

Application Guidance of Aesthetic Landscape Architecture Module in “Jingchu Pie”

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Abstract:

Today, because of the characteristics of modern architecture itself complying with the development of the economy and the construction market, it has been blooming. At the same time, a series of problems can not be avoided, such as the trend of similar construction; regional style of some of the great cities disappearing up their own building style; [1] local people reducing recognition for their regional architectural culture. “The Jingchu pie” is proposed in this condition. This paper focuses on the earlier stage of “The Jingchu pie” architecture: it should absorb the quintessence of modern architecture; from the perspective of modern minimalist architecture, it should analyze the outstanding architecture around the world; summarized in a series of constituting character; summed up a set of minimalist architecture constitutes reasonable methodology to guide the future research of “The Jingchu pie” building model.

Keywords:

Modern Minimalist Architecture, Constructive Method, Jingchu Pie

1. Introduction

1.1. Research Background

At present, we have to admit that in the process of China’s modernization and urbanization, buildings with national style and regional characteristics have not been well carried forward, nor have they been further studied and recreated. [1] At the same time, the central urbanization conference pointed out that the future urbanization should follow the scientific policy of “respecting nature, conforming to nature and integrating nature and man”; At the same time, in order to explore the cultural heritage of Jingchu and carry forward the architectural style of Jingchu, the provincial Party committee and provincial government carried out a special study with the theme of “Jingchu culture” and determined the architectural style of “Jingchu style”.

1.2. Research Content

Simple architecture is a “subset” of modern architecture, which has the characteristics of diverse design and construction methods, wide design site selection, small volume and fine, and better integration into the site environment. [2] Since the development of simple architecture, there are many excellent cases at home and abroad, such as Le Corbusier’s Sava villa, mother’s home, Frank Wright’s Grassland villa, flowing water villa, Louis Kahn’s Oser house... These are all classic cases, which not only set a benchmark for the times, whose works also provide design theoretical support and inspiration for the world in the future. [3] This paper also pays attention to these aesthetic “courseware” of the education and Science Edition, and then combines a large number of modern simple buildings to study the form module of landscape architecture and interpret the transformation techniques of simple buildings.

1.3. Research significance

“Why are there buildings?” When the student asked the teacher Louis Kahn, the teacher replied, “I would say if your question is ‘why is there anything?’ maybe the answer is in it. Because it exists!” [4]

Materialism teaches us: “material is the first nature, consciousness is the second nature, and material determines consciousness. Consciousness is the product of the development of the material world and the reflection of the human brain on objective things.” Modern simple architecture took place and developed only under the development of the times and the “needs” of the objective world [5]. Its “evolution history” can be said to have witnessed the development process of modern social economy, culture and architecture, just like river fossils, recording natural changes layer by layer. [6] Materialism also points out that “will reacts with matter”. To sum up, in the process of studying the “Jingchu pie” landscape architecture and doing the project, there should be “scientific consciousness” - a complete and sound system to support and “empower” the future project, which is the significance of this paper.

2. Aestheticism Module Proportionality

2.1. Generality

Proportion means scale and measurement. From this point of view, proportion, as an architectural term, is a quantifier with logic and scale. In this aspect, a perfect architectural volume proportion is an important element of architectural beauty. [7]The concept of proportion can be divided into two levels. The first level is that it can be intuitively controllable, visible and tangible; the second level is that it is based on strict modulus. Admittedly, the latter is more rigorous, but it doesn’t mean that the former is insignificant. From the evolution of science, it can be inferred that “intuition” is the predecessor and premise of “modularity”, and “modularity” is the scientific summary and accumulation of “intuition”.

2.2. Master Review

The so-called proportion refers to Aesthetics, and the combination of various parts is appropriate, which means that the length, width and height of the architecture are coordinated with each other, that is, the whole should echo its local unity. - Marcus Vitruvius Pollio, Ten Books on Architecture.

Architects realize order by putting the pure spiritual creation of the individual into concrete forms, and by intensely stimulating our senses, inspire us to be moved by the form. - Le Corbusier, *Vers Une Architecture*.

