WESTERN INFLUENCES ON JAPANESE USE OF INTERIOR SPACE

THESIS

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By

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ABSTRACT


This study is concerned with describing the changing concepts of space utilization in Japanese house design and the cultural forces producing the changes. Sources of information include literature spanning approximately one hundred years, a Japanese student of interior design, and the Japanese Trade Commission in Dallas, Texas.

A description of concepts of space design that were very stable for centuries in the Japanese house. The changes in architecture following World War II, and a contemporary house design by a noted Japanese architect are related to concurrent religious, philosophical, and economic forces. The influence of western culture upon Japanese life-style and design solutions to space problems is either indicated or inferred.
### TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LIST OF ILLUSTRATIONS</td>
<td>iv</td>
</tr>
<tr>
<td>I.</td>
<td>INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>The Problem and Its Purpose</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Significance of Problem</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Limitations of Study</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Methods of Procedure</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Source of Data</td>
<td></td>
</tr>
<tr>
<td>II.</td>
<td>THE USE OF SPACE IN THE TRADITIONAL JAPANESE HOUSE</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Floor Plan</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Entrance Hall</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Main Room</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Kitchen</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bath</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lavatory</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Toilet</td>
<td></td>
</tr>
<tr>
<td>III.</td>
<td>POST-WAR CHANGES IN THE USE OF SPACE IN THE JAPANESE HOUSE</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>Floor Plan</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Entrance Hall</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Living Room</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dining Room</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Kitchen</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bedroom</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bath</td>
<td></td>
</tr>
<tr>
<td>IV.</td>
<td>USE OF SPACE IN A CONTEMPORARY JAPANESE HOUSE</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Entrance Hall</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Living Room</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bedroom</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dining Room and Kitchen</td>
<td></td>
</tr>
<tr>
<td>V.</td>
<td>SUMMARY AND CONCLUSIONS</td>
<td>39</td>
</tr>
<tr>
<td></td>
<td>BIBLIOGRAPHY</td>
<td>43</td>
</tr>
</tbody>
</table>

iii
<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Floor Plan of Traditional Japanese House</td>
<td>8</td>
</tr>
<tr>
<td>2.</td>
<td>Floor Plan of Entrance</td>
<td>9</td>
</tr>
<tr>
<td>3.</td>
<td>Tatami</td>
<td>10</td>
</tr>
<tr>
<td>4.</td>
<td>Placement of Tatami</td>
<td>10</td>
</tr>
<tr>
<td>5.</td>
<td>Use of Comforters and Pillow</td>
<td>11</td>
</tr>
<tr>
<td>6.</td>
<td>Illustration of Tokonoma and Chigai-dana</td>
<td>12</td>
</tr>
<tr>
<td>7.</td>
<td>Section of Veranda and Main Room</td>
<td>14</td>
</tr>
<tr>
<td>8.</td>
<td>Typical Kitchen in City House</td>
<td>16</td>
</tr>
<tr>
<td>9.</td>
<td>Braziers</td>
<td>17</td>
</tr>
<tr>
<td>10.</td>
<td>Kitchen Storage and Stairs</td>
<td>17</td>
</tr>
<tr>
<td>11.</td>
<td>Bath-tub</td>
<td>18</td>
</tr>
<tr>
<td>12.</td>
<td>Lavatory</td>
<td>19</td>
</tr>
<tr>
<td>13.</td>
<td>Entrance to Toilet</td>
<td>20</td>
</tr>
<tr>
<td>14.</td>
<td>Interior of Toilet</td>
<td>20</td>
</tr>
<tr>
<td>15.</td>
<td>Floor Plan of Contemporary Japanese House</td>
<td>22</td>
</tr>
<tr>
<td>16.</td>
<td>Illustration of Combination Dining and Kitchen</td>
<td>24</td>
</tr>
<tr>
<td>17.</td>
<td>Dining Room with Garden View</td>
<td>24</td>
</tr>
<tr>
<td>18.</td>
<td>Dining Room with Stairs</td>
<td>25</td>
</tr>
<tr>
<td>20.</td>
<td>Contemporary Bedroom</td>
<td>27</td>
</tr>
<tr>
<td>21.</td>
<td>Contemporary Bath with Floor Plan</td>
<td>28</td>
</tr>
<tr>
<td>22.</td>
<td>Contemporary Japanese House</td>
<td>30</td>
</tr>
<tr>
<td>Figure</td>
<td>Description</td>
<td>Page</td>
</tr>
<tr>
<td>--------</td>
<td>---------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>23.</td>
<td>Floor Plan</td>
<td>32</td>
</tr>
<tr>
<td>24.</td>
<td>Entrance Hall</td>
<td>32</td>
</tr>
<tr>
<td>25.</td>
<td>Stairway</td>
<td>33</td>
</tr>
<tr>
<td>26.</td>
<td>Living Room</td>
<td>34</td>
</tr>
<tr>
<td>27.</td>
<td>View of Garden</td>
<td>35</td>
</tr>
<tr>
<td>28.</td>
<td>Bedroom</td>
<td>36</td>
</tr>
<tr>
<td>29.</td>
<td>Dining and Kitchen</td>
<td>38</td>
</tr>
</tbody>
</table>
CHAPTER I

