Natural Representation of Tadao Ando’s “Church Trilogy”

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Abstract
From the perspective of natural representation, this paper analyzes the architectural design techniques and design concepts of the trilogy of Tadao Ando Church—"Church of the Wind", "Church of Water", and "Church of Light". It extracts the specific representation of natural elements in Ando's architecture: (1) On the Church of the Wind, it is mainly characterized by three aspects: the design source derived from Japan's natural primitive culture, the time and space experience that combines architecture with the natural topography and landforms, and the spirit of creating a natural tranquility place with terroir as the natural medium; (2) On the Church of Water, it is mainly characterized in the ingenious use of natural light, the natural landscape integrated with the indoor environment, the sequence of time and space and natural elements, the solemn Zen culture, the localized regional beauty, and the architectural natural beauty; (3) On the Church of Light, it is mainly characterized in the two aspects of arranging the architectural orientation according to the orientation of the sun and creating a "cross of light" with natural light, and the combination of human-oriented movement and stillness. Through the analysis of natural representation, this paper inspires architects to re-examine natural elements and further explore the methods and concepts of skillfully combining Chinese local culture and modern architecture.

Keywords
Tadao Ando, Church Trilogy, natural elements, vernacular representation, design approach, design concept

1. Tadao Ando's profile
Born in Osaka, Japan, Tadao Ando is a famous Japanese architect who won the Pritzker Architecture Prize and was awarded the title of "Master of Fair-faced Concrete Architecture". Ando integrates Eastern and Western spatial cultures to form his own unique architectural design concepts, such as design philosophy based on Zen culture and Japanese aesthetics, "human-oriented" design purpose, the inseparability of man and nature, and the expansion of material language such as fair-faced concrete and unpainted wood. The pursuit of pure space and geometry, artificial processing and abstract representation of natural elements such as light, wind, water, and earth. The "Church Trilogy" (Church of Water, Church of Light, and Church of Wind) is an important masterpiece of Ando, and the article will analyze and elaborate on it from the perspective of natural representation.
2. Introduction to the Church of the Wind and Its Natural Representation

2.1 Introduction to the Church of the Wind

"The Church of the Wind" is located in Kobe, Hyogo Prefecture, Japan, also known as Rokko Mountain Church, built in 1986, covers an area of 220.3 m², and is the first work in the Tadao Ando church series. Because the base is located on a green slope, this chapel has an excellent view overlooking the sea. The building consists of a chapel, a tower, a covered corridor, and a sheet wall that partially encloses the landscape, unlike the concrete-poured solid of the chapel, the long corridor is a pedestrian path enclosed by frosted glass. Turning to the right at the end of the corridor, visitors are guided by the light in the dimly lit chapel, where the altar is at the front, and to the left of the altar is a large window divided by a cross-shaped frame, and the green of the outdoor slope is introduced indoors.

2.2 Natural representation

2.2.1 A source of design derived from Japan's natural primitive culture

Japan's primitive culture is mainly derived from Zen Buddhism such as dry landscapes, which emphasize the refinement and imitation of nature. Using the architectural language of geometric forms, Tadao Ando made valuable explorations to find the point of convergence between "ri" (mainly characterized by modern constructivism) and "zen" (mainly characterized by natural elements).

2.2.2 Combine architecture with natural topography and landforms, and take time and space as the axis of experience

Ando emphasizes the integration of architecture and topography, with corridors and walls as its usual forms. It becomes part of artificially constructed nature. The bell tower and the church make up the third type of space and experience. The church is a square space with light, consisting mainly of the entry of natural light from the sides and the grooves on the top and sides to form a "tangible" light. The bell tower becomes the component of the vertical space. Ando skillfully uses simple and powerful Western forms to compose the temporal and spatial dimensions of architecture. In terms of the experience dimension, natural environmental elements such as light and water are used to form the experience of "Zen", expressing the integration of tradition and modernity, in Japan and the West.

