

THE CREATION OF *LE CENTRE LE CORBUSIER* AS KANSEI SPACE

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ABSTRACT

The purpose of this paper is to clarify the creation of *Le Centre Le Corbusier* (1964-1967) that is the final prototype of the pavilion of architect Le Corbusier to consider the relation of the exhibition space and the Kansei (sensibility) from the viewpoint of Kansei-philosophy. The creation of *Le Centre Le Corbusier* is the process of uniting the art works and the landscape. This is characterized by adopting the Kansei space elements such as the slope, the roof garden, revolving doors, and exterior ponds. The slope that induces the interior-exterior views is especially the most effective element that relates to a body, and it plays the role to provide various views to the exhibition space and landscape. In other words, the body on the slope is surrounded with the Kansei space integrated into the landscape.

Keywords: *Le Centre Le Corbusier, Exhibition space, Landscape, Slope, Kansei space*

1. INTRODUCTION

1.1. Background

In the history of modern architecture, the museum and the pavilion have become into various new forms by the use of innovative materials. It seems that the sensibility of the man who appreciates comes also to assume the different complexion along with the innovation of materials. As for the sensibility of the exhibition space at the modern age, several, quantitative analyses about the user are possible. On the other hand, we think that it is also important to clarify modern architect's production technique about the exhibition space to make the history of the sensibility[1] a subject as one of the Kansei-philosophical researches.

Authors have already analyzed the production technique for all pavilions of Modern architect Le Corbusier (1887-1965) to consider relations of the exhibition space and the Kansei (sensibility) from the aspect of the Kansei-philosophy[2].

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As a result, we found that the pavilions which have provisional, temporal and flexible characteristics as a place for round exhibition can pass as *Kansei space*ⁱ⁾ which appeals to the body by architectural devices such as the slope, the roof garden, the wall coloring, the revolving door and the natural surroundings[3].

1.2. Purpose

The purpose of this paper is to consider the generation of *Kansei space* by clarifying the creation of concrete pavilion that has a peculiar site. Then, we take up *Centre Le Corbusier* (1964-1967) that is the final type of the pavilion of Le Corbusier.

1.3. Methodology

In this paper, we use the pertinent drawings and the statements published in *Les œuvres complètes*[4] and *Le Corbusier Archives*[5] as a primary source.

First, we clarify the valuation of *Le Centre Le Corbusier* during the development of the Pavilion by focusing the construction technique from the statements of Le Corbusier about all pavilions.

Next, the creation of *Le Centre Le Corbusier* is actually analyzed. First, based on the 48 drawings where the date was described among all 56 drawings about *Le Centre Le Corbusier* in *Le Corbusier Archive* vol.31, those drawings are permuted within the time series, and classified into each creation terms based on time when the drawing is put together. Here, we use the letter of the Foundation of Le Corbusier[6] as a secondary source.

We consider how the Kansei (sensitivity) and the exhibition space are related to each other based on the above-mentioned analysis result.

1.4. Location of this study

There are studies on a series of experience value by Shinya Nagasawa and the others [7] [8] as a research that evaluates the architecture concerning the sensibility aspect. They emphasize a sensibility evaluation to architecture from user's aspect in these studies. On the one hand, there is a quantitative study on designer's sensibility [9]. This paper also makes designer/ architect's production technique a subject. However, the aspect of a Kansei-philosophy of considering architectural *Kansei* and a research methodology of architectural history and design theory by making architectural production of the historical architect a subject is a feature in this paper.

As for the studies on the Le Corbusier's pavilions, it is less numerable than the study of his museums. Moreover, those studies assume morphology about the construction method to be a subject, and the accumulation of the research is also rare[10].

2. DEVELOPING PROCESS OF PAVILIONS

According to Le Corbusier, pavilion is a building with temporality and flexibility that can go aroundⁱⁱ⁾. Pavilion is planned in the structure based on two elements. One is a parasol (parasol), and another is an alveolar volume (volume alvéolaire). Table 1 shows the result of extracting the presence of these two elements in all pavilions. After *Project "Porte Maillot 50"*,

excluding *Pavillon Philips* in 1958, two elements are generally adopted, and most pavilions are planned by almost the same shape. In other words, it is considered that *Project "Porte Maillot 50"* is the completed type of the pavilion's prototype (Figure 1).

