



CULTURE - SPACE RELATIONSHIP :  
JAPANESE TRADITIONAL RESIDENTIAL  
INTERIORS

A THESIS  
SUBMITTED TO THE DEPARTMENT OF  
INTERIOR ARCHITECTURE AND ENVIRONMENTAL DESIGN  
AND THE INSTITUTE OF FINE ARTS  
OF BILKENT UNIVERSITY  
IN PARTIAL FULFILMENT OF THE REQUIREMENTS  
FOR THE DEGREE OF  
MASTER OF FINE ARTS

By

*Elif Erdemir*

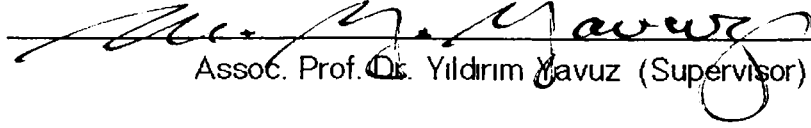
ELIF ERDEMİR

February, 1993

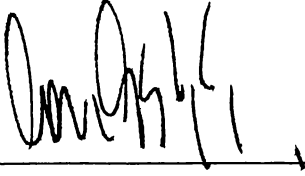
NA  
5000  
.E73  
1993

B02211

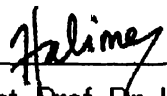
I certify that I have read this thesis and that in my opinion it is fully adequate, in scope and in quality as a thesis for the degree of Master of Fine Arts.

  
Assoc. Prof. Dr. Yıldırım Yavuz (Supervisor)

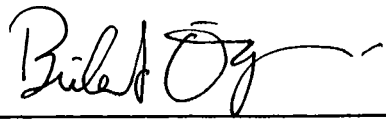
I certify that I have read this thesis and that in my opinion it is fully adequate, in scope and in quality as a thesis for the degree of Master of Fine Arts.

  
Assoc. Prof. Dr. Can Kumbaracıbaşı

I certify that I have read this thesis and that in my opinion it is fully adequate, in scope and in quality as a thesis for the degree of Master of Fine Arts.

  
Assist. Prof. Dr. Halime Demirkan

Approved by the Institute of Fine Arts.

  
Prof. Dr. Bülent Özgüç, Director of the Institute of the Fine Arts

## ABSTRACT

### CULTURE - SPACE RELATIONSHIP JAPANESE TRADITIONAL RESIDENTIAL INTERIORS

ELIF ERDEMİR

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

Supervisor : Assoc. Prof. Dr. Yıldırım Yavuz

February 1993

The aim of the present study is to put forth the relationship between culture and space, through the examples from Japanese culture and Japanese traditional residential interior spaces. Therefore, at the first attempt culture and space concepts are defined. Then cultural determinants; family, religion and philosophy, site and climate, anthropometry and perception of space are analysed through the Japanese point of view. Traditional Japanese residential interior space elements; entrance, rooms, furniture and sliding screens, other services and being an extension of interior space veranda and garden are explained briefly according to their general organization. Within this context, the effects of Japanese cultural variables on Japanese traditional residential interiors are discussed.

Key Words : Culture, space, Japanese culture, Japanese traditional residential interiors, effects of culture on interior space

## ÖZET

### KÜLTÜR MEKAN İLİŞKİSİ: GELENEKSEL JAPON KONUTU İÇ MEKANLARI

ELİF ERDEMİR

İç Mimarlık ve Çevre Tasarımı Bölümü

Yüksek Lisans

Tez Yöneticisi : Doç. Dr. Yıldırım Yavuz

Şubat 1993

Bu tezin amacı, kültür ve mekan arasındaki ilişkiyi Japon kültürü ve geleneksel Japon konutu iç mekanları örneğiyle ortaya koymaktır. Bu nedenle öncelikle kültür ve mekan tanımları kısaca yapılmaktadır. Belirlenen kültür öğeleri; aile, din ve felsefe, yerleşimin coğrafi nitelikleri ve iklim özellikleri, toplumun antropometrik verileri ve mekan algılama biçimleri, Japon kültür anlayışı çerçevesinde incelenmektedir. Geleneksel Japon konutu iç mekan elemanları, genel organizasyonları çerçevesinde; giriş, odalar, döşemeler, mobilya ve kayar bölmeler, diğer servis elemanları ve iç mekanın bir uzantısı olan veranda ve bahçeler kısaca anlatılmakta ve bu doğrultuda kültürel verilerin geleneksel Japon konutu iç mekan öğelerini nasıl etkilediği incelenmektedir.

Anahtar Sözcükler : Kültür, mekan, Japon kültür öğeleri, geleneksel Japon iç mekanları, Japon kültürünün mekana etkileri

## ACKNOWLEDGEMENTS

Foremost I would like to express my indebtedness to Assoc. Prof. Dr. Yıldırım Yavuz for his invaluable guidance and encouragement throughout the study. I would also like to thank to Feyzan Beler and Jean Öztürk who read the manuscripts and made valuable commands and criticism during the preparation of the thesis.

I owe a large part of the study to Bozkurt Güvenç whose lectures have been a source of inspiration for me in the formation of the frame work of the present study.

Special thanks to my friends Sedef Aksoy and Guita Farivarsadri for their patience and help; and last but not least thanks goes to my family for their continuous support.

## TABLE OF CONTENTS

ABSTRACT .....	iii
ÖZET .....	iv
ACKNOWLEDGEMENTS .....	v
TABLE OF CONTENTS .....	vi
LIST OF TABLES .....	viii
LIST OF FIGURES .....	ix
<b>1. INTRODUCTION .....</b>	<b>1</b>
<b>2. CULTURE AND SPACE .....</b>	<b>3</b>
2.1. Definition of Culture .....	3
2.2. Definition of Space .....	7
<b>3. THE MAJOR COMPONENTS OF JAPANESE CULTURE .....</b>	<b>11</b>
3.1. Family .....	11
3.2. Religion and Philosophy .....	13
3.2.1. Shintoism .....	16
3.2.2. Buddhism and Zen Buddhism .....	17
3.2.3. Confucianism and Taoism .....	21
3.3. Spatial Aspects of Japanese Culture .....	22
3.3.1. Site and Climate .....	22
3.3.2. Anthropometry .....	24
3.3.3. Perception of Space .....	27
<b>4. JAPANESE TRADITIONAL RESIDENTIAL INTERIOR SPACES .....</b>	<b>30</b>
4.1. Features of The Traditional Residential Spaces .....	31
4.1.1. Entrance .....	33



4.1.2. Rooms.....	36
4.1.2.1. Living Room.....	38
4.1.2.2. Dining Room.....	40
4.1.2.3. Reception Room.....	40
4.1.2.4. Tea Room.....	43
4.1.3. Floor Covering Mats.....	45
4.1.4. Furniture and Sliding Screens.....	46
4.1.5. Other Services.....	51
4.1.5.1. Kitchen.....	51
4.1.5.2. Bathrooms.....	52
4.1.5.3. Toiler Unit.....	53
4.1.5.4. Heating Facilities.....	54
4.2. Residential Outer Spaces.....	55
4.2.1. Veranda.....	56
4.2.2. Garden.....	58
<b>5. THE IMPACTS OF CULTURE ON JAPANESE TRADITIONAL RESIDENTIAL INTERIOR SPACES .....</b>	<b>63</b>
5.1. The Influence of Family on The Japanese Traditional Residential Interior Spaces.....	63
5.2. The Effects of The System of Religion on The Japanese Traditional Residential Interior Spaces.....	65
5.2.1. The Effects of Shintoism.....	66
5.2.2. The Effects of Buddhism and Zen Buddhism.....	68
5.2.3. The Effects of Confucianism and Taoism.....	72
5.3. The Influence of Spatial Aspects on The Japanese Traditional Residential Interior Spaces.....	75
5.3.1. The Influence of Site and Climate.....	75
5.3.2. The Influence of Anthropometry.....	78
5.3.3. The Influence of Perception of Space.....	79
<b>6. CONCLUSION .....</b>	<b>82</b>
<b>GLOSSARY .....</b>	<b>85</b>
<b>APPENDIX A .....</b>	<b>87</b>
<b>LIST OF REFERENCES.....</b>	<b>104</b>
<b>SELECTED BIBLIOGRAPHY.....</b>	<b>107</b>

## LIST OF TABLES

Table 1 Principles of Buddhism .....	18
Table 2 Multifunctional organization of the rooms.....	37

## LIST OF FIGURES

Figure 1	Schematic explanation of Tylor's theory .....	5
Figure 2	Space requirements of the Japanese figure in various postures.....	25
Figure 3	Comparison of Northern European and Japanese male and female figures; head dimensions as a unit .....	26
Figure 4	The difference in perception of space of Japanese and Western people.....	28
Figure 5	The general organization of a typical Japanese traditional house .....	33
Figure 6	Entrance for the guest.....	34
Figure 7	Entrance for the family .....	34
Figure 8	Level difference between entrance hall and living area .....	35
Figure 9	Flexibility of space .....	36
Figure 10	Generally used floor plans for <i>i-ma</i> .....	38
Figure 11	<i>Kami-dana</i> (closed).....	39
Figure 12	<i>Kami-dana</i> (open).....	39
Figure 13	Typical examples of floor plans for dining room .....	40
Figure 14	Generally used floor plans for reception room.....	41
Figure 15	<i>Tokonoma</i> .....	42
Figure 16	<i>Tokonoma</i> and its relation with <i>chigai-dana</i> .....	43
Figure 17	Tea room .....	44
Figure 18	Floor plan of standard tea room .....	45
Figure 19	Generally used <i>tatami</i> organizations .....	46
Figure 20	<i>Hakodan</i> .....	48
Figure 21	<i>Fusuma</i> .....	49
Figure 22	<i>Shoji</i> .....	49
Figure 23	<i>Byobu</i> .....	50

Figure 24	Standard plan types of kitchen.....	51
Figure 25	Typical bathroom plans.....	53
Figure 26	Generally used toilet unit plans.....	53
Figure 27	<i>Hibachi</i> .....	54
Figure 28	<i>Kotatsu</i> .....	54
Figure 29	House-garden relationship.....	55
Figure 30	Indoor-outdoor relationship.....	56
Figure 31	<i>Engawa</i> as a transition area.....	57
Figure 32	Expression of void.....	73
Figure 33	<i>Yin-Yang</i> .....	74
Figure 34	Painting on partition ( <i>Fusuma</i> ) illustrating the site.....	77

## 1. INTRODUCTION

Since every society has a unique culture of its own, culture is assumed to be one of the major factors influencing the formation of space. When the crucial role that culture plays in human life span is considered, as interior spaces being the places where people spend most of their time and associate themselves, the importance of culture on the interior space formation is unavoidable.

Culture is the totality of habits or acts that a specific society manifests within itself. The major formation that the culture of a specific society symbolically expresses itself are the traditional residential dwellings and far more importantly, their interior spaces, as people perform their habits in the interiors which are established by their cultural backgrounds of the society.

"There are,..... traditions that go back to the beginning of human society, yet which are still living and which will exist perhaps as long as human society does." (Fathy, 1973: 24)

Therefore a direct relation between culture, with its eternal continuity, and the concept of 'tradition' can be constituted. Being the most significant and important aspect in human life as well as being the medium in which all cultural background is reflected, it is natural to find the reflections of culture in the traditional residential interior spaces.

The contradiction of being an introvert community and manifesting an ultimate development is the basic capturing fact of Japan. Even though they are culturally and geographically introvert, unlike Chinese, Japanese are curious about what is proceeding outside. On the other hand, unlike other societies, the Japanese carefully preserve their cultural heritage and cultural identities and assimilate them with their present way of life. Today, even though they might be criticized

because of their attitude towards their culture, it must be remembered that their culture is responsible for their powerful civilization. Kurokawa (Cited in Graustark, 1990) ironically explained how the Japanese incorporate their culture;

"The Japanese are wonderful at eating a culture and digesting it so well they do not get a stomach ache."  
(Kurokawa cited in Graustrack, 1990: 75)

Accordingly, one can conclude the same approach in the traditional residential interior spaces as well. Because of the cultural inputs, Japanese cultural characterization is formed basically at home, through the relations within the family, and secondly at school and at work. In this respect, home is the central point of Japanese society.

Within this respect the aim of this study is to analyse the relationship between culture and space, mainly focusing on the Japanese culture and traditional residential interior spaces. In the second chapter a brief description of culture and space are given. The major components of the Japanese culture; mainly family, religion and philosophy, and then spatially related ones such as site and climate, anthropometry and perception are described in the third chapter. The fourth chapter focuses on the features of the traditional Japanese residential interiors pointing out both the interior components and several outer space components which can not be regarded separately from interior space in the Japanese traditional residential interiors. The reflection of the cultural inputs, which are described in chapter three, on the features of the Japanese interiors, which are explained in chapter four, are interpreted in the fifth chapter. In this context, the present study tries to elaborate the relationship between culture and space. It will be a guide to other researches on the influences of culture and space, especially in the countries like Turkey, where traditional and cultural influences are still dominant.

## 2. CULTURE AND SPACE

### 2.1. DEFINITION OF CULTURE

A definition of culture has always been lacking in anthropological studies. It is in fact a concept which is understood at different abstraction levels, starting from the emergence of man and continuing to present day.

Culture is something that is inherited from our ancestors and it helps man to develop himself and create a higher level which will again be left to the younger generations. Culture and civilization live, develop and change and they are immortal (Güvenç, 1985). In this respect, man is the creator and the creature of this living chain of culture. Culture lives with man and develops itself; it changes in time but does not die with man.

In fact, what makes the society is not our ancestors but the existence of a common culture. The variables of a common culture are family, science, government, education, technology, environment, religion, traditions, health and nutrition, settlement patterns, child caring methods, art and personality of man living in the society. These variables are not totally independent but have several interrelations with each other (Güvenç, 1985).

Every culture needs people to construct a common culture, to produce a specific space and to make history (King, 1990). Therefore, every specific culture has main relations with the people of that society. In this respect; all societies need an environment to solve the basic needs of man. This new environment creates a new life-style and social standards which should be transferred to the new generations by the media of education (Malinowski, 1960). There is a parallel approach in culture as it is formed by past designs which are assimilated within a society that help to define the present culture and the organization of

the society. Therefore, these two phenomena are interrelated. This can also be concluded as in the statement below;

"...culture ...defines the problems that societies must solve, but the actual solution occurs at the intersection of ideas and action" (Namenwirth, and Weber, 1987: 17)

Generally, anthropologists believe that everything within a society is considered as culture therefore there can not be any definition which will be completely descriptive. On the other hand, giving some historical and theoretical approaches will be useful for explaining and defining the concept of culture.

The concept of culture has been understood differently by different anthropologists through history. Theoretical studies were developed by late Victorian anthropologists, who proposed that culture was a unitary phenomenon. Different societies were seen to participate in it to varying degrees according to the level of their development and evolution.

By the 19th century, this understanding broke down and two major new approaches were put forward. The first was that, culture is determined as the phenomenon which should be understood in its own terms and judged by its own values. According to the second, culture was defined as the behaviour and the underlying reason (cause) of the different customs of a society. Then, in 1930, Boas defined culture as something entirely covering all the habits of a community by which individuals make contact with each other. The output of human activities is determined by these habits. This thesis has been accepted as the classical definition of culture. Since the 1950's this unique understanding of culture has vanished. Today each discipline tries to define culture in its own terms. On the other hand, some anthropologists reject culture as a field of study altogether and name it as a 'moribund' concept (Winthrop, 1990).

Contemporary theories of culture are generally based on or affected by the abstraction of totality, which is the main concept of Tylor's theory of culture. Tylor (1871) defines this theory of culture as follows;

"Culture is a complex totality of man, consisting of his



being a member of a society, gaining knowledge, and some other skills and habits such as art, ethics and traditions." (Quoted in Güvenç, 1985: 22 Translated by the author)

This definition proposes four different variables - man, society, cultural content and educational process- in the theory of culture. These variables are all related to each other. Tylor illustrated the theory as shown in Fig. 1.

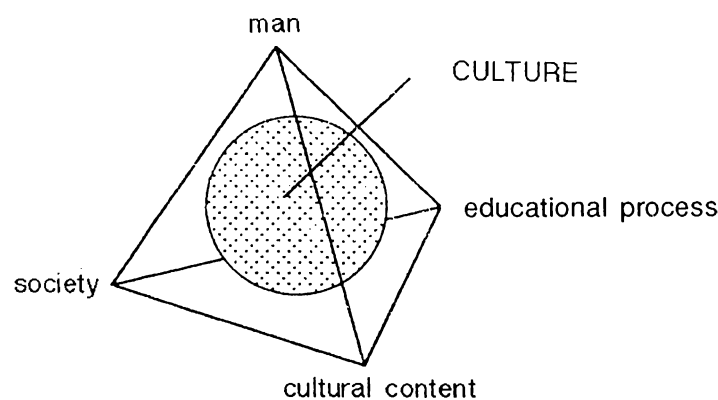


Fig. 1 Schematic explanation of Tylor's theory (cited in Güvenç, 1985: 26)

Fig. 1 shows the cultural process in every society and Güvenç explains it as follows;

"Man, being the member of a society will gain the cultural content by the educational process and this will all be concluded as culture." (Güvenç, 1985: 43 Translated by the author)

Uygur's proposal for the definition of culture is that culture is the creation of the environment in which man has to accommodate the existence of spiritual and material needs (Uygur, 1984). There is another approach which emphasizes the biological fact (Malinowski, 1960) which is almost the same as Tylor's.

Archer (1985, cited in Namenwirth and Weber, 1987) proposes that culture

beliefs and symbols- which are related to each other. This is to say that, if one of the issues is determined then the others can be derived by means of logic. On the other hand, Namewirth and Weber (1987) believe that cultural organization is not a syllogistic logic but rather that culture should be described by other aspects. In this respect, they consider myths as an important aspect of culture and therefore as one of the logics of it and they conclude that culture has structure.

Culture, which can be defined as a design for a living, is a conceptual system. These concepts can be referred to as themes or problems. In fact, culture does not have any designer but it comes from society and intersects with it. Culture has a conceptual existence just as the conceptuality of a plan of a house does. The house is three dimensional but its plans are two dimensional. Culture is just the same, it is a representation of real life. Culture is a conceptual term and when culture is understood by society then it will turn into other aspects within the society (Namewirth and Weber, 1987).

Different studies give different meanings to culture while examining for different problems. The present study will accept Tylor's theory of culture supporting it with the other definitions.

In the study of cultural anthropology, generally a method of observation is highlighted. But within the limits of the present study, these observations can not be expressed so the written information will be used.

Within the frame work of the anthropological studies the catalogue called "Cultural Content and Items Inventory" is developed by HRAF (Human Relations Area Files) at Yale University which is used as a check list by the anthropologists. This catalogue consist of 88 groups of items (see Appendix A) and sub items of these. An anthropologist uses this catalogue when making a survey on a specific community or culture based on a specific topic. After selecting which items will be studied, their subtitles are picked up. Güvenç (1984) recommends looking through the other subtitles of the unselected ones as there may be secondarily related subtitles. On the other hand, there may be irrelevant sub

looking through the other subtitles of the unselected ones as there may be secondarily related subtitles. On the other hand, there may be irrelevant subtitles of the mainly selected ones. As the aim of the present study is to investigate the relation between culture and space, the relevant items from the catalogue, that are grouped in an appropriate way in chapter 3 are; site (131), climate (132), physiological information (anthropometric data) (147), the place that family lives (591), the family itself (592), family relations (593), activities about religion (771), rituals (785), systems of religion (779).

## 2.2. DEFINITION OF SPACE

Space is a concept based on the three dimensional place in which man exists. To make a place a space depends mainly on man's understanding and feeling of space. In this manner, cultural differences play a great role in understanding what space is. As an example, Western societies - including Turkish society- are generally used to rectangularity. Therefore, people expect to have rectangular shaped space, the right angles and the parallels in the environment. They are surprised when they faced with spaces in another shape. One should bear in mind that rectangularity is not an universal concept. As an example, some communities describe their spaces as circles in some small villages of Black Africa (Güvenç, 1971). Therefore; the definition of space should be given according to the specific communities that are part of a common culture.

Furthermore, there are common social attitudes on the formation of space. The subdivision of space is an attempt to find solutions to the biological and social needs of man by making special spaces such as rooms or other divisions in a tendency to organize the spaces. Looking through history, we observe that social organization also has an influence on the formation of spaces. Through the introduction of the nucleus family, rooms are now formed according to their functions (Güvenç, 1971).

Thus, there are several factors influencing the organization of spaces.

directly related to the user of the space, man.

We, human beings, use all our senses to understand the space and the environment that we are in and to convert the information from visual clues to gain a notion of a visual space. Humans think that only the visual clues are noticed but in fact there are audial, thermal and tactile spaces in which some other clues are perceived (Güvenç, 1971). In this manner, there are four different spaces in which some descriptive clues can be selected.

Even though ears are less sensitive when compared with eyes, audial space is helpful in visualizing space in that it differentiates the perception of depth and direction. In addition, audial space is helpful in perceiving the acoustics; which is one of the components of space. Man understands space through the help of visual clues and the knowledge helps to change the perception of man. Different people perceive events and facts differently while looking at the same objects or facts at the same time and space. These perception differences of man could be the main idea for selective perception (Güvenç,1971). This is to say; humans perceive better those facts in which they are most interested. In fact, the selection differs according to the different educational processes in every culture.

Human skin, which is very sensitive to heat, also gives clues for understanding a space. Human skin perceives the thermal space. When one can see the texture of an environment, he/she will prefer to touch. Touching is a clue which supports the perception of space. Güvenç (1971) notes that touching is the most personal clue for perceiving a space which can be called tactile space.

None of these four different spaces can be a unique space because it needs the other spaces to become a space that is understood by space in an architectural sense. Therefore, these spaces are interrelated with each other in one single space. These differentiations can only be useful while analysing a space from the point of view of the user; how he perceives and what clues he uses to understand a space. Within the scope of the present study these clues are not tried to be analysed rather, the existence of these concepts are assumed

uses to understand a space. Within the scope of the present study these clues are not tried to be analysed rather, the existence of these concepts are assumed for the relationship between culture and space.

