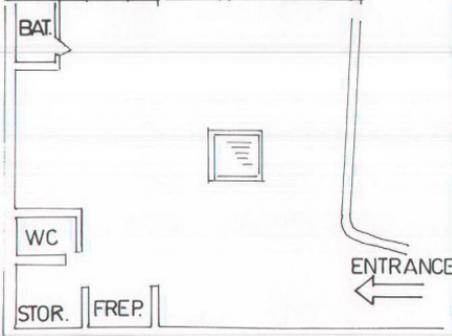
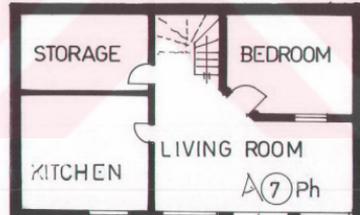
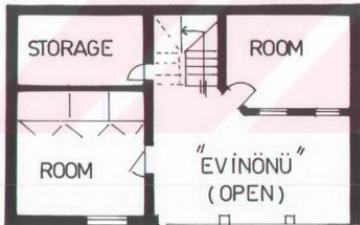
Typological Analyses of Houses - Çiğli	Concrete Level I	Abstract Level II
Güzeltepe Mahallesi	Güzeltepe Type	Open-closed space Type
GEDIK SOK. /1 Vahit Yılmaz	MG. B4	b + 1a _c

BEFORE



AFTER (1997)

II. ENTRANCE
(later opened) STREET (later opened window)



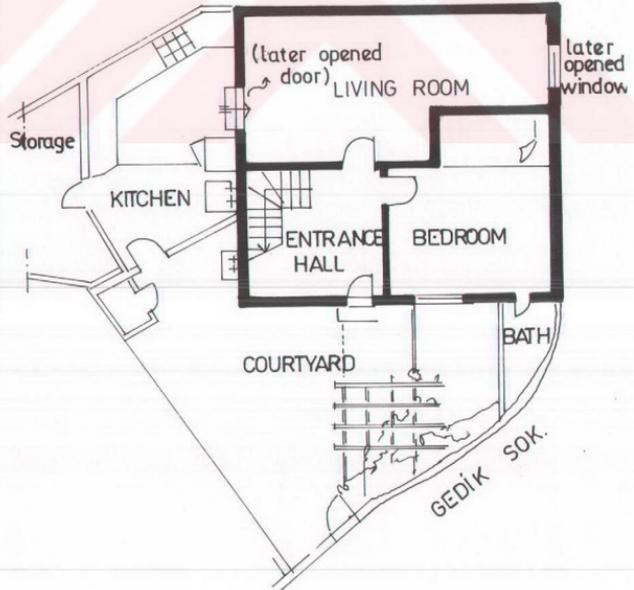
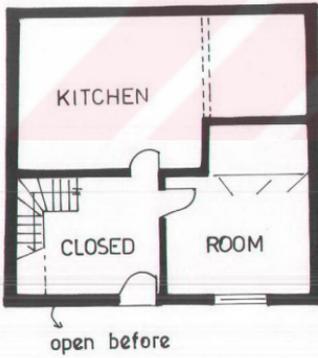
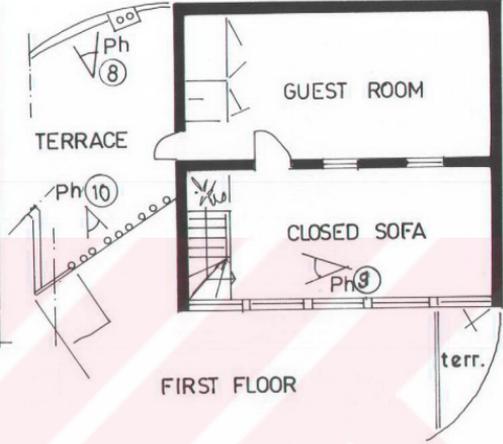
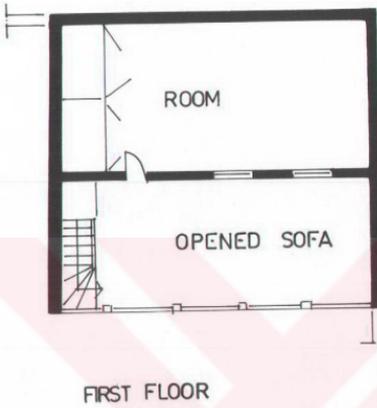


Photograph 5 Later Closed Open Sofa. Type MG-B4



Photograph 6 - Photograph 7 Integration of Living Room with Open Space (Life)

Typological Analyses of Houses - Muğla	Concrete Level I	Abstract Level II
Karamehmet Mahallesi	Muğla Type	Open-closed space Type
GEDİK SOK./2 Fidan Demirel	MG_ A2	q _c •ENCLOSED



GROUND FLOOR

GROUND FLOOR

Photograph 8
View of Site from
Terrace of House



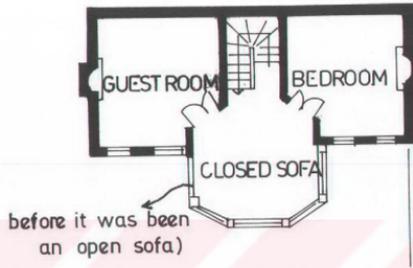
Photograph 9 Closed Sofa with the
Staircase. Type MĠ-A2



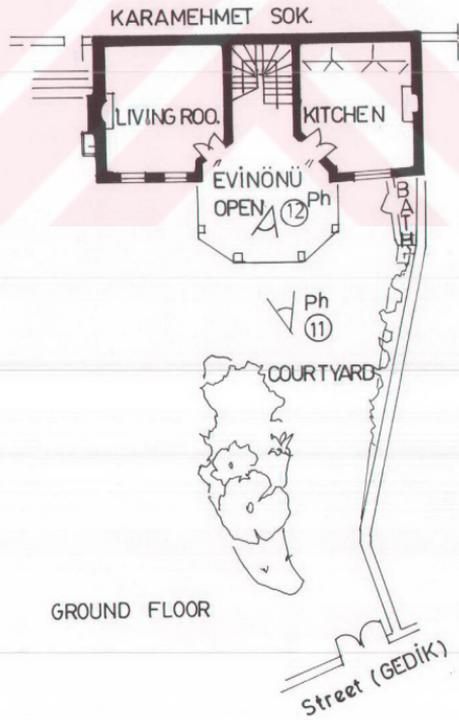
Photograph 10 Greenery and Pet
in Courtyard

Typological Analyses of Houses - Muğla	Concrete Level I	Abstract Level II
Karamehmet Mahallesi	Muğla Type	Open-closed space Type
GEDİK SOK. 6 Duriye Yumuk	MG _B3	b

house in 1997



FIRST FLOOR



GROUND FLOOR



Photograph 11 "Evin öni" as an Open Unit



Photograph 12 Integration of "Evin öni" with Life

Typological Analyses of Houses - Muğla	Concrete Level I	Abstract Level II
Karamehmet Mahallesi	Muğla Type	Open-closed space Type
GEDİK SOK./3 Güzide Demirtaş	MG_ A2	q _c -enclosed





Photograph 13 Greenery in Courtyard



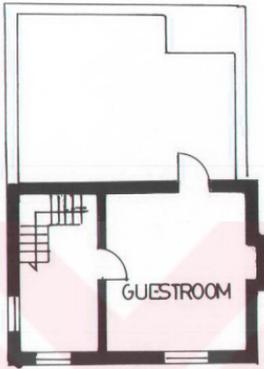
Photograph 14 Enclosed Unity. Type MĠ-A2



Photograph 15 Opening of a Living Room
to a Courtyard

Typological Analyses of Houses - Muğla	Concrete Level I	Abstract Level II
Karamehmet Mahallesi	Mugla Type	Open-closed space Type
SAVRAN SOK. 3 Saniye Kalay	MG_A 2	α_c +enclosed

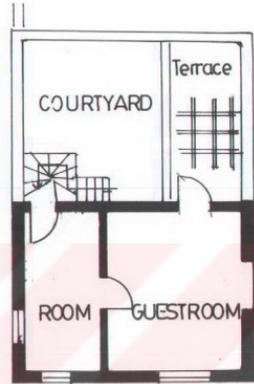
BEFORE



FIRST FLOOR

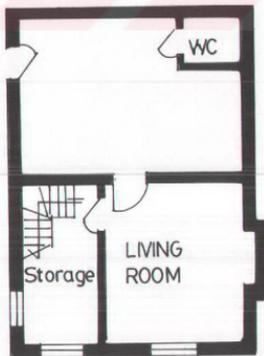
AFTER

new
stair



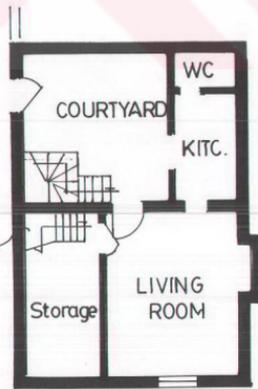
FIRST FLOOR

STREET



GROUND FLOOR

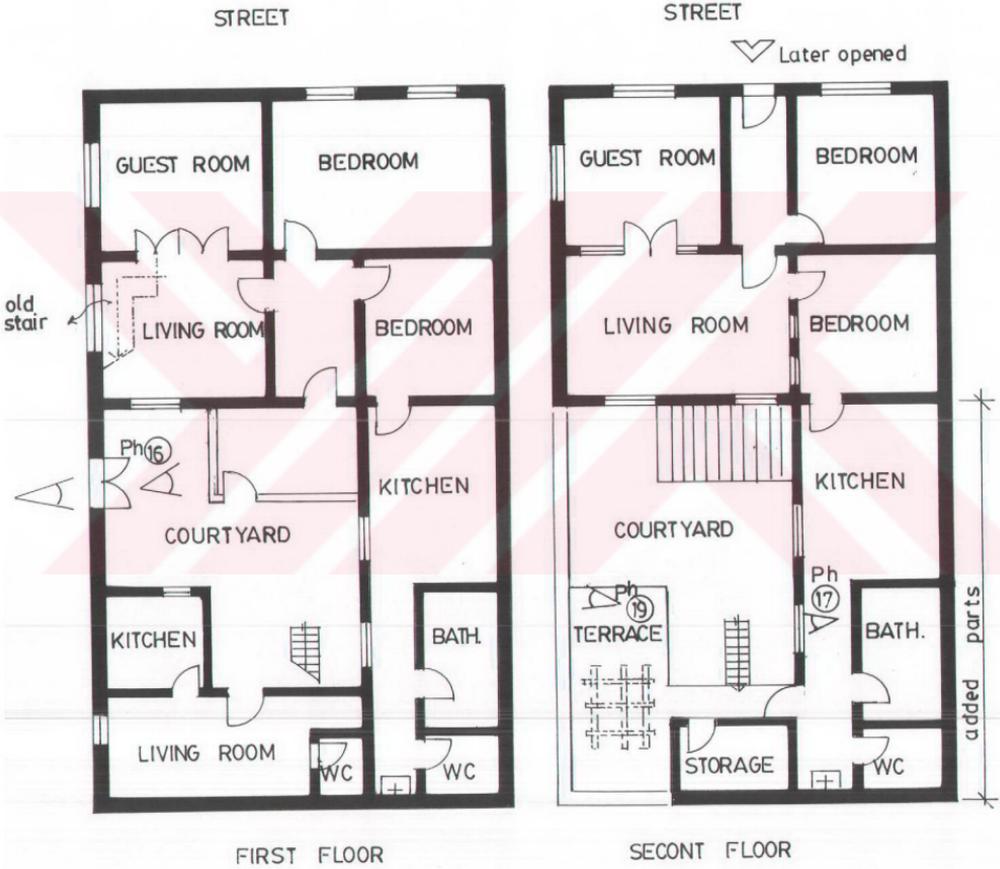
STREET
old
stair

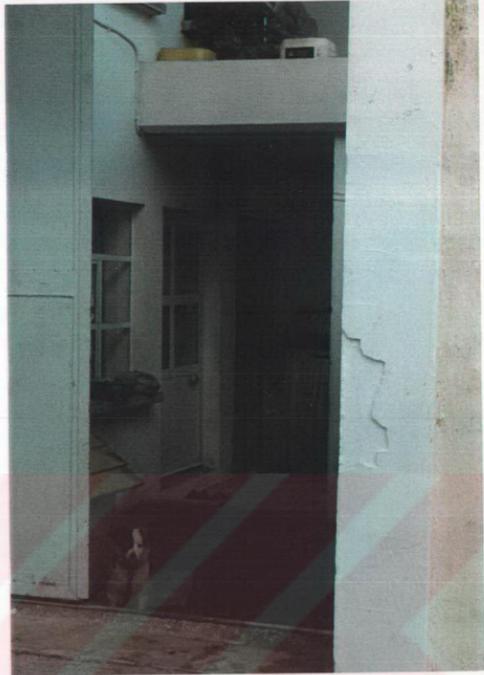


GROUND FLOOR

STREET

Typological Analyses of Houses - Muğla	Concrete Level I	Abstract Level II
Karamahmet Mahallesi	Muğla Type	Open-closed space Type
SAVRAN SOK. NO:1 İnanç Family	MG - A2	a _c +enclosed



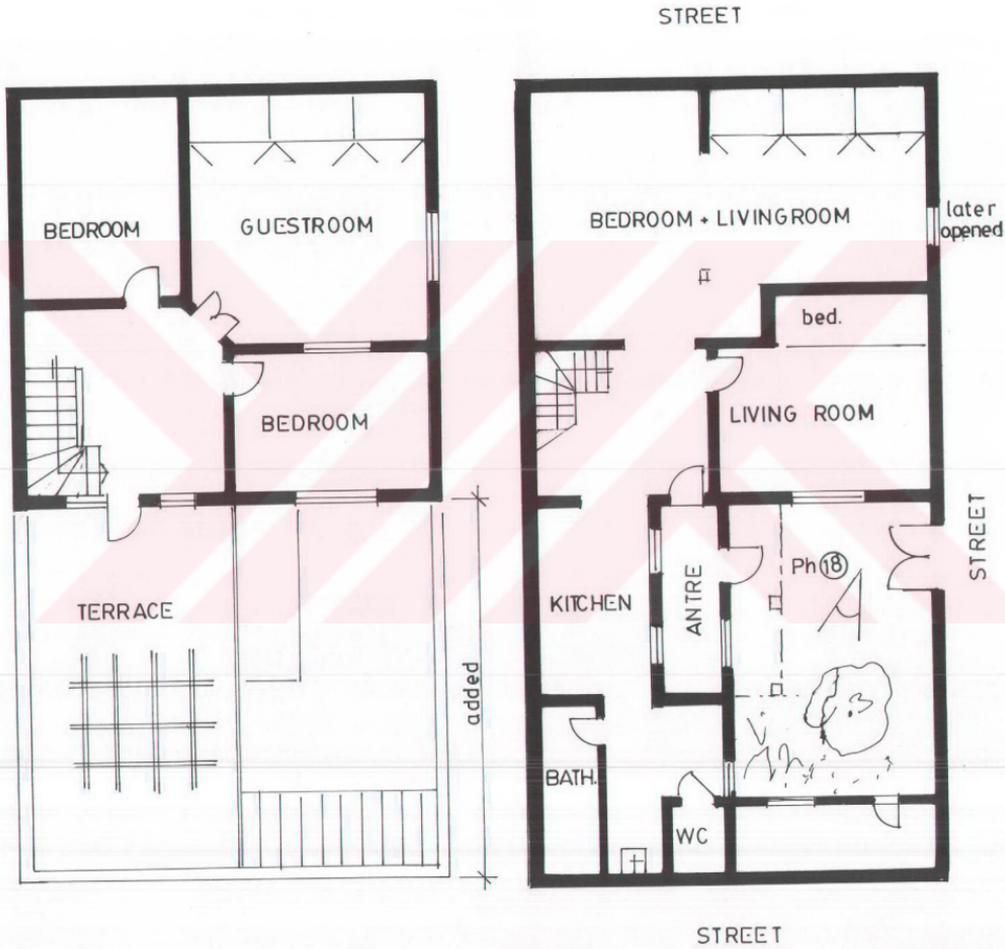


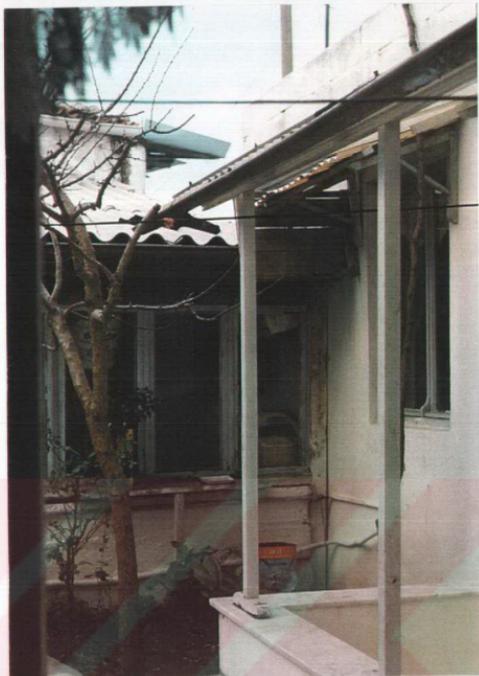
Photograph 16
Enclosing of Courtyard
Decrease of Open Space



Photograph 17 Usage of Flatroofs
as Open Space Unit
(Terraces)

Typological Analyses of Houses - Muğla	Concrete Level I	Abstract Level II
Karamehmet Mahallesi	Mugla Type	Open-closed space Type
SAVRAN SOK. / 32 AYTEN SAVRAN	MG_ A2	a_c -enclosed



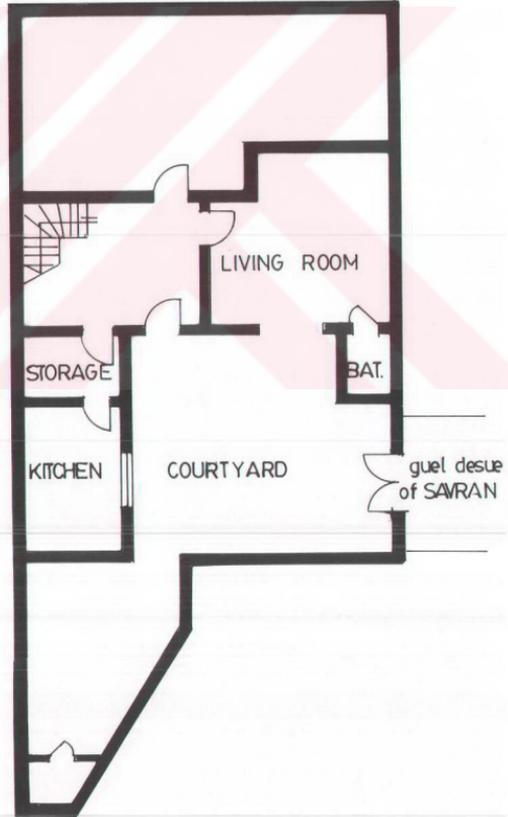


Photograph 18
Additions in Courtyard

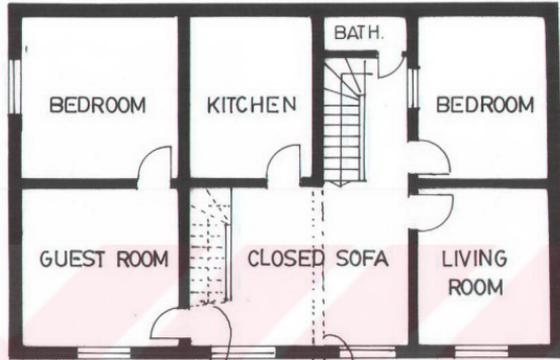


Photograph 19
Flat Roof Usage of Additions
with Pergola and Greenery

Typological Analyses of Houses - Muğla	Concrete Level I	Abstract Level II
Karamehmet Mahallesi	Muğla Type	Open-closed space Type
SAVRAN ÇIKMAZI / 30 Hüseyin Cankı	MG - A2	a _C



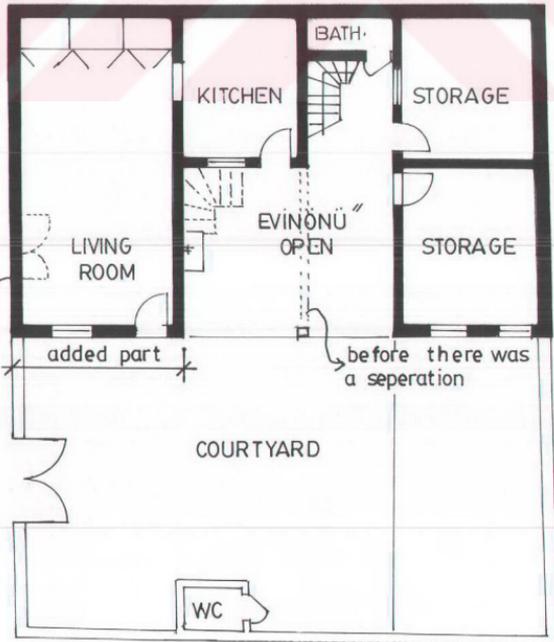
Typological Analyses of Houses -Muğla	Concrete Level I	Abstract Level II
Karamehmet Mah.	Muğla Type	Open-closed space Type
SAVRAN ÇIKMAZI /12 Raziye Dal	MG _B4	$b_c + a_c$



FIRST FLOOR

there was a stair

there was a separation



GROUND FLOOR

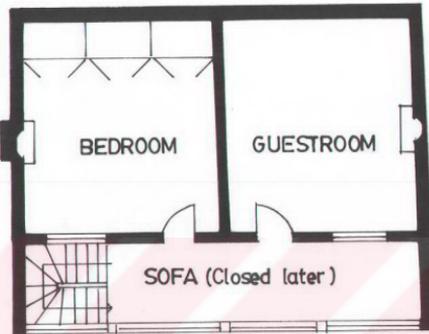
The entrance of the house before addition

added part

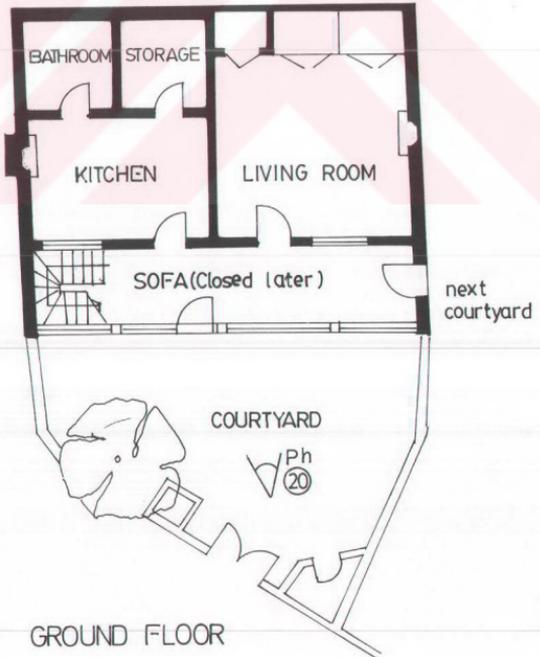
before there was a separation

added parts (couldn't entered)

Typological Analyses of Houses - Muğla	Concrete Level I	Abstract Level II
Karamehmet Mahallesi	Muğla Type	Open-closed space Type
SEKIBASI/28 Ha fize hn.	MG _ A1	α

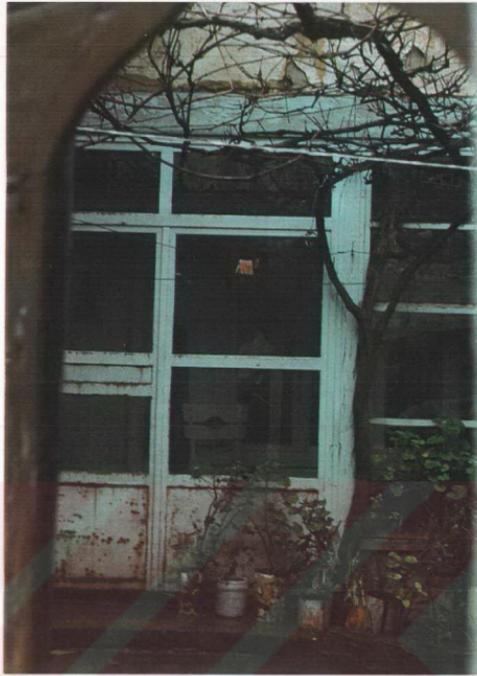


FIRST FLOOR



GROUND FLOOR

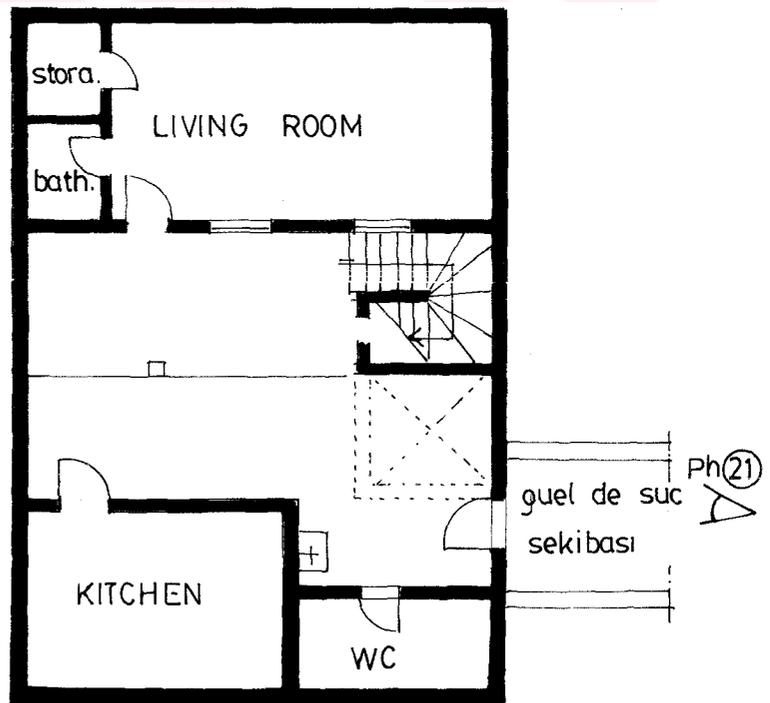
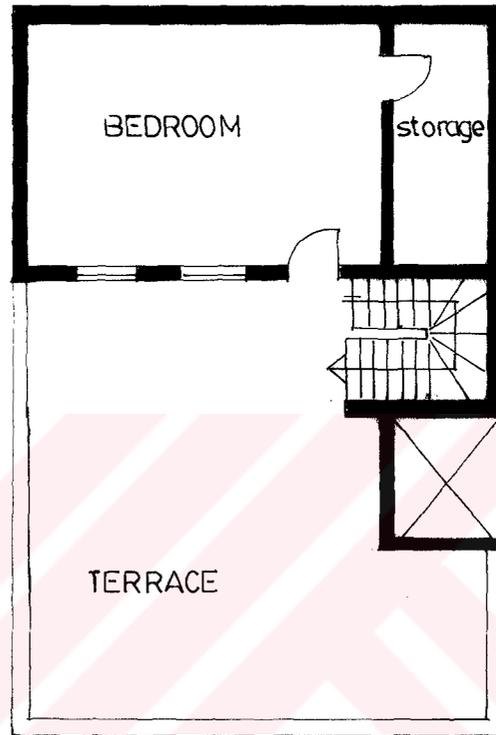
Photograph 20
Enclosed Open Sofa.
Type MĜ-A1



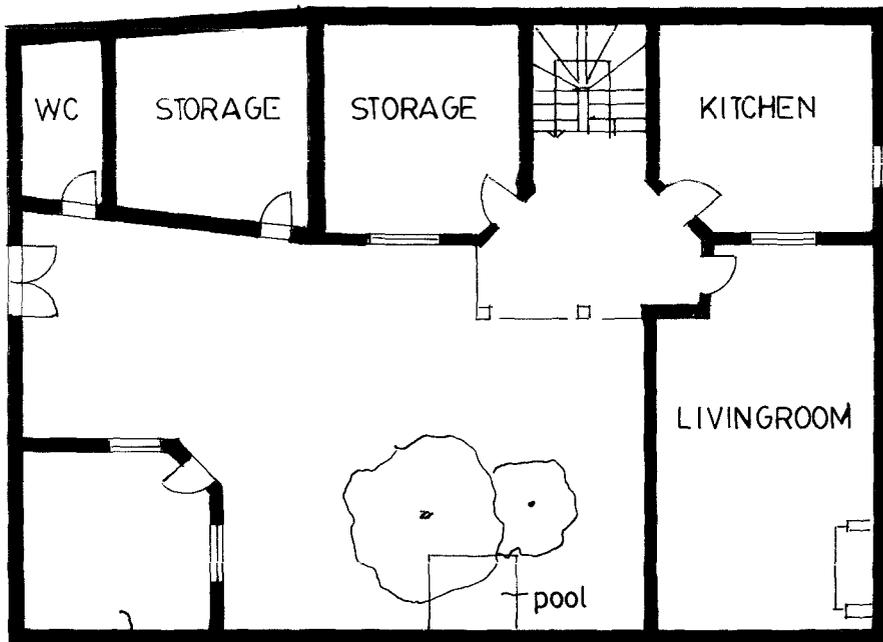
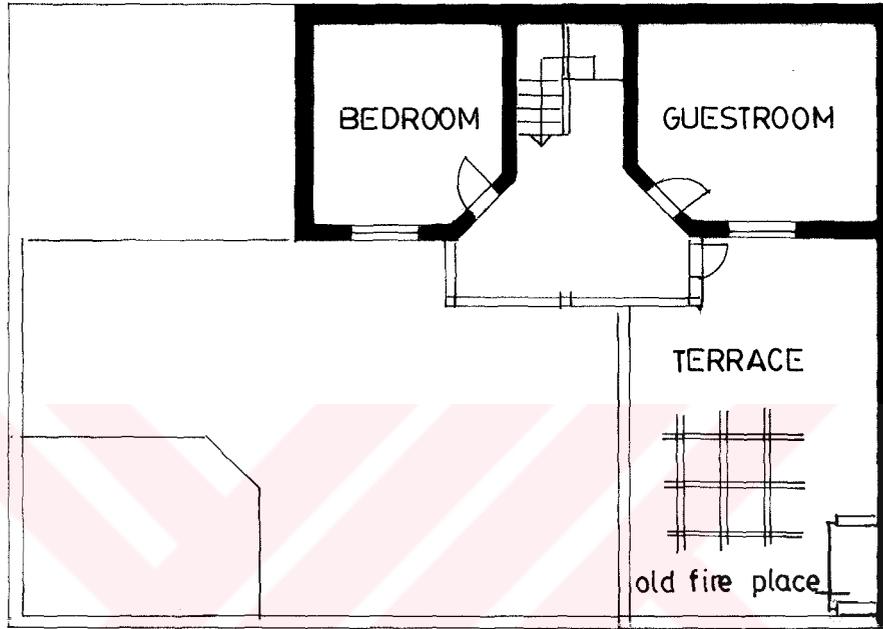
Photograph 21
Quel de Suc of Sekibaşı
with Courtyard Entrances



Typological Analyses of Houses - Muğla	Concrete Level I	Abstract Level II
Karamehmet Mahallesi	Muğla Type	Open-closed space Type
SEKİBAŞI ÇIKMAZI / 18 Ayşe Pekpak	MG_ A1	a _C



Typological Analyses of Houses - Muğla	Concrete Level I	Abstract Level II
Karamehmet Mahallesi	Muğla Type	Open-closed space Type
DAĞLILAR ST./3 Nilgün Dindoruk	MG _B2	$b_c + a_c$

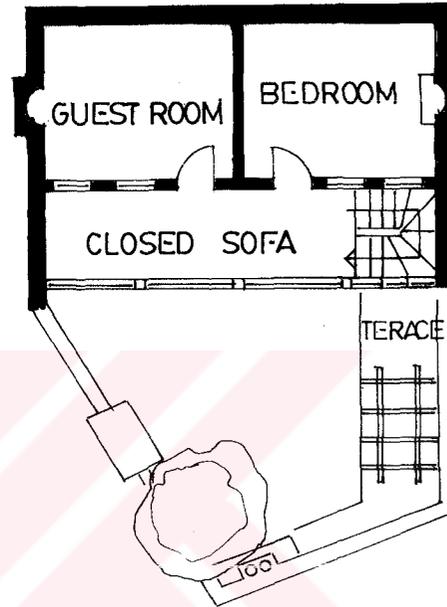
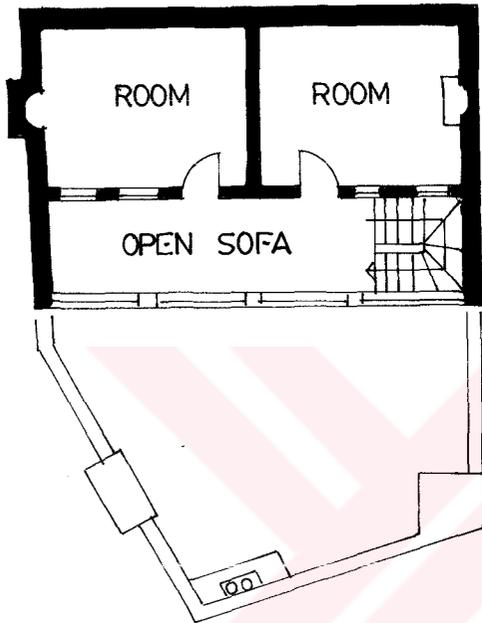


House for a parents

Typological Analyses of Houses -Muğla	Concrete Level I	Abstract Level II
Karamehmet Mah.	Muğla Type	Open-closed space Type
DAGLILAR /12	MG - A1	a1

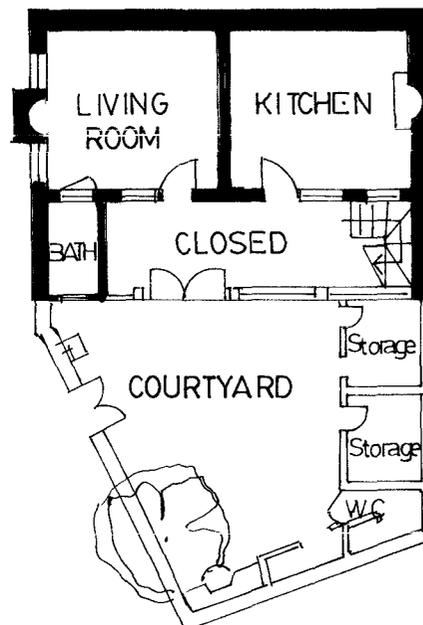
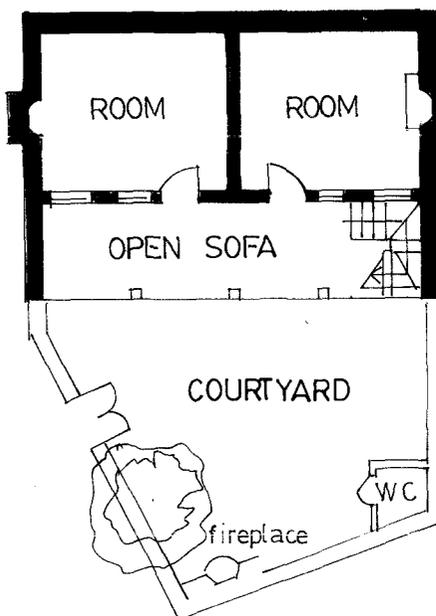
BEFORE

AFTER



FIRST FLOOR

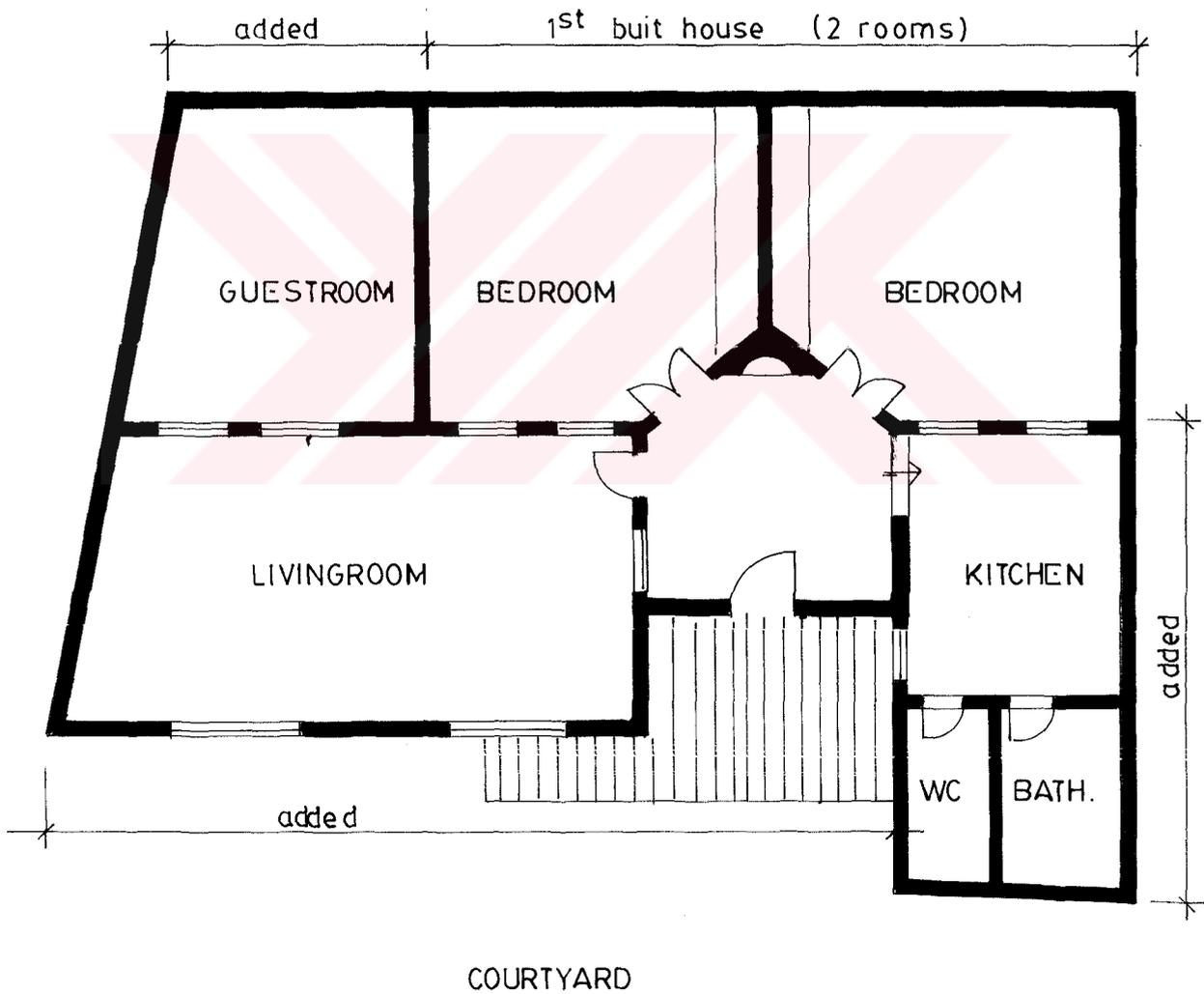
FIRST FLOOR



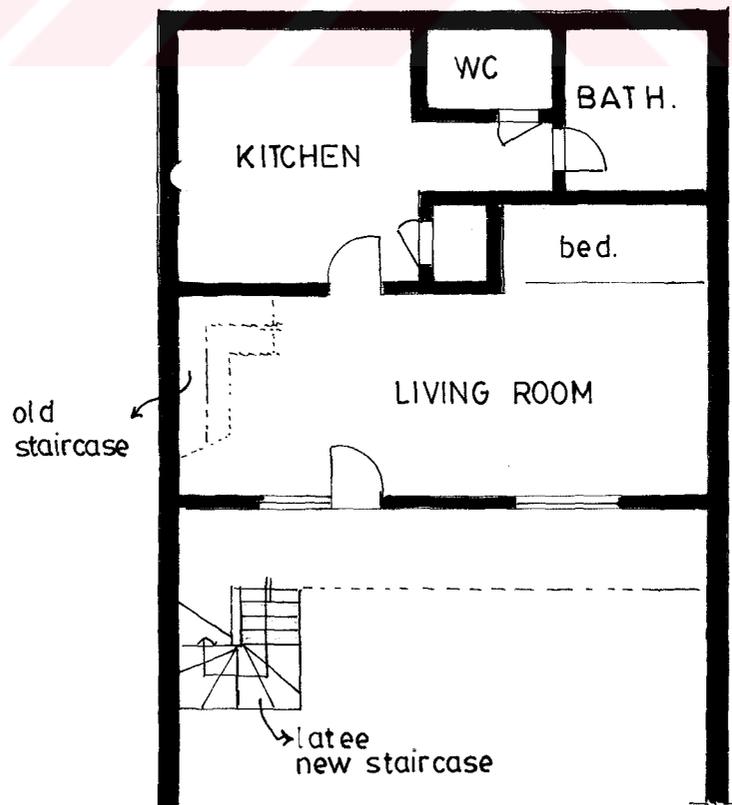
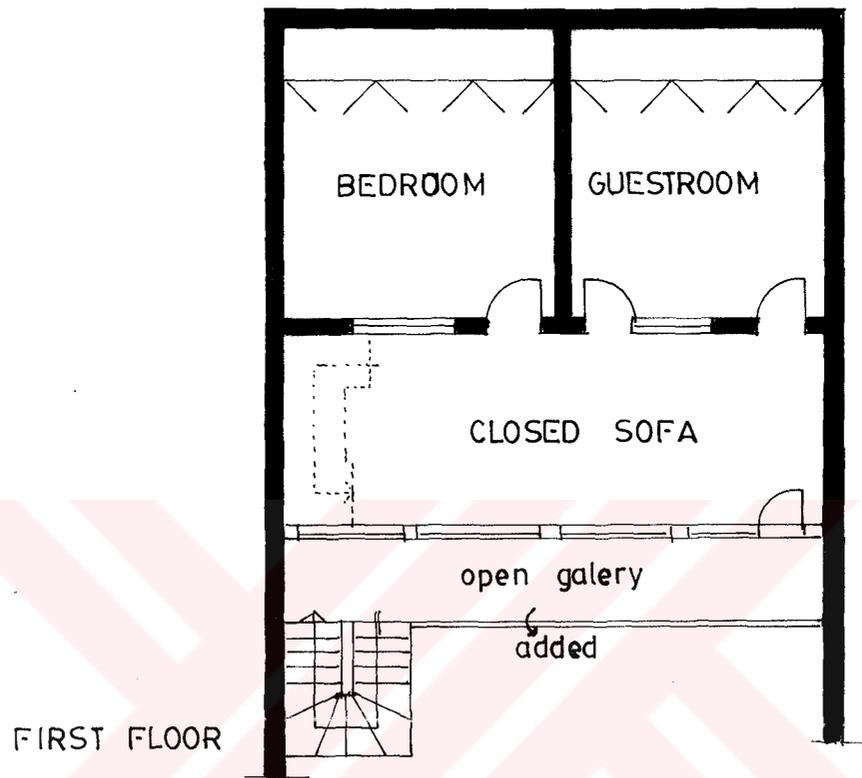
GROUND FLOOR

