



RESEARCH ARTICLE

COMPARATIVE ASSESSMENT OF MODERNISM ARRIVAL IN RESIDENTIAL BUILDINGS OF IRAN
AND JAPAN (CASE STUDY OF TEHRAN AND TOKYO)

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ABSTRACT

Iranian traditional houses is designed such that it provides all welfare facilities and comfort for members of family. With the advent of modernism in Iran, principles that are used to make building are set aside. Then western principles and standards determine the policy of Iranian architect. But in country like Japan whose architecture is close to Iranian architecture in terms of principles observance, it is observed that with arrival of modernism, they try to preserve the spirit and tradition of Japanese life in modern designs. This paper aims to study advent of modernism in Japan and Iran and how both countries face with this modern architecture, and why a country like Iran that has stronger principles and values and richer architecture more than Japan has lost its identity upon arrival of modernism and just has copied the modernism and cubism designs. It is important to see whether we can revive traditional spirit and values of the past in the modern design through recognizing Iranian traditional architecture. The method of study is analytical- descriptive one. The method to collect information and data is library method. Consequently, when we assess built modern houses in Japan, we observe that Japanese architecture absorb the modern architecture in its architecture and even when we look at the Japanese modern building we can call them Japanese building. But in Iranian architecture, we face a condition changing from introversion to extroversion and no trace of Iranian architecture's attractive quality is observed.

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INTRODUCTION

Some political changes occur in the mid-19th century, then the relationships between Japan and western countries are increased. This causes Japan to compete with European countries in different aspects. Therefore, Japanese architecture undergoes some changes such that modern architecture come in to Japan through dispatching students to foreign countries and inviting such architects as Le Corbusier and Walter Gropius. Of course, at that period, Japanese architecture try to integrate modern architecture with traditional architecture while preserving their tradition and principles of the past (Nitschke, 2009, 166-169). In Iran, many effects of modernism on the architecture can be seen during first Pahlavi era and in the following years and it causes many fundamental changes to occur in Iranian architecture (Kiani, 2006, 166-169). This paper aims to study Iranian modern and traditional houses, to compare them with Japanese modern and traditional houses,

And to assess the changes made in these houses in the modern period. The method of study is analytical- descriptive one and method to collect information and data is library method. After studying and collecting information by library research method, we assess case studies of built houses in the mid-20 century and compare their properties with each other, and study the modern effects and properties taken from tradition and modern aspects. When assessing these developments, we can learn from Japanese architecture that how to be modern and how to use modern tools and facilities while preserving tradition and historical values. Traditional architectures of Iran and Japan have many properties in common in terms of space and adherence to principles of comfortable life. Some of similar properties are mentioned in above table. Of course, given that there are many climatic and belief differences between two countries, each country has its specific principle and design in order to create suitable environment. Iranian architecture is introvert and pay a lot of attention to closeness of space and lack of direct connection with outer space, it has indirect access and hierarchy of entrance; furthermore, central yard plays organizing role at house and identity of spaces is determined by central yard.

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Table 1. Comparison of traditional houses in Iran and Japan


