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GENDER AND HOUSING DESIGN INFLUENCE

Ayça ARSLAN

**Assist. Prof. Dr., Uşak Üniversitesi, Mimarlık ve Tasarım Fakültesi, Mimarlık,
ORCID 0000-5262-1429**

Abstract

This paper fulfills an understanding of how gender-aware design might influence future housing developments and spatial designs. The study mainly aims to clarify the relationship between gender and housing design seeks answers to how gender-aware design might influence future housing developments and tries to make a comprehensive contribution to academia on housing with a special issue on gender-based dwelling architecture. The study aims to present suggestions for future housing developments, spatial plannings and furnishing designs to improve the quality of space design of future houses. To achieve this purpose, firstly, comprehensive deep research has been realized on gender, gender-related design, and gender influence on housing with the question of ‘how might gender-aware design influence future housing developments?’. Secondly, case analyses were used to demonstrate the impacts of gender on the spatial planning of houses with two iconic samples in the architectural literature; the spatial organization of traditional Turkish houses (Hayatlı Ev), and modernist Minimum Dwelling. These two case analyses empower valuable data on gender-related house planning, space organization, equipment selection, furniture, and material design, which are linked with gender issues. Cases have been selected especially for their gender-aware designs, iconic spatial features, socio-cultural status, and lifestyles; the traditional Turkish house ‘Hayatlı Ev’ and the ideological modern ‘Minimum Dwelling’, which delegate comparative analyses and distinctive spatial, and socio-cultural features. In the end, the study aims to develop design parameters and bring out innovative and avant-garde design methods for future houses by using gender-aware architecture.

Keywords: Gender-Aware Design, Hayatlı Ev, Minimum Dwelling, Working Class Women, Gendered Spaces, Housing

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1. EXPLORATION OF GENDER-AWARE SPACES

Investigations mainly examine the effect of gender on architectural spaces in the case of dwelling architecture from the past to the present. In this respect, investigations compromise two dominant figures of dwelling architecture: 1) traditional houses within the case of ‘Hayatlı Ev’ (Turkish house); 2) modern period worker houses; minimum dwelling. Two important breaking points in dwelling architecture have been investigated by gender-aware design, concentrating on: i) culture; ii) lifestyles; iii) spatial features and equipment; and iv) gendered space features. Methodology aims to explore women-men spaces of houses with a collective feature or not. In the first case, traditional houses, have been investigated with spatial features and inside-outside relations such as street, courtyard, sofa, hayat (life), and eyvan (iwan) as the common semi-open spaces for men and ‘rooms’ as closed spaces for women s occupation. Modern period houses constitute the second case analysis, which realized by the industrial revolution and created a breaking point in dwelling architecture. Especially as women began to work in factories, this caused the birth of these worker houses, named Existenzminimum (minimum dwelling) and Collective houses. (Teige,K.,pp.9-31)(Teige,pp.216-233)

Thus, gender spaces, spaces for women and men occupations, have been investigated from the past to the present under the topic of ‘dwelling architecture’. Each period reflects its’ own social-spatial and cultural features, indicating a distinctive difference between women and men spaces as gendered spaces.

1.1. Problem: The main research questions and the starting point of this study is to find out:

Q1) how might gender-aware design influence future housing developments? This is the main problem of the study.

Q2) how does gender affect the spatial organization of traditional Turkish houses (Hayatlı Ev), and modern, industrial city collective houses? At the end, the study aims to find answers to the main problem and sub-problems of the study.

1.2. Methodology: The methodology part consists of two bodies; theories and practices. Firstly, comprehensive theoretical research has been achieved mainly on gender-aware design and housing topics such as; traditional ‘Hayat’lı Ev’ and ideological/modern ‘Minimum Dwelling’ with introducing basic valuable sources of Doğan Kuban’s ‘Turkish Hayat’lı House’ academic work and Karel Teige’s ‘Minimum Dwelling’ book.

For the second part, practices and case analyses, selected houses have been analyzed over the plans. The user’s qualifications for the houses are interpreted by the visuals expressing the plan readings and space fittings, like culture and lifestyle. In addition, Kuban’s ‘Turk Evi’ book presents a comprehensive source for culture, lifestyle, beliefs, and traditions of people living at ‘Hayatlı Ev’ in harmony with spatial organizations. The spatial characteristics of the selection criteria are compared through the plans and space visuals, the arrangements of reinforcements, furniture coverings, space organizations, materials, and details. (Table1)

Table 1. Structure and steps of the research

A CRITICAL REVIEW ON EFFECT OF GENDER ON ARCHITECTURAL SPACES		
1.EXPLORATION OF GENDER-AWARE SPACES		
1.1.RESEARCH PROBLEM	1.2.METHODOLOGY	1.3.LITERATURE REVIEW
2.INVESTIGATIONS ON GENDERED SPACES FROM PAST TO PRESENT		
2.1.ARCHITECTURE AND GENDER RELATION	2.2.CASE ANALYSES	
	2.2.1. TRADITIONAL TURKISH HOUSES:HAYATLI EV TYPOLOGY	2.2.2. MODERN PERIOD WORKER HOUSES:MIN. DWELLING
3.RESULTS		
3.1.TURKISH HAYATLI EV AND GENDER	3.2. MODERN MINIMUM DWELLING AND GENDER	3.3. COMPARATIVE RESULTS OF HAYATLI EV WITH MINIMUM DWELLING
4.DISCUSSIONS		
5.CONCLUSIONS		
5.1.CONTRIBUTIONS &FUTURE RESEARCH AREAS	5.2.ANSWERS TO RESEARCH QUESTIONS	