INTRODUCTION

Space to the westerner is often thought of as volume without boundaries extending in all directions, but to the Japanese, trained to give meaning to space, it is a finite volume for sensory experience. Lacking the wide-open spaces available to many westerners, the Japanese are masters in the use of small spaces and are able to live in close proximity within the family. Their ability to stretch visual space by intensifying the position of an object is well known to those studying Oriental art. In the design of the house much time is devoted to the proper organization of living space to enhance its perception by all the senses. Extension of space enables the Japanese to view an object of beauty, smell the flowers, hear the birds sing, feel the texture of the straw mats, and taste the fruits of nature all at one time.

Western ideas on the use of space traditionally resulted in houses with areas designated for one purpose only in contrast to the multiple use of space found in the Pre-World War II Japanese house. Apparent to those observing Oriental cultures today is the influence of western cultures on the Japanese traditional use of space. The effect of these influences upon the life-style of the Japanese will be observed as they relate to space planning.
The Problem and Its Purpose

Changing value systems in Japanese culture are not only reflected in the life-styles of the people, but also strongly influence their use of interior space. Although such value changes affect aesthetic expressions in all facets of culture, this study will deal only with the use of interior space, a major consideration in the art of interior design. The purpose is to study western influence by illustrating the new use of space in the lay-out of a representative contemporary Japanese house. The similarity to the western designer's approach to the division of space will be drawn by use of a floor plan. Both western and traditional Japanese values, where they occur, will be indicated in the description of the modern Japanese house to show the changing life-style and the adaptation of architectural forms supporting it.

Significance of Problem

During the many centuries prior to Commodore Perry's opening of Japan to the rest of the world, cultural isolation produced a stability of art and philosophy that allowed a relatively easy understanding of the study of traditional Japanese art. Since the time of Perry, and especially since World War II, outside cultural influences have produced many changes both in philosophy and art. Therefore, the study of modern Japanese art and design can no longer be restricted entirely to the guiding forces behind traditional design. To
study the modern requires an understanding of changes in philosophy and religion.

This study of the use of space in Japanese interiors by the comparison of the traditional and the modern, should provide a pattern for a broader study of the influence of a changing philosophy upon other forms of art and interior design.

Limitations on Study

This study of interior space will be limited to that found in the Japanese house, for architectural tradition, with the exception of religious shrines, is strongest in private residences. The example of a traditional house selected for use in this study is one shown in Bruno Taut's *Houses and People of Japan*.\(^1\) It represents an average size city house standard for many years preceding World War II. Recent literature supplies many examples of modern Japanese houses showing strong western influences. Two examples of contemporary houses selected for use in this study are by the architect Hayahiko Takase, shown in Seike's *Contemporary Japanese Houses*.\(^2\)

Bruno Taut's book was one of a very few which contained traditional house floor plans with adequate explanation of the use of space. The architect Hayahiko Takase is mentioned

\(^1\)Taut, Bruno, *Houses and People of Japan* (Tokyo, 1937).

so frequently in contemporary literature that his house designs were selected as representative.

