A Study on Spatial Characteristics of the Living Room 
in Mies van der Rohe's Resor House

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Abstract
Resor House can be considered significant since it provides a meaningful clue to understanding the changes in Mies' conception of architectural space, particularly the relationship between the interior and the exterior spaces. In this light, this paper focuses on the following characteristics of the living room of Resor House. Firstly, in terms of spatial characteristics, the paper discusses the idea that there is an enhanced relationship between the interior and the exterior spaces of Resor House. This is achieved by minimizing the use of fixed elements other than the ceiling and floor in the living room space, and through the emphasis of its objet-like characteristic, resulting in a homogeneous, continuous, and hierarchical composition for the overall living room space. Secondly, the paper examines the idea that a building can act as a visual frame that forms a single integrated visual whole between the inside and the outside, while maintaining the inherent properties of the interior and exterior spaces. This aspect can explain the fact that after Resor House, the role of architecture as a device to create the relationship between spaces, especially of those between the interior and exterior, becomes more emphasized in Mies' architecture. In addition, Resor House is also significant in that concrete solutions to the country house idea, which appeared conceptually during Mies' German era, particularly as a precise study on its interior space, are actively suggested through this project. In so doing, Resor House exemplifies Mies' concrete experiments on the possibility of integrating the interior space into the exterior environment on a site that has abundant natural features.

Keywords: Mies van der Rohe; Resor house; living room; space; country house

1. Introduction
Mies van der Rohe designed Resor House a few years after he had met Helen L. Resor, a trustee of MOMA in 1937. Resor House, which was intended to be a ranch house, was an opportunity for Mies to realize his idea for a country house that he had been developing in Germany. Mies left more sketches and drawings for Resor House than he did for any of his other works, even though this building was not actually built. The considerable amount of sketches and drawings suggests that Mies had put an enormous amount of passion and endeavor into the project.

This paper focuses on Resor House for the following reasons. Firstly, Resor House had been more elaborately designed up to a significant concrete stage than any of the other country houses Mies had designed. Mies designed several country houses during his German period, including the experimental Concrete Country House Project (1923) and the Brick Country House Project (1924), as well as a series of other country houses such as the Gericke House Project (1932) and the Mountain House (1934). However, most of these country houses were not actually built, rendering it difficult to evaluate not only their actual features, but also the concept of their interior spaces. Although Resor House was also not built, over 800 sketches and drawings for this house project afford a display of the most complete concept of his country house genre. Particular attention is given in this paper to the relationship between the interior and exterior spaces of Resor House. This consideration is based on the notion that, since the house is located in the countryside, the exterior environment that surrounds the house must have had a significant influence on its design. Without doubt, Mies considered the relationship between the exterior and interior spaces to be very important throughout his life. This can be seen in his active use of the frame, where the exterior scenery is seen through glass curtain walls, and also in his numerous sketches that express the evident relationship between exterior and interior spaces. These aspects suggest that it is important to interpret Mies' concept of space in terms not only of the interior
space but also of its relationship to the exterior space. Thus, it is expected that Resor House could provide meaningful clues to understanding not only the country house genre but also Mies’ entire concept of the relationship between the exterior and interior spaces.

The second reason that this paper focuses on Resor House is that this house project is situated in the transitional period of Mies’ life. Resor House is designed at the mid-point between Mies’ German and American eras. In fact, the house had not drawn a great deal of public attention compared to his other works, and it was not regarded as one of his masterpieces. However, it seems certain that Mies put enormous effort into this project. The reason for this is related to the fact that Mies designed this project during the period in which he immigrated from Germany to the United States of America. For Mies, this project was an opportunity to elaborate on a new type of work in the new world, and above all, to continue his search for changes in a new spatial environment. It can be assumed that the vast natural environment of America, which is relatively less dense than in European cities, provided Mies with fresh inspiration. It therefore seems appropriate to study how this different environment affected Mies’ architectural tendencies in comparison to his previous tendencies.

Thus, in this paper an attempt will be made to interpret the relationship between the exterior and interior spaces of Mies’ house designs through the study of Resor House. This paper will also discuss the characteristics and interrelationship between the building and the exterior space of Mies’ country houses.

As a method of study, a comparison and analysis are carried out in this paper of Mies’ several alternative designs for Resor House in order to understand Mies’ design process and intentions. In so doing, an attempt will be made to grasp how the characteristics that relate to the interior and exterior spaces influence the visual and spatial characteristics of the building. In order to achieve this, an examination will be carried out on the concepts Mies chose among his many ideas during his design process and the effects and meanings of the choices he made will be discussed. A comparison will then be made of these ideas with those of Mies’ other works that were carried out before and after Resor House in order to understand the values and influences of these ideas. Finally, an attempt will be made to interpret these characteristics and their significance in the context of Mies’ architectural concepts, especially focusing on Mies’ idea of the “neutral frame”, among many of his other ideas.

