

Appreciation of Chinese Modern Garden Architecture from A Multi-dimensional Aesthetic Perspective

--Taking I.M.Pei 's Suzhou Museum as An Example

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Abstract. With the development of the era, traditional architecture and modern culture in the process of collision, interweaving, integration and innovation, gradually formed the development ideological trend of architectural culture. Chinese modern garden architecture in learning from the classical landscape elements, and also in the integration of the New Chinese design elements. From the perspective of multi-dimensional aesthetic, the appreciation of the external image, the perception of the emptiness and the thinking of the connotation of Chinese modern garden architecture are successively carried out, gradually approached and further explore the true nature of architecture and the virtual perception of internalization, reconstruction time background and architectural culture of art language, guide the development direction of Chinese garden architecture in the future.

Keywords: Chinese Modern Garden Architecture, Multi-dimensional Aesthetic, The Classical Gardens of Suzhou, Suzhou Museum.

1. Introduction

1.1 Brief Introduction to Suzhou Garden

The classical gardens of Suzhou have the characteristics of the integration of houses and gardens, and meet the needs of human beings to live, visit and enjoy. This process of forming the architectural body of the front hall and the back garden is a kind of creativity, innovation and creation that human beings can return to the natural ecology, meet their self-pursuit, beautify and improve their own living environment in the densely populated city and lack of natural scenery. The Chinese philosophy, historical culture and cultural customs contained in Suzhou classical gardens are the symbol, condensed and refined of the cultural and historical traditions of Jiangnan (area south of the Yangtze River), showing the essence of Chinese garden architecture culture, having an important historical status and unique artistic value in the history of world gardens. The classical gardens of Suzhou represented by the Lingering Garden and the Humble Administrator's Garden are known as "reconstructing the universe within a close distance", they are the leader and pride of Chinese garden culture. Architecture is the product of human beings in the process of social development. With the advancement of the era, modern garden architecture, while retaining the classical landscape elements, also integrates the new Chinese design elements, making it the architectural climax of the integrated development of classical gardens and modern gardens.

1.2 Brief Introduction to I.M.Pei

Ieoh MingPei (April 26,1917-May 16,2019), male, born in Guangzhou, Guangdong Province, native of Suzhou, Jiangsu Province, Chinese-American architect, foreign academician of Chinese Academy of Engineering, fellow of American Academy of Arts and Sciences, civil engineering expert. He was awarded the Gold Medal of the American Institute of Architecture in 1979, the Gold Medal of Architecture in France in 1981, the Imperial Award of Japan in 1989, the Fifth Pritzker Prize in 1983 and the Freedom Medal awarded by President Ronald Reagan in 1986. I.M.Pei was praised as "The Master of Modernist Architecture". In I.M.Pei's architectural works, he embodies the public, cultural and representative nature of architecture through flexible application of architectural elements, which is regarded as the modernism style of architecture, representative works include the

Macau Science Museum in China, the Xiangshan Hotel Beijing and the Suzhou Museum. In I.M.Pei's architectural works, the ingenious ideas such as design and inspiration, light and space, life and mapping, times and art are highlighted, the artistic value of architectural function and ornamental aesthetics is strongly displayed with a unique ideology (Fig.1). In his design and conception, traditional symbols are integrated with modern spirit, the high combination of classical architecture and modern culture constructs the artistic language in the era of background and architectural culture.

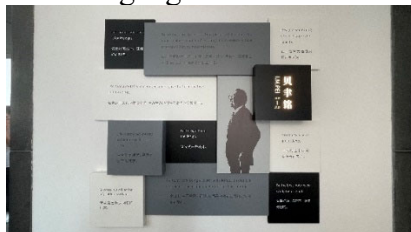


Fig. 1. Brief Introduction to I.M.Pei

1.3 Brief Introduction to The Image Beauty, Artistic Conception Beauty and Implication Beauty in The Architecture

Architectural image is the essential characteristic of real architecture; it is a way for designers to create artistic conception through architectural elements; and also, the artistic image formed by the observer by distinguishing the essence of architectural objects and derived associations in the process of combining meanings.

Architectural artistic conception is the charm and elegance; it is the ultimate goal pursued by designers in the process of creating architectural art; at the same time, in the thinking of artistic perception and artistic atmosphere caused by architectural implication; the deviant cognition of individual aesthetic appreciation and public aesthetic appreciation is generated.