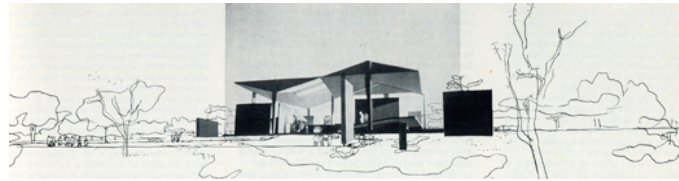


Figure 1: Prototype of pavilions

Le Corbusier mainly considers the exhibition works inside the pavilionⁱⁱⁱ⁾ for gives it pavilion a degree of freedom, and makes exhibition space that has flexibility by adopting these two elements.

Table 1: Structural elements in pavilions (Author making)

date	work	parasol	alveolar volume	realization /project
1925	Pavillon de l'Esprit Nouveau		o	realization
1928	Pavillon Nestlé	o		realization
1937	Pavillon des Temps Nouveaux	cloth tent		realization
1937	Pavillon Bat'a	pent roof		project
1939	Pavillon de la France	o		project
1939	Idéal home		o	project
1950	Exposition "Synthèse des Arts Majeurs", Porte Maillot	o	o	project
1952	Musée et Galerie d'Art	o	o	project
1957	Musée d'Art Occidental	o	o	project
1958	Pavillon Philips	shelter		realization
1962	Centre international d'art	o	o	project
1962	Pavillon d'exposition, Palais Ahrenberg	o	o	project
1964	Centre Le Corbusier	o	o	realization

Le Corbusier combines these two elements, and establishes the method by inserting the exhibition space of which the basic dimension is 226cm under the parasol that is an independent structure (Figure 2).

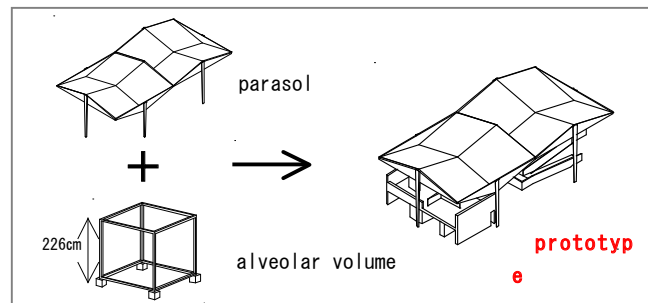


Figure 2: Construction method of prototype(Author making)

Moreover, Figure 3 where the structural change of Le Corbusier's pavilion was summarized in the genealogy based on the transition of two elements is shown below. From this figure, *Le Centre Le Corbusier* can be caught as one attainment point of the pavilion.