GROUND FLOOR

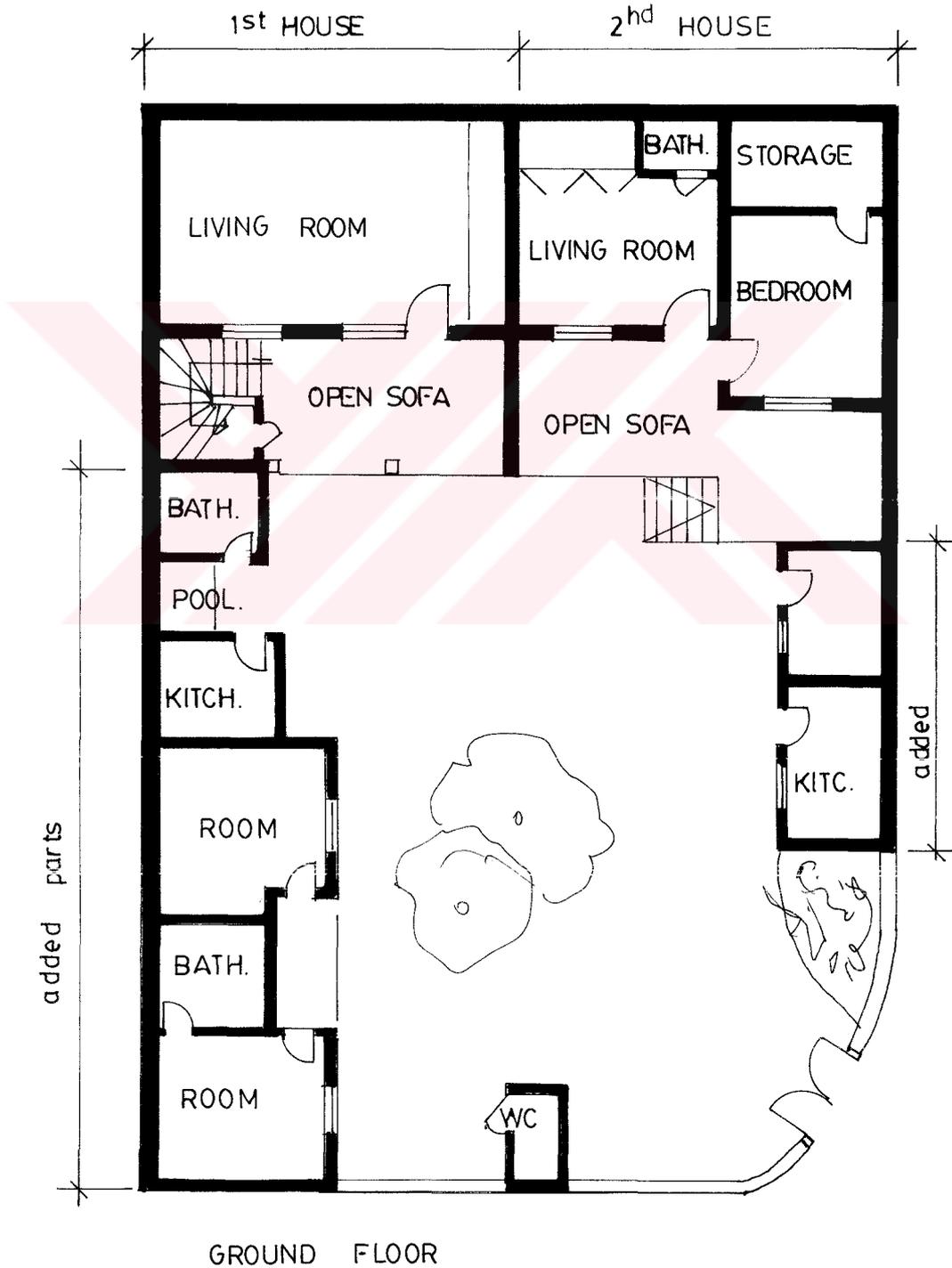
Typological Analyses of Houses - Muğla	Concrete Level I	Abstract Level II
Karamehmet Mahallesi	Muğla Type	Open-closed space Type
DAĞLILAR 14 Erhan Çulha	MG-B1	$b_c + a_c$



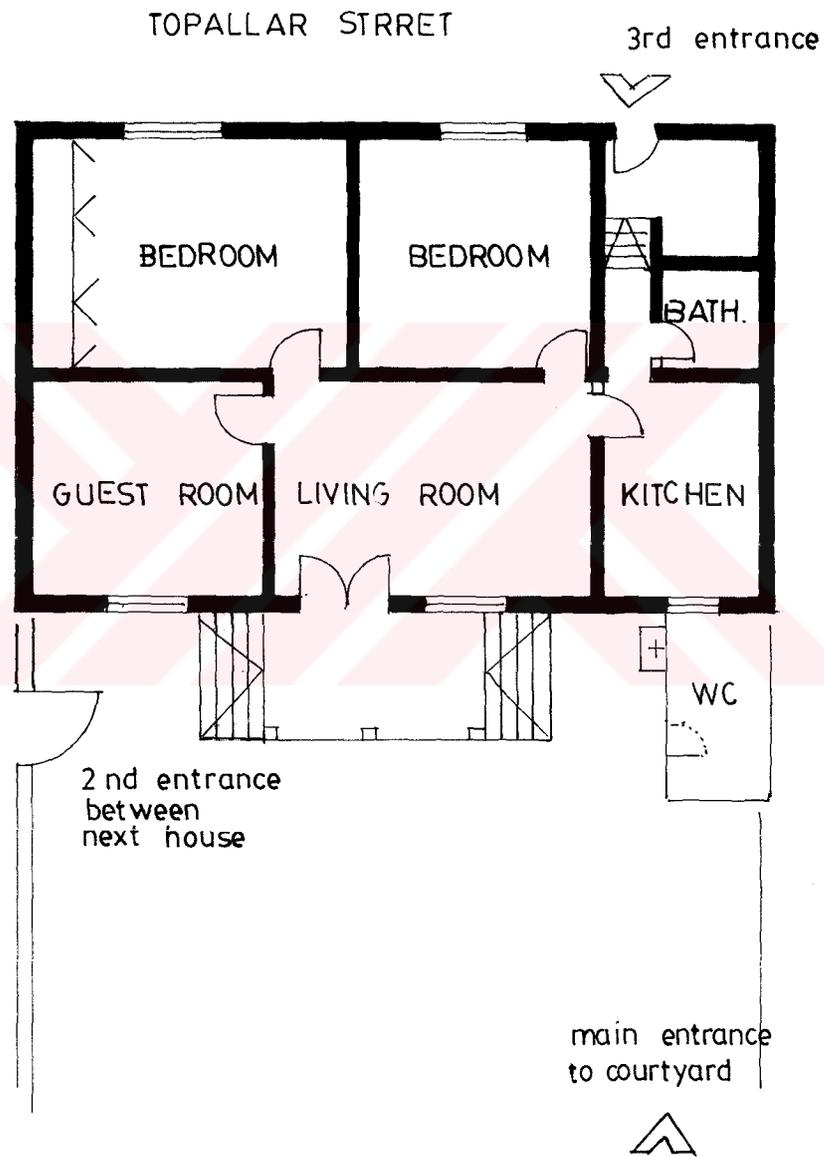
Typological Analyses of Houses - Muğla	Concrete Level I	Abstract Level II
Karamehmet Mahallesi	Muğla Type	Open-closed space Type
DAĞLILAR 16 Halil İbrahim Pamuk	MG _ A1	a ₁



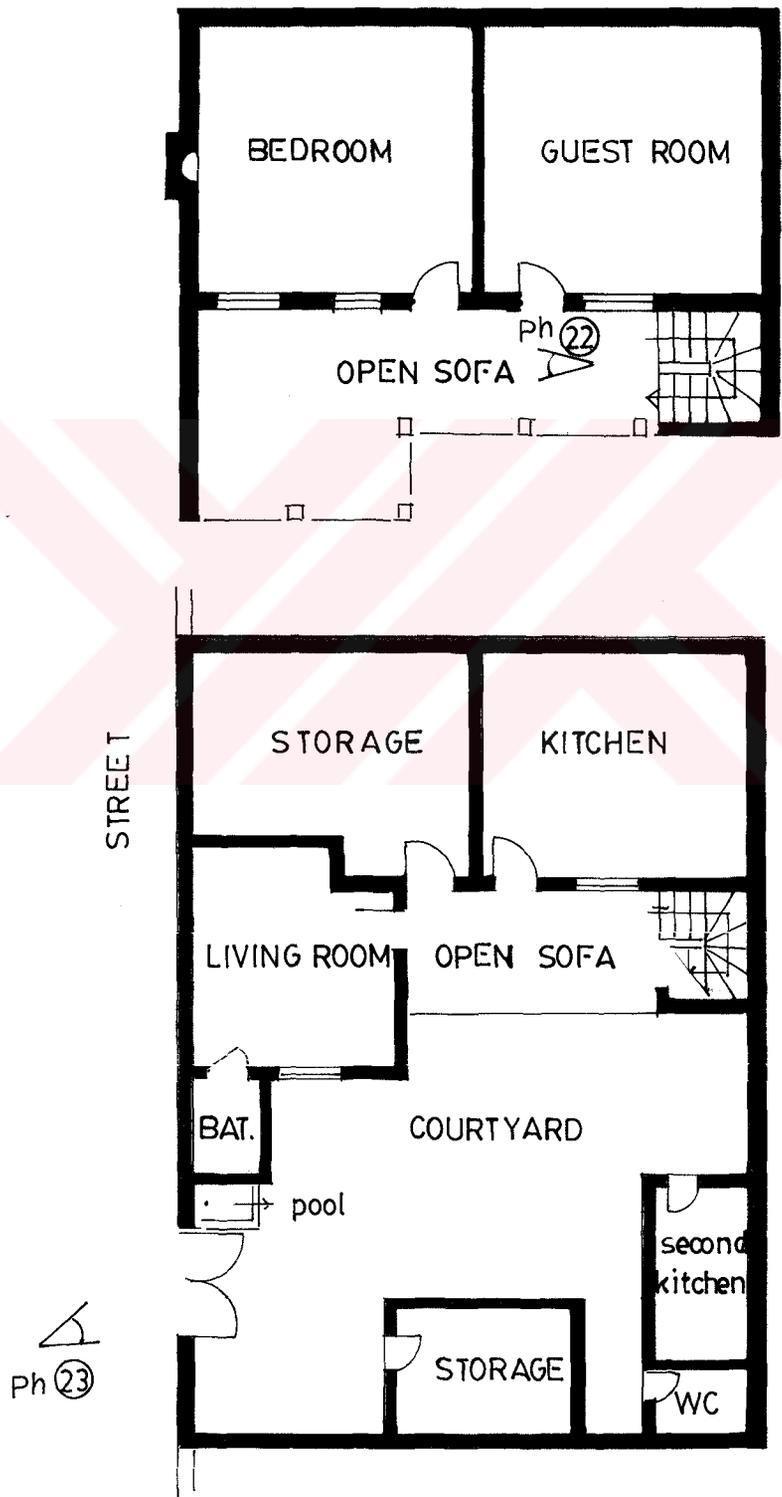
Typological Analyses of Houses - Muğla	Concrete Level I	Abstract Level II
Karamehmet Mahallesi	Muğla Type	Open-closed space Type
TOPALLAR /13 Hatun Yağlı	M6_A1	$a_c + a_c$



Typological Analyses of Houses - Muğla	Concrete Level I	Abstract Level II
Karamehmet Mahallesi	Muğla Type	Open-closed space Type
TOPALLAR ST/5 Osman Özen	MG_A1	$a_l + a_c$



Typological Analyses of Houses - Muğla	Concrete Level I	Abstract Level II
Karamehmet Mahallesi	Mugla Type	Open-closed space Type
ÇATALLAR 4 Kamil Siner	MG_ A1	$a_1 + a_c$





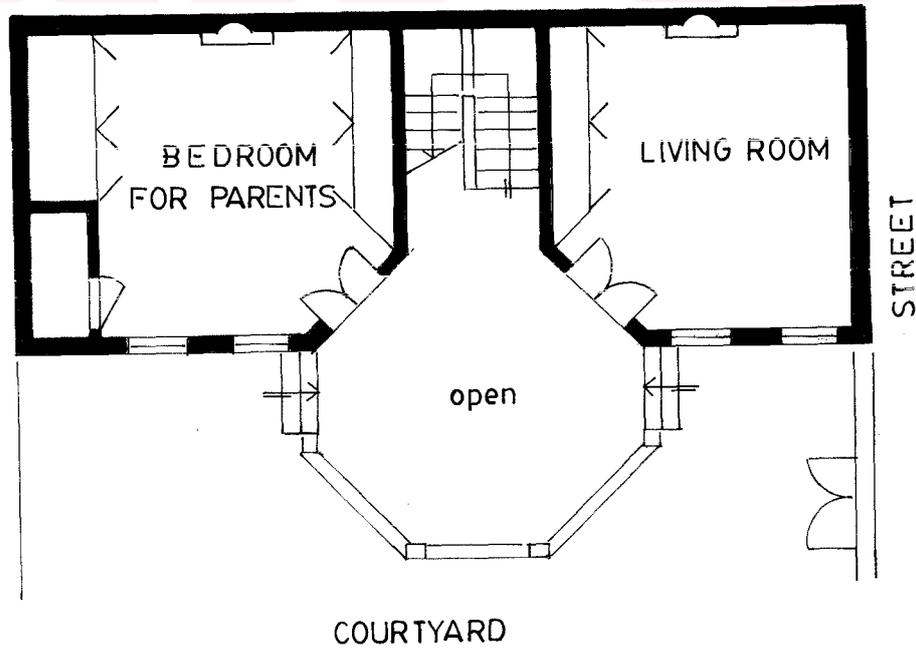
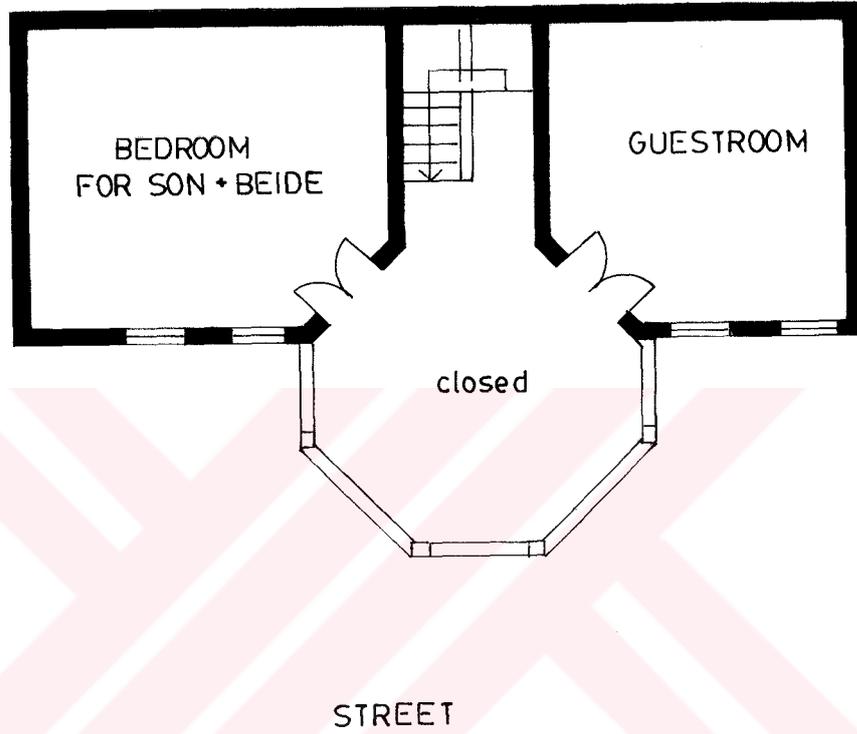
Photograph 22 Enclosing with Wooden Fences in Winter



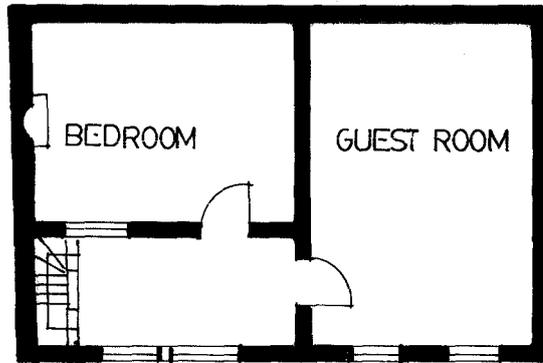
Photograph 23 The Open Sofa.

Type MG-A1

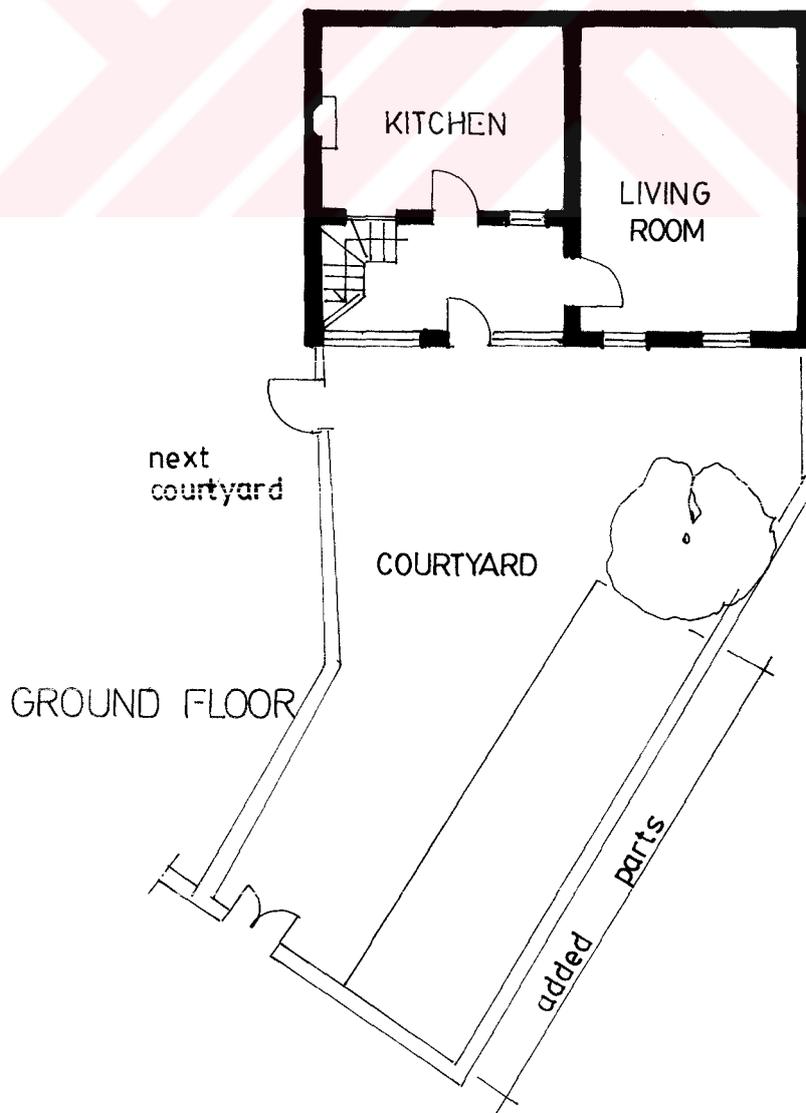
Typological Analyses of Houses - Muğla	Concrete Level I	Abstract Level II
Karamehmet Mahallesi	Muğla Type	Open-closed space Type
ÇATALLAR/17 Ali Şen	MG - B3	b _c



Typological Analyses of Houses - Muğla	Concrete Level I	Abstract Level II
Karamehmet Mah.	Muğla Type	Open-closed space Type
SEKIBASI 28/11	MG - A2	d _c



FIRST FLOOR



GROUND FLOOR

Photograph 24
The Entrance of House No.3
Quel de Suc of Sekibaşı



Photograph 25
Type MG-3 (Enclosed Unity)



3.3 The Original Typological Model of the Thesis Based on Plan Structures in Güzeltepe : Concrete Level II

The Typological Model of the Thesis has been secondly tested in a squatter settlement, which is also one of today's housing patterns. Güzeltepe-Çiğli site has been chosen for testing the model. The site has been defined in detail in Chapter IV, with data analyses of Questionnaire. The Abstract Level I has been used for understanding, the configuration and formation of plan types and housing patterns of site with relation to open space.

The plan type changes in time have also seen in this site. They are also formed by an *additive process*. The differentiation of types could be realized by subtraction and using Abstract Level I. These types are concretized and presented as **Concrete Level II**, The Original Typological Model of Thesis Based on Plan Structures in Güzeltepe, (Table 3.6). The types of Güzeltepe could be listed, such as:

Type GZLT-A1: This *an adjacent cyclic type* with a closed unit and an open unit .

- The open adjacent unit closed and two closed units with a transition between and one main entrance is formed. This new formation is an enclosed unity.
- Then a new adjacent cyclic closed unit is added to form the unity with of three units.
- With one more adjacent cyclic addition the system is *enclosed*.
- Divisions of enclosed units are started.
- New cyclic formations with new open space units are probable.
- Type GZLT-A2:** This *an adjacent cyclic type* with three closed units and an open unit.

•The earlier forms of this type are similar to **GZLT-A1** The open adjacent unit closed and two closed units with a transition between and one main entrance is formed. This new formation is an enclosed unity.

• With an addition of adjacent cyclic unit at side, *an enclosed unity of three units* is formed. They have two transitions between and one main entrance to open space.

- This form affects the later formation of types. The system is get enclosed after having addition of six units.

Type GZLT-B1: This is *the between cyclic type*, which has two closed units located in between position.

- Addition of a cyclic unit at back with a door opening from open space which they used all together.

- Enclosed unity with closing open space with a last wall.

- New open-closed space formations are probable with an enclosed entity of four closed units

Type GZLT-B2: This is *the between cyclic type*, which has also two closed units located in between position but its between open space is closed at sides.

- The open space in between later closed . As people have stated in the original form of this type in East, this open space has an opening on top which is called '*tütelik*' They have also named this open space with side walls between two closed units as '*havlu*' in their hometown. This type also has one main entrance to the house.

- The formation of this type has continued with an addition adjacent cyclic units at back or adjacent linear units at sides.

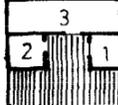
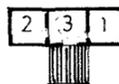
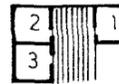
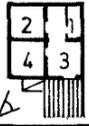
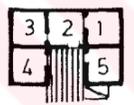
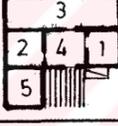
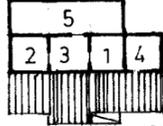
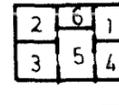
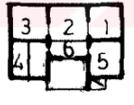
Type GZLT-B3: This type is also started with *a between cyclic* unity of two closed and one open space. The difference in this type is the growth of closed units. The additions of adjacent cyclic closed units are based on saving open space in between as open. At the last step they have closed this open space unit.

3.3.1. Data of Plan Schemata of Güzeltepe-Çiğli Site

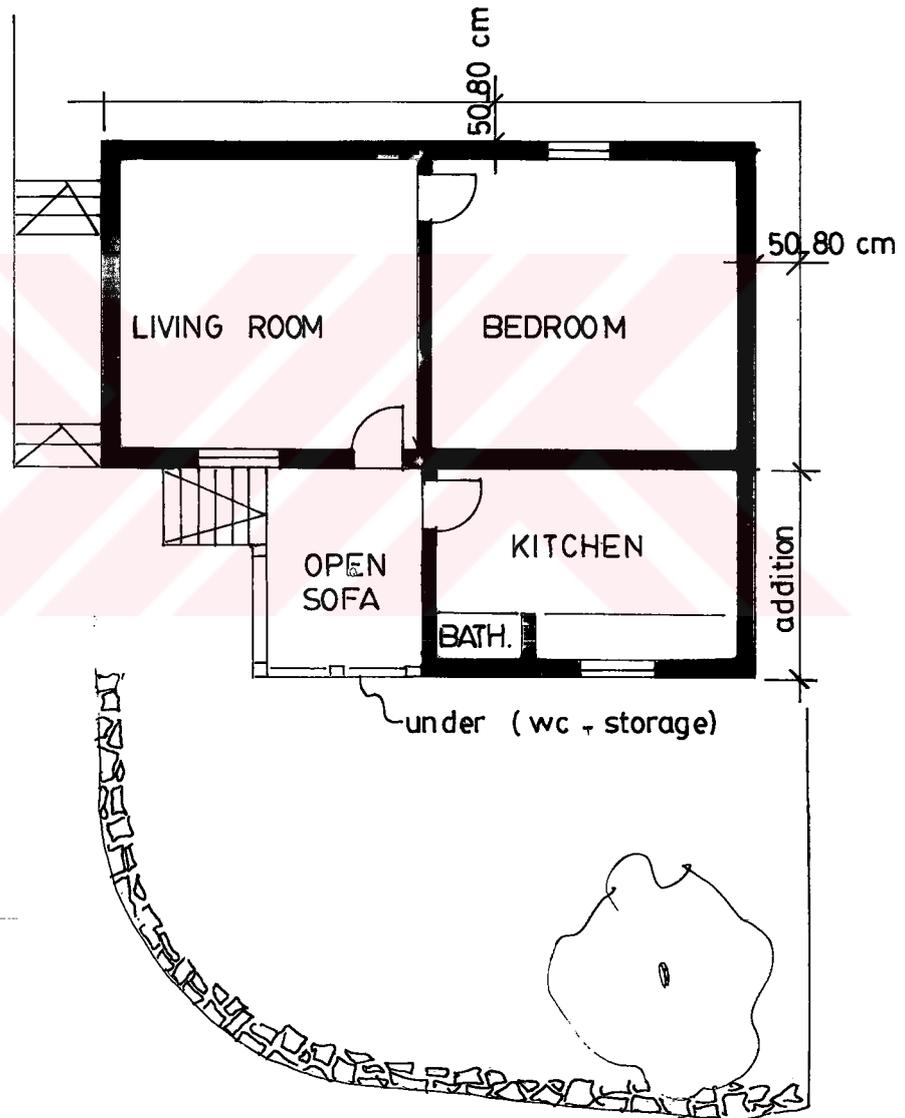
These concrete types of Güzzeltepe-Çiğli are defined by using the Typological Model of the thesis. These types are referred and limited with analyses of 40 house in site. The houses of other squatter settlements could be analyzed and their similarities and differences could be compared with generalizations of Concrete Level II. The plan schemata of houses which Concrete Level II has been based on are presented after (Table 3.6).

TABLE 3_6

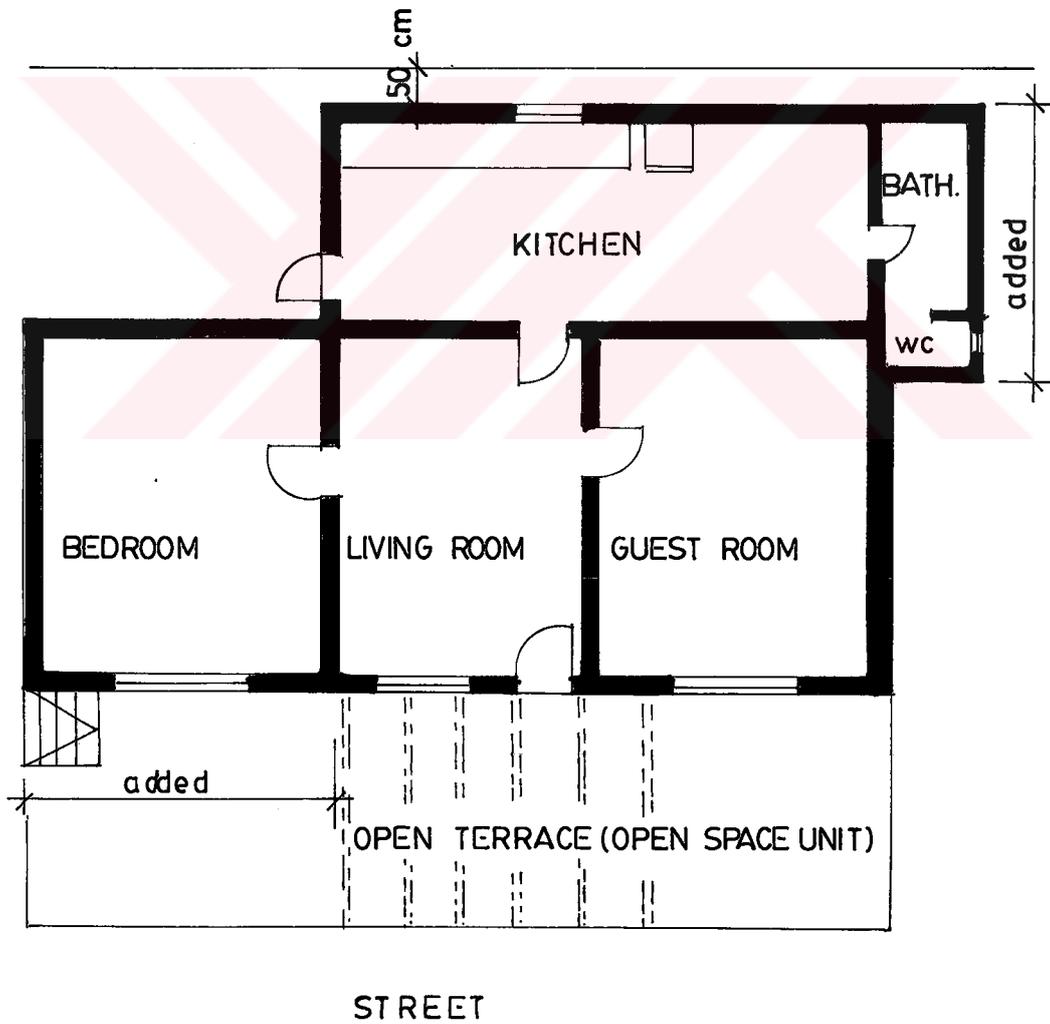
CONCRETE LEVEL II Construction of Plan Types Based on Open - Closed Unit Relation Güzeltepe- ÇİĞLİ CASE

RELATION			ADJACENT				BETWEEN					
TYPE			GZLT - A1		GZLT - A2		GZLT - B1		GZLT - B2		GZLT - B3	
Floors			Ground	First	Ground	First	Ground	First	Ground	First	Ground	First
Process	Arch. Unit	Unit Ratio										
ADDITIVE SUBSTRUCTIVE variation of the type with division	1	1/1										
	2	1/1										
	3	1/1										
	4	1/1										
	5	1/1										
	6	1/1										
												
												
												

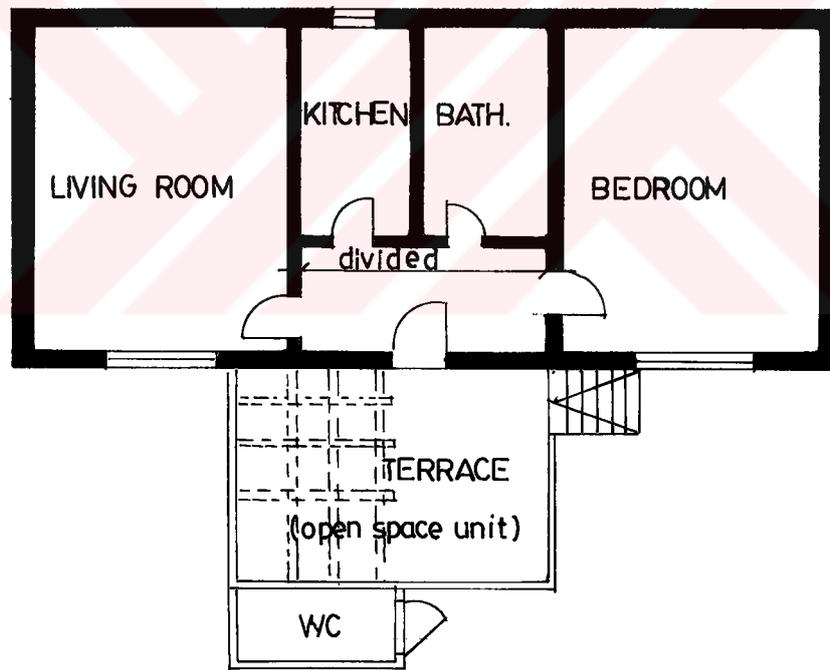
Typological Analyses of Houses -Güzeltepe	Concrete Level II	Abstract Level II
Güzeltepe Mah.-Çiğli	Güzeltepe Type	Open-closed space Type
8156 st.no:178 Nuray Aktas	GZTL A1	$2a_c + 1a_c$



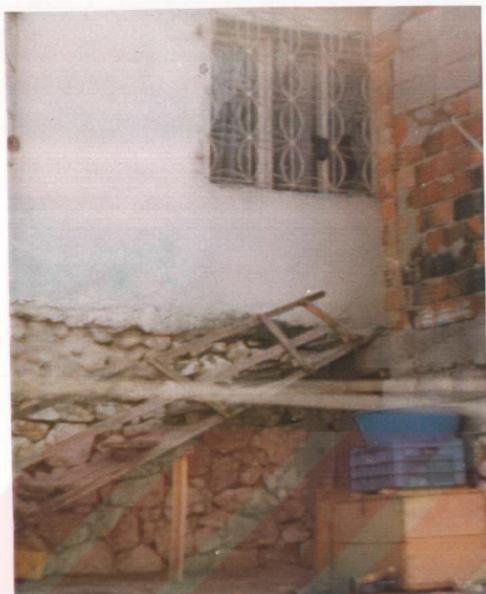
Typological Analyses of Houses -Güzeltepe	Concrete Level II	Abstract Level II
Güzeltepe Mah.-Çiğli	Güzeltepe Type	Open-closed space Type
8156 st. no:172 Necati Gülyüz	GZTL B 1	2B +1c



Typological Analyses of Houses -Güzeltepe	Concrete Level II	Abstract Level II
Güzeltepe Mah.-Çiğli	Güzeltepe Type	Open-closed space Type
8156 st. no.146 Tacettin Bulut	GZTL A2	3A _C



Ph No. 26

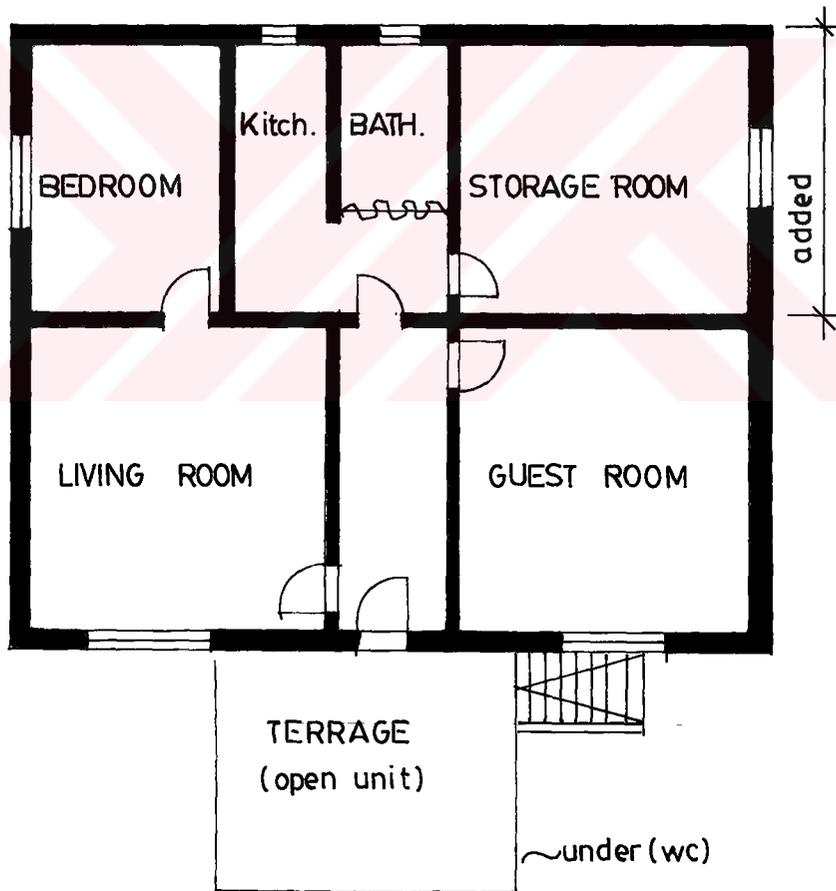


Photograph 27 Stair from Open Unit

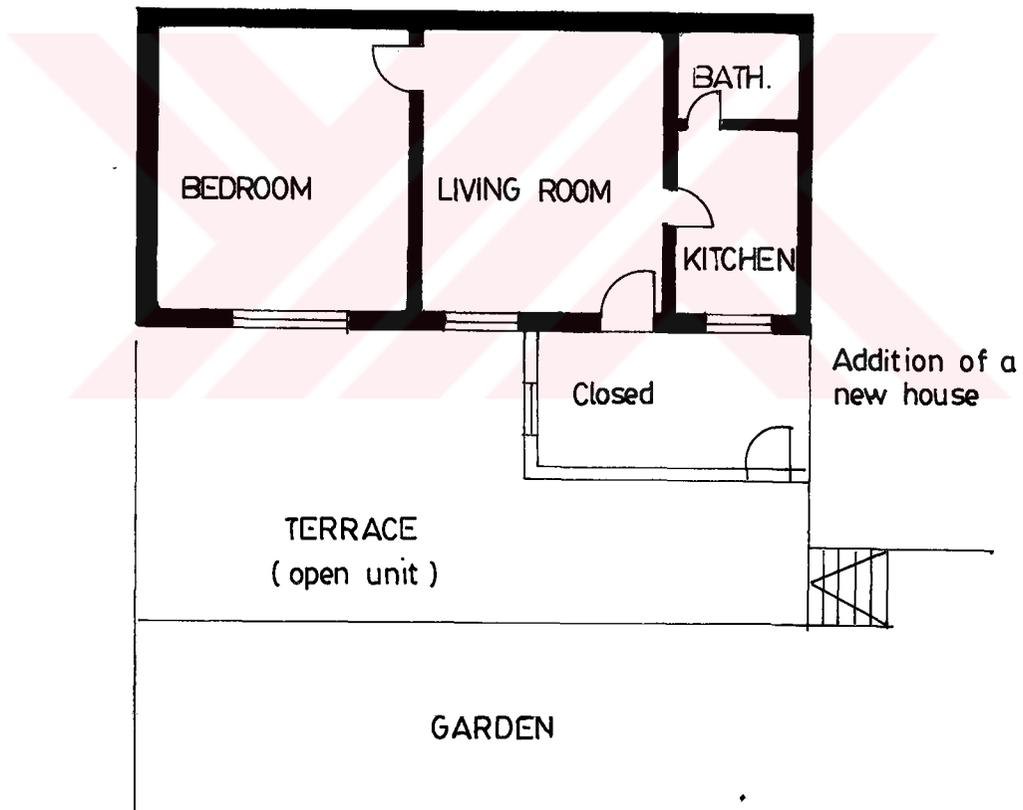


Photograph 26 Terrace of House with Pergola.
Storage and WC at Basement

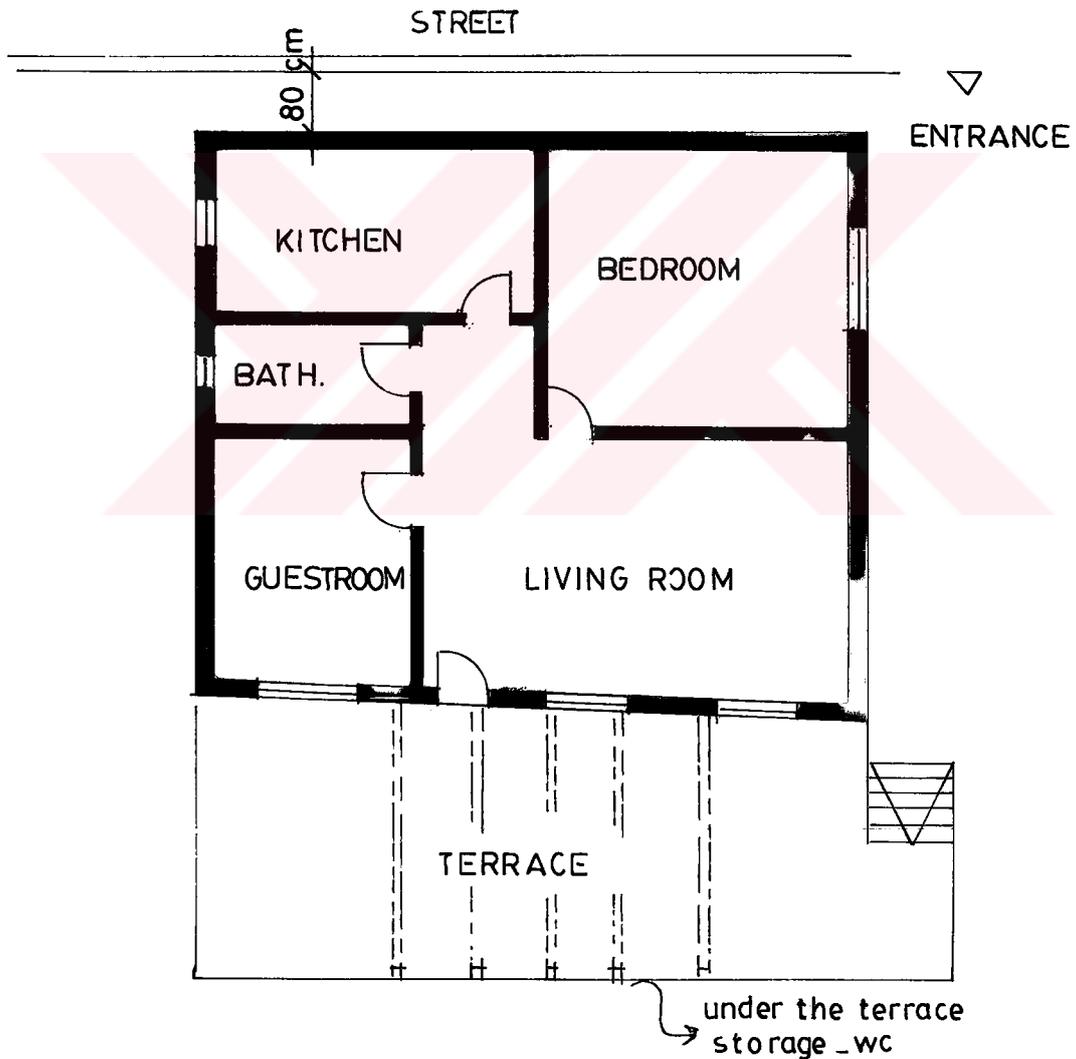
Typological Analyses of Houses -Güzeltepe	Concrete Level II	Abstract Level II
Güzeltepe Mah.-Çiğli	Güzeltepe Type	Open-closed space Type
8156 st.no:170 Yeter Tanık	GZTL A 1	enclosed(division)



Typological Analyses of Houses -Güzeltepe	Concrete Level II	Abstract Level II
Güzeltepe Mah.-Çiğli	Güzeltepe Type	Open-closed space Type
8156 st.no:162 Meliha Yıldız	GZTL A2	2ac division



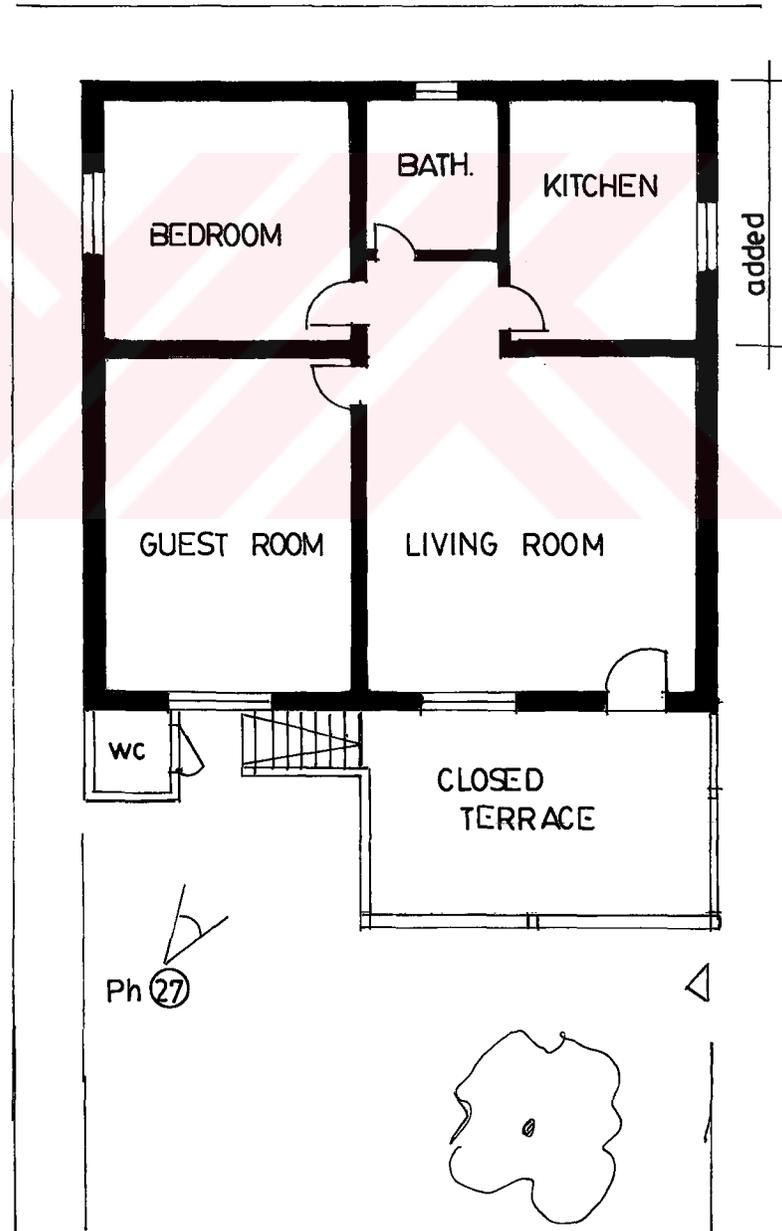
Typological Analyses of Houses -Güzeltepe	Concrete Level II	Abstract Level II
Güzeltepe Mah.-Çiğli	Güzeltepe Type	Open-closed space Type
8414 st. no:71 Yasin Ağbulak	GZTL A1	