This paper will specifically focus on the living room of Resor House. This is because the purpose of the paper is not to study the building itself but to study the spatial characteristics of Resor House and their effect, since the living room significantly represents the characteristics that are closely related to Mies’ other works subsequent to Resor House. In order to achieve this intention, it is more appropriate to focus on the living room rather than to deal with the whole house.

2. Outline of Resor House and its Living Room

The models that were constructed of Resor House during the design period of over 3 years clearly show that Mies paid the most attention to the design of the living room. The 1937 model (Fig.1.) is an early and relatively realistic model that was made with the intention that the house would actually be built. While the contract drawing completed in March 1938 (Fig.2.) shows a partial change made to the exterior walls and to the shape of the windows, there are no significant changes in the overall appearance. On the other hand, in the 1939 and 1940 models (Fig.3., 4.), the first floor structure is reduced to a mere base, there are no windows, and the existing structure at the south-east end is simplified to the form of a box. Here we can see that the primary concern from the early stage of design was that of the living room and of the contrast between the wings on both sides and that Mies concentrated on the void space in the center.

Fig.1. 1937 Study Model (McAtee, 2001)

Fig.2. Contract Drawing (March, 1938) Above: Elevation from the North, Below: Elevation from the South (Archive: 3800.769)

Fig.3. 1939 Study Model (McAtee, 2001)

The living room includes a dining space and is of a massive scale, with a length of 17.4 m, a width of 14 m, and a 3.6 m ceiling height. The scale here is larger than that of Mies’ previous houses and affords a sense of
openness to the space. Its structural module measures 6 m east to west and 9.8 m north to south. Columns with a cross-shaped section were used, as in the German Pavilion in Barcelona and in Tugendhat House. Thus, as with these previous buildings, the columns appear thin visually and act as vertical and linear elements. This living room leads to the hall and the hallway to the west and to the dining area to the east. Each space is divided by a fireplace of field stones and short bookcases. In the north and south glass curtain walls retreat about 1 m from the edges of the floor slab and the roof, forming a type of narrow catwalk. The living room is a free space following an open plan, so that the rest of the rooms are placed in opposition as box-like closed spaces. In terms of the outside appearance, the living room seems to be void because of the glass curtain wall, while both the flanks appear solid with the cypress veneer and native fieldstone.

3. Analysis

3.1 The Relationship between Exterior and Interior Spaces

Two types of perspective drawings completed by Mies will be referred to in this paper as the primary material used to analyze the characteristics of the relationship between the exterior and interior spaces of Resor House. Firstly, Fig. 6 shows the collages in which Mies combined the actual site photograph and a perspective drawing. They show the north and south sides respectively. In these Mies shows the house to be completely open in both directions. However, in his actual design, only the south side is fully open while the north side is controlled in various ways. The controlling methods are shown in the four perspective sketches of the interior (Table 1.).

By examining these drawings and sketches, we can see that the location and scale of the living room were decided from the beginning, while other details underwent many changes and deliberations. It seems that Mies experimented on the characteristics of the interior space by analyzing various alternatives for the living room space. Tab. 1 shows the perspective sketches of the living room. These sketches show that there are hardly any changes in the scale and the shape of the space, columns, the fireplace, and furniture, while changes were made in the composition of the north side. Here it seems that Mies concentrated not on the effective utilization of the space but on making characteristic differences between the interior spaces by establishing a relationship with the exterior spaces. Each drawing shows clearly distinct features. In order to determine how the views changed according to the changes in the composition of the north side, we can see the changes in each view in the drawings below, which were executed based on the above perspective drawings. The drawing and the floor plan below show the house when the north side is fully opened.
In Sketch 1, both the south and north sides are also open using glass curtain walls, but there is a free standing wall of cypress wood. This is very similar to the design of Mies' works carried out between 1928 and 1931; the onyx walls of the German Pavilion in Barcelona, Tugendhat House and the macassar wall of the House at the Berlin Building Exposition. This composition demonstrates a few of Mies' typical spatial characteristics. The role of the "free standing wall" as a visual object against the scenery in the south side, an idea from Mies' German era, is still apparent here. The wall has a decorative effect in accordance with its material and the idea developed further with his later interest in a "painting wall." Mies' ultimate idea of this type of wall can be seen in the 1940 model (Fig.4.) that depicts Braque's painting. In this case, as seen in the previous example, the free standing wall becomes a strong visual objet, which has the same preferential status as the outside scenery. In addition, because of this wall, the interior space acquires a strong contrast between the open and the closed. (Fig.10.)