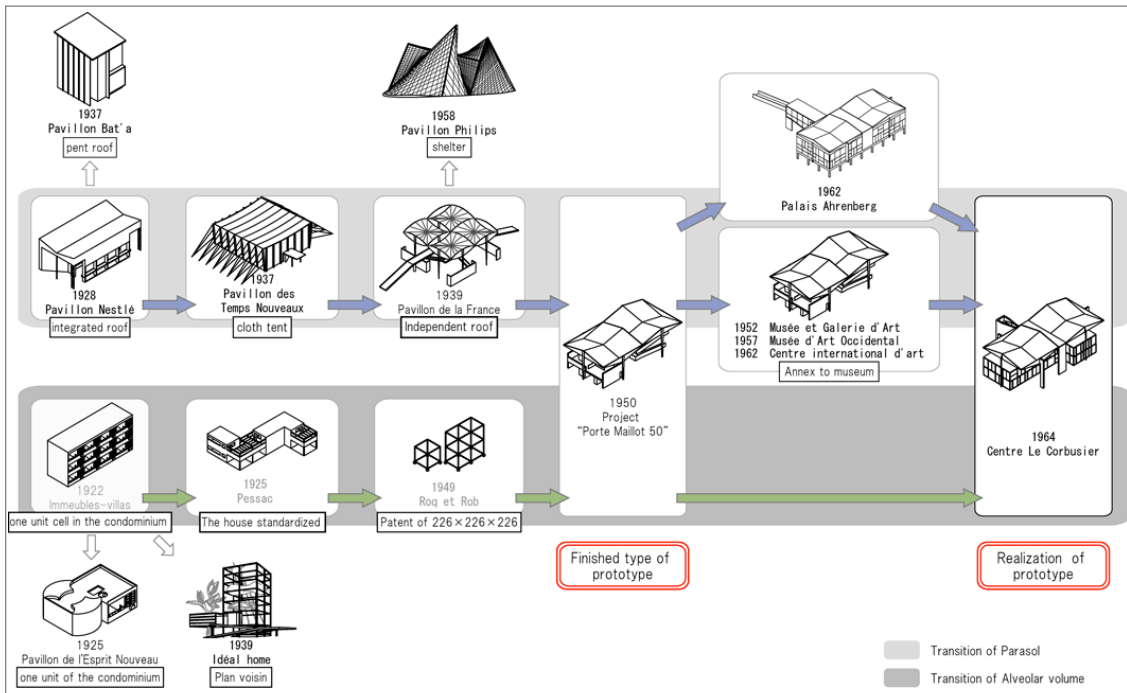


Figure 3: Genealogy chart of pavilions of Le Corbusier (Author making)

3. DEVELOPING PROCESS OF PAVILIONS

3.1. Outline of Le Centre Le Corbusier

Le Centre Le Corbusier located in the lakefront in the Zurich horn park has been completed in 1967 as a postmortem oeuvre of Le Corbusier after the plan begins in 1960, and its construction began in 1964 (Figure 4).



Figure 4: *Le Centre Le Corbusier*

Le Centre Le Corbusier is a house and an exhibition space planned from the request of Mrs. Heidi Weber who wanted to govern Le Corbusier's works in each field in his construction. The contents of the exhibition are paintings, sculptures, published writings, lithographs of graphic work, and print arts, etc. of Le Corbusier.

We classify the pertinent drawings based on time when the drawing is put together, and analyze all the four terms when *Project "Porte Maillot 50"* was added as an original plan of *Le Centre Le Corbusier*^{iv)}(Table 2).

- Original plan : Project "Porte Maillot 50" (1950)
- Basic project plan 1 (1960.April~1961.August)

- Basic project plan 2 (1961.September~1961.December)
- Execution project plan (1962.Jnuary~1965.November)

3.2. Original plan: Project “Porte Maillot 50” (1950)

In Project “Porte Maillot 50”, the openness to the upper part and the continuousness to the outside of each sequence are emphasized by the pitch of parasol and the half outdoor spatial composition that develops under the parasol similar to the *Barcelona Pavilion* (1929) designed by Mies van der Rohe (1886-1969) where the plan looks like the original one[11].Moreover, visitors can experience the change in the space from various aspects by the approach in the slope. This pavilion is thus an exhibition spatial composition prone to be appreciate at various levels (Figure 5).

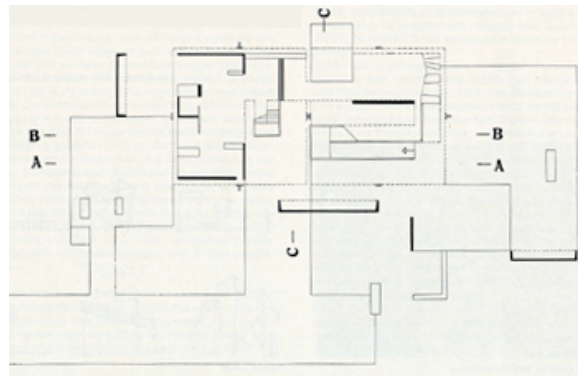


Figure 5: Original plan : The ground floor plan

Le Corbusier explains, “Circulation has been designed in such a way, that visitors are guided through a great variety of spaces: along an esplanade, through a two-storied covered space, then lower spaces 2.26m high, by a garden with monumental sculptures and over a ramp underneath the umbrellas.”^{v)} the exhibit circulation in the pavilion of the prototype, and values the relation between a parasol and the slope while coming round exhibit. Moreover, he also describes the garden, considers the glance to the outside, and holds the exhibition plan including the landscape^{vi)} (Figure 6.7).