Architectural implication is the consistency between the real essence of architecture and the internalization of the perception of emptiness; it is between the observer and the building, through the perspective of the observer and the observed to switch back and forth, to achieve a deep level of spiritual and cultural exchanges; at the same time, in the process of human history development, architectural objects have typical historical and cultural characteristics, symbolic representation, forward-looking and so on.

2. Beauty of Architectural Image

2.1 Materials

The exterior design of the museum mostly replaces the ancient traditional bricks and tiles with dark gray granite, cuts them into diamond body blocks and hangs dry on the roof made of panels, combining gray and white. At the same time, while improving the beauty, the problem of traditional small green tile is easy to leak and damp [1]. Through the tonal pattern with obvious regional characteristics, combined with the gray border like abstract calligraphy lines. Under the influence of Bauhaus, it vividly expresses the artistic conception of Chinese ink painting which is the exquisite selection of materials for the Suzhou Museum. (Fig. 2).



Fig. 2. Integral Shape

2.2 Structure

The Suzhou Museum is divided into two floors, one above ground and the other underground. In order not to affect the surrounding buildings, the structure adopts the raft foundation on the natural foundation and the method of thick plate adding rubble concrete pressure is used to solve the problem of floating resistance in the basement. In addition, the novel steel structure truss is also used as the roof structure instead of the traditional wooden structure materials, which not only meets the appearance design of the architectural modeling, but also can integrate the aesthetic details of modern architecture (Fig. 3).



Fig. 3. Exterior Roof Structure

2.3 Roof

The design idea of the glass roof and stone sheet roof also stems from the traditional roof structure, the past wooden beam and wooden rafters frame system will be replaced by the modern open roof system composed of steel structure, wood and paint to provide guidance and comfort for visitors (Fig. 4). The design of the stone roof effectively solves the lighting problem of the traditional buildings, introduces the natural light into the indoor activity area and the museum exhibition area to the greatest extent. From the stone layer down, there are also metal plate, board, insulation board, steel structure, panels, ceiling, etc. The museum's roof drainage does not rely on the traditional tile brick drainage, but through the roof will penetrate the rain into the metal plate with the help of the metal plate drainage system to deal with the stranded rainwater (Fig. 5).

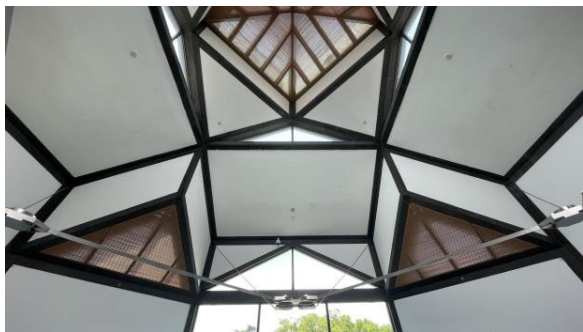


Fig. 4 Layering



Fig. 5 Continuity and Excess

2.4 Wall

The Suzhou Museum is based on traditional Chinese garden architecture, the whole design conception is based on geometric modeling, the elements of traditional garden are put into abstract. The wall of the museum adopts the treatment of the stacked mountain wall in the classical residential buildings in the south of Yangtze River and the stacked mountain wall is the horse head wall in Hui-style architecture. Due to the conservative factors in Huizhou culture, the walls are generally designed to be very tall and closed in residential buildings. However, in order to prevent the buildings from being static and rigid, I.M.Pei through the staggered treatment of the horse's head wall, so that the horse's head wall strewn highlighting the dynamic aesthetic feeling.

"Pei's Horse Head Wall" has the geometric shape of modern design which hides the concrete horse head wall and changes it into a sense of strewn at random contained in abstract elements. It also has

the features of traditional horse head wall which is stacked layer by layer, high and low and clear hierarchy (Fig. 6). This kind of undulating wall uses dark gray "lines" to delineate the block face of the building in the south of the Yangtze River and the division of the large area wall has the effect of reducing the sense of building volume. The ups and downs of metope using dark gray "line" outlined the block of Jiangnan buildings, the division of the upper part of the wall realizes the transition between the wall and the roof and the design of the wall corner extending to the roof part emphasizes the continuity of the wall and the roof (Fig. 7).