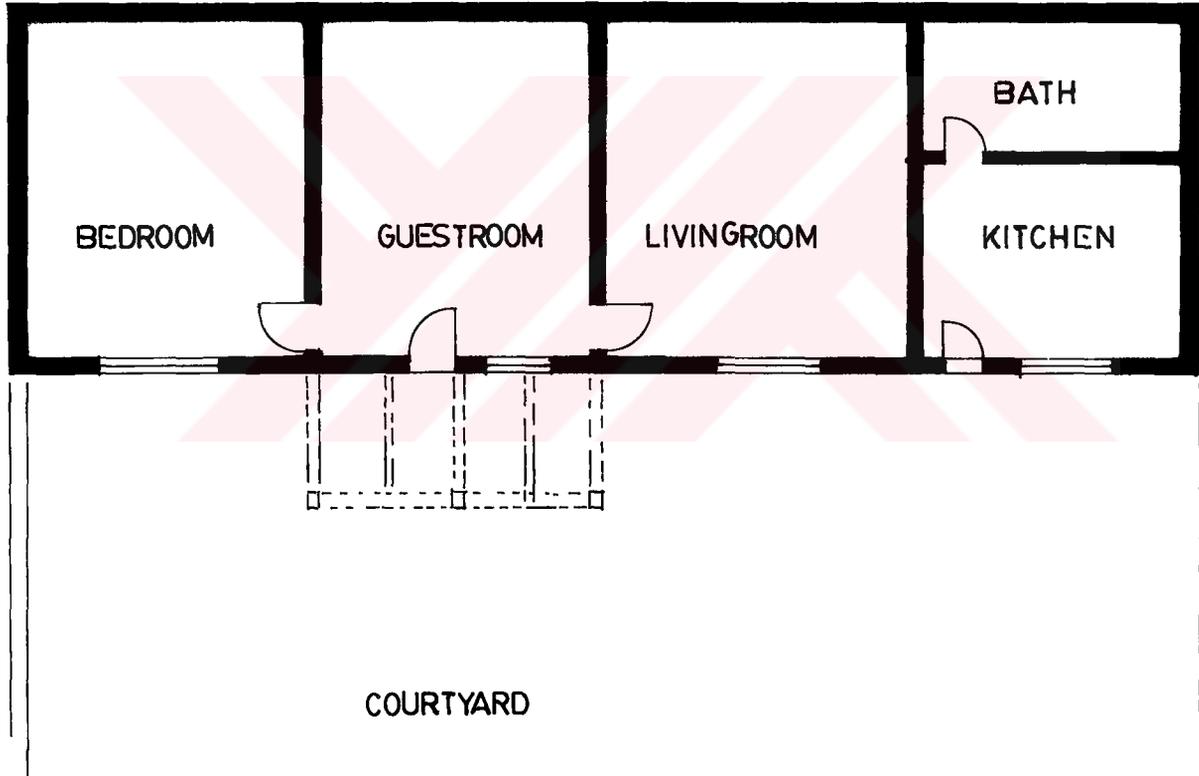
a new house for the son
is going to be constructed

GARDEN

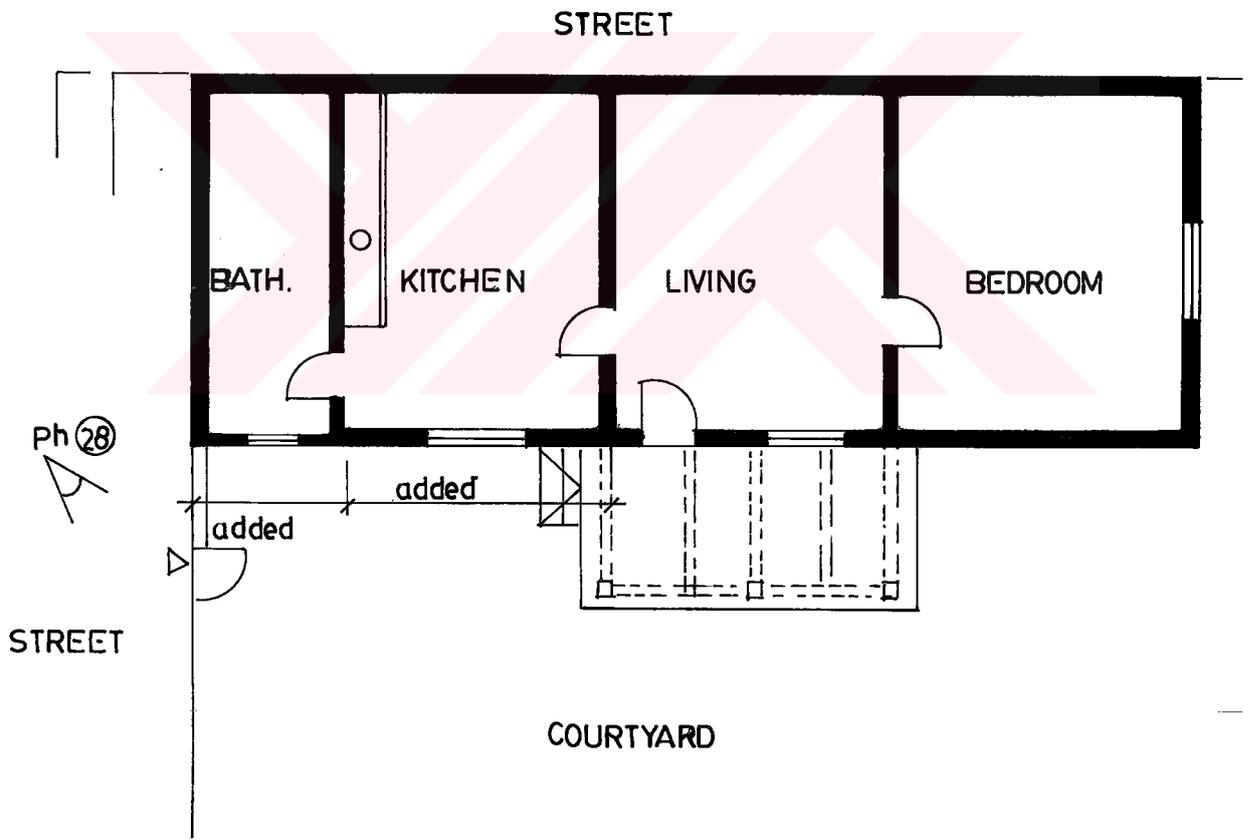
Typological Analyses of Houses -Güzeltepe	Concrete Level II	Abstract Level II
Güzeltepe Mah.-Çiğli	Güzeltepe Type	Open-closed space Type
8414 st.no:74/1 Binali Korkmaz	GZTL A1	enclosed (division)



Typological Analyses of Houses - Çiğli	Concrete Level I	Abstract Level II
Güzeltepe Mahallesi	Güzeltepe Type	Open-closed space Type
8414 st.no:73 Coşkun Doğal	GZTL B2	B + 2a ₁



Typological Analyses of Houses - Çiğli	Concrete Level I	Abstract Level II
Güzeltepe Mahallesi	Güzeltepe Type	Open-closed space Type
8414 st.no./73 Zekiye Kaplan	GZTL A2	3a _c division



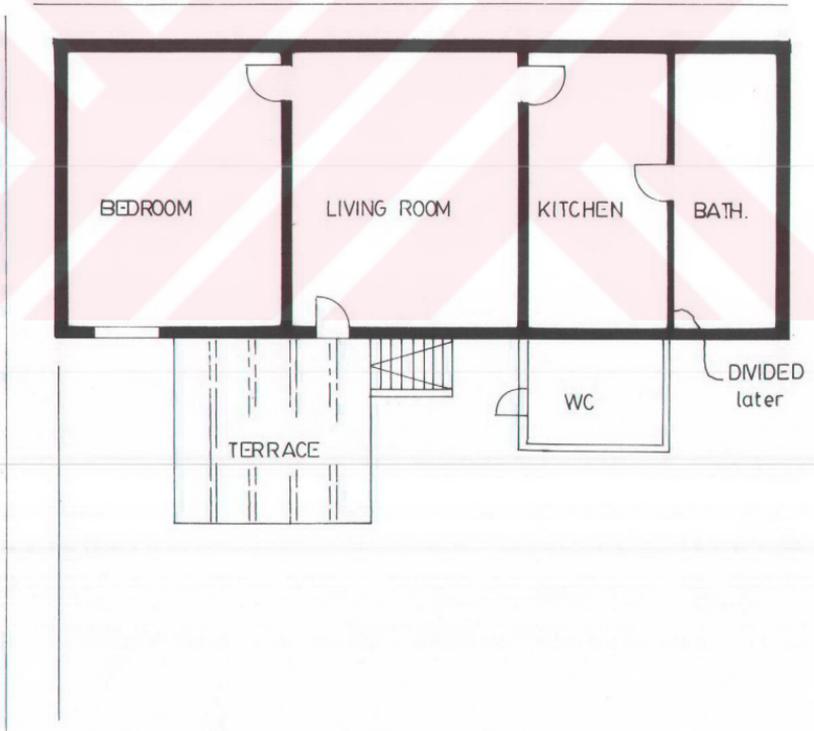
a new house for the son is going to be built

Photograph 28
House with Open Unit
and Enclosing with
Wooden Fences

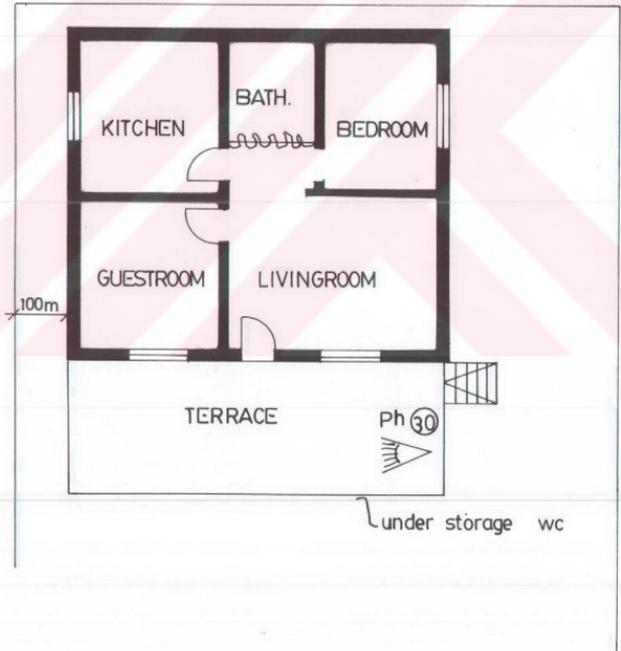


Photograph 29 Courtyard Walls with Non-permeable Elements

Typological Analyses of Houses -Güzeltepe	Concrete Level II	Abstract Level II
Güzeltepe Mah.-Çiğli	Güzeltepe Type	Open-closed space Type
8414 st. no:78 Yaşar Deniz	GZTL A2	3Ac division



Typological Analyses of Houses - Çiğli	Concrete Level I	Abstract Level II
Güzeltepe Mahallesi	Güzeltepe Type	Open-closed space Type
8424 st.no.37 Bedriye Topkaya	GZTL A1	enclosed (division)



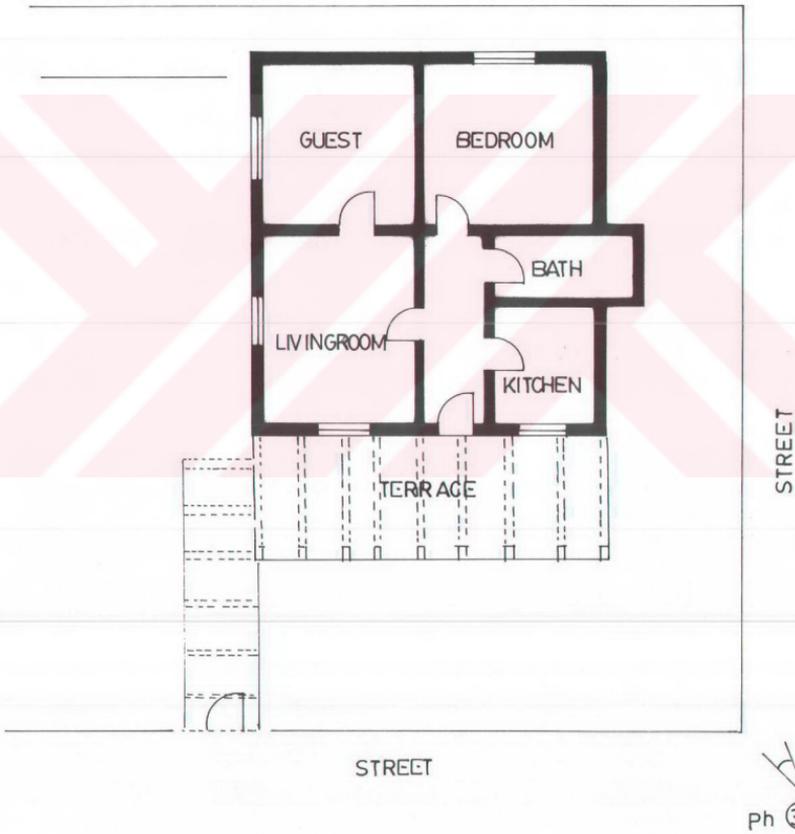


Photograph 30 Open Unit of House with Storage at the Basement

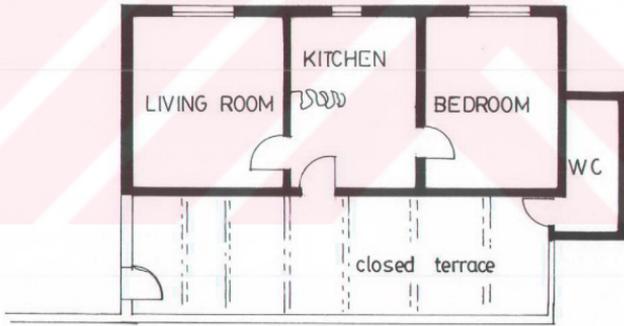


Photograph 31 Open Unit of House

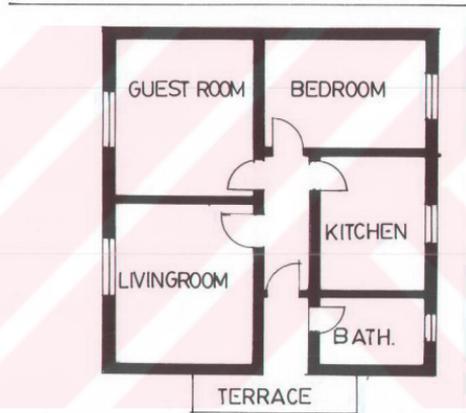
Typological Analyses of Houses - Çiğli	Concrete Level I	Abstract Level II
Güzeltepe Mahallesi	Güzeltepe Type	Open-closed space Type
8423 st.no:11 Sabire Ecel	GZTL A1	enclosed (division)



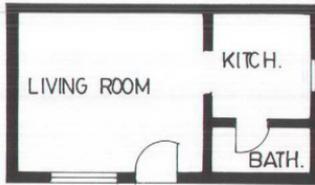
Typological Analyses of Houses -Güzeltepe	Concrete Level II	Abstract Level II
Güzeltepe Mah.-Çiğli	Güzeltepe Type	Open-closed space Type
8413 st.no:79 Saniye Altunbulak	GZTL B2	B + a _c



Typological Analyses of Houses -Güzeltepe	Concrete Level II	Abstract Level II
Güzeltepe Mah.-Çiğli	Güzeltepe Type	Open-closed space Type
8413 st.no:96 Gülbahar Güzel	GZTL A1	enclosed(division)

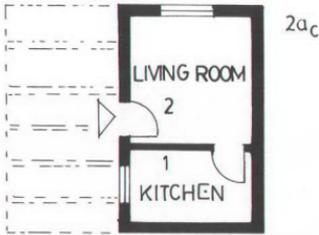


96/1 A1



HOUSE FOR PARENTS

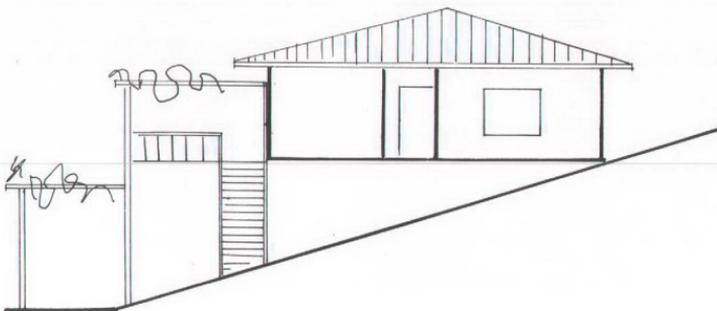
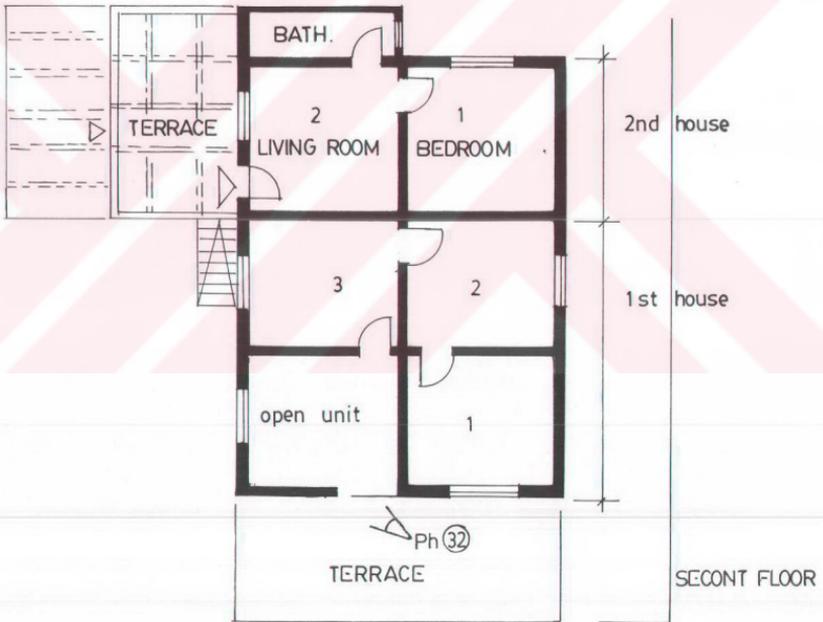
Typological Analyses of Houses -Güzeltepe	Concrete Level II	Abstract Level II
Güzeltepe Mah.-Çiğli	Güzeltepe Type	Open-closed space Type
8424 st.		2 l + 3ac



The house with three different entrances for three relatives

FIRST FLOOR

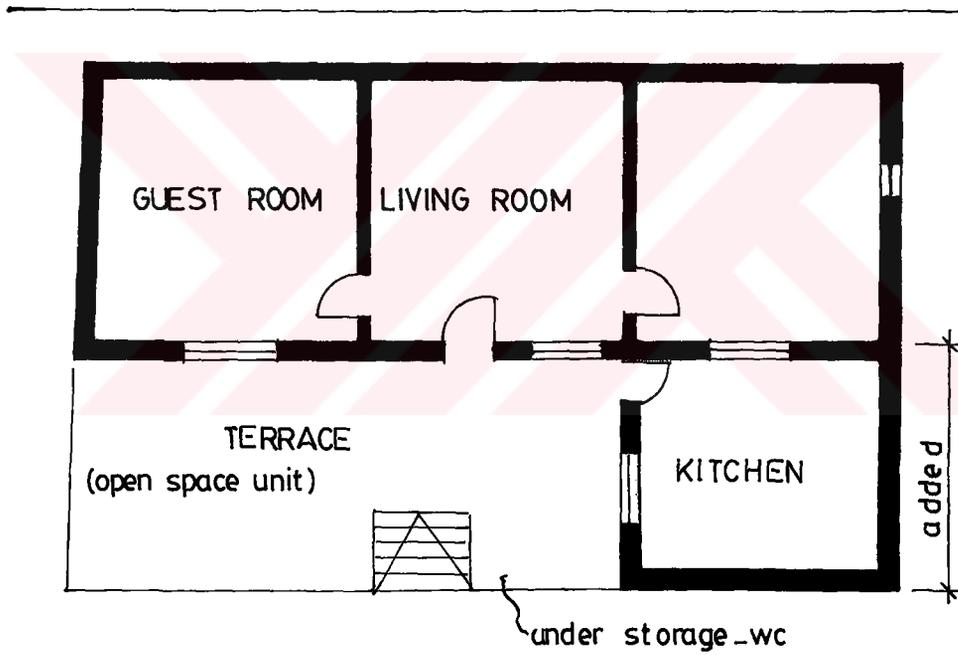
STREET



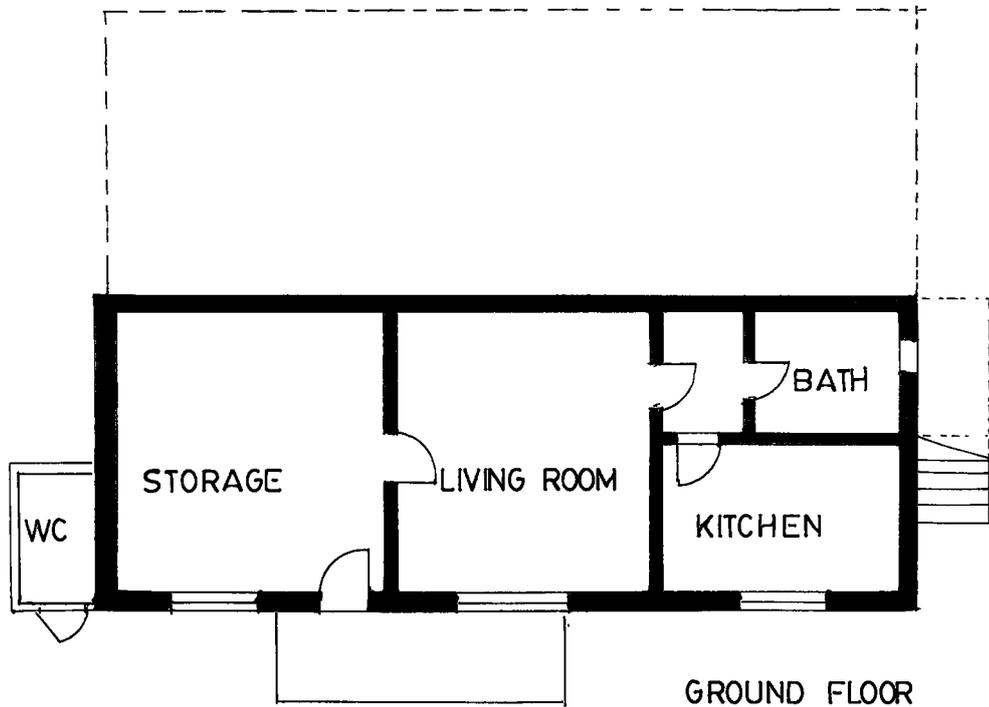
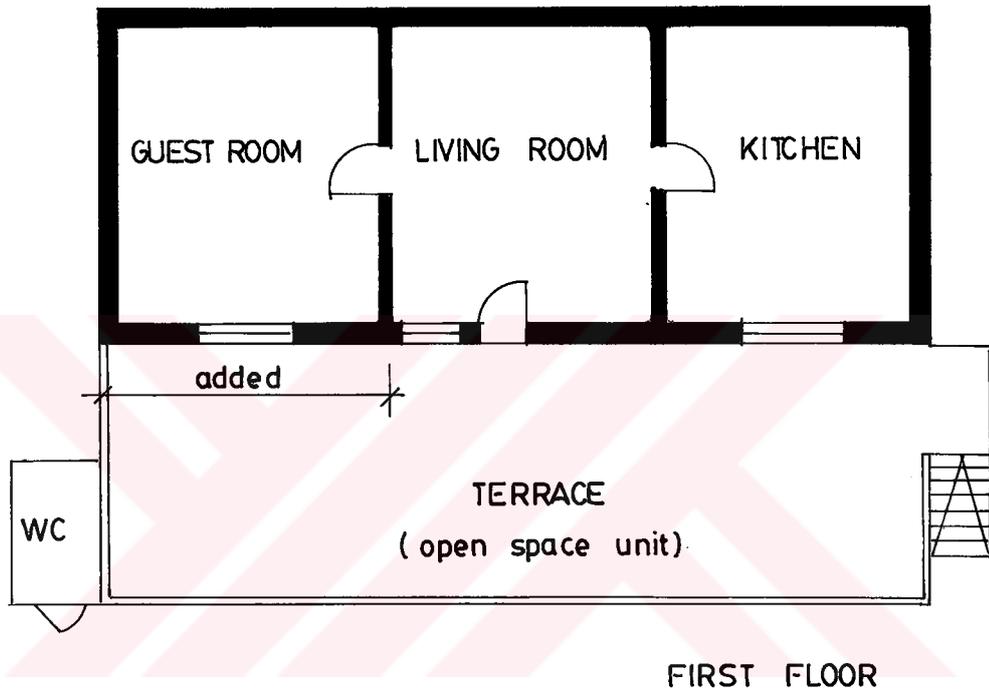


Photograph 32 Open Unit of House

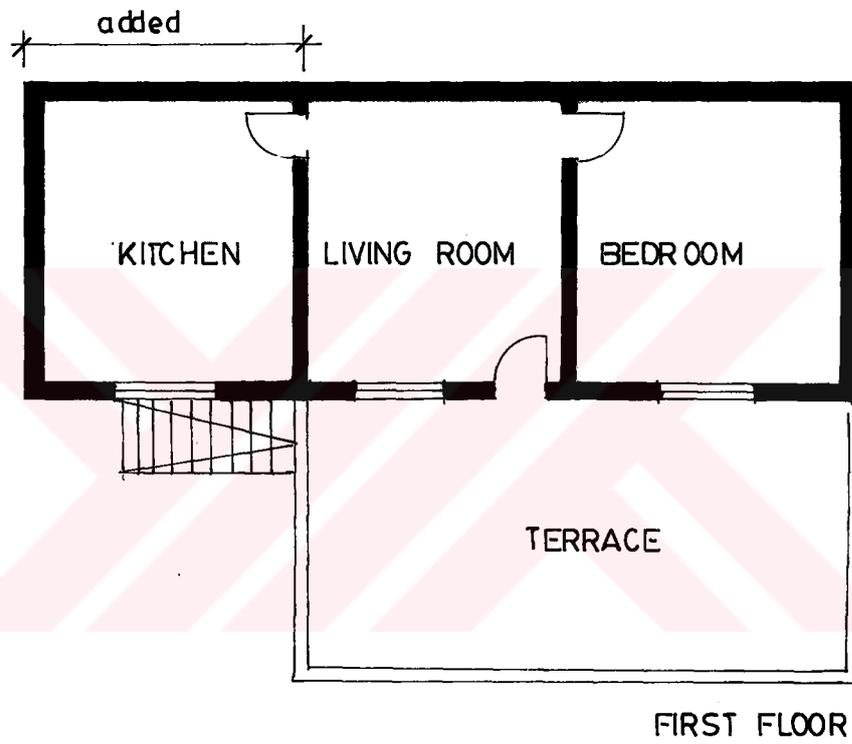
Typological Analyses of Houses -Güzeltepe	Concrete Level II	Abstract Level II
Güzeltepe Mah.-Çiğli	Güzeltepe Type	Open-closed space Type
8424 st.no:21 Yeter İnal	GZTL A2	3Ac+ 1ac



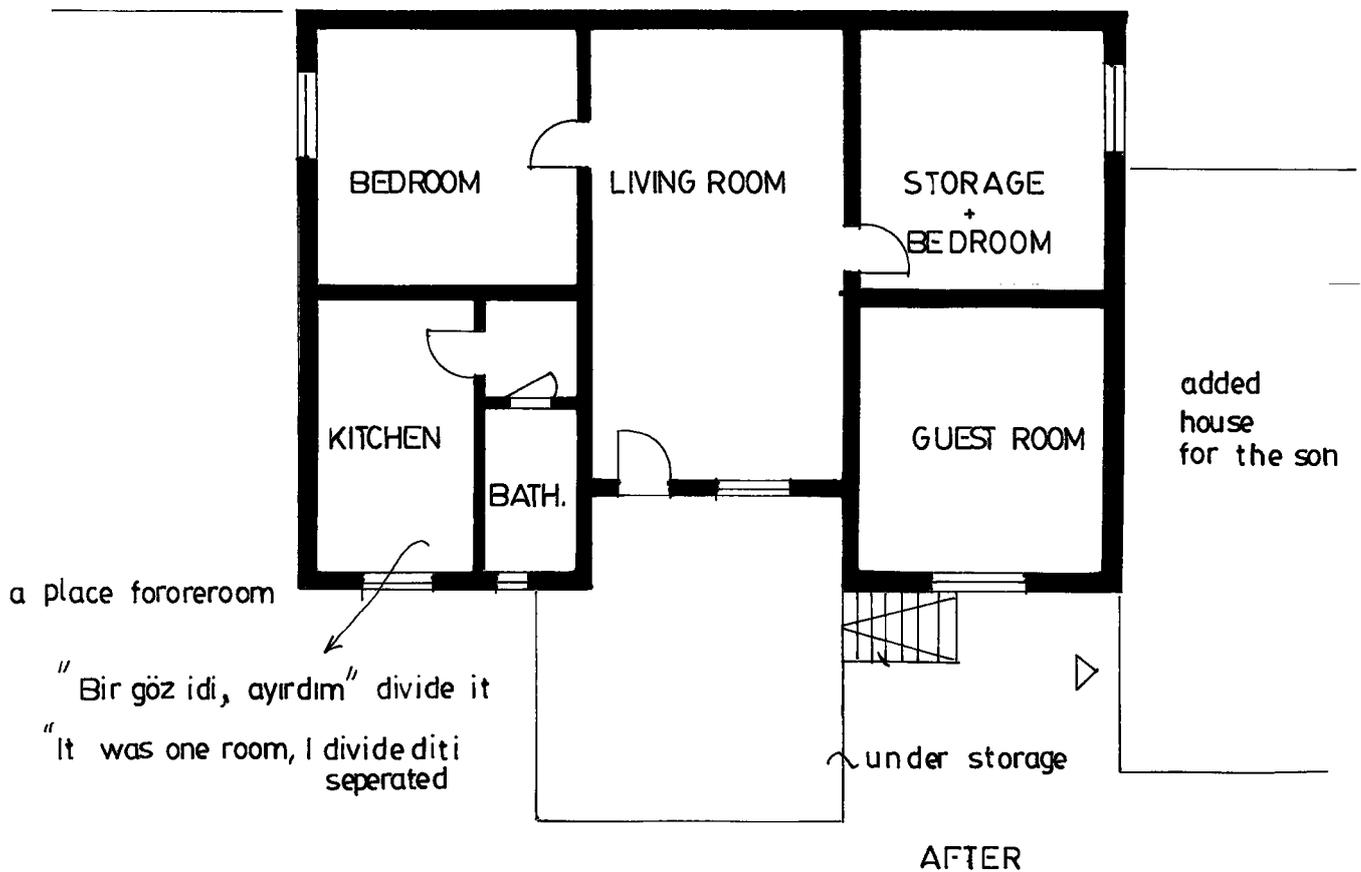
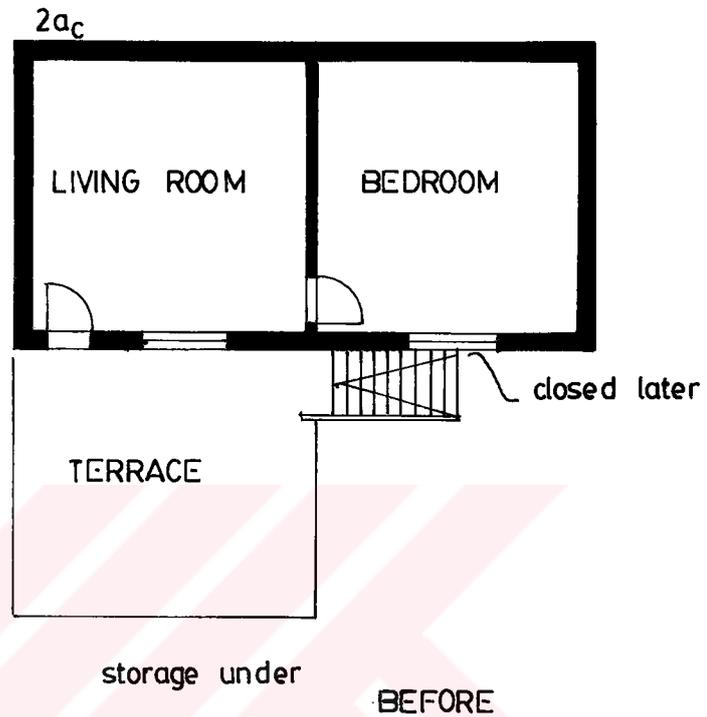
Typological Analyses of Houses -Güzeltepe	Concrete Level II	Abstract Level II
Güzeltepe Mah.-Çiğli	Güzeltepe Type	Open-closed space Type
8424 st.no:19 Bedrettin Hanım	GZTL A2	3Ac



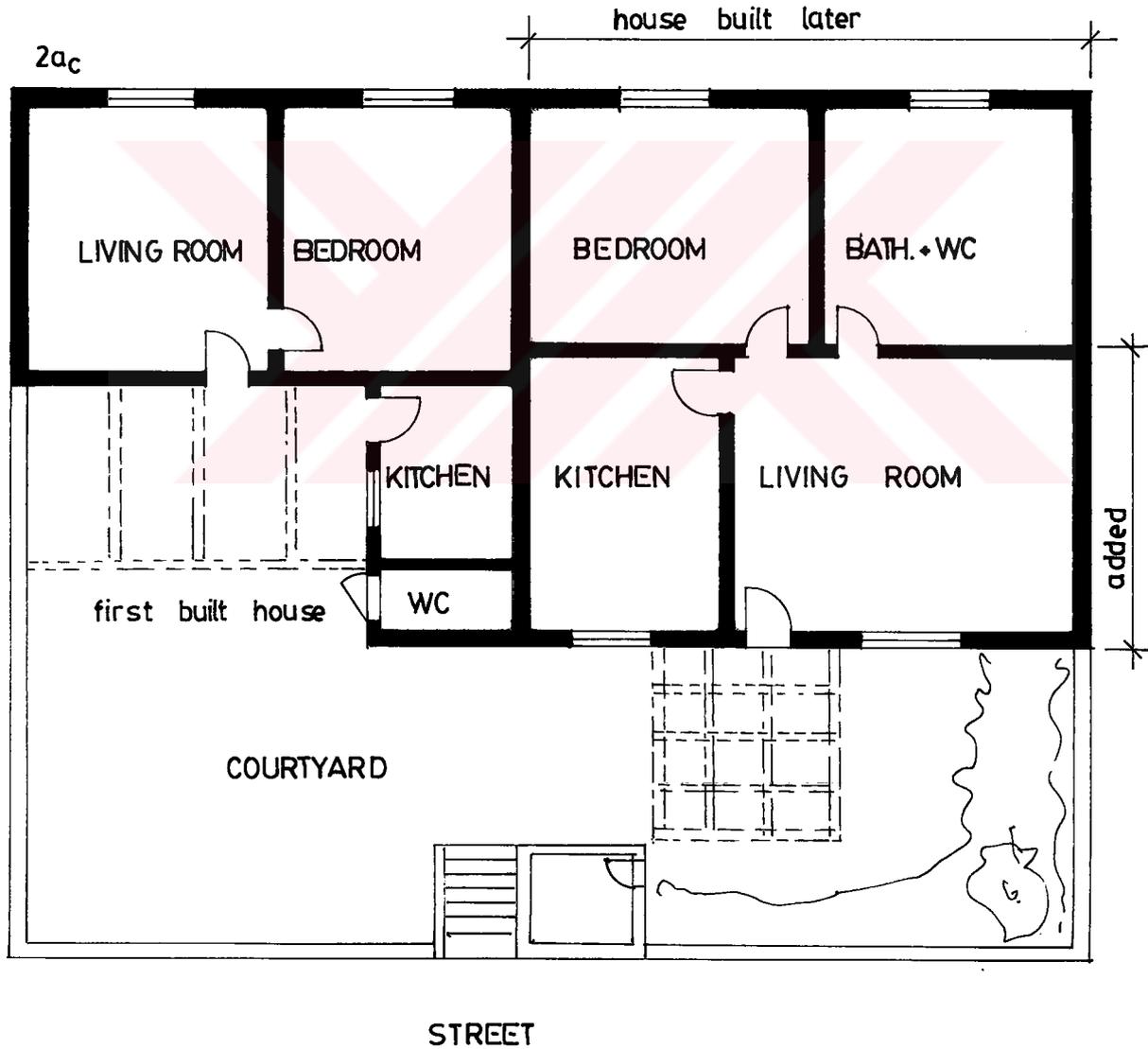
Typological Analyses of Houses -Güzeltepe	Concrete Level II	Abstract Level II
Güzeltepe Mah.-Çiğli	Güzeltepe Type	Open-closed space Type
8424 st. no:17 İffet.Birgül Çiçek	GZTL A2	3Ac



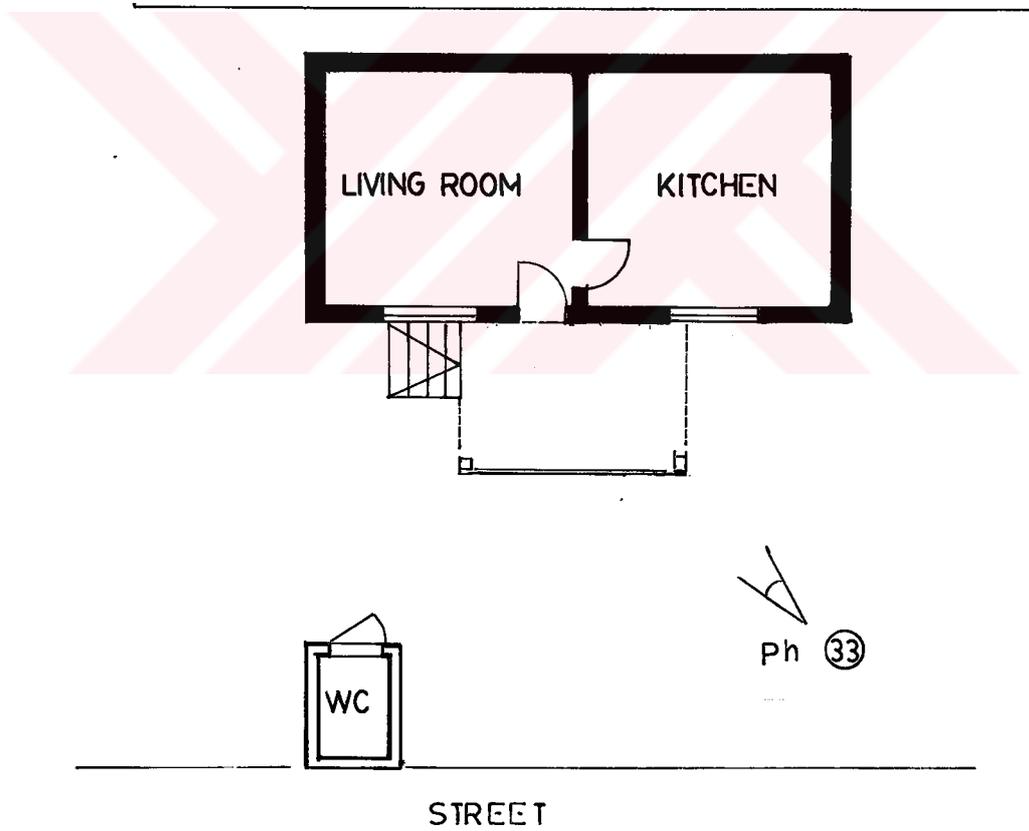
Typological Analyses of Houses -Güzeltepe	Concrete Level II	Abstract Level II
Güzeltepe Mah.-Çiğli	Güzeltepe Type	Open-closed space Type
8424 st.no:15 Gıyasettin Turan	GZTL A2	5Ac divisions



Typological Analyses of Houses -Güzeltepe	Concrete Level II	Abstract Level II
Güzeltepe Mah.-Çiğli	Güzeltepe Type	Open-closed space Type
8413 st.3/1 Mehmet Koçak	GZTL A1	4a _c enclosed



Typological Analyses of Houses -Güzeltepe	Concrete Level II	Abstract Level II
Güzeltepe Mahallesi-Çiğli	Güzeltepe Type	Open-closed space Type
8416 st.11 (Empty House)	GZTL A1	2 _a c

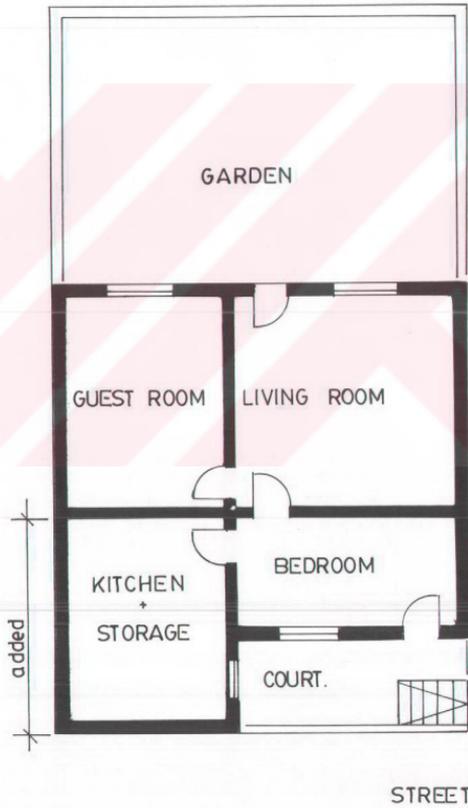


Photograph 33 Open Unit of House
Enclosed with Shelter
and Wooden Fences



Photograph 34 Open Unit with a Door

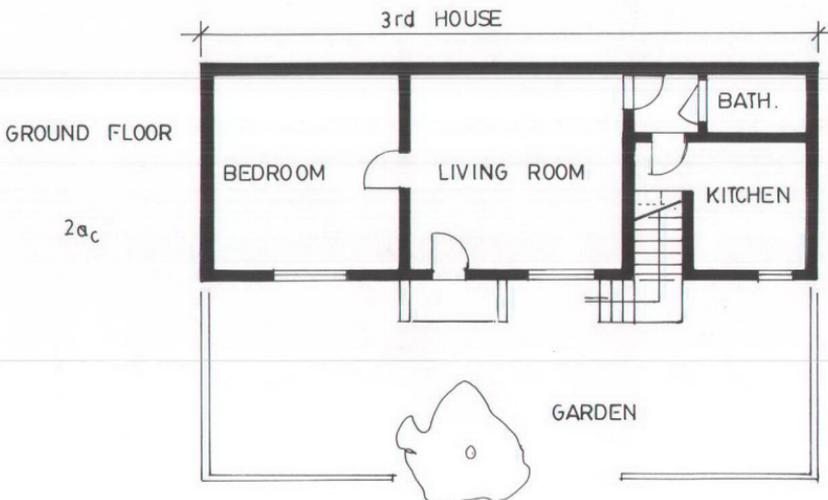
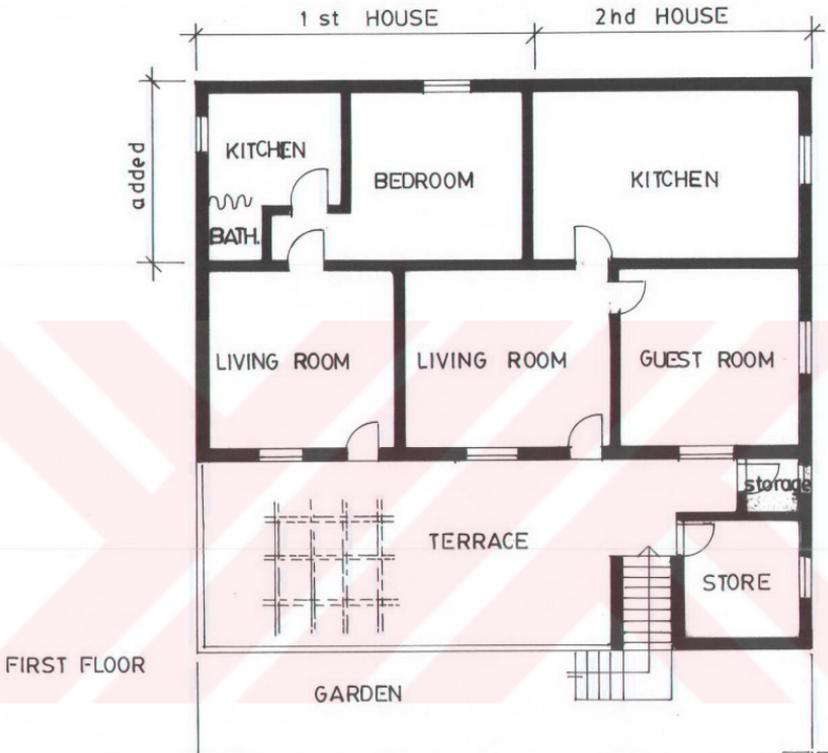
Typological Analyses of Houses -Güzeltepe	Concrete Level II	Abstract Level II
Güzeltepe Mahallesi-Çiğli	Güzeltepe Type	Open-closed space Type
8416 st.no:10	GZTL A1	4Ac



Typological Analyses of Houses -Güzeltepe	Concrete Level II	Abstract Level II
Güzeltepe Mahallesi-Çiğli	Güzeltepe Type	Open-closed space Type
8416 st./15 Naciye hn.	GZTL A1	3A _C divisions



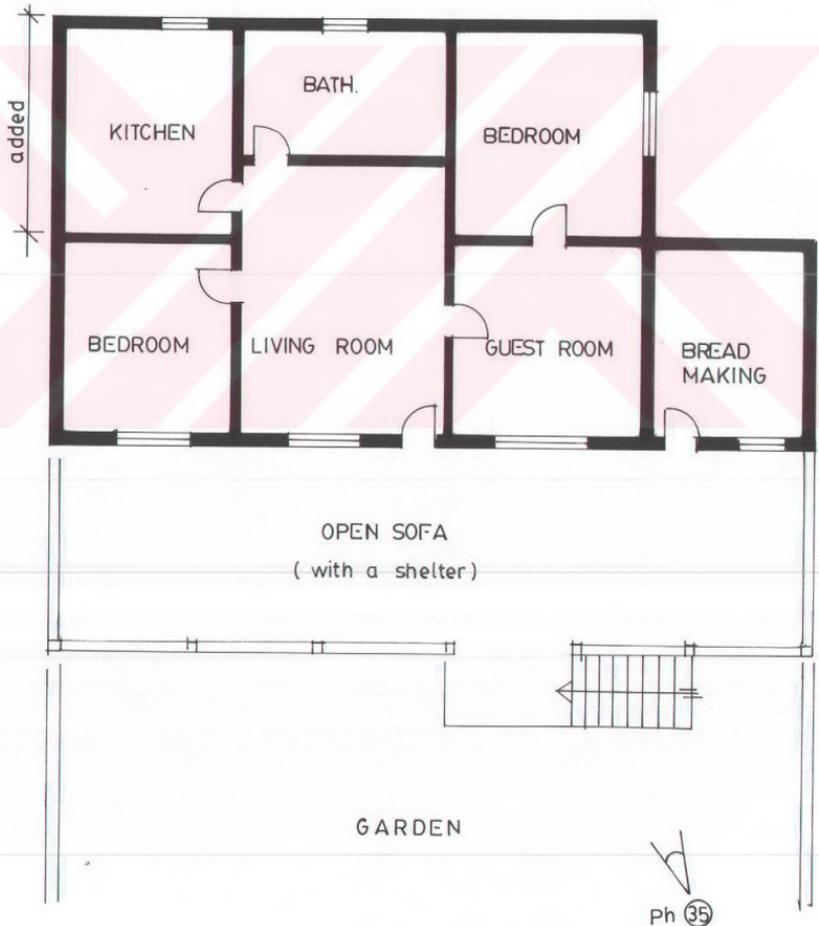
Typological Analyses of Houses -Güzeltepe	Concrete Level II	Abstract Level II
Güzeltepe Mahallesi-Çiğli	Güzeltepe Type	Open-closed space Type
8416 st. no:17 · Güllü Ergün	GZTL B1	B _c +a _c +divisions



Typological Analyses of Houses -Güzeltepe	Concrete Level II	Abstract Level II
Güzeltepe Mahallesi-Çiğli	Güzeltepe Type	Open-closed space Type
8422/6 st. Gülsen Dede	GZTL A2	B + a _c



Typological Analyses of Houses -Güzeltepe		Concrete Level II	Abstract Level II
Güzeltepe Mahallesi-Çiğli		Güzeltepe Type	Open-closed space Type
84.22/8	Hüseyin Dede	GZTL A2	$B_c + a_c + a_c$





Photograph 35 Open Unit of House

**3.4. The Original Typological Model of the Thesis
Based on Plan Structures of Traditional Houses over Anatolia
(including Probable Past and Possible Future)
in a Historical Span of Ten Thousand Years : Concrete Level III**

The open space in house formation have been briefly analyzed within historical background of Anatolian cultures and adjacent cultures of Mid-East in Chapter II. The synthesis of these analyses have been stated in part (2.2.2, p.47).