However, the drawings completed after March 1938 do not exhibit further development of this plan, probably because of the difference in site conditions. During Mies' German era, his houses were built in the cities, where the building site faced only one direction, while in the case of the site in Wyoming, which is open toward both directions, the views tend to be significantly blocked, resulting in preference being given to one particular direction. In this case, discordance is created between the order of the interior space and the outside environment. (Fig.9.)

In comparison to this, in Sketch 2 both the south and north sides are open through the use of glass curtain walls, and the low and short furniture eliminates all walls, creating an immense openness toward both directions. Accordingly, both north and south can achieve maximum openness and there is no hierarchical difference between the directions. Here the interior space has strong connectivity with the exterior space.

This type of composition lies within the same context of a series of ideas for country houses Mies worked on during his German era. Unlike Tugendhat House which was built in the city and a series of court houses that intentionally exclude the sense of connectivity to their surrounding environments, these types of country houses have the characteristics of an active connection with their exterior space. In the case of the living room of the Gericke House project (1932), which was designed as a country house, Mies actively connects the interior space with the exterior space by opening both front and rear sides. This is shown in the ample utilization of glass curtain walls and in the connection of the exterior space with the interior space, employing open terraces and various courtyards. The concept where the living room area in the Gericke House project is open towards both directions without any visual obstruction is similar to that used in Resor...
House. While Sketch 2 shows the closest resemblance to the final concept for the 1940 model, too much openness weakens the identity of the interior space, and there is no preference between the south side as the front and the north side as the rear. This therefore seems to have required some sort of complement.

Sketch 3 illustrates the characteristics of the open front and rear sides. As shown in the figure, the wall is the background, and the outside scenery viewed through the windows becomes a type of object within a frame. This contradicts the other two drawings in terms of composition in that the exterior space becomes the background while the cypress wall becomes the visual object in Sketch 1, and the columns and furniture become visual objects in Sketch 2. Mies usually used these types of walls and windows in a closed-box space rather than in an open space in a free plan. For instance, the composition of the first and second floors of Tugendhat house shows this type of contrast. (Kim, 2000) The living room space on the first floor of the free plan is open and the entire surface is glass, while the bedrooms on the second floor have types of punched windows in the walls. The former reinforces the relationship with the outside, while the latter reinforces the identity of the interior space.

Thus, in Sketch 3, the interior space has the strongest identity among those in other drawings, and the preference between the north and the south is evident.

It can be assumed that the clear preference between the front and the rear is achieved by controlling the openness toward the outside. Here Mies also seems to try to give clear preference to the scenery viewed from the front and the rear sides.

The most distinctive feature shown in Sketch 4 is that of the ceiling, which is not directly connected to the outside but blocked by the wood band over the glass. The most significant difference here is that the boundary between the interior and the exterior is distinctly defined in comparison to that in Sketch 2. This is an alternative due to a technical reason (McAtee, 2001), but in terms of the space it is similar to Sketch 2. However, because the continuity of the ceiling is limited, the degree of openness differs. In fact, even though this is the most practical alternative, this feature did not appear in any of Mies' drawings or models after 1939. This shows that Mies did not have any intention to develop this idea further.

3.2 Spatial Characteristics of Resor House

The four Mies' sketches studied so far deal mostly with the composition of walls and with the attempt to create a difference in the relationship between the interior and exterior spaces by using the connectivity of the ceiling with the outside. The models completed in 1939 and 1940, which represent Mies' ultimate ideas, show a compromise between Sketches 1 and 2. Here, unlike Sketch 1, the perpendicular solid wall has become a painting partition, raised above the floor. This extends the continuity of the ceiling and the floor to the boundary towards the exterior space. Thus, the interior space becomes a homogenous single space with a sense of openness toward both directions, and establishes a weaker hierarchy between the north and the south.

This limited openness toward both directions is the most distinctive feature of Resor House and is
an idea that evolved from Mies' previous works. In Mies' projects executed in Europe such as the German pavilion and Tugendhat house, the compositions create views that are open only to one direction, corresponding to the solid walls. These elements provide contrast and an independent juxtaposing relationship is thereby created between them. In contrast to the case of the Berlin building exposition, where the directionality of the site was insignificant, this feature appears here and is an attempt to understand the interior and the exterior in terms of an independent and equal relationship.

