Application and Research of Plant Landscape Elements in Catering space

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Abstract. In recent years, with the improvement of the quality of life, people enjoy the food culture and put forward higher requirements for environmental culture, which makes the catering culture develop rapidly. More and more restaurants use space design techniques to “soften” the design of the space, such as different lighting, art decoration and the proportion of color, which make the space attract customers’ eyes. At the same time, a variety of plants are increasingly being integrated into the design of the catering space. They often play the role of softening the transition, changing the line of sight, and illuminating the space. However, these plants are often treated as individual fillers in space and are not pre-designed as a design element, systematic and planned, and often do not achieve long-term desired results.

1. Introduction

From the past, people simply went to restaurants to eat, but now restaurants and diners gradually integrate and interact. Many restaurants are developing in a multi-functional and diversified direction. The competition in the catering industry is becoming increasingly fierce, and the selectivity of customers is getting bigger. It is precisely because of this that the restaurant has made great innovations in space design and interactive experience development. At the same time, as the concept of green environmental protection has become meaningful, green restaurants have gradually become popular.

Therefore, in the design of catering space, the use of plant landscapes is increasingly extensive and is often used as an embellishment or decoration or in conformity with good intentions and color heads. For example, bamboo stands for sturdy, high-spirited and vigorous, and is usually used in Chinese restaurants. However, in terms of plant landscapes’ effects and long-term performance, these restaurants only use the plant landscape as a single decorative element to assist the design of the entire space and have not been systematically and planned designed. The plant landscape itself is not treated as an element and expressed in the language of design, thus making the effect of the catering space not achieve the expected effect of the design and the long-term goal.

The plant landscape is incorporated into the interior design as an element of restaurant design to reflect the new concept and new methods of the new era catering space design, and to increase the diversified expression of the catering space design. Usage of its natural attributes can explore advocating green environmental protection concept, pursuing a more natural and harmonious environment, enhancing the taste of space and creating a unique atmosphere, so that people can relax
their emotions, reduce fatigue and leave a beautiful and deep impression while enjoying the catering space.

2. Overview of plant landscape elements
In order to better integrate the plant landscape and the catering space design, the plant landscape is regarded as an element to assist the design of the catering space, making it a part of the space design. First of all, the plant landscape is an image represented by individual plants or communities, and is a scene that people can actually feel through the senses. Elements are a factor that is especially important in design languages. It can be seen that plant landscape elements are one of the crucial elements of landscape plant landscaping or garden plant configuration, and a critical design factor in design language. It is closely related to the ecological environment and green environment that human beings depend on. Plant landscape elements are mainly used to create green landscapes that put people in a vibrant natural environment.

Secondly, in the catering space, the plant landscape elements are design elements that can change the spatial layout, enhance the visual effect, and optimize the ecological environment in the space design, which can effectively divide the function of the catering space and enhance the visual attraction, as well as improving the catering environment of the restaurant.

3. The function of plant landscape elements
Plant landscape elements have three important functions: ecological function, spatial function and aesthetic function.

3.1. Ecological function
The plant landscape elements can make the catering space in a better environment, giving the diners an ideal catering space. Because most plants have strong adsorption capacity, the environmental quality is effectively regulated. Restaurant design can use this function to adjust the indoor micro-environment, because the restaurant is a space that requires high environmental quality, such plants can effectively reduce dust pollution and gas pollution, purify the air, manufacture oxygen, absorb radioactive materials, adjust temperature and air humidity to improve the microclimate.

3.2. Spatial function

3.2.1. Different body shapes, forming different spatial effects
In the restaurant design, the smaller plant landscape elements can usually be used as decoration or embellishment to enhance the atmosphere of the catering space and reduce visual fatigue. The larger plant landscape elements can be used as a space partition to block the line of sight or become a visual focus. (figure1)

![Fig 1: Small plants for decoration, large plants for partitions](image1)

![Fig 2: Plant landscape elements form a semi-enclosed space](image2)
3.2.2. Spatial definition function
Plant landscape elements act as a flexible spatial transition element, using thin and tall trees. It can achieve the effect that the wall or other substantial space media can't achieve, and avoid the space to produce a relatively rigid barrier to achieve the definition of space. In addition, the plant landscape elements also have the function of functional partitioning, so that the space has the primary and secondary points, distinguishing the key parts of the space and the corner parts, and its visual effects and actual functions are often more natural than the use of walls or partitions (figure 2).