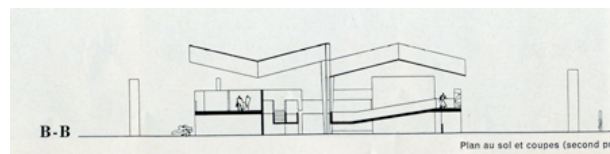


Figure 6: Original plan : Section

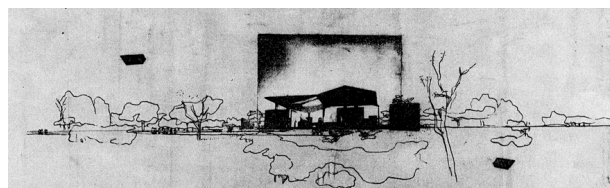


Figure 7: Original plan : Sketch of externals

3.3. Basic project plan 1 (1960.April~1961.August)

In a basic project plan, the shape of a parasol is mainly researched based on the original plan, and the volume that develops under that is not studied in detail. A stronger pillar is adopted at this term while the support pillar in four points which support the parasol was a thin, simple and light structures in the original plan. Furthermore, a wedge shaped structure has been inserted in the adjacent portion of two parasols (Figure 8).

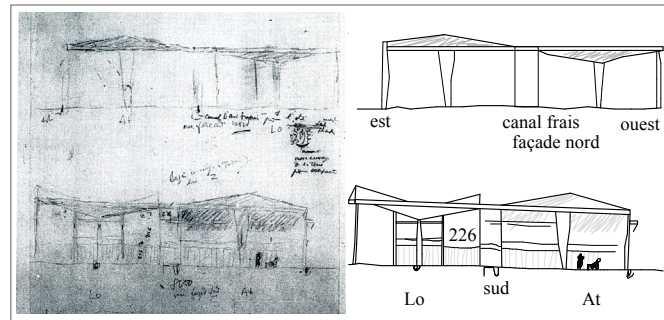


Figure 8: Basic project plan 1 : Sketch of parasol

On the other hand, the slope and the stairs are mainly studied in the plan, and in both, original plan and the basic project plan 1, sequence of the slope is equally important. However, the approach has not been installed in the slope part considering the function as a house.

Moreover, there are a lot of sketches where the lake close to the Zurich horn park and surrounding planting are drawn with the pavilion. Therefore, it is understood that Le Corbusier considered it as surrounding landscape (Figure 9)

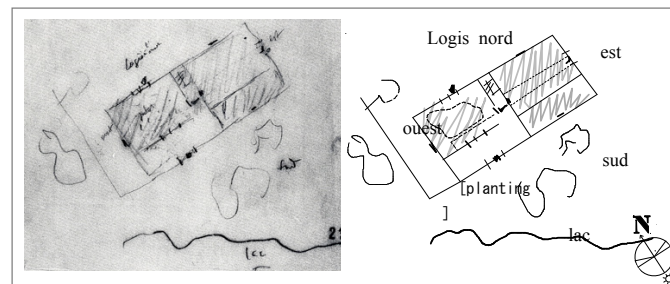


Figure 9: Basic project plan 1 : Sketch of plan

3.4. Basic project plan 2 (1961.September~1961.December)

After September 1961, he develops a concrete plan that reaches even the form, the material, and the construction method.

The characteristic point at this term is the shape of the slope projecting from the inside of pavilion to the outside (Figure 10).By treating the slope as an exterior space, a new aspect of looking at the exhibition works and the pavilion with surrounding landscape is invented.

In addition, it is examined to visually build an exterior space in pavilion by adopting the glass wall and the skylight.