However, the Gericke House project (1932) and the Hubbe House project (1934-35), planned as country houses, demonstrate Mies' attempt to create a more complex relationship between the interior and the exterior spaces. The characteristic of these houses is that they have one direction with a view of nature, while the other direction has an artificial view created by the court. This is an integration of Mies' ideas of a court house and a country house. The living room of Gericke House is extremely open toward the court in the north and the natural scenery in the south. In the case of Hubbe House, which was planned for Elbe Island, Magdeburg, Mies stated that the challenge was to solve the problem of directional in order to utilize the beautiful views of the Elbe River in the east and the sunsets. Here, Mies created a type of light-court by building a fence to the north and south in order to expand the living area, while completely opening the east side. (Tegethoff, 1985) In Hubbe House, the exterior spaces in both directions have different preferential degrees, while the interior does not seem to have any preferential hierarchy between its front and rear (the lateral side in the case of Hubbe House). The interior spaces of these houses create a uniform composition.

In comparison to these projects, in Resor House the views from the north and the south are of equal value, with maximum openness toward both directions, while their preferential hierarchy is determined in the interior space. Thus, the exterior environment as an extended interior space acts as the most dominant scenery, while the architectural elements play the role of objet within the scenery. In particular, horizontal elements such as the ceiling and the floor create a continuous unobstructed relationship with the outside creating a homogenous space of the entire living room. Here, the nature of the partition, as an element creating preferential hierarchy between directions, is closer to that of an "installed" pure objet than to that of a "built" architectural element. This characteristic is enhanced by Braque's painting installed on the partition.

Here, elements other than the ceiling and the floor have a variable and free relationship, demonstrating an early appearance of the "universal space," in which all interior walls eventually disappear. This suggests that the universality of space apparent in Mies' architecture is deeply related to the establishment of the relationship with the outside rather than to the logic of the interior space. This characteristic becomes more evident in Mies' tendency during his American era after Resor House. In Farnsworth House (1945-50), the Cain House project (1950), and the 50x50 Feet House (1950-51), the relationship of architecture with the outside was considerably extended. In the non-residential buildings such as Crown Hall and the Berlin New National Gallery, all the solid walls, with the exception of the core, are eliminated and the concept has evolved to the extent that the ceilings and floors are the only physical structures that remain.

3.3 Building as Frame
Another important characteristic of the living room
space of Resor House is that the north and south sides are transparent. In this case, the building itself is a type of frame integrating the inside and the outside into a single unified scenery. The inside of the building is perceived as part of the greater entire surroundings rather than as an independent space. Thus, the building itself acts as a vehicle with which to create a visually integrated relationship for the interior and exterior spaces.

The development of this characteristic, in which a building becomes a type of visual frame, can be found through Mies' previous buildings. In the entrance court on the second floor of Tugendhat House, Mies intentionally introduces the scenery of the city of Brno through the frame created by the roof and the walls. This occurs in the passageway between the living wing and the service wing, both of which are connected by a single roof slab. However, this is not particularly necessary in terms of functionality and privacy purposes. (Tegethoff, 2000) In spite of this, it is assumed that Mies created this composition with two intentions. Firstly, Mies probably wanted to create an effect whereby the space does not appear as two separate masses but as one integrated mass. Secondly, it appears that Mies attempted to control the sceneries viewed through these frames in a specific manner. The front view toward the city of Brno becomes a more profound scene through the frame created by the walls, the roof, and the slab. (Fig.23.)

While this view can only be appreciated against the exterior space, the living room of the Gericke House project (Fig.14.) and Mountain House (1934) can represent the outside view through the interior space, visually overlapping the interior and exterior spaces. In this case, the interior space is perceived as transparent, so that its identity almost disappears and is recognized as part of the exterior space.

While in these houses the effect is created of looking at the outside through the interior, in Resor House, this effect is achieved while the interior simultaneously maintains its identity. In the collage drawing completed in 1939, the photograph shows the outside of the house framed by the ceiling and the floor, the partition on which Paul Klee's abstract painting, "Colorful Meal" is painted, as well as the furniture and the columns, all of which create a single integrated image. In other words, it can be said that the elements "installed" in the interior space and the "innate" nature of the exterior space maintain their inherent properties and that they are integrated within the frame created by the "built" ceiling and floor. Therefore, the interior space, which appears to be overlapped, is not only transparent, but also has its own identity.

This characteristic of the scenery viewed from different levels is also expressed in the equivalent objets such as Picasso's Guernica and Lillol's sculptures in the Project for a Museum for a Small City (1943) subsequent to Resor House. Here, the outside sceneries at various viewpoints become a pictorial image and create an objet of nature to be appreciated in a similar way to that of artworks. Nature and artworks become objets with an equal hierarchical status and the building becomes a medium with which to integrate these. In Farnsworth House (1945-50), this characteristic is more pronounced (Fig.26.)