Method of Procedure

The comparative study of traditional and modern Japanese use of interior space will be made from floor plans, photographs, and drawings. Because the floor plan is the conventional graphic means of representing most completely and concisely architectural and interior spaces, it provides the single most fruitful source of information for this study.

First, the traditional plan will be analyzed and described. Included will be descriptions and illustrations of space used in the typical Japanese manner. Second, the modern plans will be analyzed and described with observations of changes in the use of space.

Source of Data

There is extensive literature available in books and periodicals with adequate photography and illustration of the modern and the traditional Japanese interior to provide resource material for this study. Other sources of information used include interviews with Hiromi Tanaka, Japanese student of interior design, and the Japanese Trade Commission, Dallas, Texas.
CHAPTER II

THE USE OF SPACE IN THE TRADITIONAL JAPANESE HOUSE

While this study will not attempt to give a history of Japanese architecture, it is most helpful to the understanding of the traditional use of interior space to provide a background of guiding principles as expressed in two dominant religions.

According to Kakuzo Okakura in The Book of Tea, Taoism and Zennism embodied the basic philosophies which are manifest in the Japanese life-style of all social levels. Lao Tzu, Chinese philosopher and founder of Tao in the sixth century B.C., had this to say in trying to describe Taoism:

There is a thing which is all-containing, which was born before the existence of Heaven and Earth. How silent! How Solitary! It stands alone and changes not. It revolves without danger to itself and is the mother of the universe. I do not know its name and so call it the Path. With reluctance I call it the Infinite.3

The Path has been variously translated as the Way, the Absolute, the Law, Nature, Supreme Reason, and the Mode.

Zennism, considered the practical application of Taoism, advocated individualism, direct communion with the inner nature

of things, and considered nothing real except that which concerned the working of our own minds. The opportunity to contemplate and meditate was abundant in the highly ritualistic social function of drinking tea. The tea-room became an Abode of Fancy where an object of art could be contemplated in silence, or restricted conversation, with the drinking of tea.

The tea-room was sometimes referred to as an Abode of Vacancy because in its usual ten feet square it was empty except for what would be placed there temporarily to be appreciated by the guests. Okakura expresses a Taoist idea in the following way:

The reality of a room was to be found in the vacant space enclosed by the roof and walls, not in the roof and walls themselves. Vacuum is all-potent because all-containing. In vacuum alone motion becomes possible. One who could make of himself a vacuum into which others might freely enter would become master of all situations. The whole can always dominate the part.\(^4\)

Also, the tea-room was referred to as the Abode of the Unsymmetrical. Confucius, a contemporary of Lao Tzu, expressed a philosophy that embraced dualism as a theme of life and symmetry as an element of achieving perfection in art. Okakura said: "Taoist and Zen conception of perfection was different. The dynamic nature of their philosophy laid more stress upon the process through which perfection was sought

than upon perfection itself. True beauty could only be discovered by one who mentally completed the incomplete."\(^5\)

The simplicity and purism of Taoism and Zennism explain the typical uncluttered appearance of the Japanese house. As in all cultures, some diversity is present and the Shinto and Buddhist forms of worship bring with them articles of religious ritual which must be housed in living space. The Buddhist shrine may be very small and contain a statue, incense burner, food offerings, and other paraphernalia of the ceremony. Shinto shrines have no statues nor incense, but are likely to have a small round mirror symbolizing Purity, wooden chips on which are inscribed messages to various Shinto gods, a lamp, and salt.

Legend has it that the emperor is divine, having descended from the great grandson of the Sun Goddess, Amaterasu, but with the surrender following World War II, the emperor made a public denial of his divinity. Younger generations of Japan, for the present at least, do not attach importance to Shinto and it seems to provide no guiding force in the religious aspects of Japanese living. Who knows if Taoism and Zennism will continue to prevail as the guiding spiritual and aesthetic set of values?