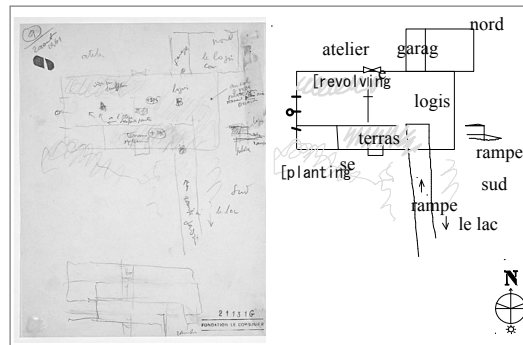


Figure 10: Basic project plan 2 : Sketch of plan

Plus, there are a roof garden and a revolving door as elements which planned for the first time at this term. The glance to the direction of the lake is considered, and the bench has been installed in the roof garden. Therefore, in installing the roof garden in closing exhibition space, the direction of the glance under the parasol in the original plan is invented.

On the other hand, two revolving doors are planned. One plays the role of the entrance where the inside is connected to the outside, and the other is that connects various rooms on the inside.

3.5. Execution project plan (1962.Jnuary~1965.November)

The first plan was handed to Mrs. Heidi Weber by Le Corbusier in December, 1961. However at the term of the execution project plan, a detailed plan was developed and a basic project plan is developed further, and has been improved.

The position of the slope and the revolving door reflects a basic project plan as it is, and there are not so many changes in a basic spatial composition in the execution project plan (Figure 11).

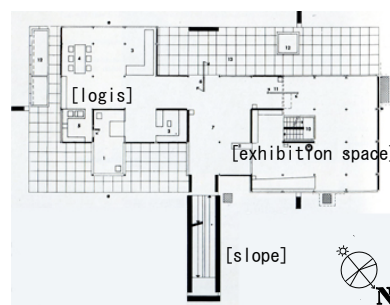


Figure 11: Execution project plan : The ground floor plan

However, there is an important difference on the structural side. It is an improvement of the structure of the parasol, and achievement of the alveolar volume by 226/226/226.

First, as for the parasol, various forms are studied from a basic project plan, a structure of wedge shape that supports the roof with two orthogonal braces in addition to the pillar has been decided. Moreover, the brace is installed in each table flap of the steel-made.

On the other hand, for the alveolar volume by 226/226/226, it is examined based on the original plan, and decided for the first time at this term though it was not examined in a basic project plan. Le Corbusier describes this structure, “based on that of the "cellular volume" 226/226/226 which allows of a great variety of composition....The interior demonstrates the practical, constructive and plastic capabilities of dry construction.”^{vii)}, and intends free, various exhibit circulation to be invented in pavilion.

The facade is a composition of combining the glass wall with the painted panel wall at the rate of same degree, and the panel of 113x226cm is adopted (Figure 12). This is composed based on the alveolar volume by 226/226/226, and it is an expression in the facade by the size in which a human scale is considered. Visitors can look at not only an external spectacle but also this wall vividly painted at the same time from the slope that projects outside.

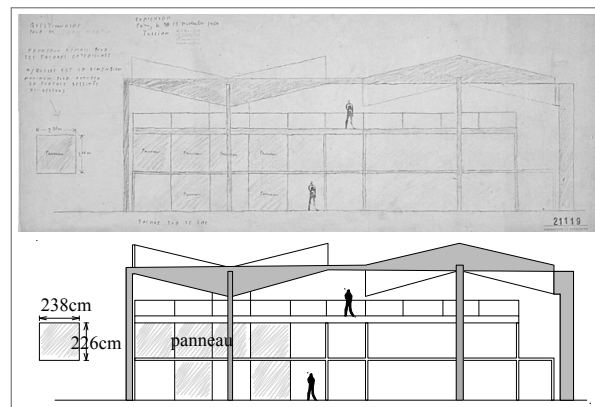


Figure 12: Execution project plan : South side elevation

Moreover, the following four points can be pointed out as a big change point from a basic project plan. By giving painting with the vividly-colored to the outside wall and under the roof, installing enamel panel with sketch by Le Corbusier in revolving door, installing small pond in one's feet of pavilion, and, finally, increasing the bench in the roof garden (Figure 13.14).

All these points mentioned above influence visitors' direction of glance. Therefore, appreciation glances that are more various to have taken surrounding landscape are invented by offering new glances.