Anthropology is the only social study that gives an emphasis to space. A space is the environment in which man exists. Therefore anthropologists have to have an idea of what type of an environment that man needs. The reason for this is that:

"...like every cultural theme that man has created or which creates man, space can also have an anthropology."  
(Güvenç, 1971: 43 Translated by the author)

In this respect, Hall (1969) divides the space into three levels from the view points of cultures and cultural systems; inactive spaces, semi-active spaces, active spaces.

Inactive spaces are buildings, towns or cities or other types of fixed dimensional environment while semi active spaces are moveable objects, such as furniture in the house. Active space, which can also be called informal space, is the environment in which man acts (Hall, 1969). Whether a space is active or inactive, or how the space is organized, influences our behaviour.

There are mainly four types of space that man perceives consciously or unconsciously. These are psychological distances that man feels within a space. Even though general approaches will be given, one should keep in mind that these distances can vary in different cultures. Hall (1969) has divided the psychological spaces into; intimate space, personal space, social space and public space.

Intimate space is the space that we perceive in the act of touching physically (or the condition that we are within the distance of touching). Personal space is the distance in which one can perceive and appreciate others. It is the minimum distance that one should keep while having an interaction with another person. The distance in which one can perceive more than one person together or in

relation with each other, is called social space. Public space is divided into two main groups, close public and far public. In the transition from social space to public space, differentiations in the human voice can be observed. The volume of voice affects the perception of space being either narrower or wider (Güvenç, 1971).

As stated above, the configuration of culture is at the intersection point of the ideas and the actions. Thus, in order to experience culture a definite space is required. This space, rather than work space, is the home space in which man can act without any preconditioning.

Different types of space or the ways of perceiving the spaces which were mentioned above, are generally regarded as a unique phenomenon. Thus, within the limits of the present study, when cultural values are considered all types of space are taken into consideration in relation with the intimate space, personal space and social space uniting with semi-active spaces and active spaces, as they are found relevant to a discussion from the point of view of interior formation. Hence, covering the requirements of semi-active and active spaces in traditional residential interiors, residential interior components and some few outer space components are worth to be analysed.

### 3. THE MAJOR COMPONENTS OF JAPANESE CULTURE

According to Mitusuni (1984), Japanese culture absorbed a great deal from China and Korea, from the 16th century missionary visitors; from Europe and Western civilization in the 19th century. But rather than overwhelmed by these waves of foreign influence, Japanese culture build a system by viewing other cultures. For the formation of Japanese culture one can state several factors starting with geographical location but not lasting with economical attitudes. Essential factors are family and religion for transforming Japanese culture to Japanese philosophy. In fact, these components are found relevant by overlapping the aspects for the formation of residential interior spaces and culture. Therefore, firstly these factors and then spatial aspects will be analysed in this section.

#### 3.1. FAMILY

The major component in the formation and organization of culture is, the family, which can be described as the smallest unit of society.

In every society, a specific space is required for a family to exist and to fulfil its needs. In fact, the aim is not only to satisfy the family's daily needs but to improve their lives as well (Engel, 1964 and Greenbie, 1988).

As the focus of the this study is the residential interiors, the family being the user of the space, gained importance. Engel (1964) mentioned as such;

"Family in building, is..... man's individual and universal architectural image, it expresses the personality of the family; as an universal image, it substantiate the ethics and concepts of society." (Engel, 1964: 221)

Consequently, the way that a family uses the space is based on the traditions and ethics which have been inherited from the past (Engel, 1964). Therefore, the way that they perform those habits in the interior space of the house should be examined.

Güvenç puts forward the Japanese way of existence in comparison with Western philosophical attitude. Descartes claimed; 'Cogito ergo sum' (I think therefore I exist). This aphorism became the leading idea and the symbol of Western existentialist philosophy. Güvenç argues if a similar symbol has to be given for Japanese it would be as such: 'We are a family; we exist altogether' (Güvenç, 1989).

Güvenç's conclusions introduce the fact that the importance of the family in the Japanese society is rooted in the Japanese philosophy of existing as a family, not by oneself. This concept of family survives at all levels of social units of the society. As an example, the officials working at the Japanese State Railway refer to the institution as 'our big family' (Güvenç, 1989).

Accordingly, the Japanese practice of giving emphasis to man and human scale in their traditional interiors (FAJ, 1981) rather than looking for a change in form, materials, methods or philosophical approach is understandable.

The family is the most powerful social organization in Japanese society; the doctrine of Shinto states that a person has no rights but the family has (Ayverdi, 1963). Consequently, the family became an institute in which the children learn a lot. Even though some changes have occurred in the social structure of Japan such as the women' status in the society, and most of the stern rules in the family have disappeared, the nucleus family still keeps some of the basic rules in the house.

The major principle that formed the order in the family and, being a prolongation of it, in the society, is the philosophy of Confucius. Its basic principle is filial piety. It is expressed by obedience and respect to the living parents and worshipping the departed ancestors (Engel, 1964).



Greenbie (1988) claims that by worshipping ancestors of the family, the Japanese in fact stress their personal relations within their blood-lines; and with this, actually want to claim self-respect and respect from others.

Engel (1964) claimed that there are four distinct characteristics of the Japanese family;

- disregard of the individual,
- absolutism of the head of the house,
- right of primogeniture,
- subordination of the female." (Engel, 1964: 222)

As well as being closely related to each other, these characteristics are influential on the formation and organization of the house, which are both effected from and influenced the family.

The concept of suppressing individual desires and not existing as an individual, which is rooted in the Buddhist ideal of 'salvation through self-annihilation' as well as Shinto's doctrine, complexity of the domestic work, which indicates the subordination of the female, and the tradition of respecting husbands and brothers (Engel, 1964 and Güvenç, 1989) are closely related to each other.

### **3.2. RELIGION AND PHILOSOPHY**

Religion and philosophy are the major components of the Japanese culture. They should be considered as a whole as their religion system sets the facts as such. That is to say, most of the Japanese religions established doctrines to develop the way in which the Japanese live. As a matter of fact, Loatzu and Confucius were both leaders of the religions Taoism and Confucianism, and the philosophers who have an impact on Japanese way of life. Accordingly, these religions resulted in some philosophical attitudes. Engel (1964) explains this phenomenon as such;

"The reason for this congruity of religion and philosophy is that the religious beliefs, especially those of Buddhism

and Confucianism, were concerned not only with man's spiritual life, but also very much with the practical everyday life of the individual and with the morality of society as a whole. Since the speculative ambitions of the Japanese philosophers were also mainly devoted to the solution of practical problems, it was in the interest of all concerned to integrate religion and philosophy into one system of an organized religion." (Engel, 1974: 364)

Even though, they have received some of these religions from other countries, the Japanese adapted them to their own culture as they are flexible doctrines. Within the comparison of Japanese beliefs with others, for instance Turks; the Turks are considered as pious while the Japanese are regarded as 'Japanese'. That is to say, Japanese adapted the religious to their society and formed out a Japanese religion.

Chang (1982) purposes that different religions which have relations with philosophies have influenced the meaning and use of Japanese space. For this reason, even though the response to the physical requirements of man and environment is important, Japanese spaces are more philosophical than practical. This philosophy is reflected to the space as an image of religion in the house. This fact is declared by the space itself and the furniture which is used for worship, meditation and religious service at home as the Japanese religion is a part of the daily life (Engel, 1964).

There are three major factors influencing the development of Japanese religion. In the first place, cultural characterization of people has played an important role in the improvement of the Japanese religious system. The second factor is Buddhism and the third is Chinese culture whose Confucianism and Taoism have improved and affected the Japanese religious system. Confucianism was introduced earlier than Buddhism and it functioned as a moral guideline rather than a religion. Popular beliefs of the people were supported by Taoism in the society (Government of Japan, 1963). Christianity has been newly introduced into Japan, and therefore has had no evident influence as yet, on the religious system.

The major institutionalized and accepted religions are Shinto and Buddhism. Shinto originates from folk religion (Jeremy & Robinson, 1988). According to the philosophy of Shinto, all dead are, in a way, supernatural creatures that have the right to organize life (Ayverdi, 1963). Shinto tends to serve as a focal point of family inspirations. This approach mainly symbolizes the importance that they have given to man and the respect to each other in the society. On the other hand, Buddhism is a doctrine that teaches how to develop a system of thought. Buddhism takes its basic concepts from Confucius. It also teaches the importance of the dead person.

In fact, they both survive together in the society; moreover, a synthesis of these two doctrines has been made by the Japanese. The success and persistence of Shinto and Buddhism are indebted to exist in harmony with the folk beliefs of Japanese society.

Briefly, there are mainly three significant influences on the characteristics of Japanese religion. First of all, there is a belief in thousands of supernatural beings, called *kami*. Their existence is manifested in the actions which they control and the feelings which they inspire. Secondly, rituals are held which may be associated with an institutionalized religion and/or with folk habits. The rituals are carried out in order to gain an approach to the spirits. Finally, admiration and respect to ancestors are the central focus of Japanese religion. Inspiration is rooted in family rather than individual association. Esteem of ancestors declares the continuity of the family and the direct relation between the living and the dead (Jeremy and Robinson, 1989).

Even though these concepts constitute the overall religion system of the Japanese, Shintoism and Buddhism, Confucianism and Taoism are the major influences on the cultural characteristics of the Japanese, in addition to the spatial requirements within the house. Therefore, the following section will focus on these institutions very briefly.

### 3.2.1. Shintoism

Shinto is generally considered to be an indigenous religion of the Japanese people as they have been living in the same place since they had settled in these lands two thousands years ago.

Shinto, literally means 'the way of the gods' (Engel, 1964 and Güvenç, 1989). As a matter of fact, it can hardly be referred as a religion since it has no founder, no dogmas, no absolute god or sacred book. Rather, it is a form of mythology and the objects of worship are natural idols. The major rituals are performed to show appreciation to the benign deities and calm down the evil ones.

Even though, Ayverdi (1963) claimed that Shinto was ancestor worship, Engel (1964) opposed this idea and argued that ancestor worship is provoked by Confucianism and explained Shinto as nature worship in which all natural things are stimulated by supernatural beings. It was interpreted by the government as ancestor worship and protected by the state but nowadays it is considered as a religion (Government of Japan, 1963).

Shinto has developed naturally through time. Its doctrine is based on the importance of man's doing his best in his work and in his relationships with others. Mainly, there are two kinds of Shinto beliefs. The first one, called *uji-kami*, centers on the family or clan and is concerned with worship of one's own ancestors. Therefore, observances are private and particular. The second one is called *hito-kami*. *Hito-kami* focuses on the communal acceptance of individual Shamans and their association with special *kami*. Generally family association is not required (Domeki, 1979 and Jeremy and Robinson, 1989).

Kenkyu-kai (1980) placed an emphasis on the fact that, there are about 80.000 Shinto shrines throughout Japan. This means that each community has at least one shrine. As a matter of fact, this astonishing number of Shinto shrines may be related to their independent decision about their beliefs.

What should be pointed out is the fact that nobody within the society makes any attempt to interfere with others' preferences but, on the contrary, mutual respect is shown. Thus, not only several Shinto shrines but also lots of religious systems survive side by side within the society.

### 3.2.2. Buddhism and Zen Buddhism

Buddhism was introduced to Japan in the middle of the sixth century through China and Korea.

In fact, Buddhism has no administrative organization like the priests in Christianity; no representatives and no holy books. Therefore, Japanese Buddhism has had to cooperate with the beliefs and practices of the Japanese folk religion since the early centuries (Güvenç, 1989). Hence, it is an understandable fact that Japanese Buddhism is somehow in touch with the concept of *kami* in Shinto.

As a matter of fact, in Buddhism people do not search for god to solve their problems but to eliminate the agonies of life which are the result of wrong desires rooted in the human mind. In the same manner, the Government of Japan (1963) established Buddhism as a doctrine that teaches the practical means of remoulding the mind.

According to Buddha, life is impermanent (Chang, 1982). Not only life itself but also the psychological condition of a human being is said to be impermanent. Therefore, Buddhism has a bearing on enlightenment and knowledge (Chang, 1982 and Güvenç, 1989) gained over a period of time.

"There is nothing in the present which was not in the past, and nothing in the future which will not have been in the present." (Chang, 1982: 104)

"Man will,.....experience in the future only the effects of causes that he prepares in the present, just as he presently experiences the effects of causes that he himself has

prepared in his past (or in his past forms of existence)"  
 (Engel, 1964: 366)

So, everything which happens, good or bad, has a reason and we are the ones who are responsible for these facts.

BDK (Bukkyo Dendo Kyokai) (1980 cited in Güvenç, 1989) arranged a table describing the principles of Buddhism (Table 1).

Table 1 demonstrates what Buddhism is, very briefly. Moreover, the aim of Buddhism is not life itself but to attain *nirvana* which is the last phase of evolution and development.

Hence, more than a religion, Buddhism is a culture as it is the first systematic thought in Japan (Government of Japan, 1963 and Kaneyosshi, 1987). Therefore, art, architecture, literature, technology, music, politics and new ideas are affected by Buddhism.

2 Basic Doctrines	4 Fundamental Reality	8 Principles for Behaviour
Life is transient Buddhism is natural	Affliction is universal The reason for affliction is desires. To get rid of desires One should be devoted to the mid-way	Accurate Knowledge " Intention " Word " Behaviour " Benefit " Effort " Interpretation " Attitude

Table 1 Principles of Buddhism. (BDK 1980 cited in Güvenç, 1989: 106)

Throughout time, many sects have been established. Each of these have different approaches; through intellect, practice or intuition; for fulfilling Buddhist salvation. Within the particular sect, Zen is the most important sect which has influenced

the Japanese concept of space and the way that it is used. Engel (1964) stated that;

"the Zen sect denies the efficacy of intellectual and contemplative means to gain salvation and instead maintains that enlightenment can only be directly attained without conceptual medium by one intuitive grasp of the reality that underlies life and its multiform appearances."  
(Engel, 1964: 365)

In fact, this conceptual medium is transmitted to the design of the tea houses/rooms in which Japanese make their tea ceremonies, which is a precondition of enlightenment. The design of the tea-houses has influenced the interior spaces of their houses as they have, over the years, begun the practice of performing their tea ceremonies at home throughout the time. Consequently, the importance of Zen Buddhism can not be disregarded.

Zen means 'meditation' through which one tries to arrive at enlightenment by concentration. It focuses on knowing directly without learning, praying or any ritual.

"Zen's fundamental teaching is that in the pursuit of truth one must not rely on words. That is, truth transcends the limits set by rational thought, so one must grasp truth directly through meditation. Since man has a latent intuitive power, the object of meditation is to rouse it by turning the mind over to its unconscious, involuntary actions."  
(Kaneyoshi, 1987: 44)

Hence, Zen taught self-discipline and meditation as the means of enlightenment, called *satori* (Chang, 1982). Zen puts forward that *satori* expose itself in everyday life, therefore there is an evident influence not only on traditional life, arts or ceremonial arts but also on the shaping of the moral character of the society, rather than on intellectual configuration. Suzuki (cited in Chang, 1982), who is a master of Zen philosophy, required four principles to achieve *satori* : harmony, reverence, purity and tranquillity. As a matter of fact, these requirements indicates the simplistic approach of Zen. Zen philosophy has a much closer relationship with art and creativity than religion and tradition. Being

an artist means having an ability to create like god (*kami*). Zen aims at penetrating and establishing the soul of the art object (Güvenç, 1989).

Engel (1964) pointed out that Zen philosophy has an important effect on architecture and landscaping in particular. This may be due to the emphasis of beauty in simplicity of Zen doctrine.

"The merit of Zen is that it is showed the beauty inherent in conscious simplicity, dissolved the stigma of simplicity as being the accidental result of unwanted circumstances, and instead made simplicity an intentional expression of profound significance. Through Zen, then, not simplicity but the aestheticism of simplicity was discovered,..." (Engel, 1964: 372)

As well as Zen philosophy, the tea ceremony also demonstrates the pursuit of emptiness, and concludes this fact as a principle phenomenon of the aesthetic of the tea ceremony. Zen asserts that except life everything is temporary, therefore 'change' itself is permanent. Life is considered as a universal life independent from time and space. The aim of existence is manifested as 'freedom from one's earthly desires and absorption into the universal life' (Engel, 1964: 366). Hence, a human being should strive to arrive at the state of the 'loss of self'. This state is called *nirvana*, literally meaning 'extinction' (Engel, 1964).

Eisai introduced the tea ceremony as well as Zen philosophy to the Japanese society. Güvenç (1989) claimed that the cult of tea influenced moral rules, architecture, landscaping, construction, fashion, arts, and artists.

".....the tea cult was in one sense but a bold, realistic method of Zen to raise an awareness of living through direct encounter with the most basic essentials of life, shelter and drink." (Engel, 1964: 371)

Therefore, tea houses in which tea ceremonies are held have a spatial planning in a simplistic manner focusing on the symbolic and functional meanings put upon them.



### 3.2.3. Confucianism and Taoism

In the series, called 'About Japan', which the ministry of Japan has published, there is no emphasis on Taoism and Confucianism as religions in Japan (Kankyu-kai, 1980). Therefore, it can be claimed that the government of Japan does not consider them as religions but an emphasis should be placed on them as they have an important effect on other religions and concepts which are relevant to the formation of space.

Even though Confucianism has never existed as an independent religion in Japan, it prepared an appropriate society for Buddhism by establishing some social ethics. Therefore, Confucian morality intrudes into the Japanese way of life and ideas of space. The main phenomena is the worship of ancestors. Gradually, this ancestor worship has been united with Shintoism. The main idea is that the family consist of grand-mother, grand-father and the great-grand ones and the dead behind them, as well as parents and the children of the house. This also shows the reason for the humanistic character of Japanese people.

The metaphysical and ethical doctrine of Confucius was the cult of the family as the essence of being. On the other hand, Confucian doctrine states that heaven and earth produce and control life. This kind of dual interaction between heaven and earth (which can also be concluded from the *yin-yang* principle) is not only reflected by social principles but also by the formation of spaces. Therefore Confucianism has had an important impact on the development of Japanese family system and, consequently on the Japanese dwellings.

Chang (1982) claimed that Taoism is a Chinese philosophy which Laotzu and his followers worked toward and added;

"Laotzu favoured the metaphor of the vacuum and claimed that only in a vacuum lay the truly essential. Hence, reality was to be found in a vacuum space; motion becomes possible only in a vacuum. It is evident that he was referring to the concept of space and that his thought also included the sense of time." (Chang, 1982: 90)

Accordingly, life is considered as an changing and flowing experience in which nothing is absolutely known. Hence, rooms and the spatial organization of the house itself show how this 'vacuum' concept is finalized not only by their flexible character but also by their impermanent configuration.

As a conclusion, what should be pointed out about religion and philosophy is; the way that the Japanese correlate these religions and philosophies rather than what these religions are, or whether or not they are religions. As Güvenç (1989) claimed, the system of Japanese religion is too intricate to specify as well as to analyse in order to make a definition; consisting of all the inputs from all systems of thought. The emphasis should be on the fact that the Japanese society is formed not by leaning on some specific religions but by depending on each other as the individuals of the society.

"Whatever his religious preferences, a Japanese's main medium (job or religious sect) is being a Japanese."  
(Berkes, 1976 cited in Güvenç, 1989: 111 Translated by the author)

The fact of having more than one religion is a result of the indistinct limits of each of them, characteristics which permit integration between them. Therefore, there is no system of religion in Japan as can be formalize by Westerners. On the contrary, they have a 'folk religion' which is formed by the interpretation of each religion to which they have been introduced.

### **3.3. SPATIAL ASPECTS OF THE JAPANESE CULTURE**

#### **3.3.1. Site and Climate**

Japan has developed on a site which is narrow in width but long in length. It is made up of several islands. These comprise the main island, *Honshu*, two smaller islands, *Shikoku* and *Kyushu*, another island, *Hokkaido* and some smaller islands spread in between and around these. There is an inland sea between *Honshu*, *Shikoku* and *Kyushu* (Engel, 1964 and Güvenç, 1989).

The fact that Japan extends in a latitudinal form from north to south results in different climatic conditions (Mitusuni, 1984 and Tasker, 1989). While the southeast of Japan has mild winters, the northern regions have winters with overcast skies and heavy snowfall. In the same respect, in the northern parts of Japan spring and autumn are very short, while in the central and southern provinces these seasons are longer, having moderate temperature and clear skies. Generally, almost the whole Japan has rainy summers with a humidity of about 90-95 % (Engel, 1964 and Güvenç, 1989).

Mitusuni (1984) claims that the reason of having such an unusual culture is rooted from having such varied climatic conditions. He explains it as such;

"The different climatic conditions that prevail within Japan naturally produce different kinds of environments, and the character of the people of each region reflects the landscape and climate that surrounds them. The relationship between man and climate and environment in which he lives forms the basis on which his powers of conception function and on which his culture is built."  
(Mitusuni, 1984: 111)

70% of Japanese lands are covered with forests, therefore wood became the basic material for the building sector and Japan became the country producing the finest wooden structures in the world (FAJ, 1981).

Wood is the most significant material in the establishment of what is called 'Japanese style' today (Takamura, 1984). The tradition of using wood as a construction material or in the interiors is transmitted from one generation to another. During this progress, the way of using this material has developed along with civilization and it has been refined together with Japanese religion and the aesthetics of everyday life.

As stated above, living on an isolated island throughout the years resulted in formation of a culture different from that of other societies. Site and climate are two of the major aspects of this culture having an influence on the way that they use and understand space. Tasker (1989) defined the site of Japan and its relation with Japanese culture pointing out the contradictions ironically;

"....the physical condition of the Japanese islands (is): isolated, yet not isolated enough, blessed by a placid climate, but with an unfortunate tendency to erupt without warning. While much is moderate and well-blended, irreconcilable extremes still exist of temperature, of population density, of geological pedigree. The comparison with the disposition of the Japanese themselves is hackneyed, but irresistible." (Tasker, 1989: 11)

### 3.3.2. Anthropometry

In the process of residential interior design, what should be taken into consideration are the functional-practical requirements of space, that is to say; the satisfying of the physical needs of the user first, and then the emotional ones. Accordingly, the space should be designed consistent with the anthropometry of the human being, which will also regulate the way that the human uses that specific space.