In the typical traditional Japanese house the total space of the house and the garden is considered in the unified

design. Shoji screens, or outside walls, separate the interior from the garden only when it is desired by the occupants, because the openness of the house and garden gives the Japanese direct contact with nature with which he is in harmony.

The floor plan, Figure 1, is of an average size house with a typical arrangement of rooms. The main room is on the right and the family room is on the left of the floor plan, creating spaciousness by being unencumbered with walls and furniture. In addition to the interior space, the eye is free to wander as far as it likes through the landscape.
Entrance

Upon arriving through the gate, a guest will approach the house and enter on a packed earth or stone floor. After stepping upon a wooden floor just inside the entrance threshold, the Japanese remove their shoes or clogs and then proceed to enter the house by stepping up onto a higher level covered with grass mats called tatami. The shoes are left either on the wooden floor or stored in a cabinet in the entryway. Once in the matted floor area as shown in Figure 2,

Fig. 2--Floor plan of entrance

guests and members of the family walk in stocking feet or in soft slippers, which are preferred for warmth.
Main Room

From the entryway, guests proceed into the main room, a multiple-use room in which almost every activity takes place. On the floor the Japanese will place tatami mats, two to three inches thick and three feet wide and six feet long, made of straw matted and bound together with stout string. Figure 3 illustrates the proportion of the mats as well as indicates that they are bound on the edges with a black linen tape. The mats, or tatami, are said to fit so tightly on the floor that a piece of paper cannot be inserted between them and are arranged so that the corners

Fig. 3--Tatami

Fig. 4--Placement of Tatami
of four mats are never allowed to meet, but may be placed so that the corners of two mats join at the middle of a third mat as illustrated in Figure 4. In Figure 4 one may see that the size of rooms may be determined by the modular arrangement of the tatami. Thus, the most common size room is a six- or eight-mat pattern. The six-mat room will therefore measure nine feet by twelve feet and the eight-mat room will measure twelve feet by twelve feet. The tatami will serve as a place for sleeping, sitting, or eating. Food is usually served on trays or very low tables placed on the tatami and around which persons will kneel to eat. At bedtime the entire tatami-covered floor may be used for sleeping. A heavy comforter is placed upon the mats and an equally thick comforter is provided as cover. Figure 5 illustrates the use of the comforters and a pillow consisting of a lightweight wooden box with a small cylindrical cushion tied to the top. Sheets of soft paper folded several times are tied to the cushion to keep it clean and are changed
daily. When not in use, the comforters are rolled and stored in a closet with the pillows.

Two central features of the main room are the tokonoma and the chigai-dana. The tokonoma originated in China as a sacred place for a Buddhist scroll and was later changed into a place of ceremony by the samurai warrior. Through the influence of Zen philosophy the tokonoma became a place for many cultural things to be displayed and admired, such as pictures, scrolls, a vase of flowers, and other art objects. Since it is desirable to have a source of light directed upon the art objects, the tokonoma is customarily placed at

Fig. 6--Illustration of tokonoma and chigai-dana
right angles and adjacent to the veranda, whose wall is a shoji or a window.

The other central feature of the main room, the chigai-dana, is utilitarian as well as aesthetic and is usually adjacent to the tokonoma. The chigai-dana could be placed at right angles to the tokonoma on the wall opposite the veranda, but in any case it generally consists of two or more shelves placed asymmetrically and a small sliding-door cabinet in the corner. In addition to these, a sliding-door cabinet may be placed high up in the recessed area and may extend the full width of the chigai-dana. Pictures, scrolls or writing materials are stored on the second shelf; other scrolls or art objects are kept in the cabinet so that they will be convenient for changing the art objects displayed in the tokonoma. Another standard feature associated with these two recessed areas is a partition separating the tokonoma and the chigai-dana. This partition is often made from a trunk or limb of a tree from which the bark has been removed and left in its natural state to become rich in color with the passage of time.