2. INVESTIGATION ON GENDERED SPACES FROM PAST TO PRESENT

2.1. Architecture and Gender Relation

Jane Rendell’s critics of gender and space construction are very worthy. Rendell indicates that; ‘the issue of whether space is gendered and, if so, how it is gendered, is a problematic one’[11]. A whole series of questions can be asked about whether gendered space is produced through intentional acts of architectural design according to the sex of the architect or whether it is produced through the interpretative lens of architectural criticism, history, and theory. (Rendell J., Penner B., Borden I, 2000,pp.15-25) (Rendell J., Penner B., Borden I, 2000,pp.101-111, pp.225-240)

Rendell continues as; ‘specific spaces may be ‘sexed’ according to the biological sex of the people who occupy them, or gendered according to the gender associated with the different kinds of activities

that occur in them”(Rendell J., Penner B., Borden I, 2000,pp.225-240).

12]. For example, toilets (restrooms in the US) are sexed male or female because men or women occupy them, while the domestic kitchen is gendered feminine because the activity of cooking is something that is socially connected with women. However, who do we consider the kitchen of the public restaurant where the cooking is done by the chef, who is usually male? (Rendell J., Penner B., Borden I, 2000,pp.225-240)

According to Rendell, *“descriptions of gendered space make use of words and images that have cultural associations with particular genders to invoke comparisons to the biological body-for example; soft, curvaceous interiors are connected with women and phallic towers with men”*(Rendell J., Penner B., Borden I, 2000,pp.225-240). In addition, the most pervasive representation of gendered space is the paradigm of the ‘separate spheres’, an oppositional and hierarchical system consisting of a dominant public male realm of production (the city), and a subordinate private female realm of reproduction (the home). The origins of this ideology, which divides the city from home, public from private, production from reproduction, and men from women, are both patriarchal and capitalist. (Rendell J., Penner B., Borden I, 2000,pp.225-240)

2.2 Case Analyses: Comparative Exploration of Gendered Spaces of Traditional ‘Hayatlı Ev’ and Modern ‘Minimum Dwelling’

In this part, two important period houses have been investigated for gender-aware design and planning: the traditional Turkish house; ‘Hayatlı Ev’, and the ideological modernist worker house; Minimum Dwelling.

2.2.1. Traditional Turkish Houses: ‘Hayatlı Ev’ Typology and its’ Development

‘Hayatlı Ev’, traditional Turkish house, is a spatial production of original Turkish family life.[1] However, there have been lots of studies on Ottoman Turkish houses, the ‘Hayatlı Ev’ typology presented by Prof. Dr. Doğan Kuban, indicates the originality and importance for Turkish family life, first in rural areas and then in the city centers. ‘Oda’ in Turkish and ‘rooms’ in English, in fact, constitute the most important part of a Turkish house, which can be seen as a spatial reflection of simple social relations that can be found commonly in primitive cultures.(Kuban,1995, pp.16-23). It is true that the room concept takes its inspiration originally from the Turkish Tend’ and Turkish people having migrant roots. Thus, the rooms of the traditional Turkish house, by including all different necessary functional spaces in one open room, indicate the simplicity of primitive societies, but on the other hand, the flexibility of one open plan also signs the modernist approach.(Kuban,1995,pp.16-23/103-136)

According to Kuban; *“The simplicity or flexibility of the ‘rooms’ can be seen as the spatial approach of Turkish people to housing and indicates the economical usage of space through Turkish traditions. The diversity of spaces also indicates the complex spatial relations of the Turkish family. ‘Hayatlı Ev’ concept had been developed with an increasing trend in Anatolia after the 16.th century and indicates a very complex cultural diversity”*(Kuban,1995,pp.103-136).

However, used in very different regions, the basic socio-cultural feature of the house protected its characteristics, which are a male-dominated economy and the Turkish-Islamic family. There are some simple spatial differences in the space organizations of ‘Hayatlı Ev’, and the main theme is connected to the concept of *“the place of women in the family and society”*(Kuban,1995,pp.16-23). This is also a spatial reflection of Islamic socio-cultural characteristics, as house in Turkish means domus in Latin, thus the place where a family can live.

Through the spatial organization of ‘Hayatlı Ev’, the scenario is based on the male-dominated economy and Islamic family characteristics, where men’s place is outside, and women’s place is in the house. In other words, in ‘Hayatlı Ev’, the house is for women. Thus, the space organization of the ‘Hayatlı Ev’ had been developed through women s works and women requests, where she can cook, make bread, sew, wash dry fruit, cut wood, etc. Naturally, almost all the spaces in the house serve as women accommodations. In order for all daily work to be done by women in ‘Hayatlı Ev’, all spaces are identified with women’s characters and reflect the daily Turkish family lifestyle. (Kuban,1995,pp.16-23)

‘Hayatlı Ev’ had been developed around a very dynamic space which is the courtyard. Courtyard has an important socio-cultural meaning, constitutes the open space of the house, the terrace, or the space where all family gatherings have been realized, with or without a pool in the center that can change through the region and weather conditions. (Kuban,1995,pp.16-23)

In order to Islamic-Turkish culture, the house generally serves for women with its introverted and private spaces, and the courtyard also serves for women during day time to relax or make other outdoor works as a semi-private space. A courtyard as a semi-private space generally includes a different floor material with some trees placed around a pool as a garden, terrace, open space, and relaxing space of the house, where family gatherings and celebrations happen. In addition, this was the place of women in daytime. (Kuban,1995,pp.16-23)