Fig. 6 Ceiling Structure



Fig. 7 Ceiling Design

2.5 Windows

While abandoning the complexity and details of traditional garden architecture, part of the window form forms of traditional Chinese culture are retained which can be said to be "take its essence and discard its dross". The window lattice design of the Suzhou Museum does not copy any kind of ancient window lattice style, but designs a hexagonal square window containing all the advantages of the window lattice as much as possible. Compared with the decorative flower windows in the classical gardens of Suzhou, the simple and neat geometric window frame gives people a good visual experience (Fig. 8). Such modelling combined with light and scenery, enrich the spatial scale of mutual permeability, also form the visual homogeneity and rhythm with lion forest inside the window hole echo, the Suzhou museum with modern geometry, the traditional design elements and modern design together.



Fig. 8 Hexagonal Window

"In the West, the windows are the windows," I.M.Pei said. "They put in sunshine and fresh air, but for the Chinese, the windows are frames and there are always gardens." The narrow traffic corridors connect the interior and exterior of the Suzhou Museum and provide access to the various courtyard exhibition areas. The skylight made of glass is exquisitely designed at the corner of the middle of the roof, forming a corner with the sloped roof and presenting a beautiful geometric form. Not only solving the problem of light constraint, but also enriching the style of the roof (Fig. 9-11).

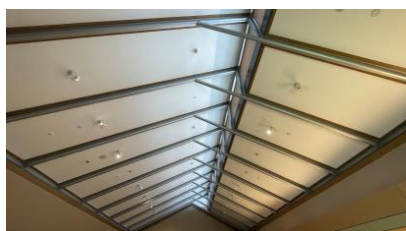


Fig. 9 Skylight Style



Fig. 10 Skylight Style

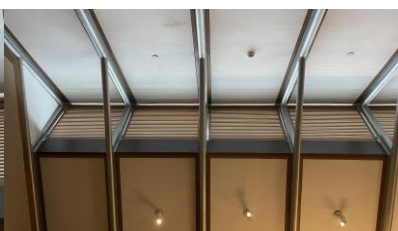


Fig. 11 Skylight Style

Natural light through the wood veneer of metal shading interwoven light and shadow into the internal activities of the museum area, the light after tone soft shading form filter produced by the level change, combined with the different space light contrast and formed a unique light and shadow effect. As if can let the lines flow around, make visitors have a kind of walking illusion under the antique bamboo curtain which is into the poem into the painting and intoxicated (Fig. 12-14).



Fig. 12 Skylight Style Fig. 14 Skylight Style Fig. 14 Skylight Style

2.6 Color

White wall and black tiles are the most prominent color collocation in Jiangnan architecture with white as the main feature and black as the secondary feature. It has a simple and elegant light temperament coupled with the surrounding green water features, immediately presents a three-dimensional landscape painting full of landscape image (Fig. 15). The color of the tile is the most unique. When it rains, it is inky black, and when it shines, it is Chinese black. The white wall scattered elegant and fresh highlighting the unique style of the building itself and the color collocation, matching the tranquil water of the Taihui Lake and the elegant and quiet charm of Jiangnan culture [3].



Fig. 15 A Three-dimensional Painting of Landscape

3. Beauty of Architectural Artistic Conception

3.1 Scenes

The clever processing of the scenery mainly used to borrow the scene, frame the scene and opposite the scene of these three methods. The view is mainly borrowed from the scenery of the Humble Administrator's Garden on the north side. Looking into the entrance of the museum, there is a dense plant community which makes visitors mistake it for the natural scenery formed in the museum. After entering the museum, they find that the dense plant community comes from outside the museum. The design of the borrowed scene not only protects the natural plant community, but also integrates with the scenery of the pond and stone rockery inside the museum, making people enjoy it.



Fig. 16 Borrow Scenery

Framing the scene is mainly combined with the design of windows. There are many hexagonal geometric windows on the internal corridor which frame the landscaping design inside the courtyard. The landscape design inside the courtyard is framed into it, just like a beautiful and unique Jiangnan picture scroll, making it one of the most classic and unique viewing angles of the Suzhou Museum (Fig. 17).



Fig. 17 Frame Scenery

There are two typical scenes of opposite the scene, one is from the Octagonal hall after entering, you can see in the position of the moon door opposite "with wall as paper, with stone as painting" unique landscape scroll, the two played the role of the scene (Fig. 18). The other place, two windows are built opposite each other. A green and straight tree stands upright in the middle, forming a folding of vegetation landscape and space which is a typical combination of image and scene-matching techniques in Suzhou gardens (Fig. 19).



