

INTERIOR LAY-OUTS OF HOUSING:
A PROPOSAL FOR THE DESIGN OF BUILT-IN
FURNITURE IN THE FORM OF PATTERNS

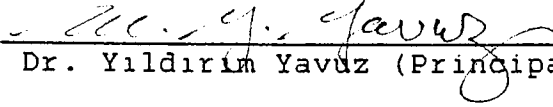
A THESIS
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By
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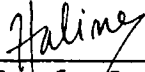
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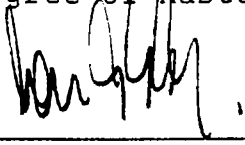
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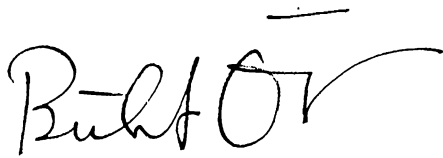
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TO MY HUSBAND

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ABSTRACT

INTERIOR LAY-OUTS OF HOUSING: A PROPOSAL FOR THE DESIGN OF BUILT-IN FURNITURE IN THE FORM OF PATTERNS

Zeynep (Sabuncuoğlu) Genç

M.F.A. in Interior Architecture and Enviromental Design

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February, 1992

Today, a considerable number of studies are being carried out in the field of housing design. Among those, however, the number of studies pertaining to the inner organizations of housing designs do not seem to be adequate.

In this specific study, problematic issues of furniture adaptation to housing schemes have been dealt with and it is claimed that the discipline of interior design should effectively be integrated into the decision making process of housing design.

Along this line, the built-in furniture examples of traditional Turkish house and Le Corbusier's Modulor concept have been investigated. Further, the relation between user (urbanized family) and the furniture lay-outs of housing been touched upon following which a number of design proposals in the form of patterns are presented.

Key Words: Houses, Built-in Furniture, Storage, Users' Requirements

ÖZET

KONUTLARDA İÇ MEKAN DONANIMI: İÇ MEKAN ÖRÜNTÖLERİ BİÇİMİNDE KONUTLARDA BİRLİKTE OLUŞTURULMUŞ MOBİLYA TASARIMINA İLİŞKİN ÖNERİ

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Günümüzde konut planlaması konusunda pek çok çalışma yapılmış ve yapılmaktadır. Ancak, konutların iç mekan donanımları üzerinde çalışmaların yeterli olduğu söylenemez.

Bu çalışmada, mobilyaların konutlara adaptasyonu ile ilgili problematik konulara değinilmiş, iç mimarlık disiplininin konut planlaması aşamasında etken olarak katkıda bulunması gerektiği vurgulanmıştır. Bu bağlamda, geleneksel ve pek az sayıda olan modern örnekler incelenmiştir. Ayrıca mobilya-kullanıcı ilişkisine değinilmiş, kentli ailelerin olası yaşam biçimi araştırılmıştır. Sonuç olarak mobilyalarla birlikte oluşturulmuş konutlarda kullanılabilecek iç mekan örüntüleri oluşturulmuştur.

Anahtar Sözcükler: Konutlar, Birlikte Oluşturulmuş Mobilya, Depolama, Kullanıcı Gereksinimleri

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CHAPTER 1

INTRODUCTION

Scope of the Work

A house is the place where a man spends most of his time and which plays a significant role in his life. The houses and their interior lay-outs ought to be designed in accordance with spatial requirements of housing and users' needs.

When house interiors are analysed, two crucial constituent elements are encountered; boundaries (walls, structure, etc.) and the furnitures. Furnitures in the houses and their relationship with boundaries form up the interior lay-out of a residence.

Generally, boundaries are fixed and thus their positions are mostly inflexible whereas furnitures are mobile and their locations can easily be changed. Another distinction between the two is that they are the products of different disciplines. Making up of boundaries belong to the domain of architecture whereas furnitures are the yields of design related disciplines (interior design, industrial design, etc.).

The subject of this thesis is neither furnitures, nor boundaries but somewhat a combination of both or, rather, a transient element between the two: built-in

furnitures. Built-in furniture is a direct solution to the problematic issue of provision of storage spaces in a house.

There is a certain degree of truth in the common belief that architect's principal concern is the attractiveness of his building. However, this does not necessarily mean that architects do not pay much attention to the organizing of interiors. Rather, the responsibility of, for instance, providing storage space is easily shifted by themselves to other professionals such as interior designer (if any) or the ultimate user himself.

The problem of why the subject of built-in furniture has not recieved adequate interest in housing sector needs to be highlighted. In the past, for instance, one can find near to perfect design solutions along this line and the traditional Turkish house is a sound example in this regard. Turkish house displays well defined design patterns of built-in furniture and interior lay-out which have been mostly forgotten and relinquished in today's applications. The validity of these patterns stem mainly from their universality. In this respect, perhaps, an avenue of research might very well be the investigation as to whether today's interior lay-outs of mass housing can be enriched with the patterns of traditional Turkish house.

In the traditional house, the architectural planning and interior arrangement seem to have been regarded as two constituent parts of an integral whole. Thus, the traditional rooms display an interior arrangement in which every constituent element of interior space has a well defined place. These elements easily fit into their places of location and they do not leave left over spaces. For instance, in the traditional rooms every household object had a built-in cupboard in which it would be stored. One of the most prominent figures of contemporary Turkish architecture; Sedad Hakki Eldem states the following:

'This left the arrangement of the space inherent in the structure of the house, undisturbed by inessentials, and the architectonic atmosphere of a room could be intense thanks to this discipline (Eldem, 1981:16).'

Another design approach similar to that of the traditional Turkish house, in modern sense, had been developed by Le Corbusier. In his book called 'Towards a New Architecture' he had given a series of advices to architects, designers and to the ultimate user regarding the design of houses:

- 'Why do you not demand from your landlord:
1. Fittings to take clothing, suits and dresses in your bedroom all of one depth, of a comfortable height as practical as an 'Innovation' truck;
 2. In your dining room fittings to take china, silver and glass shutting tightly and with a sufficiency of drawers in order that 'clearing away' can be done in an instant and all these fittings 'built-in'

so that around your chairs and table you have room enough to move and that feeling of space which will give you the calm necessary to good digestion; (Le Corbusier, 1927;117).''

One of the most important contributions of Le Corbusier to architectural design is his studies made on standardization and modular coordination. In the light of those studies, he proposed houses in which architectural planning and interior design were handled integratively. By introducing his Modulor unit, Le Corbusier had not only designed the buildings themselves but also designed the furnitures which are in harmonious relationship with modular's dimensional characteristics.

At this point one might bring up the question: What are the general specifications for built-in furnitures? What kind of specific uses or functions can be attributed to built-in furnitures? First, the concept of 'furniture' should be analysed prior to the explanation of what 'built-in' means. Basically, the furnitures in the houses can be classified under four groups. Those are;

1. Work tops and tables
2. Storage and display units
3. Sitting units
4. Sleeping units

Among those, the group which is most suitable to be 'built-in' within the structure of a building seems to be the second group; storage and display units. However, other furniture types such as 'sedirs', beds, etc. can also be produced in built-in form.

The subject of storage should be examined in detail since it is one of the problematic issues in our houses. Today, ever increasing number of household objects do not only necessitate a quantitative increase in storage units but require different design solutions for their specific characteristics. Thus, each storage unit should be designed in accordance with the specifications of the objects which will be stored therein. Most of the portable storage units sold on the market are bulky (Pict 1), occupy too much space and are not generally suitable for the specifications of the stored objects. A concept of residential storage should go beyond what is called 'furniture' because efficient storage should be an integral part of interior space in houses.

Still another important aspect which needs to be touched upon in this respect seems to be the subject of users' requirements. Developing a sound understanding of users' requirements will help the designer construct schemes which are congruent with family life patterns as well as their physiological requirements. The constituent elements of the general framework of the family life patterns in a house such as life style, life cycle, socio-economic status etc. form a series of criteria to be used by the designer. Therefore, it is the designer's duty to provide interior lay-outs which are congruent with family life patterns and which also establish a harmonious

relationship with architectural design.

It must also be remembered that the metropolitan families are no longer the families of the past. Some fundamental changes have taken place in the life style of the family throughout the past several decades. Therefore, it becomes necessary to explore what sort of interior arrangements could evolve to meet these new needs.

Problem Statement and Study Outline

Basically, this thesis will undertake the task of investigating built-in furnitures in our house interiors and thus attempt to develop a better understanding of intricate relationship between the domains of architecture and interior design. Today's contemporary housing interiors display a series of problematic issues which are the direct consequences of the gap between these two diciplines. Therefore, the first step of this investigation will be to highlight those critical issues regarding the interiors of housing. For the purpose of this inquiry, the following problem areas have been identified.

1.Although the houses are getting smaller, less attention is paid to the provision of storage space. Most of the storage furnitures available in the market are in the form of bulky, out of scale objects whereas built- in storage is not given due consideration. Urbanites possess

many things to store but do not have adequate space to store.

2. Another crucial aspect is the lack of adaptability of the house plans with respect to different life styles. 20th century's standardized apartment houses have grown to be more and more identical in spite of the fact that the life styles are quite diversified.

3. Walls made of concrete and brick are still considered as mere boundaries of the spaces and are given no specific uses.

4. The furniture sold on the market does not always conform to the acceptable standards. The adaptation of the furniture to housing schemes seems to be a critical issue in the overall arrangement of the interiors.

In light of above mentioned issues, an analytical scrutiny of housing interiors becomes imperative. As it was stated in the preceding pages of this chapter, the boundaries and the furnitures constitute the interior layout of a residence. If the design of furniture and boundaries are incorporated successfully in housing design, it will become possible to construct an interior scheme which will be in harmonious relationship with the architecture. When life styles, inclinations and activities of people are considered at the design stages of furniture, it may be possible to construct a series

of design patterns which may provide alternatives to the user.

In light of these discussions, the goals of this thesis can be stated as follows;

1. To make the assessment of interior arrangement and built-in furniture in the traditional Turkish house, and to clarify some of the principles of the traditional rooms which may enrich today's interior lay-outs of housing.
2. To investigate Modulor studies of Le Corbusier as it relates to built-in furniture.
3. To define the urbanized family life patterns in relation to interior arrangement and furniture.
4. To put forward a number of design proposals for the interiors of housing in the form of patterns depending on the outcomes from step 1 and 3.
5. To prepare an hypothetical design project which incorporates the applications of design patterns constituted in the previous step.

This study then, will be concerned only with aspects of furniture that have direct relevance to the architectural design. Other dimensions - aesthetics,

material, construction and maintenance which all together make up the overall design will not be included.

CHAPTER 2 TRADITIONAL AND MODERN APPLICATIONS OF BUILT-IN FURNITURE IN HOUSES

When we have a close look at the built-in furniture applications of the past, we come across two striking examples. The first example in this regard is the traditional Turkish house. The second example comes from the beginning stages of a modern era in architectural scene; Le Corbusier and his principles developed within the general framework of his studies pertaining to Modulor.

Although one may assert that above cited examples do not seem to share much in common, their basic principles upon which their respective design decision making processes were formed display striking similarities. This is mainly due to the fact that both in traditional Turkish house and Le Corbusier's studies, design phenomenon was regarded as an all-encompassing process including not only the design of spaces but also furnitures and aspects such as user's requirements, human dimensions, etc., as well.

2.1. Traditional Turkish House

The traditional Turkish house developed by the Turks over centuries in Anatolia, may constitute an

invaluable source for today's housing designs.

There are well-defined spaces in the traditional house. These interior spaces, which have unity in themselves were generated properly by the close interaction between family life style, interior lay-out (built-in furniture, arrangement, etc.) and architectural design. Based upon this, the spaces in the traditional house create a congruence between its physical patterns and the family life experienced in these physical patterns. On the other hand, the design patterns related to interior lay-out represents an harmonious relationship with architectural design. Obviously, these patterns are not only responsible for the specific shapes of the residential interiors but also for the extent to which the indoor environment comes to life.

Although many of these features are still valid for today's housing designs, they have been overlooked with the evolution of mass housing. For this reason, it is necessary to examine some of the main principles of the traditional house when new solutions are searched for the interior lay-outs of contemporary housing. Along with this line, for example, Murat Eric had stated that these principles which were the consequences of rational design approach may shed light on today's designs (Eric, 1986: 35).

''..the historical significance of traditional house, should be handled with paying attention to its essential outcomes rather than its style and form related features (Eric, 1986: 35)''

There are two fundamental spaces in the traditional house. These are sofa and rooms. Sofa is the common area which provides a passageway between rooms. As well as providing passageway inside the house, it also serves as a meeting ground and the space around the user's traffic is allocated for seating (Fig 1).

In this chapter, the particular focus will be directed on the traditional rooms rather than sofa.