Engel (1964) describes this tremendously close relationship between man and architectural measurements as such;

"a strong interrelationship of man and house...is the major reason why the Japanese house appears drawfishy small in comparison with western residences,..". (Engel, 1964: 234-236)

For the determination of the interior space, the dimensions of both tall and small human figures are essential, as the architectural dimensions have to be suitable for everybody for the different activities within the house. Therefore, the dimensions of the interior space are planned in relation to the size of tall person so that it will suit the others too. Besides, the measurements of the small person gain importance for the determination of the height of the furniture. In the case of Japan, furniture is used rarely so the value should be given to the measurements of the tall Japanese.

Some of the anthropometric data are illustrated in Fig. 2 pointing out the space requirements of Japanese figure within the space.

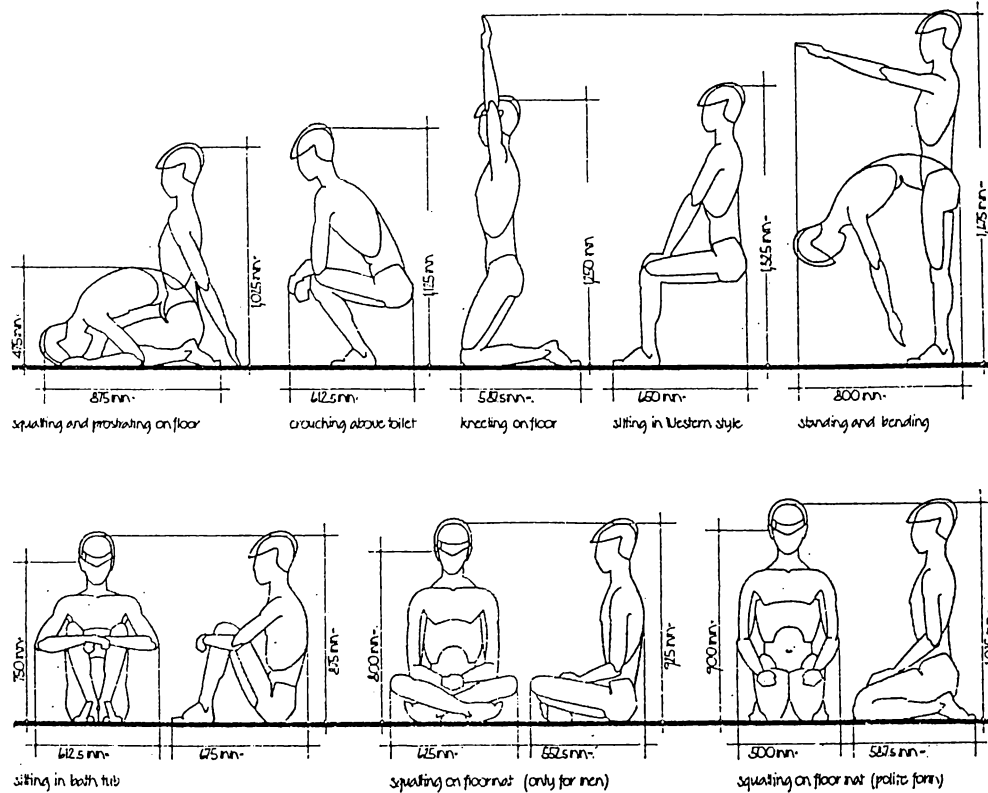


Fig. 2 Space requirements of the Japanese figure in various postures (Engel, 1964: 236)

Engel (1964) pointed out that the dominant Japanese physical type is Mongoloid. The head is large and the limbs are short compared to the whole body. Engel (1964) lists the main physical differences between Japanese and Westerners as having an architectural importance thus;

1. The average height is about 187.5 mm smaller.
2. The whole body height is between 6.5 and 7 times that of the head while in Western countries the average is 7.5 to 8 times.
3. The body crotch is much lower than the middle of the body whereas the Caucasian type has the crotch about at half height.
4. This results in particularly short legs and other limbs, which are already shorter because of smaller body height.

5. Thus the torso has about the same height as the Caucasian counterpart, i.e., sitting on the same base, the eye level of both is about the same." (Engel, 1964: 236-237)

The illustrated comparison between the Northern Europeans human figure and the Japanese is shown in Fig. 3.

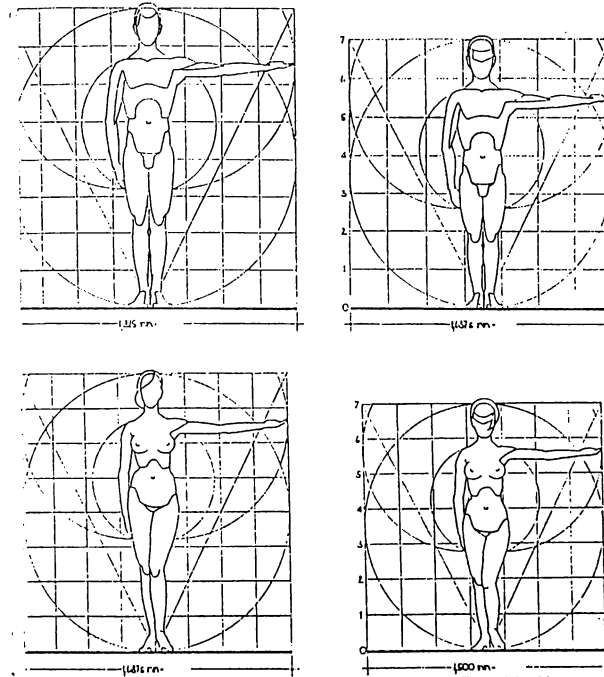


Fig. 3 Comparison of Northern European and Japanese male and female figures; head dimensions as a unit (Engel, 1964: 235)

Due to the recent studies, Dreyfuss (cited in Diffrient, et al., 1991) claims that the average height of the Japanese male is 166.9 cm while the average height of Norwegian male is 177.5 cm, Thus, the difference between the heights of the two male figures in different cultures is 106 mm. Hence, throughout the years the difference is decreased because of the economical status of Japan. Economical status and, accordingly, the eating habits influence the growth of the children. Until the Second World War cows were not fed and none of the products from cows were used in Japan (Güvenç, 1989). Consequently, children could not have milk and their development was limited. After the introduction of these products, the stature of Japanese people has changed.

In addition to the ergonomic inputs, what should be taken into consideration is the fact that Japanese space exposes man, being an essential constituent of space. While human significance is depicted by furniture, decoration, paintings and photographs without requiring the physical presence of the human in Western spaces, man's immediate presence is immediately noticeable in Japanese space. Therefore, man's physical and spiritual requirements have to be taken into consideration in the formation of interior spaces.

In the next section, Japanese perception of space will be analysed, being one of the major components of culture in relation to space.

### 3.3.3. Perception of Space

As stated in section 3.3.2, as well as physical requirements, psychological requirements of man have to be considered in the formation of space. The way that man perceives space is directly related to the psychological comfort of the user in that space therefore the role of perception should not be underestimated.

As every culture has its own perception of space according to the cultural inputs in the society; the understanding and perceiving of space in Japan will be examined.

One of the major difference between Japanese and Westerns perception of space is the way that Japanese perceive audial space and visual space. Even though they have a high tolerance to noise, they prefer privacy in visual space. This results in the high tolerance in crowding in public space compared to other societies (Hall, 1969).

Their appreciation of inside, *uchi*, and outside, *to*, is different from ours. *Uchi* means the area within one's territory while *to* has a meaning of area away from one's territory. *Uchi* denotes the space for husband and wife (a close relationship) extending to relatives and even one's nation (Chang, 1982).

Concept of center is another distinct characteristic of Japanese which can be concluded from the gathering of the family members at the center of the house. Besides, the precision in tactile perception results in the way that they handle and take care of texture and material (Hall, 1969).

*Ma*, meaning interval, is another important concept in Japanese space performance. While space is thought to be perceived as 'empty' in the West, in Japan it is considered as an interval, *ma* in space (Hall, 1969). Hall (1969) illustrated the difference in Fig. 4.



Fig. 4 The difference in perception of space of Japanese (left) and Western people (right) (Hall, 1969: 153)

Last but not the least, Japanese believe in direct relation and the participation of man in making the space more lively. This requires the involvement of memory and imagination and using all senses in perception. Hall (1969) exemplifies it as such;

"Part of the Japanese skill in creating gardens steams from the fact that in the perception of space the Japanese employ vision and all the other senses as well. Olfaction, shifts in temperature, humidity, light, shade, and color are worked together in such a way as to enhance the use of the whole body as a sensing organ." (Hall, 1969: 153-4)

As well as stressing the characteristics of the Japanese family, absolutism of the head of the house, right of primogeniture and subordination of the female; Japanese conception of existing as a family resulted in actively or inactively participation in all the activities in the house which influence the interior formation



of space. On the other hand, all religions established in Japan turned into a unique system of religion as they have philosophical doctrines rather than requirements. Thus, the interior formation is affected from this phenomenon as they integrate their philosophical approach of religion with their use of space.

Apart from these, being geographically introvert and climately humid and rainy configuration of Japan influenced the interior organization as well as the anthropometric data of the Japanese in addition to their perception of space.

Thus, the mentioned components have either a direct or an indirect relation between the formation and the features of Japanese traditional residential interiors. In chapter 4, features of the Japanese traditional residential interiors are discussed and proceedingly in chapter 5, the mentioned impact of these cultural component is described.

#### 4. JAPANESE TRADITIONAL RESIDENTIAL INTERIOR SPACES

Japanese traditional residential spaces place an emphasis on the inside-outside relationship as 'nature' is an important phenomenon in Japanese culture. Nature represents 'life' in Japanese culture; therefore to respect nature means to respect life and man. Consequently, the interior spaces can not be differentiated from others and appreciated if outer spaces are not taken into consideration.

There is remarkable fluidity between inside and outside spaces in Japanese architecture. Generally walls are not fixed and the distinction between doors and walls are not so obvious. Doors and walls can be removed by folding them, swinging up the panels between the posts or sliding them. Hence, the veranda became a transitional space which can be valued as a part of the interior when viewed from outside. However, it is considered as outside when viewed from inside. Even though there is a vigorous integration between inside and outside, the sense of detachment in between manifests itself as well. In fact, this detachment is more psychological than physical.

As the importance of the inside outside relation from the point of view of space organization is mentioned above, after a description of salient features of residential interior spaces; entrance, rooms -living room, dining room, reception room, tea room- floor covering mats, furniture and sliding screens and some other services -kitchen, bathroom, toilet unit and heating facilities- some important aspects of outer residential spaces such as veranda and garden will be discussed.

#### 4.1. FEATURES OF THE TRADITIONAL RESIDENTIAL INTERIOR SPACES

Unlike the West, the traditional Japanese house is not a box, but a space moulding system (Greenbie, 1988). This system proposes the transformation of space not only according to the seasons but also according to the different hours of the day.

Wood and paper are the major materials used in the traditional Japanese house. Ventilation during humid summers is provided by these materials as well as by raising the house from the ground. They have resilience to earthquakes but they are not fire resistant. In addition to the harmony of these materials to nature, the attitude of placing the sliding screens as walls where ever one wants, present both flexibility and the consideration of nature. Hence, an arrangement can be made according to the position of the sun or the direction of the wind.

The interior formation of the Japanese house is derived from the extension of a single room, different from Western or Chinese, in which rooms of similar size are added consecutively. Ueda (1990) interprets as such;

"rooms of similar size were added on in succession, as in a honeycomb, the Japanese house retains its single room and inflates it when necessary,... House design based on such pattern,..." (Ueda, 1990: 64)

In the Japanese residences, all rooms are treated by the same material and on the same scale, permitting the control of the same spatial quality. By adding or integrating different size of rooms, rooms of different scale can be obtained without transforming their static quality. Engel (1964) argues that the entire house is formed by the addition of spaces in equal value. On the other hand, Chang (1982) opposes Engel's observation and adds;

"... he failed to perceive that the Japanese spatial concept is experienced progressively through intervals of spatial designation. In Japanese the word space, *ma*, suggest interval. It is an extremely important element that Engel

missed." (Chang, 1982: 169)

In fact, there is no accentuated space within the house. There is neither an axial tendency nor an emphasized beginning or end of the complete space. The only direction may be to the *tokonoma*, which is an alcove used as a decorative element.

Within the space, space defining elements on a vertical plane are columns and sliding panels which are related in proportion and treatment. In the horizontal plane, these inputs are transmitted to the floor and ceiling. Even though Engel (1964) considered man as 'alien' to this orderly arranged space, Chang (1982) noticed that man is the most important aspect of interior space.

As a matter of fact, the atmosphere of the Japanese house is considered as restful. Morse (1961) describes this fact as the result of the harmony of the tints in coloring of the *fusuma*, which is a sliding door, and plastered surfaces and the quiet look of natural color of the wood work everywhere in the house.

"The organization of functional space, as it is traditionally done by the Japanese family itself is but the arranging of standardized spatial units on a two-dimensional grid, using the mat as the ordering unit.... While utilitarian spaces such as bath, toilet and kitchen ...are distinct in purpose and form, the physical similarity of all living spaces has given rise to the ....function of the individual Japanese living space is undefined and therefore alterable at will. The fact,.... is that each room has a distinct name relating to its major purpose, and that its use, though multiple, is well defined." (Engel, 1964: 237)

Generally, there is no defined circulation space in the Japanese house except for the stairs (Smith, 1981). The stairs are not well designed and usually, there is a tendency to hide the stairs. In fact, Japanese space has an horizontal accentuation rather than vertical. Therefore, even if the house is two storeys high, the stress is on the first floor. Accordingly, the importance is given to the horizontal formation of space. In this approach, the general organization of a typical Japanese traditional house is formed without presenting circulation but by opening the spaces into each other (Fig. 5). Within this respect, the general

description of the entrance, rooms and their relation to each other will be analysed as well as the *tatami* mats, which has a notable importance on the formation and usability of space. In addition to these, the way that they use and understand the furniture and their attitude to sliding screens will be described. Furthermore, some other functional services will also be analysed such as toilet unit, bathroom, kitchen and heating facilities.

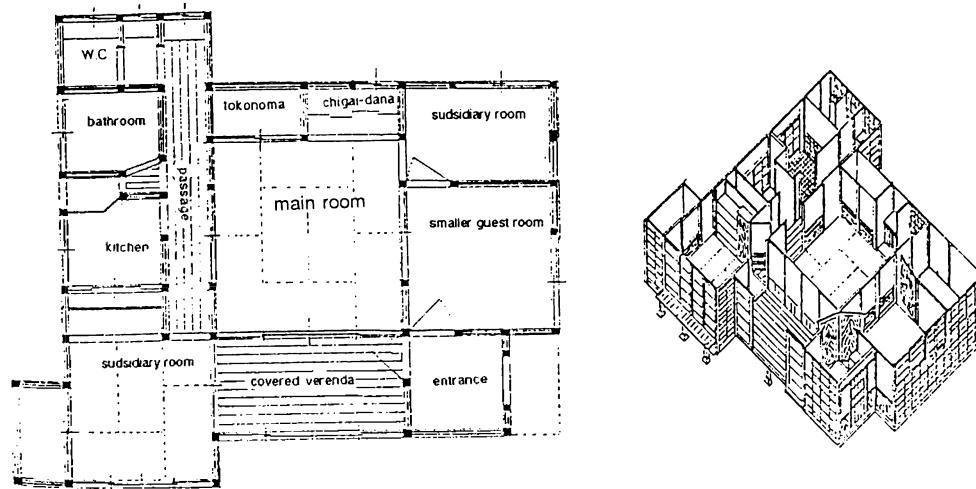


Fig. 5 The general organization of a typical Japanese traditional house (Harada, 1985: 21)

#### 4.1.1. Entrance

*Genkan*, the main entrance, literally means mysterious gate (Engel, 1964). Even though Harada (1984) claims that *genkan*, provides sheltered extension for vehicles, Smith (1981) indicates that it is part of the house, which is separated from the main living room, where activities such as removing shoes, going and coming take place. This contradiction is explained by the various changes in the definition of *genkan* throughout time. Actually, it is a transition area from the public space to the private space, the inner world of man. Usually two types of entrance is used; one of them is for the guests (Fig. 6) and the other one is for the family members (Fig. 7).

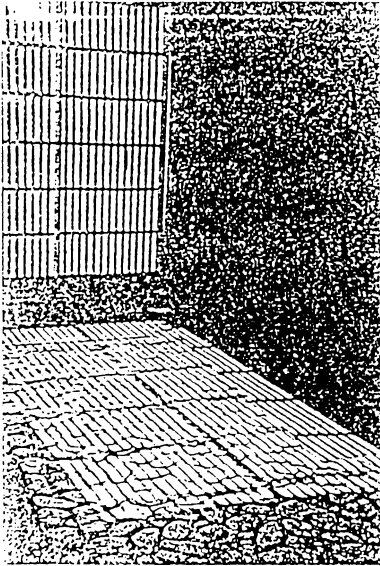


Fig. 6 Entrance for the guest  
(Engel, 1964: 305)

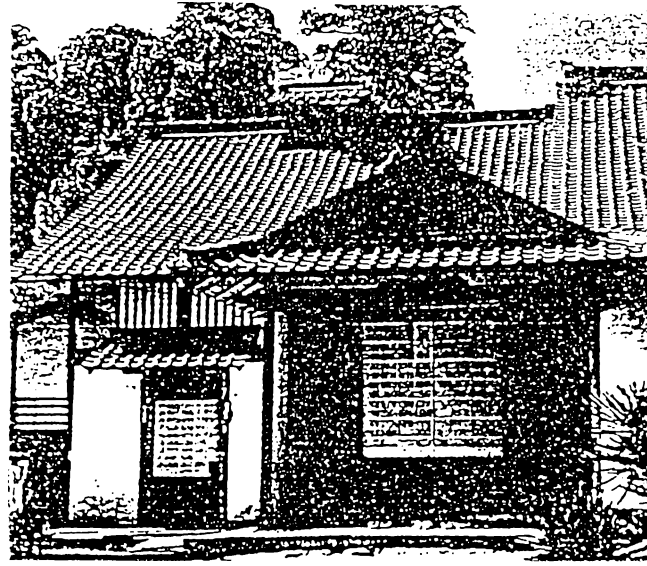


Fig. 7 Entrance for the family  
(Engel, 1964: 304)

As it has a symbolic rather than a functional meaning, *genkan* was considered to be an important feature of the Japanese residence; hence, even the smallest houses (30-50 sq.m) use 10% of their overall space for the well defined entrance hall (Engel, 1964).

The floor of the *genkan* is either concrete or rough stone resulting in eliminating the dirt carried from outside. There, one removes his/her shoes before entering the house; which is a custom that still survives. The nature of the floor covering of the rooms does not permit the wearing of shoes inside. Then one finds a pair of slippers on a wooden step which acts as a level difference between the entrance hall and the living area (Fig. 8).

"The persistent Japanese custom of removing shoes before entering a house is a behavioural expression of these spatial public-private distinctions..., separating the "dirty world" from the "clear world" and elevating the spirit as well as the body above the ground..... (Greenbie, 1988: 23)



Fig. 8 Level difference between the entrance hall and the living area (Greenbie, 1988: 23)

As well as psychological reasons, climatic conditions dictate the removal of shoes before entering the house in order to keep the interior clean (Takamura, 1984).

The slippers are left outside the room and everybody walks around the room barefoot. The custom of kneeling on the floor, the hygienic habits of the Japanese and walking barefoot stress the private interpretation of the room as well as the custom of not allowing dirt to be carried from outside.

The anteroom, *hiroma*, which literally means wide space, can be regarded as an intermediate stage in the process of introducing man into the house (Engel, 1964). The room is generally a two or three mat-sized room. In the *hiroma*, host (wife) and guest (husband) meet and greet each other. Usually the room receives diffused light from the entrance hall through the *shoji*, translucent paper panels. By sliding the opaque paper panels, *fusuma*, one can reach the other rooms from *hiroma*.

#### 4.1.2. Rooms

In the Japanese room, play of light is emphasized, is formed by the shadows produced by the deep eaves at the veranda, accenting the dimness of the Japanese interiors. In the West, brightness preferred whereas the shades of darkness are used in Japan (Kato, 1990). Likewise, the quality of light changes due to the seasons and the location of each room.

As well as the use of light and shadow, harmonies and contrasts of colors within the space are highlighted. For instance, the harmony between the picture, the brocades on which the picture is mounted, *tokonoma*, the place where this picture is hung, is so quiet that it may give a similar pleasure to the dimness of light. Furthermore, general organization of the rooms with beige mats on the floor, papers and wooden structure emphasize this condition as well.

Flexible use of space can be recognized in Japanese residential interiors. Even though every space is arranged to have a particular function, rooms can also be used for different functions. Besides, when the sliding panels are moved back, two or more rooms become one single room (Fig. 9).

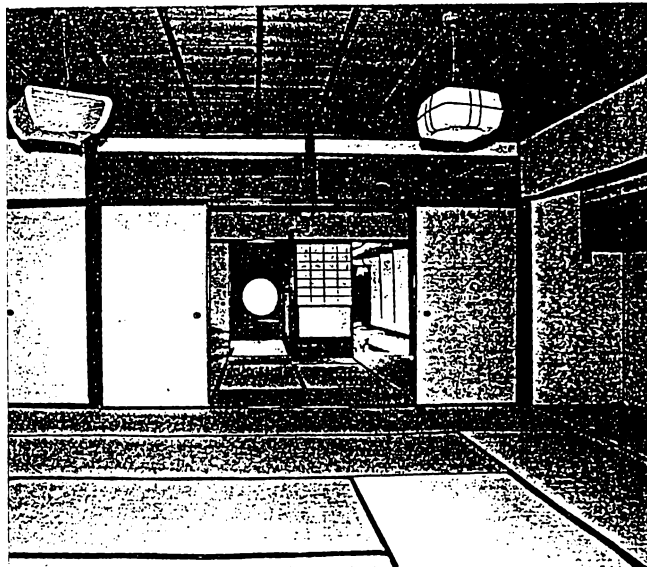


Fig. 9 Flexibility of space (Ueda, 1990: 63)



Chang prepared a chart showing the multifunctional organization of rooms (Table. 2). As illustrated in Table 2, the *cha-no-ma*, dining room, can function as bedroom, living room, tea room, kitchen and working place. In a similar manner, sleeping activity can take place both in the *zashiki*, *tsugi-no-ma*, *nakano-ma* and *cha-no-ma* (Chang, 1982). The function of the room is given by fixing the furnishings which are stored in the *kura* and it causes the interior be empty and non-functional.