2.3. Proportional Application

As a design technique, proportion is handy by storytelling designers and writers and applied to all links of the “story” in order to highlight the “special character” and “unique charm” of the “protagonist” in the scene. [8]

The OCT Design Museum designed by Studio Zhu-Pei is also a typical example of “function determines form” (Figure 1). The story of this design originates from a pebble on the beach of Shenzhen, whose designer boldly applied the design technique of exaggerating the proportion of contrast to “colossify” it, and presents a huge egg-shaped space. Exaggerating the proportion makes its internal space more ethereal. The interior design adopts extremely pure white to produce a sense of cloud and fog, and the internal space is a borderless curved surface, which exacerbates this surreal modern sense.



Figure 1. OCT Design Museum.

The famous Japanese architect Arata Isozaki is good at using exaggerated proportions. The first example is the Qatar National Convention Center (Figure 2). The architectural shape was inspired by the Sidra tree in the Middle East, which was a haven for people in desert areas to live and rest together. Arata Isozaki exaggerated the actual proportion of trees and used its vining “trunk” to make the structure and effect of the main facade of the building, which had a very spectacular effect.



Figure 2. Qatar National Convention Center.

Shanghai Himalayan Art Center, a public welfare Art Museum in Pudong New District, Shanghai (Figure 3). Arata Isozaki uses the shape and streamline of bubbles to build a group of “special-shaped forests” out of the ground, exaggerating its proportion to become a 20-meter-high architectural structure, just like a natural

“growing” organic building, so as to meet the needs of developers for novelty and artistic sense; meanwhile, it is more in line with its functional positioning as a modern art museum.



Figure 3. Shanghai Himalayan Art Center.

2.4. Break the proportion

Since the development of aesthetics, it seems that a set of perfect proportionality has been summed up, such as the universal “golden ratio”, the “three-by-three grids” in photography, and the “Louis Kahn's philosophy of plane layout” in Architecture [9]. These “proportional methodology” teach people to complete one work after another.

The group temporary residence designed by Norwegian design company BIG is an example of breaking the regular proportion. In the plane layout, the designer boldly adopts the way of scattered layout, breaking the regular rectangular composition, and always provides two kinds of accommodation for each unit. Each unit overlaps with each other to form a functional link, which makes the whole building community circulate effectively. (Figure 4)



Figure 4. The group temporary residence.

The application of proportion is very common in architectural design, and the application technique has been very mature. *The Complete Works of Le Corbusier* gives three theoretical layers: arithmetical composition - just like the numbers from 0 to 9, it forms a complex and cumbersome digital arrangement, and regenerates a brand-new whole by the superposition of simple local proportions of the building model; composition - take the manikin created by Le Corbusier as the reference to guide the design of architectural modules; graphic composition - treat the architectural plan as the subject of plane composition. [10]

It can be widely used in the study of “Jingchu Pie” architecture, especially to establish a number of monomer models and structures with “Jingchu Pie” style, and then adjust the proportion and reorganization to make its style more prominent.

3. Aesthetic Module Geometry

3.1. Generality

In all designs, the simpler the design method and carrier, the stronger its expressiveness! Therefore, the geometric form in geometry has become the most effective means of expression. [11]

3.2. Master review

We can see objects in the sun, and the contrast between light and shade shows their shapes. Cubes, vertebral bodies, spheres, cylinders and pyramids are all original shapes, which are perfectly highlighted by light. - Le Corbusier *Vers Une Architecture*

The axis, the circle and the square are the essence of geometric form, which can be measured by the naked eye, so it becomes accidental, abnormal and ambiguous. In short, geometry is a human language. - Le Corbusier *Vers Une Architecture*

3.3. Monomer

The building in Figure 5 is a memorial building, which uses simple rectangular composition and clear water cement material to limit the space. However, the designer applied simple rectangular monomer to carry out combination and transformation in the space, cutting out the real and virtual feeling and internal and external space, which well expressed the theme and requirements of memorial architecture.

