

Design of Windows as an External Building Feature in the Works of Loos and Le Corbusier

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Abstract This paper first brings up and discuss a statement that has a significant effect on Modern architecture, “ornament is crime”, which is ascribed to Adolf Loos; then it attempts to understand differences between “ornament” and “beauty”. Afterward to question if it is possible to beautify a building without adding an ornament. Here windows and interiors of a number of buildings designed by Le Corbusier and Loos are analyzed. A reason for choosing these architects’ works, is their prominent role in Modern Architecture. The other reason is that they both supported the mentioned statement. The main aim of this paper is to understand the difference in the architect’s idea about beauty, through the windows they designed. The first step in this study was to state the architects’ views and definitions about the ornament. Later it is focused on the window and its role as a fundamental element in the building. Lastly, the statements and ideas of the architects about windows as a beautifier of the building are mentioned and analyzed through their works. It is mentioned how Le Corbusier sees windows, the vision it provides from outside and the natural light comes through it as a beautifier. On the other hand, Loos uses the natural light as the beautifier of the interior and disconnects inside and the outside.

Keywords Windows, Ornament, Beauty, Ventilation, Vision, Lighting, Interior

1. Introduction

“Ornament is crime” is a sentence, which is usually associated with Modern Architecture. But in many cases it is misunderstood and as a result, it has caused many incorrect approaches toward Modern Architecture. In order to study the roots of this sentence, and understand its accurate contents, some research is done on a number of statements of two important figures of Modern Architecture, Adolf Loos and Le Corbusier. Later it is discussed that if windows can be considered as ornaments or beautifying elements in buildings of these two Architects. This paper aims to understand the definition of ornament and beauty according to these two architects and then to see their definition of beauty through the use of windows and lighting in their works.

2. Ornament Is Crime

Adolf Loos stated that “The evolution of culture is synonymous with the removal of ornament from the utilitarian objects [1].”

The first time that ornament was considered as a crime, was in Loos’s lecture in 1910 [2]. In this lecture, he expresses his opposition to the use of the ornaments of past eras in modern objects. Also, Le Corbusier in his book, *the Decorative Art of Today*, affirmed that: “The more cultivated a people become, the more decoration disappears [3].”

Now the question arises that: Were they against the use of ornaments, this severely? What does “ornament” exactly refer to? Or, is not there even a single ornament in their buildings and designs?

“Ornament is crime” is a statement, mostly ascribed to Loos, and subsequently to Modern Architecture; but the fact is Loos had never stated this sentence, and it is only a comprehension of his essay, *Ornament and Crime* [4]. This perception of Loos’s essay and Le Corbusier’s citation of Loos caused many to consider Modern Architecture, as an architecture without any ornament. Therefore, it would be beneficial to understand Loos’s essay, to have a better comprehension of Modern Architecture.

Loos as his own discovery claims that the evolution of culture is synonymous with the removal of ornament from utilitarian objects [5]; though it can be misunderstood if his whole essay is not read. It may be comprehended as if he claims that beauty is a crime. Or it may be perceived as if Modern Architecture is against beauty because ornament means adding beauty to something [6]. But why does he see the evolution in the removal of the ornaments? What is the accurate notion behind this sentence?

“Every age had its style, is our age alone to be refused a

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style? By style, people meant ornament. Then I said: Weep not! I seem therein lies the greatness of our age, that it is incapable of producing new ornament [7].

According to Loos, style and ornament are synonyms to many, and style means a particular procedure, which something is done [8]. So not having a particular style in architecture is not equal to not having beauty. In fact, the lack of style means the lack of a specific pattern to obtain beauty. As a result, the lack of patterns may cause increasing creativity. Anyone can have a different perception of beauty. Hence ornament is a crime since it reduces variety and creativity.