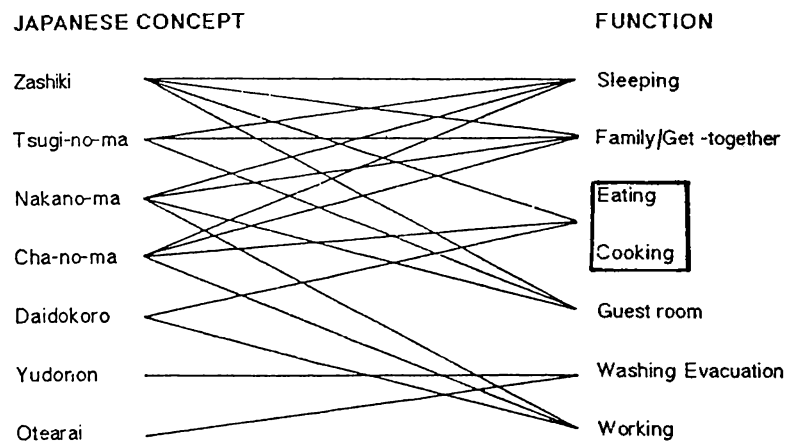


Table 2 Multifunctional organization of the rooms (Chang, 1982: 184)

"Beds are simply mats and blankets spread out on the mat floor. Food is brought in on low tables or placed directly on the floor (at the same room). Any room can become a bed-room or a dining room." (Greenbie, 1988: 16)

Two units are used for the planning of the house. The first one, called *jo*, is the area covered by one mat and the room size is stated by the number of mats it holds. Accordingly, a room is said to be a 4 mat room, 6 mat room, etc. The other unit is called *tsubo* and it is based on the distance between the center of one column to the center of the next. In this unit system, the number of the *tatami* mats are determined by the size of the room. As a matter of fact, the first method is preferred as *tatami* is derived from the dimensions and proportions of man. Accordingly, the assumption can be made that; the dimensions of a room are derived from the dimensions of a man.

"In many modern houses, as in older ones, the height of the ceilings varies from room to room. Small rooms have higher ceilings and large rooms have lower ones relative to the floor area. This arrangement is an essential part of the aestheticism of house design. Ceiling height is determined by the number of *tatami* mats which comprise the floor area of the room." (Jeremy & Robinson, 1989: 173)

As well as being a determination of the size of the rooms, pillars, lintels and the distance between pillars are determined by the number and the size of the *tatami* mats. Hence, there is a fluent harmony between man and rooms. The ceiling height of an average room is 2.40 cm. without maintaining a disturbing void, so the man who is lying on the floor is not interrupted.

The major components of a Japanese dwelling are the living room, the dining room, the reception room and the tea-room. Thus, a brief explanation of these will be given, emphasizing the meaning of these rooms to the Japanese.

#### 4.1.2.1. Living Room

Within the house, the living room is centralized, aiming not to permit the penetration of cold from outside (Smith, 1981). Accordingly, this centralized formation dictated the 'centralized' function, the multifunctional service of the living room. Primarily used plans for *i-ma* are illustrated in Fig. 10.

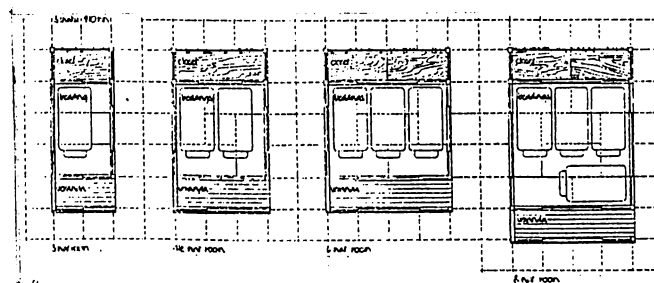


Fig. 10 Generally used floor plans for *i-ma* (Engel, 1964: 245)

The living room, *i-ma*, literally meaning space of being, can serve as the space for the children's play area, a room for occasional guests, the housewife's daily work area as well as the main bed room at night. It may even take over a part of the function of the dining room, *cha-no-ma*.

"An aspect of life that had undergone considerable change was the work load of the Japanese housewife. A time study surveying where the housewife spent her time in the house indicated the high amount of time spent in the kitchen and dining areas. Much concern to improve the efficiency of the housewife's work went into making the *i-ma* as practical as possible so as to enhance the family cooking, dining and living space." (Chang, 1982: 416)

In the living room, there is a *kami-dana*, which is firstly a Shinto altar and through out time integrated with and Buddhist doctrines and thus the same altar is used for both of them. *Kami-dana* is closed and hidden with the sliding doors. Thus, the owner of the house opens the doors when he wants to worship his ancestors (Fig. 11 and Fig. 12).



Fig. 11 *Kami-dana* (closed)  
(Engel, 1964: 395)



Fig. 12 *Kami-dana* (open)  
(Engel, 1964: 395)

#### 4.1.2.2. Dining Room

The dining room, *cha-no-ma*, literally meaning space of tea, serves as a place for the family to take their meals. The importance of the *cha-no-ma* reasons is explained by its being a junction between 'private' and 'official' space. The room is covered with 4 <sup>1</sup>/<sub>2</sub> or 6 mats. The family congregates in the *cha-no-ma* around the *hibachi*, which is a charcoal brazier or around *kotatsu*, which is a fire place sunk into the floor. A table is set on top of it and the family members enjoy the heat by hanging their legs in the warmth of the cage (Engel, 1964). Fig. 13 illustrates some typical floor plans of dining room.

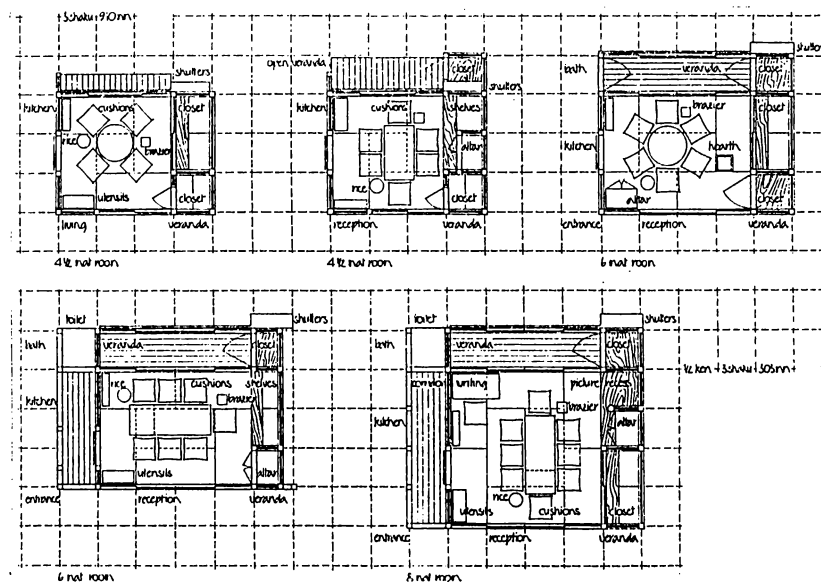


Fig. 13 Typical examples of floor plans of dining room (Engel, 1964; 242)

#### 4.1.2.3. Reception Room

Engel (1964) gave three names which are used for the reception room; *zashiki* (meaning; seat spread), *osetsuma* (meaning, responding and meeting space) and *kyakuma* (meaning, space for visitor). This illustrates the multifunctional usage and meaning of the reception room, besides the other rooms. The room is used as a master bedroom in small residences while it is used for receiving

and entertaining an honoured guest who can sleep there if he stays overnight in large residences. Fig. 14 shows generally used floor plans of reception room.

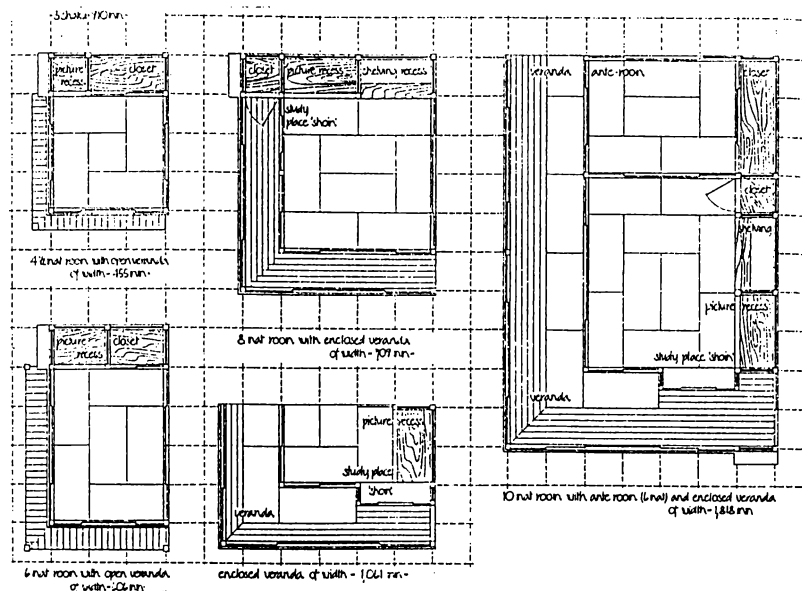


Fig. 14 Generally used floor plans for reception room (Engel, 1964: 244)

"The importance of this room is evident in ..... the presence of the picture alcove, *tokonoma*, the ornamental shelving recess, *tana*, and occasionally the decorative study place, *shoin*. These three features form the spiritual core of the 'house'. Indeed, they may well be considered the symbolic center of the entire dwelling site, because they adjoin the broad veranda and thus incorporate the most beautiful part of the garden into the harmonious ensemble of house, picture, flower, and man." (Engel, 1964: 243-244)

Among these three features *tokonoma*, *tana* and *shoin*, *tokonoma* has a special importance as it has a kind of symbolism. During a fire or some other kind of trouble, the choice is stated as 'the house or the altar'. Usually, this alcove is 90 cm. in depth and 180 cm. in width, having a height the same as the ceiling of the room. The floor of the *tokonoma*, which is a square niche with a raised floor, is covered with *tatami*. The raised floor of the *tokonoma* emphasizes both its 'status' space and 'showing' space. The space is used for

the display of pictures or calligraphy which corresponds to the season and below the *tokonoma*, seasonal flowers are arranged for the visitor (Fig. 15). The picture, which is stored in the *kura*, is changed according to the season, again for the benefit of the visitors or for special occasions. As a matter of fact, this traditional way of valuing art is the prolongation of the tea ceremony. For the most, the limited number of objects displayed at the *tokonoma* is from the owner's own collection.

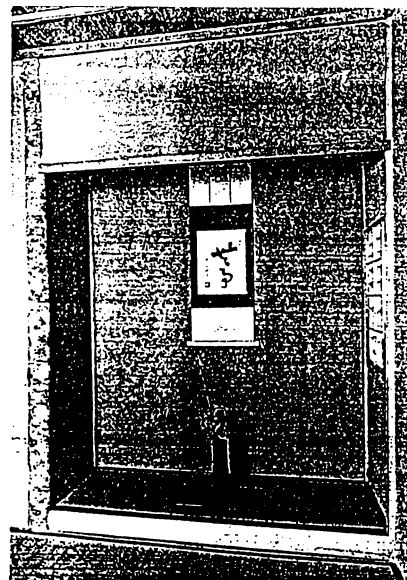


Fig. 15 *Tokonoma* (Hibi, 1990: 90)

Even though the guest is seated on the mat as close as possible to the *tokonoma* which is a position of status and reflects the respect shown to the guest, he/she is however, seated with his/her back to the *tokonoma*, thus prohibiting inhibiting his/her appreciation of the effort taken by the host while in constructing the alcove and preventing him/her enjoying the flower arrangement. In contrast, the host and the hostess are seated directly facing the *tokonoma* after preparing it for that specific occasion (Ueda, 1990).

The *tokonoma* is firstly placed in the tea houses as it is a form of appreciating the art which is introduced by Zen philosophy (Engel, 1964). Chang (1982) points out another important aspect of the function of the *tokonoma*, that is the equalizing of social status. Even though the guest is seated in front of the

*tokonoma*, during the tea ceremony the guest, the host and the hostess are all seated facing the *tokonoma*. This symbolises the equal position of both. Through time, the place of the *tokonoma* is changed and used in the reception room for showing the art of the family to the guests.

The space connected to the *tokonoma* is usually used for mounting shelves and cupboards, known as *chigai-dana*, being of uneven height and length. Above and below the shelves there are cupboards. Accordingly, one part of the entire room is occupied by both *tokonoma* and *chigai-dana* (Fig. 16).

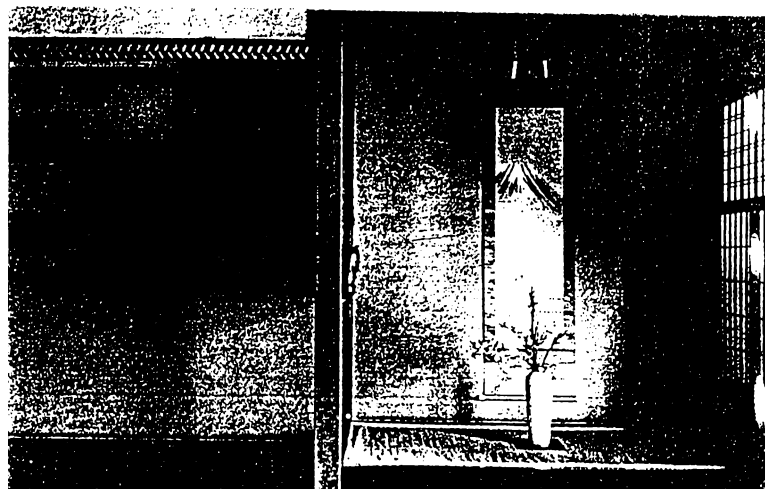


Fig. 16 *Tokonoma* and its relation with *chigai-dana* (Engel, 1964: 314)

#### 4.1.2.4. Tearoom

The tea cult was introduced to Japan along with Buddhism. It is based on the studying of one's own life during the preparation and drinking of tea. During this ceremony a silent communication between the host and the guest is indisputable.

"It was a time when the only sounds were those of the bubbling water and the brushing of clothing against clothing, or against the *tatami*. The tea ceremony which held in such importance the intellectual experiences gained from this 'performance' was a practice to establish

a freedom of inner silence out of extreme limitations."  
(Takamura, 1984:83)

Such an important aspect of culture requires a special space around the house. This is either a separate house in the garden or a particular room is equipped for the purpose having a relation with the garden for the establishment of the relationship between man's self and the universe (Fig. 17).

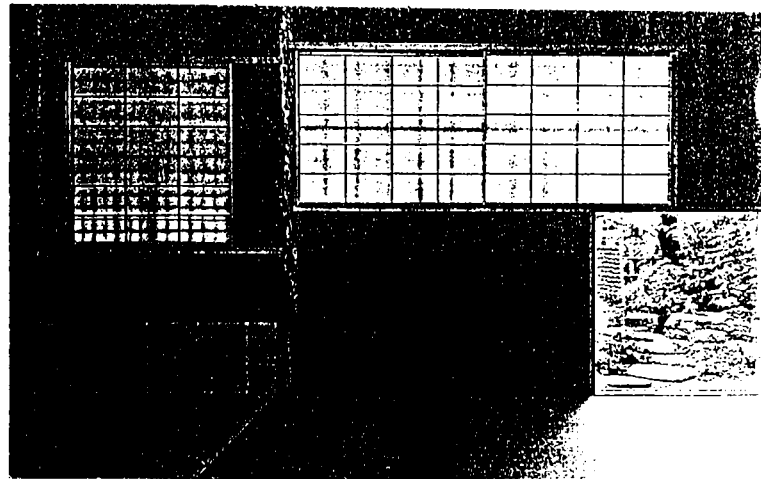


Fig. 17 Tea room (Engel, 1964: 336)

In some houses, adjoining the tea room there is a place in which tea utensils are kept. Besides, the tea room should have a physical relation with the reception room, so that after the tea ceremony, visitors can be entertained in the reception room by some substantial food and drink. Floor plan of a standard tea-room is illustrated in Fig. 18.

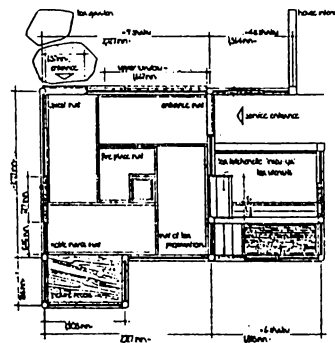


Fig. 18 Floor plan of standard tea room (Engel, 1964: 287)



#### 4.1.3. Floor Covering Mats

The floor of the entire house is covered with the *tatami* mats. The *tatami* is derived from the measurement of a man's foot. In ancient times, the size of a Japanese foot was 30.5 cm., which was called one *şaku*, therefore six *şaku* equals approximately 180 cm. which is the length of one *tatami*. In fact, the size of *tatami* mats have been gradually modified according to the changes in the average height of the Japanese. Thus, *tatami* mats which are 60 mm. in thickness may have slight differences in size but they are usually 90 cm. by 180 cm., roughly occupying the area determined by a prostrate human body. Therefore it can be said that the interiors are humanly scaled as they are covered with *tatami*.

"According to the old Japanese saying '*tatte hanjo, nete ichijo*', or 'half a mat to stand, one mat to sleep',..."  
(Ueda, 1990: 82)

Thus, the *tatami* mat is the basic building module so as to serve two necessary functions, sleeping and standing. Hence the entire house or the rooms are measured by the mats it holds. They are strong enough to provide for continuous use and soft enough for sleeping and sitting on; both resistant and resilient. As they serve several functions, they represent the bed, chair, lounge and even table.

They are made of straws in a soft textured beige, which are covered with a thin reed cover and bound together by a cloth tape binding. These mats are not only texturally exiting but they also provides easy cleaning. They act as an insulation from beneath the floor but there may be draughts through the cracks. *Tatami* organizations which are generally used in interiors are illustrated in Fig. 19.

As illustrated in Fig. 19 modularity is the basic phenomenon of the *tatami* mats. This modular approach is not limited to two dimension but also exists in the third dimension. The height of the room is determined by the number of *tatami* used in the room (Ayverdi, 1963). Therefore, the importance of man still

exists in the three dimensional approach. This may be due to the influence on interior spaces of Shinto, which gives emphasis to man by means of philosophy.

"...(tatami)... functions as moderator and unifier of architectural contrasts and thus is, in its nature, the product of a compromise between human and structural scale, between vertical and horizontal order, and between climatic and habitual demands. As such it fulfils the demands of none of them completely, and consequently is manifold in its meaning. " (Engel, 1964: 41)

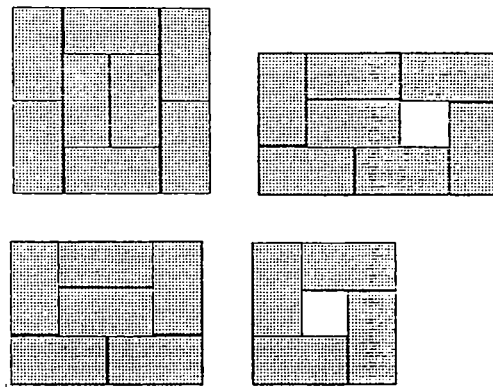


Fig. 19 Generally used *tatami* organizations (Ayverdi, 1963: 22)

#### 4.1.4. Furniture and Sliding Screens

In the Japanese house, furniture is rarely used except for storage facilities. As a result of active interaction between Japan and the Asian mainland, chairs and some other items have been introduced into Japan but they have not been popular (Ueda, 1990). Hence, the interior organization of the house and the dimensioning of it is done according to the traditional devices and concepts such as sitting on the floor.

"The physical contact with the floor brings one into a sensual relationship with the structure of the house, just as picnicking on the grass brings one into sensual contact with the earth. The floor plane becomes a major part of the building design..." (Greenbie, 1988: 23)

As the rooms are covered by *tatami*, it precludes the use of furniture. Accordingly, the bed is made upon the *tatami* mats every day and there is no specific place where the bed should be put.

"In regard to the bed and its arrangements, the Japanese have reduced this affair to its simplest expression. The whole floor, the whole house indeed, is a bed, and one can fling himself down on the soft mats, in the drought or out of it, upstairs or down, and find a smooth, firm, and level surface upon which to sleep,....." (Morse, 1961: 210)

The furniture within the house is usually functional and has been developed from storage boxes. Thus, furniture items are architectural, angular and low rather than being scaled to human body size. These devices usually appear as cupboards and closets. Besides, there are several kinds of partitions which are used for the separation of rooms.

Storage is taken care of by built-in storage cupboards, storage chests, called *tansu*, and storage stairs. These are used to store almost everything which is used in the house, thus enabling the multi function of the rooms (Smith, 1981).

*Tansu* can be of all shapes and sizes. The larger closets used for clothing and bedding are usually closed by sliding screens. There are also low cupboards or closets and the tops of them are used as open shelves. Even in the kitchen these cupboards are used.

The size and design of closets are influenced from the habit of using rooms multifunctionally. In this case, a space is required to store the necessary equipment. Thus, even there is a space under the stairs used for chests or sets of drawers, called *hakodan* (Fig. 20). Engel (1964) explained the resultant space organization of using storage everywhere in the house as such;

"..... all multipurpose rooms are furnished at one side with closets of 900 mm. depth, called *oshi-ire*, which are closed by the same opaque paper panels, *fusuma*, that form the partitions between rooms. The proportional space provided for closets in the average house is as much as 15% of the entire floor area, while in small houses it even amounts to 17.5%." (Engel, 1964: 228)

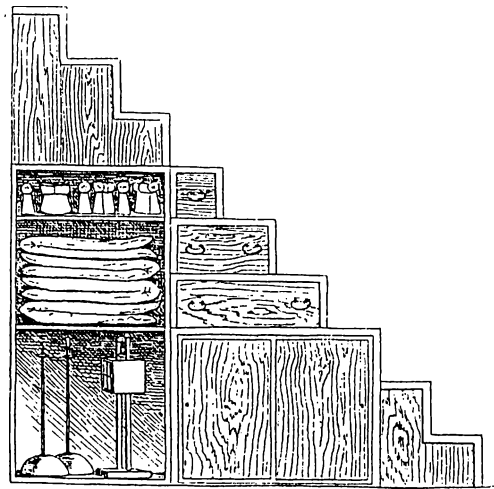


Fig. 20 *Hakodan* (Morse, 1961: 196)

Sliding screens, which act as partitions, doors or windows are, important features of Japanese traditional residential interior space as they allow the flexible use of space and determine the formation of space.