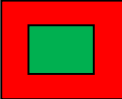





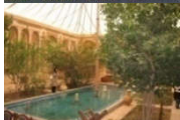
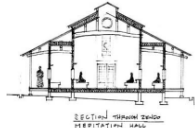
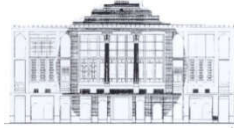
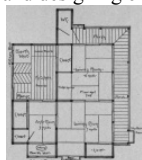
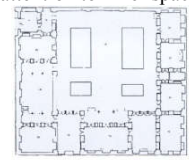
Principles	Japanese house	Iranian house	Common point	Example in Japan	Example in Iran
Ratio	Use of ken to create ratio in dimensions	Use of golden ken	Each space or standard is made. Entire building has proportion by following ratio in detail	Inter-columniation area and ratios of tatami are taken from ken.	Dimension of yard, room with three doors (half of golden ratio in 6 sides), room with 5 and 7 doors are taken from golden ratio
Geometry	Lack of symmetry and presence of asymmetry	Presence of symmetry and use of pure and simple geometry	Simplicity in geometry and use of direct and straight line		
Materials	Use of wood and available material	Use of wood, thatch, brick, stone and available materials	Domestic materials are appropriate for the climate		
Daylighting	translucent papery door for passing light and sliding mesh window	Use of sash window with radiation straps	Using indirect and appropriate sunlight		
Open space	Use of yard and surrounding garden	Using central yard and organizing spaces around the yard	Relations of inner space and outer space and nature with regard to climate		
Semi- open space	Use of porch in the outer part of building	Use of porch in the central yard	Use of semi-open intermediate space between the interior and exterior space		
Confidentiality	There is hierarchy to enter the space	Introversion and use of space and hierarchy	Creating silence and comfort in the interior space	Use of translucent papery door and lack of visibility from outside and designing entrance hallway	Complete closeness of space and lack of visibility from outside and paying attention to inner space
Order	Organic and asymmetric order	Geometrically and symmetrical order	With regard to principles and climates, each of them uses specific order		
Use of spaces	Use of multi-functional spaces	Lack of outlying space and appropriate placement in terms of light, accessibility, and function	Appropriate and functional use of space	Rooms with small furniture used as bed room and living room; and space under the stairs used as storage and closet	Using room with three doors to sleep, using room with 5 doors as living room, using less important space for storage and using bed room as living room (embedding niche and shelf in to the wall)
modularity	Use of tatami	Use of small and big modules	Use of a repetitive module	Using Tatami as flooring:3*5 ft	Small module:93/3 (width of door) use of carpet to cover the floor
Access to spaces	Use of pre-space and connection spaces	Use of indirect and direct paths to have access to inner spaces	Use of intermediary space between spaces	Use of inner paths and pre hall to have access to inner space	Vestibule, halls and corridors of communication

Table 2. Comparison of Iranian Traditional and modern houses

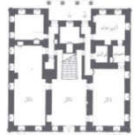
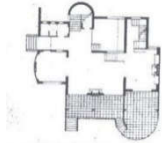










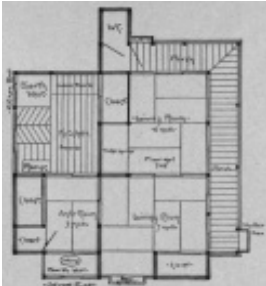











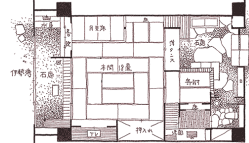


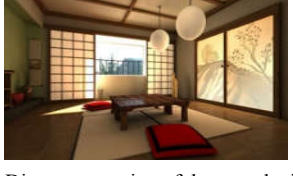
Principles	Iranian traditional houses	Iranian modern houses	Examples in traditional houses	Examples in modern houses
Ratios	Use of golden ratio and human dimension	Use of western standards	Rooms with three doors, half golden ratio (1.7*2), (3.4*4) appropriate to human dimension	Rooms, kitchen, toilet and dimensions of all rooms are according to standards of western book
Geometry	It is symmetric, simple, introvert, and has indirect light	Presence of asymmetric geometry, use of circular forms and many fractures in plan and volume		
Materials	Natural and domestic materials such as thatch, stone, brick, wood are used	New materials such as cement, concrete, metal, all-around glass are used		
Daylighting	It is done through sash window with radiation straps open toward central yard	All-around, horizontal and circular windows or concert sunshade in the outside		
Open space	Central space is used and there is relationship between inner space with nature while having privacy silence and comfort at home	Central yard is not used, there is direct relation between home and outdoor passages (alley or street) and sometimes garden is embedded on the roof		
Semi open space	Porch facing the central yard is used	Balcony and porch facing outside space are used		
Confidentiality	There are introvertness and hierarchy in the spatial connections	There is no introvertness and direct connection with outside (extrovertness)	Use of inner part, outer part, central yard, vestibule, pre space, side corridor, separation of public place from private one.	Use of door and window facing outside and presence of direct entry into space and lack of separation of public place from private place
Order	There is symmetry with simple geometric order or straight line	There is asymmetry with complexity and fractures in the plan and volume		
Modularity	Use of small repetitive module and unit	Use of western module (most of ratios is for Le Corbusier's work)	Module of 93/3 as dimensions of door and rooms with 3, 5, and 7 doors	Using western dimensions and sizes and following western module
Use of space	Use of multi-functional space and lack of outlying space	Furnished space with specified furniture and use of western standards and lack of ratio in space division	(a) Living room used as bed room, and (b) room with three doors, (c) optimal space for sleeping and seating during a day and (d) use of shelf, niche, closet and storage (e) and functional use of each space	Spaces for specific function are defined and have fixed furniture
Access to spaces	Using indirect path and sometimes separate access path for women and men and creating connection and intermediately space for access	Direct access to space with no mediation	Use of pre space for entrance, presence of vestibule and passage through corridor to the interior and exterior yards, having access to rooms through side corridors and having indirect entrance	Direct access from outside into inner part of home, connection between all parts of inner spaces with no pre space and having direct view from entry to inner space