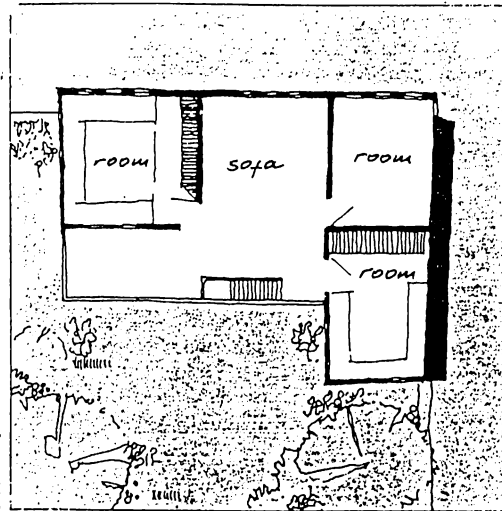


Fig 1: An example of a plan a traditional Turkish house. (Source: Küçükerman, 1988)

2.1.1. Interior Lay-outs of Rooms

Rooms are the fundamental spaces in the traditional house and their primary characteristic is that in a sense

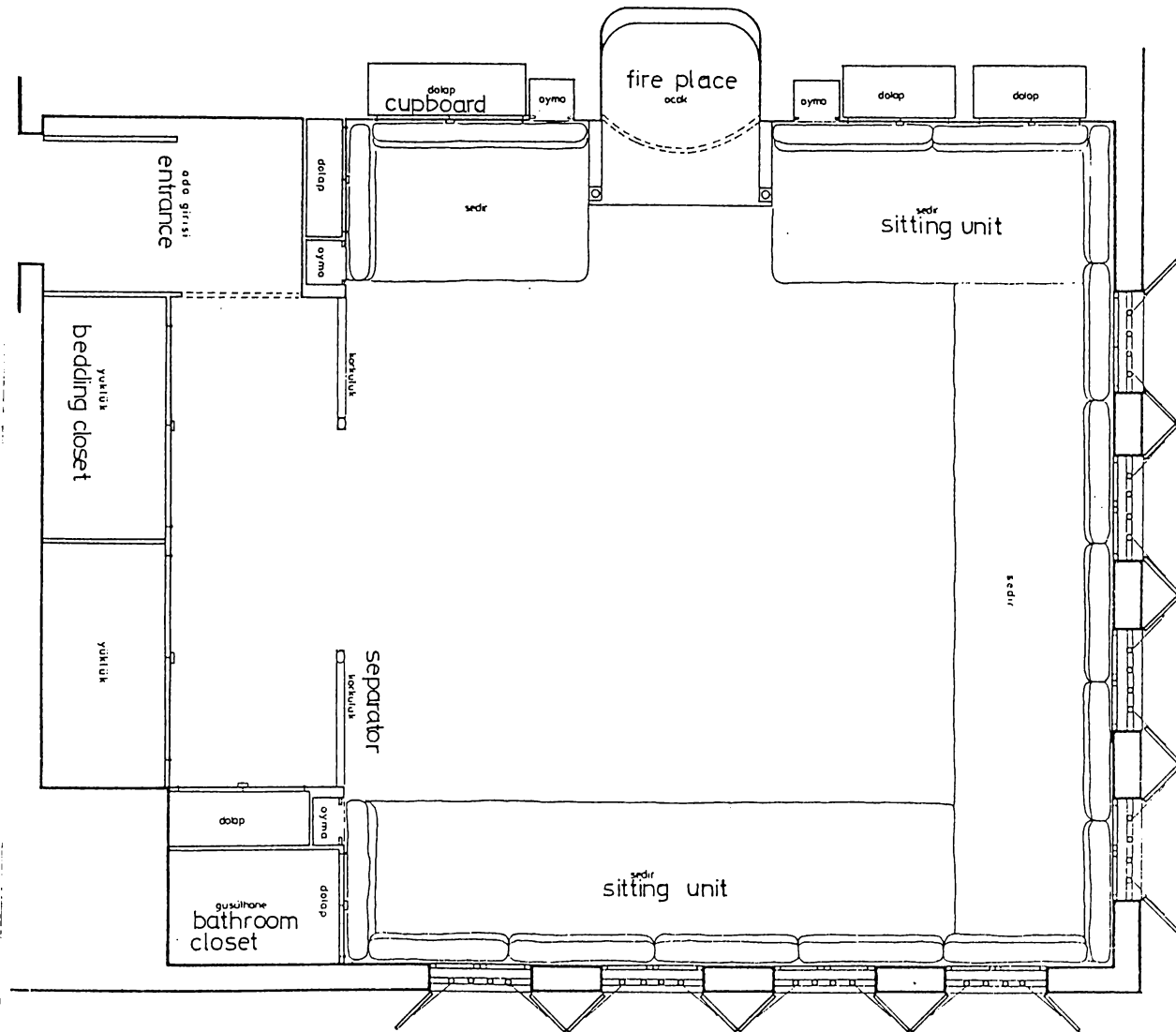


Fig 2: A typical plan of a traditional Turkish room.
(Source: Günay, 1989)

every room is a house in itself (Fig 2). Contrary to the European house, no functional distinction exists between the rooms in the traditional house. In the Turkish house of an earlier type, the rooms were distinctly isolated from each other and no direct access was provided between the rooms. Rooms had opened into sofas - the central

place - through a single door. Towards the end of 18th century, the connection between the rooms have been given by a series of passageways (Eldem, 1981:16).

The traditional rooms can be defined as independent and multi-purpose spaces that respond to all kinds of residential activities. The design of these independent spaces bear a close relationship to the social structure. Traditional society was based on the extended family; a family of at least three generations with parents children, grandparents, etc., living together in a multiple household. Under this family structure, the living units, namely the rooms were formed in the traditional house. These living units were individual spaces and were designed to satisfy all needs and requirements of a couple which was the member of the extended family. Every room was an individual unit and contained a number of built-in furniture and other household objects related to residential activities, such as: sleeping, cooking, bathing and entertaining. Accordingly, the same room was used as a sitting room, dining room, bedroom, bathroom (for ablution) and a prayer room (Günay, 1989:114). Though the dimensions of the rooms may differ, these characteristics were identical for each room.

Standart units measurements were applied throughout

the interior of the house and these measurements were also the unit for the form and fitments of each room (Eldem, 1981:16). Whatever the dimensions of the room are the upper limit of the usable space was kept constant at approximately 2.20 meters (Küçükerman, 1988:54). Doors, windows, built-in cupboards, built-in furniture and all functional interior elements were limited under this horizontal line. And this horizontal line was further defined with a shelf (sergen) which ran accross the room. Thus the space below the line was for everyday use and above is left empty or used for cupboards for storing rarely used items.

It has to be stated here that there is a close relationship between the proportions of the interior elements of rooms and Le Corbusier's Modulor Man (Le Corbuseir Modulor studies related to building design will be dicussed in the second part of this chapter). Indeed, Le Corbusier had visited Turkey and made studies on Turkish measures when he was working on Modulor (Le Corbusier, 1945:55). Accordingly it will be meaningful to use Le Corbusier's Modulor Man as a 'tool' when the principles which define the interior lay-out of rooms are searched for (Fig 3).

Traditional rooms were basically rectangular and all interior fitments were integrated into the concept of

a rectangular unit (Eldem,1981:17). The main features of the rooms were 'sekialtı' and 'sekilik' (Fig 2).

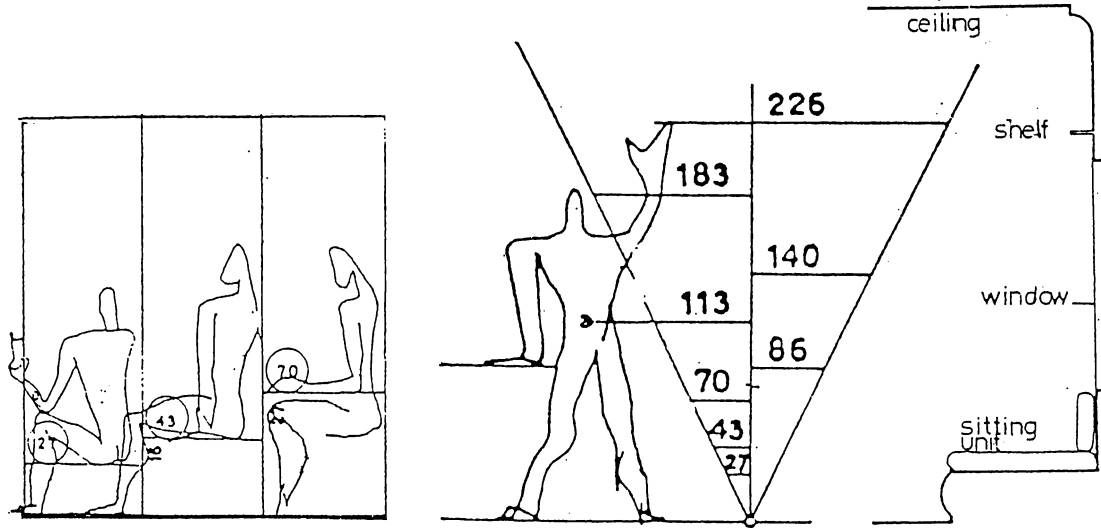


Fig 3: The relationship between sedir-sergen-pencere-tavan in the traditional room can be compared with the Modulor.
(Source 1: Le Corbusier, 1945, Source 2: Günay, 1989)

2.1.1.1 Sekialtı

In the traditional house, each room had an entrance section. So, one part of the room was designed as a transition space between sofa and room. Although it had different applications, it was a long narrow section and usually known as 'sekialtı' or 'papuçluk' (Fig 4).

Generally, cupboards were located in the entrance section and were designed together with the door (Pict 2) In the entrance section, ceiling height was lowered to give intimacy. The door never opened straight into the

room. Also, wooden screens or closets were placed in front of the door in order to give extra privacy.

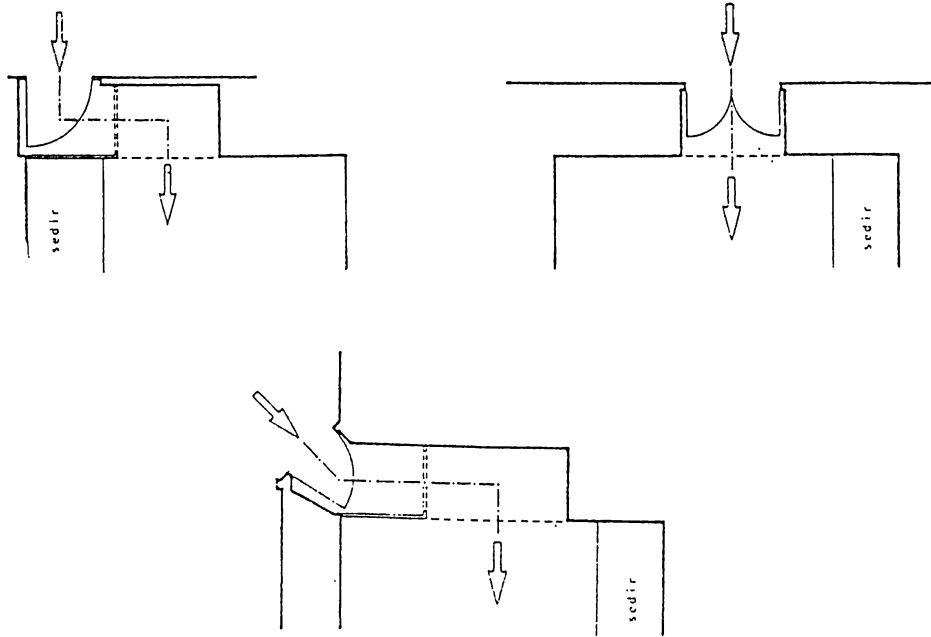


Fig 4: Partial plans for various design solutions for the entrance sections of the traditional rooms (Source: Günay, (1989)).

2.1.1.2. Sekilik

Sekilik is the main platform within the room surrounded by sedirs, fire place and open or closed cupboards. Since in the past, people used to sit on the floor, the concept of cleanliness was one of the major criteria and for this reason sekilik had been generally raised 20 cm above the sekialtı. The rooms were heated with open braziers or built-in stoves. 'Sekiliks' were quite free of mobile furniture and one of walls of

the room was fitted with closets and alcoves, flanking the central fire place on both sides, each closet or niche having a function of its own.

2.1.2. Built-in Furnitures in Rooms

The built-in furnitures in rooms can be classified under two groups, as, sitting and storage units.

2.1.2.1. Sitting Units (Sedirs)

A sedir is a continuous sitting unit which is built up together with the flooring (Pict 3). It has a raised base as part of the floor. The mattresses covered with fabric were put on this raised base. Generally sedirs were placed near window or closets. The dimensional relation between the sedir and the window was accurately adjusted so that one who sat on the sedir could easily look out of the window towards the view (Fig 5), (Pict 5).

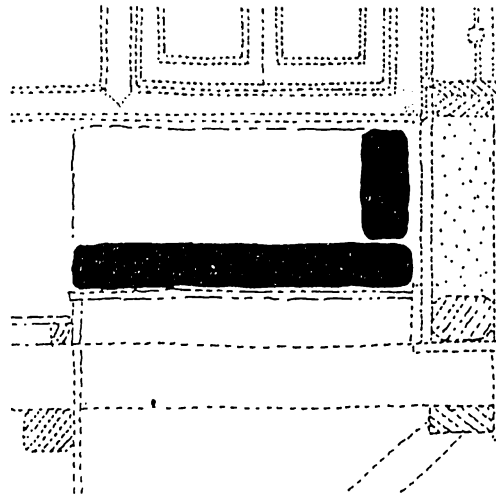


Fig 5: The section of a built in seat arrangement
(Source: Küçükerman, 1989).

2.1.2.2. Storage Units

Since the traditional rooms were multi-purpose living units, there were few household objects lying around the room. Each one of them had a storage space and was put away after use.