"There are two different types of sliding paper panels in the Japanese house: *shoji* and *fusuma*. Both possess a structural skeleton of light wooden strips arranged in a rectangular pattern and framed by somewhat stronger struts. But, while the *shoji* is pasted with translucent paper only on one side, the *fusuma* is covered on both sides with heavy opaque paper." (Engel, 1964:142)

While the *fusuma* is used as both the partition between the rooms and the door of the room (fig. 21); the *shoji* is applied at the outer side of the rooms, next to the veranda, fulfilling the function of windows (Fig. 22). Hence, the area for window, *mado*, is small in a Japanese house.

*Shoji* and *fusuma* are placed from column to column where there is no wall. In terms of durability and sound proofness, they are not successful. On the other hand, they are advantageous in allowing the use of the entire floor area when they are removed. Due to their lightness, they can be opened and closed smoothly even with a finger tip.

*Shoji* and *fusuma* can be placed in various positions to define necessary

openings and to control the air flow within the house. By the help of the these elements and the large openings to the gardens, a small house can be visualized as larger (Smith, 1981). When they are opened, the garden and the interior become a part of one another. In addition, as the rooms are multi-functional, they are efficient to use.

"In former times and in some places even today, a farm house can be turned into a banquet hall on a ceremonial occasion by removing all the *shoji* and *fusuma*. This example points out that fundamentally the traditional Japanese home is a one-room house which has been partitioned into a series of compartments by the *shoji* and *fusuma*. This is the major characteristic of space allocation in the Japanese traditional house." (Ueda, 1990: 62)

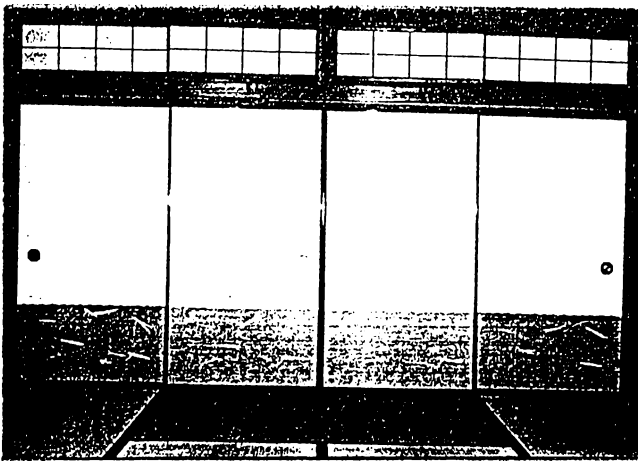


Fig. 21 *Fusuma* (Engel, 1964: 215)

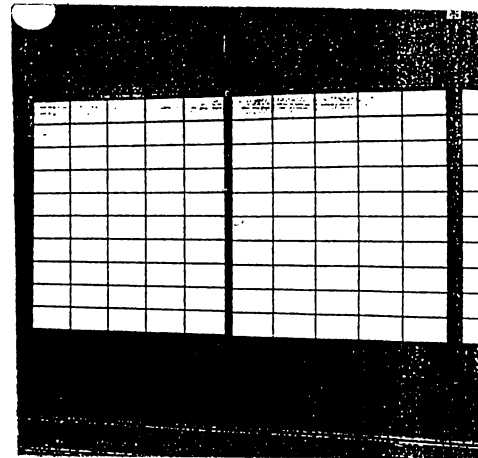


Fig. 22 *Shoji* (Hibi, 1990: 86)

They are approximately 180 cm. in height and 90 cm. in width (Morse, 1961). These sliding screens, along with the number of *tatami* mats that each room is covered with, are the reference points of the arrangement of the frame work of the house.

"(*Shoji*)..... consist of a light frame-work made of thin bars of wood crossing and matched into each other, leaving small rectangular interior spaces. The lower portion of the *shoji*, to the height of a foot from the floor, is usually a wood-panel, as a protection against careless feet as well as to strengthen the frame." (Morse, 1961:130-1)

As mentioned above, *shoji* screens serves as windows. The 'windows' can be opened all around the house, keeping the protection given by the roof which projects all around the house. Consequently, the windows and the doors are the one and the same thing.

To define the space with the help of *shoji* and *fusuma* partitions focuses the differentiation of Japanese space in other countries. In the ancient Far East, Greece and Europe, for example, the rooms are organized by putting the formed spaces adjacent to each other. On the other hand, the Japanese space is a unique space which is divided by *shoji* and *fusuma* partitions.

When the *shoji* screens are closed, a soft diffused light enters the room while creating a barrier or a wall by itself. On the other hand, they allow the room to be filled with sunlight and air when they are opened, causing the disappearance of the wall or the entire room. However, although the *shoji* screens permit diffused light to enter, they are not able to prevent it when not required. Likewise, they allow ventilation but can not prevent it. Besides, they are unable to shut out the unwelcome sounds, smells, cold, heat or whatever coming from outside. On the other hand, Ueda (1990) claims that the *shoji* screens have a similar symbolism to chopsticks which symbolises the lightness of food.

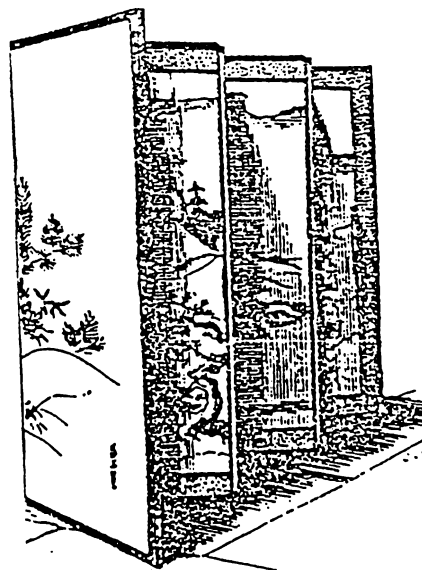


Fig. 23 *Byobu* (Chang, 1982: 237)

Various kinds of partitions and portable screens have been developed in the Japanese house. They may even be low screens or high screens depending on their functions. A solid screen of wood with a heavy frame, called *tsui-tata*, is arranged in the entrance hall as a part of the furniture. Upon the screens which are used for temporary partitioning, called *byobu* (Fig. 23), seasons are usually depicted as ornamentation. In addition, the free standing screen which is referred to as *tsitate*, is used for hanging cloths while providing a smaller space within a larger one, achieving privacy within a space.

#### 4.1.5. Other Services

There are some utilitarian services within the house such as the kitchen, the bathroom and the toilet unit as well as the heating.

##### 4.1.5.1. Kitchen

The kitchen, called *daidokoro*, literally meaning place of basis, is the least well defined space in the house (Engel, 1964). The tidiness and the exact definition of space of the other rooms can not be observed in the kitchen. Fig. 24 shows standard kitchen floor plans. The traditional kitchen is not a well shaped space having almost no protection from cold in winter time and even from insects or animals.

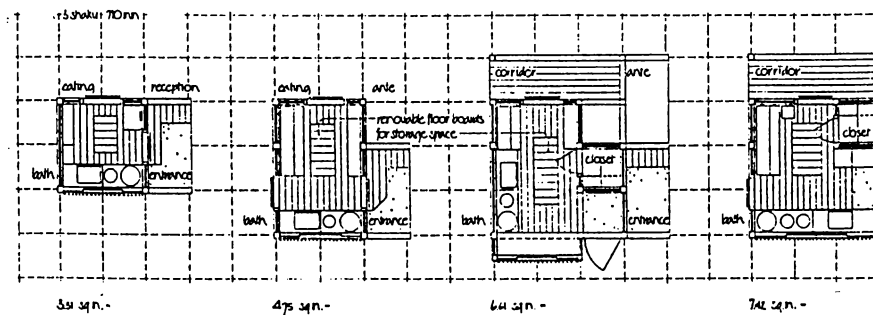


Fig. 24 Standard plan types of kitchen (Engel, 1964: 241)

Usually, there is a kitchenette, called *mizu-ya*, placed adjacent to the ceremony room in which the tea ceremony is held. The utensils are kept in cabinets, enabling the harmony of movement, which is the major principle of the tea ceremony.

Most of the floor of the kitchens is boarded while the unboarded part leads directly to the entrance hall or outside, allowing the traders to come directly to the kitchen. The kitchen is connected with the *chanonoma* on one side and on the other side with the bathroom which is also used as a laundry. As there is no definite storage space, the space underneath the floor is used for that purpose (Engel, 1964).

#### 4.1.5.2. Bathroom

The bathroom is called *ofuro*, which literally means honourable wind-fire place. Engel (1964) explains the custom of frequent bathing as a means to overheat the body by taking a hot bath during the humid summers in order to reduce perspiration as well provide cleanliness. During the winter time, they take baths in order to supply additional warmth to their bodies.

"The Japanese washes outside of the tub and after having cleansed himself thoroughly, enjoys sitting in the reddening heat of the water.... Owing to the particular manner of squatting in front of the tub and inside, the minimum Japanese bathroom is much smaller than the smallest one in Western architecture." (Engel, 1964: 237)

As they clean themselves before getting in the bath tub, the Japanese do not hesitate to take baths immediately after one another, using the same water in the tub. Consequently, a sequence is determined according to the rank in the family; first the head of the house and the other males in the house hold and lastly the females. Fig. 25 illustrates the typical bathroom plans.

The poorer classes of the society do not possess bathrooms of their own so they are accustomed to go to the bath houses, which are called *senjo*. Formerly,



the bath houses served as an social gathering places, and it was preferable to meet fiends at the *senfo* rather than visiting a friend at home.

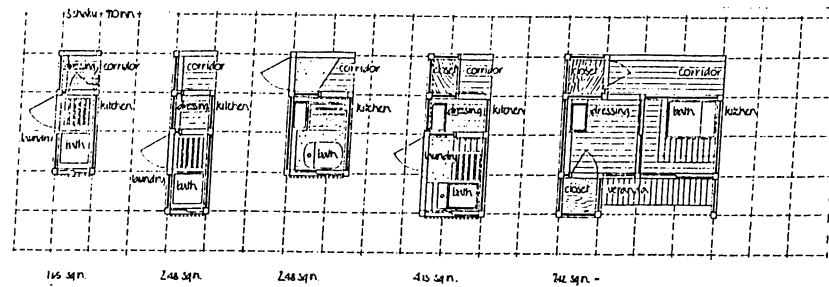


Fig. 25 Typical bathroom plans (Engel, 1964: 239)

#### 4.1.5.3. Toilet Unit

The toilet unit, which is called *obenjo*, literally meaning place of honourable convenience, is a part of the house which serves both the inhabitants and the guests. The toilet is the most accented utilitarian space of the entire house. It is located in an isolated corner of the house. As well as being furnishing the toilet with the best materials possible, the toilets are decorated with vases filled with flowers. Even a miniature garden can be provided for the benefit of the inhabitant of the house when he is at the toilet. The toilet is usually made up of two sections, the urinal part and the part having an oblong slot used in a crouched position (Fig. 26).

"Doubtless, this (has) its advantages. As the body rests on the legs only with no other physical contact, the posture is very hygienic." (Engel, 1964: 239)

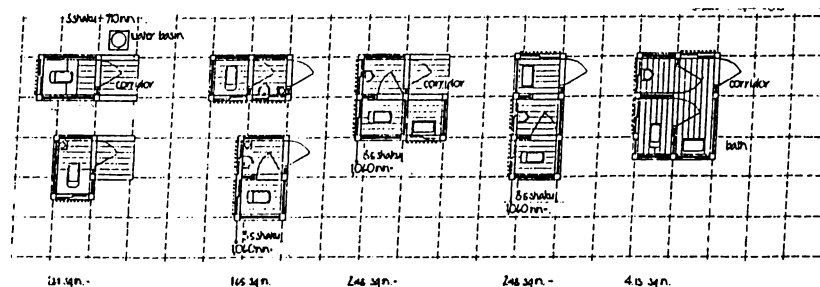


Fig. 26 Generally used toilet unit plans (Engel, 1964: 240)

#### 4.1.5.4. Heating Facilities

An inseparable component of a Japanese house is the *hibachi* (Fig. 27). Heating is provided by the *hibachi*, which is a portable brazier, or by the *kotatsu*, which is a furniture arrangement that serves as a table as well as a heat source. The portability of the *hibachi* enables them to be used in different rooms and the water heated on the *hibachi* can be used as a bed warmer. In the *kotatsu* system, a *hibachi* is placed in a well, with a low table above, in the main room. Users sit on the *tatami* mats, putting their legs under the table and on the rim of the *hibachi*. They also use this type of *hibachi* at nights by taking off the low table and placing the sleeping quilts upon it (Fig. 28).

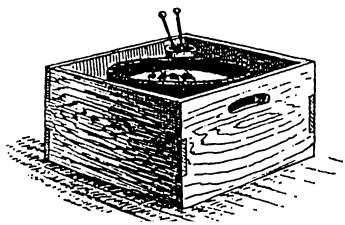


Fig. 27 *Hibachi* (Morse, 1961: 215)

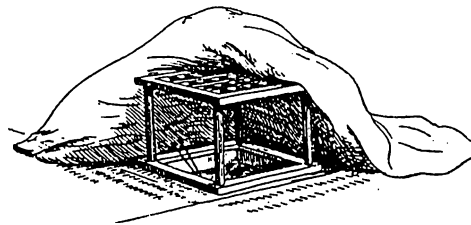


Fig. 28 *Kotatsu* (Morse, 1961: 213)

"The *kotatsu* provides a source of heat which draws members of a household together, warming them by their own proximity to one another as well as by the burning fuel." (Smith, 1981: 173)

Some of the features of the Japanese traditional residential interiors are described in this section very briefly pointing out their functions. Within this boundary, a fluidity starting from entrance to toilet unit is concluded mainly focusing on their flexibility by some elements used in the house. In fact this fluidity both contrasts and supports the idea of centralization in the Japanese traditional residential interior spaces.

Even though the general organization and features of the traditional residential interior spaces are described, residential outer spaces, being an extension of it, are worth to be mentioned. Their giving importance to nature dictated a tremendous accentuation on the residential outer space as well.

## 4.2. RESIDENTIAL OUTER SPACES

Even though the context of this study is limited to the interiors of traditional Japanese residential spaces, residential outer spaces also deserve to be analysed as the Japanese consider the garden as an inseparable part of the interiors and established the garden as an essential component of the dwelling (Fig. 29).

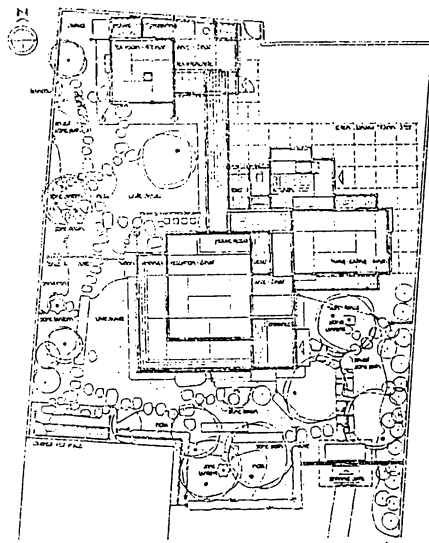


Fig. 29 House garden relationship (Engel, 1964: 261)

"The close relation existing between the house and the garden should not be overlooked when considering Japanese dwelling-houses. For many centuries the Japanese house was developed as a part of the garden whenever the premises were large enough. No house is considered complete without a garden of some sort, and the garden is almost an integral part of the house." (Harada, 1983:55)

Within the relation of house and garden, there are some features performing the same function. For instance, stone, which is usually used in the garden design serves as a scale determining element and a unit for modularity, a similar function to that of the column in the house. Thus, both of them dictate order, in the garden and in the interior rooms (Engel, 1964).

"With all partitions removed, the distinctions between the inside and outside becomes very vague and the world of nature outside, becomes part of life which is normally

conducted inside. In the circumstances, the Japanese love and affinity for nature is understandable: the changing of the seasons becomes a firmly established part of life's aesthetics." (Takamura, 1984: 83) (Fig. 30)



Fig. 30 Indoor - outdoor relationship (Harada, 1985; 143)

However, a clear separation is also obvious between house and garden. Even though the interior space is open, it is clearly differentiated from the garden by features such as the roof and the floor. Thus, the duality of having both distinction and relation suggests a progression of spaces in a succeeding manner rather than flowing spaces. Hence, there is a continuity starting from the interior, moving to the veranda and then to the garden (Engel, 1964).

#### 4.2.1. Veranda

The veranda, which is called *engawa*, is an essential component of the Japanese traditional residential space. This space is created by the elongated eaves of the house. There is a similarity between the edge of the *tatami* and the veranda. *Engawa* literally means 'the edge', serves as 'the edge' of the house protecting it from direct sunlight or rain (Ueda, 1990). It appears as a continuation of the floor of the inside. Ueda (1990) regards the veranda as one of the traditional living spaces. Looking through the transparent sliding doors of the sitting room, a sense of satisfaction and communication with nature can be achieved. When the doors of the veranda are opened, the continuation

from inside to outside through the veranda can be visualized.

"The veranda in Japan, *engawa*, is a narrow plank-covered platform slightly lower than the matted interior floor but well above the ground." (Greenbie, 1988: 16)

The size of the *engawa*, both the width and the height, is differentiated with reference to the size of the house. Generally, the space between the edge of the veranda and garden is left open, without railings, allowing one to leave or enter the house wherever one wants to. That is to say, it continues the flexible use of space and openness of the interior.

"It does little to make the house larger in a physical sense, but in a psychological sense it can eliminate the sense of smallness" (Ueda, 1990: 153)

In fact, what Ueda has mentioned is explained by the characteristic of the *engawa*, as being a transitional area between the matted rooms and the garden (Fig. 31). More than being a transitional space, however the *engawa* is considered to be an extension of both inside and outside. Hence, according to Ueda (1990) there is an ambiguity about the *engawa* that forces architects to name it as a 'third space' or 'connecting space'.

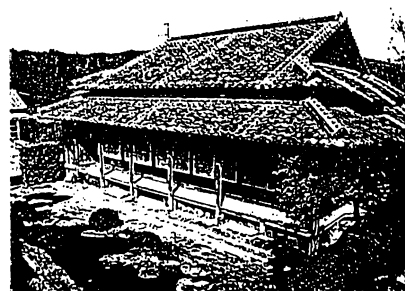


Fig. 31 *Engawa* as a transitional area (Ueda, 1990: 154)

The *engawa* is used for both work and leisure activities. Chang (1982) pointed out that the *engawa* serves both as a corridor and as a space to receive guests. Ueda (1990) indicated the reason for using *engawa* as recreational area as such;

"While sitting rooms are areas restricted by traditional etiquette and social rank, the veranda is a free space not bound by social rules of status. Since the veranda does not have the alcove with its formal, mood-setting scroll, there is no sense of seniority or inferiority in this area." (Ueda, 1990: 156-157)

#### 4.2.2. Garden

The importance of Japanese garden is the result of the preconditions of the cultural inputs which proposes the significance of nature. There are mainly two approaches to the Japanese way of understanding nature. Engel (1964) claimed that there is an affection for nature because of fear of nature, Masuda (cited in Ayverdi, 1963) added that there is a transformation of this fear to a respect for nature for the inner peace of man. On the contrary, Inoue (cited in Ayverdi, 1963) argues that early Japanese interest in hunting and fishing meant that the society was used to making war rather than respecting to nature. Referring to the cultural inputs that were described before, the second approach is not relevant as the whole society and the components of the society are formed by nature.

"Arabs look at the sky as it may be the only thing that they can see and look, therefore they have discovered astronomy and algebra. In Japan, the sky can not be seen therefore we are used to looking at the ground rather than sky. We have 24 words for rain but few words about stars." (Masuda quoted in Ayverdi, 1963 Translated by the author).

Thus, even the language was influenced by nature, therefore the irrelevance of the second approach is evident. On the other hand, Chang (1982) pointed out that the Japanese love of nature is enhanced by the belief that the Japanese himself is a part of nature.

Nature is an important element in Japanese life. As well as facts stated above, Shinto and Buddhism place emphasis on nature and shows nature as being

the major reason behind the several facts. This phenomenon can be seen in Japanese interiors as well. Generally, all houses have relations with their gardens and the *shoji* screens are usually transparent in the garden facades. In addition, entrance floors have important functions as they have a relation with garden, while the second or the third floors are less important from the point of view of function and aesthetics.

"He who can accept nature can also accept himself, accept his own mortality, realize his existence, and contemplate the truly permanent by finding a way to freeze the natural phenomena." (Chang, 1982: 122)

Furthermore, garden design influences some other aspects of daily life. Drexler (cited in Chang, 1982) claimed that even the choreography of the Noh drama has a parallel approach to that of the Japanese garden design.

"...the movements are regulated by the texture and spacing of stepping stones. The moment of stop-action in the Noh drama is considered most important; so is the moment of stop-action in the garden design, where one usually finds places for a moment of rest." (Chang, 1982: 209)

The Japanese garden is not, as generally assumed, a miniature copy of nature but a symbolic abstraction of mainly three natural items: earth, water and plant. Güvenç (1989) mentioned that little hills represent mountains, while ponds represent water in nature, such as seas, streams and lakes, and the living nature is represented by dwarf trees. Ueda (1990) claimed that generally the pine tree is used in gardens as it reminds the Japanese of the sea because of their habit of using pine trees near the sea. The organization of the garden is obtained by modifying the garden to human scale and organizing the features of it by man himself. Engel (1964) summarized this interrelation between nature and man in the organization of garden as such;

"Garden is but extension or component of the main design, a mediating agent that bridges the enormous gap between the opposites of humanized and natural environment." (Engel, 1964: 277)

Japanese residential gardens, aiming at the creation of beauty of *san-sui*,

that means scenery, by the human touch, consist of several items such as stone tablets, stone lanterns, bridges, ponds, pathways, dwarf trees. Rather than discussing these items, the general description and philosophical approach of garden will be analysed.