Fig. 18 Opposite Scenery 1

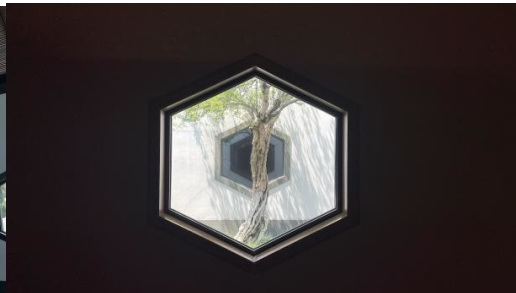


Fig. 19 Opposite Scenery 2

3.2 Space

The unique design of space is mainly reflected in the Suzhou museum interior showroom which is octagonal and rectangular. The octagonal exhibition is multi-ring shape to guide feeling as the main body, the rectangular exhibition from outside with sense of depth as the main body. Both provide multi-dimensional space, human body and exhibits on the space scale basically meet the limits of space (Fig. 20-22).

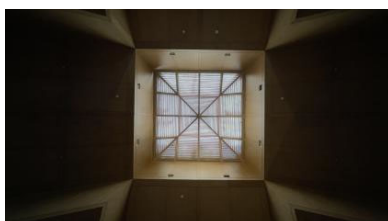


Fig. 20 Gallery of Exhibits



Fig. 21 Gallery of Exhibits

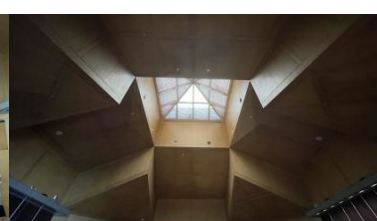


Fig. 22 Gallery of Exhibits

Museum internal east corridor and west corridor design arranged in turn for geometric graphics, along the corridor channel to the internal exhibition for further observation, it can be from low to high feeling the change of visual level, from near to far expanding the diversity of aesthetic thinking, exhibition completely open internal space pattern. The back-and-forth switching of space shape and angle of view can not only break the inherent sense of single level, but also increase the rich and full sense of artistic experience (Fig. 23-24).

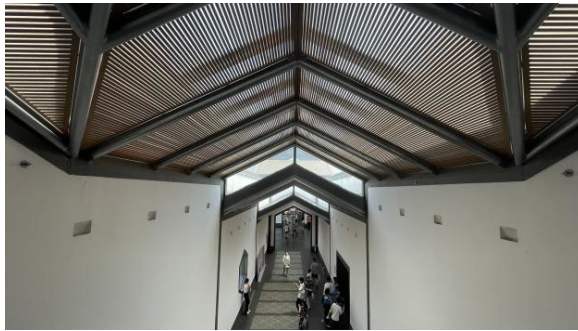


Fig. 23 Corridor Channel

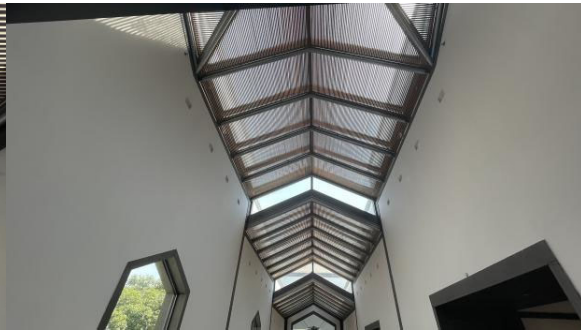


Fig. 24 Corridor Channel

3.3 Environment

The exquisite layout of the environment is mainly reflected in the Suzhou Museum designed a main courtyard and several small inner courtyards, the interior is equipped with a cobblestone pond, using color rendering stone rockery, simple and modern straight bridge, comfortable octagonal pavilion, green straight bamboo forest, red and white koi and other landscapes (Fig. 25-27). In the design of the courtyard landscape, the cultural conservation and geological features of Suzhou are fully considered, the regional culture and historical deposits of Suzhou are concentrated, and a number of unique styles and beautifully arranged courtyards are designed to connect the whole inside and outside of the space, so that the architecture and nature are integrated. While retaining the architectural style of Soviet-style garden, it is not separated from the Chinese cultural atmosphere and the simple and elegant charm of Jiangnan, and clearly creates the aesthetic artistic conception of modern architecture.