Bedding Closet (Yüklük)

In the rooms, the beddings related to sleeping activity were stored in large and deep closets. Usually, they were found in the entrance rooms. Their depth was about 75 -90 cms and their height was 130 - 150 cms. The upper edge of the bedding closet had been limited to the 'tangible upper limit' which is about 220 cms. (Fig 6).



Fig 6 : Partial sections of various solutions for the bedding closets in traditional rooms. (Source: Küçükerman, 1989).

The folded mattresses were stored inside these closets and the closets were placed 60 - 80 cms. above the floor, for the ease of storing the mattresses which weigh 10 - 12 kg. a piece (Günay, 1989 ; 64). When the mattresses were taken away at nights, these closets were sometimes used as a bathroom closet.

Cupboards

The cupboards in which other household items were stored were less deep than the closets. Each cupboard was called according to the object which was stored in it, such as; 'çubukluk' (pipe closet), 'kavukluk' (tûrban closet), 'testilik' (pot closet), 'peşkirlik' (napkin closet), 'cezvelik' (coffee pot closet), 'fincanlık' (cup closet) (Küçükerman, 1989). Like the bedding closets, they were placed 60 -80 cms. above the floor and were limited to 2.20 m. in height. Generally, they were placed above the sedirs. Accordingly, a person who sits on the sedir could easily reach to any object in the cupboards without standing up (Fig 7).

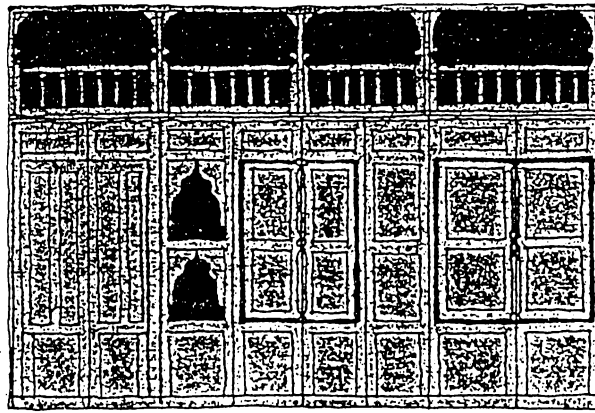


Fig 7: A standard cupboard elevation in a traditional room (Source: Küçükerman, 1989).

'Oyma' (Engravings)

These are basically small niches and in the form of decorated arches. They are usually located near fire places, planters, room entrances or near cupboards and are placed three in number along a vertical axis (Pict 3).

'Çiceklik' (Planters)

They are semicircular alcoves located in the walls with a projecting wooden base shelf. Usually, one can find three engravings on each side (Pict 4). Such things as mirrors, water bottles, lamps or clocks are placed into planters.

'Sergen' (Display shelf)

These are continuous shelves which run all along the walls above the windows and the doors. Their width is 12-15 cms. This dimension limits their functionality and give them a rather decorative task, but still they define the upper limit of usable space. That is ; one can reach them by raising his/her hands (Pict 5).

2.1.3. Discussion

In twentieth century, changing life patterns had a profound impact on residential architecture which manifested itself in the form of simple, clear-cut solutions to ever increasing housing needs. High rise apartment buildings became the major elements of the solution to rapid urbanization and begun to be produced

in large quantities without taking account of user's participation (Erurun, 1987:69).

Under these circumstances, the quality of interior lay-outs of houses had also changed. The design attitude of traditional house which considered the housing design as an integrated whole down to its finest detail, had disappeared. The design process of typical apartments was only limited to the construction of spaces with the structural elements such as floors, ceilings and walls. In these plans, adequate interest was not given to the articulation of interior lay-out (Fig 8).

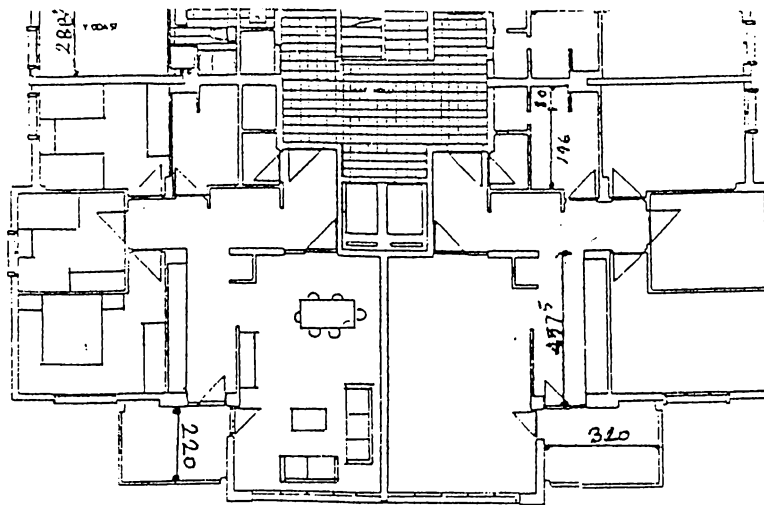


Fig 8: A plan from a 20th century apartment.
(Source: Kent-Koop, Ankara)

The studies conducted towards the improvement of the interior lay-outs of mass housing can be enriched with the principles of traditional Turkish house. Some of these principles can be listed as follows:

1. All the interior lay-outs in the traditional houses were designed in accordance with human dimensions.
2. The functional interior elements such as divans, wall cupboards and shelves were considered in built-in form and thus became the integrated elements of total housing design.
3. The traditional rooms were plain and simple so that architectonic atmosphere was not deteriorated by heavy decoration.
4. Entrances to the rooms occupy an important part in the traditional house design. The desire for privacy and intimacy in this respect is also quite striking.
5. The cupboards were designed in accordance with the specifications of the objects which would be stored in.
6. The traditional Turkish house has been designed for the extended family, providing separate rooms for each couple. The design of traditional house and especially that of traditional rooms was always congruent with the structure and the life style of the family.
7. The most significant feature of the traditional room is that it was used for different purposes throughout the day. Only those objects needed for any particular activity were brought into the room at any one time and removed when it is out of use.

8. One of the important characteristics of the traditional rooms is the window-seat relationship. Generally, the seating arrangement was placed parallel to the window. The windows were placed 70 - 80 cms. above the floor which is the end edge of the built-in seat. Accordingly, this kind of arrangement provides various angles of vision towards the exterior environment.

2.2. Le Corbusier's Modulor and Built-in Furniture Studies

According to Le Corbusier, houses should be as efficient as bicycles; a house is finally a machine for living in. For him, architecture is a process based on standards. He had divided the 'Science of Housing' into three subsections;

- 'A) Housing equipment,
- B) Standardization and construction,
- C) Industrialization (Le Corbusier, 1954:36)''.

He standardized all the objects involved in the construction of houses with his Modulor unit. Modulor is a measuring tool based on human body. Anthropometry is its essence. A 183 cms. tall man with his arm upraised was inserted into a square which is then subdivided according to Golden Section. Smaller dimensions were generated by Fibonacci series and in later versions two scales of inter-spiralling dimensions (The Red and Blue Series) (Fig 9) (Curtis, 1986: 164). Modulor was to give harmonious proportions to everything from door

handle to heights and to the widths of urban spaces and Le Corbusier even hoped to encourage industry to use it for standardized products. The Modulor governs the lengths, the surfaces and the volumes.

"And so the grid was born: a proportioning grid meant to be installed on building sites in order to supply an abundance of harmonious and useful measures for for planning of rooms, doors, cupboards, windows and so on so forth.... to lend itself to infinite combinations of mass production, to take in the elements of prefabricated buildings, and join them without difficulty (Le Corbusier, 1954:41)."

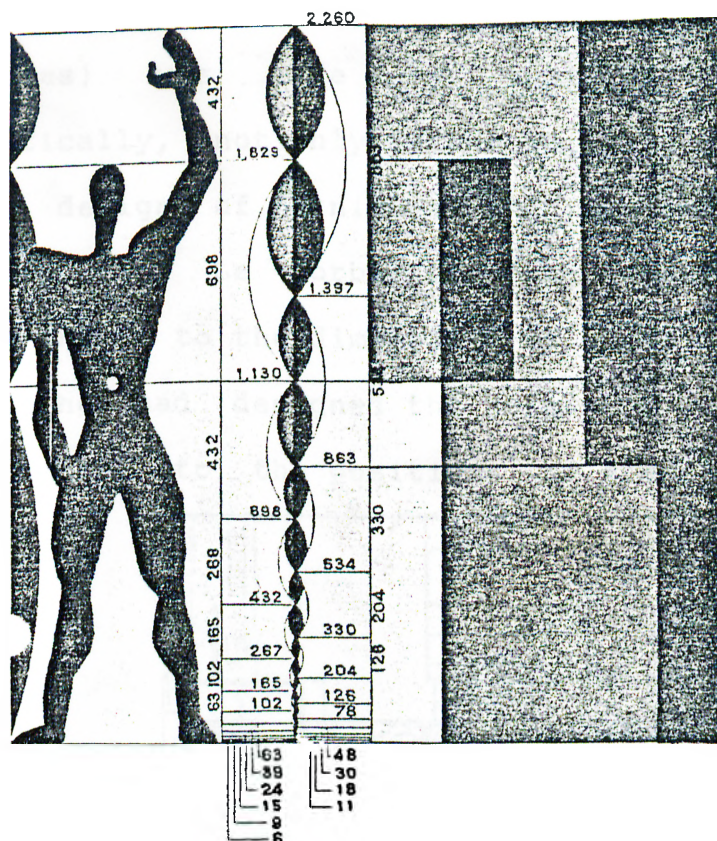


Fig 9: Le Corbusier's Modulor Man
(Source: Curtis, 1986)

Le Corbusier had also discussed the Modulor at some length with Professor Albert Einstein at Princeton. Einstein had evaluated Modulor from a scientific standpoint and had stated the following:

'It is a scale of proportions which makes the bad difficult and the good easy (Serenyi, 1975:88)''.

At d'Unité d'Habitation of Marseilles, in 1925, he obtained the systematic applications of harmonious measures of modular standardization as the solution for the methods of integral production. According to him, architecture was a composition of lengths, floor areas, partitions, ceiling, housing equipment and furniture. Therefore the study on house (at d'Unité d'Habitation of Marseilles) was made by applying the Modulor systematically, not only to the building plans but also to the design of furniture and equipment (fig 10). According to Le Corbusier, the houses must be proportionate to the dimensions of human body. By using Modulor he had designed the furniture within reach and corresponding to the positions of standing or sitting.

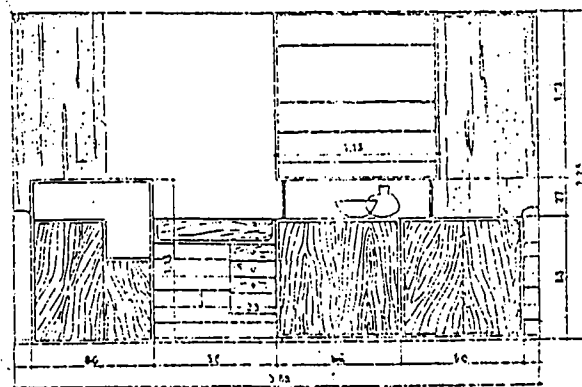


Fig 10: Some Prefabricated Sectional Furniture for a Bedroom (Source: Le Corbusier 1945).

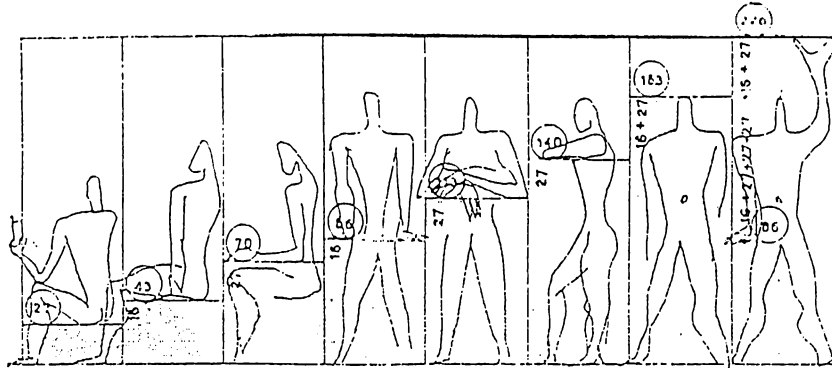
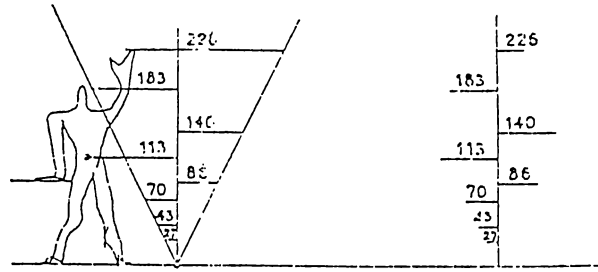


Fig 11: Le Corbusier's digram which displays systematical divisions of human body. (Source: Le Corbusier,1945).

Le Corbusier had also designed a model room for the Salon d' Automme in 1929. His chairs and tables together with storage-wall units were exhibited. The storage walls were framed in delicate sections of steel which formed a modulator grid into which Le Corbusier inserted units of shelving, storage drawers and display boxes (Blake,1960:13).