By tradition, the floor of the tokonoma is raised above the floor of the chigai-dana and both are highly polished wood. Also the traditional arrangement of the tatami is such that they are always placed parallel to these recesses. Figure 6 depicts a beautiful example of the tokonoma and the chigai-dana.
When moving from the main room, where guests are entertained, one might be required to slide the fusuma to provide passageway. The fusuma is one of three kinds of sliding screens and is the innermost movable partition within the house separating one room from another. It is constructed of vertical and horizontal strips of wood forming two-inch by four-inch rectangles and covered on both sides with thick, durable, opaque paper which may be decorated. In the event a large room is needed, the fusuma are pushed back so that two rooms become one.

The movable partitions between the room and the veranda, or yengawa, are called shoji, which are also made of light wooden framing, joined at right angles and spaced so as to create many pleasing horizontal rectangles. Rice paper,
a translucent, strong, white material, is glued to the outside of the wooden framing. When the shoji are closed, they provide some privacy while allowing light to pass into the rooms. The rice paper is said to be so durable that it has to be replaced only once a year.

The third type of movable partition is the outermost set of sliding screens, which is used for securing the house at night and for protection from stormy weather. These are wooden screens called amado, and are made of thin boards held together with light wooden framing and placed in grooves along the outer edge of the veranda.

Figure 7 provides a cross-section of the Japanese house illustrating the arrangement of the movable partitions and the orientation of the tokonoma and the chigai-dana.

Kitchen

One may enter the kitchen from the family room through an opening which may not have movable partitions, but may be covered only by hanging strips of fabric. The kitchen of the average house in Japan is usually only a narrow porch with a sloped roof. A hole in the roof is quite often the only source of light. This room is located nearest the street in order to be convenient for the delivery of food, wood, and charcoal. Wood and charcoal are stored beneath the kitchen floor and are accessible through several loose boards in which finger-grooves are cut. The stoves in Japanese kitchens are made of stone or clay and tile. The typical stove has
two openings on top upon which cooking utensils are placed for heat. There will usually be a provision for a small auxiliary metal container attached to the stove in which water and perhaps a bottle of sake are warmed. Near the stove a stone brazier will be used to heat water for tea. Nearby a large water jar will provide the cook an adequate supply for cooking purposes. A shelf is provided for storing cooking utensils, and wooden spoons and spatulas are hung on a post nearby. A passageway leads to a service yard where the cook may wash utensils and draw water from the well. Figure 8 shows the traditional kitchen of a city house. Figure 9 is an illustration of braziers used in a kitchen.
In the event the house has an upper story, stairs will generally be located in the kitchen and not seen by the guests, for they are for family use only. The stairs provide an excellent opportunity for the utilization of space. Figure 10 shows a storage area beneath the stairs used for linens, dishes, trays, candles and candlesticks, bedding and pillows. This space may be organized with shelves and sliding doors, or it may utilize drawers, or it may be a combination of all three.
Bath

The bath, lavatory, and the toilet are generally treated as separate areas of the house. The bath is probably located near the kitchen, where a supply of wood will be convenient for heating water. Bathing is a pleasant ritual in which the entire family participates. Inside the bathing area, a wooden floor section is provided for undressing, placing clothes on shelves, and hanging towels on bamboo hangers. Two steps down from the wooden floor, and at ground level, a floor of concrete or stone will serve as a place where the bathers will first wash, rinse, and then proceed to the tub of hot water

Fig. 11--Bath-tub

which, by the way, is very hot by western standards - 108° to 113°F. I have been told by a Japanese student that soaking in the hot water not only provides a certain amount of physical therapy, but also encourages memorable family communion and discussion of events and problems of the day. The ritual ends by rinsing off with buckets of cold water.
An often used style of tub, as shown in Figure 11, is made of wood and has a small copper box built for heating the water. Bars are placed inside the tub around the hot box to prevent the bathers from getting burned.