The main ideas of the Japanese gardens are, firstly, to make the garden a viewing garden which will be viewed from the living room that is to say, a part of the house. The aim is to create an environment which will make man relax by observing *san-sui* (Eliovson, 1982). Ueda (1990) supported this idea and pointed out the difference between European and Japanese gardens as such;

"...the garden is something to be seen (in Japanese), and not a place to exercise in or to relax in." (Ueda, 1990: 161-2)

Secondly, the Zen Buddhist garden with stones and sand symbolizes philosophical thought while relaxing (meditating). Therefore, the design of their gardens are arranged according to this principle. In this manner, the arrangement is 'a quiet, harmonious and thought provoking composition' (Eliovson, 1982).

Thirdly, as opposed to the European approach, perspective and depth are emphasized in Japanese gardens. Large trees are placed near the house while the small ones are planted in the background. It gives the illusion of depth and perspective and makes the garden appear larger. Another way of providing depth is to give importance to the details of the plants or rocks which are planted near the house and let man think that the eye can not see in clear detail the which are far away. This approach symbolizes that 'the background is far away in appearance and in importance' (Eliovson, 1982). On the other hand, using depth in the traditional Japanese garden puts forward the symbolic representation of the infinity of nature.

The asymmetry of space which can be seen in Japanese gardens are the reflections of Japanese arts, like Bonsai or Ikebana. A space is formed by balancing the elements of garden while asymmetry is emphasized by the placement of trees or other features (Eliovson, 1982).



Asymmetrical arrangement of bushes or rocks or water shorelines, with the arrangement of one receding from another, symbolizes the mountains which diminish into the distance. The main idea of the obscure view, which is used to enhance distance and mystery, and asymmetry is to make the small garden appear larger. (Eliovson, 1982). Engel (1964) pointed out the representation of symmetry in garden as such;

"Symmetry is considered opposed to nature and is to be avoided, and each individual stone by its posture should never raise doubt as to its stability." (Engel, 1964: 269)

Itoh (1965 cited in Greenbie, 1988) claimed that there are two types of Japanese traditional garden; the borrowed landscape and the enclosed garden. The borrowed landscape which is called *shakkei*, means 'captured alive'. Hence, symbolically capturing life and nature is the main principle of the borrowed landscape.

The enclosed garden is somehow similar to the courtyard gardens. Being the major diversity of enclosed garden from the courtyard garden, it is used as viewing gardens appearing as an extension of the home whereas the courtyard gardens are for enjoyment. It is separated from the public spaces by fences while being open to the building facade. The use of fences is also required for domestic privacy as the inside is visible from the surrounding space. Greenbie (1988) explained the enclosed gardens and the use of fences as such;

"The objective of the enclosed household gardens is to make the transition between public and private space less stressful and to allow the architectural interior spaces to blend in with the natural environment.....The home space is .....defined by (the) garden fence, not the house walls." (Greenbie, 1988: 18)

In fact, the function of the enclosure is 'offensive' rather than 'defensive'. It defines a space and manifests itself as another spatial unit and integrates itself into the dwelling. On the other hand, the height of the enclosure is usually above the eye-level and separates the private space from outside. The infinity of nature, which was mentioned before, can only be controlled by the enclosing

fence (Engel, 1964).

"This seeming contradiction of infinity of nature in the finiteness of a small garden space is the very essence of the tremendous impact that the Japanese garden exerts psychologically. The forms of garden components, the expression of garden texture and color, the arrangement of garden features are not what give the Japanese garden its uniqueness, but rather the concerned effort to represent the infinity of the universe, to bring it with direct-simple methods within human grasp, to deep on the conceptive faculties of man and to enrich his spiritual existence."  
(Engel, 1964: 273-274)

Generally, geometric forms are not used in traditional residential garden organization, creating a contradiction with the strict geometry of the Japanese traditional residential interiors in which every room opens to either a veranda or a garden. Even though similar features are used in garden design, stressing the standardization, each garden manifests itself individually. Engel (1964) mentioned it as such;

".....both nature's multiformity and man's skill provide infinite variety so that each garden is an individual creation within an order of predetermined and universal principles."  
(Engel, 1964: 268)

Briefly, there is a continuity between interior and exterior through veranda emphasizing the importance of nature for Japanese society. Thus veranda, being an extension of both inside and outside establish a dual interpretation while playing an intermediating role in this continuity. Due to this continuity the garden is exposed. The main idea of the Japanese garden is either to capture the nature alive or to make it as a viewing g; veranda and garden.

The features of the residential outer space by integrating with the features of the Japanese traditional residential interiors, entrance, rooms, floor covering mats, sliding screens and some other services, become a unique space. Thus the features of both concepts are explained to highlight their relation with cultural components which is discussed in chapter 5.

## 5. THE IMPACTS OF CULTURAL COMPONENTS ON THE JAPANESE TRADITIONAL RESIDENTIAL INTERIORS

### 5.1. THE INFLUENCE OF FAMILY ON THE JAPANESE TRADITIONAL RESIDENTIAL INTERIOR SPACES

The way that the family uses the interior spaces is related to their habits and traditions. This relation between house and family is more evident in Japan than elsewhere.

The sequence of bathing has a direct bearing on the hierarchical positions within the family that are mentioned in section 3.1. The same approach manifests itself also in the arrangement of rooms. They are arranged according to the inferior or superior position of the family member. Engel (1964) mentioned that the atmosphere in the living rooms is male rather than female. Engel (1964) points out that;

"The Japanese residence is by form and function, the house for the male and ... lacks a reflection of woman's presence... the daily work of the mistress of the house is characterized by its complexity." (Engel, 1964: 228)

This attitude is the reflection of the inferior status of the female within the family structure. Even though the flower arrangement in the vase which is placed in the picture recess, *tokonoma*, seems a feminine act, in fact it is a gesture toward her husband or guests more than her own pleasure. On the other hand, insignificance of kitchen where woman spent a lot of her time is the result of the subordination of the female.

Although the partitions between the rooms are opaque paper panels which are used to limit vision and conversation, neither active nor passive participants of the family can be excluded. Therefore, all activities within the house are

carried out with regard and respect among the family members (Engel, 1964). This approach can be noted as the reflection of their philosophy of existing as a family, not as an individual, being one of the doctrines of Shinto.

Accordingly, existing as a family has brought on the lack of privacy. Hence, the Japanese do not seek privacy. Engel (1964) states that;

"Homes of the middle and lower classes open upon public streets and, whenever weather permits, the fronts and perhaps even the sides are literally removed, leaving the interior widely open to the air, the light and the public gaze. It appears almost as if the exposure of private life, having been experienced from infancy on, has never made the individual feel a need for privacy, and it is therefore not surprising that no word exists for 'privacy' in the Japanese language." (Engel, 1964: 230)

Hence, the lack of privacy is expressed by the way they act, their strict system of etiquette.

Home is considered to be a sacred place for the Japanese. It is the inner life of a person. Passing through the entrance, one leaves everything from the outside world and enters one's inner life. Therefore, the entrance, *engawa* hall symbolises the transition area between the outside world and the inside world.

All of the philosophical approaches have also established some habits in living patterns and these habits can also be influential on the organization of interior spaces. Engel (1964) explained;

"The mode of squatting on the floor has had the most visible effect on the residence interior. With chairs being superfluous and thus less space being required for the individual and his movements, room sizes as a whole are distinctly smaller than those of comfortable Western rooms. Moreover, the absence of sitting furniture, together with the fact the few devices that are necessary, such as folding table and lamp stand can be removed, allows the room to be easily transformed to suit all different human activities, including sleeping. The small size and scarcity of furniture are the decisive factors that made possible the noted multiusability of space in the Japanese residence." (227-228)

Therefore, only the eye level of the squatting person is dominant in the determination of all major human activities. Consequently, the other features of interior space such as ceiling, sliding panels, windows, objects of art, picture recess, *tokonoma* and shelving recess, *tana* and even the garden are designed accordingly.

There is only an axial guidance to *tokonoma* in Japanese traditional residential interiors. As the *tokonoma* is an alcove for displaying arts made by the host/hostess, there is an indirect accentuation of man and thus family in the interiors.

As a result, as well as being the determinative factor in the constitution of culture, the family structure (or the relation between the family members) is effective on the formation of residential interior spaces. In this relation, what should be pointed out is, contrary to the other components of culture, the two directional relation between family and house. While the structure of the family is influencing the formation of the house, the design of the house influences the relations within the family. Engel (1964) explains this situation as such;

"Family in building is not only exerting influence. It is also receiving influence in that progressive architecture frequently changes manners of living and, by creating new values of life, transforms the ethics of family." (Engel, 1964: 221)

Religion and philosophy are also two important factors which influence both the culture and the house. In the next section interaction between religion, philosophy and house is analysed.

## **5.2. THE REFLECTION OF THE SYSTEM OF RELIGION ON THE JAPANESE TRADITIONAL RESIDENTIAL INTERIOR SPACES**

The religions that have been mentioned in section 3.2 are usually perceived and referred to as a whole system of religion in Japan. Japanese society does

not differentiate people according to their religious beliefs; moreover, each of them may have more than one belief as well. Thereby, as their living spaces may be regarded as their 'inside' spaces, the reflections of some points, either stressing the different religions or a synthesis of these religions can be visualized in the Japanese traditional residential interior spaces.

Shintoism and Confucianism influenced the Japanese way of life and system of thought throughout history. Accordingly, the way that they live and think is reflected in the formation of interior spaces. Shinto, which requires the worshipping of nature, enhanced the importance of nature that they emphasize not only in their garden organization but also in their interiors. Confucianism and Taoism, which also shaped the Japanese family system, also have some impacts on the development of Japanese dwellings. Buddhism and Zen Buddhism are also influential on almost all aspects of life and accordingly their influence on interiors is more evident than that of other religions.

#### 5.2.1. The Reflections of Shintoism

Shinto, having the objects of worship as nature deities, has influenced the organization and use of traditional residential interior spaces. As nature became a part of worshipping, they presented this relation in their interiors as well. First of all, the Japanese treat their gardens as a part of their interior spaces. Gardens are not secondary features; on the contrary, Japanese houses seem to be constructed so as to enhance the importance of garden and thereby the house itself acts as a secondary component. There is an emphasis on the depth and perspective in the organization of the Japanese garden in order to accentuate the infinity of nature.

On the other hand, they place transparent papers on the *shoji* panels on the garden facades to view the garden throughout the entire day. In addition, the partitions and the free standing panels are usually painted with depictions of the seasons or gardens, which is an attempt to represent the garden, that is to say nature, in the interiors. Engel (1964) mentioned the relation of man, nature religion and interiors as such;

"To the Japanese, nature lives and all components - the stones, the plants, the water- have a soul just as man has. They need care and respect just as human does. Sitting on the mat and viewing them, guest and host sense that in this small secluded garden the universe and essence of their own being is present." (Engel, 1964: 258)

Moreover, ancestor worshipping is another component of Shinto. Accordingly, it is common to find the *kami-dana*, the Shinto altar, in the traditional residential interior spaces. Similarly, deities, *kami*, became the determinant factor in the number of columns used in the interiors (Chang, 1982). Apart from ancestors, other types of *kami* can be specified, such as the deity of the kitchen or the deity of the well.

The *kami* is presumed to be living in darkness in which there is emptiness. From this conception of void, when it is applied to the living space, the room empties itself and is formed into the living room or bedroom or whatever in relation with furniture and fixtures. In this emptiness and darkness, the purification takes place. Through the shadows present in the space, a new space is formed. Other than geometric output of space, the depth of dark, shadow and light in the void can be observed. The space is personalized by these elements as one wants to experience it (Chang, 1982).

"Darkness as a principle from which Japanese space is formed is clearly contrary to the Western concept of space."  
(Chang, 1982: 56-58)

As influence of Shinto is the hiding of some of the images from the viewer in order to force man to imagine the rest symbolically (Güvenç, 1989). This is represented by the importance of shadows in interiors as well as the act of using a minimum amount of furniture in interiors.

In worshipping their recent ancestor, the Japanese are in fact underlining the importance of man. Man, who can even be a natural god after he is dead, becomes the dominant factor on the formation of residential interior spaces. The size of the *tatami* is determined by the stature of the prostrate man. As the rooms are covered with the *tatami* mats and defined by the number of *tatami*

that they hold, the height of man becomes the major component of a Japanese house. In addition, the height of the room is determined by the number of *tatami* used in the room.

Purification is one of the preconditions of Shinto. Its necessity is based on the removal of unworthiness, evil and pollution which may obstruct the *kami* way of life. The purification is reflected in the entrance, *genkan*. It is a transitional space that separates the 'dirty world' from the 'clear world', from public space to private, that is the inner world of man. Within the house, purification is depicted by the simplicity and orderliness of interiors, by the way that they organize both the entire space and the smallest unit of space. Oka (1928) expressed the reflection of purification in design as such;

"... packaging small objects is characteristic of aesthetic consciousness of propriety.... the Japanese consider wrapping and packaging to be like a sacred ritual, a ritual of purification, a philosophy that distinguishes one who is purified from one who is not." (Cited in Chang, 1982:79)

### 5.2.2. The Reflections of Buddhism and Zen Buddhism

As mentioned in section 3.2.2 there are mainly two doctrines of Buddhism; life is impermanent and Buddhism is natural (Table 1). These two doctrines have influenced both the organization and the features of traditional residential interior spaces.

".....the only true method of explaining any existing thing is to trace its cause back to the next cause without the desire or need to explain the ultimate cause of all things. For example, the interior space of the Japanese house is nothingness, which has no fixed function and is given its functional purpose only by its furnishings." (Chang, 1982: 224)

Here we see the influence of impermanence. As the space is organized for a specific period of time, for a specific purpose, the space itself is impermanent. In fact this impermanency of space introduces the flexibility of Japanese interior spaces. A room can be used for daily activities as well as for sleeping or



eating. Accordingly, all the necessary equipment for those activities are stored in the cupboards. That is the reason why the Japanese house has no furniture but does have storage units.

".....; the 4 1/2 -mat room has as much infinity as has the small fenced garden. In the midst of a succession of individually defined spaces from room to garden to universe, house becomes but a transient station for life, a material form that temporarily shelters human life. Therefore, there is no reason to build a house for eternity, stable to withstand the violent forces of nature, resistant to bear the wear of weather. "(Engel, 1964: 373)

The prolongation of this impermanency is the act of 'change'. Within the interior space, by moving the sliding screens, a differentiation in the formation of rooms can be observed. Likewise, unlike the Westerners, the picture which is hung in the *tokonoma* is changed by the host/hostess of the house according to seasons or climate.

On the other hand, as they claim that Buddhism is natural, being natural in the daily activity and respecting all the natural things within the environment becomes apparent. This aspect of Buddhism has close relations with the understanding of *kami*, the natural god, in Shintoism. Accordingly, respect of nature is developed within the society. They treat their gardens as if there is no human touch in the organization of the garden; it looks like the natural depiction of nature and a house is considered to be unfinished without its garden.

Engel (1964) mentioned the importance of nature from the point of view of the organization of traditional residential interiors;

"...in the Buddhist world nature has never been considered to be fought against... little effort was made realistically-creatively confront the architectural problems presented by nature, even less to use nature's forces for self advantage. As a result, the living rooms in average Japanese house during daytime are shielded against the outside only by the light wooden frames covered with translucent paper, the *shoji* panels, which can easily be moved in their sliding tracks or can be entirely removed,...." (Engel, 1964: 229)

Furthermore, using natural materials and preventing additional treatment of these materials within the interiors and furniture can be taken as a prolongation of the Japanese attitude to nature. For instance, the *shoji* or *fusuma* are made up of a wooden frame and paper, which is fixed within this frame. In addition, flower arrangements are considered as art in Japan as nature is an important component of everyday life.

Japanese architectural tradition took its basis from Zen Buddhism which has a philosophical approach focusing on the elimination of the unessential and reducing it to its purest aesthetic form (FAJ, 1981: 4).

Zen Buddhism, which is the most well known sect of Buddhism, has the idea of enlightenment through meditation. Harmony, reverence, purity and tranquillity are the major factors involved in achieving enlightenment. Accordingly, these phenomena influenced firstly the formation of the tea house/room in which the tea ceremony is held -which was introduced into Japan by Zen Buddhism- and then the interiors of the traditional residential spaces. These facts manifest themselves in the interiors in a simplistic way.

Whereas space is defined by shape and environment in the West, in Japanese it is determined by the process of man's own experience (Chang, 1982). Experiential approach is also expressed in the principles of the tea-ceremony. Thus to achieve the purification of the tea ceremony, participation of the individual is required. This fact can also be seen in the interior spaces; without the existence of man a room does not have a human atmosphere. Therefore, 'man' is the only requirement to fill the void. Within this concept, the fact of 'experimenting' that Zen suggests can be seen in the uncompleted formation of space.

"Zen, .....attempts to provoke a strong association between object and beholder less by 'what is' than by 'what is not'. The most captivating form is the one that is left uncompleted and imperfect so that the beholder is stimulated to either imaginary or really complete the form. "(Engel, 1964: 373)

Purity of the ceremony takes place in the tea-house where a perfect simplicity, which is an extension of purification, is obvious. To achieve the purification,

man has to use his five senses in harmony. A Japanese also uses his five senses to conceive and perceive space (Chang, 1982). It can be concluded that there is a strong link between the understanding of space and beliefs.

Nakno Kazuma in his book *Hagakure* said that;

" The spirit of *Cha-no-yu* is to cleanse the six (sic) senses from contamination. By seeing the *kakemono* (hanging picture) in the *tokonoma* (alcove) and the flower in the vase, one's sense of sight and smell is cleansed; by listening to the boiling of water in the iron kettle and to the dripping of water from the bamboo pipe, one's ears are cleansed; by tasting tea one's mouth is cleansed; and by handling the tea utensils one's sense of touch is cleansed. When thus all the sense organs are cleansed, the mind itself is cleansed of defilements." (Kazuma, N. cited in Chang, 1982: 5)

As cited above, the importance of interior space can be correlated with the inner self of a person. All aspects of the tea-ceremony focusing on the elements used in the interior space correspond them to a person (Chang, 1982). Consequently, the formation of tea room and in relation the kitchenette, which is placed adjacent to tea room is formed because of Zen Buddhism.

The emptiness of Japanese traditional residential interior spaces may be explained by the purity and tranquillity of the Zen doctrine as well as the Buddhist impermanence (Chang, 1982). Therefore a tea room has an absolute emptiness with the intention of not repeating the colors and designs of utensils which results in the asymmetrical approach in the design of the whole. As a result, emptiness and impermanence emphasize the dynamic change of space.

In the traditional Japanese residential interiors there is always a Buddhist altar, usually located in the *i-ma*, the living room (Jeremy and Robinson, 1988). In the altar, an image of Buddha, some photos of the departed ancestors and food offerings to them are placed. Throughout time the Buddhist altar united with the Shinto altar and appeared as one worship area, *kami-dana*.

The *tokonoma*, a place where paintings and flowers are arranged, was

originally the sacred place of Buddha worship. *Tokonoma* is firstly used in the tea houses for the appreciation of art in Zen Buddhism. Thus, the *tokonoma* represents the simplicity and the purity of the tea-room and accordingly the tea-ceremony. The *tokonoma*, being the official center of the entire house, is much more outstanding than the Buddha altar as the *tokonoma* is placed in the reception room. Hence, the Buddha altar is in the more private room where the visitors are not entertained but the family get together.

### 5.2.3. The Reflections of Confucianism and Taoism

As mentioned before, Confucianism and Taoism are doctrines more than religions. Hence they both influenced the formation of the society. Confucianist doctrine bases its teachings on the family and is influential on the development of the family system. What was mentioned above in section 3.1, concerns the influences of Confucian doctrine on the family system, so the connections between family and traditional residential interior spaces, mentioned in section 5.1, are in a way, prolongation of the doctrine of Confucious.

The ancestor worshipping which is a precondition of Shinto basically takes its concepts from Confucianism. Thus, Confucianism heralded the doctrines of Shinto as well as preparing appropriate conditions in society for the introduction of Buddhism. Consequently, some Shinto accents on interiors can be explained by Confucianism as well.

Zen Buddhism was developed following the doctrines of Taoism, thus, some of the main principles of Zen are in fact the doctrines of Taoism, such as emptiness, tranquillity and enlightenment. Therefore some of the influences of Zen are also, in a way, influences of Taoism.

According to Loatsu, the leading philosopher of Taoism, stillness and tranquillity are the major factors that organize the universe (Chang, 1982). This fact is also represented by the emptiness which can be seen in the organization of the

traditional residential interior spaces.

The emptiness of a void is undefined and hence, receptive. Emptiness is considered to be an essential component for the formation of space. Within this context, a void is regarded to be more valuable than a solid (Chang, 1982). This explains the practice of using empty spaces rather than using lots of furniture within the interiors (Fig. 32). That is to say, this concept of emptiness introduced the flexible use of space to the Japanese traditional interiors. Besides, Taoist doctrine of considering life is as a changing process and should be flowing experience, it manifests itself in the impermanency of the functions of the rooms and flexible use of space.

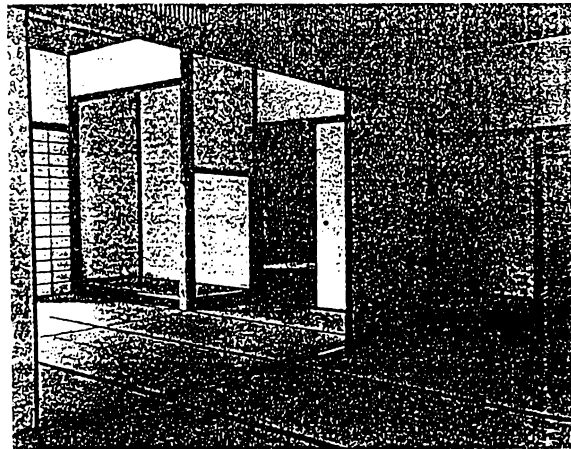


Fig. 32 Expression of void and emptiness in interiors (Engel, 1964: 464)

Duality, which can be recognized as the one of the main principles of Japanese daily life, is one of the doctrines of Taoism. Duality is not regarded as superior and inferior, but as the existence of opposing forces, side by side, that have an equal value (Chang, 1982).