Table 3. Comparison of traditional and modern houses in Japan

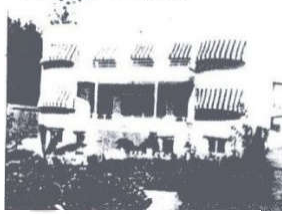

Principles	Japanese traditional houses	Japanese modern houses	Examples in traditional houses	Examples in modern houses
Ratio	Use of ken and human ratios	Use of ken and human ratios	Inter-columniation and dimensions of rooms (tatami is according to ken) and dimension of door and window and space are according to human dimension.	In interior designs, tatami room is seen and ratio of door, window, and spaces is according to human dimension.
Geometry	Lack of symmetry in the plan	Lack of symmetry in the plan		
Material	Use of wood in building and door and use of available domestic material	Use of wood in the interior and exterior design (if they use concrete in the façade, they use wood in inner design)		
Daylighting	Sliding translucent papery doors and mesh window with wooden frame	Use of sliding papery doors and mesh window in façade.		
Open space	Having yard or garden in the surrounding, connection with nature and outer space	Organic connection with outer space		
Semi open space	Use of porch in the outer part of building or around the building or sunshade	Use of porch and balcony in the outer part of building or sunshade		
Confidentiality	Lack of view from outer part of building into inner part	Connection and view from inner to outer	Sliding translucent papery doors and lack of vision from outer part into inner part	Use of all-around window or many mesh windows

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Order	Organic order and lack of symmetry and conformity with nature	Organic order and lack of symmetry and conformity with nature		
Modularity	Tatami is unit to define space	In inner design, tatami is used as unit to define some spaces		
Use of spaces	Use of small room with small rooms, use of room for tea ceremony, and use of place under the stair as storage	Use of small room with small furniture, room for tea ceremony, under the stair as storage		
Access to spaces	Use of intermediate space for connection	direct inner and outer connection	Interior hallways and use of pre-hall	Direct connection of doors and windows with outer space

Source: authors

Table 4. Case study of modern houses in Iran

Building	Year	Designer	Location	Modern properties	Traditional Properties	Image
Panahi's Villa	1933	Gabriel Guevrekian	Tehran	<ul style="list-style-type: none"> - Use of concrete in the façade - use of pure volumes and volumetric combination, use of many windows 	<ul style="list-style-type: none"> - Symmetry of central hall and lobes - all-around porch, high column, central stairs, stony pool in the yard and presence of symmetry 	
Ali-Akbar Seiasi's Villa	1935	Gabriel Guevrekian	Tehran	<ul style="list-style-type: none"> - The volume of rectangle cube - Presence of asymmetry in size and plan, use of concrete for sunshade, use of metal fences 	<ul style="list-style-type: none"> - Good daylighting as well as northern and southern orientation of building 	

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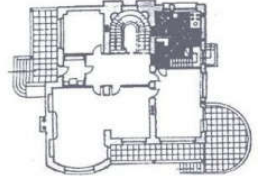
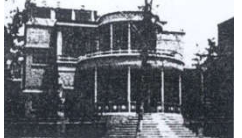