According to Loos another negative aspect of an ornament is a the waste of money, labour and in hence waste of health; considering that price of an ornamented object is more than an unornamented one, even if the same material is used in both of them. The ornamented object is more expensive. Because more working hours are devoted to making it. Yet, these more hours can be considered as wasting hours because they do not increase or improve that objects' functionality [9]. LE Corbusier mentions that not only ornamented objects are not the same, but also ornaments are added to objects to conceal their faults. "Trash is always abundantly decorated; the luxury object is well made, neat and clean, pure and healthy and its bareness reveals the quality of its manufacture [10]."

Loos claims that the cost of something should not increase because of its ornaments, but it can increase if the object is made out of better materials. "For an object, I am sure I can use it to its full extent, I willingly pay four times as much as for one that is inferior in form or material. But in those trades that groan under the tyranny of the ornamentalist, no distinction is made between good and bad workmanship [11]."

Thus according to Loos and Le Corbusier: *Ornament is crime!* Because it reduces creativity since each style has a specific pattern of ornaments. It may also reduce the quality of objects because it is a good way to hide faults. In this sense "ornament" and "beauty's" definition should be separated. An ornament is more like a deception that is added to an object afterward, but beauty is inherent; an object is beautiful when it has good quality, or when it is of a high standard [12].

2.1. The Window as a Basic Element of a Building

Now that in Modern Architecture ornament is a crime, how can someone beautify a building? This beautifying process should be internal, without adding anything to it. So building's elements should provide beauty themselves. A basic element of a building, such as a window, can provide beauty [13]. But what is the role of a window in a building? Is it added to the building to beautify it? Or does it have another function? Or it may be used both as a functional and a beautifying object.

For answering these questions it can be useful to understand the importance of windows in buildings.

According to Derek Philips, a lighting designer: "Windows – through which daylight is introduced to the interior, where the light is modified and controlled, and from which the views out beyond the building are obtained – are heart of the matter [14]."

As mentioned, windows produce interior's light and sights of outside. The light that is obtained from outside shapes the shadows inside the building, different times of day, different amount of lights and different climates have different shadows. These elements and building's site can produce different sights of outside. In addition, windows provide ventilation, heating energy, and light. And also the size and shape of the window can affect all these elements. All the mentioned factors can differ, depending on the shape, size, and place of windows. In a windowless building, all of these stated factors should be provided artificially. On the other hand, placing too many windows on a building's facades may cause overheating in summer or inverse in winter; also using too many windows may carry the outside's noises to the inside [15].

3. Windows According to Le Corbusier and Loos

Le Corbusier was the architect who developed the set of new principles for Modern Architecture, which one of those principles was: "the horizontal window – the façade can be cut along its entire length to allow rooms to be lit equally [16]." But what is the reason behind this principle? This statement from Le Corbusier may help to understand this principle: "I exist in life only on condition that I see [17]." Considering this statement, Le Corbusier paid attention to visualization remarkably. He applied this emphasis on his buildings, by the use of horizontal windows, since they look like frames. So he saw window frames as picture frames [18]. Thus as Beatriz Colomina states: "For Le Corbusier, everything is in visual [19]." While visuality had this much importance for Le Corbusier, Adolf Loos states that: "A Cultivated man does not look out of the window; his window is a ground glass; it is there, only to let the light in, not to let the gaze pass through [20]." Therefore, Loos considered windows as functional elements, which are only for providing light and ventilation, whereas Le Corbusier's emphasis in designing windows was on views. He considered windows as picture frames; his main concern was catching beautiful views and landscapes of the city [21]. In Le Corbusier's view: "To ventilate we use machines! It is machines, it is physics [22]."

In brief, these two architects had different views about windows, and while Loos uses windows only as a functional element, Le Corbusier uses windows as beautifying objects, not only by specifying its position on façade, but also with defining its shape for grasping a better view of outside, or in some cases defining its shape to obtain a certain amount of light and shades inside the building. So in addition to its

glass, Le Corbusier also pays attention to the frame of the window.