The open units of house in historical analyses could be realized at different degrees of enclosing with different names. These open space units of houses in historical and traditional examples which have affected the house formation and space configuration of housing patterns could be listed such as:

Flat roofs- *open space units on top (toprak dam)*

Hillamar- *between type of open unit*

Iwan- *between type open unit with two closed unit at sides*

Talar-*between type of open unit.*

Pastas-*adjacent type open unit*

Prostas house-*adjacent type open unit with two cyclic and one adjacent cyclic unit.*

Peristyle house-*enclosed unity with atrium (open space on top)*

Pergola-*open unit at all direction*

Open Gallery-*adjacent open unit*

Sofa- could be adjacent or between type of open unit

Hayat-coud be adjacent or enclosed at a degree at side walls (p.110)

‘Sergah’, ‘Hanay’, ‘Yazlık’, ‘Hanay’ - these are different names given to hayat

‘Evin altı’, ‘Evin önü’: open space unit at ground floor of Muğla houses, which in general used for between type of positioned open units.

Courtyard, ‘Avlu’, ‘Havlu’: open space unit which is named differently.

Terrace: in thesis case, the adjacent or between open space unit in Güzeltepe

‘Köşk’: open space unit with side openings

‘Çardak’: open space unit with all sides, closed with greenery on top.

These open space units which have been listed in previous page and others that are not stated above, could be helped us to analyze and define open-closed space relations of house. The General Typological Model of the Thesis, which based and depend on this open-closed space formation, construction, and their interrelations could be also used as a tool for understanding and defining plan structures of traditional houses over Anatolia in a Historical span of 10 000 years.

Although the spatial transformations from open to close are differentiated by culture of man, the essence of having an open space unit for each house formation did not change in these historical examples. The historical examples of houses, which have been analyzed in Chapter II, are also tried to define by The General Original Typological Model of Thesis (Abstract Level II), and these are presented in Concrete Level III. (Table 3.6).

It could be said that the *simple relation of open-closed space have seen in formation of Megaron type* houses. The megaron type could be enlarged with adjacent additions. The double megaron, and Houses of Troya (p.34) are all examples of these additive type of growth. The direction of these growth are in general linear and additions to them are also placed as adjacent linear and/or cyclic closed units. These similar additive process are also seen in Type MĜ-A1 with the linear opening of two closed units and their adjacent additions of closed units either linear or cyclic direction. (Schema 1, p.17)

The house with open gallery, which is probably not a prosta house (Figure 2.29), house of Kültepe-Kaneş house (Figure 2.30), and house with Outer Sofa (Figure 2.37-the upper one), are all similar with having adjacent linear closed units. The units are opened to open space with their own entrances and if they have windows, these are also placed at same facade with entrance door of closed units. This type of openings are similar to the openings of original Megaron plan type. In this thesis, this type is named as *Linear Architectural unity with open-closed units* The additions and compositions of this unity could be seen in Abstract Level II.(Table 3.8)

This *prosta house* is an example for adjacent type of open-close formation, like as megaron, but probably started with two adjacent cyclic units and later one adjacent cyclic addition has been added. It could be stated that this type of formation are also seen in early forms of Type MĜ-A2 (See: Concrete Level I) in Karamehmet-Muğla and also Type GZLT-A1(See: Concrete Level II) in Güzeltepe sites

The difference between these three types could be stated as their number of floors. The Prostas house from The Classical-Hellenistic Period of Prienne, (p.38) is seemed that it has one floor but houses of Karamehmet-Muğla have two floors and their similar types in Güzeltepe are having one and a half floor with basements.

The floor numbers of Muğla, have a similarity with double megaron (p.36) which has linear openings at one side, whereas floor numbers of Güzeltepe (Photo 30, Photo 35), have similarities with houses of Boğazköy (p.51), which are also one floor with a half basement.

The Pompeian House, the atrium house are also having an open space on top. They are enclosed entities (enclosed organism as Shultz. has defined, p.39), with having very small or not having any side openings except entrances of the houses from street..

The open space on top relation are in general placed at enclosed entities (n enclosed units Figure: 2.23, Figure: 2.24, Figure: 3.8, and Figure: 3.6) to construct a relation with open space unity (void, potential unity). This type of opening are not seen only at later formations of plan types of enclosed entities but could be also seen at an alone architectural unit. Like as in Yurt (Figure 3,9), Pantheon (Figure 3,7).

The second *simple relation of open-closed space have seen in formation of 'bayt' type* planed houses and this has been named as *a between formation of open-closed units*. This type of plan schema could be enlarged with additions of between units. The Iwan house (Figure, 2.42, Figure: 2.33, Figure 2.38, and Figure 2.37 the lower-plan) are all examples of these between type of open-closed space relation. The direction of their growth are in general with cyclic additions and based on *the principle of sharing open space in between* and rarely they have additions of linear closed units. The between type are also seen in Type MĞ-B2 and MĞ-B3 with their free openings of two closed units and their adjacent closed unit additions of cyclic direction.

The between type of open-closed space relation are seen more in Güzeltepe. This type of relation and its formation of new plan types are concretized with number of units added. These could be seen in Concrete Level II (Table 3.6)

These historical types could be increase in number and also defined with their number of units, location of open space, direction of additions, their compositions and entrances

3.5. The Original General Abstract Typological Model of the Thesis: Abstract Level II

The Typological Model of the Thesis have been constructed as an Abstract Level I at first. It had been stated and put forward as a tool and could be used for defining house formations, plan types, and housing patterns. The Abstract Level I is based on open-closed relations and criteria have been constructed to define and analyze these relations. These criteria of Abstract Level I have been put forward in Chapter III (See: 3.1.) The synthesis of the Abstract Level I, are presented in (Table 3.4).

The Abstract Level I, is the first step in understanding the space formation of any site. Later, this Model has been carried on to an Abstract Level II (Table 3.8), after having tested and helped to define the Typologies based on plan structures of Muğla, and also Typologies based on the plan structures of Güzeltepe in Concrete Levels I and II.

3.6. Chapter Conclusion

With all the theoretical, conceptual analyses, and also literature analyses of *open space* in published and un-published written materials have been done in Chapter II, the Abstract Level I has been constructed. This was not a normative model. There is a need of a model in analyzing the Abstract Language of non-verbal, un-written rules of open-closed space interrelations. With The Thesis Original Model it has been put forward an answer to one of stated questions (See, p.11), which the research searches to find out. Such as.

Which method of analysis can help us to define the abstract language of open-closed space relations ?

It could be said that the Thesis Original Model is worked and helped as a defining tool for getting a higher analyses and understanding of formation and space configuration of sites, In this thesis, the generalizations of Level I are carried to a higher level of generalization of Abstract Model II (Table 3.8), which also helps to understand additions of *Architectural Entity* (an addition of open-closed units), and their compositions with other units or entities to form *Composed Architectural Entities in the general system of open space. (Void)*.

CHAPTER FOUR

CASE STUDY

TESTING THE MODEL IN EXISTING HOUSING

PATTERNS OF TODAY

4. Testing the Model in Existing Housing Patterns of Today

- *Traditional settlement* of Muğla -Karamehmet Mahallesi
- *Squatter settlement* of Çiğli - Güzeltepe Mahallesi
- *Mass-housing settlement* of Çiğli -Evka Blocks

After the theoretical framework and conceptual base has been constructed in the previous chapters (Chapter I-II), the analyses have carried on with a construction of a typological model (Chapter III). In this section the model is tested with findings of a field survey and some generalization have been tried to develop and construct. The model (Abstract Level I) is used as a tool in two different ways. First to understand, get the plan types and look at the spatial organizations, configurations and trying to find the differentials that are related to time, during observations. Then secondly, the model has been also used in comparisons the data of similarities and differences between varied types of settlements- (apartments, slums, and traditional housing.). The criteria that have been constructed in Abstract Level I (3.1) are used for understanding, comparing the open-closed relations and spatial configurations of sites These could be listed such as;

- *The degrees of enclosing* (3.1.1),
- *The directions of closing* (3.1.2).
- *The position-location of open-closed units* (3.1.4),
- *The composition of units and changes in configurations* (3.1.5) and
- *The transitions of open-closed units with entrances.* (3.1.6).

Later it had been tried to make a brief comparison by means of continuity and cultural spatial consciousness, with the results of literature survey of Traditional Anatolian House that have done in Chapter II, with information collected from case studies of existing housing patterns of today.

4.1. The Aim of the Empirical Analyses of the Sites

The aim of analyses are to understand the spatial organization of different housing patterns with reference to open space phenomenon or open space realm. In order to get a real and broad understanding, the model (Chapter III) has been used as a tool at site analyses. Depending on the criteria of the model, plan types, change in plans, the act of enclosing, transitions (entrances), and position and location of open space unit in housing patterns have been observed. The model as an analytical tool helped great for using time sufficiently during site observations. It had been also searched in these housing patterns, not only spatial changes in usage from a functional point of view, but had been also tried to find out data belonging to social understanding of sites. In general the physical definers, psycho-moral definers and social definers of sites and units constructing the sites have been searched and observed.

4.2. The Techniques of the Analyses

Mainly throughout analyses, the typological model was used as analytical tool. Some checklists which have been prepared before observations helped for understanding the existence or non-existence of specific conditions, such as having one or two entrances or using enclosing element or not and etc. A draft sheet is used for every house and then plan schema has been drawn while the house was observed. People were always kind to for reception. While the sketches were drawn, questions were asked about their life styles and how the families were using various spaces of house. If, too many questions were being asked in order to understand changes in house in time, people were being a little bit upset. Especially in Muğla where people suffered about problems of conservation rules. People in squatter settlement were having the problem of building a new house in their garden. They asked questions about suitable position for new building. Where and how they could build the new house gets more important for them in interviews. With the interviews a lot of knowledge have been collected about people, sites and houses. Although there have been prepared questionnaire sheets to ask them, did not worked very efficiently as it was

explained Short questions which were asked to be answered according to the questionnaire form while the informal discussion and notes were taken, have worked much better. Later, the data have been adapted into questionnaire forms as quick as could be without missing and have forgotten. Then these data were later carried on and transferred into Excel program in computer and analyzed. The total number and percentage were taken for data in three sites. The graphs were drawn in Excel program. The similarities and differences in answers of sites could be easily followed in graphs.

The maps of Güzeltepe and Evka sites were taken from the Municipality of Çiğli, Izmir. The maps showing streets and boundaries of neighborhoods (mahalle) were taken from the 'muhtar's of Güzeltepe and Karamehmet neighborhood in Muğla The written material and research which have done before about site have been also examined. (Türel, G. 1995). The photographs were taken. The ones that have been taken in site Evka-2, 1992 for preparing a paper in a lesson of doctorate program were very helpful for emphasizing the non-socialized spatial character of open space in mass housing. The changes about relations with open space could be directly observable in these pictures. The act of enclosing the balconies could be seen.

The visit to the exhibition, which is called "*The house and settlements in Anatolia from history up to date*", in June 1996 during Habitat II in Istanbul was also very helpful for understanding the configurations of house in historical span of 10 000 thousand years. The visit to Italy in summer of 1996 also helped for understanding *the ambience, the spirit* of a peristyle house Naples, Pompei (Figure 2.13 p.40.) and Pantheon, Rome (Figure 3.7, p.95) with having open space relations on top. The personal interview which was done with Aladağ, E., (1997) in Muğla was also so helpful by discussion the data and findings of site.

4.3. Definition of Samples

In the field study of thesis, work has been carried out in three different sites. These sites had been tried to analyzed about their relations and spatial organizations in housing patterns with reference to open space phenomenon.

- *Traditional settlement* of Muğla -Karamehmet Mah.(4.3.5)
- *Squatter settlement* of Çiğli - Güzeltepe Mah.(4.3.6)
- *Mass-housing settlement* of Çiğli -Evka Blocks with 5-7 floors. (4.3.7)

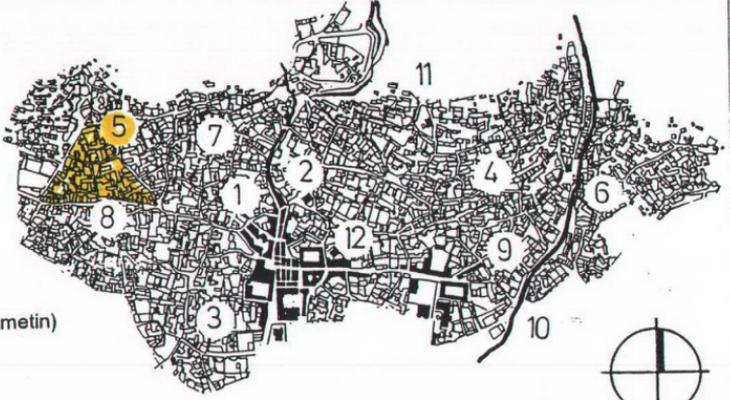
4.3.1. Karamehmet Mahallesi-Muğla

The site of Muğla, which the study has been carried on, is known as the Turkish settlement part of Muğla. (Map. 4.1). This site has been chosen for analyses because of its less destroyed texture of houses. The site has been decided as a good example for the traditional Turkish settlement in the sloppy area that is oriented to South after the discussions with Dr. Ülker Baykan Seymen. At the beginning of study there are only maps (Map 4.5) taken from the Department of Urban Planning and Design of Dokuz Eylül University. There are also knowledge from literature survey about the site and the prepared question forms and checklists. At the arrival to Muğla, 'muhtar' (Nafiz Kılıç) of Karamehmet district have been visited and asked him for his help. After analyses that have done together in his office, the streets that study has been carried on are decided. Later he has taken me to one of the houses. It was the house of Birsen Bulut in Savran street. Then the work has been carried on with the help of other house owners and they are chosen with random sampling.

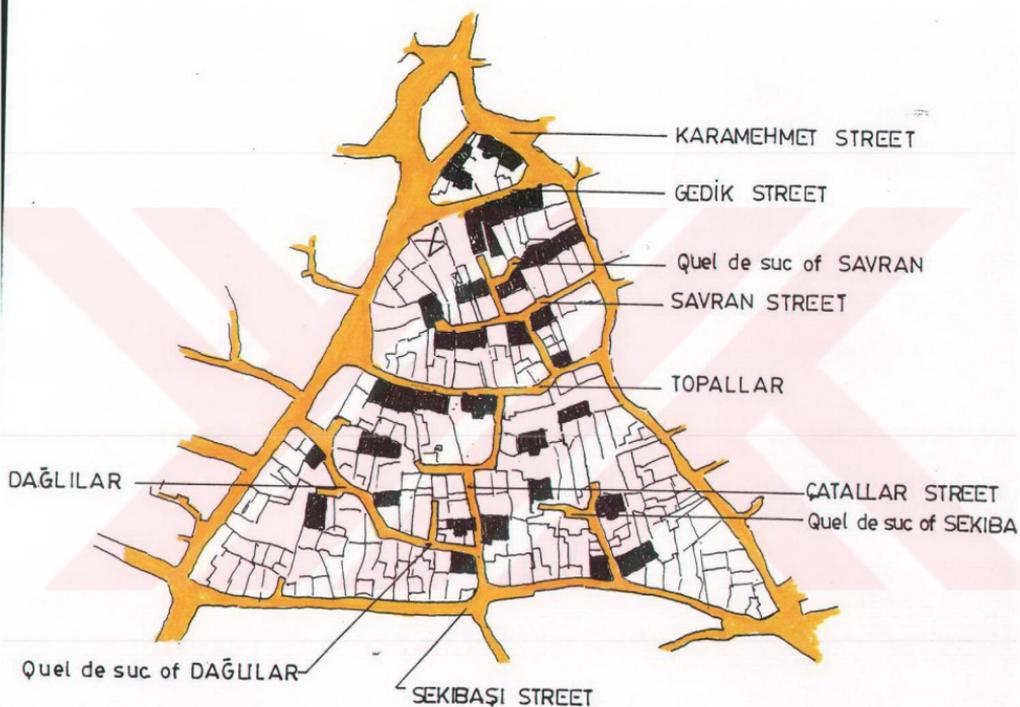
The streets were Topallar, Savran, quel de suc of Savran, Dağlılar, quel de suc of Dağlılar, Gedik, quel de suc of Gedik, Çatallar, Karamehmet and quel de suc of Sekibaşı. (Map.6). The analyses of 47 house have done in site. The stories and the spatial organizations of house are listened and observed. The data are collected with the answered questions, checklist, informal interviews, drafts of house schemes, short notes, maps, and also photographs. The two house in site were destroyed two much and only their foundations with some walls left behind. Four houses are left by their owners for some reasons and could only observed through broken courtyard walls. Another one was burnt and only its ruins are left. In one house, owner did not let into house as an exception and she has refused to answer questions. This house could only be observed from its courtyard as she has permitted. These occasional houses which mentioned above are not taken into consideration as data in analyses and evaluation. Thirty-nine houses are taken into evaluation in Muğla case. The four out of thirty nine are also empty but the information about them is taken by their relatives and neighbors. The general information of data could be seen (Table 4.1), (Table 4.4) and detailed ones in data analyses sheets of Muğla. (Appendix III).

Mahalleler:

- 1 Balıbey
- 2 Camiikebir
- 3 Emirbayazıt
- 4 Hacırüstem
- 5 **Karamehmet**
- 6 Karşıyaka
- 7 Kiremittin (Karametin)
- 8 Muslihittin
- 9 Müştakbey
- 10 Orhaniye
- 11 Orta
- 12 Şeyh



Map 4.1 Karamehmet mahallesi-Muğla-Site 1



Map 4 2 The Streets and Houses in Karamahmet mah. -Muğla-Site 1

Table 4.1 The list of Houses the questionnaire has been applied in**Muğla-Karamehmet (Traditional Settlement)**

Number of the house applied	The street name	House number	Number of people living in the house
1	Savran	8	6
2	Savran	6	2
3	Savran	2	4
4	Gedik	1	4
5	Gedik	2	4
6	Gedik	4	1
7	Gedik	6	2
8	Karamehmet	?	3
9	Savran	3	2
10	Savran	1	1
11	Savran	1	4
12	Savran	1	4
13	Savran	?	6
14	Savran	?	2
15	Gedik	3	2
16	quel-de suc of Savran	?	6
17	quel-de suc of Savran	1	4
18	quel-de suc of Savran	14	4
19	quel-de suc of Savran	12	6
20	Sekibaşı	28	4
21	quel-de suc of Sekibaşı	2	3

22	quel-de suc of Sekibaşı	3	4
23	quel-de suc of Sekibaşı	?	1
24	quel-de suc of Sekibaşı	14	8
25	quel-de suc of Sekibaşı	18	5
26	quel-de suc of Dağlılar	3	2
27	Dağlılar	12	4
28	Dağlılar	14	5
29	Dağlılar	16	2
30	Topallar	13	5
31	Topallar	?	e
32	Topallar	5	3
33	Topallar	9	e
34	Çatallar	4	3
35	Çatallar	17	4
36	quel-de suc of Sekibaşı	3	e
37	quel-de suc of Dağlılar	3	e
38	quel-de suc of Gedik	8	3
39	Sekibaşı	28	e
			Total=123

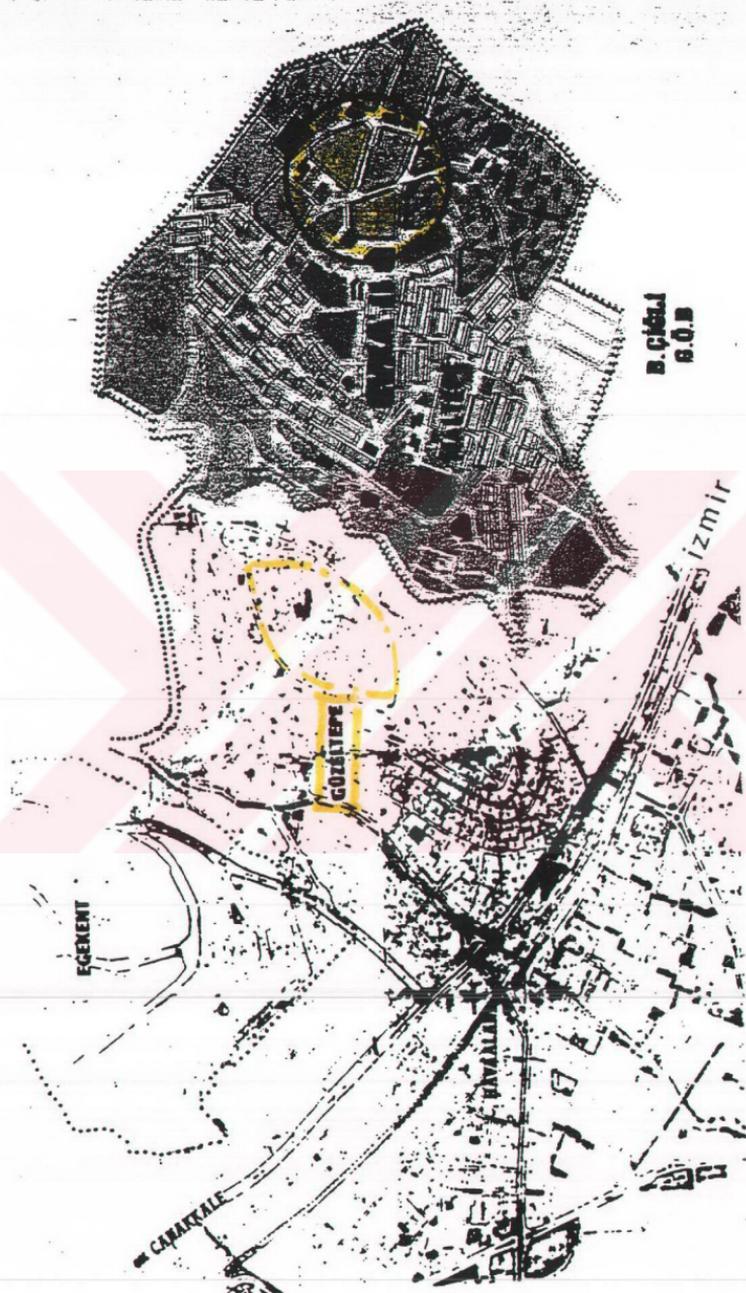
*e: These are the empty houses which data about them are collected and taken with information given by their relatives or neighbors and also with the observations that have done.

4.3.2. Güzeltepe-Çiğli, Izmir

Güzeltepe, Çiğli-Izmir (Map 4.3) and (Map 4.4) is the squatter settlement which has been settled approximately about 20-25 years ago. This site is an ideal choice for a case study in squatter settlement. This choice was made for following reasons: first it is a settlement that has been known by me before and some people that are living there are known. This makes the data collection easier. Secondly the site is also slopy like as Muğla. And finally it has been located at the other side of the valley where Evka houses have placed. Another study has been carried before, on site Evka-2 in 1992, during doctorate program and some information were ready to use. Both sites are also located in an easy accessible distance that was also important in data collection in time.

In the very beginning of study, maps of Güzeltepe neighborhood and also Evka-2 were taken from the Municipality of Çiğli in Anadolu street. Later the 'muhtar' (Iskender Kılıç) of Güzeltepe neighborhood has been visited. With his helps the edges of the neighborhood defined and a general site seeing tour with car have done together. The map of street numbers (Map 4.4) and general layout information about site are given by him in his office and also in the visit to his family at his house. The street numbers and some general information about houses and housing patterns that the study has been carried on could be seen in the (Table 4.2.). The more detailed analyses could be searched in data analyses sheets of Güzeltepe. (Appendix IV.)

The study has been carried in the streets number 8414, 8424, 8413, 8413/2, 8422, 8423/1, 8416, 8422 and 8156. The analyses in 40 house have been done in this site. The six out of forty were empty but the information about these houses was taken from their neighbors and relatives. The sample of houses has been chosen at random and thirty-four of their inhabitants have been interviewed and applied the questionnaires. The questionnaires in some cases applied during the informal talks with people. The questionnaires that have been applied could be seen in the (Appendix II). The informal talks on the other hand were also very helpful for getting not only quantitative information but also additional insight into the subject.



Map 4.3 Güzeltepe-Çiğli-Site 2 & Evka-2-Çiğli-Site 3

Table 4.2 The list of house the questionnaire has been applied in**Çiğli-Güzeltepe (Squatter settlement)**

Number of the house applied	The street number	House number	Number of people living in the house
1	8156	178	3
2	8156	176	5
3	8156	172	5
4	8156	170	8
5	8156	146	3
6	8156	162	8
7	8414	71	6
8	8414	74	7
9	8414	72	5
10	8414	73	3
11	8414	78	3
12	8414	73	3
13	8423/1	12	7
14	8424	37	7
15	8413	11	5
16	8413	96	9
17	8413	96/1	e
18	8413	79	4
19	8424	?	e
20	8424	?	e

21	8424	?	e
22	8424	18	4
23	8424	18	3
24	8424	21	9
25	8424	19	6
26	8424	17	3
27	8424	17	7
28	8424	15	9
29	8424	13	3
30	8413/2	5	6
31	8413/2	3	2
32	8413/2	1	3
33	8416	11	e
34	8416	13	e
35	8416	10	6
36	8416	15	4
37	8416	17	9
38	8416	17	3
39	8422	6	5
40	8422	8	9
			Total=182

*e: These are the empty houses which data about them are collected and taken with information given by their relatives or neighbors and also with the observations that have done.

4.3.3. Evka-2-Çiğli, Izmir

The site takes place on the road to Menemen from Izmir. (Map 4.2), (Map 4.4), It was a planned base site. It has been planned approximately for four thousand people. They have planned five different types of plans with high-rise and duplex housing. The types were named as A-B-C-D-E. The ones that are dealt within this study were the Type E and Type C. These were the high-rise ones without elevator. Type C were the ones with two bedrooms and a living room with six floors. Type C also has a basement floor with half, which seemed as ground floor because of the slope in site. Type E were the ones with one bedroom and a living room with five floors.

The site has been chosen because of the non-effective, non-owned and un-identified open spaces. There seems a lot of loosing and lacking about life and livability in these open spaces as it has been stated as a hypothesis (Hypothesis 8). The site have been chosen by being an example for mass housing that are not have livable, defined open-space configurations. The crucial problem of this site has been observed by another study that has done in 1992 and has been emphasized and stated as a hypothesis in this thesis.

The analyses of forty flats have been done on the site. The plan types were taken from the booklet that has been pressed by the Municipality of Izmir Metropol. The forty houses distributed as twenty with four floors and the other twenty with six floors with a half basement and ground floor. The street numbers that the study carried on were 6810, 6809, 6812, 6818, 6808, 6800, 6850. The street and apartment numbers with some general information were presented in the list. (Table 4.3). The questionnaire that has been applied could be seen in Appendix II and the detailed data in Data analyses sheets of Evka-2 in Appendix V.

ŞEKİL(4) EVKA PROJE BÖLGELERİ



EVKA PROJE BÖLGELERİ

Izmir Körfezinin güneyinde Buca Evka 1, kuzeyinde Büyük-Çiğli Evka 2 ve doğusunda İlçemizde Evka 3 Ispah Konut alanları ile kentimizin torpa konut ihtiyacının karşılanmasında önemli çalışmalarımız devam etmektedir. Evkaf ev kazandırmaya ait alanların EVKA adı altında yürütülmesinde çalışmalarımız İzmir Büyükşehir Belediyesi sınırları içerisinde, İzmir Körfezinin güneyinde 216 hektarlık alan üzerinde 4492 konutluk BUCA EVKA 1 kuzeyinde 111 hektarlık yaklaşık 2700 konutluk BÜYÜKÇİĞLİ EVKA 2 ve doğusunda 30 hektarlık alan üzerinde yaklaşık 1500 konutluk BORNOVA EVKA 3 devam etmektedir.

Map 4 6 Evka-2-Çiğli-Site 3



Map 4.7 The Streets and Blocks of Houses in Evka-2-Çiğli-Site 3



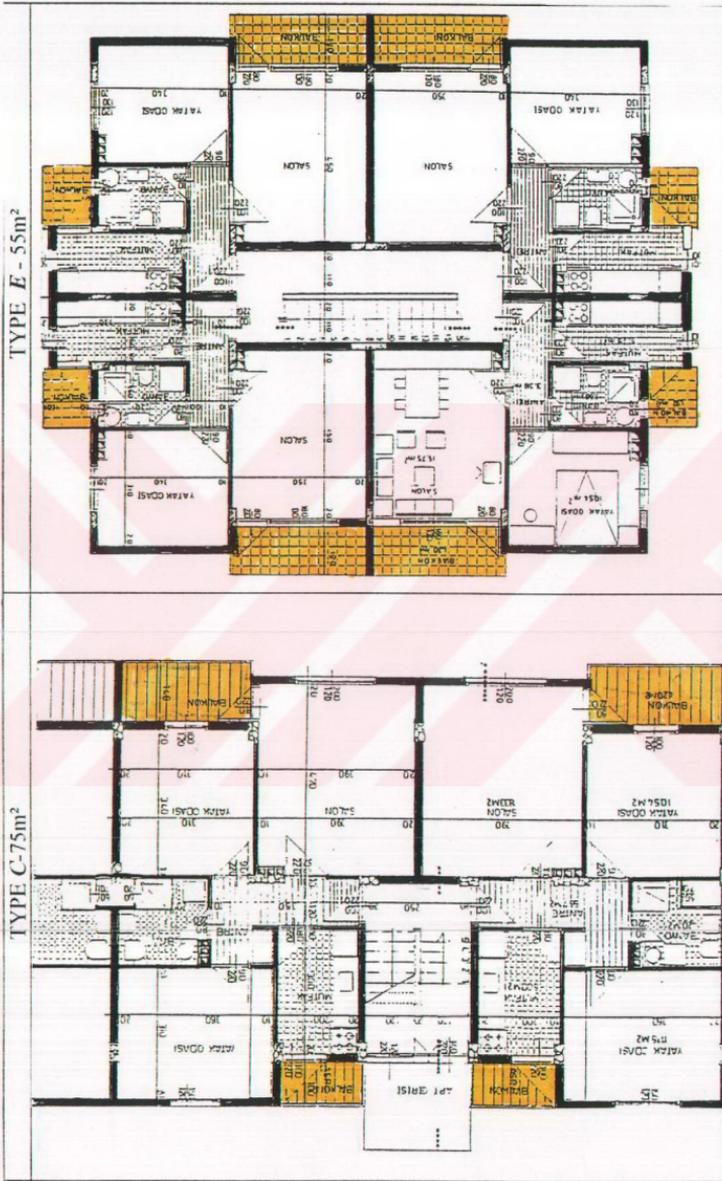
Photograph 36 Open Space in Type C Evka-2, Çiğli in 1992



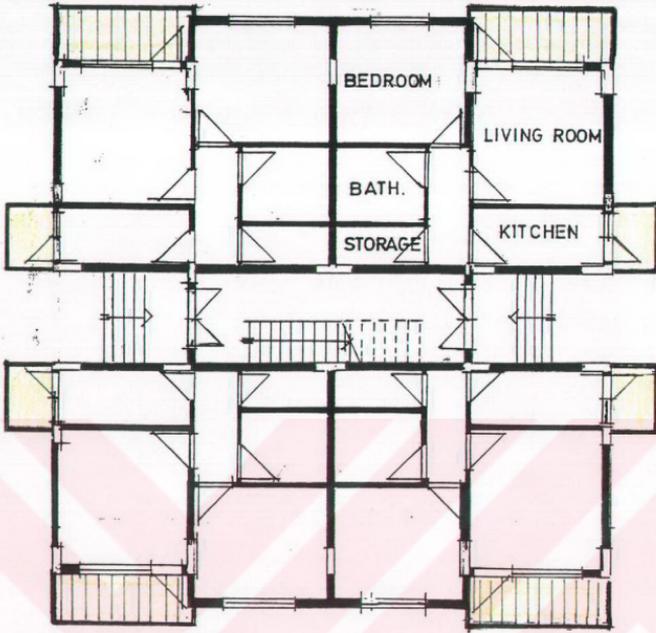
Photograph 37 Open Space in Type C Evka-2, Çiğli in 1997



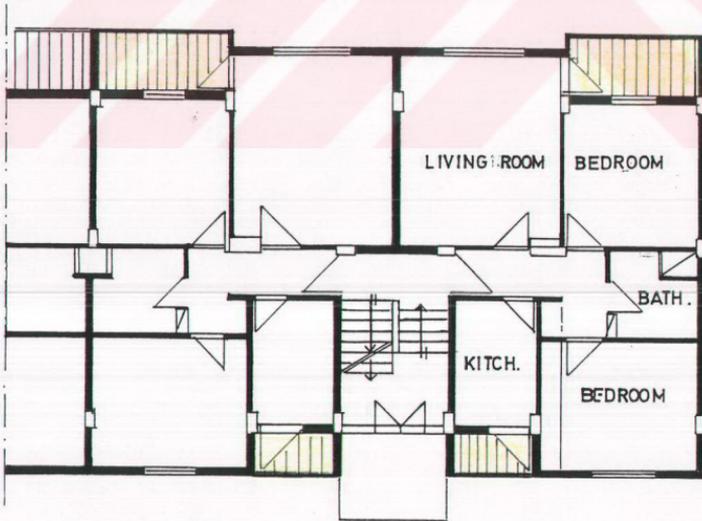
Photograph 38 Type E Evka-2, Çiğli



Schema 49 Type C and Type E, Evka-2, Çiğli (Before)



Type E



Type C

Schema 50 Type C and Type E, Eyka-2, Çiğli (After)

Table 4.3 The list of Houses the questionnaire has been applied**Çiğli -Evka (Mass-housing settlement)**

Number of the house applied	The street / Block number or name	Flat number	Number of people living in the house
1	6810 / Palmiye Apt..	13	5
2	6810 / Palmiye Apt.	12	4
3	6810 / Palmiye Apt.	11	4
4	6810 / Palmiye Apt	9	2
5	6810 / Palmiye Apt	1	3
6	6810 / Palmiye Apt	5	3
7	6810 / 9	2	3
8	6810 / 10	6	1
9	6810 / 11	4	5
10	6812 / 8	9	3
11	6810 / 7	5	5
12	6810 / 7	1	5
13	6809 / 6	2	4
14	6809 / 7	1	4
15	6809 / 6	4	3
16	6809 / 6	3	5
17	6809 / 5	1	3
18	6809 / 9	9	4
19	6809 / 6	6	4
20	6818 / 2	11	4
21	6850 / 12	3	1
22	6850 / 12	2	3
23	6850 / 12	20	5

24	6808 / 9	7	5
25	6808 / 9	9	1
26	6808 / 9	13	4
27	6808 / 9	18	1
28	6808 / 9	20	1
29	6808 / 9	15	2
30	6808 / 9	7	4
31	6800 / 3	6	4
32	6800 / 3	11	3
33	6800 / 3	3	3
34	6800 / 3	10	3
35	6800 / 3	9	2
36	6800 / 3	3	1
37	6850 / 4	8	2
38	6850 / 4	15	3
39	6850 / 2	3	1
40	6850 / 3	3	2
			Total=123

4.4. Data Analyses of Questionnaire

In applying the questionnaire for collecting certain type of data, there has been a random selection of 119 house with total number of 428 inhabitants. The 109 of these inhabitants have been interviewed and applied questionnaire. The distribution of these inhabitants, and houses into three sites could be listed as, 34 people and 39 house in Karamehmet-Muğla; 35 people and 40 house in Güzeltepe, and 40 people and 40 houses in Evka. In questionnaire a great attention has been paid so as to put forth the questions simple in meaning and in presentation, in order to make them easy to understand and answer. (See Appendix II). The randomness of the interview has been displayed in terms of education, age and sex of the inhabitants of houses, which have been chosen to be interviewed.

4.4.1. General Information

The general information about houses and families were asked at the beginning of questionnaire. The main objective of this section is to get information about house and a brief social structure of inhabitants. These were the numbers of houses that questionnaire has been applied and also general information about house locations such as, flat and street numbers and etc. These could be seen in (Table 4.1), (Table 4.2) and (Table 4.3.).

4.4.1.1. The Family types of Sites

This question is asked to get a general understanding about families. The responses could be single, nuclear or an extended family. The information that has taken from this question could be analyzed together, with the number of units (rooms) in house for defining the relation of people and their closed space needs as a next step.

As it has seen in (Graph 1 a-b), most of families in sites are nuclear type. These are distributed as 71 % in Muğla, 71 % in Güzeltepe and 83 % in Evka. The highest percentage was in Evka site. The extended type of family has not been seen in Evka site whereas single living type has been seen with 17.5 % as highest. In site Güzeltepe the extended type of family has been seen with the highest percentage of the three sites, which is 29 %, whereas the single type has not been seen.

The ones who live as single in Muğla are four old women. The two of them live alone and their households and cares are done by their neighbors. The other one lives as a renter

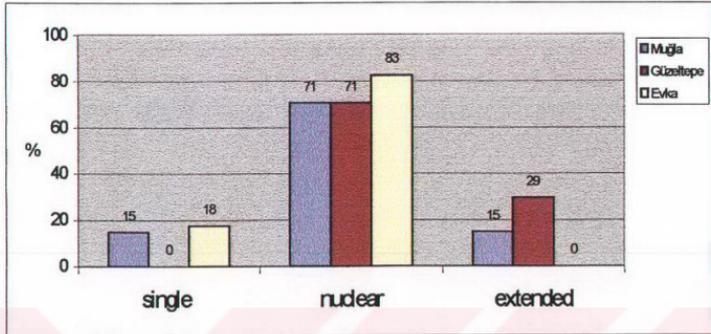
although she has a house at village but she wants to be near to her daughter's house rather than living alone in village. The last one also lives alone but her house takes place in the same courtyard with her son's house.

The families in Muğla are in general nuclear family type as seen in the Graph 1 a-b. It could be said that this social formation of the family effects the spatial formation of the site. In order to get their own houses people divide the original house into two vertically or horizontally. In other cases they add a new house unit in courtyards or made additions for separation the family from extended to nuclear or to a single type.

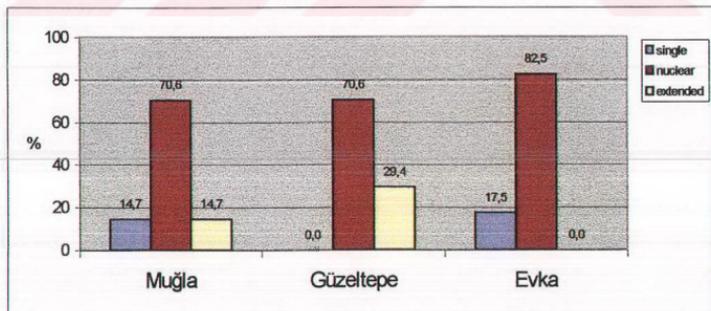
When the son of house gets married in Muğla case, the house is being used by the mother-in law and bride of house together at the beginning. Later a new house is added for son and his family. In some cases instead of building a new house for son they built a small house with one or two rooms in courtyard for parents, especially if one of parents had died and the other still alive. In this occasion the bride of house owns the main house. Although this tradition has been seen in this site, it is not going to be long living because of departures from site for education or other reasons and not returning to Muğla.

The families of Güzeltepe site are in general seemed as an extended type of family but they do not share the same house. When the son gets married the new problem of using house also arises in this site. They usually solve this problem by building new house units in the garden or addition of house units to sides with their own entrances. The nuclear family types (71%) that are living in these adjacent house units (rooms) with sharing the same parcel could be generally seen in this site.

The nuclear family type is dominant in Evka site (83%). There is not any extended family in Evka but the highest percentage of single (18%) has also placed in this site. Depending on informal interviews, it could be said that these single living people are in general the retired old people who have chosen this site because of their being one room flats and their low rents.



Graph 1-a The family types



Graph 1-b The family types

Comment

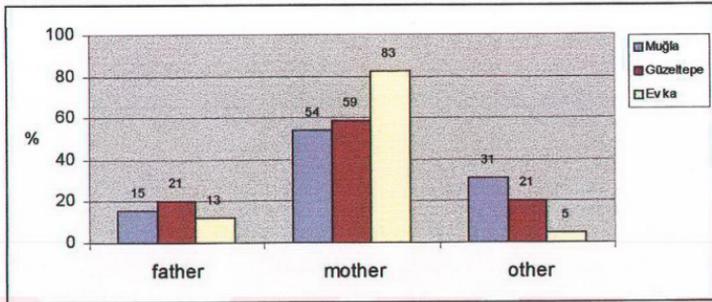
It could be said that there is a social change from extended to nuclear and to single families. This also effects the spatial configuration and change in house form, courtyards and parcels. The general attitude of families in Karamehmet-Muğla and Güzeltepe-Çiğli are living together side by side with sons and parents within a strong social contact. The decisions and future plans based on this lifestyle affects the position of house in today's constructions and spatial formations. The building position of the second house units which is going to be construct in future as a next step is always kept in mind and effects today's house formation. This type of *additive production* of units could not be seen in Evka 2-Çiğli flats. The strong social contact at family level in Muğla and Güzeltepe could not be possible to seen in Evka houses.