Lavatory

A lavatory for washing hands and face, and for brushing teeth will customarily be found on the veranda at floor level,

![Fig. 12--Lavatory](image)

and entirely separate from the bath. Figure 12 shows the water bucket and bamboo dipper, towel rack, and the bamboo rods covering a hole in the floor through which excess water falls to the ground.
Toilet

The toilet is divided into two compartments, one having a urinal and the other having a rectangular opening in the floor. Beneath the opening in the floor is a barrel placed to collect human excrements and to be carried away by the collectors every two or three days. Since Japanese farmers do not raise cattle, this is a most valuable source of fertilizer. The location of the toilet will probably be near the street and at the opposite end of the house from the kitchen to facilitate the work of the collectors. Figures 13 and 14 are examples of an entrance and the interior of a toilet in a city house.
CHAPTER III

POST-WAR CHANGES IN THE USE OF SPACE
IN THE JAPANESE HOUSE

It is widely known that the Japanese have readily adapted to world trade methods since the opening of Japan to the western world in the mid-1800's. Even before World War II, the economy of Japan began to keep pace with the more industrialized nations of the world, and at the present, Japanese businesses and products are competing in nearly every world market.

Because of this westernization as well as the fall of the emperor in 1945 as a divine being, the strict observance of religious, social, and cultural ritual is less in evidence in the life-style of the last two generations.

Architecture and interior design provide evidence of this changing culture with some interesting contrasts between the traditional and the contemporary. Among the first changes in the use of space in the traditional house prior to World War II was the addition of an entirely new room called the osetsu-ma. This receiving room could be used for entertaining foreign visitors. It was furnished with furniture of the Victorian Period, Persian rugs, and a few frills such as curtains and doilies. It is generally felt, however, that the osetsu-ma was designed more for show and a status symbol.
Because of industrialization large numbers of people have moved to the cities, causing mass building of apartments and single-unit houses. Much of this has taken place since World War II.

Floor Plan

A Tokyo house designed by Takase, illustrated in Figure 15, has a representative floor plan of contemporary houses. It indicates an increased number of rooms with permanent walls dividing the space into functional units for greater privacy. Even though the city lot is small, as it is with most Japanese lots, it still provides a garden area which is visually a unified part of the residential design. This house, as is frequently done in other Japanese houses, provides a Japanese style room somewhere away from the public areas, probably for the older generation of grandparents.

Fig. 15--Floor plan of contemporary Japanese house
Entrance Hall

The entry hall has assumed the characteristics of the western front stoop or porch. A typical arrangement and use of the entry space may be seen in Figure 15, with a door providing passage to the living room and a second door providing passage to the garden area, thus providing circulation of foot traffic to the garden area without entering the house, as often is seen in American design.

Main Room

The living room is furnished in a static arrangement of sofas, tables, and chairs, and is usually located to give privacy to the rest of the house. A sliding glass door onto the garden area has now replaced the shoji, and glass windows now provide light to the room. When a shoji exists, it is generally used to slide over the window to diffuse the light. There is no longer an area equivalent to the tokonoma and the chigai-dana in the living room.

Dining Room

Passing from the living room, one may enter a dining room furnished with table, chairs, and cabinet, or the kitchen equipped with appliances. Many times the dining room and kitchen are within the same area as shown in Figure 16. However, where the house is large enough, a separate room may be devoted to dining and will nearly always have a view of a garden or a courtyard. Figure 17 shows the occasional
placement of a writing desk and open book shelves serving as a home office.

Fig. 16--Illustration of combination Dining and Kitchen

Fig. 17--Dining room with garden view
The traditional house was arranged so that guests never had an opportunity to see the stairway leading to the private upper level. Figure 18 shows a view through the dining room allowing stairway to be seen by guests.

Fig. 18--Dining room with stairway
Kitchen

The kitchen is now more accessible from the living room area to provide refreshments to guests. Although the kitchen may be very small, as shown in Figure 19, it is highly organized, with modern appliances and ample storage space.

Fig. 19 -- Kitchen in contemporary Japanese house

As in the traditional house, the kitchen is located on the front of the house, near the auto parking area. A circulation path is provided between the kitchen and the front entrance garden.
Bedroom

The sleeping area is now functionally separated from the living areas of the house, providing a privacy unknown in the traditional house. Western style beds consume most of the space, allowing little else but a night stand and closet area for clothes. See Figure 20 and floor plan, Figure 15, for illustration.