Fig. 25 Landscape Design

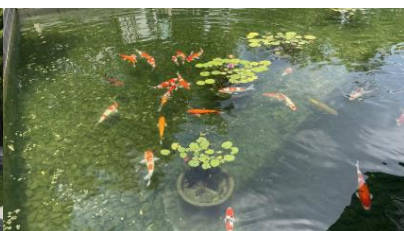


Fig. 26 Landscape Design



Fig. 27 Landscape Design

In order to be able to better in specific historical landscape, I.M. Pei draw lessons from the elements of traditional Chinese painting will be "with wall as paper, with stone as painting" unique innovation combined with the yard neat calm water, present a clear contour and the silhouette effect and the Humble Administrator's Garden, next to the old and new landscape pen to break even, skillfully integrated into one (Fig. 28).



Fig. 28 Flaky Rockery

In the western exhibition area of the Suzhou Museum, visitors walk slowly along with the clear water. As the sound of water becomes louder, the beautiful lotus pond also appears in people's view, creating a classical artistic conception of beauty. The water screen wall, lotus pond and the cantilevered stairway leading to the calligraphy and painting hall are combined, under the hazy misty rain south of the Yangtze River, have formed an artistic conception of ink painting, beautiful and practical while not losing the modern sense (Fig. 29-31).



Fig. 29 Landscape Design

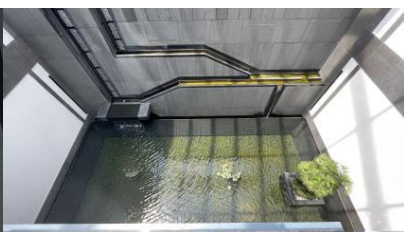


Fig. 30 Landscape Design



Fig. 31 Landscape Design

3.4 Layout

The overall layout of the Suzhou Museum is mainly reflected in the layout of the east, west and central part of the three modules. The central part houses the entrance, hall and museum garden; a hall with eight angle is the core geographic museum, located at the entrance to the vestibule and museum garden which is based on the geometric transformation of Chinese modern architecture and the idea of traditional Suzhou architecture, to redefine the thinking and design of building are likelier to carry with internal space, at the same time provide all visitors with connected to other area.

The west is the exhibition area; in the landscape design, the new museum courtyard, administrative area courtyard and narrow and unique exhibition area is free from the design idea of the traditional Soviet landscape architecture, seeking new orientation and theme for each independent space, the design essence of traditional landscape architecture, guide the future development direction of Chinese garden architecture.

In the east, there are administrative areas, modern art galleries, educational facilities and tea services. This section will also serve as an actual passageway connecting the Zhongwang Mansion which has been restored to its original appearance. As it is difficult for the palace to provide suitable exhibition space for artworks within its existing structure, it will be used as a showcase for the rich architectural heritage, such as furniture and sculptures. From the perspective of a single layout, the Suzhou Museum has the characteristics of becoming an integrated whole and forming a unique side, but throughout the overall layout, the three parts are fully functional and closely connected, providing visitors with a good sense of experience and a unique sense of art.

4. Beauty of Architectural Implication

4.1 Suzhou's Architecture Means Great Beauty

Suzhou, formerly known as Gusu City, is praised for its stunning beauty in China by the wonderful saying "there is heaven above and Suzhou and Hangzhou below". As a wealthy water town in the South of the Yangtze River, there are countless beautiful scenery, scattered white walls and black tiles, soft waxy warm Wunong dialect, beautiful and unique small bridge water, dotted green and red, its classic and elegant ancient city charm attracts people to come.

The Suzhou Museum is designed by the mountains and rivers. Through the combination of the two traditional Chinese culture and architectural aesthetics, the Chinese garden culture has produced a harmonious and beautiful effect [4]. In its design style, the Suzhou Museum emphasizes that "China is new and Su is new", China refers to accord with the design ideas and aesthetic concepts of Chinese classical architecture, Su refers to the integration of cultural conservation and geological characteristic of the changes of Suzhou era, and new refers to the combination of new ideas into Chinese garden culture to inject new vitality into Chinese garden culture.

Under the influence of the theory of minimalism, I.M. Pei's pursuit of space layout, unique appearance style, make it continue the characteristics of Chinese classical garden architecture is not too high, so "Not high, Not big, Not outstanding" became the core of the Suzhou museum design which retains the classical landscape elements at the same time, integrated with modern architectural design elements, has become a unique and classic new garden.

Through the Suzhou Museum approached Suzhou, we find that there are two cities: an old city, a new city, the two are clearly separated, divided into two by a moat [5] (Fig. 32-34). The old city water lanes, the city is filled with typical Jiangnan cultural atmosphere, white walls, green tiles, antique [6]; compared with the old city, modern industrial parks, tall buildings, spacious road traffic everywhere showing fashion and modern atmosphere [7] (Fig. 35-37).