4.4.1.2. Which member of the family answers the questions?

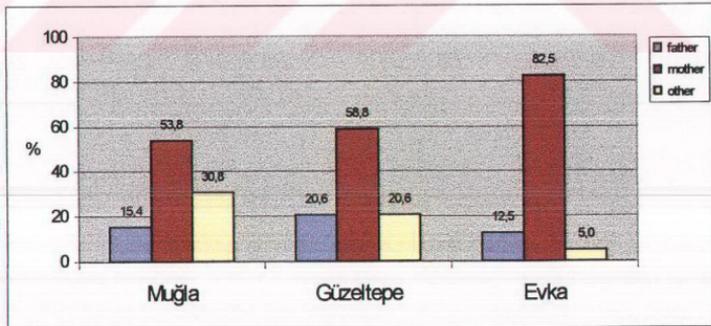
This question is asked just to clarify and generalize the inhabitants that have been interviewed. (See Graph 2 a-b). The questionnaire has been answered in general by mothers in three sites. The questions that are being replied by mothers are distributed such as, 54 % in Karamehmet-Muğla, 59 % in Güzeltepe-Çiğli and 83 % in Evka-Çiğli sites. The fathers who answered questions are distributed as 15 % in Muğla, 21% in Güzeltepe and 13 % in Evka houses. The others were the son, bride or daughter of the family who has given answers.

Comment

The main difference during the interviews in sites is finding people to answer the questions. There is usually a member of the family in house for answering the questionnaire in Karamehmet-Muğla and Güzeltepe-Çiğli. In case of Muğla, the information about five empty houses out of thirty-nine has been taken by relatives and neighbors. In Güzeltepe case information about six empty house out of forty has been also taken by relatives and neighbors because they are not at home. In Evka case, when people were not at home it could be very hard and rare to get information about the people and their house from neighbors. In some cases they do not either know who has lived at next door. It could be said that people in Muğla and Güzeltepe are more in social contact and closely related to each other then people in Evka-2.



Graph 2-a The ones who answered the questions



Graph 2-b The ones who answered the questions

4.4.1.3. Are you foreigner or native of the place?

This question is also planned to ask for an understanding about social structure of sites. This is also very important question for understanding people's thoughts and feelings about *belonging* to that site. Also it had been tried to get a general look at their origins. The aim of looking at their origins is to search about their collective spatial consciousness. As it has been stated in Hypothesis 7 (p.83) that, the cultural continuity of spatial consciousness could be defined by formation and configurations of housing patterns which is not interrupt by formal planning and formal professional effectiveness like as it is in squatter settlements. People are formed their open-closed space relations depending on what they are having in their cultural codes and consciousness.

In case of Karamehmet-Muğla 68 % of people have defined themselves as native whereas 32 % of them as foreigners. In Güzeltepe-Çiğli 94 % of the inhabitants have felt themselves as foreigner and 6 % of them as native. In Evka case 60 % of people have defined themselves as foreigner and 40 % percent as native. (Graph 3a-3b).

In general, people in case of Karamehmet-Muğla define themselves as native even they are from near rural areas like as Ula, Datça, Milas, and Yatağan. There are also some families who have migrated from mountain villages' to Muğla in recent years and have defined themselves as native. There are also some people from Aydın (Bozdoğan, Çine) and have owned houses for a long time ago in this site and have defined themselves as foreigners. Another group who also defined themselves as foreigners is from Ağrı, Sivas and has owned houses in these parts of the city in near present.

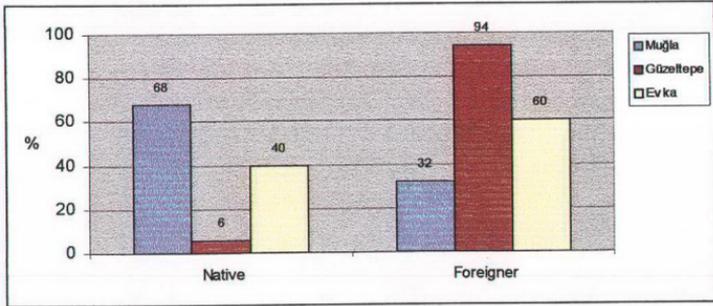
In case of Güzeltepe-Çiğli 94 % of inhabitants have defined themselves as foreigners although they had been in the site for a long time. There are people who have been migrated to this site during the last fifteen, eighteen or twenty years but still they have felt themselves as foreigners. These families are in general have been migrated from the East Anatolia. They are distributed as; nine family from Erzurum, six from Kars, seven from Hınıs, three from Varto, two from Erzincan, one from each (Ardahan, Siirt, Muş) and two from Afyon. Two house owners in Güzeltepe have answered this question as native (6 %) and they were from Çiğli, a part from the city of Izmir. These kinds of people were the earliest settlers of the site. They usually have being called as 'göçmen'. They are not from the East Anatolia but

from Bulgaria and Yugoslavia. They have been migrated earlier from Balkans and changed their country boundaries.

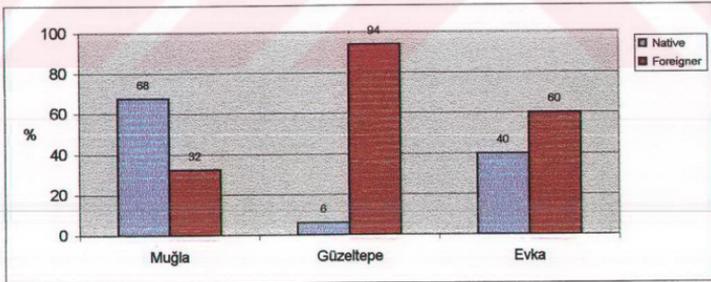
In Evka 2- Çiğli case, 60 % of interviewers are defined themselves as native although their origins have differentiated too much (Appendix V). In general Evka houses are not the second houses of inhabitants after their departure from hometown whereas Güzeltepe houses are in general their second house and location, after departure from original site.

Comments

The ones, who have moved and changed location of his/her house a lot, could be easily felt belonging to the place where he/she is in a shorter time but they do not have strong social contact with others in the site. (Evka case). The ones who have moved and changed location of his/her house once, far away from their origins could not be easily adapt to the site for a long time. They have felt foreigner for a long time although they have strong social contact with others in the site. (Güzeltepe case). The ones who have moved and changed location of his/her house once but not so far away and have chance to migrate seasonally to their original place have not felt themselves as foreigners and have social contact in the site. (Muğla case) It could be said that distance and being away from hometown has a great role on feeling as foreigner with an exception of 'Göçmen' positions. They have changed their country boundaries and have located in this site which is far away from hometowns but they feel as native because of not having a chance to return their origins.



Graph 3-a Are you native or foreigner of the place ?



Graph 3-b The natives and foreigners in cases.

4.4.2. The Location and Orientation of Houses in Sites

The questions 1-6 are planned to get general information about the settlement types and houses. The aim of this group of questions is to get data about the open-closed relations of houses and location of open-closed space in sites. Also it had been tried to define house position on parcels and opening facades of the houses. The orientation of openings by attached sides and house and parcel relations by location of house on parcel have been tried to analyzed in three cases.

Question 1- What is the settlement type of the house?

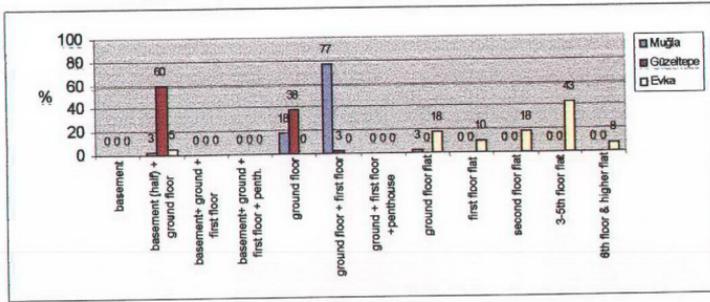
This question is just applied to define the number of houses in three different settlements. There are 39 house in Muğla, 40 house in Güzeltepe and 40 house in Evka, which the following questions have been applied.

Question 2-Which floor is the house on?

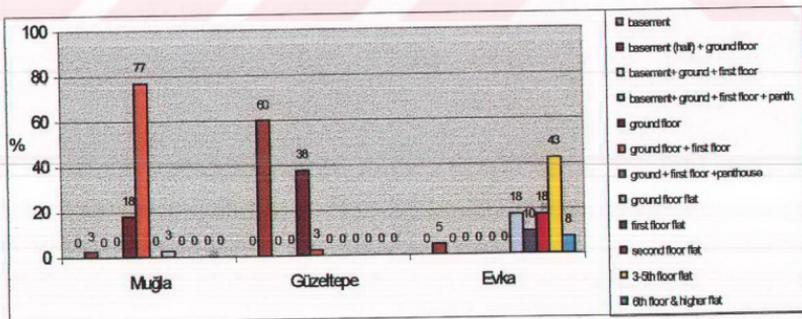
The houses are in general two floors in Karamehmet-Muğla. The 77 % of this site's houses are ground and first floor. The 18 % of them are placed in ground floors. In Güzeltepe case the houses are in general located with 60 % in ground floor with a half basement. There are also some of them with 38 % which located only ground floor. In Evka case, it could not be possible to generalize the floors of the house. The flats that the questionnaire applied have changed but in general the questionnaire have been carried 43 % with people in flats at 3-5 floors. (Graph 4 a-b).

Question 3-How many sides of the house has attachments?

The aim of this question is to find out how houses are organized with relation to others. The houses are decided as having four sides and the question is prepared to define the attached and probable open with non-attached sides. The answers will be given according to their attached sides. They could be listed as, non-attached, one-side attached, two sides attached, three sides attached and four sides attached (Figure 4.1). It could be said that there is no chance of opening in sides that are attached. With the help of attached sides' orientation, it could be possible to understand the orientation of three sides that are probably open or not.



Graph 4-a The floors of houses



Graph 4-b The floors of houses

The data about attachments are also helpful for understanding the probable addition of units on parcel to non-attached sides of house, in future.

The distribution of the responses of three cases could be seen in Graph 5. In Muğla case the attachments distributed as, 49% three sides, 26% two sides and 26% one side. In Güzeltepe, the attachments from highest to lowest are distributed as 70% one side, 17,5% two sides and 10% three sides. The two sides attached houses were seen highest with 80% in Evka. There were 20% of one-side houses in this site, which are taken place at the end of Type C blocks.

The distribution of the attached sides with in relation to orientation could be seen in Graph 7 a-b, Graph 8 a-b and Graph 9 a-b. In Muğla site, which three sides attached houses are in general (49 %), the attached sides have been oriented with 7,7 % to North-South-East, 41 % to East-West-North (Graph 9 a-b). In Güzeltepe site, which one side attached houses are seen in general (70 %), the attached sides have been oriented with 25 % North, 12,5% South, 22,5% West and 10% East (Graph 7 a-b). In Evka-2 case, which two sides attached houses were seen in general (70 %), the attached sides have been oriented as 30 % East-West, 17,5 % South-East, 15 % South-West, 7,5 % North-West and 10 % to North-East. (Graph 8 a-b).

Comments

The houses of Muğla are two story houses with having adjacent relations with each other by wall to wall attachments. These houses are attached to each other either with one, two or three sides. The one side attached houses are seen at corner parcels with streets have positioned at three sides. The two sides attached ones are having street on one side of the house, the quel de suc at other side or they have positioned at the corner parcels with having streets at two sides. The three sides attached houses are having street only at one side. Generally the main entrances of houses take place from this street to the courtyards. (Figure 4.1) The houses in Muğla case are generally closed at North-South-West sides and opened at South side. These houses have a chance of opening at only one side. The others above mentioned with one or two attachments have chances of opening at three or two sides.

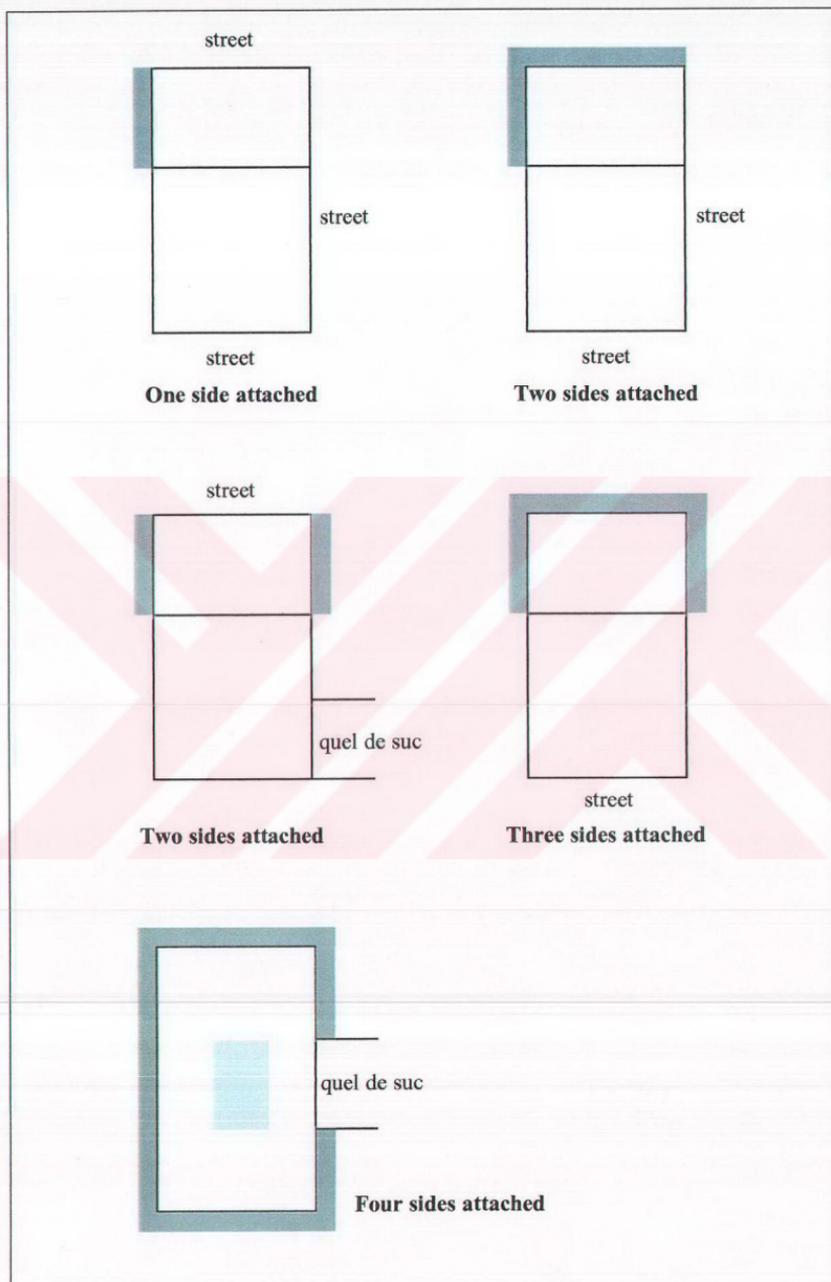
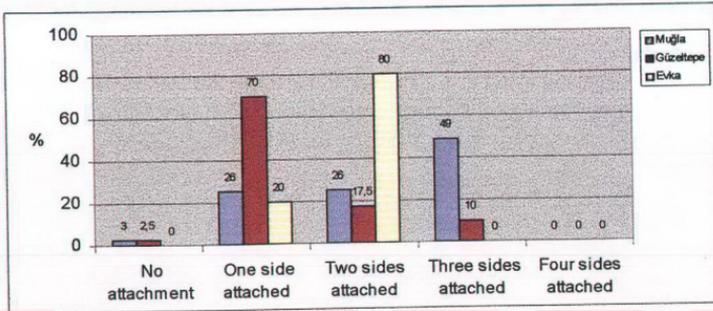


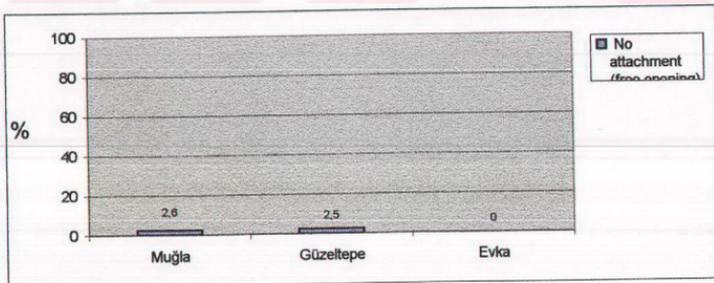
Figure 4.1. Attachment of Houses in Karamahmet - Muğla Case

In Güzeltepe case, houses are generally having a ground floor with half basement (similar to Bođazköy houses-p.46) or only ground floor. The basement floors are having storage units and W.C in it. In some cases with excavations they have transformed basement floors to ground floors. The orientation of the attached side has differentiated although the houses have in general one side attachment in this site. The attached sides are in general directed to North (25 %) and West (22,5 %) in Güzeltepe.

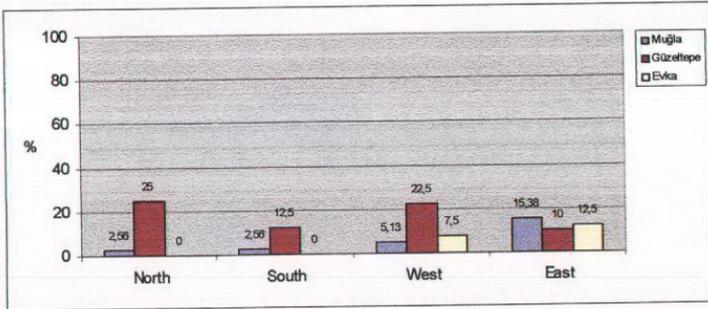
In Evka case houses have their two sides attachments in changing directions. In Type C-Evka 2, houses have two attachments which are positioned in general East-West directions whereas in Type E, Evka-2 they have differentiated attachment directions because of location of four flats in a floor. It could be said that this type of location of flats or houses has a lot negative effects. The attached sides of one flat affect the openings of non-attached side at next flat. When one flat has positive features about light, sun, wind, view and etc., with their opening sides, the other one on opposite side never has a chance to get same positive effects of open space because of their orientation to the quality of site with attached sides.



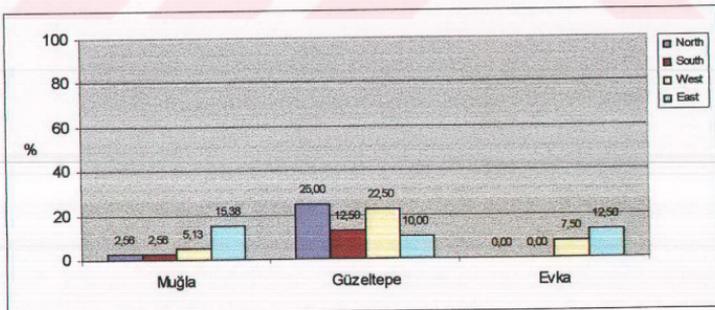
Graph 5 Attachment of houses



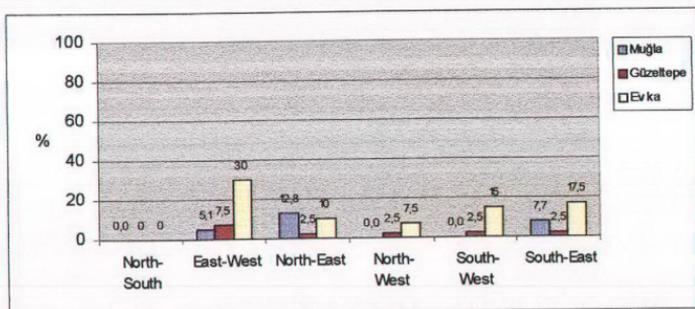
Graph 6 Non-attached houses



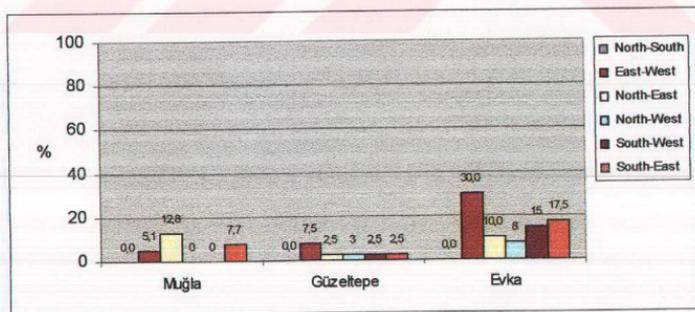
Graph 7-a One side attached houses



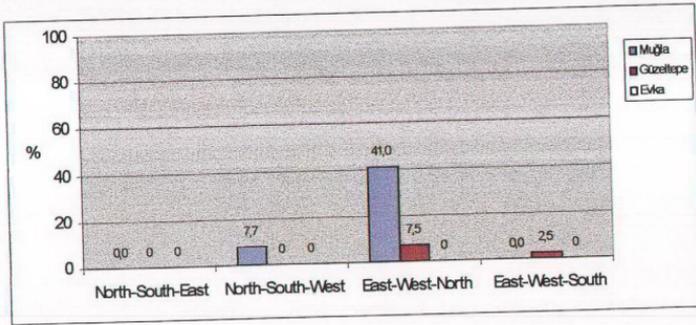
Graph 7-b One side attached houses



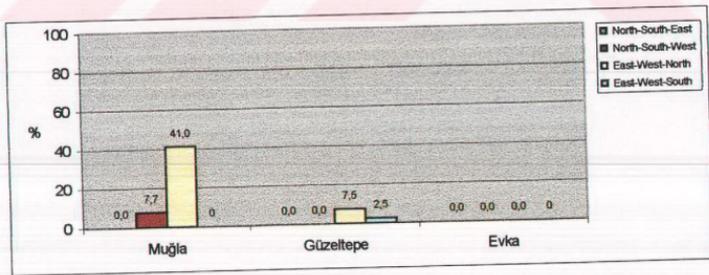
Graph 8-a Two sides attached houses



Graph 8-b Two sides attached houses



Graph 9-a Three sides attached houses



Graph 9-b Three sides attached houses

Question 4 How many facades of the house has openings?

The aim of this question is to understand the organization of open-closed relations of house at facades. These are adjacent relations with open space either with a window, open sofa, terrace or balcony levels. In this question it had been tried to get data about the number of opening facades and whether they are opened from wide, narrow or approximately equal sides. The houses in Karamehmet-Muğla case have in general 69% one facade openings and 30,8% two facade openings. In Güzeltepe case openings are distributed as 40 % one facade opening, 35% two facades and 25% three facades opening. In Evka-2 case 100% of the houses have two facades opening.

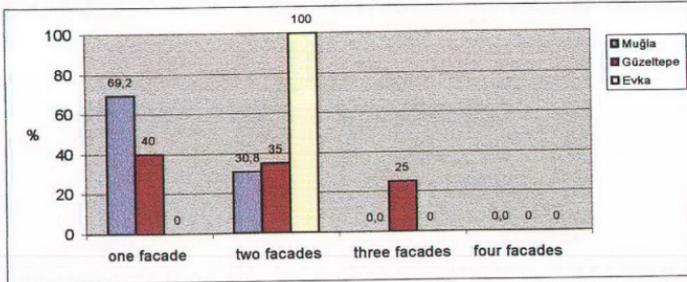
Comments

In case of Muğla, houses have in general with 69 % one face openings to the courtyards. These 69 % data of one side opening are not only related to 49% data of three sides attached houses of Muğla. It could be said that, there are one facade open houses besides three sided attached houses. The two sides and one side attached houses (the ones at corners) have also one face openings although they have a chance to open to streets as another face. Nowadays this unwritten rule of not having an opening to streets have been disturbed by small window openings at ground floors and seldom quest room or bedroom windows at second floors.

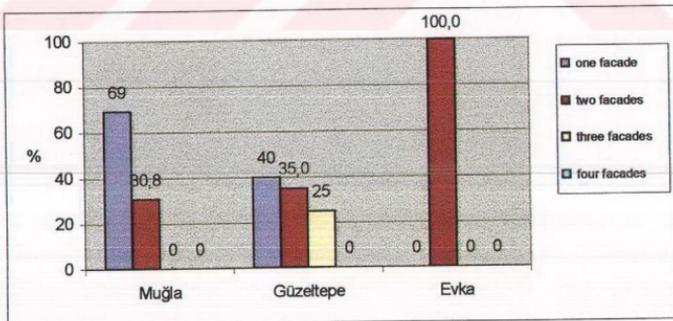
In Güzeltepe, 70% of one side attached houses have only 25% of three sides opening. Every one side attached house does not have opening at three non-attached sides although it is possible. Also the 40% of one face opening are not based only 10% three side attached houses.

In Evka-2, there are 100% of two side openings although they have 80% of two side attached houses. The one side attached flats at the end of block Type-C also have decided as having two side openings. The small windows of bathrooms are not considered as a facade opening.

Comment: The side attachments and facade openings of houses do not relate directly to each other. The main attitude (Figure 4.1) is to have minimum number of facade opening and leaving the other facades as closed for probable additions of units in future.



Graph 10-a Number of open facades



Graph 10-b The openings of houses on facades

Question 5 If the house has one face opening, is it narrow or wide?

This question is prepared for understanding the location of openings with relation to position and plan types of houses. The opening could be on a wide facade, narrow facade or they could be at the facades which are approximately equal.

The 27 out of 39 house which means. 69 % have one facade openings. The 43,6 % are opened with wide face, 15,4 % with approximately equal and 10,3 % with narrow face in Karamehmet-Muğla.

In case of Güzeltepe 16 out of 40 house, which means 40%, have one face opening. The 32,5 % are opened with wide face and 15,4 % with approximately equal face. In case of Güzeltepe there is not any house with narrow face opening.

Generally, one face openings of houses in Muğla and Güzeltepe sites are seen at wide facades. There is not any one face opening in Evka-2 both in Type C and Type E. They all have two facades that are opened.

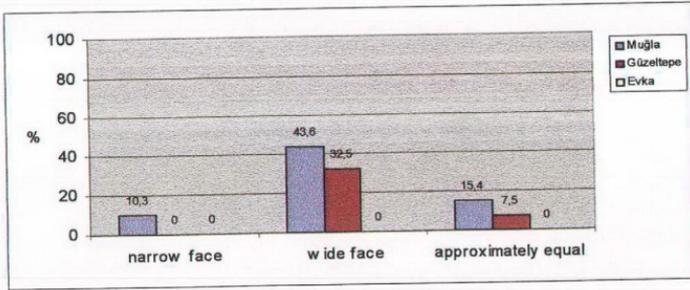
Question 6 How does the house stay on the parcel?

This question is planned for understanding the relations of house with parcel. It could be possible to define location of houses on parcels in three sites. The relation of a house with parcel and remained open space on parcel after building could be seen in Figure 4.2.

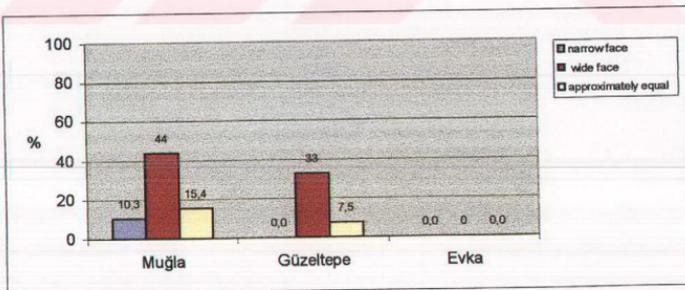
In Karamehmet-Muğla case 74,4 % of houses are located at corner-edge-corner position. In Güzeltepe case 65 % of houses are located at edge and 25 % at corner-edge-corner of parcel. In Evka-2 case all blocks with their flats are located at the middle where there is no reference about edges of space that they are located. (See Graph 12 a-b.)

Comment

The location of the house on parcel has great role on the effective use of parcel. When the house has built at one side of parcel (corner-edge-corner) or at edge the space left after building could be sensed at maximum degree. The unbuilt open space is not divided as back and front or left and right. In Muğla and Güzeltepe people are generally start to build their houses at the corner or edge of parcels.



Graph 11-a Types of one facade openings



Graph 11-b Types of one facade openings

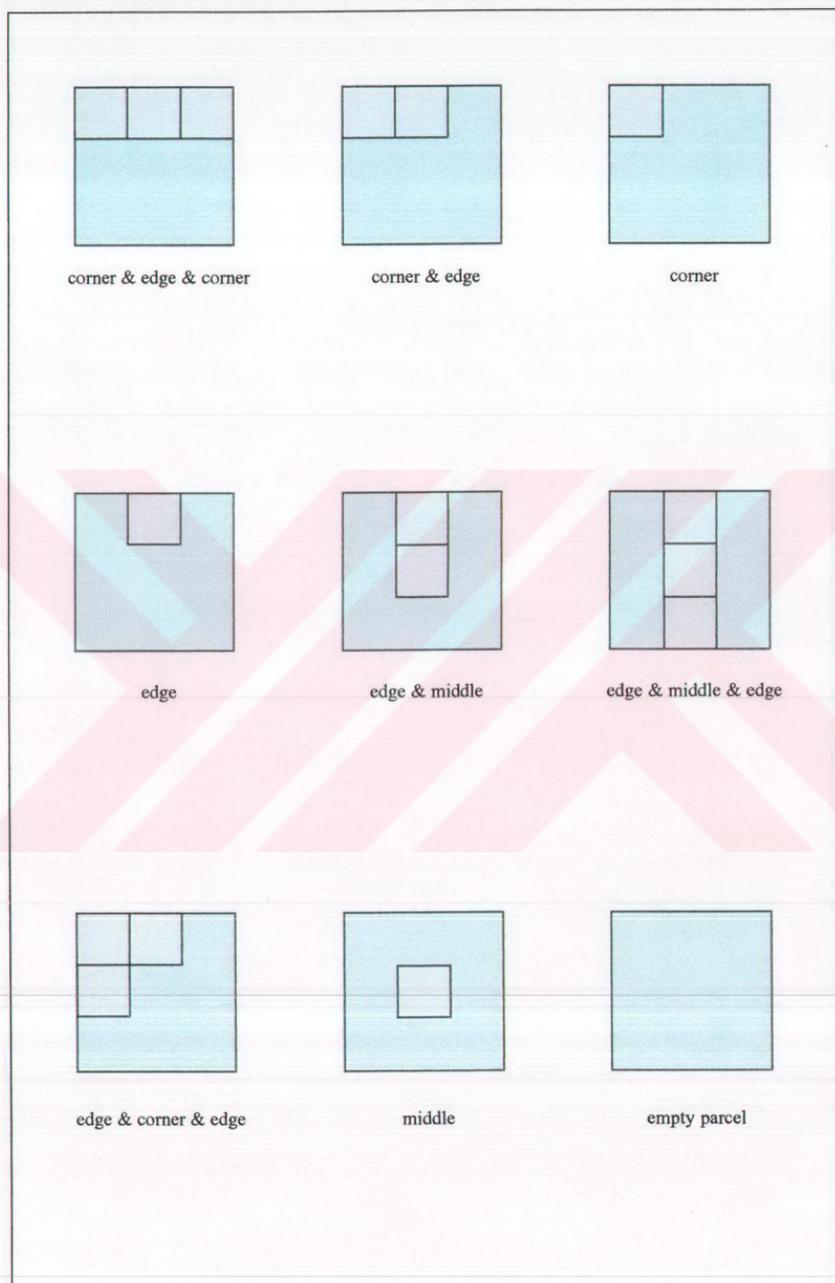
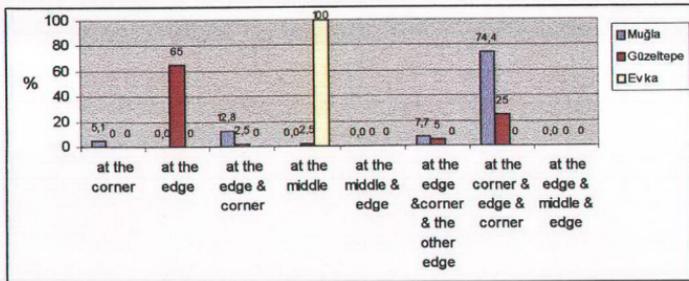
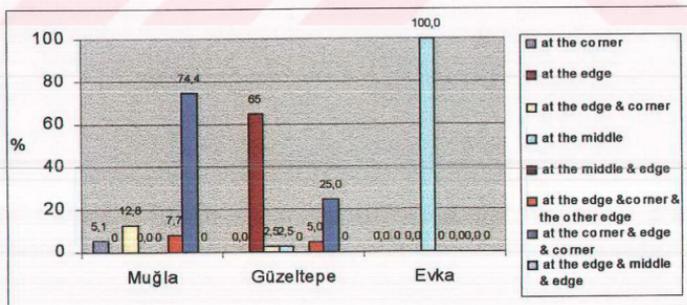


Figure 4.2. Location of House on Parcel



Graph 12-a Location of houses on parcels



Graph 12 -b Location of houses on parcels

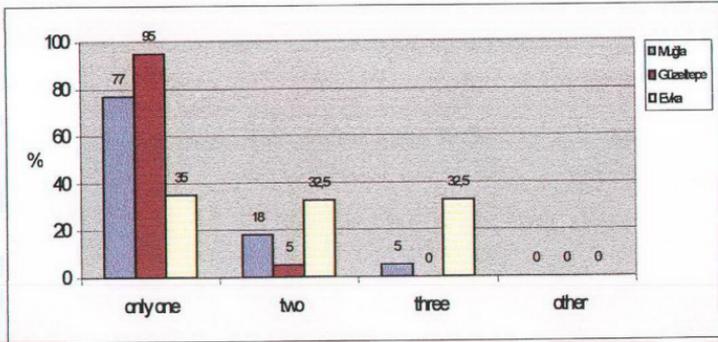
The act of building at edge leaves to houses maximum courtyard and garden as an appropriated open space. This location can also give a chance to built probable units next to sides. Owners have felt a sense of security in Güzeltepe by building at edge of parcel. Space left after building could be easily controlled. In Muğla, the remained space after building could also be easily controlled with high courtyard walls and by building three sides attached house at one side (corner-edge-corner) of parcel. These type of location and having attached side walls, which no openings are also similar to historical examples and their defence systems that have been discussed in Chapter II, p. 50.

4.4.3. Entrances of the House

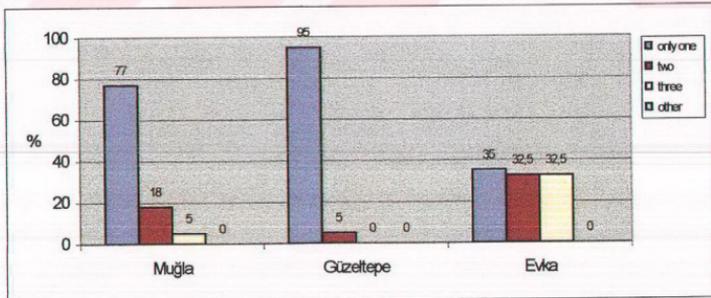
The questions from 7-10 are planned to get information about transitions between open-closed space units with entrances. Entrances could be defined as thresholds of open-closed spaces. They are also thresholds between community and family at house level by separating from others. (See also p.2, trans. from Göregenli). The number and position of entrances will be helpful to analyze interrelations of open-closed space.

Question 7 How many entrances does the house have?

The number of houses with one entrance are distributed as 77 % in Muğla, 95 % in Güzeltepe and 35 % in Evka-2. In Muğla there were 18 % of houses with two entrance and 5 % with three entrances. In case of Güzeltepe there were only 5 % of houses with two entrances and there was not any house with three entrance. In Evka-2 the entrances of house from open-closed space are distributed approximately same in percentage. The number of houses are distributed as 35 % with one, 32,5 with two and 32,5 with three entrances. In case of Evka-2 the houses have non-differentiated two plan types. The houses of Type C have two bedrooms, one living room, a kitchen and bath. The house of Type E has also one living room and a bedroom with a kitchen and bath. Although they are not similar in size both of them have two balconies one adjacent to living room and other to kitchen. This means that houses have two entrances from the balconies. There is also one entrance from staircase for each house. Today, there have been great changes in distribution of these three entrances in Evka-2 houses. Nowadays the house plan forms are changing by enclosing one or two entrances from balconies although 100 % of houses have earlier three entrances from open space.



Graph 13-a The number of entrances



Graph 13-b The distribution of house entrances in sites

Question 8 If there are two entrances where are they from?

There are 7 out of 39 houses with 18 % in Muğla that have two entrances. There are 2 out of 40 houses with 5% in Güzeltepe and 13 out of 40 houses with 33 % in Evka-2, which have two entrances.

The four houses with second entrance out of seven in Muğla are from back streets, which located at the upper side of the parcel. These entrances are in general recently opened. The two houses out of four that have second entrance from streets have their first entrance from *quod de suc* at the lower side of parcels. In one house out of four, a new door has been opened because house has been divided horizontally into two and there is a need of new entrance for upper floor. One house out of seven has different type of second entrance from street with stairs at a corner parcel but it is closed and not used. The other two houses have a shared entrance at their courtyard walls between parcels. This type of transitions between parcels could be seen at adjacent houses of relatives in Muğla.

In case of Güzeltepe there are only two houses that have two entrances from open space. In one house these are from garden and balcony. In the other house the two entrances are from street and garden.

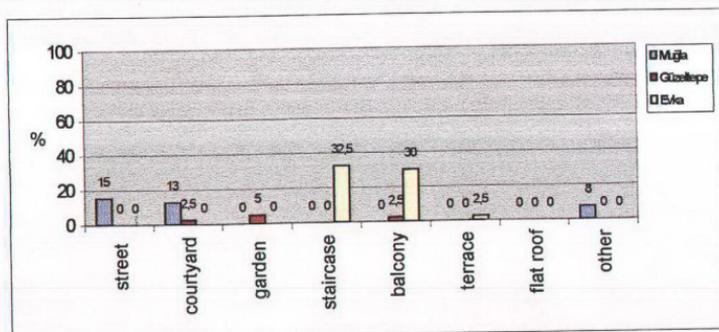
In Evka-2 case, 13 houses out of 40 which means 33 % are having two entrances. It means that they have one entrance from staircase and the other from non-closed balcony.

Question 9 If there are three entrances where are they from?

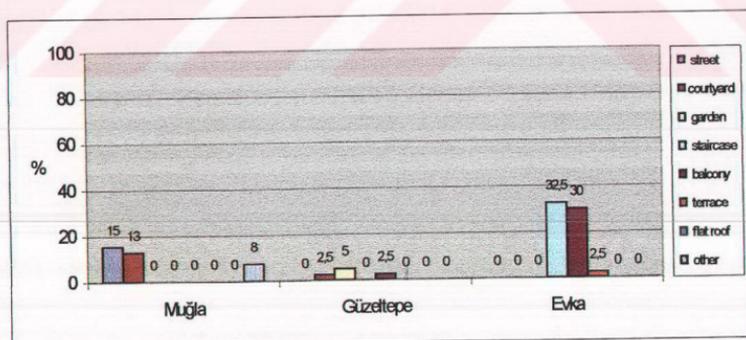
There are not any house with three entrances in Güzeltepe.

In case of Muğla there are only two adjacent houses with three entrances. The first entrances of these are from courtyards, second entrances are from upper streets to house and third one is between their parcels at their shared courtyard wall. This type of transitions between houses with a door at adjacent courtyard wall could be seen between houses of relatives in Muğla case as mentioned above.

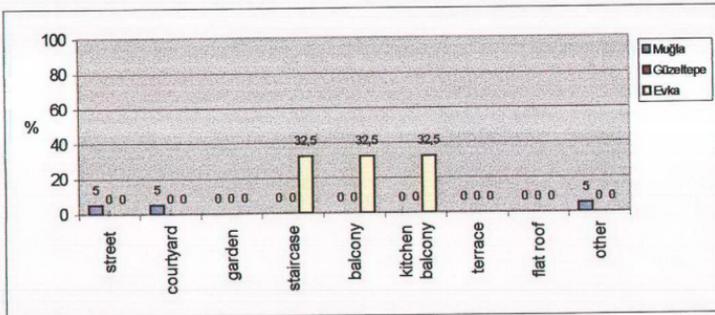
In Evka-2 case, the houses with original plan types of Type C and Type E are having three entrances. The balcony entrances of these houses are not enclosed.



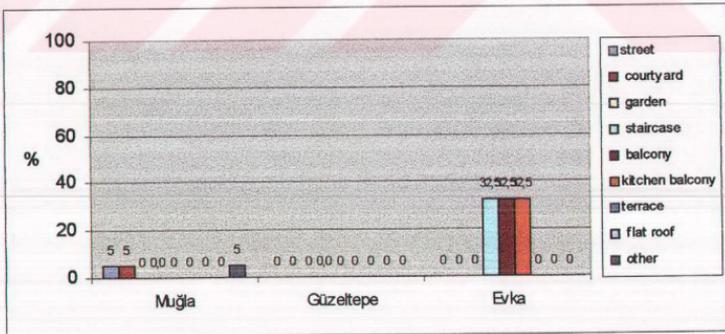
Graph 14-a Where are the two entrances of houses from?



Graph 14-b The distribution of houses with two entrances



Graph 15-a Houses with three entrances



Graph 15-b The distribution of houses with three entrances

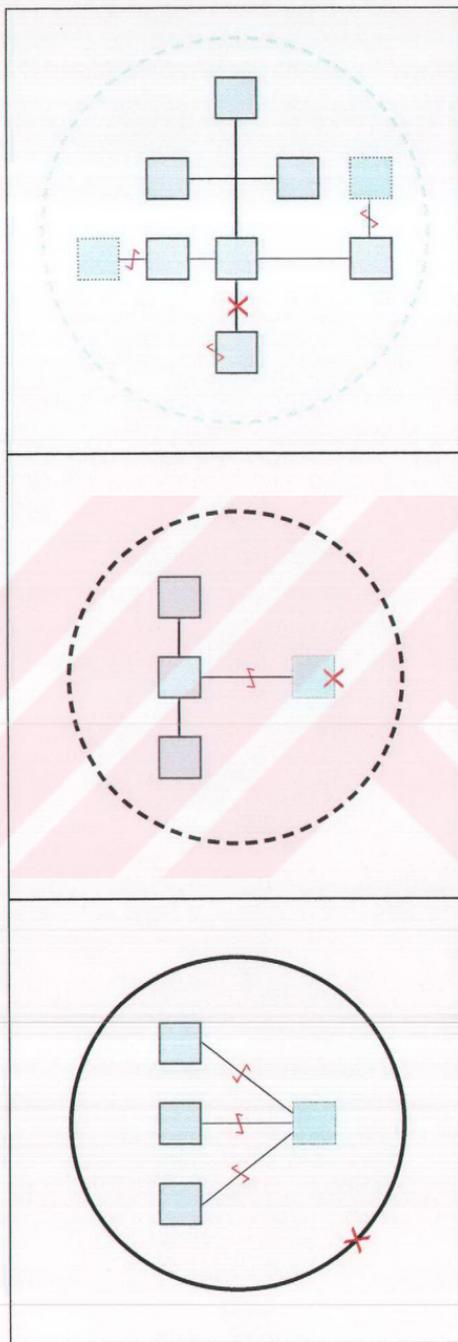


Figure 4.3. Transitions of Open-Closed Units (Main entrance (X) and close unit entrance (∩) from open space)

Comments

Entrance of a house is the threshold of safety, security and control. If the number of entrances have increase control and defense between open-closed space is getting hard. The number of entrances in a house could define the level of control for security. If the number of entrances are less the control and defense of *appropriated space* gets easier.

In case of Muğla, courtyard entrance doors are in general thresholds of control for strangers. This entrance could be also defined as *a transition from communal open space to appropriated open space unit of house*. Also there are some entrances between courtyards, which means transitions from two appropriated open space or close space of houses between relatives, close friends, which there is not a stranger control or any other control is needed.

In Güzeltepe the entrance doors are placed either at terrace fence or at wall between terrace and closed units. These entrances could also be defined as *a transition from communal open space to appropriated open space* and *a transition from appropriated open space unit to appropriated closed space units*. In Evka houses the entrance doors of flats are from staircases which are closed space. The transitions from open to closed are differentiated in these cases. *The transitions are from communal open space to communal closed space (staircases) and to closed units of houses*.