Mies uses the term, "neutral frame" to describe this characteristic. He states that every object including nature keeps its inherent identity inside the frame (Norberg-Schulz, 1958). He uses the term, 'frame' to refer to the boundary determining the relationship between the object and its background. However, a frame is not an object in itself. By "neutral frame" Mies refers to the frame as a mediator between the inside and the outside and between nature and humans, and as a medium with which to integrate them into a higher unity. 10)
4. Conclusion

Mies' Resor House has previously been evaluated mainly as his first work carried out in America, not in terms of its architectural significance. However, the house can be considered important in that it provides a clue to understanding the relationship between the interior and exterior spaces in Mies' conception of architectural space. The intention of this paper is to grasp the significance of the following characteristics of Resor House.

The first significance lies in its spatial characteristics in terms of the relationship between the interior and the exterior spaces. In the living room space of Resor House, the fixed elements other than the ceiling and the floor are minimized, and emphasis is placed on its objet-like characteristic, resulting in a homogeneous, continuous and hierarchical composition for the living room space. This demonstrates the earlier idea of universal space. However, the idea should be understood not in terms of the characteristic inherent in the interior space itself, but in the context of its relationship with the exterior space.

Secondly, the building itself plays the role of a type of visual frame. Here, the inside and the outside maintain their innate identities, but together form a visually integrated whole. It is plausible to believe that Mies was referring to this concept of a building acting as a medium to create this type of integrated relationship when he describes a building as a "neutral frame." Thus, in Mies' architecture subsequent to Resor House, the role of architecture as a device to create a relationship between spaces, especially the interior and exterior spaces, becomes more emphasized.

It can be said that Resor House proposes a concrete solution to the ideas of the interior space for a country house. Mies worked on a number of country house projects during his German era, but they were not executed. Even though Resor House was also not actually built, it seems to be worth noting that Mies created significantly concrete plans through the project and carried out detailed research specifically on its interior space. In short, it can be said that Resor House enabled Mies to explicitly experiment on how to integrate the interior space into the exterior environment on a site that has abundant natural conditions.

Notes

1. The reason is that the building was not constructed and that it was designed to be attached to an existing unfinished building which had not been designed by Mies. Also, as F. Schulze points out (Ed. by F. Schulze, The Mies van der Rohe Archive, Vol. 7, Resor House, 1992, p.3) the shape of the building can be a reason in itself. It is because the building needed to be constructed in the form of a bridge on an existing structure on a creek.

2. It is evident that Mies left numerous sketches and drawings, and he actively prepared numerous plans even though the client did not want to proceed with the project. Schulze, F. (1985) p.212.

3. The design process of Resor House is divided mainly into three stages. The first was the stage of idea sketches when Mies stayed on the site in Wyoming and decided on the basic shape of the building. The second is the stage where the design was realized and this stage lasted until he delivered the plan to the house owner on March 26, 1938. The third stage is that of revision after April 1938. This period is worthwhile to note because Mies' architectural intentions are shown intensely in this period.

4. This has not only a practical function such as the cleaning of glass but also plays the role of a spatial medium. It also visually enhances the transparency by avoiding reflections on the glass.

5. The execution dates of these sketches are unknown, but they are estimated to be drawn between 1937 and 1938. Although Mies labeled the sketches with serial numbers, it is assumed that the unnumbered third drawing was later completed in Mies' office on the basis of Mies' sketches according to Jong Sung Kim.


7. This is similar to the German Pavilion. In the pavilion the roof is the most dominant element, forming the order of the building shape. While in the past, the shape of building can be determined by the exterior walls, here the role of the exterior walls is reduced and this solves the problem of exterior appearance.

8. This is presently hidden by trees, but Brno's old city center and Spilberk castle is viewed through here.

9. It may be necessary to refer here to Mies' statement on Farnsworth House. "...Yet we should attempt to bring nature, houses and human beings together into a higher unity. If you view nature through the glass walls of the Farnsworth House it gains a more profound significance than if viewed from outside. This way more is said about nature--it becomes part of a larger whole." quoted in Norberg-Schulz, C. (1958) p.339.

10. Even Franz Schulze comments on this building in the introduction to Archive that, "...the importance of the Resor House to Mies van der Rohe's career is more biographical than architectural.... the house in final form would likely have been less than a masterpiece." Schulze, F. (1992) p.2.

References