Fig. 32 Old Town of Suzhou



Fig. 33 Old Town of Suzhou



Fig. 34 Old Town of Suzhou



Fig. 35 New District of Suzhou



Fig. 36 New District of Suzhou



Fig. 37 New District of Suzhou

Livable and working is a comfortable and convenient way of life in Suzhou. Living in the old city and working in the new city cannot only feel the cultural charm of slow Jiangnan water towns, but also experience the development mode of fast-paced coastal cities. In the ever-changing city construction, Suzhou to protect the old city, the new city development model, protect and implement the tradition of Jiangnan city, development and construction of modern industrial park, does not destroy the historical sites and the ancient city, change the city new style to promote the overall development of the city, it is worthy of urban planners to learn and reference [8].

In the Suzhou Museum, the clever integration of classical landscape elements and modern architectural design elements perfectly fill the cracks of the era between the protection of the old city and the development of the new city, adds a heavy color to the urban planning and development of Suzhou, makes it beautiful and harmonious, and effectively avoids abrupt disorders. As a representative of the new Chinese architectural style, the Suzhou Museum has also opened a new page for the innovation and development of the museum architecture, and pushed the cause of the cultural heritage protection of the ancient city of Suzhou to a new height [9].

4.2 Chinese Architecture Implies Beauty

As a modern architecture, the Suzhou Museum is a comprehensive museum integrating landscape architecture and ornamental aesthetics, as well as a trinity of modern museum architecture, ancient architecture and innovative landscape architecture [10]. The Suzhou museum design concept of adhering to the "China is new and Sue is new" design philosophy, the pursuit of "Not high, Not big, Not outstanding" harmony moderate design principle and excellence of high standard construction, its architectural modeling and natural environment fusion, space layout is reasonable, building materials, interior design is unique, the light treatment is exquisite, are full of Jiangnan flavor Gusu City icing on the cake.

4.3 The Architecture of The World Means Beauty

In 1990, XiaotongFei in the 80th birthday party, for the "personal research in China - personal experience" for the topic of speech, put forward the "beauty of its beauty, beauty of human, beauty together, the world is the same" sixteen words of proverbs to explore their own research ideas and methods. The same is true of architectural culture. It is precisely because of the social development of various ethnic groups and countries, in order to meet their own productive and living needs, that a rich and variety of architectural products have been formed and developed into a prosperous and colorful architectural culture.

The world is united, and respecting the diversity of architectural culture is the inevitable requirement to realize the prosperity and development of world architectural culture. Whether leisurely and quiet Mediterranean architectural style, is a law unified Italian architectural style, is simple atmosphere of North American architectural style, is elegant and romantic French architectural style, is flexible English architectural style, is simple and lively German architectural style, is the classical neoclassical architectural style, is peaceful and implicit new Chinese architectural style, or concise modernist architectural style, is the symbol of multi-ethnic, national, regional culture, it is because of the evolution of all kinds of architectural culture to build the prosperity of the world architectural culture and prosperity.

Architectural culture is both regional and world-based. The architectural culture of all countries has enriched the world architectural culture with its distinctive regional characteristics and jointly promoted the development and prosperity of human architectural civilization. Only by maintaining the diversity of the world's architectural culture can make the world become more colorful, full of vitality and promote all mankind to form a sense of human architectural culture community of sharing weal and woe, coexistence and death, common honor and disgrace, and a common destiny.

5. Conclusion

Through appreciation and analysis of the Suzhou Museum from multi-dimensional aesthetic perspectives of beauty of image, artistic conception and implication can clearly feel the Suzhou - China - the World progressive, deep culture from three different cultural level, the appreciation of the external image, the perception of the emptiness and the thinking of the connotation of Chinese modern garden architecture are successively carried out, gradually approached and further explore the true nature of architecture and the virtual perception of internalization. Through I.M. Pei's legendary life situation and his unique and profound design thinking, different cultural realms are woven together in a harmonious and harmonious way. Museums are the epitome of history, but also the presentation of the history and cultures of different regions. The Suzhou Museum is an architectural legend of I.M. Pei's life. It is a landmark public cultural building in Suzhou today, and also a milestone on the road of leading the development and innovation of Chinese architecture. At the same time, it is also a cross-era bridge of Chinese architectural culture from the past to future.

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