The threshold of control for strangers in Evka-2 is at the flat's entrance door in staircases. Staircases are closed units used by everyone in community. The entrances of balconies are defined as *transitions from communal open space to open space of house and to closed units of house*. The balcony doors are also the thresholds for controlling strangers. People are enclosing their balconies with metal fences especially in lower flats near ground.

Besides control, there is one more thing, which need to be emphasized about having one entrance in houses. The minimum number of doors from open space also affect the building cost which is very important for the low-income people in squatter settlements.

Question 10 Where is the main entrance of the houses from?

In this question it had been tried to understand how is main entrance positioned in house with relation to closed units. Every house has at least one entrance which is used more than the second and third.

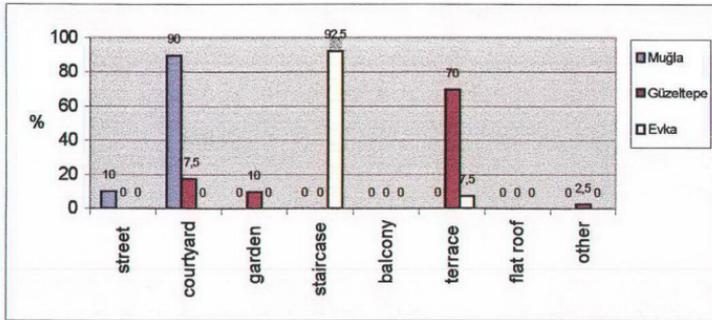
In Muğla case as presented in Graph 16 a-b, people in 35 house out of 39 which means 90 % are used courtyard entrances as main entrance. The other 4 out of 39 that means 10 % are used the entrance from street as main entrance.

In Güzeltepe case, people in 28 house out of 40 which means 70 % used terrace entrances as main entrance. In the other 7 houses out of 40 that means 18 % used the entrance from courtyards as main entrance. There are also in 4 houses out of 40 which means 10 % people are used the entrance from courtyards as main entrance.

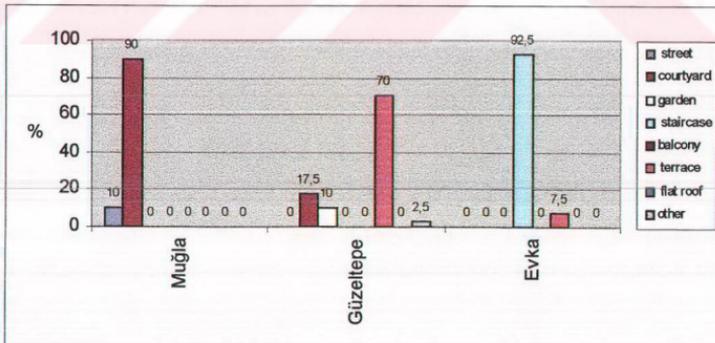
In Evka-2 case, inhabitants of 37 house out of 40, which means 93 % are, used the terrace entrances at staircase as main entrance. In the other 3 houses out of 40, which means 7,5 %, people are used entrance from terraces as main entrance. These three houses are ones which take place at basement floors of Type C. These floors are planed as half basement at apartment entrances' side and half ground floor at garden side because of slope in the area they have located. The owners of house at these floors are in general enlarged their balconies toward communal open space and enclosed them either with permeable or semi-permeable elements. Then they are used this new owned, appropriated space as a terrace of house and are also used its entrance as main entrance which could be named as a *transition between appropriated open space to appropriated closed space.*

Comment

There is a need of a main entrance in every house. The main entrances are in general preferred if they are placed in space from communal open space to appropriated open then to closed units.



Graph 16-a The main entrances of houses



Graph 16-b The distribution of main entrances of houses

Question 10/a How many entrances does the apartment have?

This question is planned to be asked only in Evka-2 blocks for understanding the threshold of control. The entrances of apartments are placed from the transitions of communal open space to appropriated communal closed space of apartments, which is a staircase.

Type C and Type E are plan types in Evka-2, which case study has been carried on. Type C are placed in blocks which has six normal floors and a basement floor. There are four adjacent flats in each floor located side by side. These are having two staircases and two entrances in each block. In the case study, 20 houses of Type C out of 40 houses which means 50 % of the total are analyzed and questionnaire has been applied to their owners. The other type in Evka-2, Type E has five floors with four flats at each. The flats are shared same staircase and the apartment has two entrance doors at ground floor. In the case study, 20 houses of Type E out of 40 houses which means 50 % of the total are analyzed and questionnaire has been applied to their owners.

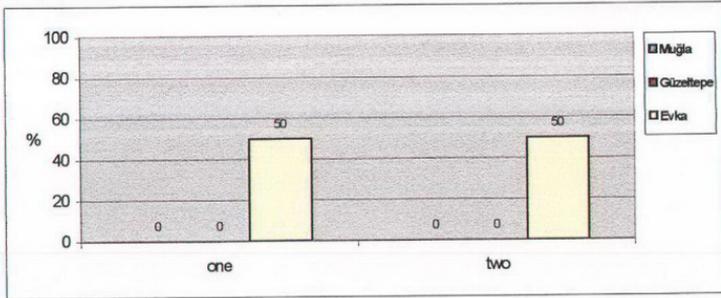
Questions 10/b If the apartment has two entrances, are you using them?

This question is asked to understand the control level of apartments with two entrances. It has been tried to understand whether people in apartments with two entrances are used both or used only one as a main entrance.

The owners of 20 out of 40 houses in Type E blocks which means 50 % in site answered this question as 'No'. This could also be easily observed at entrance halls of apartments in Type E. People are closed the second entrance doors of apartment either by locking or putting rocks behind it for not permitting entry of other people. In some cases they put a written message at one door and warn people to use the other for entry.

Comment

This is a control mechanism of owners of houses in Type E. The entrance from *communal open space to communal appropriated closed space and then to communal open space* means that this space could be used as a *communal passage for others* than owners in apartment. The house owners are irritated of using their apartment's entrance halls as short transition paths for strangers and they have closed second entrance doors that have designed in original plan of the block.



Graph 17-a The number of entrances into apartments



Graph 17-b The use of second entrance in apartments

4.4.4. Changes in Plan Types

The questions group from 11-19 is planned to get information about transformation of house forms in time. It could be possible to get information about original plan types of houses, early forms by understanding changes in plan types or process of construction in time. *What type of changes have done in time and how are types transformed and affected the spatial configuration of open space in sites could be understood* by using the Abstract Model I as it has been put forward as a Hypothesis IV in p. 83. This type of analyses and testing the model for understanding open-closed space formation and changes in house types are also helpful to interpret continuity of cultural spatial consciousness in Muğla and Güzeltepe, as stated in Hypothesis VII in p. 84.

Question 11 Have you done changes in plan types?

The distribution of the responses of three cases could be seen in Graph 18 a-b. In Muğla case 87% of interviewers has done changes and answered question as 'Yes'. There were 75 % people in Güzeltepe and also 75% in Evka-2 site who have answered this question as 'Yes'.

The highest changes have seen in Karamehmet-Muğla case. Although, three sites are having near percentages by means of change, the types of changes are differentiated.

Question 12 What have you changed?

This question is asked to understand the differences in attitudes of three sites about their spatial changes, formations and creation of new space configurations. With this question it was also tried realizing the open-space close relations and their transformations in time.

The choices for answers could be seen in question form. The given answers of this question are presented in Graph 19 a-b.

In Muğla case changes which have done in the house are distributed as, 72 % an addition of a new room in courtyards, 54 % closing the open sofas, 18 % changing the position of staircase, 38 % pull down a wall, 33 % build a new wall, 8 % dividing into two horizontally and vertically and 3 % kitchen and bathroom renewing.

In Güzeltepe, the changes from highest to lowest are distributed as, 70 % addition in the garden or courtyard, 18 % build a new wall, 13 % divide into two vertically, 7.5 % divide into two horizontally.

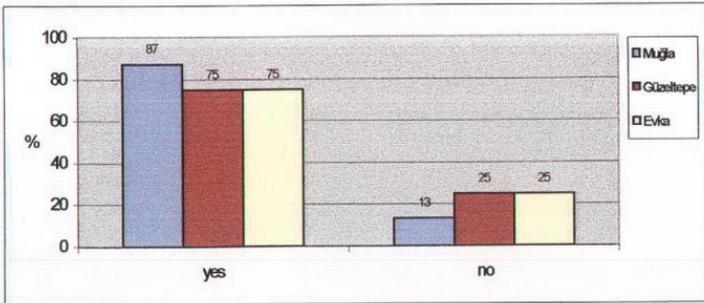
The closing of balconies were seen as highest changes with 68 % in Evka. There were 58 % of kitchen and bathroom renewing in Type C and Type E blocks. The other 28 % changes in Evka-2 houses were the changes of floor tiles, color or plaster changes of walls and etc.

Comments

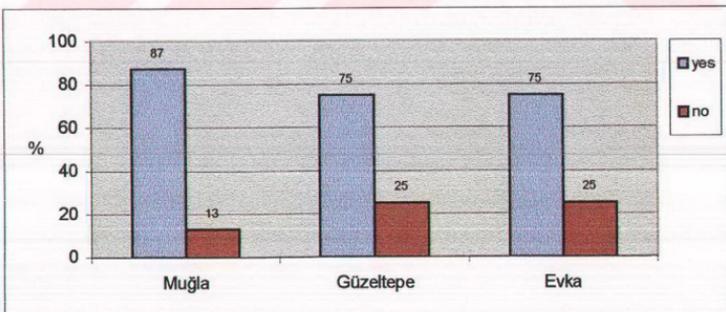
The main difference in three sites has seen between Evka-2 and the other two. In Traditional and Squatter Settlements people are affecting the spatial formation of open space with addition of a unit or units in their courtyards and gardens or building new stairs in open space. They construct in open space by building a closed unit or units depending on their inward forces, cultural spatial consciousness and needs. *There is also an act of creating, concretizing something for themselves while they are forming their own open-closed relations. This is an additive process in time and something new in their life is created.*

In Evka-2 people are not having chance for building, forming new units and effecting his/her habitat. People are limited in closed space. The only open-closed space changes that have done in these flats are the closing of balconies. The exceptions could be seen in the half basement-half ground floors (see Question 10), where there is a relation of closed space with communal open space. In these type of house location, besides closing the balconies, it could be also seen enlargements of balconies to terraces, addition of shelters, addition of pergola, a closed unit or low fence walls. On the other hand normal flats in general, have changes in their closed spaces like as plaster renewals, coloring of walls and tiles.

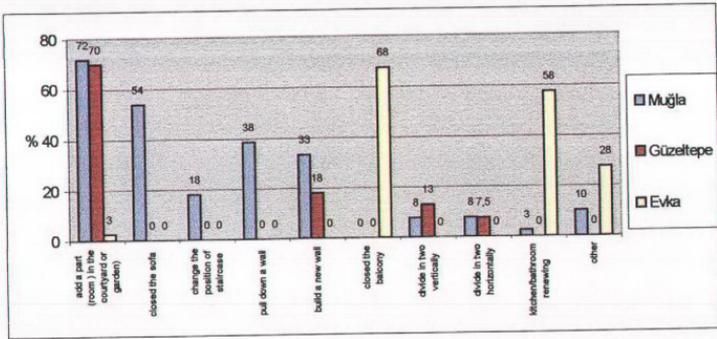
In Muğla and Güzeltepe people are free in configuration their open-closed space relations. In Evka-2 people are limited in configuration of open space because they do not have an appropriated open space for new formations. They were only free doing changes in their appropriated closed space.



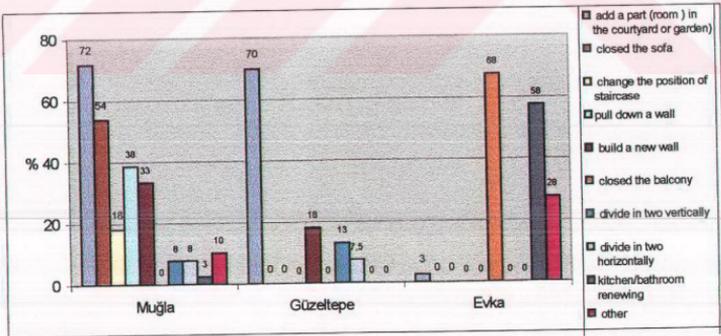
Graph 18-a Have you done changes in plan types



Graph 18-b The distribution of having changes in plan types



Graph 19-a What have you changed in plans?



Graph 19-b The distribution of plan changes in sites.

Question 13 If you add new parts (rooms, units), where did you start adding?

This question is asked to ones that have done additional changes. In question 12, it has been tried to define what have changed in houses and with question 13 it had been tried to understand how they have changed. With the answers it has also tried to determine the relation of house with parcel.

The answers to this question could be stated such as; additions could be adjacent to the building at the edge of parcel or additions could be away from the building at the edge or corner of parcel or others. The additions of units as stated in question 12 seen in general at Karamehmet-Muğla and Güzeltepe sites.

In case of Muğla, the 19 out of 39 houses that mean 49 % have adjacent additions to the building at the edge of parcels. The 9 out of 39 houses, which means 23 %, have additions away from the building.

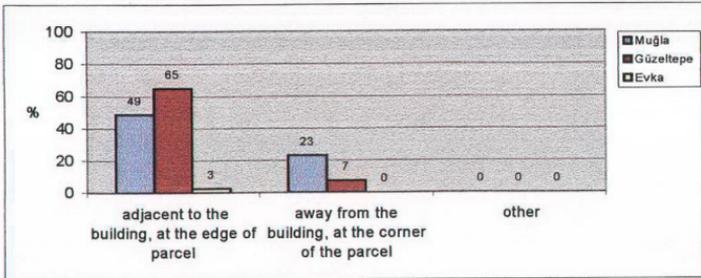
In case of Güzeltepe, 26 out of 40 houses which means 65 % have adjacent additions to the building at the edge of parcels. The 2 out of 40 houses which means 7,4 % have additions away from the building.

In Evka-2 blocks which have minimum additions at half-basement and half ground floors have only 2,5 % of 40 houses which means only one house.

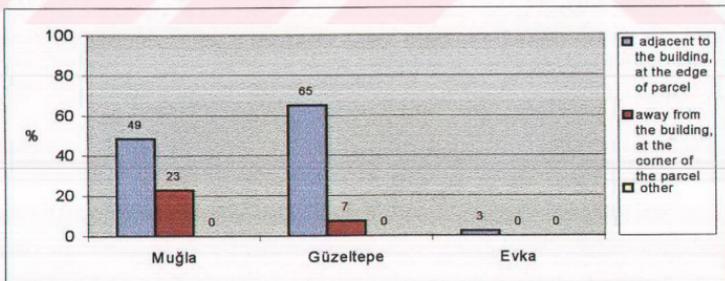
Comments

The additions of a unit in Muğla case are in general built as an addition adjacent to the house although they have in some cases are built away from the house, but in Güzeltepe the additions are in general constructed as adjacent.

The adjacent additions to a building means sharing a wall and building one wall surface less. This also means having less building cost. Adjacent additions means clustering units and leaving total appropriated open space of house as undivided.



Graph 20-a The positions of new part additions



Graph 20-b The distribution of the position of new part additions in sites

Question 14 If you closed the sofa, which sides did you closed?

The question is asked for the owners of houses in Karamehmet-Muğla site. The second type of changes in this site was enclosing of sofa. The 17 house out of 40 houses, which means 44 %, have closed only one face of their sofa. The other 4 house out of 40 houses that means 10 % are closed their open sofa with three faces. (Graph 21).

The open-closed space changes in Muğla houses are affecting the formations of sofa. The open space of house in past, are getting closed spaces of today. This shows that, *the act of closing affects directly the plan types. It could be said that there are not any complete or absolute types. Plan type of houses are differentiated with changes based on open-closed space relations in time by addition sand could be analyzed within this manner.* (Hypothesis IV)

Generally, the one face openings both Muğla and Güzeltepe cases are seen in houses' wide facades. There is not any one face opening in Evka-2, both in Type C and Type E.

Question 15 How many balconies did you close? Graph 22

Question 15/a. Which balcony did you close first? Graph 23

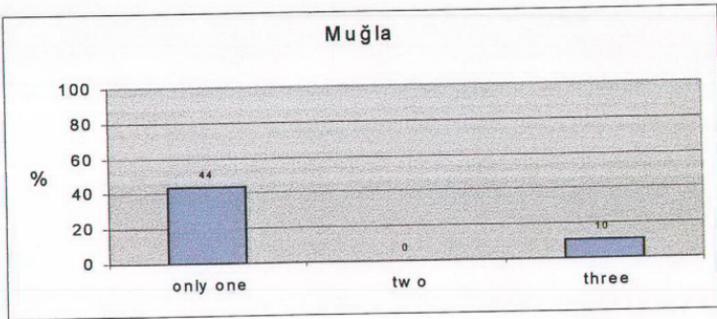
Question 15/b. Are you going to close the other? Y/N Graph 24

Question 15/c. How many faces of the balcony have you closed? Graph 25

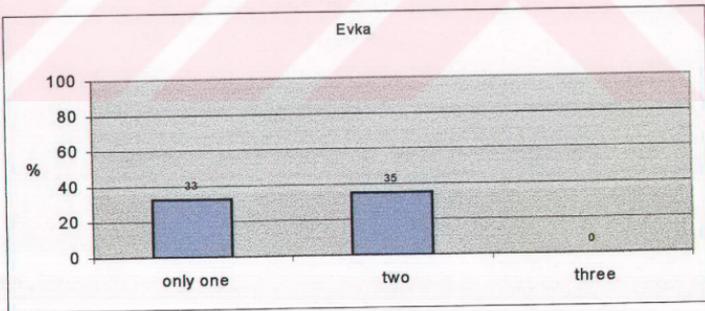
Question 15/d. What is the reason of closing the balconies? Graph 26

The questions above are asked to people in Evka site. The spatial changes between open-close space are only seen at balconies in this site. The types in Evka-2, which thesis model has been tried to test are Type C and Type E. The plan types have been mentioned in Question 7. Although these are not similar types both of them have a kitchen and a living room balcony in common.

The act of closing balconies is widely seen in Evka-2 site. The 27 houses which means 68 % of 40 house have been closed their balconies. This is an act of changing three sided open space to a closed space. It is a similar act like as the change of open sofa to closed sofa with one face enclosing in Muğla houses. (Question 44). The 13 houses out of 27 that are 33% of total house have been only closed one balcony and 14 out of 27, which is 35 % of, have been closed two balconies.



Graph 21 The enclosing of sofa's sides



Graph 22 The number of closed balconies

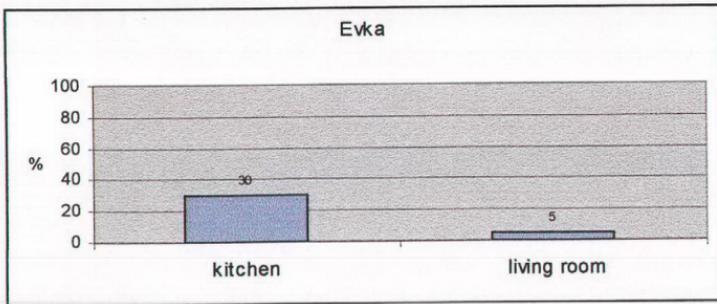
The 14 interviewers who have closed two balconies were also asked about their preferences in closing a balcony. In 12 houses out of 14 that were 30 % of the total 40 houses have preferred to close the kitchen balcony first.

There were 13 owners, which have been closed only one balcony. When it was asked to them whether they are going to close the other or not, the responses of 11 were Yes to that question which is 28 % of total (Graph 24). There were also 15 houses out of 40 that have been closed only one side, 8 houses with two sided which means 20% out of 40 and 12 houses with three sided with 30% have closed balconies (Graph 24).

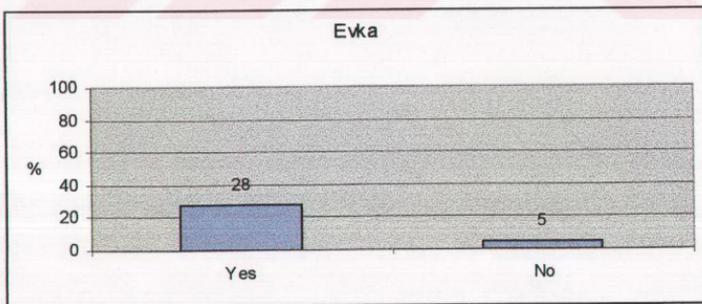
The reasons for enclosing balconies are differentiated. The responses to this question distributed as 53 % said that they have closed because of negative orientation of balconies that are not preferred. In general kitchen balconies are orientated towards North in Type C and living room balconies are oriented towards South. Besides orientation of balconies, dirt and pollution in site and size of balconies are some other reasons for enclosing. People are chosen one of these choices or in some cases both two and three choices in defining their reasons of enclosing. The 33% of interviewers are said that dirt and air pollution is the reason of enclosing their balconies. The 65 % said that the reason of closing was small sizes of balconies. The choice, other which is 22,5 %, includes enclosing for security or for storage.

Comment

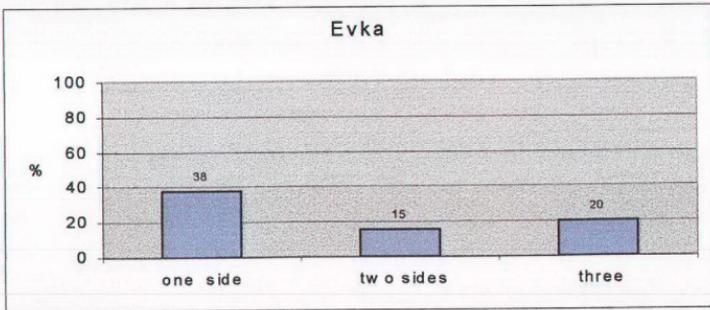
The balconies of apartments are design by the architects as open space for flats. The analyses in site have shown that there is a continuous act of enclosing balconies. Although the reasons of enclosing are defined by inhabitants physically as non-positive direction, pollution or small size there could be also some other reasons. The intrinsic causality of this act could be the need of appropriation of open space, which is not only belonging to them. The balconies as open space in blocks could not really act for life producing. They are not located and positioned like as the open spaces in Muğla and Güzeltepe sites. The two balconies means divided open space for house unit and the two entrances means hardly control and not having a feeling of safety and security. These open spaces are not acting as appropriated open space which people need for life producing at house. They are refused to use balconies as open and enclosed them for other needs.



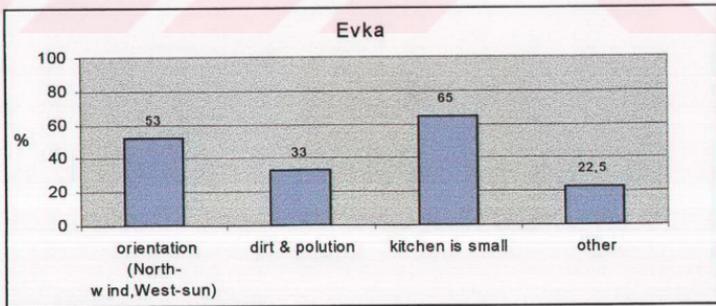
Graph 23 The preference in enclosing of balconies



Graph 24 The decisions about enclosing the other balcony



Graph 25 The enclosed faces of balconies



Graph 26 The reasons for enclosing

Question 16. Did you close any door after building was completed? Y/N

Question 17. Did you open any door after building was completed? Y/N

Question 18 .Did you close any window after building was completed? Y/N

Question 19. Did you open any window after building was completed? Y/

In the group of questions above it has been tried find out how people act in the building process of their houses.

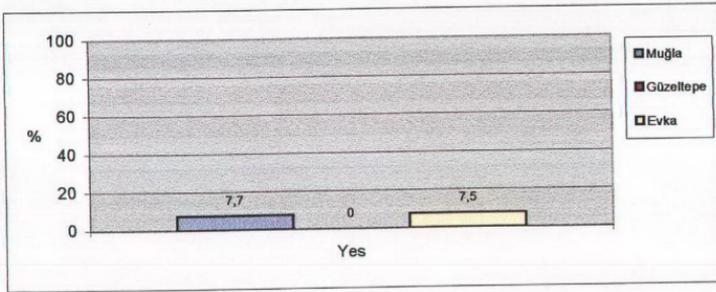
In general people are not destroying things that they have done once. They are trying to build new things. The enclosing of an existing door in sites are distributed as 7,7% in Muğla and 7,5 % in Evka. The percentages in distribution of enclosing in existing windows are very low, 7,7% in Muğla, 7,5 % in Güzeltepe and 2,5 % in Evka.

The act of opening of a new door or a window is seen more in site Karamehmet-Muğla and Güzeltepe. There are 58 % of new door opening during construction process of Güzeltepe which means opening a door to a new unit. In Muğla this is 51,3 %.

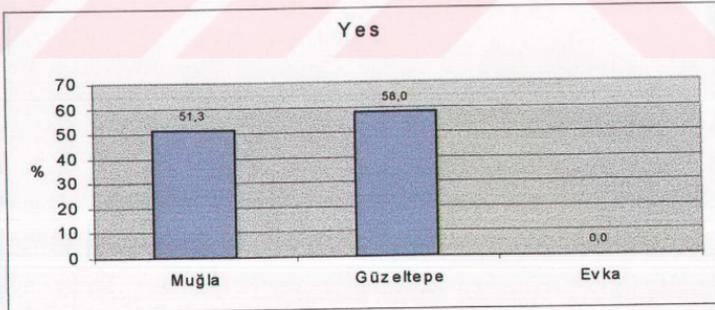
The opening of a window in Güzeltepe has seen with 18 % and in Muğla 33,3 %.

Comment

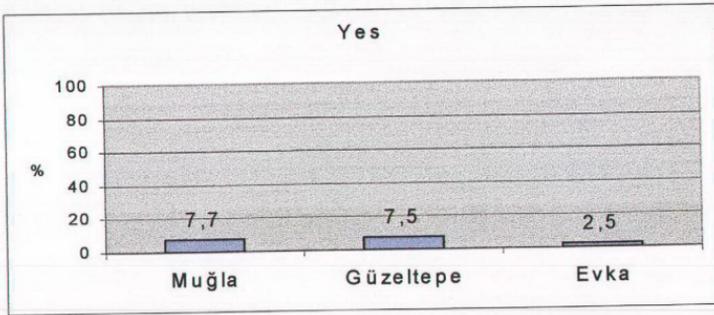
There is an act of building with minimum materials and numbers in sites. The rooms are in general have only one window and one entrance doors. The entrance doors of rooms are from closed space to closed space in Güzeltepe except the main door. The entrance of closed units in Muğla is from appropriated open or closed space of sofa. The open-closed relation of main door is at the courtyard entrance, which is a transition from communal open space to appropriated open space. When a new closed unit is needed to add, there is a need of a door and a window at a minimum level of opening for light and fresh air. The existing windows are not closed in cases Muğla and Güzeltepe instant they have left as windows between two closed units.



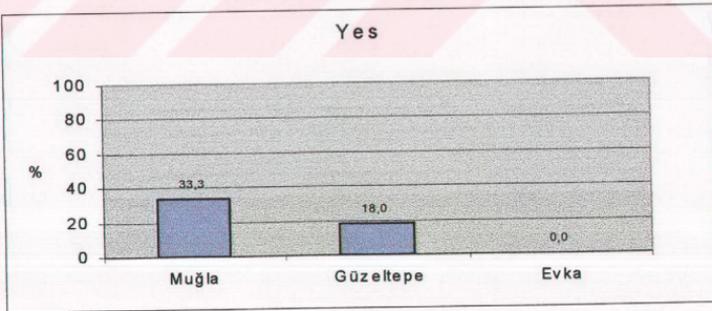
Graph 27 The enclosing of an existing door



Graph 28 The opening of a new door



Graph 29 The enclosing of an existing window



Graph 30 The opening of a new window

4.4.5. The Enclosing Elements of the House

The questions from 20 to 23 are asked and observed in sites for understanding the types of enclosing elements used for enclosing the units at sides, ceiling and also floors. This is also testing the model for having or not having open space relations or usage at the adjacent or on top or at bottom positions of a closed units as stated in Chapter III, (3.1.4.).

Question 20: What type of wall does the house have?

The walls of houses in sites are in general seemed as broken at 90 degree angles in Evka and also in Güzeltepe. In case of Muğla 85 % of houses have walls broken at different angles.

Question 21: What type of ceilings does the house have?

The ceilings of the houses are all flat. Although the construction materials and the methods are different the flat type are in general same in three sites. Only in case of Muğla, the ground floor rooms have ceilings, which are not flat because seeing the construction details of wooden joists of upper floor.

Question 21/a: What type of roof does the house have?

The roofs of main houses are in general sloping although they have changed in materials they are built up of, but roofs of additional parts have in general flat roofs. The 97 % of houses in Karamehmet-Muğla case and 93% of houses Güzeltepe have inclined roofs in the main houses, which are built first. In Evka house the flats do not have their own sloping roofs. The apartment has a general roof for all. *There are not seen any flat roof usage by the owner of flats as an appropriated open space.*

Question 22: Is there a flat roof or terrace usage on the added parts? Y/N

The terrace usage at flat roofs is widely seen in Karamehmet Muğla and Güzeltepe sites. There are 36 % of houses in Muğla case and 70 % of houses in Güzeltepe have flat roof usage and answered the question as Yes. In Güzeltepe and in Evka sites usage of terraces could also be seen with having pergolas and greenery at flat roofs. In Evka case terraces could be seen in ground floors. People at ground floor have enlarged their balconies to a

size of a room and built their own open space units. These terraces could be defined as open space units, which has a minimum size, approximately as a size of room. In these terraces which are having open space on top, are also having pergolas with greenery or shelters for enclosing open space on top. The pergolas also could be seen in gardens for owners of flats. These could be defined as communal open space with pergolas. *This could be also interpreting as a need spreading life to nearby, appropriated open space in mass housing.*

Comment

There is a strong need of spreading life to open space. In cases of Muğla and Güzeltepe, people are organizing and forming an open space unit for their life as an inward operation. This act of organizing and forming an open space for living could also be seen with in Evka-2 houses when there is a chance to form one. (The ones that are living at ground floors). *This need of open unit could also be defined as a seasonal, temporal space need of livings at house level for continuity of their life cycle.*

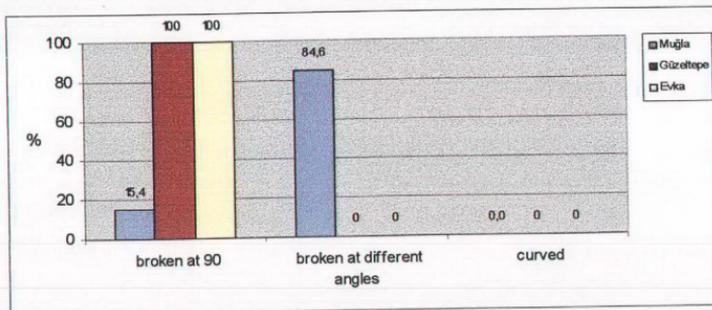
Question 23: Where do you get to the flat roof or terrace?

In Muğla case 15 % of 39 houses which means six house people are getting into the flat roofs from a closed space of the house. This closed space is in general the closed sofa in first floor. 18 % of 39 houses, which means in seven houses, they are getting with a stair in the courtyards. This stair which are used for entrance to flat roofs are in some cases portable stairs. There is only one house in Muğla, which used the window of, closed sofa in first floor to get into the adjacent flat roof.

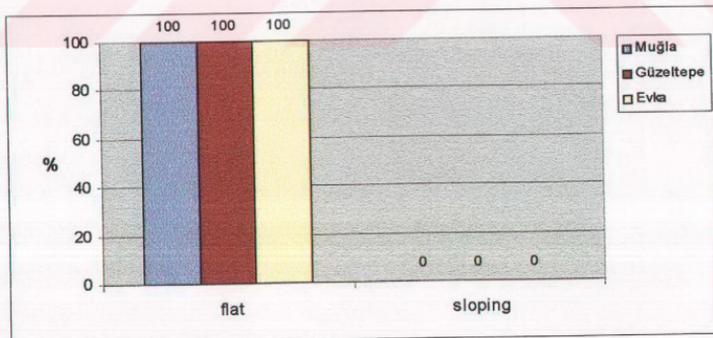
In case of Güzeltepe the use of terraces are seen more. The 28 house out of 40 houses have terrace usage. The 63 % of 40 houses which means in 25 houses people are getting into flat roofs from their gardens. They usually have an open stair from garden for reaching to terraces and main entrance doors.

In Evka-2 site there are 7 houses out 40 which means 18 % have terrace usage. These are the ones at ground floors, which have enlarged their living room balconies towards garden. In some of them they have also an entrance door at balcony fences

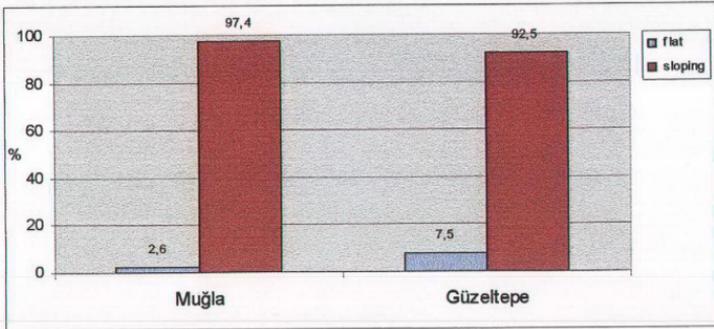
Comment: Entrances of open space units are located before individual closed units at the transitions of communal to family open space for a higher level of social contact.



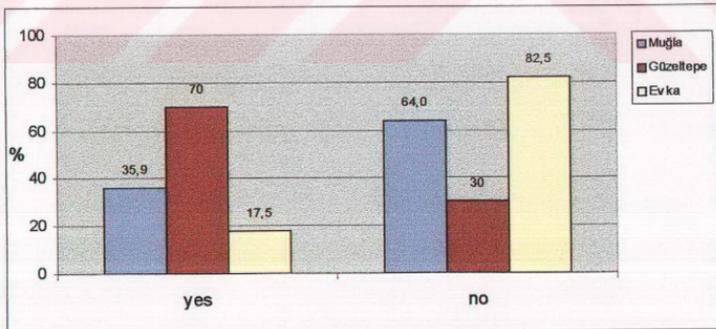
Graph 31 The wall of houses



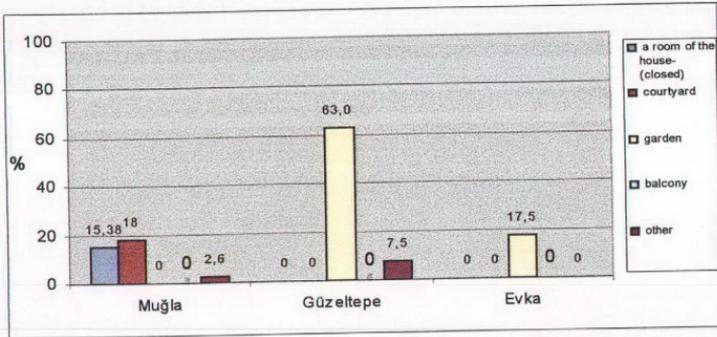
Graph 32 The ceilings of houses



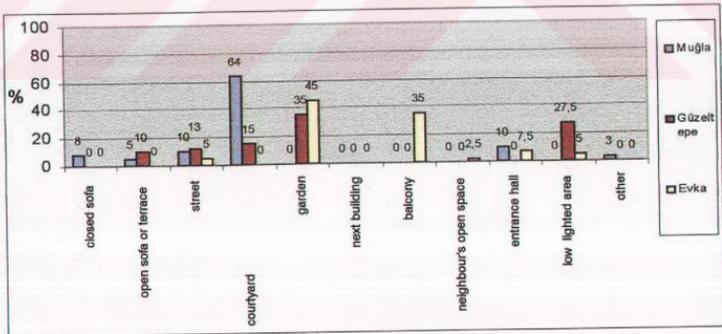
Graph 33 The roofs of houses



Graph 34 Is there a (flat roof) or terrace usage?



Graph 35 The entrance to flat roof or terrace



Graph 36 The openings of the kitchens

4.4.6. Relations of the Closed Units of House with Open Space

The questions 24-30 are planned for getting information about interrelations of closed units with open space. The opening of kitchens, living rooms, guestrooms, main and second bedrooms are taken into consideration in this question. The aim is to understand where and how closed units have located within relation to open space and also the priorities of closed space units in opening to open space unit.

Question 24: Where does the kitchen open?

The distribution of the responses of kitchen openings could be seen in Graph 36.

In Muğla case, kitchens are in general open to courtyards with 64 %. There are 4 kitchens in site that means 10 % out of 39 house, which have got indirect light and air from entrance hall in enclosed plan types. There are also 7,7 % of house that have got light from closed sofa. There are four houses which means 10 % of the total house, which get light for kitchens from windows that are opened to streets. The other two houses have kitchen windows that have opened to open sofa and a terrace.

In Güzeltepe case 35 % out of 40 house have got light and air for kitchens from windows to gardens. There are also 28 % of houses that have got light from low lighted areas. There are 6 house, which means 15 % of total house that get light by windows opened to gardens and five houses to streets and four to terraces. The other two houses have opened their kitchen windows to open sofa or terrace.

In Evka-2 case, openings of kitchens are positioned with 45 % to gardens or communal open spaces. The 35 % of houses out of 40 are positioned to balconies. The two kitchens are positioned to low-lighted areas because of location at basement floors. Three kitchen windows are positioned to entrances and one to neighbor's open space.

Comments

In the organization of closed space of a house with relation to open, kitchens have priorities in opening to open space. In Muğla, people are in general built closed units in courtyards for kitchens, after they have closed open sofa. In Güzeltepe kitchens are in general opened to garden. Kitchens are usually placed at sides with small windows or in front facing to

terraces with larger windows. The side windows, which are opened to gardens, are built after additions toward back or front and front windows, which are opened to terraces, are built when the rooms have first built.

Question 25: Where does the living room open?

The living rooms of a house are in general the main room in houses. The relation of a living room with open space is an important relation by means of life and livability because most of time of family has passed in living rooms. This question is asked to find out how the relation of open-closed configures in houses in three sites. The distribution of responses of living room opening could be seen in Graph 37-38

The distribution of living room openings could be seen in Graph 37. In Muğla, 67 % of living rooms are opened to courtyards, 13 % of them to open sofa and 15 % to the street. There are also two houses which have windows opened to closed sofa.

In Güzeltepe, 23 houses out of 40 which means 58 % of total have living rooms that have opened to terraces. There are 10 house with 25 % that have their living room opening towards garden and 5 house with 13 % towards courtyards. There are another two living rooms, which one is opened to street and other to neighbor's open space.

In Evka case, although houses have same plan types with same position of living rooms their openings could be different. The differences depend on the floor that flat take place and also the enclosed balconies. There are 12 house with 30 %, which have opening to balconies, and 9 house at the lower flats have opening to garden. Also 7 house are opened to closed balconies and 12 house are opened to view with windows because of their location at higher floors.

Comment

The living rooms have in general a high priority in opening to open space. In Muğla case courtyards, open sofa are open spaces for living rooms to open. In case of Güzeltepe the open space units are terraces, gardens and in some cases courtyards. What these are having in common is that they have an appropriated open space and these are located before and adjacent to living rooms as a communal open space. This means that people can get contact

with others although he/she are in their living rooms. The privacy of closed spaces is not interrupted because entry of others is easily controlled at this position. The ones permitted could be entered to closed units of family but in open space unit they can easily get together. The courtyards, terraces and gardens are both open spaces for family because of appropriation, and also for community because of taking place before closed units. The living rooms are positioned at this critical point where the open space of house could be seen and controlled. In Evka-case these are not possible. The living rooms are not located towards an appropriated open space where people can contact with others (see Table 2.3, Table 2.4). The open space relation of living rooms in Evka-case are also not constructed as in Muğla and Güzeltepe case. The open space of house is not located before main entrances of closed units, which one of these closed units is a living room. It could be said that there are less interrelation and control of others in living rooms of Evka-2. This also means that social contact in open space is limited in Evka-2. In Evka-2, people can get together with others in open space in a limited way. The others who have permitted to enter closed units can pass to open units of house. These others are limited with closed friends and relatives. There have no sequential relations with *others* in this type of living room locations.

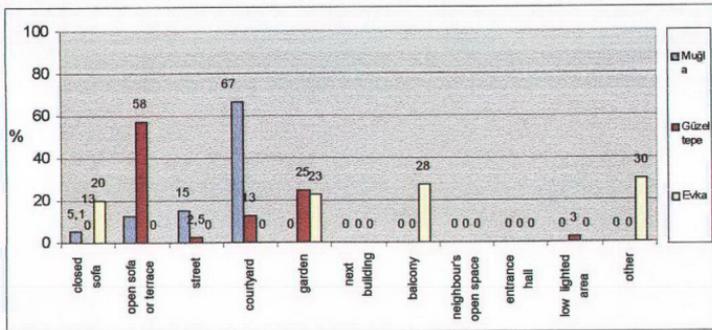
Question 26: What does the living room open with to open space?

This question is asked to understand transitions and its elements. If a door is positioned between open space and living room, at every entrance (in-out) of man through day and night, there is a possibility to sense and precept changes in open space. If living room have only a window the possibility to sense changes in open space are less.

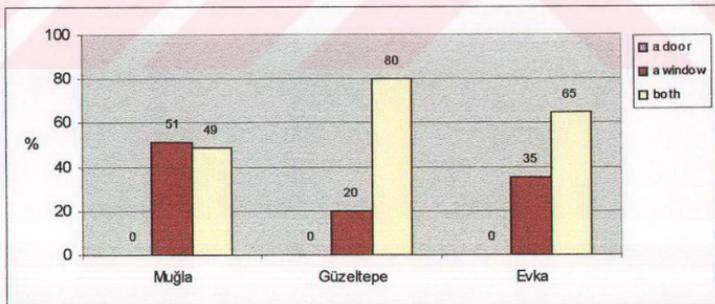
In case of Muğla 51 % of houses have only window opening and 49 % of them are both having window and a door opening. In Güzeltepe 32 % of houses are having both of these. Only 8 house out of 40 have only window opening in Güzeltepe. In Evka case 100 % of living rooms are having door and window opening to balcony in original plans but this has changed to 65 % after closing balconies of living rooms. Then only window openings with 35 % are left as an opening element for living rooms in Evka-flats.

Comment

In house formation, living rooms are having priority to open an appropriated open space. Living rooms are more livable with open space shared by others. (See p.77).



Graph 37 The openings of the living rooms



Graph 38 The opening elements of the living rooms

Question 27: Where does the guest room open?

This question is asked to understand three things. First, if they have or not guest rooms, secondly to understand where guestrooms are located and how they are opened. The distribution of answers in sites to this question is presented in Graph 39.

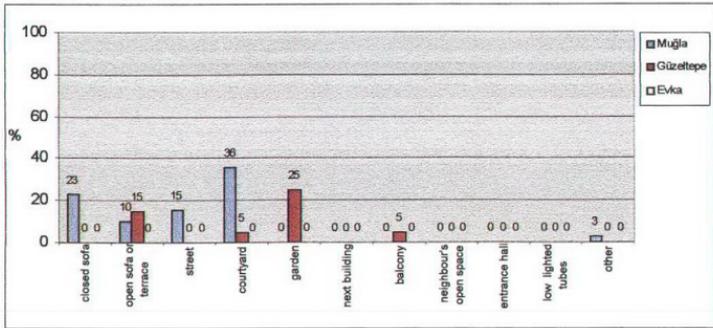
There are 34 houses in Muğla, which have guestrooms. These are distributed as 9 with 23% of total 39 houses, which have windows and doors opened to closed sofa and have indirect relations with open space. 14 with 36 % of total 39 houses have openings to courtyards with direct relation. The guestrooms of Muğla are in general placed at second floors. There are also 4 houses with guestrooms opened to open sofa and 6 to street.

In Güzeltepe case there are 20 out of 40 houses which have guestrooms. In other words 50 % of total have guestrooms. The openings of guest rooms in this site are distributed as, 25 % to garden, 15 % to terrace, 5 % to courtyard and 5% to balcony.

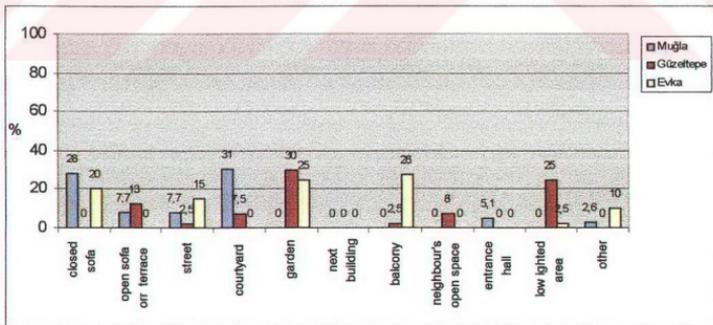
In Evka-2 blocks, there are flats with two bedroom and salon (Type C) and one bedroom and salon (Type E) as stated in original plans. In site, when the question 27 is asked, they are in general applied it that they do not have a guestroom because flats are too small. The living rooms in these flats are in general not used for living and left for guests. People are using second bedroom in Type-C and the only bedroom in Type E as living rooms, especially in winter because these rooms are easily heated.