3.1. Windows for Le Corbusier

There are many examples of Le Corbusier's buildings which in them he uses different shapes of windows to increase the beauty of the building. Obviously, beauty may have a different meaning for everybody; but the point is that in Loos's buildings there is usually a repeated pattern of rectangular and isometric windows. On the other hand, Le Corbusier usually does not use isometric and repeated patterns of windows, although they may look the same, there are small differences in them.



Figure 1. Interior of Notre Dame du Haut (1967)



Figure 2. The exterior of Notre Dame du Haut (1967)

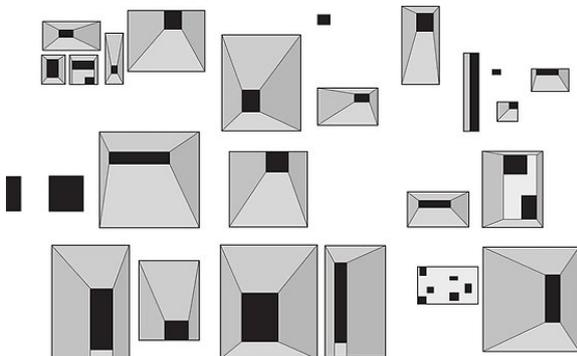


Figure 3. The diagrams of windows of Notre Dame du Haut

An example of this statement would be *Notre Dame du Haut*. As can be understood from the pictures of this church, there are not any ornaments added to facades, but also they are not common facades. There are some uncommon details on it; some colour glass windows are used in a different way. Also, the slope in front of each window is different. As can be seen in figures 1, 2, and 3, with the help of these elements, there are different shades and light rays inside the church. In addition, although there is a different amount of light in different times of a day or a year in Loos's house, too, in this church, due to the colour glasses and slopes in front of them, there is more variety in amount and colour of the lights penetrating inside the building.

Another example of this statement can be *Unite d'Habitation*. As it is shown in the picture of this building, its facades are covered with windows and glass doors. Again this building does not have any added ornaments either, and perhaps it is not beautiful according to everyone. Facades of this building have only basic elements of a building, such as doors and windows; but it is not plain or raw either. These elements make the viewers look for a longer time in order to perceive the facades, due to the different colours of elements. These colours make this building special, either in a good or a bad way. Everything is common in this building, except the colourfulness. This aspect of the building is unfamiliar because it is not added later. It does not look like complex classical ornaments. It is simple and inherent; as a result, we cannot decide whether the windows were there beforehand, or the colourful walls.

In figures 4 and 5 it can be seen that, even though facades are only covered with windows, their sizes are different. Consequently, only by changing the size of a single element, and without adding anything, an uncommon wall is obtained.



Figure 4. Unite d'Habitation Interior (1952)

Another building designed by Le Corbusier, with remarkable windows, is *Saint-Pierre de Firminy* Church. This building is Le Corbusier's last building and was completed after his death. This building has different forms of windows, in the first place, there are some small holes on the wall behind the altar that look like stars in daytime.

There is not anything added to this wall to make it more appealing, but only by placing some holes on it, the wall looks like the sky with stars. These holes are also functioned as windows and let the light in (figure 6 and 7).

Besides these small holes, other windows have common rectangular shapes. But their slopes in different colours, which reflect light, are facts that make them special (figure 8).