"...the playful versus the serious the loud versus the quiet, the child as opposed to the adult,...the novelty of make-believe played out against the restraining weight of how-things-have-always-been." (Kidd quoted in Slesin, 1987: 23)

As stated above, there are lots of contradictions in Japan that can be reasoned

from the dual approach of Loatsu. For instance; privacy seems to be an important factor in a Japanese house, therefore entertainment takes place outside the living space (Slesin,1987). On the other hand, the transparency of the *shoji* screens is provocative for the users of the house.

As mentioned before in section 4.1.2, there are two different types of planning modules in Japanese traditional residential interiors. This dual approach can be an extension of the concept of duality that Loatsu introduced to Japanese people.

The dynamic interplay of *yin-yang*, which was originally a Chinese concept, that is attaining unity by the complementing of opposites, was seen as the essence of all natural phenomena and human situations (Fig. 33). In fact, *yin-yang* demonstrates symbolically the facts which are explained above.

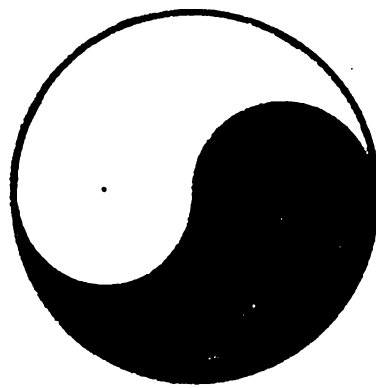


Fig. 33 *Yin - yang* (Chang, 1982: 94)

According to Güvenç (1989) circle symbolises maturity, perfection and unity. The concept of *yin-yang* demonstrates this unity in the circle as well. The unity within the Japanese traditional interior spaces must have been influenced by the concept of *yin-yang* which effects the Japanese daily life.

"The two opposing forces are interpreted as natural forces, and from their balance comes life itself. *Yang* is the positive, active, masculine force, and subsists in dryness, heat, hardness, the sky, light, the sun, fire. It is firmness and brightness. *Yin* is the negative feminine principle present in everything passive, such as cold, damp,

softness, mystery. It is in all mysterious, secret, evanescent, cloudy things, and in everything inactive." (Munari, 1966: 175)

In combination with Loatsu's doctrine, *yin-yang* helps the facing of reality by accepting and experiencing both the negative and the positive. In this respect, some transitional areas of traditional residential interior spaces demonstrate the duality within the context of *yin-yang*. For instance, the *engawa* is both the extension of the interior and the exterior. This resembles the unity gained by the opposing forces - *yin-yang* - and also the duality in using the same space for different functions. The same dual approach can also be exposed in the relationship between interior and garden, having both relation with and separation from each other. Using the fences in enclosed garden for both offensive function and privacy, it manifests itself for a dual interpretation

### 5.3. THE INFLUENCE OF SPATIAL ASPECTS ON THE JAPANESE TRADITIONAL RESIDENTIAL INTERIOR SPACES

#### 5.3.1. The Reflections of Site and Climate

As mentioned in section 3.3.1, Japanese people mainly inhabit four islands, *Honshu*, *Shikoku*, *Kyushu* and *Hokkaido*. 80% of the entire land is mountainous (*san*) and between *Honshu*, *Shikoku* and *Kyushu* there is an inland sea. When *san* meets *sui* (water), an excellent vision, called *san-sui*, is observed (Güvenç, 1989). This shows that the term scenery (*san-sui*) implicitly means the place where the mountains meet sea. This implies the importance given to nature by Japanese culture. We can conclude the same approach in the Japanese traditional gardens which is a part of the traditional residential interiors. This image is attempted in the Japanese garden by the organization and composed relation between trees and small water pools, trying to attain an excellent scenery, that is *san-sui*. Therefore, to observe *san-sui* either from the inside of the house, both winter and summer, and in the garden itself is the most pleasant experience for the Japanese.

As mentioned before, 70% of the mountainous land is covered with forests hence, wood is the most commonly used material both in the inside and the outside of the house. As well as the possibility of using natural materials, their respect of nature is emphasized in the use of natural materials in interiors. Therefore, the construction system is made of wood in such a way that it can resist earthquakes, water or some insects. On the other hand, all rooms are covered with *tatami* mats which are made by the weaving of fiber and stalk in their natural state, without any additional treatment. The use of *tatami* requires shoes to be taken off at the entrance so as not to carry inside dirt or mud, which is common because of the humid and rainy climate of Japan.

When the organization and the orientation of the rooms are analysed, the central orientation of the main living room is evident. The reason for this organization is to prevent the penetration into the main living area of cold in winter and sun in summer. Additionally, raising the floors of the house is necessary to cope with the damp and wet climate of Japan (Takamura, 1984).

There are some other aspects of the Japanese house that have been influenced by adaptation to local climate. Engel (1964) summarized them as such;

"The movable and removable wall panels facilitate ventilation; ... the elevated stone foundation prevents essential wood parts from decaying; and the veranda toward south and east shields the interior from the high solar incidence in the height of the summer, allows sitting in the sun during the intermediate and pleasant seasons of spring and autumn and still lets the sun's rays reach into the depth of the room during the cold weather." (Engel, 1964: 358)

Engel (1964) argues that Japanese dwellings are inefficient at handling climatic conditions. The reasons for this approach can be 'Buddhist-inspired, standard-encrusted and government-enforced'. In fact, this passive attitude towards nature and climate resulted in the refined control within the realm of existing. Hence, the Japanese house undergoes continuous change according to seasons. For instance, the flowers and the pictures in the *tokonoma* are changed according to the seasons. This fact brings about the possibility of experiencing life and



feeling its beauty, which is a prolongation of Taoist thought that has been mentioned before.

This passive approach to the climatic conditions can be explained by an emotional sensitivity to nature and climate. That is to say, not only a change in the mode of living occurs, but also the building itself changes; emphasizing the synchronized harmony between man, house and nature. The paintings on the partitions which are used in interiors generally depict the seasons, flowers or climate emphasizing the importance of nature thus; site and climate (Fig. 36).

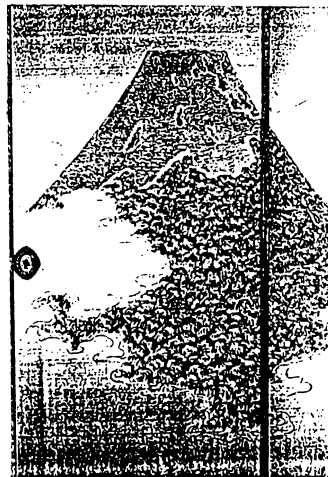


Fig. 34 Painting on partition (*fusuma*) illustrating the site (Hibi, 1990: 83)

Even though Engel (1964) indicates a passive consideration of climate in the formation of house, Mitusuni (1984), in a more optimistic fashion, explains the harmony between house and climate both by the complexity of the environmental conditions and the sensitivity of human to their environment.

In this respect, the importance of nature is evident and Kurokawa's statements may be much more explanatory than anything else;

"Our history as an island people gives us an inherited sense of inward orientation, to stay within nature, within society, within the designed space, rather than attempting to control space by extending it outward in axes."  
(Kurokawa cited in Greenbie, 1988: 33)

### 5.3.2. The Reflections of Anthropometry

Designing the interior spaces and features that are used in the interiors according to the anthropometry of the user is valid mostly in developed countries. Contrary to other countries, Japan used the anthropometric data of the user even in the early periods. This may be explained by their attempt to give importance to man as well as considering man as the accomplishing element of the interior spaces as a result of the introduction of the religions that were mentioned in section 3.2. Hence, from the introduction of these religions, the anthropometric data is emphasized in the traditional residential interiors.

"In ancient times, when the height of the average person was about 5 *shaku*, the Japanese allowed for some variation, and made their *tatami* mats 6 *shaku* long. Similarly, taking the postwar average height as 160 cm.... and increasing that by a margin of one fifth, the corresponding *tatami* size would be 192 cm.... long by 96 cm..... wide." (Ueda,1990: 83)

As stated above, the size of the *tatami* mat is derived from the size of a prostrate man. Morse (1961) explains his observations on the Japanese traditional residential interiors, emphasizing the importance of the anthropometric data and how they integrate with the interiors as such:

"The first thing that impresses one on entering a Japanese house is the small size and low stud of the rooms. The ceilings are so low that in many cases one can easily touch them, and in going from one room to another one is apt to strike his head against the *kamoi*, or lintel. He notices also the constructive features everywhere apparent,- in the stout wooden posts, supports, cross-ties, etc." (Morse, 1961: 108)

In fact, the things that he has mentioned are the result of the difference between the anthropometry of the Japanese and the American. The stud that the Japanese have made according to their own anthropometry apparently disturbs Morse, who belong to another society.

The approximate size of the *tatami* mat is usually 90 cm.\*180 cm while the size of the folding screens, *shoji* and *fusuma* are nearly the same as *tatami*. Furthermore, Harada (1985) mentioned that the size of the *tokonoma* is almost 90 cm \* 180 cm. and the height is same as the ceiling height, which is also derived from the number of *tatami* used in the interior. Hence, there is an apparent relation between all of them even though they may have slight differences. This relation causes the modular approach of the traditional Japanese interiors. Besides, this may be explained by the fact that the size of all of them is in relation to the anthropometry of the user. What should be pointed out within the context of this study is the continuation of this relation between the anthropometry of man and size of the features both in the traditional and in the contemporary interiors with a slight differences in size. As a matter of fact, this correlation is explained by the differentiation of the height of man about 1 cm. in a period of 10 years.

### 5.3.3. The Reflections of Perception of Space

The way that a society perceive space is basically related to the social habits of that society. As mentioned in section 3.3.3, Japanese perception of space is influenced by such concepts as privacy and proximity. Hall (1969) mentioned the Japanese attitude to space organization from the point of view of perception.

"The Japanese in particular, devote much time and attention to the proper organization of their living space for perception by all their senses." (Hall, 1969: 61-62)

Their approach to privacy is different from ours; the intimate space in Japan must be the space between the family members. Family, as mentioned in section 3.1, is more important than the individual. Hence, they do not hesitate to use translucent paper panels between rooms.

In the interiors, translucent paper panels are used even though they do not keep out any sound. Engel (1964) indicated that the Japanese are used to all kind of noise, therefore they do not object to noise. Besides, they learn not to object to noise and not to make lot of noise to disturb anybody. In fact their

silent way of talking and acting may be the cause of this situation.

Their conception of inside, also explains their approach to space design being flexible. In Japan, the walls are movable and therefore the rooms are multifunctional. Space is defined for a specific function for a specific time, this being one of the outputs of Buddhist teaching of impermanence (Chang, 1982).

Accordingly, their concept of territory is different from the Western concept. Hall (1969) explains the influence of this fact on space as such;

"While a Japanese may not want to be alone and doesn't mind having people milling around him, he has strong feelings against sharing a wall of his house or apartment with others. He considers his house and the zone immediately surrounding it as one structure. This free area, this silver of space, is considered to be as much a part of the house as the roof." (Hall, 1969: 152)

In fact, this understanding also explains their attitude to their gardens, considering as one of the major components of the entire interior space.

On the other hand, the concept of center is a well developed phenomenon in Japanese culture. The living room is centrally organized and all other rooms open to the center. The Japanese fireplace, *hibachi* and *kotatsu* are centrally located. Hall (1969) explains this situation as having a positive fortification toward the center of the room while there is a negative reinforcement toward the edges. In fact, there is an obvious reason for this practice; cold is coming from the edges. Besides, there is a tendency to place and arrange everything centrally. Chang (1982) points out that their settlements of dwellings are centervise according to the empire's residence, in the early periods and the centervise attempts in the traditional residential interiors may be the prolongation of this concept.

As a result, there is a noticeable impact of family on Japanese traditional residential interiors. For instance, opaque partitions between the rooms, which are not resistant to noise, results in the participation of the family in the activities, pointing out the importance of the totality of the family organization. On the

other hand, the unpleasant organization of the kitchen is the result of the subordination of the female. In addition, system of religion points out both the significance of man, nature, natural gods, and; purification, emptiness, impermanency, change, harmony and experience. Hence, they appear not only as doctrines of religious system but also preconditions of spatial organizations.

Additionally, as Japan is covered by forests, wood and its products are the mostly used material in both inside and outside of the house. Humid climate of Japan dictated the use of *tatami* and the centrally organization of the interiors. Besides, anthropometry of the Japanese determined the size of *tatami* and accordingly, *tokonoma*, *fusuma*, *shoji* and the formation of the traditional residential interiors. Furthermore, Japanese perception of space influenced the way that they use sliding screens and partitions; likewise their giving importance to center demonstrates itself in the central arrangement of the *hibachi* and the living room.

As a matter of fact, the relation between Japanese cultural components and Japanese traditional residential interior spaces has a two way process. While the Japanese culture influence the formation and features in the traditional residential interiors, the habit of using the space also forms the culture. Thus, particularly in the Japanese example, there is an integration of space and culture forming a unique phenomenon, both opposing and relating to each other, same as *yin-yang*.

## 6. CONCLUSION

Within the frame work of this study, it has been attempted to explain the impact of culture on space. While culture is defined as a design for a living, space is considered to be a three dimensional place where man exists. While examining culture-space relationship, there may be different cultural variables involved in the determination of the formation of traditional residential interiors, but the factors, family, religion and philosophy, site and climate, anthropometry and perception of space, which have been described in chapter three; are differentiating from the others, being the major components influencing the traditional residential interiors in all societies.

Particularly in Japanese example, as their philosophical attitudes sets the facts as being existing as a family but not by themselves, the family organization is influential in the formation of Japanese culture. Besides, as Japanese religious system states mainly philosophical doctrines, it forms the cultural context of the society. As well as these, site and climate of Japan, anthropometry of the Japanese society and Japanese perception of space are the cultural inputs which have spatial importance.

Examining the major components of the Japanese traditional residential interiors, i.e. entrance, rooms, floor covering mats, furniture, sliding screens, some services and residential outer components, veranda and garden, the organization of the entire house and the way that the Japanese uses the space is explained. Thus, by the help of the mentioned investigations on space and culture in Japan, the impacts of Japanese culture on Japanese traditional residential interior is described. What should be pointed out is that, there are some design principles which are determined by the outcome of the mentioned interrelation between Japanese culture and traditional residential interior space.

These principles can be stated as modularity, flexibility, minimalism and multi-functionality. Today, these principles are considered more than being only Japanese, but became universal principles in the architectural world as well.

Modularity manifests itself in the standard unit sizes of not only the *tatami*, but also the sizes of the *tokonoma*, the *shoji* and *fusuma* and also in the ceiling height. Hence, the interior space is formed with the modular units which are basically obtained from the size of the *tatami*. Japanese space is a sequentially arranged space leading to an understanding of a step by step process in which inner parts of space are envisioned deeper and deeper. Accordingly, the sequentially arranged space asks for a modularity.

The formation of rooms opening to each other and even opening to a garden through a veranda demonstrates the flexible use of space in Japanese traditional residential interiors. The flexibility is achieved by using partitions and sliding screens which are used both in the interiors and on the exterior facades.

As a consequence of their poverty in the early periods, and overpopulation in the cities (Sumiko, 1987), traces of minimalism can be seen in Japanese interiors. As Ando (cited in Slesin, 1987) notes, Japanese can live even in a small place, a fact which can also be concluded from their use of space in interiors. An old Japanese saying, 'half a mat to stand, one mat to sleep', expresses aptly their minimalistic approach to life, and accordingly, to interiors. With the use of a minimal amount of furniture or other equipment, the Japanese can use a single room for dining, sleeping and living. This may be the reflection of multi-functionalism in addition to the minimalism. All equipment is stored in the cupboards to when not in use and removed when required for a particular purpose; it is the equipment itself that dictates the current function of a multi-functional room.

Hence, the stated phenomena, flexibility, modularity, minimalism and multi-functionality, can not be separated from each other as they are both effected and influenced from each other. As stated in previous chapters these phenomena are also depicted in the cultural inputs within the society.

The most important aspect of today's Japanese houses is, the link between traditionalism and modernism. It is generally believed that these aspects are sometimes synthesized well but there are naive solutions that have no quality other than imitation as well. Also there are solutions which reject both traditionalism and modernism and try to bring different solutions for new trends.

As a result, by protecting their cultural heritage Japanese reached those principles which are regarded as universal concepts nowadays. So, forming an appropriate relation between culture and space, every society can put forward some design principles firstly in their traditional spaces and then in contemporary ones and make those principles as world wide accepted ones.

For further studies, it is worth to investigate the interrelation between the traditional residential interiors, which were established decades ago and still survives, and the contemporary Japanese residential interiors, which are formed within the light of the traditional residential interiors. For an extension of the proposed study, a comparative research can be made between the formed interrelation in Japan and the Turkish residential interiors. Accordingly, within the progress of Turkish culture and the traditional residential interiors, a typology of contemporary residential interiors for Turkey might be examined.



## GLOSSARY

*Byobu* - screen for temporary partitioning  
*Cha-shitsu* - tea room  
*Chanoma* - dining room  
*Chigai-dana* - the space adjacent to *tokonoma*, used for mounting shelves and cupboards  
*Daidokoro* - kitchen  
*Engawa* - veranda  
*Fusuma* - sliding screen with opaque paper  
*Genkan* - entrance  
*Hakodan* - space under the stairs used for chests or sets of drawers  
*Hibachi* - a charcoal brazier  
*Hiroma* - anteroom  
*Hito-kami* - natural god having communal acceptance  
*I-ma* - living room  
*Jo* - a system of determining the area of a room by the mat it holds  
*Kakemono* - hanging picture in the *tokonoma*  
*Kami* - natural god  
*Kami-dana* - an altar serves for both Shintoism and Buddhism  
*Kamoi* - lintel  
*Kotatsu* - a *hibachi* sunk into the floor  
*Kura* - a place for storage  
*Kyakuma* - reception room (literally, space for visitor)  
*Ma* - interval  
*Mado* - window  
*Mizu-ya* - kitchenette  
*Nirvana* - extinction, last phase of evolution and development  
*Obenjo* - toilet  
*Ofuro* - bathroom  
*Osetsuma* - reception room (literally, responding and meeting space)  
*Oshi-ire* - a type of closet  
*San-sui* - scenery  
*Satori* - enlightenment  
*Sento* - bath house  
*Shakkei* - borrowed landscape  
*Shoin* - decorative study place  
*Shoji* - sliding screen with translucent paper  
*Shaku (shaku)* - the size of one foot  
*Tana* - ornamental shelving  
*Tansu* - storage chest  
*Tatami* - floor covering mat  
*To* - outside

***Tokonoma*** - alcove for displaying art and ornamentation  
***Tsi-tate*** - free standing scree used for hanging clothes  
***Tsubo*** - a system of determining the area depending on the distance between the center of the one column to the center of the other column  
***Tsuginoma*** - corridor like space  
***Tsui-tata*** - a solid screen placed at the entrance  
***Uchi***- inside  
***Uji-kami*** - natural god concerning one's own ancestor  
***Yin-yang*** - a symbol showing the complementing of opposites  
***Zashiki*** - reception room (literally, seat spread)

## APPENDIX A

### CULTURAL CONTENT AND ITEMS INVENTORY

#### 00 UNCATEGORIZED VARIABLES

#### 10 GENERAL APPROACH

- 101 Introduction
- 102 Maps
- 103 Place names
- 104 Dictionary
- 105 Cultural summary

#### 11 SOURCES

- 111 Selected sources
- 112 General sources
- 113 Other sources
- 114 Observations
- 115 Reporters
- 115 Books
- 117 Case study notes

#### 12 METHODOLOGY

- 121 Theoretic preferences
- 122 Practical preparations
- 123 Observations
- 124 Interview
- 125 Questionnaires
- 126 Recordings
- 127 Previous researches

#### 13 GEOGRAPHY

- 131 Site
- 132 Climate
- 133 Topography
- 134 Soil
- 135 Mineral beds
- 136 Animals

## 14 HUMAN BIOLOGY

- 141 Anthropology
- 142 Genetics
- 143 Racial Proximity
- 144 Ontogenetic informations
- 145 Eating Habits
- 146 Physiological information (anthropometry)

## 15 BEHAVIOUR AND PERSONALITY

- 151 Perception
- 152 Emotion
- 153 Behaviour and its deviation
- 154 Adaptation processes
- 155 Cultural characters (system)
- 156 Social characters (roles)
- 157 Personality (character)
- 158 Character malformation
- 159 Life story

## 16 DEMOGRAPHY

- 161 Population
- 162 Population structure
- 163 Birth statics
- 164 Birth rates
- 165 Death rates
- 166 Internal migrations
- 167 External migrations
- 168 Population policies

## 17 HISTORY AND CULTURE

- 171 Diffusion
- 172 Archeology
- 173 Traditional history
- 174 Historical buildings
- 175 Written history
- 176 Inventions and creativity
- 177 Social cultural change

## 18 CULTURE AS A TOTALITY

- 181 Moral
- 182 Function
- 183 Cultural involvement
- 184 Cultural goals
- 185 Ethnocentrism

## 19 LANGUAGE

- 191 Verbal Language
- 192 Dictionary

193 Grammar, syntax  
194 Phonology  
195 Style  
196 Semantic  
197 Semantic relations  
198 Dialects

## 20 COMMUNICATION

201 Gesture and signs  
202 Transmission of message  
203 Distribution of message  
204 Press  
205 Mailing  
206 Telephone and telegraph  
207 Radio and television  
208 Mass media

## 21 SOURCES

211 Means of propagate (mimeography)  
212 Literary language  
213 Publishing  
214 Distribution  
215 Photography  
216 Sound recordings  
217 Archives and registers  
218 Writing and printing materials

## 22 FOOD SOURCES

221 Annually production schedule  
222 Gathering  
223 Dealing in poultry  
224 Hunting  
225 Sea hunting  
226 Fishing  
227 Fishing equipment  
228 Sea industry