Comment:

There are 34 house in Muğla, 20 in Evka that have guest rooms. People in Evka are complained about not having a guestroom. It could be said that in three sites to have a guestroom is a priority. The ones in Muğla and Güzeltepe are located in front sides with an indirect relation to open space. Guests are people with whom house owners have communal and social contact. Guests are also the others who have permission and let to get into closed units of house. In general best location of closed units is for guests. This is a formal type of social relations. There are also some informal type of relations are observed in sites, which could be named as communal relations with others. (Neighbors, relatives and etc.). These could be take cared at living rooms, which are adjacent to open space and have direct openings to it.



Graph 39 The opening of the guest rooms



Graph 40 The openings of main bedrooms

Question 28: Where does the main bedroom open?

The distribution of responses to this question is presented in Graph40.

The main bedrooms with 28 % are opened to closed sofa in Muğla. There has been a direct relation of main bedroom to open space before sofa has closed. This opening of bedrooms could be understood by windows still left at positions next to sofa as they were before. There are some main bedrooms in site with 31 % that have opening to courtyards. These are either one floor houses, or the ones that are having a special indent (niche) place for a bed in living rooms at first floor. In these cases they used living rooms as main bedrooms at night. There are also 3 main bedrooms at site with 7,7 % that are opened to street and the other 3 with 7,7 % to sofa. In two houses main bedrooms have indirect opening relation by entrance hall.

In Güzeltepe case, 30 % of total house have bedrooms opened to garden and 25 % of others to low-lighted area. There are also 3 main bedroom at site with 7,5 % that are opened to courtyards and the other 3 with 7,5 % to neighbor's open space. In 5 house with 13 %, main bedrooms have indirect opening relation with terraces. There is only one house which has main bedroom opening to street and other one to balcony.

The opening of main bedrooms changes in floor numbers and location of blocks in Type C and Type E and also location of flats in floors in Type E. The slope in site has also affected the position of main bedrooms. The ones in higher floors have advantages in openings of bedrooms.

Question 29: Where does the second bedroom open?

The question is asked whether they have or not a second bedroom as a closed unit and to define how they have opened. The distribution of responses to this question is presented in Graph40.

There are 13 house in Muğla, 9 house in Güzeltepe and 20 house in Evka have second bedrooms. The openings of these are distributed in Muğla as, 10 % to closed sofa, 7,7 % to street, 2,6 % to courtyard and another 2,6 % to entrance hall. There are also 4 second bedrooms with 10 % have opened to closed units of house which are living rooms.

In Güzeltepe 18 % of houses that have second bedrooms have their openings to low lighted areas. There is also another one with second bedroom, which has opened to neighbor's open space.

The houses with second bedroom are planed in Type C. The openings of these bedrooms are different and affected by floor numbers and location of block in sloppy area. The ones in higher floors have second bedroom openings to streets and the one in lower floors have their second bedroom openings either to low lighted areas with 18 % or open space between blocks that named as courtyards in question form with 15 %.

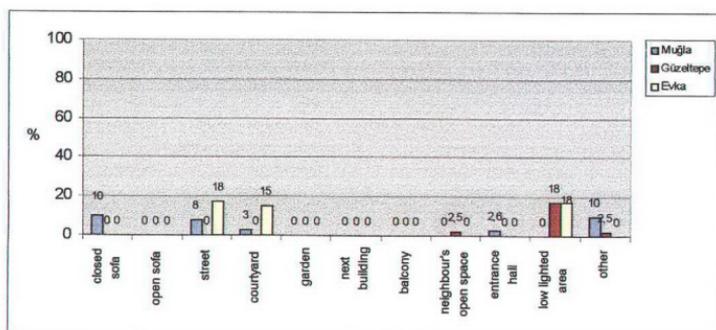
Comment

The main bedrooms of houses in Muğla and Güzeltepe are not having priority in opening to open space. After, the earlier open sofas have closed in Muğla, main bedrooms in second floor have got indirect opening to open space. It could be said that this causes a change in living rooms at lower floor.

There was a storage cupboard in earlier forms at open sofa in ground floor before the sofa was closed to a living room. These storage cupboards are placed in living rooms after enclosing sofa. Recently, these cupboards are changed to new forms. The main bedrooms of house have been transferred into living rooms to the old cupboard place. People are changed this indent place for cupboard to a niche for a double bed.

There are also in some cases people have opened new small windows to streets for an open space relation. The changes for bedrooms are all done in the closed space of houses. There are not any house with new bedrooms built in courtyards.

In Güzeltepe place of bedrooms also changed with additions of new closed units to house. At the early forms, living rooms are also used as bedrooms. After, they have built new units they have carried main bedrooms to this closed new unit. The living rooms are still used as bedrooms at nights because of crowded families. There are also functional changes between day and night usage of living rooms and bedrooms in Evka site.



Graph 41 The openings of second bedrooms

Question 30: How many rooms (except kitchen and bath) does the house have?

This question is asked to see differences in distribution of closed units except kitchens and bathrooms in sites. Kitchens and baths are decided as exceptions because their functions are all common in three sites and they either could be placed away from main house. The number of rooms could be helpful for understanding the changes in amount of closed space need in houses. The distribution of number of rooms in 39 house at Muğla, 40 house in Güzeltepe and 40 house in Evka could be seen at table.

Table 4.5 The number of rooms in sites (except kitchen and bathroom)

rooms/sites	Muğla	Güzeltepe	Evka-2
one	1	5	
two	9	13	20
three	12	15	20
four	12	7	
five	4		
six			
seven	1		

Comment

As it has seen in table, number of closed space in Muğla and Güzeltepe are changeable, where as in Evka they are standard. Generally houses with three or four rooms in Muğla case, and with two or three in Güzeltepe case are seen. How these rooms are in general used could be listed such as:

One room means..... (living & bedroom)

Two rooms mean..... (living) & (bedroom)

Three rooms mean.....(living & bedroom) & (bedroom) & (guest room)

Four rooms mean (living) & (bedroom) & (guest room) & (2nd bedroom)

As seen above, bedroom and living rooms are changed in their uses at day and night when there is not enough closed space in Muğla and Güzeltepe cases.

In Evka-2, houses are having two or three rooms in Type C and Type E.

Two rooms mean..... (bedroom & living) & (guest)

Three rooms mean..... (bedroom & living) & (guest) & (bedroom)

Although the living rooms are big enough to use for living and sleeping in Muğla and Güzeltepe case, there is a size problem in bedrooms and living rooms in Evka-2 case. Living rooms, which are not used as living in Evka-site, are having too large sizes for furniture, whereas bedrooms which are used also as living rooms are too small for both functions. It could be said that second bedrooms in Evka blocks have problem with size and also guestrooms with lots of rarely used furniture. It could be said that living rooms based on traditional uses are one large room for living which could also functioned as sleeping. What also observed in sites is that there are less eating tables and chairs in Güzeltepe and Muğla than in Evka-2 site. The existence of this furniture in sites also affects the use of living rooms. This could be also defined as effects of modernism with the changes in consumer's habits.

4.4.7. Permeability of Enclosing Elements

In Chapter III, it had been discussed the degrees of enclosing elements and also has been briefly presented the permeability of enclosing elements (Table 3.3.). In this part, type of these elements in three sites and how they enclose open space are tried to identify. The questions from 31-33 are grouped under the types of enclosing elements. The courtyard walls, garden walls and balconies or terraces. The answers to these questions are presented in Graph 42, Graph 43 and Graph 44. The questions could be listed such as:

Question 31. How are the enclosing elements of the courtyard walls?

Question 32. How are the enclosing elements of garden walls?

Question 33. How are the enclosing elements of balconies or terraces?

In Karamehmet- Muğla case 97 % of the total houses have high dense courtyard walls. In Güzeltepe there are only 15 % of 40 houses have courtyard walls. In Evka although open space between blocks have seemed that they are planned as courtyards but they are not

having a courtyard character without having enclosing elements an their un-identified character.

In Güzeltepe there are 53 % of houses have low permeable and 25 % low dense garden walls. 2 houses with 5 % have high dense and 2,5 % have high permeable garden enclosing.

In Evka garden of apartments are defined by low dense enclosing elements with 80% and there are also 15% of high permeable elements have been used in this site.

The 36 % of houses in Muğla which have terrace usage at flat roofs of additional parts have low dense enclosing elements and people are in general get into these terraces from a portable stair at courtyards.

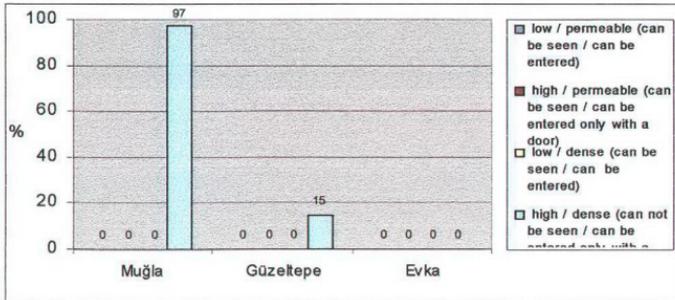
In Güzeltepe, 38 % of houses have low permeable, 30 % low dense enclosing elements at terrace edges. A high permeable terrace enclosing has been seen in one case.

In Evka-2, 20% of houses enclose balconies and terraces at ground floors with low dense, another 20 % with high dense materials. There are also 33 % with low permeable and 28 % of high permeable enclosing elements are used in enclosing of balconies.

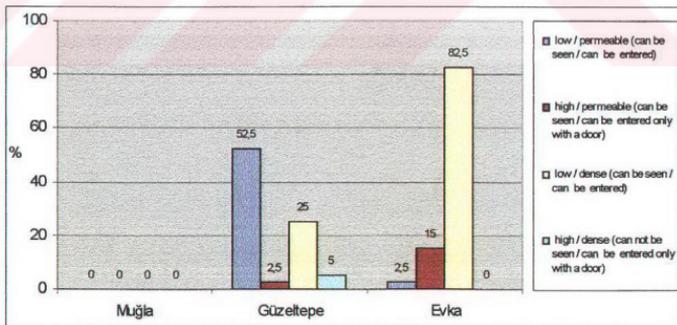
Comment

Although materials are differentiated, act of enclosing open space and have appropriated it does not change in sites. The type materials are defining filtration between family and others. Enclosing elements are also defined types interrelations between closed- open units. People are define space (whether open or closed) depending on permeability of enclosing elements. If element is high and permeable it means that you can see open space but can not easily enter. Entry is not permitted.

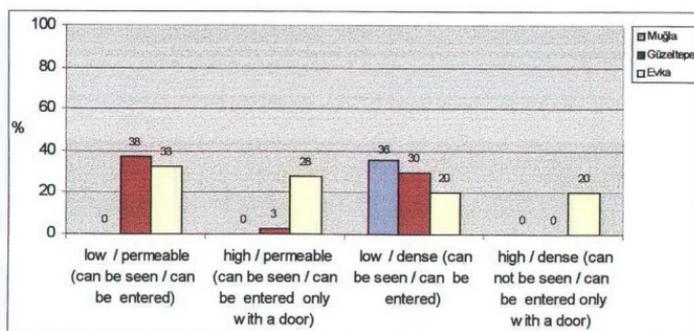
Enclosing elements could not define space as an appropriated space of owners of the blocks in Evka-2 case. These open spaces are communally un-identified because of not enclosed at community level. They have designed as social space but not exactly works as they planned. It could be said *that there is a need of identification at different levels with enclosing elements to construct more livable relations*. These levels could be individual, family and communal levels before having social levels. These levels of hierarchy are constructed with degrees of enclosing in traditional and squatter sites.



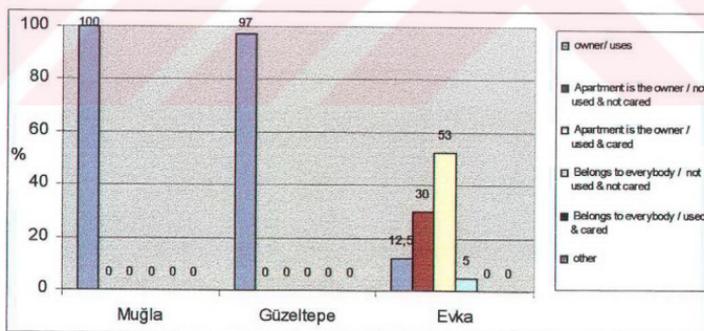
Graph 42 The enclosing elements of courtyard walls



Graph 43 The enclosing elements of garden walls



Graph 44 The enclosing elements of balconies or terraces



Graph 45 The owners of the open space

4.4.8. Owners and Use of Open Space at

(Individual & Communal & Social Levels)

The questions 34-45 are asked to understand and find out the interrelations of people with open space at their houses. There is a strong need of understanding the intrinsic relations of man with open space. It could be said that people are not paid attention to this relation in their routine everyday life.

Question 34. Who owns the open space and do you use and care it?

There are 34 people in Karamehmet-Muğla site who answered this question. All of them are answered that houses and courtyards are their own. Some of them have owned houses after they have migrated from East in near present. There are also some that have migrated from near villages and cities to this site and have owned houses. Most of them are natives of site and have owned their houses from parents or grandparents. (see also pp. 126-128). People in Muğla are owned a unit of open space which they have done its daily and seasonal care. (Graph 45)

In case of Güzeltepe 97 % of 34 interviewers have gave response to this question, as they are the owners of house and open space unit of it. The houses are in general owned by them as their first house after migration from East of Anatolia. This could be understood by the dates of arrival to site and also the story of house that they have told. At the very beginning they have enclosed a part from open space and define it with some enclosing materials. These materials are in general stone walls which are not very high. Then they have built a one or two rooms (closed units) and later in time they have formed today's houses. The open space units in Güzeltepe are in general the terraces, which have located before entrance of houses with a pergola and greenery. There are also some courtyards and gardens defined by non- permeable or permeable enclosing elements and owned by house owners.

In Evka -2 site 13 % of 40 people are owned open space, used and cared by the flat owners. These are the ones located at ground floors and have close relation with open space at different level than upper flats. Although, open spaces around the house are not formally belong to the ones at ground floor, they have easily said that this open space is his/her own space. This is a very good example of appropriation of open space by defining and taking

care of it. There are also 30 % of owners who thought that open space is owned by apartment but they do not use and care it. 53 % of interviewers have answered that open space is owned by apartment and they both use and care it. There are also 5% who thought that the open space belongs to everybody and they are not either used and care of it.

Comment

People are in general care the open space that they have owned. In case of Muğla the appropriation boundaries are defined very strong with high, non-permeable enclosing elements which are courtyard walls. In Güzeltepe this boundary of enclosing of owned open space is in general either at terrace edges with low permeable or low non-permeable enclosing elements. This act of enclosing open space is also seen similar in Evka-2 case at ground floors.

The owned open space have good care at individual, family and also community level but the non-owned open space without a definition of enclosing have not cared. They belong to everybody and cared by nobody. It could be also said that *when people are not have a spatially defined social open space they do not care of it and also in this un-identified, non-appropriated open space people are not easily get socialized.*

Question 5. Do you have hobbies in open space (grow flowers..etc)? Y/N

The responses of Yes, to this question are distributed as, 74% in Karamehmet Muğla, 79 % in Güzeltepe and 28 % in Evka-2. People in Muğla have in general flowers and trees in courtyards and they have also grapes at pergola in terraces. People in Güzeltepe are having also trees in gardens but in general they have flowers at terraces in flowerpots. In Evka people are having small balconies which have closed in general and they have some flowers at closed units of house. The ones at ground floors with enclosed open space have cared this space and grew flowers and trees. In some cases they built up a pergola at this open space with greenery for using together with people at other flats.

Question 36. Do you have pets? Y/N

The responses of yes are distributed as 56 % in Muğla out of 34 and 21 % in Güzeltepe out of 34 people which are having pets in their open space. Cats, chickens are seen more in

Muğla. There are two houses, which have horses at their courtyards, and a dog in one case has seen. In Güzeltepe dogs are seen more. In Evka 5 % of people out of 40 have pets. One is a single woman with their cats and the other is the bird in cage.

Question 37. Do you have water like as a fountain, cistern...etc? Y/N

People in Muğla are in general with 94 % are having water in their courtyards. They have cisterns or a small pool to collect water and use it for household and courtyard care. They also have a washbasin at courtyards and water at kitchens in Muğla. People in Güzeltepe with 50 % have a fountain at gardens or a washbasin at terraces for water uses. In Evka, people are in general use water in closed spaces. The water of closed space is also used for garden and flower care. There have seen only one fountain with 2,5 % out of 40 house at ground floor for private use and have not seen any fountain for communal use. This also mentioned as a problem by owners of upper flats who want to care open space. They said that they use water from their kitchens for garden care of apartment and added that there is a need of fountain at ground level for communal uses.

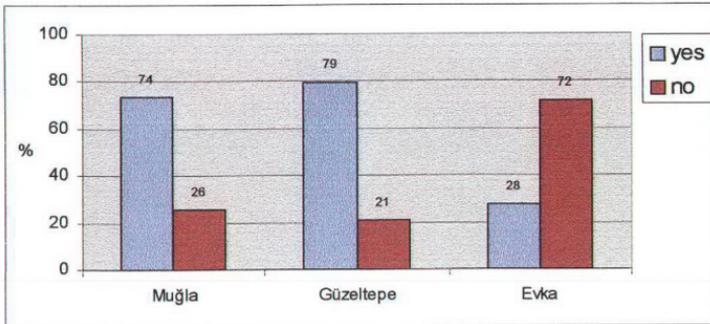
Comment

The questions are asked to find out relations of people with others who are the sets of materialized elements in this general open space system. The flowers, greenery, animals, water and etc. are materialized elements that men have energy transferenses. People can get into relations with these elements easily in houses with open units. *An open space unit at individual and family level of a house could build up relations of man with these other materials of general system. This is the man's sense of wholeness. A sense of being a part of totality or life. It could be said that open space at house level give a chance to increase liveability level for individuals, families and communities.*

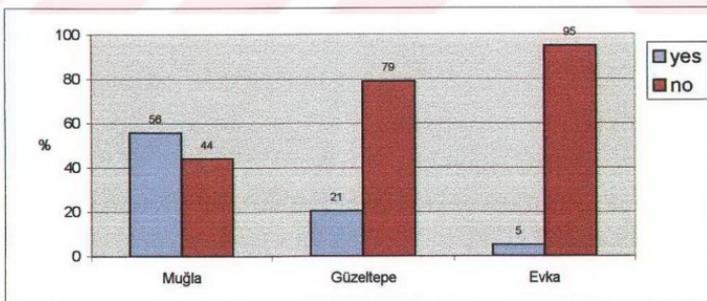
Question 38. Do you need to look at sky during the day? Y/N

Question 39. If the answer is yes; what are you looking for?

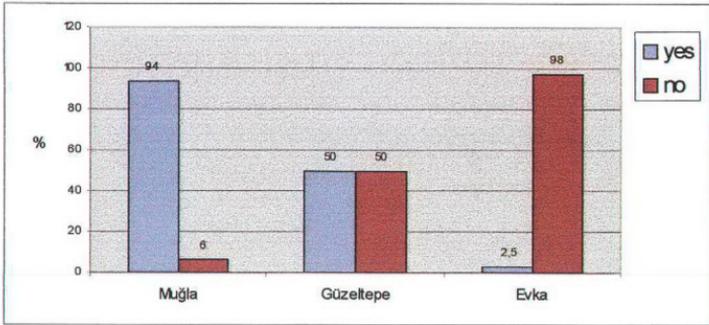
In these related two questions, it had been tried to understand relations of people with sky which is a symbol of potential energy field, open space. In Muğla with 76 %, in Güzeltepe with 71 % and in Evka 95 % have answered this question as Yes.



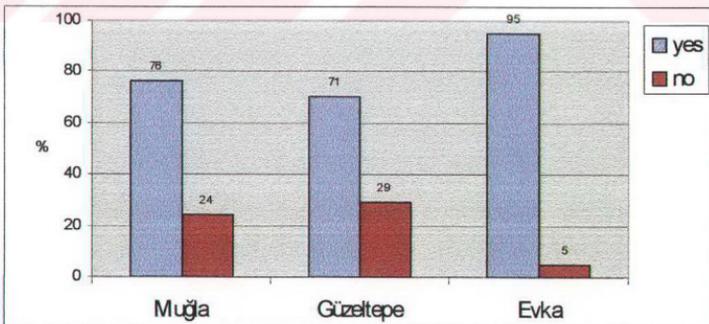
Graph 46 The hobbies in open space



Graph 47 Pet owning in houses



Graph 48 Having water in open space



Graph 49 The need of looking at sky

People in Muğla are in general gave response that they are look for meteorological changes. There are not answers given about view. It could be said that high courtyards wall are barriers for visualizing from living rooms in ground floors. In Güzeltepe case people gave answers, that they look at sky for temporal changes with 44 % and meteorological changes with 68 %. The terraces of houses at this inclined site are places for visualizing view with 29 %. In Evka 48 % of houses are gave response that they are visualized view.

Comment

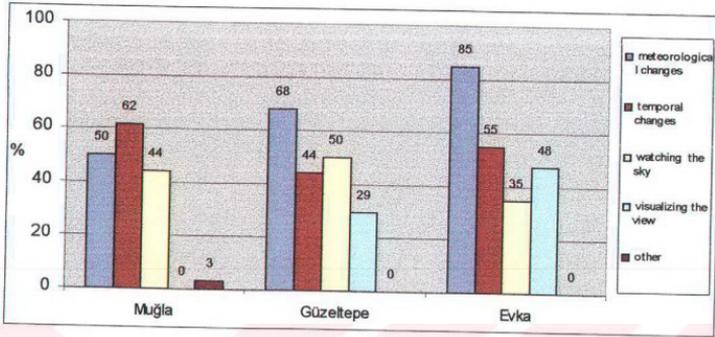
The sky gives an infinite sense of open space to people. The temporal changes and meteorological changes are gave people to sense changes and also duration in time. These are all transferences about life to people, which could be sensed at open space with light. Also sky has great role by means of beliefs and rituals in everyday life of people.

Question 40. Do you like to get out on sunny days?

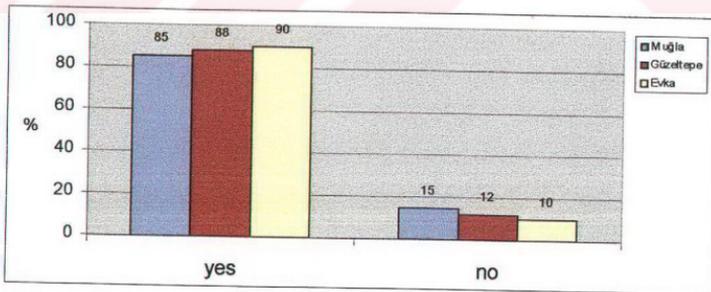
People are in general answered this question as Yes in three sites. (Graph 51). The ones in Muğla use the open sofa, 'evin altı' or courtyards and in Güzeltepe terraces and in front of entrance doors to sit and get sunlight at open space. In Evka-2, people need to get out, for sunlight or sit at balconies. The general tendency in Evka-2 site as have been analysed is closing balconies because of their non-positive features (pp. 160-165). People in Evka get more need to get out to open space or choose to stay at closed units. It could be said that flats with closed balconies have fewer possibilities in energy absorptions from open space by means of sun.

Living need energy absorption from sunlight and because of that people are in general like to get out in sunny days. People are also pay attention to place their houses oriented towards sun and sunlight and living rooms have priority in this orientation and placement towards sun.

It could be also added that high depression of people living in flats are depend on less absorption, transferences of energy from open space at different levels. The livability of space could be increased by increasing the possibilities of open-closed relation within a defined open space unit for families and then with defined open space units for communities and societies.



Graph 50 What are you looking at sky for?



Graph 51 Getting out on sunny days

Question 41. Which one of these is a spacious room for you?

A spacious and a cheerful character of a room are their spatial qualities. This question is asked to understand the effects of light in defining a spacious room of people in sites.

People are in general with 91 % in Karamehmet-Muğla, 76 % in Güzeltepe and 85 % in Evka-2 are defined sunny and lighted rooms as spacious. The answers about large dimensional character, which has less effect on a spacious room, are distributed in three sites as, 47 % in Karamehmet-Muğla, 59% in Güzeltepe and 40 % in Evka. The windows are also having less effect then two qualities of rooms above mentioned. In Evka case 15 % of people are answered that windows have also effects on a spacious room.

Question 42. Do you get together with people in open space? Y/N

Question 43. With whom are you getting together?

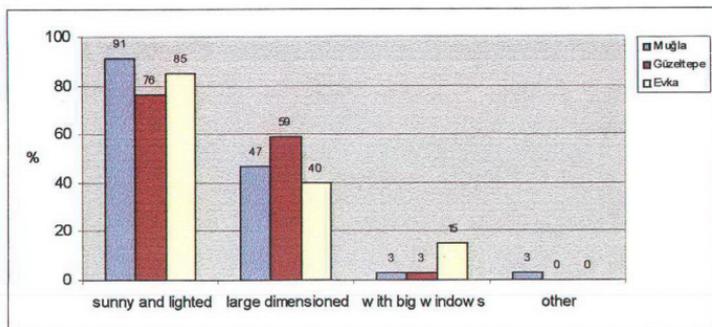
Question 44. In which open space do you get together?

These three related question are asked to define in general character of sites by means of materialized and non-materialized relations of conscious livings (Table 2.3, Table 2.4) that could be carried on in open space. The 'Yes' responses to Question 42 in three sites are distributed as, 94 % in Muğla, 97 % in Güzeltepe and 80 % in Evka-2. (Graph 53).

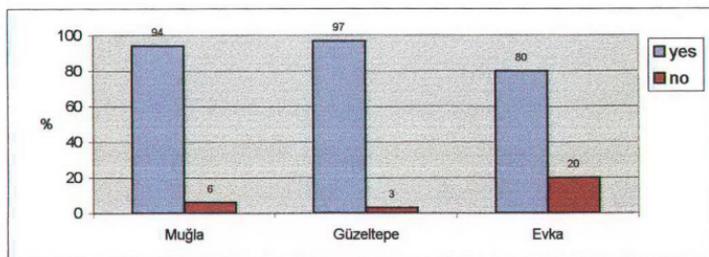
In case of Karamehmet-Muğla the answers to Question 43 about levels of getting together in open space are distributed as, 94 %, family level, 76 % community level and 47 % social level. (Graph 54).

The distribution of levels getting together in open space in Güzeltepe are distributed as, 94 %family level, 85 % community level and 50 % social level. (Graph 54).

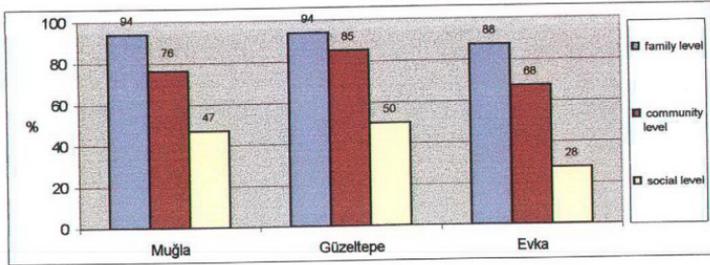
In Evka people are answered this same question above with 88 % family level, 68 % community level and 28% social level. (Graph 54).



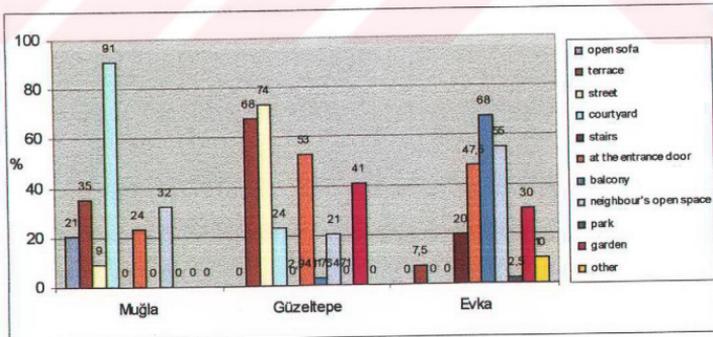
Graph 52 Definition of a spacious room



Graph 53 Getting together in open space



Graph 54 The levels of getting together in open space



Graph 55 The open spaces which people are get together

People are also asked to answer Question 44, which is going to define open spatial character of sites within relation to its open or closed social character. It could be said that spatial character of site also defines the individual, communal and social relations where as individual, communal and social relations are also formed spatial characters of sites when a closed space unit has been started to construct.

In Muğla case, people are in general get together at courtyards with their family members and close friends, neighbors. Terraces are used also as open spaces at family and community level.

In case of Güzeltepe, people are in general get together at terraces, streets, and entrance door with their family members, neighbors.

In case of Evka-2, people are get together at their balconies, at the entrance of apartments and their neighbors open space which are very limited by means of life with their family members and neighbors. They define the size of their balconies with a limited place for four people.

Question 45. Are the balcony or terrace dimensions enough? Y/N

People who have an owned open space could easily spread their life and have hobbies in open space. This is chance for man to construct positive relation with others then himself/herself. Terraces and balconies are open space units at house besides courtyards, gardens and open sofas.

In Muğla, houses are in general have courtyards but in 14 house people are also uses terraces at flat roofs of additional parts. When they have asked the question above about dimensions of terraces, 12 of them which means 35 % out of 39 house answered as Yes, 2 house owner answered as No which, means 5 % out of 39 house. The 60 % of houses which the answer No have taken are not having a terrace as open space.

In Güzeltepe, the answers for the same question about dimensions of terraces are given as, 20 owner have answered Yes which, means 59 % out of 40 house. 8 owners out of 28 house which have terraces answered as No which, means 24 % out of 41 % of 40 houses that have given No answer to question about terrace dimensions.

In Evka, although people are closed their balconies they have answered the same question with 35 % out of 40 with Yes answers.

Comment

Although, people in Muğla have courtyards as open spaces they have also formed open space units at terraces, which are in general satisfied dimensionally. The others, who do not have terraces, have courtyards in Muğla as appropriated open space units.

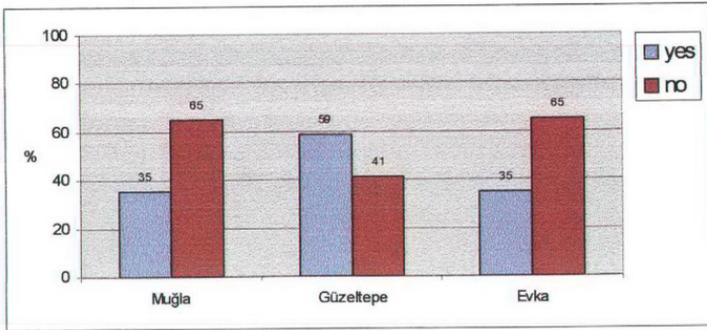
In Güzeltepe, the ones who have open space units as terraces are in general proud of the dimensions of their terraces and they are satisfied by having this open space. The others who do not have terraces, have courtyards or gardens as their appropriated open space units in Güzeltepe.

In Evka, the ones who do not satisfied with the open space units of their houses have not any other appropriated open space unit for their family.

4.1.1. Synthesis of the Chapter

In Chapter III, The original Typological Model of the Thesis have been constructed with Abstract Level I. Later the model have been tested in three sites and the data of the sites are presented in this Chapter. The Abstract Level I have been constructed towards the aim of reading and decoding the unwritten principles of spatial configurations, formations of house and housing patterns in time, at any sites. It has been tested in three sites of existing housing patterns of today. It could be put forward, that this model could be used as a tool for data analyses of the spatial formations of any site. The Concrete Level I and Concrete Level II have been constructed with using this thesis Model as a tool. The Abstract Level II, as a general conclusion of the thesis also have been based on the understandings of the Original Typological Model of this thesis.

The data of Chapter are presented as answers, which are given to questionnaire and their analyses. There is also a List of General Data of Three Sites presented at Table 4.5. The data of plan schemata of houses in Karamehmet-Muğla and Güzeltepe are also given with the Tables of Concrete Level I and Concrete Level II together, in Chapter III.



Graph 56 Are the balcony or terrace dimensions enough?



Photograph 39 Non-used Open Space Between Type E Blocks



Photograph 40 Enclosing of Balconies and Entrance of Type E



Photograph 41 Enlargement Towards Garden in Type C Ground Floor



Photograph 42 Enlargement and Appropriation of an Open Unit in Ground Floor



Photograph 43 Appropriation of an Open Space with Flower Pots



Photograph 44 Appropriation of an Open Space with Stone



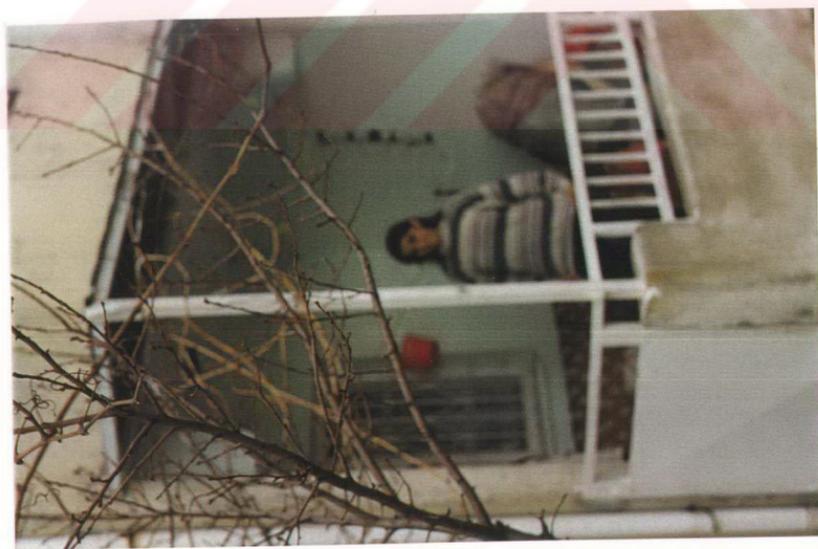
Photograph 45 Appropriation of Open Unit. "Çardak" in Type C



Photograph 46 Appropriation of Open Unit (Life in Open Space)



Photograph 48 Appropriation of Open Unit in Ground Floors in Type C



Photograph 47 Appropriation of Open Unit in Ground Floors in Type C



Photograph 49 Enclosing of Kitchen Balconies in Type C



Photograph 50 Enclosing of Basement Floor in Type C



Photograph 51 High Permeable Enclosing



Photograph 52 Low Permeable Enclosing



Photograph 54 Enclosing with Permeable and Non-permeable Elements



Photograph 53 Appropriation of Open Unit in Ground Floor of Type C

Table 4.5 List of General Data in Three Sites

QUESTIONNAIRE & Data of the sites	MUĞLA GÜZELTP.				EVKA	
	Total	%	Total	%	Total	%
General Information						
Number of houses the questionnaire has applied	39	100	40	100	40	100
Flat number (See data sheets in Apendices)						
The street / Block number (See data sheets in Apendices)						
Number of people living in the house	123		182		125	
Family type	34	100	34	100	40	100
a) single	5	15	0	0	7	18
b) nuclear family	24	71	24	71	33	83
c) extended family	5	15	10	29	0	0
Which member of family answers the questions about house?						
a) father	6	15	7	21	5	13
b) mother	21	54	20	59	33	83
c) other	12	31	13	38	2	5
Are you a foreigner or native of the place?	34	100	34	100	24	60
a) Native	23	68	2	5,9	16	40
b) Foreigner	11	32	32	94	0	0
General Information about the Houses						
LOCATION AND ORIENTATION OF THE HOUSE						
1.What is the settlement type of the house?						
a) squatter settlement	0	0	40	100	0	0
b) traditional housing	39	100	0	0	0	0
c) high-rise buildings	0	0	0	0	40	100
2. Which floor is the house on?	0	0	0	0	0	0
a) basement						
b) basement (half) + ground floor	1	2,6	24	60	2	5
c) basement+ ground + first floor	0	0	0	0	0	0
d) basement+ ground + first floor + penthouse	0	0	0	0	0	0
e) ground floor	7	18	15	38	0	0
f) ground floor + first floor	30	77	1	2,5	0	0
g) ground + first floor +penthouse	0	0	0	0	0	0
h) ground floor flat	1	2,6	0	0	7	18
i) first floor flat	0	0	0	0	4	10
j) second floor flat	0	0	0	0	7	18
k) 3-5th floor flat	0	0	0	0	17	43
l) 6th floor & higher flat	0	0	0	0	3	7,5
3.How many sides of house has attachments?						
A. No attachment (free opening)	1	2,6	1	2,5	0	0
B.One side attached	10	26	28	70	8	20
a) North	1	2,6	10	25	0	0
b) South	1	2,6	5	13	0	0
c) West	2	5,1	9	23	3	7,5
d) East	6	15	4	10	5	13
C. Two sides attached	10	26	7	18	32	80
a) North-South	0	0	0	0	0	0
b) East-West	2	5,1	3	7,5	12	30
c) North-East	5	13	1	2,5	4	10
d) North-West	0	0	1	2,5	3	7,5
e) South-West	0	0	1	2,5	6	15
f) South-East	3	7,7	1	2,5	7	18
D.Three sides attached (closed)	19	49	4	10	0	0
a) North-South-East	0	0	0	0	0	0
b) North-South-West	3	7,7	0	0	0	0
c) East-West-North	16	41	3	7,5	0	0
d) East-West-South	0	0	1	2,5	0	0
E:Four sides attached	0	0	0	0	0	0

	MUĞLA GÜZELTP.				EVKA	
a) entrance from ceiling	0	0	0	0	0	0
b) entrance from floor	0	0	0	0	0	0
c) enclosed-opening in center	0	0	0	0	0	0
4. How many facades of the house has opening?						
a) one facade opening	27	69	16	40	0	0
b) two facades opening	12	31	14	35	40	100
c) three facades opening	0	0	10	25	0	0
d) four facades opening	0	0	0	0	0	0
5. If it is one face opening, is it narrow or wide?						
a) narrow face	4	10	0	0	0	0
b) wide face	17	44	13	33	0	0
c) approximately equal	6	15	3	7,5	0	0
6. How does the house stay on the parcel?						
a) at the corner	2	5,1	0	0	0	0
b) at the edge	0	0	26	65	0	0
c) at the edge & corner	5	13	1	2,5	0	0
d) at the middle	0	0	1	2,5	40	100
e) at the middle & edge	0	0	0	0	0	0
f) at the edge & corner & the other edge	3	7,7	2	5	0	0
g) at the corner & edge & corner	29	74	10	25	0	0
h) at the edge & middle & edge	0	0	0	0	0	0
ENTRANCES OF THE HOUSE						
7. How many entrances does the house have?						
a) only one entrance	30	77	38	95	14	35
b) two	7	18	2	5	13	33
c) three	2	5,1	0	0	13	33
d) other	0	0	0	0	0	0
8. If there are two, where are they from?						
a) street	6	15	0	0	0	0
b) courtyard	5	13	1	2,5	0	0
c) garden	0	0	2	5	0	0
d) staircase	0	0	0	0	13	33
e) balcony	0	0	1	2,5	12	30
f) terrace	0	0	0	0	1	2,5
g) flat roof	0	0	0	0	0	0
h) other	3	7,7	0	0	0	0
9. If there are three, where are they from?						
a) street	2	5,1	0	0	0	0
b) courtyard	2	5,1	0	0	0	0
c) garden	0	0	0	0	0	0
d) staircase	0	0	0	0	13	33
e) balcony	0	0	0	0	13	33
e)kitchen balcony	0	0	0	0	13	33
f) terrace	0	0	0	0	0	0
g) flat roof	0	0	0	0	0	0
h) other	2	5,1	0	0	0	0
10. Where is the main entrance of the house from?						
a) street	4	10	0	0	0	0
b) courtyard	35	90	7	18	0	0
c) garden	0	0	4	10	0	0
d) staircase	0	0	0	0	37	93
e) balcony	0	0	0	0	0	0
f) terrace	0	0	28	70	3	7,5
g) flat roof	0	0	0	0	0	0
h) other	0	0	1	2,5	0	0
10/a. How many entrances does the apartment have?						
a) one	0	0	0	0	20	50

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b) two	0	0	0	0	20	50
10/b. If the apartment has two entrances, are you using them? Y/N						
11. Have you done changes in the plan type? Y/N	34	87	30	75	30	75
12. What have you changed ?						
a) add a part (room) in the courtyard or garden	28	72	28	70	1	2,5
b) closed the sofa	21	54	0	0	0	0
c) change the position of staircase	7	18	0	0	0	0
d) pull down a wall	15	38	0	0	0	0
e) build a new wall	13	33	7	18	0	0
f) closed the balcony	0	0	0	0	27	68
g) divide in two vertically	3	7,7	5	13	0	0
h) divide in two horizontally	3	7,7	3	7,5	0	0
i)kitchen/bathroom renewing	1	2,6	0	0	23	58
j) other	4	10	0	0	11	28
13. If you add new parts where did you start adding?						
a) adjacent to the building, at the edge of parcel	19	49	26	65	1	2,5
b) away from the building, at the corner of the parcel	9	23	2	7,4	0	0
c) other	0	0	0	0	0	0
14. If you closed the sofa, which sides did you closed?						
a) only one	17	44	0	0	0	0
b) two	0	0	0	0	0	0
c) three	4	10	0	0	0	0
15.How many balconies did you close?						
a) only one	0	0	0	0	13	33
b) two	0	0	0	0	14	35
c) three	0	0	0	0	0	0
15/a.Which balcony did you close first ?						
a) kitchen	0	0	0	0	12	30
b) living room	0	0	0	0	0	0
15/b. Are you going to close the other? Y/N	0	0	0	0	11	28
15/c. How many faces of the balcony have you closed?						
a) one side	0	0	0	0	15	38
b) two sides	0	0	0	0	8	0
c) three	0	0	0	0	12	20
15/d.What is the reason of closing balconies?						
a) orientation (North-wind,West-sun)	0	0	0	0	21	53
b) dirt & polution	0	0	0	0	13	33
c) kitchen is small	0	0	0	0	26	65
d) other	0	0	0	0	9	23
16. Did you close any door after building was completed?Y/N	3	7,7	0	0	3	7,5
17. Did you open any door after building was completed? Y/N	20	51	23	58	0	0
18. Did you close any window after building was completed?	3	7,7	3	7,5	1	2,5
19. Did you open any window after building was completed?	13	33	7	18	0	0
THE ENCLOSING ELEMENTS OF THE HOUSE						
20. What type of wall does the house have?						
a) broken at 90	6	15	40	100	40	100
b) broken at different angles	33	85	0	0	0	0
c) curved	0	0	0	0	0	0
21. What type of ceiling does the house have?						
a) flat	39	100	40	100	40	100
b) sloping	0	0	0	0	0	0
21/a. What type of roof does the house have?						
a) flat	1	2,6	3	7,5	0	0
b) sloping	38	97	37	93	0	0
22. Is there a (flat roof) or terrace usage ? Y/N	14	36	28	70	7	18
23. Where do you get to the (flat roof) or terrace?						
a) a room of the house-(closed)	6	15	0	0	0	0

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b) courtyard	7	18	0	0	0	0
c) garden	0	0	25	63	7	18
d) balcony	0	0	0	0	0	0
e) other	1	2,6	3	7,5	0	0
RELATIONS OF THE UNITS OF HOUSE WITH OPEN SPACE						
24. Where does the kitchen open?						
a) closed sofa	3	7,7	0	0	0	0
b) open sofa or terrace	2	5,1	4	10	0	0
c) street	4	10	5	13	2	5
d) courtyard	25	64	6	15	0	0
e) garden	0	0	14	35	18	45
f) next building	0	0	0	0	0	0
g) balcony	0	0	0	0	14	35
h) neighbour's open space	0	0	0	0	1	2,5
i) entrance hall	4	10	0	0	3	7,5
j) low lighted area	0	0	11	28	2	5
k) other	1	2,6	0	0	0	0
25. Where does the living room open?						
a) closed sofa	2	5,1	0	0	8	20
b) open sofa or terrace	5	13	23	58	0	0
c) street	6	15	1	2,5	0	0
d) courtyard	26	67	5	13	0	0
e) garden	0	0	10	25	9	23
f) next building	0	0	0	0	0	0
g) balcony	0	0	0	0	11	28
h) neighbour's open space	0	0	0	0	0	0
i) entrance hall	0	0	0	0	0	0
j) low lighted area	0	0	1	2,5	0	0
k) other	0	0	0	0	12	30
26. What does the living room open with, to open space?						
a) a door	0	0	0	0	0	0
b) a window	20	51	8	20	14	35
c) both	19	49	32	80	26	65
27. Where does the guest room open?						
a) closed sofa	9	23	0	0	0	0
b) open sofa or terrace	4	10	6	15	0	0
c) street	6	15	0	0	0	0
d) courtyard	14	36	2	5	0	0
e) garden	0	0	10	25	0	0
f) next building	0	0	0	0	0	0
g) balcony	0	0	2	5	0	0
h) neighbour's open space	0	0	0	0	0	0
i) entrance hall	0	0	0	0	0	0
j) low lighted tubes	0	0	0	0	0	0
k) other	1	2,6	0	0	0	0
28. Where does the main bedroom open?						
a) closed sofa	11	28	0	0	8	20
b) open sofa or terrace	3	7,7	5	13	0	0
c) street	3	7,7	1	2,5	6	15
d) courtyard	12	31	3	7,5	0	0
e) garden	0	0	12	30	10	25
f) next building	0	0	0	0	0	0
g) balcony	0	0	1	2,5	11	28
h) neighbour's open space	0	0	3	7,5	0	0
i) entrance hall	2	5,1	0	0	0	0
j) low lighted area	0	0	10	25	1	2,5
k) other	1	2,6	0	0	4	10

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29. Where does the second bedroom open?						
a) closed sofa	4	10	0	0	0	0
b) open sofa	0	0	0	0	0	0
c) street	3	7,7	0	0	7	18
d) courtyard	1	2,6	0	0	6	15
e) garden	0	0	0	0	0	0
f) next building	0	0	0	0	0	0
g) balcony	0	0	0	0	0	0
h) neighbour's open space	0	0	1	2,5	0	0
i) entrance hall	1	2,6	0	0	0	0
j) low lighted area	0	0	7	18	7	18
k) other	4	10	1	2,5	0	0
30. How many rooms (except kitchen & bath) does the house have?						
THE PERMEABILITY OF THE ENCLOSING ELEMENTS						
31. How are the enclosing elements of the courtyard walls?	0	0	0	0	0	0
a) low / permeable (can be seen / can be entered)	0	0	0	0	0	0
b) high / permeable (can be seen / can be entered only with a door)	0	0	0	0	0	0
c) low / dense (can be seen / can be entered)	0	0	0	0	0	0
d) high / dense (can not be seen / can be entered only with a door)	38	97	6	15	0	0
32. How are the enclosing elements of garden walls ?						
a) low / permeable (can be seen / can be entered)	0	0	21	53	1	2,5
b) high / permeable (can be seen / can be entered only with a door)	0	0	1	2,5	6	15
c) low / dense (can be seen / can be entered)	0	0	10	25	33	83
d) high / dense (can not be seen / can be entered only with a door)	0	0	2	5	0	0
33. How are the enclosing elements of balconies or terraces?						
a) low / permeable (can be seen / can be entered)	0	0	15	38	13	33
b) high / permeable (can be seen / can be entered only with a door)	0	0	1	2,5	11	28
c) low / dense (can be seen / can be entered)	14	36	12	30	8	20
d) high / dense (can not be seen / can be entered only with a door)	0	0	0	0	8	20
OWNERS-USE OF OPEN SPACE AT IND., COM., SOC. LEVEL						
34. Who owns the open space and do you use and care it?						
a) owner/ uses	34	100	33	97	5	13
b) Apartment is the owner / not used & not cared	0	0	0	0	12	30
c) Apartment is the owner / used & cared	0	0	0	0	21	53
d) Belongs to everybody / not used & not cared	0	0	0	0	2	5
e) Belongs to everybody / used & cared	0	0	0	0	0	0
f) other	0	0	0	0	0	0
35. Do you have hobbies in open space (grow.flowers..etc)?	25	74	27	79	11	28
36. Do you have pets?Y/N	19	56	7	21	2	5
37. Do you have water like as a fountain, cistern...etc? Y/N	32	94	17	50	1	2,5
38. Do you need to look at sky during the day ? Y/N	26	76	24	71	38	95
39. If the answer is yes; what are you looking for?						
a) meteorological changes (rainy, cloudy, windy...)	17	50	23	68	34	85
b) temporal changes (sunset, dawning of sun, colors of nature.etc)	21	62	15	44	22	55
c) watching the sky (the stars, sun, clouds, moon...etc)	15	44	17	50	14	35
d) visualizing the view, horizon	0	0	10	29	19	48
e) other	1	2,9	0	0	0	0
40. Do you like to get out on sunny days?	29	85	30	88	36	90
41. Which one of these is a spacious room for you?						
a) sunny and lighted	31	91	26	76	34	85
b) large dimensioned	16	47	20	59	16	40
c) with big windows	1	2,9	1	2,9	6	15
d) other	1	2,9	0	0	0	0
42. Do you get together with people in open space? Y/N	32	94	33	97	32	80
43. With whom are you getting together?						
a) family level (children play, eating, chatting...etc.)	32	94	32	94	35	88
b) community level (neigh .for coffee-break, helping to each other)	26	76	29	85	27	68

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c) social level (weddings, rituals (mevlüt, sünnet, kına g.)...etc)	16	47	17	50	11	28
44. In which open space do you get together?	0	0				
a) open sofa	7	21	0	0	0	0
b) terrace	12	35	23	68	3	7,5
c) street	3	8,8	25	74	0	0
d) courtyard	31	91	8	24	0	0
e) stairs	0	0	0	0	8	20
f) at the entrance door	8	24	18	53	19	48
g) balcony	0	0	1	2,9	27	68
h) neighbour's open space	11	32	7	21	22	55
k) park	0	0	0	0	1	2,5
l) garden	0	0	14	41	12	30
m) other	0	0	0	0	4	10
45. Are the balcony or terrace dimensions enough? Y/N	12	35	20	59	14	35

CHAPTER FIVE

CONCLUSION

5. Conclusion

The construction of houses and formation of housing patterns as built environments are directly affect open space configurations. The configuration of closed forms are not independent from open space. It could be said that there is a relation of the two, which could not be separable.