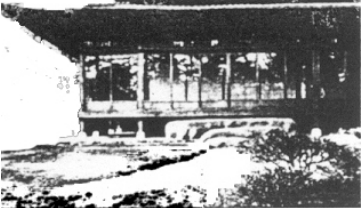



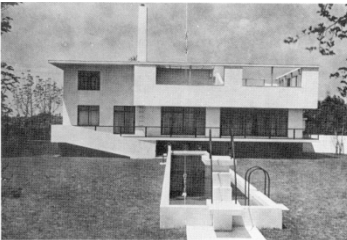
Khosravani's Villa	1936	Gabriel Guevrekian	Tehran	<ul style="list-style-type: none"> - Using pure volumes and organizing full and empty space in the volume - Use of concrete - Use of window and semicircle terrace 	-	
Apartment with 3-5 stores	1948	VartanHovanesian	Tehran	<ul style="list-style-type: none"> Lack of symmetry and purity in forms Use of circular and horizontal forms in windows and use of arched balconies and suspended stairs 	Separation of private place from public place in the entrance	
Private residential villa	1940s-1950s	VartanHovanesian	Tehran	<ul style="list-style-type: none"> Use of concrete façade, cube shape volume with empty and full space, use of rosette for doors and garden on the roof 	If the idea of garden on the roof was taken from Le Corbusier (in modern period) but it can be regarded as effort to replace central yard	
Complex of apartments	400 1950	Ali Akbar Sadegh	Tehran (Pirozi St)	<ul style="list-style-type: none"> - Various volume and space, use of concrete; - Use of horizontal window in outer façade and semi-circular volumes and fracture in the plan and volume 	<ul style="list-style-type: none"> - paying attention to functionality and hierarchy in the spaces - embedding porch, yard and conscious use of spatial ratios 	
Residential villa	1940s-1950s	Mohsen Foroughi	Tehran	<ul style="list-style-type: none"> - Rectangular cubic volume with full or empty space; - Use of concrete and horizontal window, and semi-circular balcony 	-	
Residential building	1940s-1950s	Pol Abkar	Tehran	<ul style="list-style-type: none"> - Organizing spaces as combination of volumes and states of cubism (similar to Le Corbusier), combination of porch and concrete sunshade - Use of concrete in the façade 	<ul style="list-style-type: none"> - Use of bricks (Bahmani Brick) in the façade in combination of concrete - Use of embossed brick design in the decoration of façade 	
Residential building	1946	Kighobad Bakhtiar	Zafar Tehran	<ul style="list-style-type: none"> - Purity in volume of all-around window - Use of concrete in the façade - Use of porch with columns in the style of European neoclassicism 	<ul style="list-style-type: none"> - Use of symmetry and lack of fracture in volume - Use of porch - Having hierarchy of entrance 	

Table 5. Case studies of modern houses in Japan


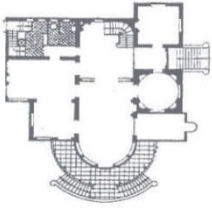

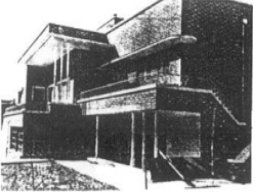
Building	Year	Designer	Place	Modern properties	Traditional properties	Image
Kikkawa's villa	1928-1930	SutemiHoriguchi	Tokyo	<ul style="list-style-type: none"> - Cube shape volume ; - Use of concrete and horizontal window in façade 	<ul style="list-style-type: none"> - Designing tatami room - Use of wooden floor and sliding wooden door in designing interior space 	
Awakada's villa	1933	SutemiHoriguchi	Tokyo	<ul style="list-style-type: none"> -Simplicity and pure modernism and less decoration in the building - Use of broad windows in outer façade 	<ul style="list-style-type: none"> - Gable roof - Use of wood in making building - Use of thin levels, sliding doors and wooden floors 	
Baba villa	1928	Tetsuo Yoshira	Tokyo	<ul style="list-style-type: none"> - Using a lot of glassy window in the façade and simplicity and purity in the building 	<ul style="list-style-type: none"> - Gable roof - designing tatami room, room for tea ceremony, designing closet and sliding doors and optimal use of spaces 	
House of Konema Yukawa	1942	Kuno-Maikawa	Tokyo	<ul style="list-style-type: none"> - Having purity and simplicity of modernism; - Using a lot of windows in the facade 	<ul style="list-style-type: none"> - Having wooden structure, floor, and ceil and gable roof similar to Japanese traditional houses - Using sliding wooden door 	
Okada's house	1925	Mikako	Rural region of Tokyo	<ul style="list-style-type: none"> - having purity and simplicity of modernism; - Using many windows in the facade 	<ul style="list-style-type: none"> - it has wooden structure, floor, and ceil, and gable is similar to Japanese traditional house 	