## 23 ANIMAL HUSBANDRY

231 Domestic animals  
232 Practical veterinary  
233 Pasture  
234 Milk and milk products  
235 Poultry  
236 By-products

## 24 AGRICULTURE

241 Plough the soil  
242 Knowledge of agriculture

243 Raising of grain cereals  
244 Raising of vegetables  
245 Forestry  
246 Slaughter of animals  
247 Floriculture  
248 Textile industry  
249 Special products

#### 25 FOOD TECHNOLOGY

251 Storage and Preservation  
252 Preparation  
253 Meat packing  
254 Cool storage  
255 Canned food industry  
256 Roasted meat  
257 Drying

#### 26 FOOD CONSUMPTION

261 Quench of hunger  
262 Diet and food  
263 Spice  
264 Meals  
265 Nourishing services  
266 Cannibalism

#### 27 ALCOHOL, DRUG AND MEDICINE

271 Water and lack of water  
272 Non alcoholic drinks  
273 Alcoholic drinks  
274 Drink industries  
275 Pubs  
276 Narcotics  
277 Tobacco  
278 Medicine and pharmacology

#### 28 LEATHER, TEXTILE AND MILLINERY

281 Leather manufacturing  
282 Leather industry  
283 Rope making  
284 Weaving  
285 Mat and basket making  
286 Textile products  
287 Nonwoven products  
288 Textile  
289 Paper making industry

#### 29 FINERY

291 Normal clothing

292 Private clothing  
293 Personal accessory  
294 Clothes production  
295 Private clothing production  
296 Cleaning and repairing

### 30 ACCESSORIES

301 Accessory  
302 Toilet products  
303 Production of the toilet equipment  
304 Alteration  
305 Beauty specialists  
306 Ornament production

### 31 NATURAL RESOURCES

311 Ways of using soil  
312 Water resources  
313 Timber and bud  
314 Forestry products  
315 Petroleum and gas wells  
316 Metallurgy  
317 metal and mineral

### 32 PRODUCTS

321 Wood products  
322 Wood construction  
323 Ceramic products  
324 Stone products  
325 Metal products  
326 Various mine crafts  
327 Steel and iron  
328 Metal industries

### 33 CONSTRUCTION

331 Construction industry  
332 Excavation works  
333 Masonry  
334 Steel construction  
335 Carpenter's work  
336 Plumbing  
337 Electrical works  
338 Various construction skills  
339 Material production industry

### 34 BUILDINGS

341 Architecture  
342 Residential buildings  
343 Other buildings

- 344 Public buildings
- 345 Resort buildings
- 346 Commercial buildings
- 347 Industrial buildings
- 348 Historical buildings

#### 35 MAINTENANCE AND MANAGEMENT OF BUILDINGS

- 351 Garden
- 352 Furniture
- 353 Interior decoration
- 354 Heating and lighting
- 356 Housekeeping
- 357 Internal services

#### 36 SETTLEMENTS

- 361 Patterns
- 362 Housing
- 363 Roads and vehicle traffic
- 364 Infrastructure
- 365 Public institutions
- 366 Commercial institutions
- 367 Parks
- 368 Other urban institutions
- 369 Urban and rural life

#### 37 ENERGY AND INDUSTRY

- 371 Energy sources
- 372 Fine brigade
- 373 Lighting
- 374 Heating
- 375 Heat terminals
- 376 Water
- 377 Hydro-electric terminals
- 378 Atomic energy
- 379 Other energy sources

#### 38 CHEMICAL INDUSTRY

- 381 Engineering works
- 382 Petroleum and coal
- 383 Rubber industry
- 384 Synthetic
- 385 Petrochemical products
- 386 Paint industry
- 387 Fertilizer industry
- 388 Soap and detergents
- 389 Explosives

#### 39 HEAVY INDUSTRY



391 Engine industry  
392 Electrical industry  
393 Heating and lighting  
394 Optic industry  
395 Docks and dockyards  
396 Railroad industry  
397 Automotive industry  
398 Aerospace industry

#### 40 MACHINERY

401 Engines  
402 Industrial engines  
403 Electrical engines  
404 Measuring and recording equipment  
405 Transportation engines  
406 Agricultural Engines

#### 41 EQUIPMENT

411 Guns  
412 General tools  
413 Special tools  
414 Various types of ironmongery  
415 Equipment  
416 Pots and pans  
417 Apparatus

#### 42 GOODS

421 Ownership system  
422 Real estates  
423 Estates  
424 Legal rights  
425 Buying and selling  
426 Lending  
427 Leasing  
428 Legacy  
429 Control and administration

#### 43 EXCHANGES

431 Gift buying  
432 Buying and selling  
433 Production and supply  
434 Income and demand  
435 Price and value  
436 Exchange medium  
437 Market  
438 Import  
439 Export

#### 44 MARKET

- 441 Commerce
- 442 Wholesale
- 443 Retailing
- 444 Market survey
- 445 Services section
- 446 Commission
- 447 Advertising

#### 45 FINANCE

- 451 Accounting
- 452 Credits
- 453 Banking
- 454 Savings and investments
- 455 Stock exchange
- 456 Insurance
- 457 Foreign exchange

#### 46 WORKS AND LABOURS

- 461 Work and leisure days
- 462 Division of labour according to sex
- 463 Specialisation and craftsmanship
- 464 Labour and employer
- 465 Daily wages and monthly salaries
- 466 Labour - employer relations
- 467 Labour organizations
- 468 Collective control

#### 47 COMMERCIAL AND INDUSTRIAL ORGANIZATIONS

- 471 Ownership and capital
- 472 Private investment
- 473 Firms
- 474 Cooperatives
- 475 Public economic foundations
- 476 Competition
- 477 Control
- 478 Commerce and industry chambers

#### 48 TOURISM AND TRANSPORTATION

- 481 Movement and vehicles
- 482 Cargo
- 483 Transportation firms
- 484 Travelling
- 485 Tourism agencies
- 486 Roads
- 487 Storekeeping
- 488 Transporters

49 TRANSPORTATION

- 491 Highways
- 492 Transportation by animals
- 493 Vehicles
- 494 Highway transportation
- 495 Auxiliary transportation
- 496 Railroads
- 497 Railway transportation
- 498 Stations and terminals
- 499 Highway and railway constructions

50 SEA AND AIRWAYS

- 501 Ships
- 502 Navigation
- 503 Sea and water ways
- 504 Harbours
- 505 Sea transportation
- 506 Air vehicles, airplanes
- 507 Aviation
- 508 Port management
- 509 Air transportation

51 LIFE STANDARD

- 511 Life standard
- 512 Daily routines
- 513 Sleep
- 514 Cleaning
- 515 Personal health
- 516 Prosperity in a given period
- 517 To make profitable use of the spare times

52 LEISURE

- 521 Talk
- 522 Humour
- 523 Hobbies
- 524 Games
- 525 Gambling
- 526 Athleticism
- 527 Weekends
- 528 Holidays
- 529 Resting opportunities

53 FINE ARTS

- 531 Decoration
- 532 Graphic arts
- 533 Music
- 534 Musical instruments
- 535 Dance

536 Theatre  
537 Fair speech  
538 Literature  
539 Fine writing

#### 54 ENTERTAINMENT

541 Performing arts  
542 Commercial sports  
543 Exhibitions  
544 Conferences  
545 Concerts  
546 Cinema  
547 Night clubs  
548 Illegal organizations  
549 Entertaining programs

#### 55 INDIVIDUAL AND MOBILITY

551 Personal name  
552 Animal and object names  
553 Nick names  
554 Status, role  
555 Talents  
556 Earning fortune  
557 Strengthening the forgery

#### 56 STRATIFICATION

561 Age groups  
562 State of sex  
563 Ethnic stratification  
564 Casts  
565 Classes  
566 Slavery  
567 Slaves  
568 Squatters  
569 Labours

#### 57 RELATIONSHIPS

571 Social relations and groups  
572 Friendship  
573 Cliques  
574 Hosting  
575 Religious unity  
576 Manner  
577 Ethic differences  
578 Intergroup  
579 To rebel

#### 58 MARRIAGE

581 Base of marriage  
582 Organization of marriage  
583 Way of marriage  
584 Setting up the marriage  
585 Marriage ceremony  
586 Ending up the marriage  
587 Second marriages  
588 Illegal marriages  
589 Running away from marriage

#### 59 FAMILY

591 The place family lives  
592 Individuals in the family  
593 Family relations  
594 Nucleus family  
595 Polygamy  
596 Large family  
597 Child adaptation

#### 60 KINSHIP

601 Kinship words  
602 Kinship relations  
603 Grand parents  
604 Uncles and nephews  
605 Cousins  
606 Brother in law  
607 Sister in law  
608 Fictive relations  
609 Action towards non-family members

#### 61 KINSHIP GROUPS

611 Rules of extraction  
612 Relatives  
613 Family tree  
614 Fraternity  
615 Descendants  
616 Moities  
617 Groups with double extraction  
618 Clans  
619 Tribe and ownership

#### 62 NEIGHBOURHOOD

621 Neighbourhood structure  
622 Headman  
623 Council of elders  
624 Local  
625 Police  
626 Social control

627 In-group lows  
628 Intergroup lows

### 63 ORGANIZATION IN THE SPACE

631 Settlements  
632 Towns  
633 Cities  
634 Districts  
635 Provinces  
636 Regions

### 64 STATE

641 Citizen  
642 Constitution  
643 Presidency  
644 Premiership  
645 Cabinet  
646 Parliament  
647 Administrative Institutions  
648 Foreign relations  
649 Juridical Institutions

### 65 GOVERNMENT

651 Taxation  
652 Public expenses  
653 Public services  
654 Research  
655 Public enterprises  
656 Public regulations  
657 National defence  
658 National education  
659 Other governmental works

### 66 POLITICAL BEHAVIOUR

661 Exploitation  
662 Intrigue  
663 Services  
664 Power groups  
665 Parties  
666 Elections  
667 Political groups  
668 Political movements  
669 Revolutions

### 67 LAWS

671 Legal norms  
672 Legal responsibilities  
673 Faults

674 Crimes  
675 Contracts and agreements  
676 Institutions

#### 68 CRIME AND PUNISHMENTS

681 Sanctions  
682 Murder  
683 Crimes against persons  
684 Sex and marriage crimes  
685 Attacks against property  
686 Non obedience to obligations  
687 Attacks against government  
688 Public crimes

#### 69 JUDGEMENT SYSTEM

691 To trust in law  
692 Power of judgement  
693 Judgement, institution and staff  
694 Functioning of prosecution  
695 Trial  
696 Prisons  
697 Special Courts  
698 Punishments

#### 70 ARMED FORCES

701 Military organizations  
702 Military services and education  
703 Discipline and moral  
704 Army  
705 Support commandership  
706 Sea forces  
707 Air forces  
708 Gendarme

#### 71 MILITARY TECHNOLOGY

711 Military engineering  
712 Military bases  
713 Ordnance  
714 Uniforms  
715 Military vehicles  
716 War ships  
717 War planes  
718 Military equipment  
719 War industry

#### 72 WAR

721 Starting war

722 Mobilization  
723 Strategy  
724 Logistics and supply  
725 Tactics  
726 War  
727 After war period  
728 Peace making

### 73 SOCIAL PROBLEMS

731 Disasters  
732 Disabled  
733 Alcoholism, addiction  
734 Paralysed  
735 Poor people  
736 Addicted  
737 Elderly

### 74 WEALTH AND SOCIAL SERVICES

741 Social help institutions  
742 Medical research  
743 Hospitals  
744 Public health and protection  
745 Social security  
746 Public services  
747 Private Aids  
748 Social services

### 75 HEALTH MEDICINE AND ILLNESS

751 Protective physician  
752 Injuries  
753 Announcement of illness  
754 Magic  
755 Amulet and sprite cure  
756 Psychiatry  
757 Medical treatment  
758 Medical care  
759 Medical personnel

### 76 DEATH

761 Life and death concepts  
762 Ending one's life  
763 Death  
764 Funeral  
765 Mourning  
766 Different behaviours  
767 Transmission to death  
768 Worship the dead



77 RELIGIOUS BELIEFS  
771 General religious behaviour  
772 Cosmology  
773 Mythology  
774 Spiritualism  
775 About the other world  
776 Spirits of god  
777 Luck  
778 Holy places and objects  
779 Sacred systems

78 RELIGIOUS INSTITUTIONS  
781 Practice  
782 To trust in god  
783 Confession  
784 Restrictions  
785 Rituals  
786 Worship the old gods  
787 Foretell the fortune  
788 Magic

79 RELIGIOUS INSTITUTIONS  
791 Jugglers  
792 Saints  
793 Howdahs  
794 Community  
795 Groups  
796 Institutional rituals  
797 Missionaries  
798 Religious punishments

80 NUMBERS AND MEASUREMENTS  
801 Numerology  
802 Numbers  
803 Mathematics  
804 Measures and meters  
805 Measurement of time  
806 Money units  
807 Measurement of the land

81 EXACT INFORMATION  
811 Logic  
812 Philosophy  
813 Scientific methods  
814 Humanistic studies  
815 Pure sciences  
816 Applied sciences

## 82 COMMON KNOWLEDGE ON NATURE AND MAN

- 821 Air
- 822 Physics
- 823 Geography
- 824 Botany
- 825 Zoology
- 826 Anatomy
- 827 Physiology
- 828 Sociology

## 83 SEX

- 831 Sexuality
- 832 Sexual stimulation
- 833 Intercourse
- 834 Sexual obligations
- 835 Kinship relations
- 836 Pre-marriage relations
- 837 Homosexuality

## 84 REPRODUCTION

- 841 Menstruation
- 842 Pregnancy
- 843 Becoming pregnant
- 844 Birth
- 845 Difficult labour
- 846 Post-labour care
- 847 Miscarriage
- 848 Illegal babies

## 85 BABY AND CHILD

- 851 Social place of the child
- 852 Childhood rituals
- 853 Feeding the baby
- 854 Baby care
- 855 Child care
- 856 Child development
- 857 Games
- 858 Place of the child in the society

## 86 SOCIALIZATION

- 861 Teaching technics
- 862 Cutting of breast feeding
- 863 Teaching cleanliness
- 864 Sexual training
- 865 To acquire
- 866 Independence training
- 867 Manner teaching
- 868 Skill training

869 Belief teaching

87 EDUCATION

871 System of education

872 Primary school

873 General education

874 Professional education

875 Teachers

876 Teaching methods

877 Higher education

88 YOUTH, ADULT AND ELDERLY

881 Adolescence

882 Status of the youth

883 Youth organizations

884 Majority

885 Adulthood

886 Old age

887 Life of the elderly

888 Tasks of the elderly

(Murdock (1965 ) cited in Güvenç, 1984: 379-389. Translated by the author)

## LIST OF REFERENCES

- Architecture of Japan. Facts About Japan. 05511 (september). Tokyo: Ministry of Foreign Affairs, 1981.
- AYVERDI, A. Japonya'da İki Ev. İstanbul: İTÜ Basım İşliđi, 1963.
- CHANG, C. Japanese Spatial Conception: A Critical Analysis of Its Elements and Traditions of Japan and Its Post-war Era. Diss. University of Pennsylvania, 1982. Pennsylvania: UMI,1991. 8307295.
- DIFFRIENT, N. et. al. Humanscale 1/2/3. Massachusetts: The MIT Press, 1991.
- DOMEKI, K. "Japanese Culture". About Japan Series. 11. June, 1979.
- ELIOVSON, S. "The Japanese Garden." Humanscape: Enviroments for People. Ed. S. Kaplan and R. Kaplan. Michigan: Ulrich's Books, Inc., 1982. 170-174.
- ENGEL, H. The Japanese House- A Tradition for Contemporary Architecture. Vermond: Charles E. Tuttle Co. of Ruthland, 1964.
- FATHY, H. Architecture for the Poor. Chicago: University of Chicago Press, 1973.
- GOVERNMENT OF JAPAN. Religions in Japan. Tokyo: Ministry of Education, 1963.
- GRAUSTARK, B. (ed.) "Japanese Design." Metropolitan Home, March (1990): 75-100.
- GREENBIE, B.B. Space and Spirit in Modorn Japan. New Haven: Yale University Press, 1988.
- GÜVENÇ, B. İnsan ve Kültür. İstanbul: Remzi Kitabevi, 1984.
- GÜVENÇ, B. Japon Kültürü. Ankara: T.İş Bankası Yayınları, 1989.
- GÜVENÇ, B. Kültür Konusu ve Sorunlarımız. İstanbul: Remzi Kitapevi, 1985.
- GÜVENÇ, B. "Mekan ve Eğitim Sorunları ve Bir Mekan Antropolojisine

Dođru." Mimarlık, 1 (1971) : 40-44.

- HALL, E.T. The Hidden Dimension. New York: Anchor Doubleday, 1969.
- HARADA, J. The Lesson of Japanese Architecture. Ed. C.G.Holme. New York: Dover Publications Inc., 1985.
- HIBI, S. Japanese Detail: Architecture. California: Chronicle Books, 1989.
- JEREMY, M. & ROBINSON, M.E. Ceremony and Symbolism in the Japanese Home. Manchester: Manchester University Press, 1988.
- KENKYU-KAI, S. "Religion of Japan". About Japan Series. 14 March, 1980.
- KANEYOSHI, N. et. al. Pictorial Encyclopedia of Japanese Culture. Translated by Richard De Lapp. Tokyo: Gakken Co., Int., 1987.
- KATOH, S. Japan: Tha Art of Living. Tokyo: Charles E.Tuttle Company, 1990.
- KING, A. D. "Theorising Difference: Culture, Globalisation and Space." Culture-Space-History. 5 (1990) : 407-420.
- LOW, S. and CHAMBER, E., (eds.) Housing, Culture and Design: A Comperative Perspective. Philadelphia: University of Pensylvania Press, 1989.
- MITUSUNI, Y. Foreward. Japan Design. Ed. T. Ikko and K. Kazuko. Tokyo: Libro Port Co. Ltd., 1984.
- MORSE, E.S. Japanese Homes and Their Surroundings. New York: Dover Publications, 1961.
- MUNARI, B. Design As Art. Translated by Patrick Creagh. England: Penguin Books Ltd., 1966. Reprinted in Ankara: METU Faculty of Architecture, 1980.
- NAMENWIRTH, J.Z. and WEBER, R.P. Dynamics of Culture. Boston: Allen and Unwin Inc., 1987.
- SLESIN, S. et. al. Japanese Style. London: Thames and Hudson Ltd., 1987.
- SMITH, R.A. "Comfort, Room Use and Economy of Means in the Japanese House." Building and Environment 16.3 (1981): 167-175.
- SUMIKO, E. et. al. Fukagawa Edo Museum. Tokyo: Fukagawa Edo Museum, 1987.

- TAKAMURA, H. "Eight Elements of Japanese Style." Process Architecture. 53 (1984): 82-85.
- TASKER, P. The Japanese: Portrait of a Nation. New York: Meridian Printing, 1989.
- UEDA, A. The Inner Harmony of the Japanese House. Tokyo & New York: Kodansha International, 1990.
- UYGUR, N. Kültür Kuramı. İstanbul: Remzi Kitabevi, 1984.
- WINTHROP, R.H. ( ed.) Culture and the Antropological Tradition. Lanham: University Press of America, 1990.

## SELECTED BIBLIOGRAPHY

- COLQUHOUN, A. "Typology and Design Method." People and Buildings. Ed. R. Gutman. New York: Basic Books, 1972. 397-405.
- ÇAKIN, Ş. Mimari Tasarım, İnsan ve Çevre. İstanbul: Özal Matbaası, 1990.
- FUTAGAWA, Y. (ed.) "Introduction". GA Houses 20 Japan III. Introduction trans. by Hiroshi Watanabe. Tokyo: A.D.A. EDITA Tokyo Co., Ltd., 1988.
- Geography and Industry. Tokyo: Ministry of Foreign Affairs, Video, n.024, 25min.
- GOODENOUGH, W.H. Description and Comparison in Cultural Antropology. Chicago: Aldine Publishing Co., 1970.
- GÜVENÇ, B. "Buruk Acı/ Hurma Tadı Japon Sanatı." Journal of Faculty of Architecture. 5.2 (1979): 227-268.
- HORTON, H.M. "Introduction". What is Japanese Architecture? By Nishi Kazuo and Hozumi Kazuo. Tokyo and New York: Kodansha International, 1983.
- INOUE, M. Space in Japanese Architecture. Translated by H. Watanabe. New York & Tokyo: Weatherhill, Inc., 1985.
- Japan in Transition. Tokyo: Ministry of Foreign Affairs, 1975.
- Japan-An Overview. Tokyo: Ministry of Foreign Affairs, Video, n.024, 30min.
- Japanese Architecture-The Living Heritage. Tokyo: Ministry of Foreign Affairs, Video, n.011, 30min.
- TAKAMURA, H. et. al. "Discussion: Japanese Style" Process Architecture. 53 (1984): 57-63.
- MALINOWSKI, B. A Scientific Theory of Culture and Other Essays. New York: Oxford University Press, 1960.
- OLIVER, P. Dwellings: The House Across The World. Oxford: Phaidon Press Limited, 1987.

- Protecting the Cultural Heritage. Tokyo: Ministry of Foreign Affairs, Video, n.036, 16min.
- **RAPOPORT, A. and WATSON, N.** "Cultural Variability in Physical Standards." People and Buildings. Ed. R.Gutman. New York: Basic Books, 1972. 33-53.
- **RAPOPORT, A.** House Form and Culture. N.J. Englewood Cliffs: Prentice Hall Inc., 1969.
- **STEWART, D.B.** "Introduction". GA Houses 14 Special Issue: Residential Architecture Japan Part II. Ed. Makoto Uyeda. Tokyo: A.D.A. EDITA Tokyo Co., Ltd., 1988.
- **YAMAWAKI, I.** (ed.) Japanese Houses Today. Tokyo: Asahi Shimbun, 1958.
- **YÜCEL, A.** "Mekan Okuma Aracı Olarak Tipolojik Çözümleme." Çevre, Yapı ve Tasarım. Ed. M. Pultar. Ankara: Çevre ve Mimarlık Bilimleri Derneği, 1979. 381-400.