Le Corbusier's studies on modulator standardizations have been very informative and fruitful in obtaining an integral product. In his designs (for instance), the rooms were not divided by doors and walls, but rather by appropriate placing of furniture. He also used human scale in designing the volumes of furniture and of space.

CHAPTER 3

FURNITURE LAYOUT -USER RELATIONS IN HOUSING

The furniture arrangement in a house has social, cultural, and physical implications because their use directly involves members of the family. Almost every family adapts its day-to-day living to a certain kind of furniture lay-out.

For many families, the region where they live, the social values they hold, or even their income do not change drastically or frequently. But for some others, family life style, the stages in the life cycle or even the type of the household, are more likely to change both drastically or frequently (Kıray, 1985:80). Various types of interior lay-out requirements develop with these changes.

As it was stated in chapter 2, the design of the traditional house was in harmony with traditional life patterns. To establish the harmony between the family and the housing was quite easy in the past, because the traditional families' life patterns did not display a complicated spectrum. But today, urban families live in a different, specialized and organized environment, created by institutions of modern technology. The families

undergo changes under the impact of these conditions. For these reasons, it is necessary to learn more about urban families in order to provide interior lay-outs that are congruent with household life patterns.

Beside social and cultural factors, it is also important to provide interior furnishings that are in accordance with the physical needs of the people. 'Ergonomic fitness' of the user to his built environment is crucial for his well being in his home.

3.1. The family life patterns

According to Michelson, the theoretical frame of life in a house is defined by three factors; a) family life cycle, b) family life style, c) socio-economic status (Dörter, Turuthan, Onlü, 1985:2).

3.1.1. Life Cycle

In residential interior design, the family size is an important factor, not the size at present but the size to be planned for. For a three-person family a bedroom arrangement for one child may be satisfactory. However, as extra members are added, the furniture and space requirements become more complex. At this point, the factors of the stage in the family life cycle and type of household become more complicated than the existing number of the family. (Beyer, 1958:171).

Through the life cycle, a family passes through

several stages from youth to old age. One sociological study delineated six stages of family life cycle. Six stages can be identified as follows.

1. A family composed of a husband, a wife with no child,
2. A family composed of a husband, a wife and children,
3. A family composed of a husband, a wife and grown-up children who no longer live with their parents,
4. A family with a single mother and a father.
5. A family composed of retired persons.
6. A family in which one of the spouses has died, leaving a single person family, where in some cases, the children have joined the surviving parent.(Ansary, 1985:305).

There are different interior requirements for these different groups. The adjustments take place within the life cycle of the family. When people first get married they only buy living and bedroom furniture. The furniture needs to be changed as new children are added to the family. The interior arrangements in bedrooms become more important as the children grow older and as their number increases (particularly when they are of opposite sexes). Below the age of 6 or 8 the children do not claim their independence and demand separate bedrooms. With the approaching of adolescence however, the children demand more privacy from their parents, brothers, and sisters. Especially in the event of opposite sexes, the privacy is generally recognized as a requisite (Beyer,1958:175). Teen-age children have their own friends, their own facilities and their own possessions. They require independent space and furnitures of their own. On the other hand, elderly couples may have infrequent demands

for greater space. At this stage in the life cycle, more attention needs to be given to matters in the interior arrangement and furniture such as ease of maintenance, ease of use, safety and spaciousness. There is another factor in family composition that is important for interior design. It is the presence of adults other than the wife and the husband. With the presence of 'other adults' the furniture and space demands in home increases.

3.1.2. Life Style

Life is a term which has different meanings. It consists of various factors such as use of space and type of behaviour. (Dörter, Turuthan, Onlū, 1988) On the other hand, life style can be defined as the sum of a number of factors, such as individuals ideals, motives, attitudes and tastes which are determined by his cultural background, habits and experiences. (Bilgin, 1986) The families exhibit different life styles according to these features. The families' furniture preferences and the arrangement of their residential interiors reflect their life style.

The interference of family life style to the interior environment defines the socio-psychological adaptation of the people to that environment. The life in a house can be defined within the framework of three

symbolic factors. These are public/private, front/back, and formal/informal (Dörter,Turuthan,Önlü,1988).

Some of the spaces in the house may serve to all members of the family and some spaces are used privately. In addition, a semi-private space provides the transition between these two spaces. According to this sequence, the vestibule is the most public space, corridors are the semi private spaces and the bedrooms can be accepted as the most private spaces in the house. This differentiation between the spaces, becomes effective upon the furniture composition. Living and entrance rooms are arranged with more respect to aesthetics and decoration. (Bilgin,1986)

The front and back distinction can be defined as the distinction of dry and wet zones in the house. (Dörter, Turuthan,Önlü,1988) Kitchens take place in the wet zone, whereas living rooms take place in dry zone. In this framework, the integration of kitchen with living room is the main subject that needs to be emphasized. For some of the families, a semi-open kitchen is not preferable, since it is hard to keep it always clean. Others, on the other hand, may prefer a semi-open kitchen so as to establish visual communication between these two spaces. Furthermore, for these families an open kitchen may very well be a good reason which motivates them towards keeping it always clean.(Dörter, Turuthan, Önlü, 1988)

Accordingly, it can be stated that different life styles necessitate different interior lay-outs.

The formal and informal distinction between the spaces depends on the distinction of the activities of parents and children (Fig 12). For instance, such spaces as the sitting room or the children's bedroom are mostly used by children and they can be stated as informal areas in the house. On the other hand, such spaces as living room or dining room are used by the parents and they are the formal spaces. This distinction in the house is generally emphasized by decoration and furniture lay-out. The formal areas can be accepted as more receptable and pleasant, whereas the informal spaces are for drying, washing, children's play etc.(Bilgin,1986)

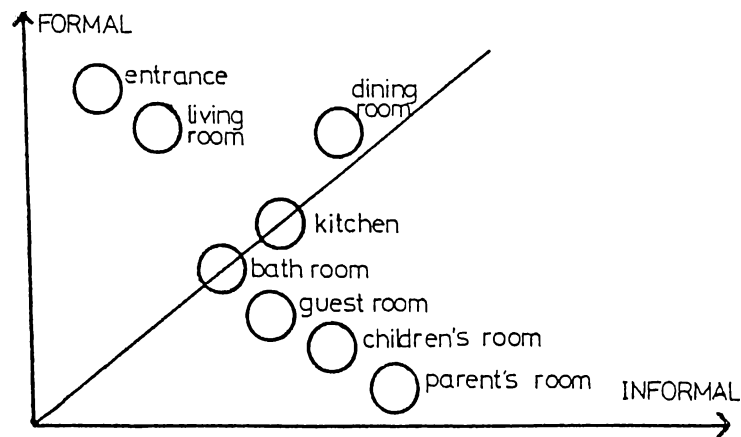


Fig 12: The diagram depicting informal and formal areas in a housing unit.
(Source: Bilgin,1986)

3.1.3. Socio-Economic Status

The socio-economic status can be defined with the variables as income, education and occupation. Studies have shown that there is a direct correlation between the interior lay-out and furniture preferences and socio-economic status of the people. (Bilgin,1986)

With respect to the industrial automation, today, the furniture is being produced for huge consumer masses. Practically, one can find all kinds of furniture in the houses of families of different income levels. Therefore, the furnitures and the interior lay-outs of various houses do not display quantitative disparity. The main difference in the interior lay-out preferences emerge with respect to the qualitative characteristics of the furniture. The furniture of different functions may display quality differences according to the families' socio-economic status. The differences may be in terms of model, trade and quality.

3.2. Contemporary Urbanized Turkish Family and Its Requirements of Furniture and Interior-Layout.

It is evident that urban families in Turkey are no longer the families of the past. Once, the Turkish society was based on the existence of the extended family, with parents, children, grand parents etc. However, fundamental changes have taken place both in the

structure and life style of the urban family. Mübeccel Kıray states that household of urban families are mostly nuclear. (Kıray,1985) The majority of them are composed of parents of few children which may be called 'small families'. But, as can easily be observed, urban families in Turkey do not constitute a homogenous entity. There is a great diversity among urban families such as those who still partly display traditional life patterns and others which are totally transformed. Each group needs different interior arrangements according to their life styles. For instance, some of the families still store winter food. For these families food storage in the house is important. On the other hand, a better urbanized household has an increasing number of books, slides, audio-video cassettes, etc. and they need proper storage for such paraphernalia.

According to a study on space organization in the Turkish house, one of the most important problems of Turkish families is the adequate storage area in contemporary houses. (İmamoğlu,1986:53) Therefore, most house owners or tenants make changes in their interiors to meet their storage needs. Less used spaces like balconies and extra toilet chambers are usually converted into storage rooms. For these reasons, architects and designers should pay more attention to storage facilities in houses.

CHAPTER 4

DESIGN PATTERNS

In this section the design proposals related to the interior lay-out of housing will be dealt with. These proposals were formed up in a manner similar to that of Christopher Alexander's concept of 'pattern'. According to Christopher Alexander patterns are certain entities which create the buildings. The patterns define a problem which occurs over and over again in our environment and then describe the core of the solution to that problem (Alexander, 1977). We may obtain a sound way of looking at buildings by understanding them in terms of their patterns.

When design proposals related to interior lay-out of housing were generated, the principles of the traditional house have also been used. As it was studied in chapter 2, in the traditional house, there are design patterns which may be universally accepted and these patterns have to be revitalized again.

In addition to Christopher Alexander's patterns and the principles of the traditional house, the author used her observations.

The design proposals generated in this section are related to both interior lay-out and furniture. Each proposal was given in the form of a pattern and has been given a number.

Pattern:1

Storage Between the Floor and the Ceiling

Placing storage units between the floor and ceiling does not only provide access storage, but create well defined and intimate spaces as well.

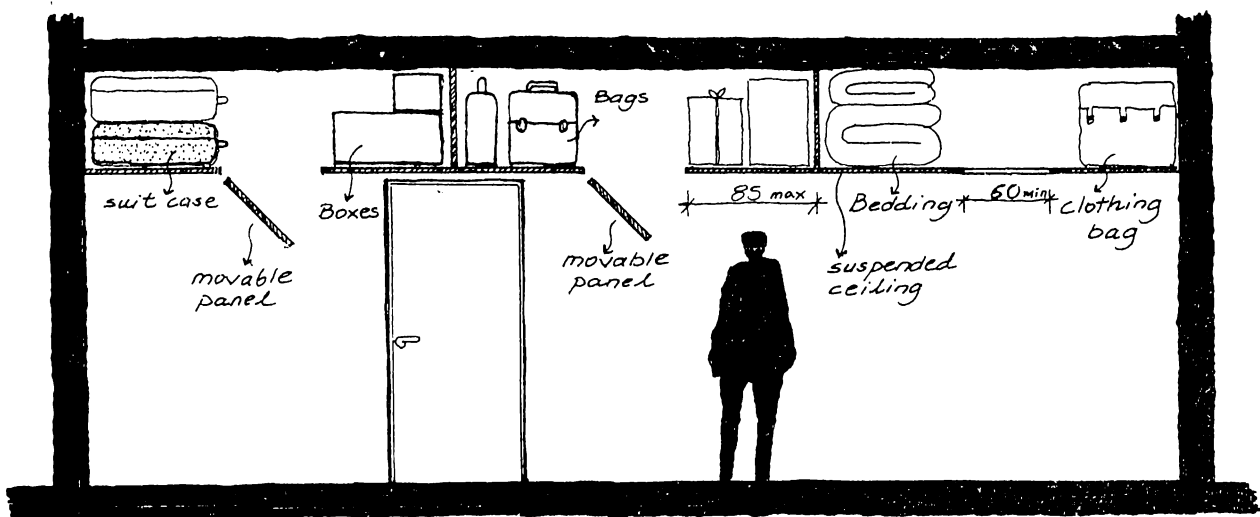


Fig 13: Storage between the ceiling and the floor (Original).

The ceiling height should be related to the length and width of the room because the problem is one of proportion, and people feel comfortable or uncomfortable according to the rooms' proportions. (Alexander,1977) But in our houses, generally the entrance rooms and long corridors are not well 'proportioned' spaces (Pict 6). For instance, we do not feel comfortable in those spaces whose width is about 1.10 m and height is approximately 2.60 m. The height of the room should

be proportionate to its length and width. In fact, this principle is available in the entrance section of the traditional Turkish rooms. The ceiling height of the entrance in the Turkish room is lowered with respect to the width and the length of the space (Pict 4). One who enters into a traditional room, first passes through this inviting and cozy space. We can create some intimate atmosphere in our houses by lowering the ceiling height of the entrance room as well.

The 'storage ceiling' should be made with movable and fixed panels. The depth of the each storage unit should not be more than 85 cm. The suitcases, beddings, and storage boxes can be stored in those units.

Pattern:2 **Closets Between Rooms**

The provision of storage between rooms can contribute greatly to the interior lay-out of a house. It can be taken as an advantage, when closets rather than walls are placed between rooms. The walls that are made of concrete and brick are still being considered as sole separators of the spaces and are being given no specific uses. To locate closets between rooms will not only provide usable space for storage but create acoustic insulation.' 'The extra wall sections, and the doors enclosing the closets, as well as the clothes, boxes and

so on, that are being stored, all work to create substantial acoustical barriers (Alexander, 1977:914)''.