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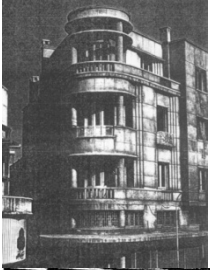



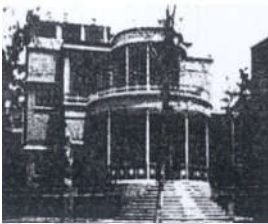



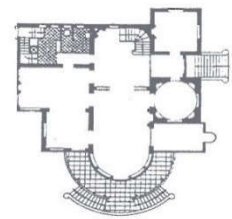
Iwanami's house	1940	Isoya Yoshida	Tokyo	<ul style="list-style-type: none"> - Simplicity and purity in the volume; - Using a lot of horizontal windows in the outer façade 	<ul style="list-style-type: none"> - Using Gable roof - Using wooden floor, porch, sliding wooden door, and tatami room 	
Wakasa's house	1937	-	Tokyo	<ul style="list-style-type: none"> - Using concrete to design flat ceil - Using many horizontal windows in the façade - Cube shape volume, balcony and door 	<ul style="list-style-type: none"> - Using sliding doors, wooden floor, embedding tatami room, closet and commode in the traditional way; 	


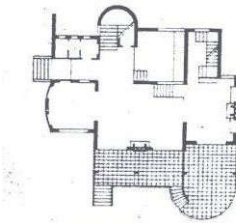

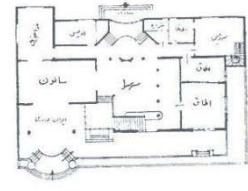
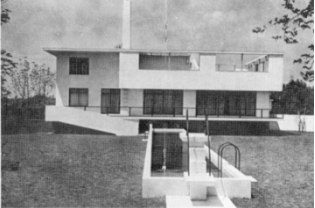
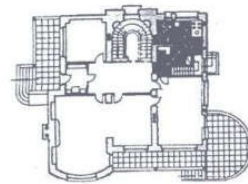


Source: authors

Table 6. Comparing modern houses in Iran and Japan

Principles	Modern houses in Japan	Case study in Japan	Modern houses in Iran	Case studies in Iran	Conclusion
Ratio	Use of traditional ratio (ken, tatami room, and human dimension)		Using golden ratio and module are not common in traditional houses.		Old ratio is used in modern architecture of Japan, but modern architecture of Iran completely sets aside traditional ratio of Iran (golden ratio)
Geometry	It has organic order		It uses pure volume with full or empty space		Architectural modern geometry of Japan is taken from traditional architecture of Japan, but architectural modern geometry of Iran is taken from western modern architecture and is opposed to traditional houses of Iran.

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Materials	Use of wood in designing building and door, use of concrete and new material, use of wood in the interior design		Use of concrete and broad windows in the outer façade and removal of traditional materials		Materials used in modern architecture of Japan are wood, combination of wood in inner part of building, and concrete and glass for outer façade, but materials used in the modern architecture of Iran is not traditional and domestic materials at all.
Daylighting	Use of extensive all-around windows and sliding doors covered with translucent paper		Use of semicircular horizontal windows stretched in the outer façade and sometimes with no sunshade or with concrete sunshade		In Iran's and Japan's architecture, large windows are used in the outer façade, this is opposed to Iranian traditional houses that receives indirect light through mesh windows with colorful glass and wicker sunshade;
Semi-open space	Use of balcony and porch or semi-open space with wicker sunshade		Use of semi-circular balconies with concrete sunshade		In the modern architecture of Japan, balconies with wicker sunshade are used but in Iran, balconies with concrete sunshade are used while protruding outside and it is used instead of porch facing central yard;
Deprivation	Though it is extrovert but it follows hierarchy of entrance.		Complete removal of central yard, hierarchy of entrance, vestibule and pre-space		Modern houses of Japan like traditional homes are extrovert and have hierarchy of entrance, but Iranian houses are transformed from introvertness to extrovertness.
Order	It has organic order taken from traditional architecture of Japan		It is more asymmetric, different and complex than Iranian traditional designs		Modern architectural order of Japan is taken from traditional and organic architecture; modern architectural order of Iran is changed from symmetry into asymmetry and many fractures.