The entrance to the first floor is commonly arranged through this courtyard via an open stair with an open gallery, the second semi-open space is placed here. First floor generally overflows to the street, where women watch outside just back to the wooden cages, that the public world cannot see inside the house. The abstraction of house interiors continues on the first floor. Thus, the architectural design of the house developed through the abstraction of women from outside, through this scenario and behavior. Hayatlı Ev is just one of the best examples that reflect users’ socio-cultural behaviors three dimensionally both by spatial organizations and architectural elements. The house interiors are extremely vivid. (Kuban,1995,pp.16-23/47-99/137-151)

Kuban indicates that; “Turkish Hayat’lı Ev’, with full of light and a calm atmosphere constitute a livable physical space for the women” [1]. Everything had been organized through women behavior and family life, the courtyard, semi-open spaces of the 1st floor, and windows spreading out to the streets with wooden cages indicate the social-cultural and behavioral spatial necessities. (Kuban,1995,pp.16-23)

The desire to see the street, ensuring a connection between inside and outside via window, was attractive and successfully fulfilled in the 17.th century, with the upper floors with an overhanging bay window (Cumba). This planned unit, consisting of two rooms opening to a courtyard or portico with sometimes a semi-open space, an eyvan, has been the most characteristic element of the house from Egypt to Central Asia. (Kuban,1995,pp.16-23)

Kuban states that; “We find the formal and cultural understanding of form determines the core design of the house, and the existential dimension of Turkish social and economic life leads to the maturation of the concept of home”(Kuban,1995,pp.47-99).The term Turkish house of ‘Hayat’lı Ev’ accommodates cultural and ethnic meanings. Two main elements played a major role in the formation of the basic plan form layouts. There is a space called ‘Revak’, which is a semi-open transmission space between the courtyard and interiors. The other one is an open space with a roof, a covered volume opening to the outside; called ‘Eyvan’ in Persian, and the layouts they created by combining with a courtyard. (Kuban,1995, pp.16-23/137-151) On the first floor, there are commonly two rooms with an eyvan between them, an open gallery, and an open pavilion motif. The stonewalls of the central 1.st floor opens to the courtyard, and the main room protruding above the lower floors, which is the characteristic feature of later living houses. These indicate that the living house, with its basic elements and spatial attitudes, emerged quite early. Introverted character is so strong that main facade is the life facade (hayat facade) towards the garden. (Kuban,1995, pp.47-99)(RendellJ.,PennerB.,BordenI,2000,pp.225-240), (FordC.,2022,pp.241-272)(Figure 1)



Figure 1. 22: Mudanya Halil ağa house,1640, 23: Manisa Ayşekadın house (source,Doğan Kuban)

ODA as Women Space of Turkish House: In the Turkish House, segregation of women and men spaces are very clear due to gender base spatial organizations. Segregation of women and men spaces are clearly visible on house plans from the beginning of 19.th century rural houses to 20. th century city houses. Thus, the main gender spaces can be summarized as; women and men spaces, in which women contribute with children and men contribute with male visitors. (Kuban,1995,pp.16-23)(Ford,2022,pp.241-272)

Rooms are places for women that constitute the basic feminine side of the house, the space of women, where they spend all day from morning to evening. It is very interesting to see that rooms exhibit very flexible and multifunctional space organization with the simplicity feature. These rooms serve for all necessary women activities such as; sleeping, resting, eating-cooking, bathing, and connecting with outside thus socializing. (Kuban,1995,pp.103-136)(Ford,2022,pp.241-272)

Basic configuration of the Hayatlı Ev is composed of; double room-life-iwan (see figure 1). Hayat-eyvan layout constitutes semi-open gathering spaces and creates a strong spatial relation between; ‘Oda-Eyvan-Oda-Hayat’, which is unique to the ‘Hayatlı Ev’ concept with its’ three-dimensional features and internal dichotomy. Thus, very simply, it can be emphasized that the spatial configuration of the Hayatlı Ev consists of mainly two parts, i)spaces for women and ii)semi-open spaces as gathering spaces for women, men, and guests. In earlier versions, eyvan and hayat used as semi-open gathering spaces of the house on the first floor, but in later developed versions, we can see that sofa takes place as a closed gathering space where rooms open that sofa. (Kuban,1995, pp.103-136/47-99/137-151)

As indicated by Kuban; “sofa is a unique space for family gatherings where guests are hosted at the further versions of Hayatlı Ev and house typologies have been created through sofa space such as; with sofa type, central sofa, without sofa type, with outside sofa, and with inside sofa types”.(Kuban,1995, pp. 47-99)(Table 2)

Table 2. Gendered spaces of Hayatlı Ev and Dualities

	A. Closed spaces for women	B. Semi-Open & Open Spaces for women and men
HAYATLI EV	Rooms: Main square-form living area, flexible, multifunctional, basic introverted living unit.	Eyvan – Hayat; in early models of Hayatlı ev, is placed at 1.st floor. Courtyard; open space at the ground level.
	Serving spaces: inside rooms with an entrance hall, a small bath placed inside cabinets, separated from the main living with poles or railings.	Sofa; can be found in future samples as a closed version of eyvan and hayat.