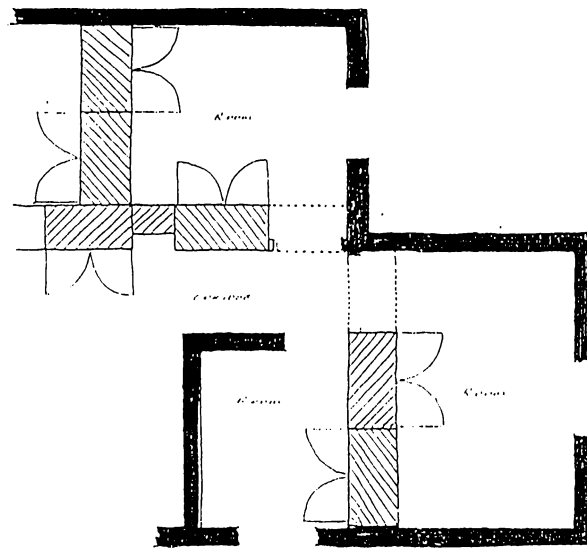


Fig 14: Closets between rooms. (Original)

In the traditional house, there are well defined entrance sections within the rooms, in which the door and the closets are designed as an integral whole. When the storage units are placed in the interior walls of a room around the doorway, as in traditional rooms, the resulting thickness of the wall will make the transition between the rooms more distinctive. For the person entering such a room, the thickness of the wall creates a subtle 'entry' space which makes the room more private.

Pattern: 3 Walk-in Closets in Bedrooms

If there is enough space in the master bedroom, walk-in closets can be provided for keeping clothes and

for dressing purposes. Dressing and undressing activities, having clothes lying around require some kind of private space. When such a space is not provided, the whole bedroom then becomes the dressing room itself and this can destroy its integrity. Thus, it becomes a big closet to 'keep neat' rather than a room to stay and relax. For most people, the activities of dressing and undressing are relatively private. The walk-in closets in bedrooms provide private dressing space.

The minimum width of an L shaped walk-in closet should not be less than 150cm.(Panero, Zelnik,1979) This allows for a rod and shelf along two sides.

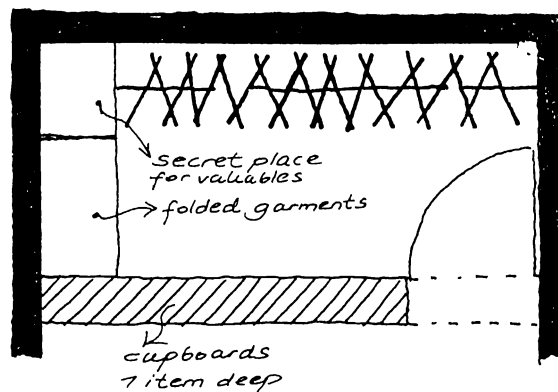


Fig 15: Walk-in closets in rooms. (Original)

Pattern: 4 Semi-open Kitchen

Food preparation in kitchen is only one of the activities that needs to be provided for. The kitchen is also the primary social arena in any home. For the formal interaction of day-to-day family life, the kitchen serves

as a social core of the home. (Wentlung, 1990). The spatial relation between kitchen and living room is a crucial design criterion and of prime importance especially for the working urban woman who spends most of her time in the kitchen when she returns home. In mass housing most of the kitchens are strictly separated from the living rooms by an interior wall. This kind of arrangement isolates the housewife from other members of the family. However, a semi-open kitchen with an open counter between the two spaces will accomodate social interaction between the members of the family. In today's kitchens, the problems like visual disorderliness and smell have been eliminated thanks to kitchen mechanical items such as fans, dishwasher, etc.. Accordingly, such improvements make possible the kitchens to be designed as open areas.

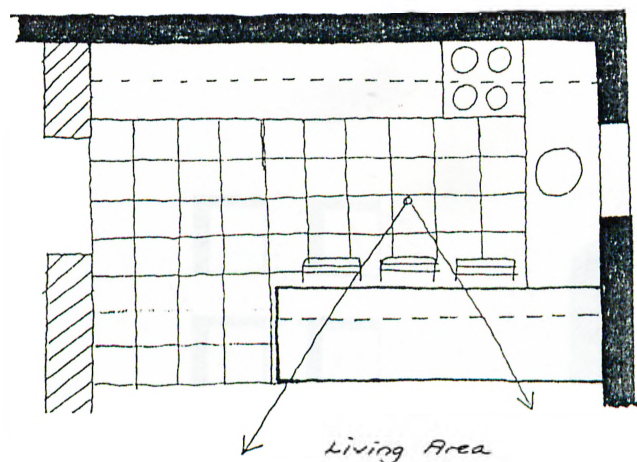


Fig 16: Semi-open kitchen. (Original)

The kitchen should include some open counter space that can also be used as a table. This kind of a solution would provide household members with more locations, to select for eating, for watching TV which otherwise would only take place in the living room. The height of a kitchen table should be lower than the kitchen counter. It has to be located 72 to 76 cms. above floor because at these occupations it is more comfortable to rest on one's elbows. (Grandjean, 1973:74).

Pattern: 5
Display Niches on the Walls

Engravings and planters located on the walls of the traditional Turkish house contribute greatly to the interior lay-out of the rooms. These niches do not only articulate the walls but provide usable space at one item deep as well.

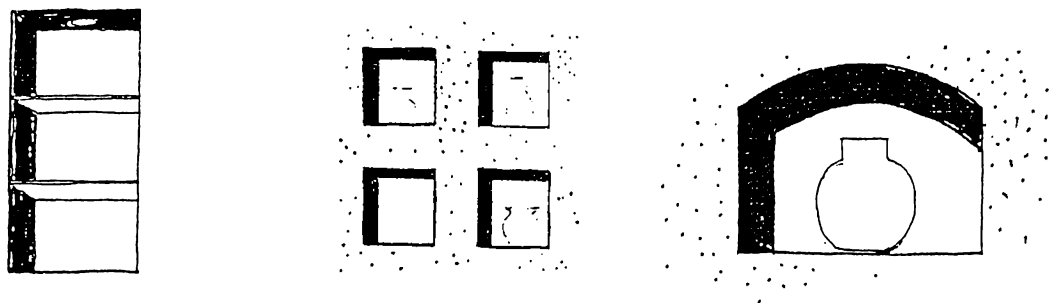


Fig 17: Display niches on the wall. (Original)

In our contemporary houses, such kind of niches can be used to display valuable collectors' items in the living room or they can be located near the seats to store frequently used objects such as a book or a pair of glasses. Special lighting fixtures can also be located on the niches and they can be designed in various forms. Those niches can either be located on walls or can be designed as an integral part of a series of cupboards.

Pattern: 6

Storage of Coats and Shoes in the Entrance Room

In the entrance rooms of houses, shoe-coat storage usually comes as an afterthought. Even there are some units, either portable or built-in, they are open units and generally do not display proper designs. Most of these units are 50-60 cms. in depth which is not suitable to store shoes. Since the entrance rooms are too small in mass housings, shoes and coats should be stored in closed spaces in order to create a tidy atmosphere.

Shoe closets should be designed according to the dimensions of a standard shoe. These dimensions can be accepted as; 30 cms. in length, 20 cms. in width, and 10 cms. in height (Panero, 1962). In order to prevent the shoes to be piled on top of each other, several numbers of shelves should be located into the unit. The coat closet should be placed adjacent to the shoe closet and

there should be a place to store umbrellas. On the other hand, a small table or a built-in niche, or a waist-height shelf should be provided near the entrance on which to leave mail, messages, newspapers, keys, etc.. Also there should be a shelf outside the door in order to put the packages and handbag while opening the door.

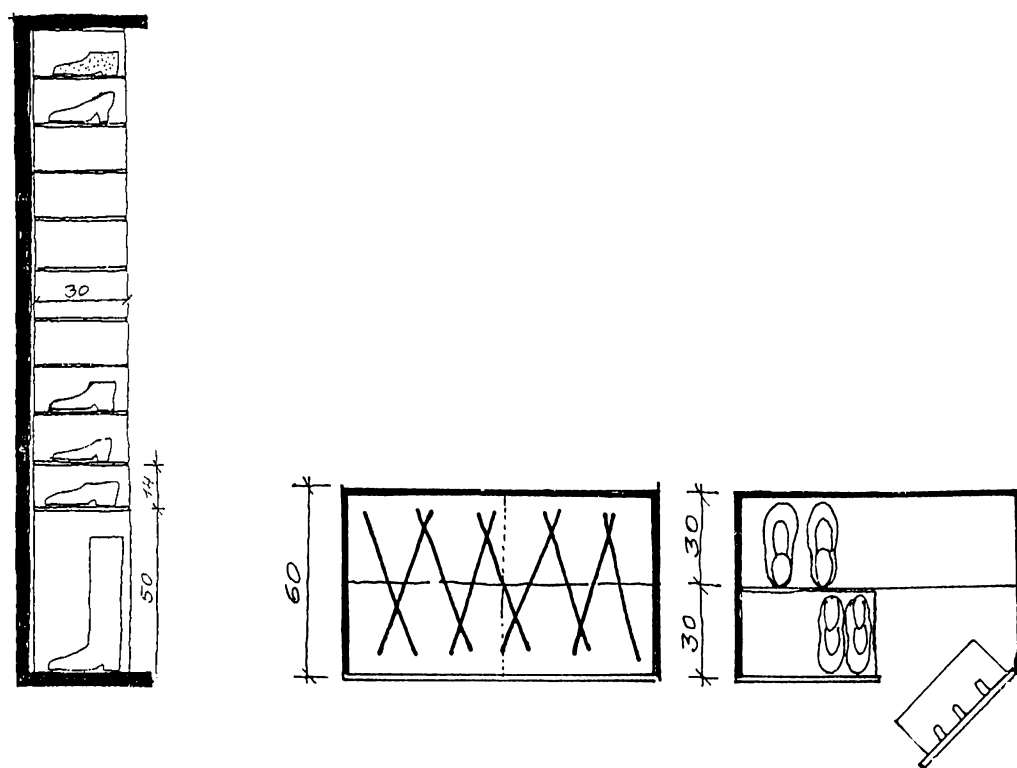


Fig 18. Storage of coats and shoes in the entrance room (Original).

Pattern: 7
Built-in Seats

In the traditional Turkish house there are built-in seats which characterize the overall inner appearance of a living room. We may also make built-in seats on corners or near windows in our houses. In this manner the sitting unit can easily be fitted into the structure of the walls or be related to the windows.

The relation of the built-in seat to the window should be so that the height of the window should not be more than the height of the back of the seat. The measurements of window and built-in seat relationship in the traditional rooms can be applied in today's designs. Also, the base of a built-in seat can be a timber unit which also would have drawers. The depth of the mattress should be at least 43 cms. (Panero, Zelnik, 1979:136).

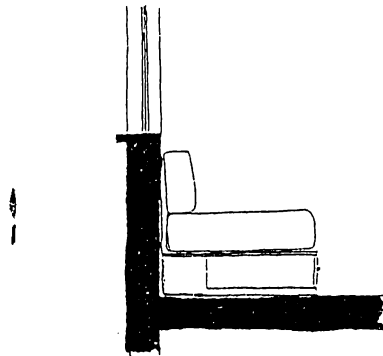


Fig 19: Built-in seats (Original).

Pattern:8
Space Separators

In the traditional Turkish rooms the separator between the entrance section and the main room divides the two spaces properly (Pict 2). The kind of space which most easily supports both division of activities and the transition between different activities has less enclosure than a space inside an open plan (Alexander, 1977:894). For instance, a wall which is half open, half enclosed or a wall that is at counter height helps one to get the feeling of enclosure. In the interiors of housings arches or light separators can be located between the spaces such as living rooms, entrance rooms, and corridors. Also, half open counter located between kitchen and living room can create the right balance of enclosure (See also Pattern 4).

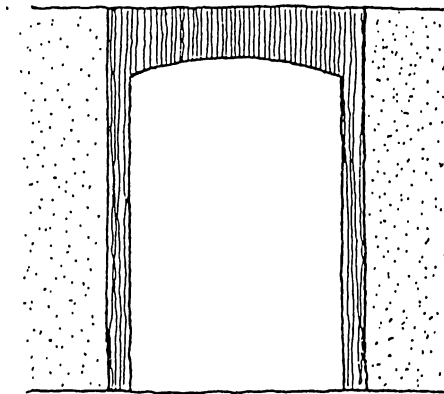


Fig 20: Space Separators (Original).

Pattern: 9
Flexible Furniture

Since mass housing apartments have limited area, the most efficient use of the space in them is an important design criterion. The rooms in small apartments often serve various purposes and activities. For instance, one corner of the living room can be used as a study alcove or a 'sitting room' can also provide bed for unexpected guests. Furnitures can add greatly to the functionality of the living area, if it is adaptable in type and size to a number of different purposes. Maximum flexibility is a necessary planning consideration and implies the variable uses to which the space may be allocated. Folding bed unites, in the form of vertically placed furniture and folding tables for a variety of uses may increase and multiply the functional identity of a specific room (Fig:21).