Modularity	Use of tatami module in designing rooms		Use of old modules		In the modern houses of Japan, use of tatami rooms and repetitive units are seen, but module and rooms with three and five doors cannot be found in modern architecture of Iran.
Use of spaces	Using small furniture and rooms and embedding closet under stair are seen.		Using fixed furniture with western standards and defining specific function for every space		In the modern houses of Japan, small rooms with small furniture and multi-functional spaces are used, but in the modern architecture of Iran, fixed furniture is used and separation of public place from private place is ignored.
Access to space	Direct paths by embedding pre-space such as traditional house		Direct path with no hierarchy of entrance opposed to traditional house		entrance pre-space and interior corridor are used in the traditional architecture of Japan and Iran; in modern architecture of Japan it is preserved with regard to their culture but in Iran, hierarchy of entrance is removed while this matter was more prevalent in Iran than Japan.
Open space	Use of yard and space of organic garden like traditional architecture		Yard and sometimes garden on the roof are not used		In modern houses of Japan, relationship with nature is preserved with regard to the climate, but in Iranian house, central yard is removed completely and house has direct relationship with outdoor space.

Source: authors

For example, three- and five- door rooms have three and five doors facing the yard; in addition, they have regular geometry even in irregular lands, and the yard is rectangular. In the past, open space, semi open space, and indirect lightness attracted attention. The rooms have simple furniture that meet the needs in spite of their simplicity. Confidentiality and separation of private place from public places were very important matter. But in Japan, designs is extrovert with regard to climate of region, meanwhile design of house is organic and integrated with nature. Furthermore they (a) pay attention to empty space and hierarchy of access, (b) use domestic materials, (c) try to connect it with nature, and (d) use the spaces optimally and multi-functionally such that they leverage even the minimum space. Therefore, it is similar to Iranian architecture.

Given that arrival of modernity in Iran dates back to Qajar era, its effect can be seen in first Pahlavi era. In this period, Iranian architecture undergoes many changes due to increase of relationship with European country, dispatching students to European country, and inviting modern architects to design in Iran (Kiani, 2006, 166-69). Therefore, principle of traditional design is put aside generally and Iranian introvert architecture that follows climatic principles changes into completely extrovert architecture. And simple volumes is replaced with volume full of empty and full space. Sometimes the design of modern architects like Le Corbusier is associated with plan and volumes of such house. New material like concrete and glass is used a lot. In this period it is observed that Iranian architecture take action to create new design in order to be modernized, little by little the traditional architecture is forgotten and design is performed without paying attention to ratios and module and hierarchy of access. In Iranian traditional houses, specific furniture is used and all tasks are done on the ground and all members of family gathered on hand-woven carpets while leaning on the comfortable cushions. In the summer, some beds are used in the yard to lodge the guests and family gathering. While creating interior and exterior, orang garden they try to preserve the silent place of home, nobody can enter the inner space of home without allowance, and even there are different door knockers on the door of home for women and men. But in modern design, there is no central yard, vestibule, room with three doors, room with 5 doors, tiled pool with red fish, and garden full of trees and flowery. Complex volumetric compounds, curved balconies, horizontal windows and use of a lot of concrete, iron, glass were gift of modernism. This is large changes that continue up to now.

