

# An Analysis Method for Interior Design

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## ABSTRACT

This study aims to present an interior design analysis method proposal for examining a building in detail and contribute to the literature. As a conclusion, definitions and limitations of interior architecture profession that determined by international federations and the accreditation institutions are examined. In addition, studies, methods, and classifications conducted in this context have been investigated. And an interior design analysis method is proposed. According to this method, the building is examined separately in physical and aesthetic environment. To make the method more readable an iconic building has been examined and the method has been adapted. Villa Savoye has achieved a successful result in terms of design for the period of modernism. According to the evaluations made in spatial analysis, it is seen that most of the stated principles have been followed. As Le Corbusier has an important place in the history of architecture and Villa Savoye has a positive contribution to International Style and Modernism, detailed analysis is made for this structure. And it leads to creating ideas for and offers an insight into new designs.

## KEYWORDS

*Interior design analysis; Method proposal; Modernism; The international style; Villa Savoye.*

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## 1. Introduction

The International Style is the modern architectural trend that came to the fore in the 1920s and 1930s. Modernism and the International Style began to replace the tradition-oriented and modernistic directions [7]. It is based on a book by Henry Russell Hitchcock and Philip Johnson for the International Exhibition of Modern Architecture in New York in 1932. This exhibition was held to describe modern architectural works and the style. In this style, the seminal figures are Ludwig Mies van der Rohe, Walter Gropius, J. J. P. Oud and Le Corbusier [8]. Pile [7] emphasizes that all works in the exhibition have similar qualities: “flat roofs, smooth (and usually white) walls, large areas of glass and asymmetrical planning, along with a total of any historical or ornamental detail”.

As tastes changed and the construction industry embraced the technology necessary to detail and build to this new aesthetic, industrial products became features and in many instances, along with the parallel decline in the use of ornamentation, came to define the essential character of a work of architecture [9].

In the International Exhibition of Modern Architecture, there were eleven works and the interior illustrations were included in these works.

Interior design, which was a tradition before the 20th century, started to be seen as a profession with the 20th century. In this period, there were two different approaches in professional practices, both traditionalist and innovative. With its simplicity, functionality, and spatial structure, Villa Savoye is not only a good example of the international style and five points of modern architecture Le Corbusier based on his architectural view but also becomes a milestone that has a great impact on interior design. For this reason, it is aimed to conduct space analyses of Villa Savoye within the determined method, which reflects all the features of the period. Due to the fact that it is one of the important examples of modern period interior design and its widespread influence on today's design approach, this structure was chosen as a sample.

## **2. Methodology**

This study aims to present a method for analysis of many studies in the field of interior architecture. As a result of the researches, it is seen that there is no certain method for analysing the space. It is anticipated that determining the criteria for interior design analysis will be useful for guiding future studies and creating a systematic analysis. To create a method, the definitions and limitations of profession determined by international federations (such as IFI: International Federation of Interior Architects/Designers, ASID: American Society of Interior Designers), and the criteria determined by the accreditation institutions of interior architecture/design education (such as ECIA: European Council of Interior Architects, CIDA: The Council for Interior Design Accreditation) are taken into consideration. In addition to the mentioned criteria, the classifications and definitions in the books of Pile [12] and Ballast [16] are discussed and an analysis scheme is created. In this context, the building is aimed to be handled separately within its physical and aesthetic environment.

Considering as a part of a whole, it is seen that the aesthetic and physical needs of the structure are defined by the general needs. These emerge from the needs of the whole rather than a singular function [17]. In Pile's book there are three stages of space evaluation. These are Function, Structure and Materials, Aesthetics. When these three stages are examined in detail; function stage consists of the size and shape of space, placement, and choice of furniture, circulation, lightning and acoustical environment. Structure and materials stage consists of material selection according to function, durability, maintenance ease, good quality construction and cost, safety and environmental conditions [12]. In this study space analysis divided into two parts. In the first part, the physical environment deals with function, structure, and materials as a whole. This section is divided into architecture and interiors design. Information about the structure and the function is given, construction, facade, mass, mechanical systems, wall, ceiling, floor, dominance, and circulation are examined in this section. The second part, called aesthetic environment, is evaluated in two sections as elements of design and principles of design. In Pile's book [12]; design elements are point and line; form of shape; texture, pattern, ornament; value and colour; opacity, transparency, translucency. And principles of design are size, scale, proportion; unity and variety; balance; rhythm; emphasis. For evaluating space design, harmony and light should be in the list of analysis. In the book of Ballast [16], elements of design are form, scale, colour, texture, pattern, and light; also the principles of design are balance; harmony and unity; rhythm; emphasis and focus; contrast and variety; proportion. Thus, the aesthetic part of the method is completed with these sections. The

classification required for a space design analysis is determined. The analysis scheme used in the study is below.