3.2.3. Spatial enclosure function
Plant landscape elements can also replace the traditional space enclosing method, and the space is separated from the outside by clever and flexible, forming an area and making the space more vivid. For example, plant landscape elements can be used to form semi-enclosed spaces. The use of a higher plant combination on one side of the open space constitutes a one-sided closure, resulting in a more intimate spatial interface, which also becomes the line of sight for people. At the same time, the plant landscape elements can also be well-enclosed spaces, have strong concealment, and are relatively isolated from the surrounding environment. Moreover, the line of sight and streamlines are also strictly restricted.

3.2.4. Spatial guidance function
Plant landscape elements can be arrayed and rhythmic in the transportation route, which connect different function and play a guiding role in catering space. For example, the usage of low shrubs and ground cover can define the space, which guide people to effectively. Moreover, such plants are able to connect the two spaces and produce good visual effects.

3.3. Aesthetic function

3.3.1. Color space
Due to the excessive use of space and the distribution of functions, it is easy to neglect the overall color tone of the space. However, if the plant landscape elements are formed into a color space, the problem of unbalanced and boring color of the catering space can be greatly reduced. Through the design of plant landscapes and display methods, the color space formed by plant landscape elements in the catering space has played a strong role in beautifying the environment. If the color of the plant landscape elements is considered together with the main color of the space itself, the visual attraction of the design of the catering space can be increased by the fusion and contrast of the two colors. It means that the color of the plant landscape elements can make the visual effect of the entire catering space shines.

3.3.2. Softening space
In the design of the catering space, most of the geometry of the straight line structure, such as the turning point, the starting part, the ending part, and the visual center point of the space, these key parts will inevitably appear abrupt. In this case, the plant landscape plays a transitional role, changing the rigid connection of the space, not only has the effect of eye-catching drainage, but also can shift people's sight. Different textures can soften the catering space effectively, so that primary and secondary points in the space give the overall comfortable visual effect.

3.3.3. Growth changes bring different views of the landscape
The shape, color, foliage and its growth cycle of plants have high appreciation value. Different growth stages can produce different visual effects, and the visual center of the composition plays a very good role in beautifying the visual environment. In addition, the difference in color and texture of any kind of plant forms a small range of features, which can improve the identification of the landscape, thereby creating an artistic conception.
4. The relationship between plant landscape elements and catering space

4.1. Types and forms of plant landscape elements
The plant landscape has been greatly improved and introduced, and there has been great innovation and development in the modeling. In recent years, there have been many novel, chic and pleasing kinds of form, such as display type, hanging type, wall hanging type, planting type. To be specific, many restaurants choose plants that are mainly based on spider orchids, and they are suspended. The French restaurant, Joe Lubson, is decorated with planting landscapes in the restaurant, giving the whole catering space an active and relaxed atmosphere. The plant landscape bears the role of beautifying space and active atmosphere in various spaces, which can better highlight the design effect and has the finishing touch.

4.2. Plant landscape elements and restaurant style expression
As one of the decorative elements, the plant landscape elements, in the catering space, must be unified with the overall style, or complemented by the combination of plant landscape and catering style, in order to set off the restaurant style and achieve harmony and perfection, therefore the space can please diner.

5. Spatial design principles of plant landscape elements
The design principle of a catering space is reflected in the aesthetic principles applied in the design of this space, and integrates many aspects of professional knowledge, which often reflects the design connotation of this catering space. The plant landscape elements will also reflect its spatial design principles in the catering space through its own aesthetic principles.

5.1. Equilibrium
Equilibrium is a sense of balance in the aesthetics principle, and this balance harmonizes the layout on both sides of the axis to achieve a visual stability[1]. In the catering space, the display of plant landscape elements also has a virtual or real axis. When the plants are distributed on both sides of the axis, the space is in a state of balance and stability, and the space at this time is more visually harmonious.

5.2. Concise
The simplicity of the display of plant landscape elements does not mean that the visual effect is simple and monotonous. In the catering space, it is not the more landscape elements are used, the better, but the control and suitability necessary in the design. It is more suitable for the elements of space utilization, and sometimes it can achieve good results in the catering space even if only one landscape element is used.

5.3. Contrast
The contrasting technique is applied more in plant display. It can be divided into color contrast, shape contrast, volume contrast and texture contrast [2]. The effect of contrast is reflected by the strength of contrast, which is essentially against each other. To highlight each other's personality, but also serve the overall effect when applied.