In the years after Edo period, arrival of modernity faces with many proposition in Japan. At that time, even the government of Japan enacted regulation no to change the designs and construction. It emphasized that principles, ratios, architectural spaces should be preserved (Nitschke, 2008, 194). They use materials such as wood in the main structure of traditional Japanese architecture. When they use new material such as concrete and modern volumes, they use wooden floor and sliding thin wooden doors in inner design, small spaces with small furniture. Furthermore, in order to preserve traditional spaces, they use ratios, tatami room, room to hold tea ceremony and a space to family gathering. They try to preserve originality and spirit of Japanese life. Japanese architectures adhered to their principles such that even European architects who design in Japan try to respect Japanese tradition, accordingly modern architects of that period used sliding wooden doors, steep roofs, and even such ornaments as lantern on façade and lion in front of door in order to translate

modernism into Japanese style. Of course, Japanese architects such as Horiguchi tried to reconcile traditional and modern architecture of Japan. For example, relation between traditional and modern residence can be seen in the design of Kikkawa villa (Hakim, 2006, 13-9) (case study of Japan from modern period is assessed in table).

Case studies evaluated in modern house of Iran is related to decades of 1930s to 1950s. It may be said that effect of modernism in architecture can be found in these years and many fundamental changes are made in it such that low effect of traditional architecture is seen in these buildings. In special cases designed by some architects it is observed that quality of traditional architecture can be observed in the houses with garden in the roof or hierarchy of entrance and separation of public place from private place. But as observed in such buildings, transformation in change of materials, spatial organization and hierarchy of entrance and volumetric combination are clear. Spaces is such that it induces use of stable furniture for every space, and each space finds its definition. If Iranian people want to sit on the ground, they can sit and eat food and communicate with members of family and relatives and enjoy the broad space. In such buildings, other spaces are not around the yard, but it is designed in connection with outer space. After entry door, there is direct entrance in to rooms, kitchen, and private parts, even kitchen is exposed to other spaces and has connection with them (in traditional building, kitchen was in surrounding spaces and away from other spaces). Deprivation no longer has its meaning and is defined in another way. In such buildings, combination of private and public spaces draw attention and no separation of such places is observed. There is no modification to make private place.

Case studies of Japanese houses are for 1930s to 1950s. This period is the beginning of modernism in this country (Japan), some changes can be seen in the house. Of these changes we can refer to many all-around windows in the outer façade. Sometimes use of concrete material, metal, and glass can be seen a lot. But traditional architecture is preserved in terms of principles. For example, in designing houses whose outer façade is made of concrete, they try to use wooden window, door, and floors in interior designs. They use small furniture and tables as traditional ones and use them like the past. They design tea room to drink tea with their relatives and preserve the past tradition in their design. Designing tatami rooms and ratio of ken are done to keep Japanese traditional ratio of architecture. The wood that is considered as domestic material in traditional building is used in designing structure and outer materials.

Conclusion

When we compare between traditional architecture of Iran and Japan with regard to many differences, we can consider many common properties. But with the advent of modern architecture in two countries, different approaches are seen in both countries such that Iranian architecture is transformed completely and just copy the designs of modern architecture, but in Japan, we see that in the arrival of modern architecture, Japanese architecture, in addition to modernity, preserves traditional principles in design and they do not copy the western architecture. Probably we can say if we study Japanese architecture, we can think of application of Iranian tradition and principles in modern architecture of Iran. But nowadays,

we cannot design central yard and large house with that kind of space but with regard to today's condition, we can separate public and private places from each other in order to preserve the privacy of the house. Even we can embed backyard even small one, day lighting elements (as skylight was prevalent in the past) as well as green spaces in the yards in order to create connection between nature and house. In order to recall central yard of traditional house, we can make a garden on the roof, accordingly we can preserve tradition by embedding pool of water and garden full of trees, making sunshade and green space in this place, seating on the couch next to the sides of yard, and watering the garden in the sunset and communicating with relatives. In designing façade, we can use traditional material proportion to climate such as brick in the modern style. We can make beautiful and spacious terrace facing the courtyard (no direct view from outside to this space) for use of family. Such terrace is symbol of semi-open space such as porch. In the interior design, though we cannot ignore the modern furniture but we can make an arrangement in the space, so members of family can gather on the ground or on the traditional couch, if member of family like to have party and invite guests, they can use this space for communication and dining. Due to expensiveness of land, we can use module, standards, golden ratio for optimal use of spaces. Furthermore, we can design private spaces and kitchen no to exposed to the public places and there should be no view to this place from entrance of building. Many arrangement can be intended in the use of materials and principles with regard to taste and creativity of designers.

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