Room is surrounded by secondary service spaces such as; cabinets, which are part of the iwan (eyvan),

and life (hayat) between two rooms. Rooms of Turkish house exhibit an independent character with the cabinets inside, and semi-open spaces that surround it such as; eyvan and hayat, thus, Oda is a single basic independent unit of a Turkish house and it is the space for women. Commonly, Turkish rooms are rectangular, not square, and separated into two different functional zones; the first is cabinet's space as an entrance and serving space, called 'Sekialtı' (in Turkish), which act as an entrance hall also with a lower ceiling. The second part is the main living area, called 'Sekiüstü' (in Turkish), which accommodates low and fixed seating furniture called Sedir, generally placed in a U shape, covering the room, where women of the house watch the street or Hayat space of the house in earlier introverted versions. (Kuban,1995, pp.103-136) (Ford,2022,pp.225-240)(Figure 2)

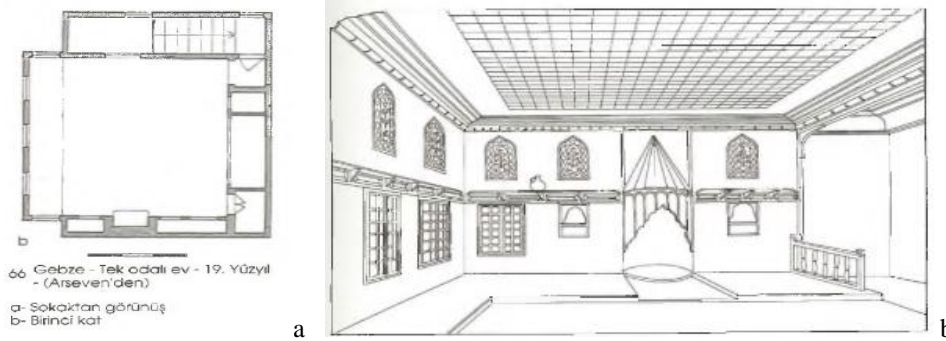


Figure 2. a) 1 room Hayatlı Ev at Gebze, b) Interior of a room (source:Doğan Kuban)

Main Elements of The Rooms

1.Sedir-Divan (coach): These sofas, which surround two or three sides of the room under the windows and are built with the house, are found in the most illuminated areas of the room. The arrangement of sofas may be different according to the room's shape. Louis Enault describes the use of rooms as follows; the sofa is the furniture of both bedrooms, living rooms, study rooms, and dining rooms, which indicates the multi-functional use of furniture. (Kuban,1995, pp.103-136) (Ford,2022,pp.225-240)(Figure 2)

2.Cabinets : Wardrobes are cabinets where beds are lifted during the day. They are usually located opposite the main windows on the entrance side. Another function is soundproofing between the iwan and other rooms. In some rooms, there are cupboards with small bathrooms inside, which resemble master bedrooms with bathroomS integrated. (Kuban,1995, pp.103-136) (Ford,2022,pp.225-240)(Figure 3)

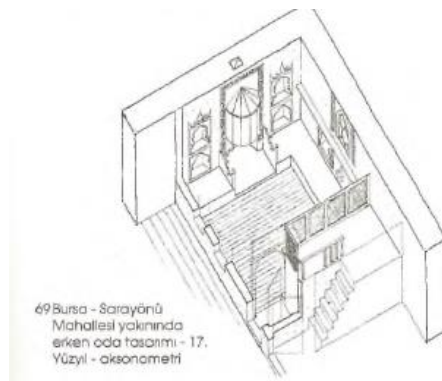


Figure 3. ODA perspective illustration,(source:Doğan Kuban)

3. Sergen: Above the first row of windows is a single shelf that circulates the room, where pots and berries are lined up. (Kuban,1995, pp.103-136) (Ford,2022,pp.225-240)

4. Floor and ceiling: The floor of the room has no visual significance because it is covered with carpets. For this reason, it was created by nailing the floorboards to the beams, and insulation was not

considered. Carpets and rugs also served the purpose of insulation against the cold. Despite the simplicity of the flooring, the ceiling has an ornamental, and according to some authors, symbolic quality. The ceiling reflects the division of the room. (Kuban,1995, pp.103-136)

5. Windows and lighting: The rooms have several windows facing the street. Early windows opened only to Hayat space for introversion. (Kuban,1995, pp.103-136) (Figure 4a)

The windows of Turkish rooms are special as they reflect the gender effect on the architecture, with rooms as designed women’s spaces where women can watch outside back to wooden cage windows, some of them also exhibit console character to enlarge the scenery. The wooden cages are famous in Istanbul and Anatolia and are used very commonly. These small caged bay windows were used for women to observe the street and the door without being seen.(Kuban,1995, pp.103-136)(Figure 4)

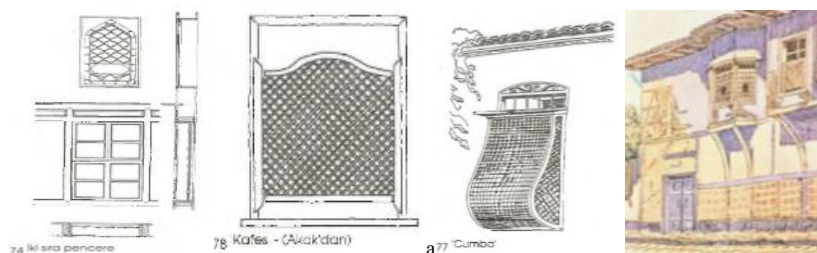


Figure 4. a) Window style of Rooms, b) Cumba and wooden cages(source:Doğan Kuban)