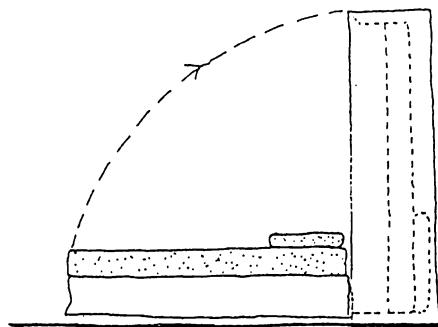
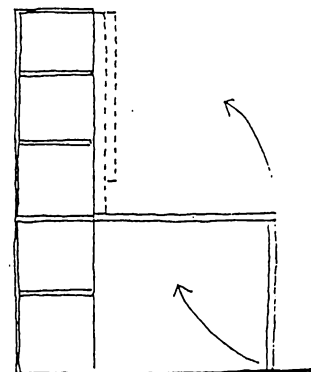


Fig 21: Vertically stacked-folding
bed unite (Original).



Folding table

Pattern:10
Storage Room

In our houses, there is always some need for bulky storage. Although the need for a storage room is evident, it is often ignored in planning with the claim that since it is not a living activity the storage rooms result in loss of space. However, it is also well known that in our country extra toilets in houses are usually converted into a storage room by the users. Therefore, storage space is of considerable importance because when it is not provided, some other space -such as balconies or a room- becomes the receptacle for all the things that people need to store. In walk-in closets or storage rooms, there should also be enough space to vacuum cleaners, mops, brooms, and other cleaning equipment.

Pattern:11
Bedroom Wardrobes

The portable bedroom wardrobes sold on the market are not generally designed in accordance with the specifications of the garments which would be stored in them. Bedroom storage requirements are relatively complex since accommodation is needed for hanging and folded garments of all shapes and sizes. Besides, paying due attention to proper clearances and accessories which people use must be known in order to provide maximum storage space in the unit. The proportions of the female and male impedimenta are as follows:

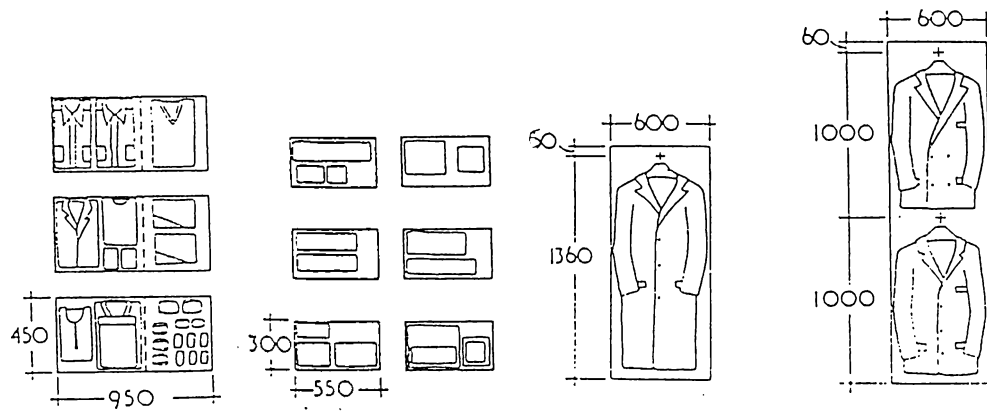


Fig 22: Proportions of human impedimenta.
(Source: Reznikoff,1986)

The bedroom closets should have the depth with 60 cms of hanging space and have minimum length of 120 cms per person whereas linen closet should have 1m² storage area for a family of four. (Reznikoff,1986). In addition there should be adjustable shelves and drawers for the storage of folded garments. The clearance between the shelves should be 15 - 20 cms.

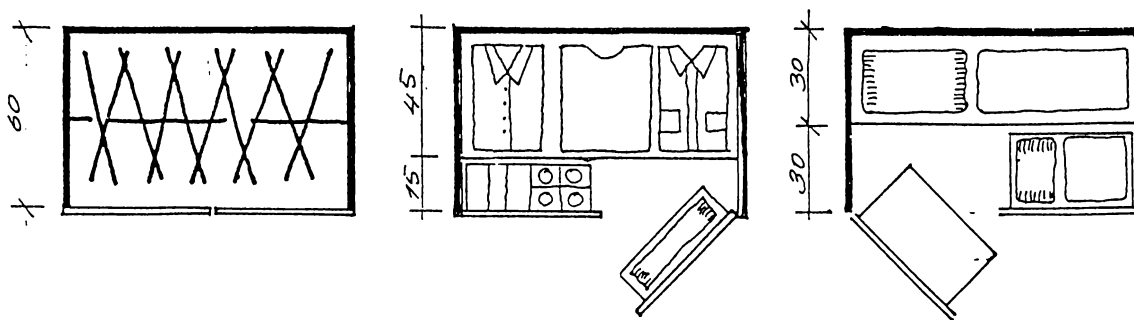


Fig 23: Bedroom wardrobe (Original)

Since the hanging and folded garments require various depths for storage and the provision of one item deep storage is the rule of the thumb, the bedroom wardrobes should be designed as in Fig 23.

Pattern: 12
Kitchen Cupboards

Shelves and cupboards in kitchen should be planned properly bearing in mind the frequency of use and varying types of kitchen items. In most kitchens, cupboards above eye-level are filled with things three or four items deep, sometimes stacked on top of each other and sometimes in front of the needed object. But the value of kitchen storage depends on the ease of access. The wall units in which the glasses, dishes, pans, jars are stored should have a variety of shelf depths and also they can have narrow shelves inside cupboards' doors (Fig 24).

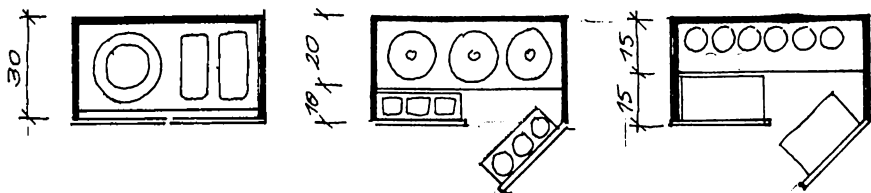


Fig 24: Kitchen wall cupboards (Original).

The lower units should be designed in the form of pull-out units (Reznikof, 1986:372) (Fig 25).

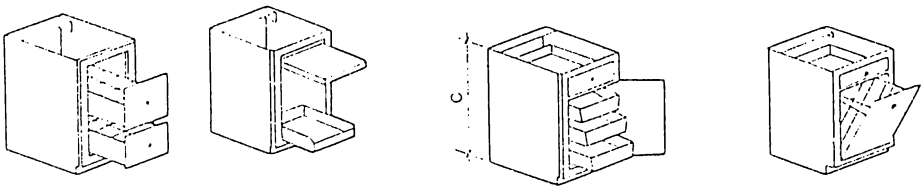


Fig 25: Kitchen lower units

Pattern: 13
Built-in Bed Alcoves

Generally sleeping is not the only activity which takes place in children's room. Children's rooms also serve to other activities such as dressing, working and playing. These activities, in fact, need their own spaces and are not at all well met by the left over areas around a bed. It has also been observed that people have a hard time adapting the space around the single bed to their needs for bedroom's space. (Alexander; 1977: 869)

In children's rooms the sleeping activity can be separated from other activities by locating them in a built-in alcove. Instead of putting single beds in bedrooms, built-in bed alcoves can create the right balance between the functions which occur in the room. Once the bed has been built into a space that is right for it then the rest of the bedroom space can be arranged around the needs for sitting space, play areas, working table and storage. (Alexander, 1977:869)

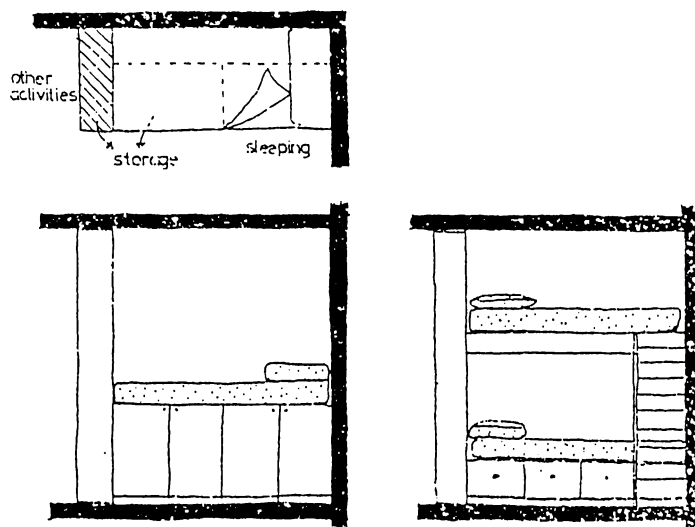


Figure 26: Built-in Bed alcoves

The built-in bad alcoves can be designed by adding storage unites in the walls arround the alcoves. And also the storage unites can be provided under beds. The bed alcoves can also be designed as a bunk type bedding for two children (Fig: 26).

CHAPTER 5

CONCLUSIONS

In the preceding chapters, it has been claimed that there seems to be a lot to learn from our past so as to reach higher standards in our interiors.

The major drawback as regards our current stance is the communication gap between the architect and the interior designer. In fact the so called gap between the two has never been so wide before. This can be attributed to the fact that architects do not pay much attention to possible inner organizations of their buildings. Thus, interior components are not treated as integral parts in the creation of satisfactory inner spaces.

There is also enough evidence to suggest that 20th century's standardized apartments and houses are becoming more and more identical thus ending up in sterile, inflexible, and boring inner appearances. This is simply due to the fact that furnishing an interior is not given much importance. Perhaps, that is the reason why our houses are filled up with 'so called 'furnitures from 'Siteler' (the district which is the centre of Ankara's furniture industry) many of which look out of place, tasteless, and even, ugly.

Unfortunately, interior designers of today are

still afforded by the rich people only. Thus everyone looks at interior design as a 'luxurious business'. Unless we come up with a radical solution to this dilemma, we will continue to observe the current situation to get even worse.

In the preceding pages the author of this thesis has tried to show that there seems to be a lot to learn from the traditional Turkish house as to the effective usage of boundaries which is manifested in the form of built-in furniture. It has been shown that the architect(s) and/or builder(s) of the traditional Turkish house had apparently disliked leaving blank walls to the ultimate user. Instead, they tried their best to decorate their interiors by using a whole bunch of elements such as engravings, planters, display shelves, built-in niches, etc. Perhaps this was their understanding of how a 'finished' product should look. Today's builders, however, are somewhat stingy in this respect, thus adding no extras other than kitchen cupboards. However, ultimate user of today's houses might think he/she deserves much more than 4 blank walls.

At this point, one can ask the question: is this so crucial? Everyone should be granted the right of deciding for himself as to how he will furnish his own place.

Considering where we are, and taking account of the

fact that we can not afford abusing our scarce resources any longer, our key words become more efficient, more effective and more economical.

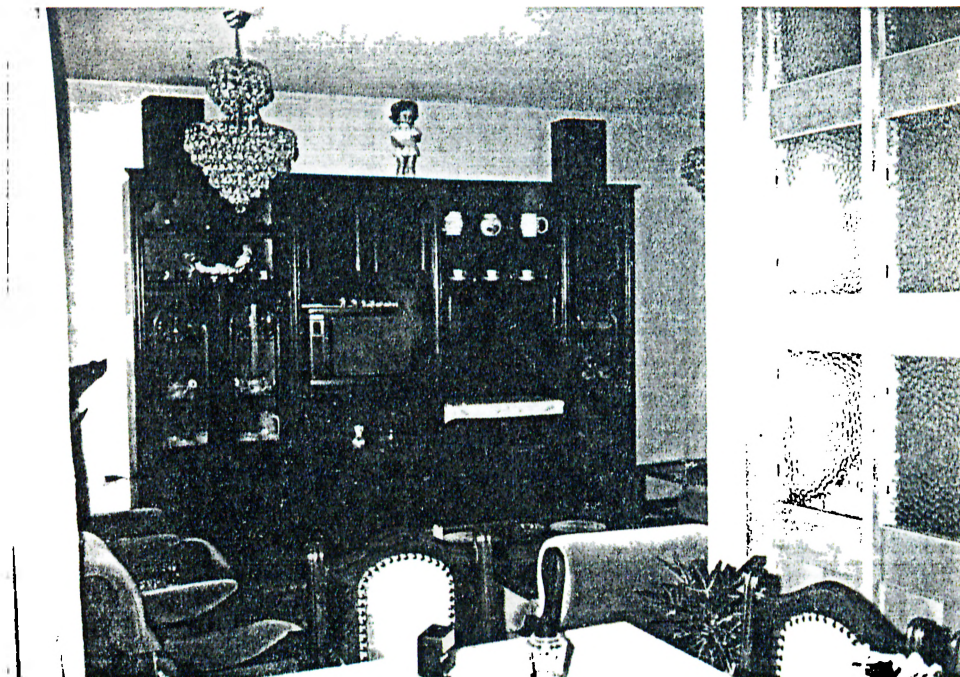
And the key word in our context should very well be 'the more effective usage of space, be it a corridor, or a kitchen, or a bedroom, etc.'.

As for the practical implications of 'built-in furniture' phenomenon, it can be said that architects may come up with more creative solutions through the effective usage of this concept. Newly developed construction materials will be of great help to designers in this regard. As a concrete example one can cite gypsum board panels which has become very popular for the last 3-4 years. Subject material, compared with the traditional material of brick, is more flexible, light-weight, easy to erect, etc. Also, it can allow the interior designer to introduce features such as built-in display niches, space separators, etc. (some of which have been discussed in Chapter 4 - Design patterns).