In this research, for a high level of understanding the relation of open-closed spaces, a theoretical framework and conceptual analyses on space have been proceeded in order to recognize, achieve a conceptual understanding, contextual defining of Open Space Phenomenon. This phenomenon or *reality* is also crucial to attract the attention, to the quality of life by means of relations of human beings with the categorical hierarchy of open space in housing, which has been destroyed and devoid human beings to get out of life cycle.

The production of a house, has needed to be life-producing, instead of being only mass producing. This type of house production with the priority of *life* lets people to have *livable* spatial patterns. *In order to enriched the standard living quality of housing, there is a crucial need of constructing positive relations between open-closed spaces.*

The questions which this research have been tried to find out, as stated in Introduction (1.4) could be listed such as:

- In which ways the standard living quality in housing could be enriched by constructing positive relations between open-closed spaces?

- Which method of analysis can help us to define the abstract language of open-closed space relations?
- What are the differentiation in the organizations of building shell which is constructed both by closed-open space (void, absence) from traditional to contemporary housing patterns and housing unit within historical transition alterations?
- Can the solutions of the analyses help us to enlighten and develop the quality of housing designs for today and the future?

Throughout the thesis the research has been carried on to find answers to these questions. The General and Sub-titled Hypotheses are constructed and stated after having done the theoretical, conceptual and literature analyses of written materials about open space (Chapter I and Chapter II). *Towards the aim of answering the questions above, a method (Chapter III) has been tried to evolve for an spatial identification of environmental quality of house and housing patterns with reference to open space.*

5.1. Evaluation of Hypotheses

The hypotheses of research are stated from general to the unique ones, which are about open space context and formation of open-closed space units within a cultural continuity point of view.

Hypothesis I: The open space (void) is the potential energy field. All the materialized spatial configurations is based on this general non-materialized open space. Every materialized unit have a relation with the non-materialized potential unity. The transference of energy to matter, matter to energy could be realized at various levels. These could be listed briefly at micro-medium-macro levels of units. (Table 2.4)

Non- Livings	Micro Level.....atoms, elements, molecules.
	Medium Level.....soil (land), water, air (atmosphere).....
	Macro Level.....moon, galaxy of sun, other galaxies, universe.....
Livings	Micro Level.....cell nucleus, cells, tissues.....
	Medium Level....fauna(animals), flora (plants), human beings...
	Macro Level.....?.....
Conscious, non-conscious living	Micro Level..... psychic unity (individual level).....
	Medium Level..... psycho-spiritual unity (social level).....
	Macro Level.....spiritual unity (universal level).....

This is the general hypothesis, which helped to form the conceptual base of an Abstract Language of the thesis. The abstract space concept, (void-potential energy field)) and its levels of defining the general system are helped to understand and conceptualize the open space as totality. This hypotheses is based on the original table of interrelations of matter-energy.(Table 2.1).

If, this thesis model has been constructed on only the architectural unit or units, as it have been done in other models of spatial analyses, it would be a limited approach and defining. Only the materialized part of an architectural unit has been taken into consideration in these limited type of definitions. It has been seen by the thesis analyses approach that, there are not only *materialized parts* of units, but there are also *non-materialized parts* of units, which are energy 'forms'. This is the basic relation of matter-energy. *The formation of open-closed units could be also based on this matter and energy relations. The energy part of an architectural unit is the open unit, which directly relates to life. The livability level of life could be enriched with emphasizing the construction of open space units for each level of closed architectural units.*

As an evaluation of this general hypotheses of thesis, it could be said that it was stated correctly and helpful for a high level of understanding of open space phenomenon and construct the conceptual base of Abstract Model of the thesis.

Hypothesis II: In this thesis, it has been put forward that definitions depending on the duality of inner and outer space concepts is not real (p.18). These are together a spatial totality. These could not be divided and partially analyzed in duality. With reference to open space unity (void-the potential energy field) the other sub-space units could be categorized and defined with the degrees of enclosing.

The general attitude in conceptual analyses are trying to define and understand the concepts as they are having a duality. These divided understandings, conceptualizing are formed partial analyses of subjects. These partial analyses are not let to construct a '*shared language*' between the ones, who worked on similar subjects. Without having a shared language the subjects are not defined in detail and they have also constructed with limited generalizations. In general, there are not principles, criteria in architectural spatial analyses, which the studies could be based and could be referred to it. If there is a vision, which depends on total relations of *self-other* and evaluates them as a totality, it could be possible

to construct, understand, and analyze not only the form of a unit, but also forms of unity or entities. The Abstract Level I and Abstract Level II have been developed with this kind of total approach to the subject and have informed generalizations, principles for spatial analyses of built forms with reference to open space.

This hypothesis has given an insight to construct the Original Typological Model of the thesis, which have been also tested in sites.

Hypothesis III: The open space is the basic element for space configurations. If a closed system (which has been stated as Architectural Unity) takes, owns and appropriates an individual part from the open space at any degree of enclosing, the relations stated above can be actualized.

The conceptualization which have been stated above, then is used to build up an Architectural Abstract Language, which is used as a tool in analyses of space patterns in sites. There has been a great need of '*A Shared Architectural Language*' in order to define spatial configurations of houses and housing patterns.

It could be possible to supposed that, the explanation levels of open space, which have stated above in Hypotheses I, could be also used as explanation levels of spatial configurations of architectural units. As a starting point and base for each architectural unit or process of formation of other units, the need of open space is basic and fundamental.

The analyses that have done before are in general have been analyzed this interrelations of Architectural Unity with a limited way of understanding. In general, within these type of analyses, the relations of closed units with other closed units or entities are analyzed. They have defined and classified an architectural explanation of space according to these closed to closed space relations.

In this thesis, the *open-closed space units* are evaluated as unseparated units of an architectural unity. The formation of this type of architectural unity or composed architectural entity are always originates with open space. This type of evaluation of open space, which is an original and unseparated unit of an architectural unity also helped to understand the formation of house as an architectural unity. This type of evaluation has also supported to define historical development of houses up today and construct a new perspective for future design principles.

This is a new model of architectural language which has been tested in three sites and has not been presented before. The formation of this language has also given an answer to the question of, 'which method can help us to define the abstract language of open-closed space relations?'

As an evaluation of the general Hypothesis III, it could be said that it was stated correctly and tested in sites and examples of three sites also verifies the Hypothesis III. It has been presented as An Original Typological Model of Analysis (Abstract Level I and II) to define open-closed space relation.

Hypothesis IV: The formation of open-closed space configuration have affected and could be analyzed by:(see Abstract Level I)

- Degrees of enclosing
- Directions of enclosing
- Enclosed (captured) space concept
- Location and position of open space
- Compositions of units and changes in configurations
- Transitions with entrances

The basic criteria of the model, which have tested in sites and listed in above are helpful to outline and to clarify spatial characteristic of any site or formation of architectural unity.

I. Space patterns, their formations, configurations and compositions in housing could be defined with reference to open space. A typological model of analysis could be constructed and proposed to use as a tool for defining and understanding the spatial formation in house and house patterns

In this thesis Model, which have been based on the theoretical and conceptual context of open space could be used by defining it as *a relation of simple forms*. The simplest form of architectural unit is symbolized with *closed unit*. and with the *open unit*, they have defined the *architectural unity* of open-closed units. The spatial formation and configurations of composed architectural unity and the spatial configurations of higher spatial formations could be analyzed with this basic relation. This basic relation, have been also tested in sites. Typologies, which based on plan structures of Karamehmet-Muğla and Güzeltepe-Çiğli have been concluded and concretized with using the model of the thesis as a tool. (Concrete Level I and Concrete Level II)

II. When man with his/her inward act of creation starts to surround, takes an individual part from the open space, it could be said that there is the need of identity, appropriation, security and defense of a unit from others.

The act of enclosing of open space has started with the need of a secure place to live. The enclosing act of man which is an inward act has affected directly the spatial formation of units. With constructions of walls and ceiling open space has been captured. and it has been stated as a closed unit in this thesis. This formations of space with enclosing are a continuous and additive process. Every formation of closed unit has left the general open unity as potential for other new enclosings. This inward act of enclosing or in other words an appropriation of open space for an architectural unit or units has been tested in three sites to define their limits, such as:

In Muğla case, The appropriation of open space has been limited at courtyard walls.

In Güzeltepe case, The appropriation of open space has been limited in general at terrace fences or courtyard and garden walls.

In Güzeltepe case, The appropriation of space has limited at the balcony fences.

There is an decrease in their limits and size of appropriated open space units from traditional to squatter settlements and today's high rise apartments. This is the critical point for life of human being, in house because of having a great decrease in their interrelations with open space, which has been also defined as relations of architectural units with 'potential energy fields'.

Hypothesis V: The architectural unit (closed unit), could also be defined by its actual being within relations of one, (self -closed unit) with the other (open space unit). The organizations of open-closed space relations in Architectural unity (the unity of open-closed space units) and the composed architectural unity (the unity of open-composed architectural units) could be defined in hierarchies.

(Self-other) other = (closed-open unit) open unity

(Architectural unit-open unit) open unity = (Architectural entity) open unity

(n Architectural entity-open unit) open unity = (Composed Architectural entity) open unity

* The open unity is the general system which is named as open space. (Void-potential energy field)

The formation of architectural units, and their composition for a higher architectural entities could be formulated as *self and other* relation. Every time, when an open space unit has been appropriated and added to architectural unit for formation an open-closed unity the general system stays as potential open space. Open system is the general system and every architectural unit takes a part of it.

This hypothesis has also tested in site. The differentiation of owning an open space at different levels of enclosing could be stated for three sites such as:

In Muğla case: Every new addition with enclosing in courtyards are still leaving an open unit for the sake of livability level of house.

In Güzeltepe case: Every new addition with enclosing either in garden, courtyard or additions at terraces still leaving an open unit for the sake of livability level of house.

In Evka-2 case: Every new addition with enclosing the balconies which are limited with one, two or three side enclosing, are not leaving an open space unit for the sake of life and for inward act of creation the new unit as next step in future.

Hypothesis VI: The inward act of creation or formation of composed architectural units is an additive process which always contains its own open unit or having a direction to form an open unit during the enclosing steps.

This hypothesis is also tested in three sites and helped to conclude the typologies based on this additive process of plans. The unwritten rules of the spatial configurations of sites could be read and decoded with having in mind that, growth of these formations are realized as additive process in time. Today's plan types, which are perceived are telling very little about original types and thealso lifestyle of past, but when it has known that these houses had been constructed with an additional growth in time, it could be possible to reach original plan types with an inverse operation of addition, which is subtraction. The questions in sites are also organized to find out these changes in sites, plan types.

In the Concrete Models I and II, there are plan types presented, which have defined by using this inverse operation for reading and decoding the spatial data of past.

Hypothesis VII: In the Traditional House (the unity of open-closed space) of Anatolia the individual open space and the closed space have one to one corresponding relations with each other. The similarities of relations and formation

of the open-closed unity could be seen in the span of ten thousand years. These relations and formations could be examined in the house of Hattis, Sumerian, Assyrian, in a house of Kum, in the megaron, pastas, prostas, peristyle type of houses and also traditional Turkish house in all regions of Anatolia.

It could be said that, the spatial configuration of traditional house over Anatolia and also the historical examples of houses at adjacent cultures of Anatolia are based on interrelations of open-closed spaces.

Hillamar, Iwan, and Talar are open space units that have seen in formation of houses at adjacent cultures. Pastas, Prostas, Peristyle, atrium or open galley at Hatti house are open space units, which have affected the formation of houses of different cultures over Anatolia at different periods, which are located either adjacent or on top of each other.

The house formations over Anatolia are in general having a formation based on open-closed units and their interrelations. These are also put forward and concretized with the Concrete Level III, for a better understanding the essence of having an open space unit in house formations over Anatolia. *This open space based plan formations could be also proposed, as an explanation of the high quality character of the traditional houses. This is the essence of capturing, appropriating an energy unit with enclosing elements, for the continuity of life of enclosed unit (organism) and also increases the livability level of house, which continues on forming in the span of 10 000 years over Anatolia.*

Hypothesis VIII: The organization of open-closed space relations, and sequential spatial formations (formation as an additive process) in time - the organization of open-closed space relations in Architectural unity of open-closed units and Composed Architectural Unity of open-closed of houses in Squatter Settlements are similar with the Traditional Anatolian House.

I. The location of open space in the houses of squatter settlement is similar to the traditional open space location.

II. The usage of open space in the houses of squatter settlement is similar to the usage of open space in Traditional Anatolian House.

III. These similarities in the continuity of space configuration and organization are the results and could be defined as cultural continuity of spatial consciousness.

IV. This cultural continuity in spatial formation which is seen in the squatter housing and settlement because of the interruption of formal planning and formal professional effectiveness of Architecture does not take place during the building procedures of these settlements.

The cultural identity and continuity of Anatolian culture is heterogeneous and hybridized, as stated in the Modern Theory of Culture (p.25). The culture and civilizations could be define with the interactions and interrelations of other cultures. The Anatolian civilization has been constructed on this cultural base. This potentially intensive cultural base had been realized, when the Model of Thesis has been tested in sites. Such as:

In Muğla case: The earlier form of houses are based on the original Megaron type and their additive growth with adjacent additions, but in the examples of later period, this have changed with the additions of cyclic units like as it has seen in Güzeltepe case.(GZLT-A1)

In Güzeltepe case : The earlier form of houses are based on the original 'bayt form' and have open space in between, which later closed at sides with walls (*havlu*) and have opening on top left. This type of houses have two closed units and on open unit in between, which was also closed later. The second type of house, has started with one closed and one open unit. Later the form of house with this type have changed with additions of adjacent cyclic units. This type has been enclosed with four units.(GZLT- A1) These enclosed form, has also seen at the latest examples of enclosed types in Muğla. In Güzeltepe there are also similarities have seen, with Boğazköy houses. The location of open space unit as an open gallery in front, having an undivided character of open space unit and having a basement floors are similarities of these houses.

These types of Muğla and types in Güzeltepe are having an additive spatial formations. And in both cases there are rarely seen some division based plan types of a houses. These later built, division based plan types could be explained by the destruction in spatial consciousness and affects of Modernism.

In Evka Case- The continuity of the traditional, cultural spatial consciousness of additive formation of houses with their open unit relations has been destroyed and lowered down at Evka -2 case with have limited and divided into two type of open space units.

The Hypothesis VII has also been verified with testing Model in sites and finding that there are similarities between traditional and squatter settlements.

Hypothesis IX: In today's mass-housing settlements and high-rise buildings the organization of open-closed space relations are un-identified. The open -closed space relations of house and the open-closed space relations of house patterns are un-identified. People can not appropriate, individualized, owned and used the open unity (open space) for themselves.

-There is no individual open space in the formation of housing units. The balconies can not be considered as individual open space. The crucial relations of life does not take place at the balconies The balconies which are offered as open space at flats are not functional by means of life, livable relations, dimensions, security, privacy..... The open-closed space relations are very limited in the flats by means of livable relations with open-space. So a flat could not define as a *house*. People can not appropriate and individualize these 'areas' as an open space and they have in general closed for appropriation, owning and usage of them as defined spaces. People can not integrate with the open space that they can not appropriated. The open space between blocks at the housing pattern scale are also not owned or shared by people like as the balconies of flats.

I. The location of the balconies and the open areas between blocks are not similar to location of open space in the traditional and squatter settlements.

II. The usage of the balconies and the open areas between blocks are not similar to the usage of traditional and squatter settlements.

III. The balconies and the open areas between blocks are not owned, appropriated, and used as open space. The relations with open space is at open unity level not at open individual unit which is full of potential life-producing relations with other.

The character of the Evka-2 site, could be seen in Photographs (no, 36-37), which are taken in 1992 and 1997. When these photographs are analyzed in detail, it could be easily seen that, they are taken from very close angles. *The non-positive character of open space between blocks has not been changed in five years.* There are not any creation of new in these spaces because of their non-owned character. The very little change in site could be hardly understood only with the growth of trees. This is a static type of life and living. Change in time , and creation of new formations each time is a dynamic type of life and living .

The balconies in 1992 are not yet enclosed. The same balconies are enclosed without any exception in one of Type C Blocks, which the photograph of it has taken in 1999. (Photograph no. 49).

Although there are some people, which are positioned in photographs, it could be impossible to recognize them. They are lost in open space. These open spaces could not be defined as livable spaces at communal level, but people who live at ground floors of site are owning, appropriating, and constructing an open space relation for their individual level of life. They have formed an additive open unit (*Çardak*), although they are not formally owner of this part of land. (See photographs 45, 43, 46, 47, 52, and 53). *This act of forming a unit of open for themselves has also emphasized, the crucial importance of spreading life to open space for an architectural closed units.*

The balconies which are constructed as open space units for higher flats in design based configurations are not presented a life like as in lower flats. People are in general enclosed the upper floor balconies and *let themselves to live in an enclosed architectural entities* with having no chance in future for their life to unite with an open space unit. This inversable relation of enclosing causes intrinsic damages in their living quality. After enclosing the balconies, the only relation with open space could be constructed not spatially, but only at *surface level*, relation with windows. In traditional settlement and also in squatter settlements these relations of open-closed units are constructed *spatially*, like as it was been in houses of historical examples. It could be concluded that the spatial consciousness that continued up to the squatter settlements by means of open-closed interrelations has been destroyed in plan based construction of today's housing units.

5.2. Summary of Results

The formation of a house is based on its crucial relation with open space. These relations of spatial formations of architectural units with open space could be read and decoded by an original model which has been constructed in this thesis and tested in three sites of today's housing patterns.

The space formations of three sites are differentiated by means of constructing a relation with an open unit. In traditional and in squatter settlements formation of house with an additive process, always construct an open unit for itself. These are dynamic formations and

the place and size of open unit could be changed with an addition of a new architectural unit or unit but the essence of having an open unit does not change. The form changes in these sites also means that, people are having done something new in their life with every addition or enclosing at a degree in time. This could be also named as *a creative act of enclosing and forming a new spatial configurations*. In Evka-2 flats, as plan based constructions are not having an additive formation. They are formed with a division based construction of spatial units.

The relation of closed units with an open unit in Evka -flats are designed and proposed to be placed at balconies. Each flat of Evka-2 blocks have been designed with having two balconies. This type of separation of open unit of a house, has not seen in Muğla and Güzeltepe houses. The traditional and squatter settlements are having their open units as a total open space unit, and in general this open space unit has been located towards entrances for controlling entries to house. The open space unit has not partially defined like as kitchen balcony, living room balcony, and etc. It could be said that this divided character of open space in Evka-flats has also raised the problem of living in a less secure and safety enclosed units. The flats has three entrances, which means three control points or three thresholds between the individuals of family and the strangers of community. This type of divide open units are also increase the cost of building with having additional balcony doors. In Güzeltepe, where people are in general having low incomes are always planning decrease in building costs.

These thresholds of open-closed units have also differentiated in three sites. This threshold of family and others is at courtyard door in Muğla, which is also defined as *open to open transitions*. The same threshold is at terrace entrance door or stairs of terrace which could be defined as *open to closed transition*, but in Evka case this threshold is at flat's entrance door. It could be said that, the limits of safety and secure place to live decreases from Muğla to Güzeltepe and to Evka houses (see p.90). Strangers in community could be at the balcony entrances or at flat door entrances which are too near to the individual life of family. This could be stated as an intrinsic reason of enclosing balconies with iron fences and having also a second iron door at flat's entrance door in staircases in Evka-2. In general, in Muğla and Güzeltepe houses have only one main door and they have placed in a distance away.

The houses of Muğla and Güzeltepe are in general located on parcels with attachments. Houses of two sites are having in common the attached or non-opened back sides. It could be said that, this act of positioning, constructing back sides of houses as an attached side has been done to feel security and safety in house. Another reason for this location of houses is to leave a total open space for new formations in future. This safety and security system of the house in sites also continues on, with having only one entrance from communal open space to appropriated open space unit. The safety and secure character of houses of Karamehmet-Muğla and Güzeltepe are not similar in Evka-2 with having balconies and entrances at against sides.

The logic of enclosing have seen in all sites. This is an inward act of human being, which have forced man to define open space as its own. The owning of space does not mean that they are also the formal owners. (See photograph 43). This appropriation of open space with any kind of enclosing element indicates as an unwritten rule that, the open space is belong to someone. The informal owners of open units in Evka-2 site are defining themselves as the owner of open units and also felt themselves belonging to open unit although they are not the formal owners..

The appropriation of open space as an act of enclosing also causes the care of that open unit. But when the distance are getting too far away between blocks, the appropriation of open space are getting harder. Then, these non-owned open spaces with having no definition, no sign of belonging are left and having less care. People are having recognition of open spaces by their enclosing elements. If they do not realized an act of owning, they do not felt themselves belonging to that open space, but if they have role on enclosing and appropriating for owning an open unit, they feel themselves belonging. The open spaces between blocks, with great distances are not fitted to enclose and without having a definition with any degree of enclosing, people are not felt themselves belonged to that open space. Enclosing, appropriating, belonging and care of open space are liked act of each other.

It could be said that, the open space relations in Evka-site, for each flat is constructed at a minimum degree and people are closing an refusing to use them as open. The open space relations at each block level are not constructed distinctly and at a satisfied degree for using and owning of the ones in that block. Although, people are defined the apartment entrance

doors as their open space units at communal level, these are also not defined by means of owning. The last step of definition of open space which is at the level of the space between blocks are also not defined by means of owning, using, and pay attention to it..

These non-owned, great scaled open space in housing and to much owners in small scaled cause disorder in open space. The non-owned open space in modern design have produced un-identified, non-qualified spaces. It could be said that order of social patterns like as self, individual, family and others, with their intimate surrounded spaces are similar to the order of spatial patterns, like as open unit of room, open unit of house, open unit of blocks, and open unit of block groups. The housing patterns can be built up more livable, if houses and housing groups are spatially organized and defined their own open spaces by enclosing elements.

It could be stated that the open space have two different meanings in the life of human beings, one is the meaning of perceived values which are air, light water and etc. and the other is the intrinsic meaning of open space like as to feel and sense of life, to sense life cycle, temporal changes, sense of other livings and non-livings, and also sense of other people tat they are there by means of socialization, and etc.

It could be also stated as a result of the analyses and testing, that *the decrease in interrelations with open space concludes decrease in life and livability. When an architectural unit is fully enclosed with having no relation with open space or potential energy, life ceases. This means death, like as in graves. In order to develop a higher quality of housing designs for today and future there is a crucial need of increasing the interrelations architectural unit with open space unit spatially.*

5.3. Suggestions

There is *a crucial need to attract attention*, to the quality of life by means of relations of human beings with open space unit in house and in other categorical hierarchy of open space units in housing patterns.

The livability level of architectural units could be enriched with emphasizing the construction of *open space units* for each level of closed architectural units. In future designs of house and house patterns, *the open-closed units as an Architectural Entity* could

be used as the basic design principle for construction the new designs of houses and housing patterns.

In future designs of house and housing patterns, *additive process of formation* new types could be proposed to use, which is always built on the protection of open unit.

In spatial formations of traditional and historical houses the open-closed units have been constructed with an insight, but in the spatial formation of today's high rise blocks these relations are not constructed. The negative change in the cultural spatial consciousness affects the space formations and also affects people by a feeling of not belonging. Insight of the past is needed to be carried into today's spatial formations of houses and housing patterns.

The Thesis Model will be helpful to use as a tool in analyses of other traditional or squatter sites for understanding different spatial patterns of traditional and squatter houses. The similarities and differences of these analyses could be compared, for a higher level of generalizations about the essence of spatial formation of houses.

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**Christopher Alexander's *The Nature of Order*,
by Nikos A. Salingaros**

oOo

**ONE OF THE TWENTIETH CENTURY'S MOST IMPORTANT
DOCUMENTS**

Ever since I posted [Some Notes on Christopher Alexander](#), I have been deluged by questions about the *Nature of Order*. This book is due to be published by Oxford University Press. During its course of writing over several decades, the *Nature of Order* has expanded into its present format of four large volumes. [**Latest information, December 1998*]. All books except the second half of volume 2 are typeset; the second half of volume 2 is undergoing final revisions. All four volumes will be sent to the publisher at the beginning or middle of 1999. It should take only a few weeks more for proofreading and corrections. I will announce their publication as soon as I know for sure. When they are available, copies may be ordered from any bookstore.

The *Nature of Order* has been in preparation for over thirty years, and encapsulates all of Christopher Alexander's theories. My own modest contribution has been to help Professor Alexander edit the manuscript during the past fifteen years. In this monumental book, Alexander develops a comprehensive theory of how matter comes together to form coherent structures. Paralleling, but not copying, recent results from complexity theory, he argues that the same laws apply to all structures in the universe; from atoms, to crystals, to living forms, to galaxies. Human beings apparently have a built-in (though subconscious) understanding of these laws. Man's creations have the option of following the same laws, or violating them. Those that follow them result in our greatest achievements, either as artifacts, as buildings, or as cities.

This book promises to be of fundamental importance to computer programmers, defining in the words of some experts, "a new paradigm for programming". This is remarkable, since the book is written primarily in the interest of architects (of buildings, not software). It turns out that the same organizing principles apply to computer programs as to buildings. This connection was made recently by several visionary programmers, and has already generated remarkable insights and results. A good overview is the book by Richard Gabriel, *Patterns of Software* (New York: Oxford University Press, 1996; with a foreword by Christopher Alexander). There are notes of a review talk given by [Jim Coplien](#) on the *Nature of Order*, with commentary by Brad Appleton, which are highly recommended. Jim Coplien is writing a series of articles outlining the possible applications of the *Nature of Order* to software -- see [Geometry In Code](#).

Far-reaching results on urban planning were given some years ago in Alexander's famous article "A City is Not a Tree" (see the article by [Roger Evans](#) in the *Urban Design Quarterly*), and in the *Pattern Language* and *A New Theory of Urban Design*. His solutions were abstracted from and checked against urban sites that work, which is sufficient reason to apply them to urban sites that don't. He goes much further in *The Nature of Order*, showing that the rules governing the growth of neighborhoods and cities arise from a fundamental law of nature. Alexander has

discovered the process that governs the growth of a successful city - which is the same process by which organic and inorganic forms evolve. Surprisingly, the law concerns the *process*; not the form or plan. This whole approach might seem unfamiliar to urban planners who think in terms of static images, though biologists will immediately recognize it as correct. These universal laws apply not only to "traditional" cities -- they apply to *all* cities, in every age and in every culture, that enhance human activity.

The first two volumes should be appreciated as a new approach to understanding structure, both natural and man-made. They span aesthetics, science, and architecture, and are relevant to any complex process. Volume 3 is of immediate interest to architects and urban planners, as it contains a large number of examples of the building process from the largest to the smallest scale. I am most deeply moved, however, by volume 4 of the *Nature of Order*, which is a deeply spiritual work. The last of the four volumes transcends architecture, and plunges into what it is that connects us with our universe. It reveals how superficial our century has been in addressing the fundamental qualities and needs of human beings. This volume promises to have a profound impact on our society; even our civilization. For that reason, it might ultimately be the most revolutionary aspect of the entire work.

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REVIEWS OF THE NATURE OF ORDER

The Nature of Order offers a golden thread that connects the innermost center of who we are as humans with the physical environment that we have the potential to create. It is an intimate journey which reunites our internal experience with the external world so as to create wholeness in the reader. It is written in painfully precise language in which the future of society has the potential to be written.
Peter Block, author and Organizational Consultant, Connecticut.

A couple of years ago I read the unpublished manuscript of the Nature of Order and found it to be remarkable -- one of the most important books I've read.
Ken Foster, architect, Austin Texas.

The Nature of Order is not only a summa summarum of what Oxford University Press has called "The World of Christopher Alexander", but it is surely one of the most ambitious books ever published. If its profound argument -- that order in both nature and in what we build are essentially the same -- is ultimately understood and accepted by serious readers it may prove to be one of the most consequential works Oxford has published in all its 500 years.
William McClung, special project editor for Oxford University Press, former senior editor of the University of California Press.

My personal opinion is that this book will be recognized as one of the twentieth century's most important documents. Although I am admittedly biased, the same opinion is expressed by those who have had a chance to read copies of earlier drafts.

Nikos Salingaros, Professor of Mathematics, San Antonio Texas.

An excerpt from Book 4 of the Nature of Order.

"The structure of life I have described in buildings -- the structure which I believe to be objective -- is deeply and inextricably connected with the human person, and with the innermost nature of human feeling. In this fourth volume I shall approach this topic of the inner feeling in a building, where there is a kind of personal thickness -- a source, or ground, something almost occult -- in which we find that the ultimate questions of architecture and art concern some connection of incalculable depth, between the made work (building, painting, ornament, street) and the inner "I" which each of us experiences.

What I call "the I" is that interior element in a work of art, which makes one feel related to it. It may occur in a leaf, or in a picture, in a house, in a wave, even in a grain of sand, or in an ornament. It is not ego. It is not me. It is not individual at all, having to do with me, or you. It is humble, and enormous: that thing in common which each one of us has in us. It is the spirit which animates each living center.

I believe that the ultimate effort of all serious art, is to be making things which connect with this I of the person. This "I," not normally available, is dredged up, forced to the light, forced into the light of day, by the work of art.

My hypothesis is this. That all value depends on a structure in which each center, the life of each center, approaches this simple, forgotten, remembered, unremembered "I." That in the living work, each living center really is a connection to this "I."

...

I believe that this is true; not just a nice way of talking. As I try to explain it, quietly for all its grandeur, and try to make the artist's experience real, I hope that you, with me, will also catch a glimpse of a modified picture of the universe.

For I believe it is the nature of matter itself, which is soaked through with I. The essence of my argument in Book 4 is that the I, the thing I call the I, which lies at the core of our experience, is a real thing, existing in all matter, beyond ourselves, and that we must understand it this way in order to make sense of living structure, of buildings, of art, and of our place in the world.

That very difficult intellectual path, is the path which lies before me.

I shall try to persuade the reader that this is literally true".

-- *Christopher Alexander*

The Alexander books are the most exciting thing I have read in a long time, and I think Alexander has made a SIGNIFICANT contribution to modern philosophy in general. ... my unbounded thanks to Alexander for this great seminal work ...
Christopher Skelly, President of Insight Resource Inc., New York.

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THE NATURE OF ORDER

by Christopher Alexander

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- How life comes from wholeness
- Fifteen fundamental properties
- The awakening of space
- The mirror of the self
- Beyond Descartes: A new form of scientific observation
- The personal nature of order

Book Two: **The Process of Creating Life**

- The principle of unfolding wholeness
- Structure-preserving transformations
- Examples in traditional towns and buildings
- Perversity and arbitrariness of early modern design
- 20th century cases where unfolding has occurred
- Is a hyper-modern process of unfolding possible?
- The fundamental process
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Book Three: **A Vision of a Living World**

- The fundamental process repeated ten million times
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- The hulls of public space
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- Housing, pedestrians, and cars
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- The character of gardens
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Book Four: The Luminous Ground

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Epilogue: *The Art of Building*

Appendix II

QUESTIONNAIRE FORM

General Information

Number of houses the questionnaire has been applied

House number

The street name/number

Number of people living in the house

Family type

- a) single
- b) nuclear family
- c) extended family

Which member of the family answers the questions?

- a) father
- b) mother
- c) other

Are you a foreigner or native of the place?

- a) Native
- b) Foreigner

General Information of the House

LOCATION AND ORIENTATION OF THE HOUSE

1. What is the settlement type of the house?

- a) squatter settlement
- b) traditional housing
- c) high-rise buildings

2. Which floor is the house on?

- a) basement
- b) basement (half) + ground floor
- c) basement+ ground + first floor
- d) basement+ ground + first floor + penthouse
- e) ground floor
- f) ground floor + first floor
- g) ground + first floor +penthouse
- h) ground floor flat
- i) first floor flat
- j) second floor flat

- k) 3-5th floor flat
- l) 6th floor & higher flat

3. How many sides of house has attachments?

A. No attachment (free opening)

B. One side attached

- a) North
- b) South
- c) West
- d) East

C. Two sides attached

- a) North-South
- b) East-West
- c) North-East
- d) North-West
- e) South-West
- f) South-East

D. Three sides attached

- a) North-South-East
- b) North-South-West
- c) East-West-North
- d) East-West-South

E: Four sides attached

- a) entrance from ceiling
- b) entrance from floor
- c) enclosed-opening in center

4. How many facades of the house has openings?

- a) one facade opening
- b) two facades opening
- c) three facades opening
- d) four facades opening

5. If it is one face opening, is it narrow or wide?

- a) narrow face
- b) wide face
- c) approximately equal

6. How does the house stay on the parcel? (location in courtyard enclosure)

- a) at the corner

- b) at the edge
- c) at the edge & corner
- d) at the middle
- e) at the middle & edge
- f) at the edge & corner & the other edge
- g) at the corner & edge & corner
- h) at the edge & middle & edge

ENTRANCES OF THE HOUSE

7. How many entrances does the house have?

- a) only one
- b) two
- c) three
- d) other

8. If there are two, where are they from?

- a) street
- b) courtyard
- c) garden
- d) staircase
- e) balcony
- f) terrace
- g) flat roof
- h) other

9. If there are three, where are they from?

- a) street
- b) courtyard
- c) garden
- d) staircase
- e) balcony
- e) kitchen balcony
- f) terrace
- g) flat roof
- h) other

10. Where is the main entrance of the house from?

- a) street
- b) courtyard
- c) garden

- d) staircase
- e) balcony
- f) terrace
- g) flat roof
- h) other

10/a. How many entrances does the apartment have?

- a) one
- b) two

10/b. If the apartment has two entrances; are you using them? Y/N

11. Have you done changes in the plan type? Y/N

12. What have you changed ?

- a) add a part (room) in the courtyard or garden)
- b) closed the sofa
- c) change the position of staircase
- d) pull down a wall
- e) build a new wall
- f) closed the balcony
- g) divide in two vertically
- h) divide in two horizontally
- i) kitchen/ bathroom renewing
- j) other

13. If you add new parts (rooms) , where did you start adding?

- a) adjacent to the building, at the edge of parcel
- b) away from the building, at the corner of the parcel
- c) other

14. If you closed the sofa, which sides did you closed?

- a) only one
- b) two
- c) three

15. How many balconies did you close?

- a) only one
- b) two
- c) three

15/a. Which balcony did you close first ?

- a) kitchen
- b) living room

15/b. Are you going to close the other? Y/N

15/c. How many faces of the balcony have you closed?

- a) one side
- b) two sides
- c) three

15/d. What is the reason of closing the balconies?

- a) orientation (North-wind, West-sun)
- b) dirt & pollution
- c) kitchen is small
- d) other

16. Did you close any door after building was completed? Y/N

17. Did you open any door after building was completed? Y/N

18. Did you close any window after building was completed? Y/N

19. Did you open any window after building was completed? Y/N

THE ENCLOSING ELEMENTS OF THE HOUSE

20. What type of wall does the house have?

- a) broken at 90
- b) broken at different angles
- c) curved

21. What type of ceiling does the house have?

- a) flat
- b) sloping

21. What type of roof does the house have?

- a) flat
- b) sloping

22. Is there a flat roof or terrace usage on the added parts? Y/N

23. Where do you get to (the flat roof) or terrace ?

- a) a room of the house-(closed)
- b) courtyard
- c) garden
- d) balcony
- e) other

RELATION OF THE UNITS OF HOUSE WITH OPEN SPACE

24. Where does the kitchen open?

- a) closed sofa
- b) open sofa or terrace

- c) street
- d) courtyard
- e) garden
- f) next building
- g) balcony
- h) neighbour's open space
- i) entrance hall
- j) low lighted area
- k) other

25. Where does the living room open?

- a) closed sofa
- b) open sofa or terrace
- c) street
- d) courtyard
- e) garden
- f) next building
- g) balcony
- h) neighbour's open space
- i) entrance hall
- j) low lighted area
- k) other

26. What does the living room open with, to open space?

- a) a door
- b) a window
- c) both

27. Where does the guest room open?

- a) closed sofa
- b) open sofa or terrace
- c) street
- d) courtyard
- e) garden
- f) next building
- g) balcony
- h) neighbour's open space
- i) entrance hall
- j) low lighted tubes

k) other

28. Where does the main bedroom open?

- a) closed sofa
- b) open sofa or terrace
- c) street
- d) courtyard
- e) garden
- f) next building
- g) balcony
- h) neighbour's open space
- i) entrance hall
- j) low lighted area
- k) other

29. Where does the second bedroom open?

- a) closed sofa
- b) open sofa
- c) street
- d) courtyard
- e) garden
- f) next building
- g) balcony
- h) neighbour's open space
- i) entrance hall
- j) low lighted area
- k) other

30. How many rooms (units-except kitchen&bath) does the house have?

THE PERMEABILITY OF THE ENCLOSING ELEMENTS

31. How are the enclosing elements of the courtyard walls?

- a) low / permeable (can be seen / can be entered)
- b) high / permeable (can be seen / can be entered only with a door)
- c) low / dense (can be seen / can be entered)
- d) high / dense (can not be seen / can be entered only with a door)

32. How are the enclosing elements of garden walls ?

- a) low / permeable (can be seen / can be entered)
- b) high / permeable (can be seen / can be entered only with a door)
- c) low / dense (can be seen / can be entered)

d) high / dense (can not be seen / can be entered only with a door)

33. How are the enclosing elements of balconies or terraces?

a) low / permeable (can be seen / can be entered)

b) high / permeable (can be seen / can be entered only with a door)

c) low / dense (can be seen / can be entered)

d) high / dense (can not be seen / can be entered only with a door)

OWNERS-USE OF OPEN SPACE AT IND., COM., SOC. LEVEL

34. Who owns the open space and do you use and care it?

a) owner/ uses

b) Apartment is the owner / not used & not cared

c) Apartment is the owner / used & cared

d) Belongs to everybody / not used & not cared

e) Belongs to everybody / used & cared

f) other

35. Do you have hobbies in open space (grow.flowers..etc? Y/N

36. Do you have pets?Y/N

37. Do you have water like as a fountain, cistern...etc? Y/N

38. Do you need to look at sky during the day ? Y/N

39. If the answer is yes; what are you looking for?

a) meteorological changes (rainy, cloudy, windy...)

b) temporal changes (sunset, dawning of sun, colors of nature.etc)

c) watching the sky (the stars, sun, clouds, moon...etc)

d) visualizing the view, horizon

e) other

40. Do you like to get out on sunny days?

41. Which one of these is a spacious room for you?

a) sunny and lighted

b) large dimensioned

c) with big windows

d) other

42. Do you get together with people in open space? Y/N

43. With whom are you getting together?

a) family level (children play, eating, chatting...etc.)

b) community level (neighbors for coffee-break, helping to each other, preparing food for winter.)

c) social level (weddings, rituals (mevlüt, sünnnet, kına g..etc)

44. In which open space do you get together?

- a) open sofa
- b) terrace
- c) street
- d) courtyard
- e) stairs
- f) at the entrance door
- g) balcony
- h) neighbour's open space
- k) park
- l) garden
- m) other

45. Are the balcony or terrace dimensions enough? Y/N