5.4. Rhythm
Rhythm is a regular or irregular intermittent reproduction, and the spatial distance in which it is repeated is the rhythm. In the design of plant landscape elements, certain landscape elements reappear in the same or similar shape, texture or color, or enhance the visual rhythm in the catering space by placing similar elements together.
5.5. Unification

Any display technique of a plant landscape element has its center, which is the theme. The various means used by the plant landscape elements in the display of the catering space, from the selection of plant species to the use of landscape elements, are unified in the theme. However, there is no change in unity. There should be a master in the space. The host and the guest are distinct. In the configuration of plant landscape elements, there is a need for color change and unity of plant species, so that it appears in the design of the catering space.

5.6. Primary and secondary and diversity

Plant landscape elements should emphasize the primary and secondary relationship in the design of the catering space, in order to highlight the key points. This can be achieved by distinguishing between the primary visual plant and the auxiliary plant in the plant landscape element, or by the primary visual space and the secondary visual space formed in the space. This is also a common method which combines the primary and secondary organic to create an orderly and distinctly landscaped effect.

Fig 3: The deck is evolved from the bird's nest

Fig 4: The trunk shape of the deck evolved from the tree

The work is a forest-themed western restaurant. The restaurant mainly uses plant landscape elements as the main design element. The first floor is a common catering area, and the second floor is a card seat that evolved from a combination of trees and nests (figure 3 & figure 4).

Since the deck is extended upwards on the basis of a plane, this part has become the visual center in the space first. Secondly, the auxiliary of the plant landscape elements is added to the deck to make it become main visual space, weakening catering area downstairs (figure 5). After entering the restaurant, diners’ visual attention is directly concentrated on the second floor deck (figure 6). Therefore, it not only highlights the key points, but also plays a role in beautifying the space environment.

5.7. Sequence

In the catering space, the spatial sequence can be divided into four phases: start phase, transition phase, climax phase, and end phase. In the beginning, an attractive design focus is created, in order to allow the diners entering the restaurant to pass through the plant landscape display, and to move according to the desired visual effect. The transition can be achieved by a gradient in the form, texture or color of the plant landscape elements. The climax stage is the main body of the sequence principle. The design of the landscape elements in the catering space needs to attract enough attention of the diners, or stimulate emotions and even generate satisfaction. Finally, the climax is about to return to calm, and landscape elements can be used in a small amount to achieve a feeling of endless taste for the diners.

Fig 5: Forest-themed Western restaurant

Fig 6: Combine the deck and the trunk
6. The use of plant landscape elements

6.1. Display of plant landscape elements
With the pursuit of new and different food and beverage space, its space is no longer limited to the conventional scale law, and various different proportions of space appear, which promotes the diversified expression of the catering space style. The use of plant landscape elements has also broken through the limitations. It has broken through the previous single use method, and has incorporated the landscape elements into the design language and become part of the space design.

Plant landscape elements generally have the following display methods.

6.1.1. Regular formula:
Use the arrangement of rules to arrange the plant landscape elements neatly. In the complex space of structural lines, the regular display way can make the space look less messy, but can weaken the heavy space structure to give people a heavy sense.

6.1.2. Natural style:
In the layout, the application of frame, clip, and borrowing is not limited to the framework of indoor space. The layout mode gives people the feeling of returning to nature.

6.1.3. Mixed type:
Several display methods are combined to design and arrange plant landscape elements through different display methods, and a lively and flexible atmosphere can be created in the regular space of the line.

6.2. The Artistic Conception and Aesthetic Thought in the Catering Space
The design of the catering space mainly combines the various elements of the times, historical context, environmental factors and other creative concepts. On the basis of reasonable spatial planning and functional zoning[3], uses specific scene techniques to reflect different spatial concepts and structures. Individuality and emotion expression meets people's spiritual needs. The integration of plant landscape elements is a fusion of food and environment, conveying different spatial experiences to the diners[4].

7. Conclusion
With the rise of the catering culture, restaurant design has become increasingly popular in people's lives, and people are becoming demanding on the restaurant environment. As a new design element, plant landscape elements, together with other design elements, are added to the design of the catering space, and also bear the responsibility of innovative catering space design. Therefore, plant landscape elements need to use systematic, comprehensive and planned design language to coordinate the overall space. Through reasonable allocation of plant landscape elements, people pursue a more natural and harmonious environment, enhance space taste and create uniqueness. The atmosphere allows people to relax their emotions, reduce fatigue and leave a beautiful and deep impression while enjoying the catering space.

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