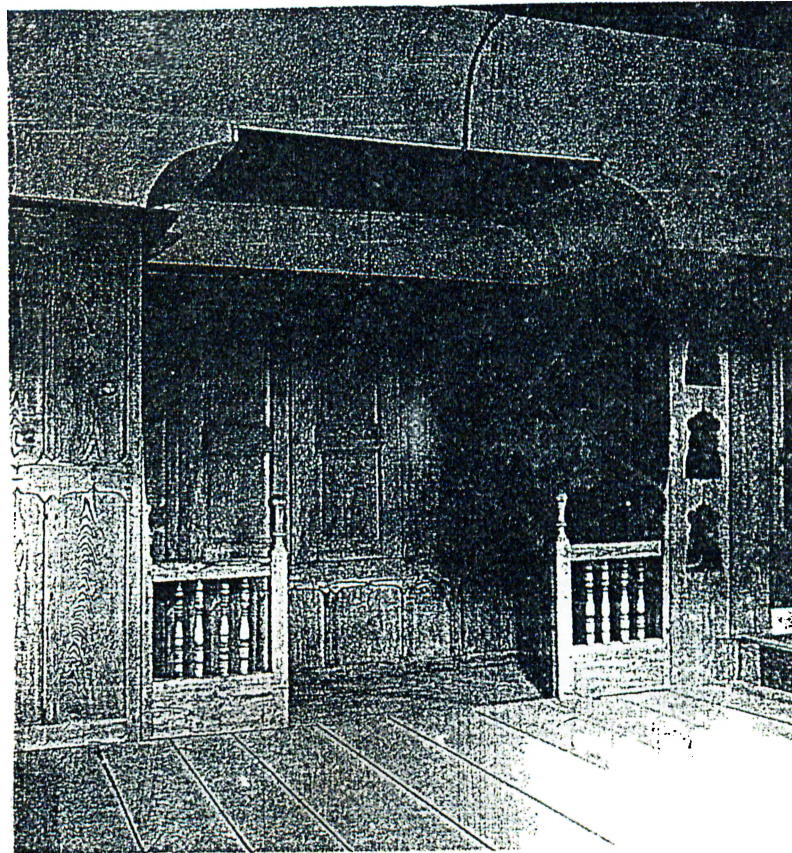
One can also assert that built-in furniture concept might very well prove to be a good reason to improve designer-user communication. And it can prove especially useful for mass housing projects (for ex. cooperative housing schemes) where user participation throughout the construction process can be attained much more easily.

It remains to be said that 'built-in furniture' concept is a good example of what kind of lessons we can draw from interior arrangements of the past and how we can widen our scope as to the effective usage of interior spaces.

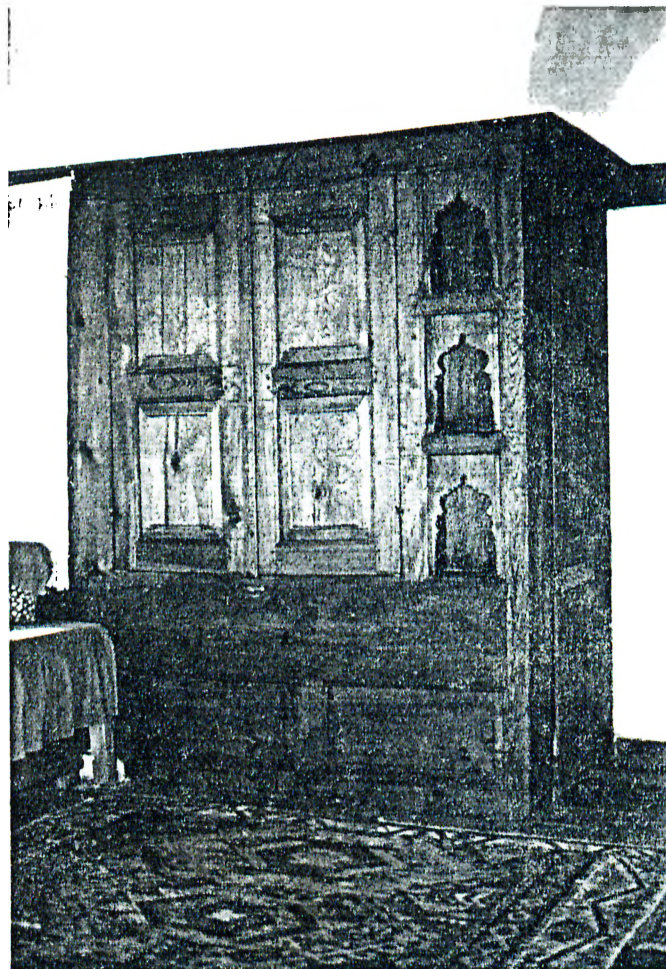
APPENDIX 1



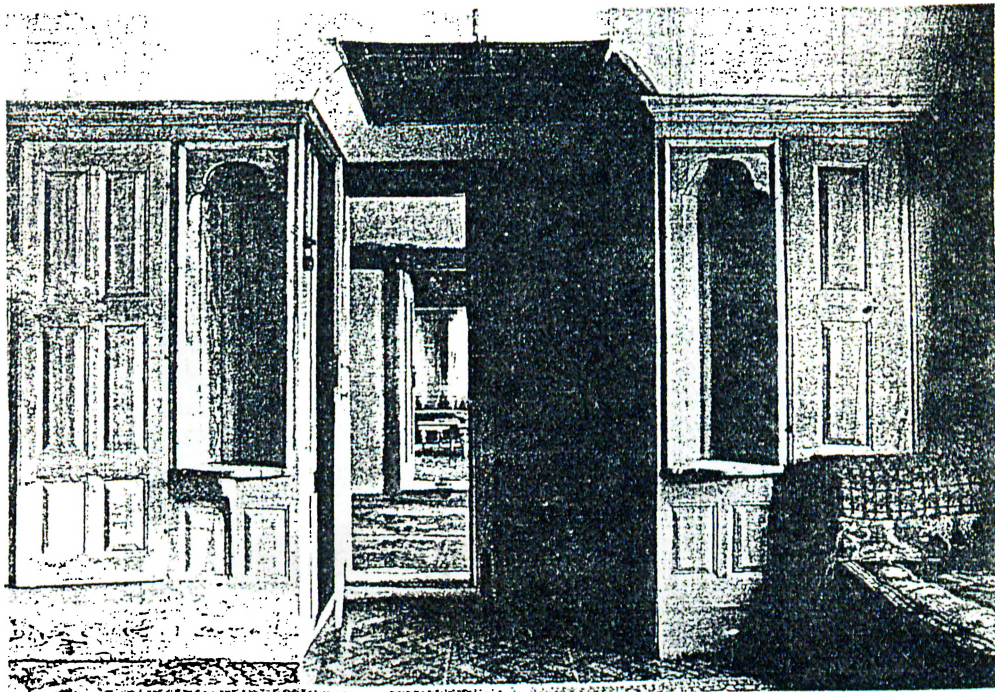
Pict 1: An example of a bulky side board.(Original)



Pict 2: Entrance section of a traditional Turkish room
(Source: Günay,1989).



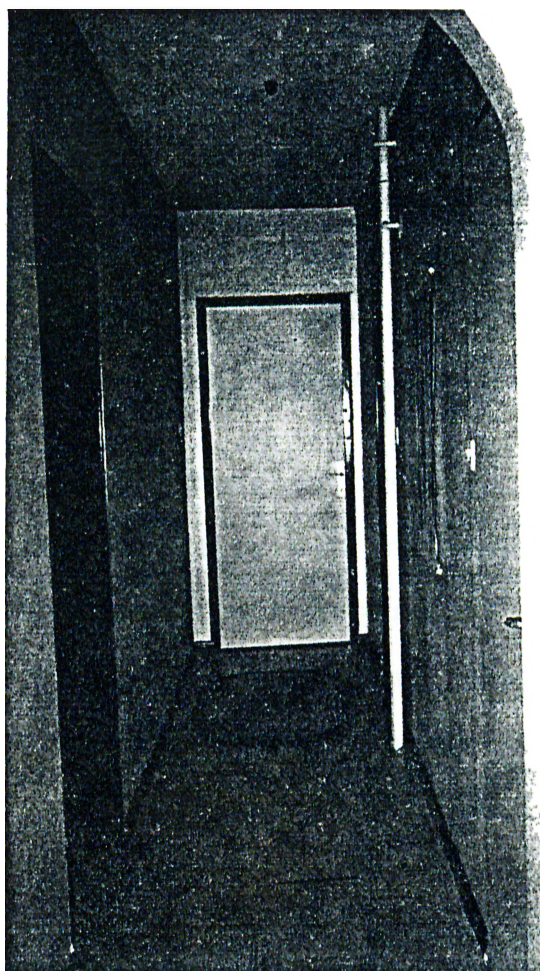
Pict 3: Cupboard and engravings from a traditional Turkish room. (Original)



Pict 4: Planters located on two sides of an entrance section. (Source: Günay, 1989)



Pict 5: A built-in seat and display shelf (sergen) from a traditional room. (Original)



Pict 6: The view of a long and unproportioned corridor.
(Original)

APPENDIX 2

Throughout the thesis, the practical and theoretical aspects related to housing interiors have been dealt with. Since the subject of this thesis is directly related to the design of interiors, it has been assumed that a hypothetical design project might very well prove to be useful. A project of this kind, the author thinks, may shed light upon the practical implications of this thesis.

The specific housing plan used in this study is an existing housing scheme chosen randomly from Batıkent district (Batıkent is a recently developed housing district established at the western part of Ankara).

The assumption here is that the inner, non-load bearing walls are not built but instead, the closets are provided which serve the dual purpose of storage and space separation. At the same time, basic principles of dimensional coordination have been manipulated. Thus, not only the dimensions of inner walls have been standardized, but also 45-60-90 cms wide closets have been used as space separators. When carrying out this study, the patterns introduced in chapter 4 have also been used.

In this study, three different family types have been selected as family A, family B, and family C. These families are assumed to have selected the patterns with

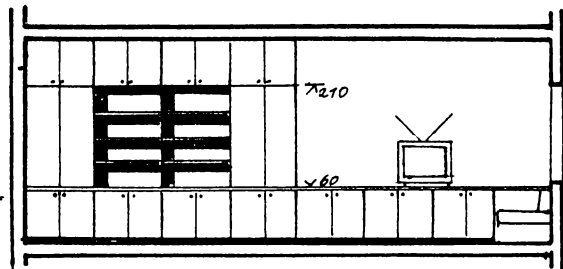
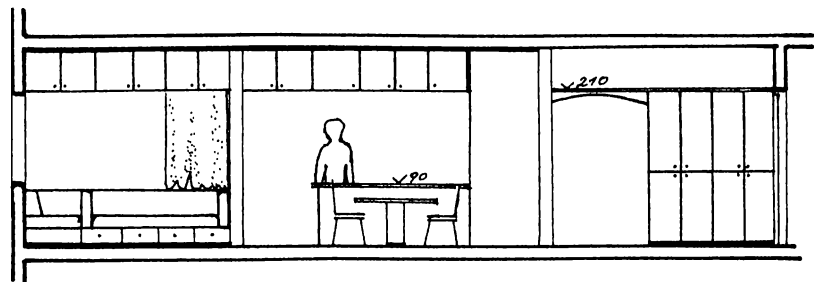
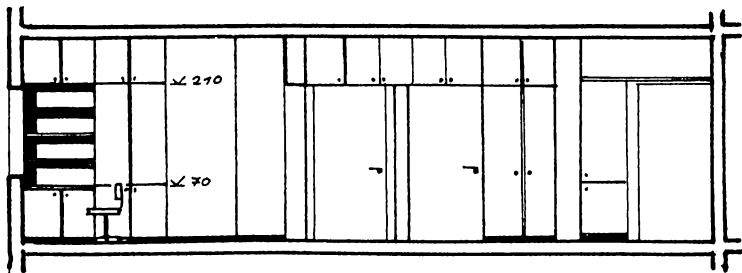
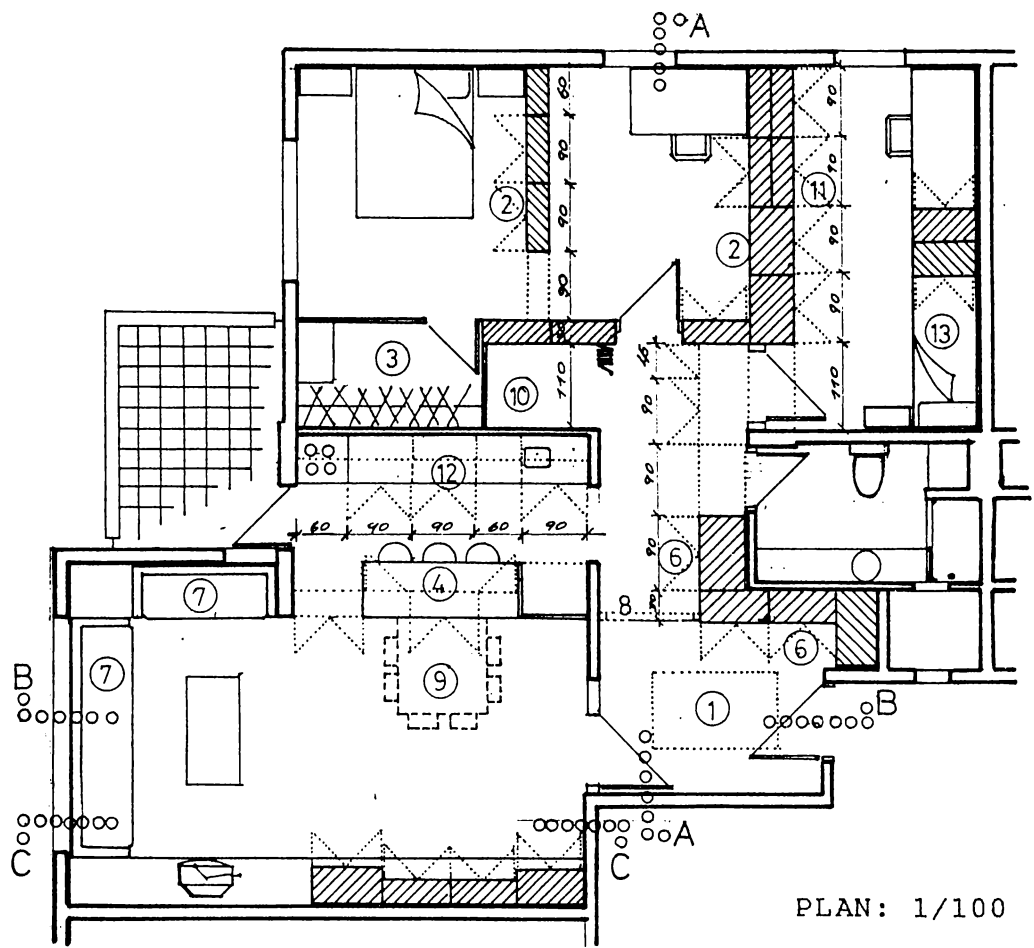
respect to their life styles and personal preferences.