2.2.3 Use wind and soil as natural media to create a natural and tranquil place spirit

How to skillfully introduce natural phenomena into architecture has become one of the key issues, and the architectural spirit (place spirit) that exists outside the building is more valuable and valuable than the building itself. Ando's choice to intervene in the natural medium of architecture has his unique insight. He chose wind, water, and natural gentle slopes, which are most common in nature, to show respect and awe for nature. Wind is a feeling that people feel in contact with nature. Ando wanted to use natural winds (rather than mechanical winds) as much as possible in his work to enhance the contact between people and nature. In the treatment of the entrance corridor of the Church of the Wind, people feel the cool breeze through the guidance of the wind, and the Church of the Wind is named after it. The soil is mainly manifested as naturally formed hills and slopes. On the one hand, Ando retains it as a sign of "respect", and on the other hand, he achieves harmony with it through its artificial nature. In the design of the Church of the Wind, Ando deflected the building to preserve the existing hillside. In addition, with a strong sense of horizontal corridors, moderate architectural scale control, and low walls that are slowly inserted into the mound, they maintain a harmonious coexistence with the environment. The cool breeze, gentle slopes, long corridors, and low walls that gently plunge into the mound create a natural and tranquil place spirit for the "Church of the Wind". In the Church of the Winds, devout believers can feel a free-breathing, soothing, and peaceful mood (Liu Ling, 2008).

3. Introduction to the Church of Water and Its Natural Representation

3.1 Introduction to the Church of Water

Located deep in the mountains of Hokkaido, the Church of Water was completed in 1998. The building is composed of simple geometric shapes interspersed with materials such as fair-faced concrete, untreated wood, and steel. The overall framework gives a changeable spatial sequence in the design, giving people a rich sense of space.

This church is made up of two square volumes of different sizes superimposed. The entire building faces a shallow artificial lake formed by the diversion of nearby water sources. An L-shaped sheet wall runs along one side of the lake and surrounds the back of the church. A gentle slope overlooking the lake follows the wall all the way up to the
top of the small volume, enclosed by glass and open to the sky. Four large crosses are placed along the four sides of a square, their cross-sections almost close together.

From here, visitors continue down the dimly lit staircase and into the back of the church. The wall behind the cross can be seen as reflected from the water, while the wall slides completely to the other side, so that the interior of the church is completely open as the surroundings.

3.2 Natural representation

3.2.1 Built by the mountain, with the theme of water, the natural landscape and indoor environment are blended
The Church of Mizu is located on a flat piece of land surrounded by mountains in Hokkaido, with lush woods and winding rivers, and due to its unique environment, Tadao Ando takes natural light and natural water as the theme, skillfully combines people, nature, and architecture, and in terms of architectural environment, functional organization, spatial composition, geometry, lighting, and transportation, Create a modern and sacred church space.

There is a huge glass in front of the church of water, and when the glass is opened, the indoor and outdoor spaces are interconnected, the church is integrated with the natural environment, and the natural landscape is skillfully integrated into the interior. In front of the church is a square pool, showing the airflow and wind movement on the surface of the water. The application of a large number of glass makes the church space transparent and dexterous, through the reflection and refraction of light, various rays are skillfully connected together to form a characteristic light and shadow effect, creating a poetic space where the natural landscape and the indoor environment are blended (Li Jia, 2018).

3.2.2 The temporal and spatial sequence of natural elements, simple decoration, natural flow solemnity, and Zen culture
The interior of the Water Church is mainly made of fair-faced concrete, glass, and steel, without any additional decoration. Inside, four crosses stand under the dome of seats, and the light of the blue sky shines through the glass on the crosses, creating this scene artificially and naturally. Ando believes that too much interior decoration will affect communication, and simple, elegant interior design can make people’s spirits more concentrated. Time and space are the main manifestations of natural elements in the third and fourth dimensions, and the design of the four-level spatial sequence reflects Ando’s solemnity and Zen devotion to Japanese religious rites, making Japan’s architectural expression more abstract, and the detail-oriented design approach has influenced generations of designers (Zhang Ruiying, Sun Shengnan, & Zhao Linhui, 2021).