In addition to the usual functions, the storerooms, dressing rooms, and closets are sometimes a part of the house design. Occasionally a Japanese style room will be added to a back area of the house to provide a retreat from the westernized style of living to the tranquility of the

![Image](image_url)
traditional. It will have tatami on the floor and no furniture. This room appears to satisfy a need of older generations living in the same household with younger adults.

Bath

Some of the space planning of the traditional carries over into the contemporary, with the separation of the bathing area from the toilet and lavatory area. The floor plan in

Fig. 21--Contemporary bath with floor plan
Figure 15 shows this separation, with the bathing area on the first floor and the toilet and lavatory located on the second floor. This design solution may continue to be offered in houses which feature a family bath capable of holding a ton or more of water, no small matter for upper floor design. However, there are instances in which the lavatory, bath, and toilet are combined in one room for more efficient use of space and plumbing. This arrangement is illustrated in Figure 21. Tradition sometimes prevails regardless of efficiencies common in western bathrooms, and separation of toilet, bath, and lavatory may continue in design.
CHAPTER IV

USE OF SPACE IN A CONTEMPORARY JAPANESE HOUSE

The house illustrated in Figure 22 was selected not because it is a stereotype of contemporary design but because it illustrates a number of innovations which seem to solve contemporary problems within the context of Japanese culture. Actually, there is much variety in the

Fig. 22--Contemporary Japanese House
outward appearance of Japanese houses being designed today. It can be observed in Japanese design that what is unusual today will probably be common tomorrow with regard to house architecture.

The use of pilotis is more and more common. The pilotis are the piers, or posts, of post-and-beam construction, a form popularized in western architecture during the Bauhaus and International Style as epitomized by LeCorbusier's Savoye House. Most of the time its use is justified with the explanation that a view from the living room is greatly improved as well as other expressions relating to the aesthetic. When one considers the use of space, which is scarce and expensive, the pilotis appears to solve a number of very practical problems. On the ground level there is usually provision for a carport, eliminating the need for a separate structure, and a centralized utility core which saves both space and money.

Entrance

The entrance hall, shown in Figure 23 and Figure 24, provides the traditional area for removing shoes and preparing to enter in the usual Japanese custom. A fixed glass window and an electric light provide illumination of a now greatly enlarged hall.

Figure 25 illustrates the change in attitude toward the stairway, which is now a visible feature for public use. Compared to the traditional use of upstairs living, which was
strictly a private area, the upper floor areas are now open and inviting to guests.

Fig. 23--Floor plan

Fig. 24--Entrance hall
Fig. 25--Stairway
Living Room

The living room in this Japanese house is considerably more spacious than many and provides room proportions to accommodate western style furniture. One vestige of the traditional may be seen in the modified tokonoma at the far end of the living room, as seen in Figure 26. Carpeting has
replaced tatami, and an open grillwork of Japanese cypress separates the stairway from the living room. This wooden feature is as much western as it is Japanese.

Fig. 27--View of garden

The outside wall of the living room consists of shoji and provides an outside view, a vestige of the traditional house which satisfies the visual sense and extends the interior space just as it does in the Japanese garden off the veranda at ground level. See Figure 27 for illustration.
Bedroom

Another western idea which appears to be a frequent feature of the contemporary Japanese house is the provision for individual rooms for various members of the family.

Fig. 28--Bedroom
Excellent use of the fusuma, which is the interior movable wall, is illustrated in Figure 28. Here the fusuma becomes partitions between the children's rooms and the large open hallway. A stairway from the lower floor continues to the roof for additional utilization of space on top. When the family patterns of life change, as they will, the fusuma provides easily changeable partitions which can convert this space from one use to another without structural alterations.

Dining Area

The dining area has more and more attained its own significant place in the house, but may be separated from the kitchen with movable glass partitions. The combination dining-kitchen is a popular feature in contemporary house architecture. Today the kitchen is frequently located in a central portion of the house for economical distribution of utilities. It no longer needs to be on the outside perimeter for convenience in supplying its fuel and water.