Family A is constituted of a mother, father, and one child. It is assumed that they have selected the patterns; 1,2,3,4,6,7,8,9,10,11,12, and 13. In accordance with these patterns, in the master bedroom a walk-in closet is provided and in the corridor adjacent to kitchen a storage room is located. One of the parents is in need of a study room and thus a study room next to master bedroom is provided. The mother also desires to be in touch with the rest of the family while she is preparing the meal. Therefore, a semi-open kitchen with a counter type table is designed.

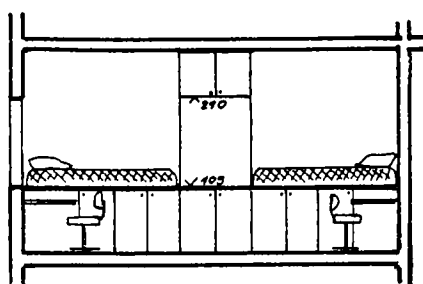
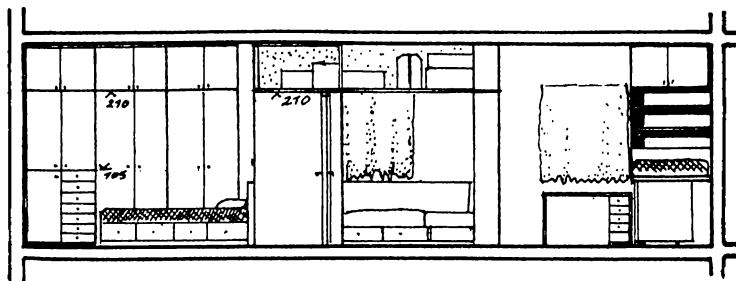
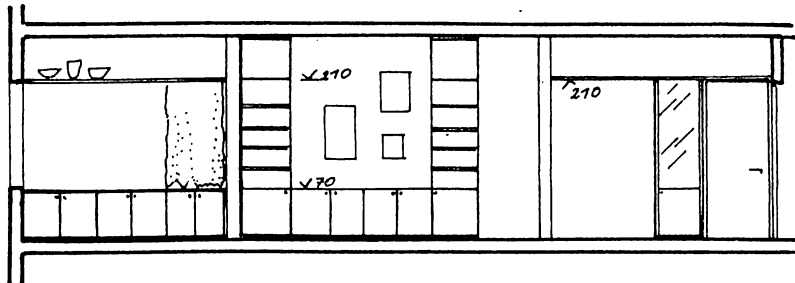
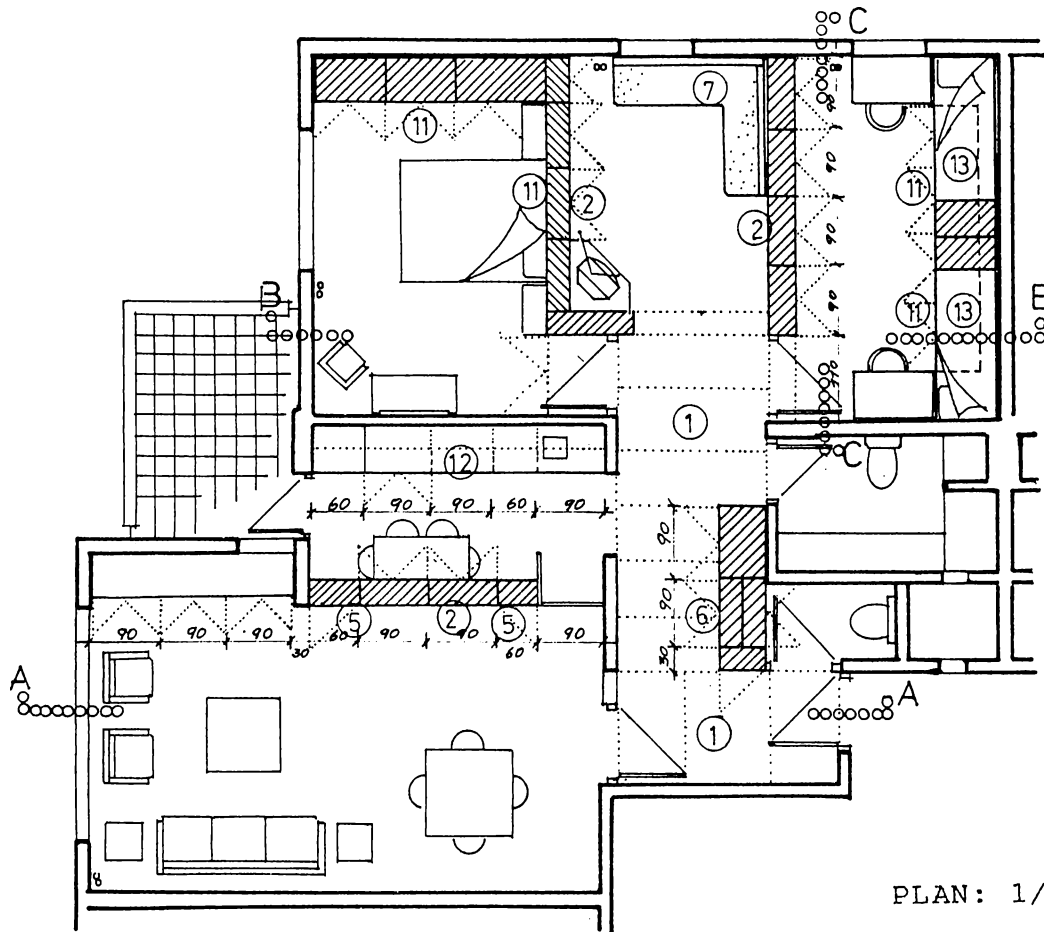
Family B is composed of a father, a mother, and two children with same sexes. They have selected the patterns numbered 1,2,5,6,7,11,12 and 13. Since the children are of the same sex, one of the rooms is designed for both children and the third room is allocated as a 'sitting room' for daily use. Besides, the mother prefers a closed kitchen thus the wall between kitchen and living room is shaped in the form of a series of closets.

Family C is constituted of a mother, father, and two children with opposite sexes. It is assumed that they have selected the patterns 1,2,5,6,8,12, and 13. The mother wants a passageway from kitchen to living room so an opening inside the closets is provided. They want a larger entrance room and thus prefer the deletion of the second toilet.

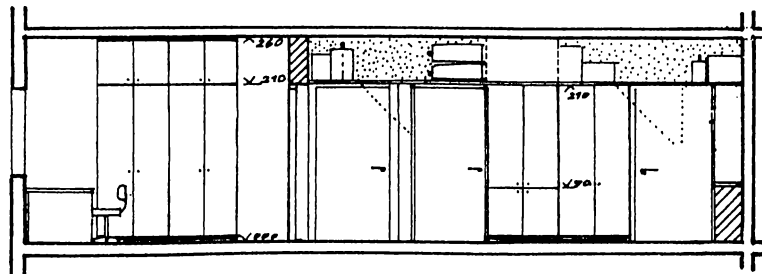
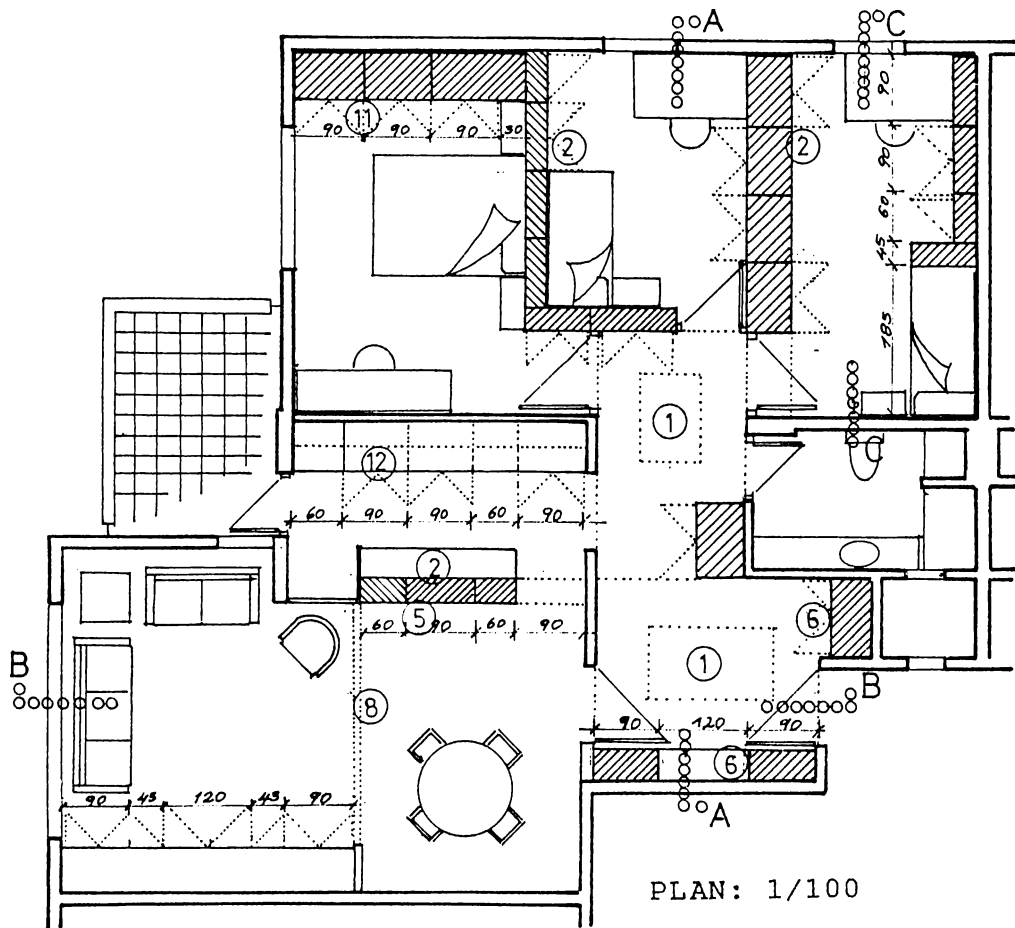
INTERIOR ARRANGEMENT FOR FAMILY A



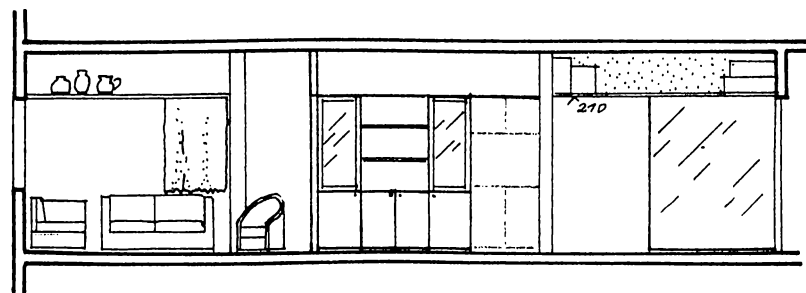
INTERIOR ARRANGEMENT FOR FAMILY B



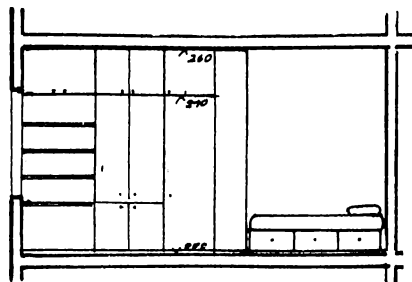
INTERIOR ARRANGEMENT FOR FAMILY C



SECTION AA



SECTION BB



SECTION CC

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