6. Doors: The two-door knockers on the outer door, each of which makes different sounds and has different motifs, are designed to emphasize the concept of privacy; they were created to distinguish whether the guest is male or female.(Kuban,1995, pp.103-136)

7. Fireplace (ocak): In ordinary houses with two or three rooms, only the main room has a hearth. Hearths are sometimes located in the middle of the walls, where there are no windows. The most common hearth plan is a semicircle. Therefore, the room as an independent unit is understood from its multi-purpose use. It’s used for sitting, eating, meeting, hosting guests, and sleeping. Multi-purpose use is necessary, especially in one or two-room core houses. Fireplace also indicates the gender effect of space design, where women is matched with cooking activity commonly.(Kuban,1995, pp.103-136) (Table 3)

Table 3. Basic elements of Room, identified by women/men

Basic Elements of Room	Dominant Women/Men identification
Sedir-Divan (coach)	Women space: day & night usage
Cabinets	Women space: for private storage
Sergen	Women space: for kitchen equipment
Floor and Ceiling	Women space: carpets and decorations
Windows and Lighting	Women space:-cumba element
Doors	Women & Men space: different handles
Fireplace - hearth	Women space: for cooking activity

2.2.2. Modern Period Worker Houses: Minimum Dwelling

The analyses of gender issues in traditional ‘Hayat’lı Ev’ determined some sort of valuable space feature formed by gender. The second case analysis has been realized on ‘modern worker houses’ which is a breaking point in architectural literature. The minimum dwelling is a special type that developed new forms based on the proletarian lifestyle exclusively for the so-called subsistence minimum.(Kuban,1995, pp.103-136) (Cieraad,I,2002,pp.263-279)

By the industrial age, integration of women into the production process provides the end of the traditional family. Caroline Ford underlines that; ‘Women’s equality with men, public education, and the mechanization of agriculture as well as scientific advances in agronomy create the preconditions for new settlement forms’(Ford,2022,241-272).

These new settlement forms later appeared as small houses that had been designed and furnished very

intelligently for working women by pioneer architects such as; Schütte-Lihotzky. Ford explains this new settlement development, which is very different from traditional as; “Schütte-Lihotzky argued in favor of small dwellings for women not only on economic grounds but also on the grounds that their small size should lighten the burden of domestic chores on women. Her design for the iconic Frankfurt kitchen conceived to rationalize home economics, facilitate women’s ability to care for their children, and afford them more time for themselves. Her floor plans for housing units for single women were designed to create a healthy and aesthetic domestic environment in which all the comforts of the modern household were incorporated into a compact space that required minimal labor”(Ford,2022,241-272). (Figure 5)

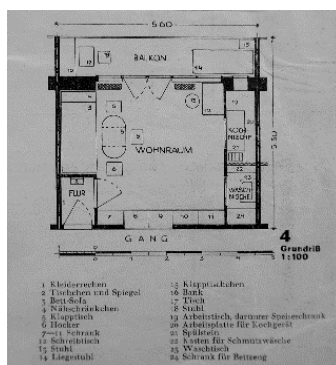


Figure 5. Margarete Schütte-Lihotzky, plan for a dwelling for a professional woman, with built-in furniture,1928, PRNR 60,Margarete Schütte-Lihotzky Private Papers, University of Applied Arts, Vienna, Collection and Archieve (source: Caroline Ford)

Ford emphasized importance of women ideas and contributions to housing design as; “In 1924, Bruno Taut, a fellow architect who was later to become Schütte-Lihotzky’s friend, argued that in creating new dwellings and new ways of living in a new post-war republican era, it was necessary that the architect and the housewife collaborate. This was encapsulated in his motto; ‘the architect thinks, the housewife guides’, suggesting that the housewife must play a decisive, creative role in the design of the New Dwelling”(Ford,2022,241-272). This demonstrates the gender-aware and basic design of minimum dwelling strongly.

In addition to Ford, Nylander also supports women contribution to the design of new dwelling forms and indicates that scientific data integration to this new dwelling design is a result of intelligent modernist women profile. This difference between traditional and modern dwelling forms had been stated in academic literature, as modern housing differ from traditional housing with the use of scientific data by Ola Nylander.

Nylander indicated that; “the home of the average worker changed dramatically during the last years of the 19th century. With industrialization, rental apartments concentrated in specific neighborhoods became the dominant form of housing for the working class. During the first decades of the 20th century, the apartment with one room and a kitchen became the most common form” (Nylander,2002,pp.22-25). In addition, Nylander states that; “The National Association of Swedish Architects and the Swedish Society of Industrial Design began a long-standing program of housing studies in 1939. Research methods at the time took a scientific approach, and individual functions were studied by dividing the complex reality that is the home into smaller and more-easily managed parts. With Functionalism came a new role for architects. The Classical ideal of the architects was an artist; during the Arts and Crafts period, the ideal was an artisan. Functionalist architects were instead influenced by the working methods of engineers and scientifically based tasks. They were to use the guidelines established by government housing research to ensure that residential design was supported by scientific facts”(Nylander,2002,pp.22-25).