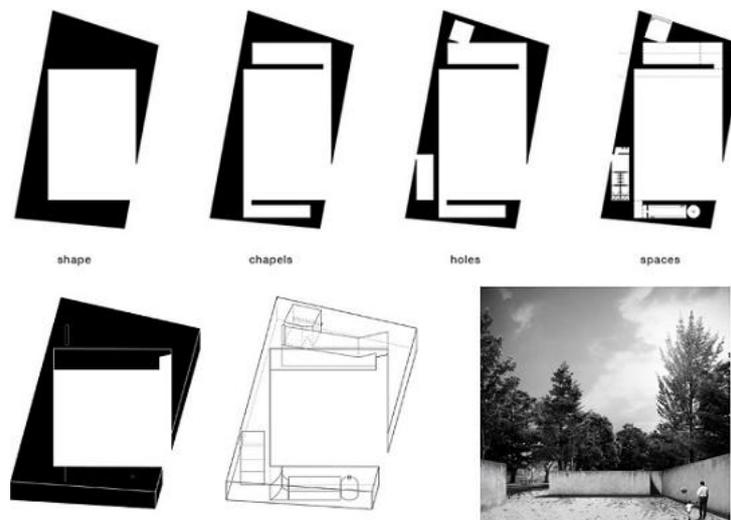


Figure 5. The memorial building.

3.4. Repetition of Geometry

Figure 6 shows the sanatorium designed by BIG using monomer geometric elements. The designer rotates and copies the cuboid, and finally combines it into a “vine growth” building. In terms of building function, the service hall in the center of the building, as the reception desk of the sanatorium, greatly facilitates the ward area, management area and doctor office area scattered in seven directions around.

The form of geometric repetition is formed to produce a rhythm, including continuous rhythm and gradual rhythm, so as to produce a rhythmic beauty, which can make the architectural form have a strong sense of order; it can also play a role in strengthening the expression of language.



Figure 6. The sanatorium.

Figure 7 is the lakeside hotel designed by BIG. Due to site limitations, the hotel base can only be tucked into a limited space. In order to have a better view of the lake, the architect distorted the form of the building and repeated the monomer. Thus, 150 dormitories are presented in the form of curve and swallow tail, showing a kind of dynamic beauty and soft beauty!

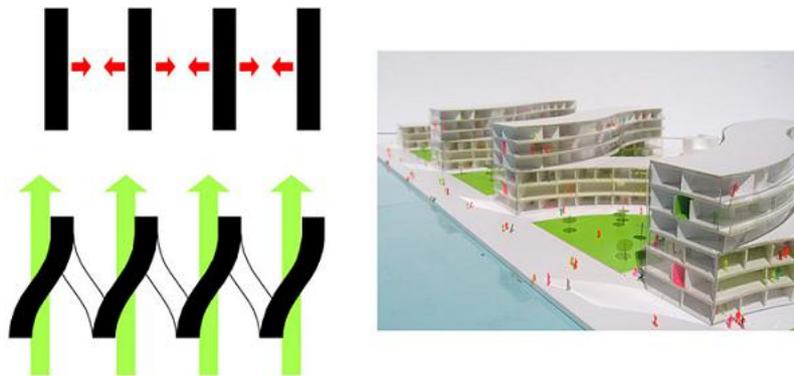


Figure 7. The lakeside hotel.

3.5. Decomposition and Integration of Geometry

Figure 8 is a classic monomer deformation, the urban cultural center designed by BIG. When the two arc-shaped bodies stand up, they seem to be a bit of veneer and interference. Therefore, three levels of decomposition and transformation are carried out to break the feeling of veneer and connect the two isolated bodies at the same time. The vast majority of simple buildings are one or a group of simple forms, which can be broken down to disrupt the pattern, and the final integration can strengthen the connection.