Figure 5. Unite d'Habitation (1952)

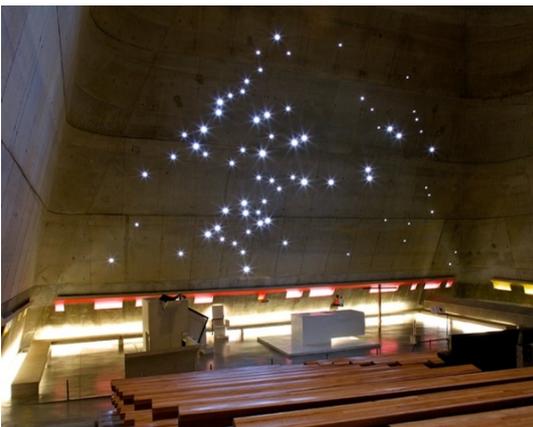


Figure 6. Saint-Pierre de Firminy Church interior (2006)

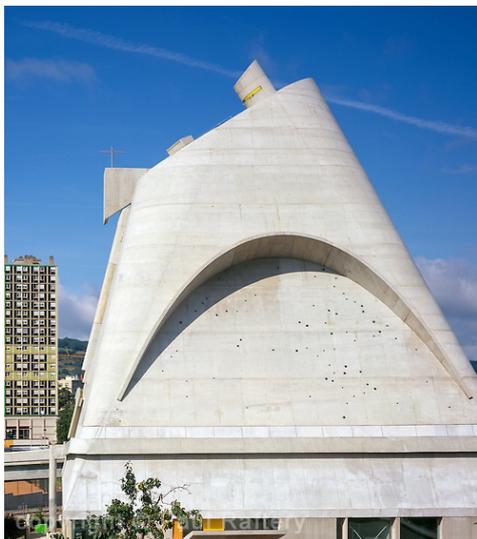


Figure 7. Saint-Pierre de Firminy Church exterior (2006)



Figure 8. Rectangular windows of Saint-Pierre de Firminy Church (2006)



Figure 9. A window of Unite d'Habitation as a frame (1952)

These were the selected buildings of Le Corbusier. One of them is a house, a place that a person should be able to see the outside because as it is mentioned, Le Corbusier states: "I exist in life only on condition that I see [23]." In this building, windows are not used only for ventilation and light. They are also for looking outside. They are like a frame for a picture (figure 9).

Other two buildings are churches, which their function is providing a place for praying. Benches of churches are placed in a way that anyone who seats on them, will face the altar. Thus the main focus of a church is its altar, no one goes to church for viewing outside. As a result windows of the churches are for ventilation and light. But Le Corbusier in windows of these churches plays with light and uses light in different ways. Even in some parts, the windows are not obvious, and the visitors can only see the light coming inside. There is only one source for sunlight, but the outcomes are different due to the varied forms of the windows. Le Corbusier may have used windows as decorative objects.

In the selected cases, except figure 9, which shows inside a house, Le Corbusier's windows do not occupy a large proportion of facades. In the interior of churches the lighting increases the contrast, and as well as letting the natural light in, it indicates the dimness of the interior space. Even although the façade of Unite d'Habitation is covered with windows, the depth of windows has created a relatively dark corridor (figure 5).

3.2. Windows for Adolf Loos

In spite of Le Corbusier's buildings which windows may have had decorative uses, too, in Loos's buildings windows are used for ventilation and lighting. He even persists in not using windows for vision and not being able to view outside. He claims that: "The windows are there only to let the light in, not to let the gaze pass through [24]."



Figure 10. Villa Steiner's living room (1910)



Figure 11. An opaque window in Villa Karma (1906)



Figure 12. Windows of Tristan Tzara house covered with curtain (1926)

In many cases Loos places furniture in a way that it would not be easy for inhabitants to see the outside. For instance in the living room of Villa Steiner the window is placed behind of a part of built-in sofa (figure 10). Also its position does not provide a view to outside for the people sitting on the other part of the sofa.

In terms of decreasing the visual connection between inside and outside, the use of opaque windows and curtains is noticeable in the early photos taken of his interiors (figure 11 and 12).

As Kenneth Frampton pointed out, Loos's another strategy to complicate the relation between inside is to design openings in a way that are mistaken for mirrors [25], such as the mirror under the opening in *Villa Steiner's* dining room [26]. This mirror is placed in the eye level and reflects the light of lamp and the window in the juxtaposed wall. In addition the window above the mirror is made of opaque glass. The sliding window in the right in figure 13 is used for ventilation.