In the old traditional houses a hole in the roof provided the primary light source for kitchen work; in the house illustrated this feature is retained with a modern skylight. With the use of many labor-saving appliances in the kitchen, the Japanese have made efficient utilization of space for storage. The dining room is free of furniture other than table and chairs, since the dishes and other serving utensils are stored in the kitchen. This room thus retains the simple, clean lines of traditional Japanese design.
Fig. 29--Dining and kitchen
CHAPTER V

SUMMARY AND CONCLUSIONS

Although based in part upon a logical arrangement of the floor plan and traffic flow in a house to meet the needs of human beings for living, space planning in the Japanese house is influenced by several sets of concepts and principles.

Architectural tradition which dominated design for several hundred years before World War II still contributes a simplicity of line and space to the modern house. The simple sparsely furnished house without electrified and mechanized comforts may still be found in less urbanized areas, standing as evidence of an economy of scarcity and a life of serenity. Here the use of space is closely attuned to Taoism and Zennism philosophy and principle. Within these small confines the Japanese drinks tea and contemplates with all the senses the few but treasured objects of art and the materials of construction of the tokonoma and chigai-dana.

Industrialization and early international trade produced the osetsu-ma, an anomaly in the usually open planning. It is said that this room represented space committed to the satisfaction of a psychological need for status. The room was filled with Victorian furniture and frills, since this was the fashion of the western world during the late 1800's and
early 1900's. Fashion in Japan tends to be concerned almost entirely with visual effect. Many observers have commented upon the dualism of the Japanese, the outer image and the inner life. The image presented publicly is often quite different from the private self. Rules of etiquette are adhered to rigidly, for the Japanese is much more sensitive to group opinion than is the westerner. At home the family is much more relaxed and less formal. Many still prefer the tatami for sitting, although they may be accustomed to a completely western office environment at work. The western mind seems to have great difficulty in comprehending the vast difference between the public and private life of the Japanese, which produces a facade that is seldom penetrated.

Continued and accelerated industrialization has produced an abundance of consumer goods which have added comfort and pleasure to Japanese life. It has also caused masses of the younger generations to move into the large crowded industrial cities. Here land is very expensive, so for economic reasons the Japanese house owner is forced to build a small house by western standards.

The trend of architecture has been to move with succeeding generations from the pure Japanese house to the combination of Japanese-western to the almost pure western concept. Few contemporary Japanese are willing to give up the comforts of automatic heating and cooling, television, and the wonderful labor-saving household appliances, once they have used them.
Most architects think the trend is irreversible, for the demand for western comforts is forcing design to accommodate them.

A number of factors seem to influence the use of space in Japan now and in the near future. Scarcity of land and building materials is producing a high cost of construction and high rents. The fact that banks are unaccustomed to lending money on land exerts a pressure to build conservatively and to utilize space to its fullest. With only a population in 1946 at seventy-four million, Japan has grown to one hundred twenty million in 1974.

As a result of their advanced technology in miniaturizing equipment and appliances, there will probably be a trend toward compactness of appliances such as, for example, wall refrigerators, and televisions hanging on the wall like pictures to conserve valuable space.

Architects are now using pilotis and will probably continue to use them for the utilization of vertical space. As houses are adapted to modern appliances, centralization of utilities will dictate floor plans more like those of the western house.

Design of furniture shows a decided Scandinavian trend that is more in proportion to the size of the Japanese house and the Japanese stature. With convertible furniture and a striving for maximum efficiency of storage, multi-purpose rooms will continue to dominate architecture.
Although this study is concerned with western influence on Japanese use of space, a study of Japanese solutions to space problems could serve as an object lesson and perhaps have a profound influence upon United States design since this country is beginning to suffer similar space problems in urban living.

In this study some questions were answered; other questions were raised for which there must be further investigation for a more adequate report of developing trends. For instance, observations of the ecological patterns developing in Japan may provide clues to better space design in the western countries as they both encounter the problems of limited space and expanding population. Having been influenced by western countries, Japan perhaps can now reciprocate by its understanding of space design.
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