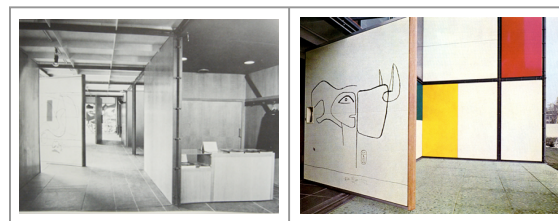


Figure 13: Execution project plan : Two revolving door



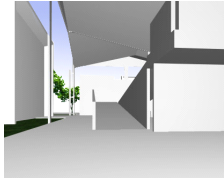
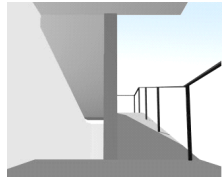
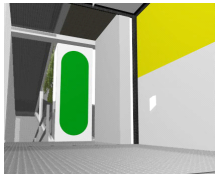
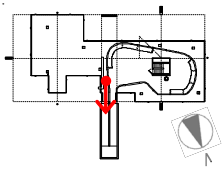

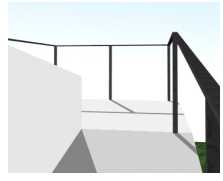
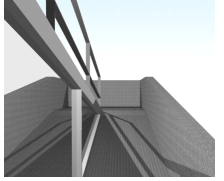
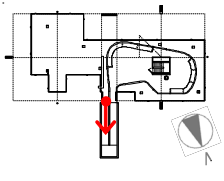
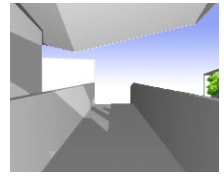
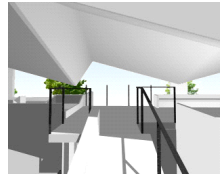
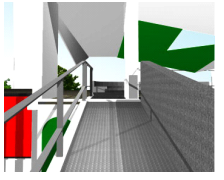
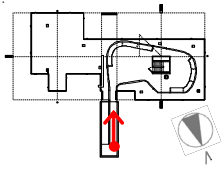
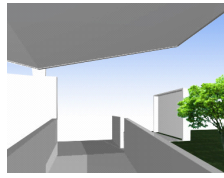
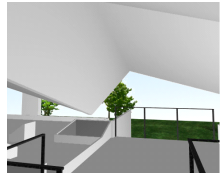

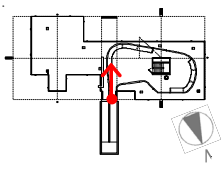
Figure 14: Execution project plan : Roof garden

CG of the spatial transformation that shows the direction of glance from the slope at each term is brought together, and it shows in Table 3.

Table 2: Creation of Le Centre Le Corbusier (Author making)

	Original plan "Porte Mail lot 50" (1950)	Basic project plan		Execution project plan (1961.12-1965.11)
		1 (1960.4-1961.8)	2 (1961.8-1961.12)	
Axonometric				
Elevation				
Plan				
	<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="display: flex; flex-wrap: wrap;"> <div style="width: 20%;"> <p>■ Architectural volume</p> <p>□ Parabol volume</p> </div> <div style="width: 20%;"> <p>⬤ Roof plan</p> <p>▬ Slope</p> </div> <div style="width: 20%;"> <p>▨ Pond</p> <p>⤴ Revolving door</p> </div> <div style="width: 20%;"> <p>○ Planting</p> <p>◁ Approach</p> </div> </div> <div style="text-align: right;"> <p>0 10 20 30m</p> </div> </div>			

Table 3: Creation of Le Centre Le Corbusier (Author making)

	Original plan	Basic project plan	Execution project plan	Plan
to the starting point				
from the starting point				
in the center				
from the end point				

4. CONCLUSION

The creation of *Le Centre Le Corbusier* is the process of uniting the exhibit and landscape by building an external spectacle into people's appreciation glances in the exhibit circulation. This is realized by adopting the space elements such as the slope, the roof garden, revolving doors, and exterior ponds.

In particular, it is different from the creation of general pavilion as the prototype, in the creation of concrete pavilion on a peculiar site, the slope comes to play a major role not only to give continuousness to exhibitions of different layers but also to offer various, openhearted glance to exhibitions and an external spectacle.