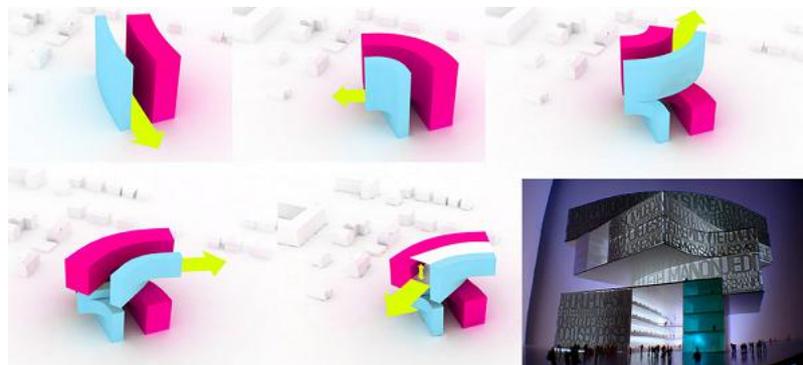


Figure 8. The urban cultural center.

3.6. Geometric Jacket

Louis Kahn's philosophical teachings - "To design space is to design light" point out the true meaning of architectural design. Only when there is light in the world can human beings see the existence of all things. No matter the shape of the building entity, or the empty space of the building, only when the light of the building is well integrated with the space, and the indefinable light is carved as a boulder, can the magical and dramatic space form be shaped, and finally move the world! [12] Figure 9 shows the design of the Holy Rosary Church, whose appearance is a "cement box" with a length of five meters, a width of five meters and a height of five meters and looks extremely simple, but the designer "inlays" a three meter cubic box inside it, and then clamps it into several heterosexual spaces inside. The shape opens up the interior and exterior spaces of the building and makes the light "pour" down from several walls, making a feeling that the holes in each wall are a journey of meditation, and finally create a dreamy form of internal space.

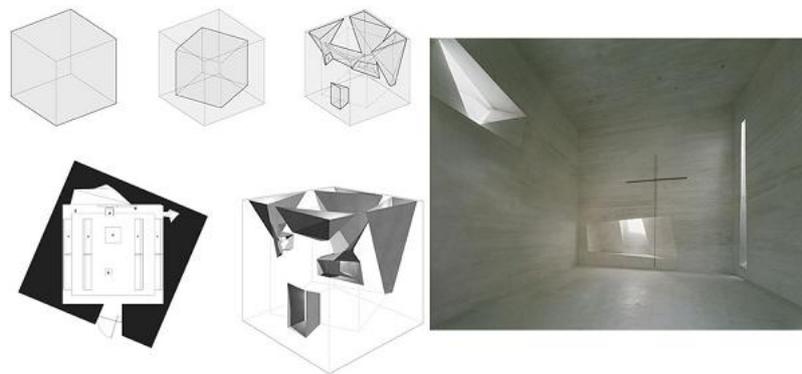
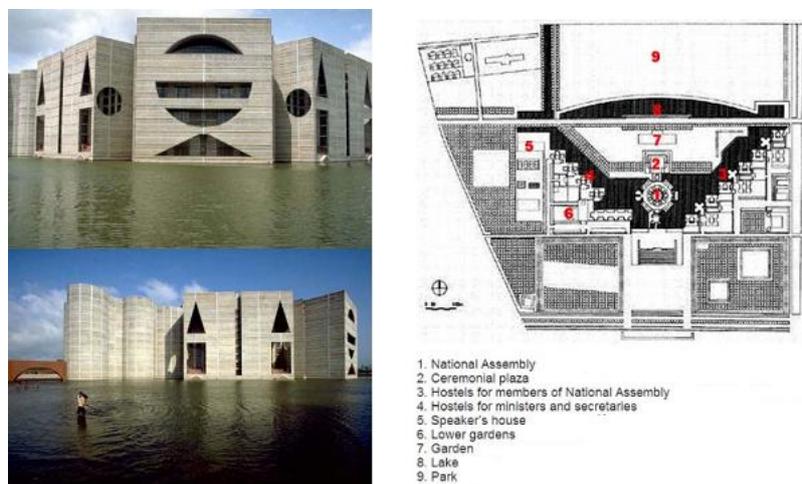


Figure 9. The Holy Rosary Church.