Figure 13. Villa Steiner's dining room (1910)

The use of window can be seen in the library of *Villa Müller*, too (figure 14). Here the window does not connect the interior and the outside visually. There is a mirror between the sofas, which is placed at the eye level and reflects the interior and light from the other window.



Figure 14. Library of Villa Müller (1930)

Also in Loos's *Goldman and Salatsch Building* (figure 15), it is shown that all windows are vertical and mostly sliding. All windows have similar forms, and there is a repeated pattern.



Figure 15. Goldman and Salatsch Building (1910)



Figure 16. Goldman and Salatsch Building's 1st floor façade (1910)



Figure 17. Goldman and Salatsch Building's 1st floor interior (1910)



Figure 18. Mirrors in the interior of Goldman and Salatsch Building (1910)

In the first floor of the building with the bay windows (figure 16) again the armchairs are placed with their back against the windows (figure 17). In figure 18 the use of mirrors in this building is shown as well.

The repeated horizontal patterns of windows can also be noticed in *Café Museum*, as well (figure 19). In the interior, sitting areas are placed against the windows, and instead of wall mirrors, there are metal balls hung from the roof, playing role of the mirrors and reflect the lights (figure 20).



Figure 19. Café Museum (1899)



Figure 20. Interior of Café Museum (1899)

Compared with Le Corbusier, Loos designs larger windows and as a result, also with the help of the mirrors, the interior spaces of Loos's buildings are much brighter.

4. Conclusions

In "ornament is crime" Adolf Loos indicates that ornament and style have the same meaning for people; because it is the style of an era that defines its ornaments. And our age is incapable of producing new ornaments. So if there is not any specific style, then we can have more variety in our ornaments, and as a result, more variety in our building designs.

An ornament is something that is added later, but beauty is inherent. Considering this and the fact that we do not have a style in our age, we can derive that in this age we do not need ornaments to beautify building, we can beautify essential and inherent elements of buildings, such as windows.

Adolf Loos does not look at windows as beautifying

objects. He states: “a cultivated man does not look out of the window.” He uses windows only for ventilation and lighting. He has used similar windows in most of his buildings. In contrast, Le Corbusier claims that: “I exist in life only on condition that I see.” So in addition to ventilation and lighting, he uses the windows as a facility to see. He uses horizontal windows in his residential buildings to have a better view of outside.

Moreover, Loos uses raw lights in his buildings. In all of his buildings, considering the similar shape of windows, there are similar shades inside the building. But Le Corbusier designed different windows for different buildings. Also by using sloped surfaces or different colours around windows, he obtains different various lights and shades inside the house, and he attains varied appearances of facades as well. The facades may not look appealing to everyone since everyone has a different perception of beauty. But the point is the variation in window designs in the works of these two architects.

Windows have a significant yet different roles in the works of both architects. Le Corbusier uses them as a link between inside and outside, as a vision of the outdoor. He also add colors to natural light, by using different colors around the windows.

The dissimilarity in definition of beauty according the architects is most obvious in the effect of natural light in the interior spaces. While Le Corbusier connects inside and outside, Loos disconnects the two, and positions all of furniture in a way that viewing outside cannot be done easily.

In the studied cases the parts of façade devoted to windows are larger in Loos’s buildings. Yet by using opaque glass, curtains, windows out of eye level and furniture placed with their back against the windows, he focuses the attention on the interior. Unlike Le Corbusier who sees the beauty in irregular window patterns, different amount and colors of lights and the contrast between brightness and darkness in the interior, Loos sees the beauty in bright interiors. He uses light to increase the brightness and point out the beauty of inside.

Le Corbusier saw windows and the light comes through them as beauty, consequently his windows make the viewers pay attention to facades and the light coming through them. For Loos the beauty was only the light come through the windows, since it indicates the beauty of indoors.

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