5. DISCUSSION

From the above-mentioned analysis results, it is considered that the sensibility of man who appreciates exhibits is requested more physical by actively accompanying the act of going the rounds the exhibitions in addition to act of looking at exhibits only passively. And, human's body will be veiled in the Kansei space where the exhibits in the pavilion unites with scenery while coming round exhibit

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ANNOTATION

- i) *Kansei space* is a place where sensitivity and affectivity work by the interaction of the body and the environment.
- ii) Le Corbusier, Willy Boesiger, *Le Corbusier œuvres complètes*, vol.5, p.67
 Le Corbusier describes about Project "Porte Maillot 50", "One idea was to provide a "place for the building of *Synthesis*" with the object of bringing painters and sculptors into contact with tasks of an architectural nature. ...The space is concentrated under a permanent metal structure for temporary exhibitions which can be changed at will, demounted and sent to other countries. ...This type of metal parasol or umbrella could be adopted in Milan, London, Berlin, etc. So with Paris as a centre the circuit which would be set up would stimulate an intensification of the researches into the relationship of the Major Arts and architecture. "
- iii) Le Corbusier, Willy Boesiger, *Le Corbusier œuvres complètes*, vol.5, p.67
 Le Corbusier intended the place in which it had aimed to be able to find the duty of the painting and the sculpture to an architectural character to be made in the plan of the pavilions. So it is assumable that Le Corbusier was attaching importance to the internal exhibition works.
- iv) Le Corbusier, Willy Boesiger, *Le Corbusier œuvres complètes*, vol.8, p.144
 Le Corbusier describes, "The "Maison de l'Homme" in Zurich is the outcome of a long development. ... beginning with the first sketches for the "Exposition à la Porte Maillot" of 1950 in Paris. In this connection, we should also include the cell 226/226/226 cm, which Le Corbusier was likewise concerned with. ... The Zurich project finally realized it. " in *œuvres complètes*. So, "Porte Maillot 50" that became a prototype is taken up as a original plan, and what kind of applied point is seen in "Le Centre Le Corbusier" is compared and analyzed.
- v) Le Corbusier, Willy Boesiger, *Le Corbusier œuvres complètes*, vol.5, p.70
- vi) Le Corbusier, Willy Boesiger, *Le Corbusier œuvres complètes*, vol.5, p.71
 In the plan of Project "Porte Maillot 50", Le Corbusier describes for the exhibition activity to

be united to the open air and to expand, and its drawings reflect the panorama including the ambient surrounding in the sketch.

vii) Le Corbusier, Willy Boesiger, *Le Corbusier œuvres complètes*, vol.7, p.22

FIGURE SOURCE

- Fig.1 Le Corbusier, Willy Boesiger, *Le Corbusier œuvres complètes*, vol.5, p.71
Fig.4 Le Corbusier, Willy Boesiger, *Le Corbusier œuvres complètes*, vol.8, p.150
Fig.5 Le Corbusier, Willy Boesiger, *Le Corbusier œuvres complètes*, vol.5, p.70
Fig.6 Le Corbusier, Willy Boesiger, *Le Corbusier œuvres complètes*, vol.5, p.70
Fig.7 Le Corbusier Archives, vol.19, p.406, FLC18154/date: unclear composer: unclear
Fig.8 Le Corbusier Archives, vol.31, p.394, FLC21104/date: 1961.8.4 composer: unclear
Fig.9 Le Corbusier Archives, vol.31, p.395, FLC21107/date: unclear composer: unclear
Fig.10 Le Corbusier Archives, vol.31,p.407, LC21131G/date: 1961.8.2 composer: unclear
Fig.11 Le Corbusier, Willy Boesiger, *Le Corbusier œuvres complètes*, vol.8, p.142
Fig.12 Le Corbusier Archives,vol.31,p.401,FLC21119/date: 1964.11.13 composer:
Jullian
Fig.13 left: Le Corbusier, Willy Boesiger, *Le Corbusier œuvres complètes*, vol.8, p.156
right: Le Corbusier, Willy Boesiger, *Le Corbusier œuvres complètes*, vol.8, p.157
Fig.14 Le Corbusier, Willy Boesiger, *Le Corbusier œuvres complètes*, vol.8, p.151