3.7. Line Control of Geometry

Line control is a macro application to architecture, which refers to a scientific "logic" of the building composed of the plan or elevation of the building according to the specific axis, scene transformation line and central divergence line. Line control runs through the conception and concept of architecture, which is reflected in the plan or elevation of the building, which includes complete symmetry, symmetry and centripetalism, axis superposition, symmetry and asymmetry in the overall composition and so on.



1. National Assembly
2. Ceremonial plaza
3. Hostels for members of National Assembly
4. Hostels for ministers and secretaries
5. Speaker's house
6. Lower gardens
7. Garden
8. Lake
9. Park

Figure 10. Bangladesh Conference Hall.

Louis Kahn's Bangladesh Conference Hall (Figure 10) is the embodiment of complete left-right symmetry, first in the general building plan of the site layout, and secondly in the right-left symmetry of the building along the central axis. This way of composition can show a sense of solemnity and stability of a single building.

Algebra is a rational organization, and geometry has vivid representation! [13]

In the future, in the early stage of the study of "Jingchu pie", we will start from geometry to establish a batch of pure geometry, such as cube, cuboid, cylinder, cone and triangular pyramid, and then carry out modification methods such as cutting, rotation and replication, so as to finally establish a batch of aesthetic landscape architectural form modules. In the process of building the model, we will summarize more geometry composition methodology, so as to better provide methodology for model making.

4. Aesthetic Module Decomposition

4.1. Generality

Architects use "proportion" to adjust various forms of geometry to meet the needs of more functions, and the practice of "geometric composition" has greatly improved the efficiency and "volume" of conception, production and use. Later, they develop to a space that needs "simple and refined" on many occasions, assure afore-mentioned space even of course limited use.

The "simple and refined" space is presented in two levels:

Internal spatial hierarchy in architectural composition

- a. Structural and non-structural decomposition;
- b. Lines and surfaces decomposition;
- c. Particular elements decomposition;
- d. Content decomposition;
- e. Scale decomposition;
- f. The reinforcement of hierarchical will.

4.2. Master Review

Decomposition is a well-defined form that engineers use to generate and emphasize the current situation while obeying the strict requirements of order. - Le Corbusier, *Vers Une Architecture*

4.3. Refinement of Structure

Skeleton structure - human beings have long been used in building construction. However, in modern times, the design of domino residential by Le Corbusier and the design of Fagus Shoe Cabinet Factory by Walter Gropius and Adolf Mayer not only strengthened the analysis of this structural relationship, but also marked the opening of a new chapter of modern architectural design.

4.4. Decomposition of Design Elements

Since the development of modern architecture, the late functionalism requires the decomposition of "content" and "whole". For example, Le Corbusier proposed that

“housing is a living machine”, and Louis Sullivan emphasized that “form should obey function”.



Figure 11. *The collective duplex residence.*

Figure 11 shows the design of a collective duplex residence. In the plane layout, the designer takes the building core tube as the center and spreads around to design seven or eight bedrooms, and the internal plane layout and its freedom, and the areas of reception, catering and rest are obvious; at the same time, the overhanging balcony greatly facilitates the use of each layer.

4.5. Decomposition of Structures

Figure 12 shows the mall building designed by BIG for Arab desert countries in the Middle East.