Therefore modern period house was used to build on scientific rules. Architects used scientific rules and ergonomics, for the design of ‘Minimum Dwelling’, each square meter designed intelligently for functional necessities, identifying an industrial city and intelligent working people. Minimum dwelling designed as a living machine by Le Corbusier with his famous modular concept. Everything

was designed according to static and dynamic human dimensions, such as; kitchen cabinets, countertops, the height of working desks, the dimensions of beds, bathrooms, etc. Thus, the modern house was based on intelligent and efficient use of space.(Teige,2002,pp.234-271)

The modern house of the proletarian lifestyle was related to function, intelligent solutions, and scientific rules instead of gender issues. However, we must state that the equipment of the worker's houses was produced for the working, intelligent woman of the modern period. Frankfurt kitchens were designed for working women during the period and make up an important part of *Minimum Dwelling*. Frankfurt kitchens include high design qualities, which transform them totally into a service machine; cooking, washing, and ironing equipment in it, are all service equipment in Frankfurt kitchens. Thus, the only space and the only equipment for serving in the house were Frankfurt kitchens. (Teige,2002,pp.9-31/234-271) (Figure 6)



Figure 6. Detailed drawing of Frankfurt kitchen exploring intelligent design (source:Karel Teige)

Later, developed version of minimum dwellings appeared as ‘apartment without a kitchen’ represents collective-type dwellings, where collective kitchens have been designed on the ground floors of mass housing blocks and work as collective spaces for working women. (Teige,2002,pp.234-271/323-392)(Uluçay,2018)

This indicated by Vestbro as; ‘‘Classical Scandinavian collective housing unit (kollektivhus in Swedish) with individual apartments around a central kitchen, appeared in history as a specific urban housing model, a typical expression of modernist thinking. In the famous modernist manifesto *Acceptera* (Accept It, referring mainly to industrial society) for the 1930 Stockholm exhibition, the collective housing unit was seen as an important form of housing in the future (Asplund, et.al,1930; discussed in Vestbro,1982:82f)’’(Vestbro,1997,pp.329-342).

Frankfurt kitchens, bathroom cubicles, and folding beds were industrial products of the modern house. Bathroom cubicles produced at factories and installed at construction sites. The other one, folding beds, were produced for a proletarian lifestyle and produced industrially, where 3-4 or 5 people can be accommodated in *Minimum Dwellings*. [7][14] Vestbro emphasized that; ‘‘simplified housework and an efficient way of life were prominent features of the classical collective housing unit. The most important goal was to liberate female labor for a productive contribution to the national economy’’ (Vestbro,1997,pp.329-342).

As clearly as Vestbro, Teige also states; ‘‘Developed version of minimum dwelling is the collective way of living which service spaces turn into common spaces, are placed on ground floors and serve for households’’(Teige,2002,323-392).

As indicated by Teige; ‘‘By eliminating service spaces from interiors such as kitchens and washing rooms, women were eliminated from housework; thus, the working women who already work outside all day can rest after work’’(Teige,2002,323-392). A collective way of living developed to easier for working women's housework, collective spaces are gendered spaces, because of its basic formation based on gender issues. The disintegration of the traditional family began with the entry of women into the workforce and the establishment of the principle of equality between men and women. The modern period, which is identified with first, the industrial revolution, was a breaking point, and second, the birth of the proletarian lifestyle by women began to work. (Teige,2002, 323-392) (Uluçay, 2018)

From a gender point of view, the modern house was the modern women house. The modern house

was the house of intelligent working-class women, so all furnishing and house equipment were factory-made, prefabricated, intelligent, multi-functional, and comfortable industrial products designed by famous architects. The furniture of modern houses occupies all intelligent features. Frankfurt kitchens were used to design for the intelligent working class and to simplify housework inside the house.(Teige,2002,pp.9-31/234-271/323-392)

Thus, minimum dwellings offer modern working-class women alternative kitchen types to simply housework such as; Frankfurt kitchens, kitchen nook and cabinet, or kitchen-less minimum flats. The last choice is ‘kitchen less min. flats, which formed the emergence of collective houses where central kitchens had been provided on the ground floors of the apartments. These central kitchens serve for the working class and are much more planned for women, due to easier and simpler housework. In later versions, collective houses had been developed, besides central kitchens, childcare centers, dining rooms, socializing salons, playgrounds, libraries, open-air green sitting areas added to the collective houses’ commonly shared space list.(Teige,2002,pp.9-31/234-271/323-392)

As emphasized by Cieraad; “the first district kitchen was opened in 1903 in Amsterdam, however, not in a working-class district but in a middle-class neighborhood. These so-called ‘collective kitchens’ were run by a professional staff and provided meals for more than a hundred households. Reactions in the press were rather reserved. Although it was calculated that family members of the collective kitchen saved the costs of one private domestic servant, journalists feared the eclipse of the domestic kitchen” (Cieraad,2002,pp.263-279).

Cieraad continues as; “To underline its combination of the luxuries of a hotel and the permanence of a home, the architects did not name it an apartment hotel, but a dwelling hotel. In the city of The Hague, at the turn of the century a city of well-to-do government officials and colonial officers, several luxurious dwelling hotels realized. The first dwelling hotel, named ‘Boschzicht’, built in 1918. Boschzicht had been designed, comparatively small-sized apartments with only three bedrooms, a parlor and a living room, but without a separate dining room. All the apartments on one floor shared a guest room. The collective restaurant in ‘Boschzicht’ was on the ground floor. Still, the architects provided all apartments with a small kitchen and an adjacent servant’s room” (Cieraad,2002,pp.263-279).