#### Physical environment

Villa Savoye is known as a structure where five basic principles of Le Corbusier on architecture can be seen. The villa was designed as a residence and later started to be used as an exhibition gallery. It was built in Poissy, near La Seine River, 30 km from Paris in France. It is located on large green land and is located separately from the main street and other residential areas.

1) Architectural (function, structure, material and mechanical systems): The building was designed primarily as a residence, and it is observed that suitable solutions are made for the housing function. However, there is currently no function plan other than exhibiting. With a ramp, general usage, core concept, integrated design with nature, and adequate space analysis show usage in accordance with the function plan. Villa Savoye looks like a box raised from the ground and is located on its thin columns. Le Corbusier had shown that the building could get carried to the columns without bearing walls. It was built using reinforced concrete [19]. The facade has a simple mass. The horizontal windows of the house are not interrupted even in the open-top balcony section, the facades of this section are also shown as living room windows. Birksted [20] states that Le Corbusier created a major turning-point in architecture with these windows stated in five points of modern architecture.

At other times, they hold a thin metal section window frame, painted black and set nearly flush with the white concrete wall, except for a minimal drip. The wall itself creates a rebate on the internal face, providing the window with a ledge. The rebate is on the interior face of the wall, leaving the external wall smooth and flat. Thus any differences between the outdoor openings of the internal courtyard and the internal window openings are eliminated [20]. Le Corbusier [21] describes Villa Savoye as "the house is a box above the ground, perforated all around, without interruption, by a long horizontal window..." The regular geometric ratio on the facade draws attention. The form of the villa gains motion with circular walls. The garage is located at the bottom of the house and can be reached from a ramp. This ramp serves the transportation of all floors from the entrance to terrace floor.

Considering the statistics related to the high rate of urbanization all over the world, especially in developing countries as well as Iran, it could be estimated that, in the next 20 years, about 60% of the world's population will live in cities.



**Figure 1.**

Detailed drawings of the building's mechanical systems (electrical, sanitary, acclimatization) could not be reached. However, when the structure is examined, attention is paid to natural lighting. The rooms were located according to the sun's direction and space arrangements had been made according to the natural lighting. Clean and wastewater systems show an innovative approach compared to the period in which they built. Besides, the free passages of the spaces and the open terraces provide natural air circulation. Drawings of fire and security, heat, acoustics, graphics and guidance could not be reached. However, in addition to the

dampness problem, it is stated with a letter written by the homeowners that rainwater comes in [22]. This negative situation indicates that mechanical systems were considered but there were problems in the application.



**Figure 2.** The ramp



**Figure 3.** Interior-exterior relationship

#### Aesthetic environment

Pile [12] states that “in engineering, design may deal with sizing structural members, piping, or ducts, while in the fine arts it deals with the way an artist organizes the formal elements of line, shape, color, and texture in a space.” In this study, aesthetic environment examined in two parts as elements of design and principles of design. Villa Savoye has a sculptural structure that creates the feeling of being on a pedestal. It has features to cover many principles in terms of design. The correct integration and usability of these features with the function is important. It is seen that the concept of the garden, terrace, and free plan in a modern design affects the visual balance positively.

1) Elements of design (form, scale, colour, texture, pattern and light): The form should be examined in two aspects, twodimensional and three dimensional. The term of the two-dimensional describes the plan of the structure and the term of the three-dimensional describes the form created by the architectural elements such as furniture and columns beams [12]. In terms of form; Villa Savoye is a rectangular prism designed in accordance with the principles of purity, simplicity which is the pioneer of modernism. This form is disrupted only by the cylindrical walls surrounding the roof terrace sunbathing place, and the fixed mass gains motion. Columns that lie inside independently of the exterior and walls do not partition indoors and create a unique effect. Transparency supports the relation of spaces with each other. In the interior, the plan is divided symmetrically with the ramp in the middle. Horizontal dominant windows and width gather the perception in this direction. The fact that the carrier system is not reflected on the exterior also balanced this integrity and openings. In the interior, its appearance as thin columns adds an aesthetic appearance.

Brooker and Stone [23] divided scale into people, rooms, and buildings. As the building scale, the structure spreads over a large area. It has lightened a heavy and large mass with the appearance of hanging in the air. In the scale of the room, the interior spaces are visually clear as they are defined by a free plan. Transparency, which does not interfere with the spaces instead of the dominant walls that cover each other, supports the fluidity of movement in the space. Considering that it is designed as a house, the area sizes of the rooms and the distribution of the furniture show that the spaces are very large in scale. This does not make the interior of the building easy to perceive.