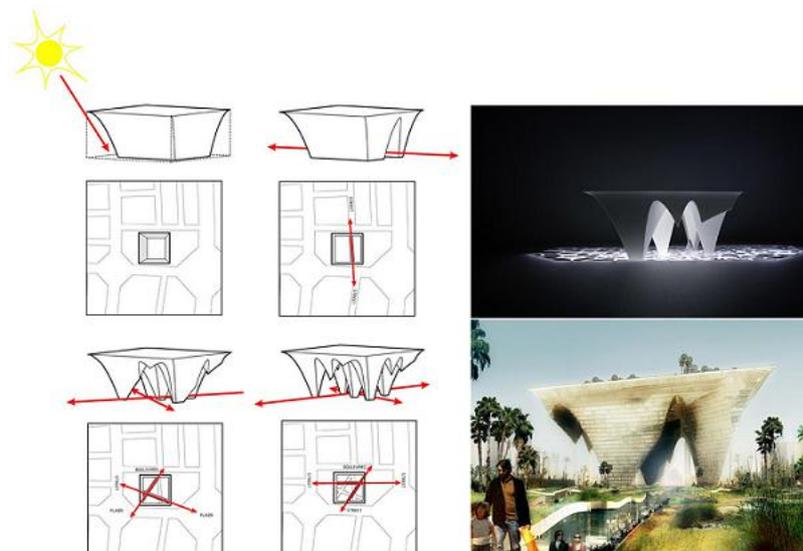


Figure 12. *The mall building.*

The lower sides of the building are regularly cut inward to prevent direct sunlight; the buildings are greatly affected by the ground radiation, so the designer uses the method of hiding the building structure to show the bottom of the building in the form of karst caves. These designs achieve the effect of energy saving to the greatest extent and are also the biggest highlight of the architectural design.

4.6. Alienation of Hidden Elements

Figure 13 shows a concept design called “Taiwan Tower”. The designer adopts white cable-stayed steel pipe to “weave” a huge “curtain”, on which is a dreamy landscape platform. The designer's inspiration is very novel, which is matched by the bold design techniques. The architectural facade of “Taiwan Tower” is maintained by transparent steel pipes. The technique of hiding structural elements is applied to achieve the artistic effect of “penetration, leakage and thinness”.



Figure 13. Taiwan Tower.

4.7. Decomposition in Space

Figure 14 is Greenland Shanghai Sales Center. The building is located in a bush, whose designer uses the skeleton structure to raise the exhibition area and reception area on the second floor of three-meter-high building. In this way, the first floor is overhead, and the transparent space is developed into water landscape and leisure space. This technique is often used in the interior and exterior space design of art museums, which can highlight the integration of architecture and environment and create an ethereal artistic feeling.



Figure 14. Greenland Shanghai Sales Center.

In the early stage, a series of architectural models can be obtained by using the methods of proportionality, geometry and symmetry. On the whole, they are some model groups that have a certain appeal and are not easy to be modified, so it is very important to apply the decomposition method for subtraction. [14]

In terms of representation, decomposition may be applied to divide the form of a large whole into two parts; it is possible to decompose and hide one of the two objects to highlight the other; and possibly decompose its functionality etc. In short, after decomposition, what we see is not two complexes, but an internal and external space

that gives others a magical sense of balance. Indeed, it is the construction of the surrounding environment and the creation of personal posture.

5. Conclusions

5.1. Summary

The main problem of this paper is to make a certain summary and induction of the composition logic of modern simple architecture, that is, the “order” embodied in the current simple architectural concept. The purpose of this paper is to guide the subsequent design of the “Jingchu pie” architectural model and create theoretical basis and logical support for it, Apply a number of aesthetic landscape architectural model modules to the “Jingchu pie” model and extend it to the project scheme and construction.

5.2. Outlook

“Jingchu pie” has been put forward recently. The selection and intervention of this topic is only from the modern architectural construction techniques to analyze a set of “logic” of the aesthetic landscape architectural form module. The scope of the topic is limited, but the theory and conclusion of this topic can effectively guide the design of the architectural model of “Jingchu pie” in the future. In the future project time, the author will establish a batch of building monomer element models orderly, and then reorganize and deform the models under the guidance of the project theory, so as to obtain a batch of constituent models. During this period, the author will also collect and depict the patterns of “Jingchu pie”, conduct stretch modeling at the same time, and “empower” landscape architecture projects, and finally complete a number of “Jingchu school” architectural models with great national style and regional customs!

Conflicts of Interest

The author declares that there is no conflict of interest regarding the publication of this article.

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