The dwelling hotels were hailed to be a perfect solution for singles, but not for families. That is why the very few apartment hotels built in Amsterdam were designed for singles, notably well-to-do working women. [19] In addition, accordingly Teige; the collective dwelling consists of two parts; a) the centralization and collectivization of the economic, cultural, and social factors of the dwelling process, b) the reduction of the ‘apartment’ to an individual living cell. One room for each adult person, whose content is a living room and a bedroom. (Teige,2002,pp.9-31/323-392) (Table 4)

Table 4. Scheme of collective houses; green boxes are shared spaces, yellow box is private and individual space

Kitchen	Dining	Salon-club
Housekeeping services	Bathing	Children space
Playroom	Physical culture	Individual living cell

3. RESULTS

3.1. Hayath Ev and Gender

‘Hayath Ev’ as a traditional Turkish house has been examined, and unique spatial characteristics and relationships of spaces have been examined through the gender parameter. Hayatlı Ev, is one of the unique dwelling forms in architectural literature through its’ space organization and socio-cultural properties.

From a gender point of view, the Turkish family lifestyle is based on the patriarchal family type, in which the privacy of women is important in society and the man is the protective figure of the family.

Thus, this dominant patriarchal lifestyle is effective in the formation of Hayatlı Ev design and planning by gender.

The effect of gender on Hayatlı Ev is very dominant; thus, the house is the place of a woman where the city is the man's place, woman has been identified with the house, and all spaces and architectural elements of the house exhibit a relationship with gender, especially feminine character. Gender-related designs and spaces of Hayatlı Ev as follows;

-Spaces of woman and man in the house clearly separated from each other, however, the house itself has feminine character, and is the place of woman, and man identifies the city.

-Closed and semi-open spaces as the basic spatial properties of Hayatlı Ev constitute that; 'rooms' are the space of women. Rooms are for women where all daily activities take place, from sleeping to sitting, relaxing, cooking, dining, bathing, etc. Thus, the spatial quality of the rooms is feminine in character and provides women with all equipment and spatial requirements.

-Cumba is another, gender-affected, or gendered space of the 'Hayatlı Ev', it is specially identified through gender relations and the privacy concept of the Turkish house. Cumba is a spatial element of the rooms, unique in its formation. They are the spaces of women, and the cumba is the spatial element that links the interior to the outside world with controlled visibility, proportion of its elements, scale, furniture integration, and its form.

- Design of doors also indicates the gender effect on architectural elements. First, house doors are highly ornamented, giving a feminine quality, and they have two different knockers for women and men separately, indicating a perception of gender in architecture. It is unique when we think from a perception point of view, a voice perception for gender.

- Design of rooms' ceilings commonly comprises two parts: the first is a smaller lower ceiling showing serving spaces, cabinets, and the entrance of the room. The second ceiling is for the main open living space, where all daily activities take place, and both are highly ornamented with colors and motifs reflecting feminine character.

Hayatlı Ev basically reflects a patriarchal, introverted, feminine lifestyle. Hayatlı Ev and rooms are one of the unique samples of gendered spaces in the dwelling architectural literature identified with women.

3.2. Modern House (minimum dwelling) and Gender

The relationship between architecture and gender is clear and visible in everyday life. Bruno Taut identifies the modern dwelling with modern women and the minimum dwelling as a design solution for the modern woman's lifestyle. The gender role in the creation of minimum dwellings is quite dominant, and modern working women lifestyles are the reason for minimum dwellings.(Akdemir, Aykal,2021)

Minimum dwelling with all its intelligent open plan space solutions, with Frankfurt kitchens, bathroom cubicles, folding beds, and writing desks combined with bed furniture, etc, all intelligent furniture was for professional working women. (Ford,2022,pp.241-272)(Akdemir, Aykal,2021)

How can gender affect architecture so strongly, like Minimum Dwelling? This is maybe the best strongest sample in the architectural literature showing that women lifestyles create a new dwelling form. New women and new lifestyles created the new dwelling and a new way of living called; 'minimum dwelling'. This is one of the best samples that identifies the relationship between gender and design and women's effect on architectural design.(Ford,2022,pp.241-272)

3.3. Comparison of Hayatlı Ev with Minimum Dwelling from a Gender Point of View

The results discussed above demonstrated that both houses have a dominant feminine character, and they both serve women at first sight from a gender point of view. Both houses had been designed for women' behavior and lifestyle of the existing period. Hayatlı Ev exhibits an introverted, strong private character where the women spend all their time in the house; thus, almost every space is designed for

all the daily activities of women.

On the other hand, the modern minimum dwelling is another dwelling typology designed for women but has totally different spatial characteristics from the traditional version. Minimum Dwelling has an extroverted, public spatial character, where the women of the house just spend very little time inside the house and reflect a professional working lifestyle. Thus, the minimum dwelling has intelligent equipment, is small and is fit for the proletarian lifestyle of modern women.

4.DISCUSSIONS

Gender-aware future housing developments may concentrate on collective spaces and common areas. Both interiors and collective/shared spaces may be designed by considering gender; this will increase the quality of design. In addition, for future houses, especially in big cities, the trend of 'buy minimum but own maximum' concept is rising day by day; thus, shared spaces are getting more and more diversified and specialized day by day. Gender-aware design might affect collective or shared spaces positively and raise design quality.