**Figure 4.** Bathroom

#### Aesthetic environment

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Rhythm relates visual elements together in a regular pattern. Rhythm is an important element in both historic and modern design [12]. Repetition produces rhythm [7, 32]. Looking at the whole structure, there is a rhythm created with both horizontal and vertical element repetitions. The effects of surfaces on the rhythm continue with forms and colours. Vertical perception of columns and horizontal perception of windows is a rhythm consisting of contrasts both in the interior and the facade.

From the perspective of emphasis and focus, it is the line with the ramp that dominates the design. Despite the intensity of all horizontal and vertical linear lines, the ramp that rises up to the roof and reaches the roof is an indicator of fluency and circulation, emphasis and focus interiors and exteriors. At the same time, continuing both inside and outside provides integrity. The spatial dominance of terrace gardens is in the foreground. The predominant use of white is dominant and is supported in some places by primary colours. In terms of lighting, it is seen that natural lighting is the focus. Also, the internal-external relationship is dominated by the perception of transparency. However, the scale focus point was not kept in the space-user relationship.

White [32] states that in order to one element to dominate another there must be contrast and it is related to dominance. There are repetitions with the carrier system and opposite directions with the windows. Repetitions, hierarchy, and contrast appear in all elements as a whole. The repetition of horizontal windows on the facades, the repetition of the bearing system in the whole structure, the circular walls rising on the roof despite the completely angular lines and the staircase form also show that there are contrast and variety in the design.

Proportion of an element is perceived according to the whole or the parts next to it [12, 32, 16]. Villa Savoye is a structure in which the internal-external relationship is strongly established. As in free plan understanding, there is no limit in interior spaces. The design is free as the walls are saved from being a carrier element. However, this freedom created in the interior of the building damages its suitability to the human proportion and creates a feeling of emptiness with very large volumes. It is seen that the exterior and the structure are proportional, the structure of the interior and the rooms do not have the same proportion.

### **3. Results and Discussion**

Villa Savoye was designed with ideas beyond the era in terms of both architecture and interior space and became one of the pioneers of modern architecture. The building contains five points of modern architecture that Le Corbusier based on his architectural view. Free plan has been implemented that provides independence by removing the carrier feature of the walls. All carrier systems and walls are used as an aesthetic element. With the use of horizontal windows and terrace gardens, natural lighting was provided in the interior and integrity had been achieved with green nature.

In the study, physical environments, which are architecture and interior design, and aesthetic environments consisting of elements and principles of design are analysed. The building has been one of the pioneers of modernism with an approach beyond the age and has shown innovative approaches in structure and material use. However, problems with functional solutions and mechanical systems have not been unnoticed. Although problems such as moisture and dampness were encountered, the fact that the mechanical system was available at that time is one of the most important features. Dominance and circulation issues are well emphasized in interior spaces, and free plan implementation is a great innovation for design. Walls and floors are detailed, but lighting windows related to ceilings have had negative results.

When examined in terms of aesthetic environment, the simple form and design details used in the building are important for its period. However, although the scale is properly worked on the building, the relation of the interior space and the furniture is in accordance with a monumental structure rather than a house. White colour was used predominantly following the style of the period in which it was made, only some of the dominant dark colours on the walls and the materials and colours used in the furniture are also different. It is seen that natural lighting is at the forefront throughout the building, and even lighting windows are considered in the bathrooms. Unfortunately, homeowners had problems, especially in rainy weather due to the noise coming from these windows. The building plan provides a symmetrical visual balance by ramp, architectural and interior design elements have meaningful harmony. Unity is seen in walls-windows, carrier system and the facade. The fact that the horizontal windows and openings can be kept so large is also due to the positioning of the carrier system inside and adds an aesthetic value to the interior. Rhythm is seen in horizontal windows and structural repetitions. Principles of design such as contrast and variety are seen with emphasis and focus being on the ramp in the building centre, angular and circular lines, and directional contrasts.

Considering all the criteria, two issues are open to discussion. The suitability of the house on a human scale is particularly controversial about proportion. In addition, according to complaints about moisture, humidity,

and precipitation that may arise from the application, had Villa Savoye become a house that does not provide comfort for the users?

#### 4. Conclusion

This study aims to present an interior design analysis method proposal for examining a building in detail and contribute to the literature. As a conclusion, definitions and limitations of interior architecture profession that determined by international federations and the accreditation institutions are examined. In addition, studies, methods, and classifications conducted in this context have been investigated. And an interior design analysis method is proposed. According to this method, the building is examined separately in physical and aesthetic environment. To make the method more readable an iconic building has been examined and the method has been adapted. Villa Savoye has achieved a successful result in terms of design for the period of modernism. According to the evaluations made in spatial analysis, it is seen that most of the stated principles have been followed. As Le Corbusier has an important place in the history of architecture and Villa Savoye has a positive contribution to International Style and Modernism, detailed analysis is made for this structure. And it leads to creating ideas for and offers an insight into new designs.

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