In addition, in everyday life, the samples for gender-aware architecture may be multiplied, such as in Turkey, the space called 'Kahve' is a men place, where no one can see a just one women in these cafes. In not only interior space, but also only gender-related applications could be seen in urban transportations too. The first tram in the Ottoman Capital transportation in the Ottoman capital began around 1860's and initially special cars were allocated for female passengers. Male passengers and female passengers could not get into the same car. Women rode in special cars reserved for them on each line. However, it was seen that this practice was both very costly and caused disruptions in flights. Thus, ladies's section separated by a red curtain was placed at the front of all cars. (URL-1)

Alternatively, another gender-related sample could be football field or stadium, which is another men's place where some sort of men gather there and play football, and other sorts of men watch them and cheer. Alternatively, public hairdressers' names in society change through gender, such as coiffeur for women hairdressers and barber for men hairdressers. The relation between gender and architecture is reproducible; in office design, the atmosphere of the space is commonly masculine, with colors and materials, furniture arrangement, and space organization, but restaurants exhibit a generally more feminine character with their decoration, colors and space organization. The gender and architecture relation can be found in the colors, materials, textures, and finishing of a building or a space; pink is the color of women, thus it creates feminine character; on the other hand, blue is always associated with men. The finishing materials also have gender characteristics, and as part of the makeup of architecture, the effect of materials is very dominant. Wood-covered floors and walls create a feminine, calm atmosphere; whereas concrete finishes create a masculine, contrast effect. Aluminum and chrome material usage in interior spaces creates a feminine space effect due to their shining properties.

In addition, glass-steel-made modernist skyscrapers of Mies van der Rohe were criticized for the masculine effect they created.

On the other hand, architectural comparisons of Turkish and Japanese houses indicate strong, distinctive gender-aware architecture. Spatial comparisons, including traditions, religious beliefs, and lifestyles, between these two nations show a very distinctive gender-aware design, such as;

- i. Introverted spatial character of the Turkish house versus the extroverted spatial character of the Japanese house;
- ii. Women's and men's identities accommodate vast distinctions in Turkish culture, women and men are equal in Japanese culture;
- iii. The Turkish house has been designed for Turkish women within the privacy concept, but the Japanese house is for all households with Buddhism and Zen beliefs, etc.

The comparison of Turkish and Japanese houses is just one of the best samples that indicate gender and architecture relations especially focusing on the identity and culture of the region.

5. CONCLUSIONS

Gender and architecture are characteristics and special fields that can affect space design through the formation and selection of lifestyles. When we think of the strong contribution of interdisciplinary studies to the authenticity of architectural design, is quite strong and valuable, gender and architecture as interdisciplinary subjects, will contribute strongly to the creation of authentic designs, original designs, and interior space.

* Answers of Research Questions

Q1) how might gender-aware design influence future housing developments?

Gender-aware design might influence future housing developments and urban planning. Today, especially in metropolitan cities, mass housing projects are planned with small square meters and flexible adaptable features with shared spaces (collective spaces) concept, such as 'buy 1 room and own 23 extra rooms', slogans used by firms to strengthen the concept of shared spaces. Gender-aware design might influence these shared spaces and interiors of small houses, for especially for small households, and be investigated both in close and open areas.

Q2) how does gender affect the spatial organization of traditional Turkish houses (Hayatlı Ev), and modern, industrial city collective houses?

Influence of gender on design have been demonstrated by two iconic case analyses; traditional Turkish house and ideological minimum dwelling. Investigations present valuable data for gender-aware design. It has been observed that from a gender-point of view, traditional houses exhibit regional, introverted, private, and closed spatial characteristics; on the other hand, ideological houses exhibit completely different spatial characteristics with extraverted, publicity, open spatiality.

In the first case, Hayatlı Ev, as a traditional way of living, has been demonstrated that the house has been shaped for women's lives. All rooms are arranged according to everyday life, and the necessities of a patriarchal lifestyle, are women-oriented, and have a nomadic and introverted character. The introverted character of the house is a result of lifestyle, and even at earlier Hayatlı Ev typologies, all spaces were introverted, and even windows opened to the courtyards of the house. Further versions of Hayatlı Ev exhibit less introversion, with the cumba designs that open to the street, over a wooden cage that women of the house can watch outside and cannot be seen by coverings. The closed spaces indicate privacy and everyday life of women.

Rooms' concept is unique in architectural history, designed for women; all daily activities can take place in a room. With its open plan and flexible design approach, mobile equipment usage transforms spaces quickly. The unique furniture design of rooms, Sedir (stable sitting element), integrated with the space and serves all functional necessities with its dimensions and continuity.

On the other hand, the second case of the study, the Minimum Dwelling as the modern period houses, exhibits a totally different spatial character from Hayatlı Ev. Minimum Dwelling was a design solution for the dwelling problem of the modern age, and a complicated solution by CIAM (architect's community), and designed for the women's class of the modern period. The minimum dwelling was designed for intelligent, working women. Modern period was started by women began to work, thus, women's figure was changed through a proletarian lifestyle. This changing lifestyle of women, eliminated women from housework, and the service spaces of the houses were diminished and/or taken away outside the houses by central collective service spaces such as; collective kitchens, kindergartens, common dinner salons, and common laundries.(Kuban,1995)

Thus, the modern period houses were developed with the gender issue in mind, for the professional working woman profile, with minimum dwelling sizes and maximum collective serving spaces.

To sum up, two iconic house designs in architectural history, 'Hayatlı Ev' and Minimum Dwelling, have been analyzed comparatively with the topic of 'gender'. It's clearly demonstrated that, however physical design and equipment is the basic creators of space, gender issues affect spaces in socio-

cultural, religious, regional ways and have a strong impact on designs.

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