3.2.3 The clever use of natural light creates a "light-dark-light" natural lighting experience
The use of light is a major feature of the Church of Water. The use of a large amount of glass above the church, such as the glass square box and the roof of the main sacrificial room, allows for the creation of good light and shadow effects only through the natural light room. Due to the large number of glass applications, the glass square box and the main sacrificial room are abundant in light and become the "bright" part of the whole church. A fully enclosed arc passage needs to be passed before entering the main sacrificial chamber, which is the "dark" part of the building. Therefore, people experience the ups and downs of "light-dark-light" in the process of entering the main sacrificial room from the entrance of the glass square box, which reflects Ando’s deep understanding of the relationship between natural light and light and dark and his superb skills in controlling light.

3.2.4 The cross erected in the water and the slowly opened cross steel door blend in with the depth of nature
The cross is a natural and not rigid element of church architecture, and Ando creatively erected the cross in the center of the outdoor pool, using crosses, pools, and simple lines to separate the sky, earth, gods, and the world. When the glass on the wall of the church is opened, the sparkling blue of the water surface sets off the glass, and people communicate with nature directly through the open glass surface, the cool wind blows in the face, and the sound of water sounds, and the huge cross in the pool stands in the center of vision, full of solemn and natural colors. The naturally saturated light also makes people feel ecological harmony and the high unity between man and nature.

3.2.5 Regional beauty combined with localization and architectural natural beauty
As one of the representatives of modern architecture, the Water Chapel not only has the structural beauty of geometric figures but also shows the regional beauty of the combination of architecture and local Japanese culture. With the theme of "being friendly with nature", Ando actively explores the relationship between architecture and the environment, and insists on harmonious coexistence between man and nature, forming his unique architectural language art.
4. Introduction to the Church of Light and Its Natural Representation

4.1 Introduction to the Church of Light

The Church of Light is located on the edge of a residential area in Kita-Kasugagaoka, Ibaraki City, Japan. Design began in 1987 and was completed in April 1989. It adopts a reinforced concrete structure and covers an area of 113 square meters. The starting point of the design of this chapel is the direction of the sun and the position of a nearby church. The church consists of a rectangular volume inserted by a wall at an angle of 15 degrees, thus forming a chapel and a triangular space, entering the building through an opening in the sloping wall, and then turning 180 degrees to face the chapel. The entire ground falls from the back all the way to the altar, behind which is a wall pierced by horizontal and vertical openings and forming a cross. The floor and chairs are made of low-cost wood planks used to build scaffolding, and this rough texture emphasizes the simplicity and authenticity of the space construction.

4.2 Natural representation

4.2.1 Arrange the orientation of the building according to the orientation of the sun, and create a "cross of light" with natural light

The architectural arrangement of the Church of Light was determined by combining the orientation of the sun and the location of the original church. Solid concrete walls enclose the absolutely dark space, the walls are divided by a cross shape, and sunlight penetrates through the openings and naturally intervenes, forming the famous "cross of light". Due to the intervention of light, natural and invisible materials are instantly transformed from visual effects to spiritual perceptions, and the sacredness and solemnity of space are born.

4.2.2 Combination of movement and stillness, respect for human nature, people-oriented

In nature, movement and rest are the two basic states of human existence. The Church of Light adopts a plain concrete wall inserted at an angle, which not only divides the space, but also conceals the priest's residence in the existing inner courtyard, isolating the noise from the outside world, and realizing the perfect combination of movement and static.

In Tadao Ando's design, respect for humanity and putting people first are the first priority. Whether it is light, water, or materials, he will emphasize the feeling that space brings to people. In the Church of Light, the relationship between the seat of the believer and the position of the altar is the divine stroke of his design concept. Tadao Ando mentioned in a lecture at Hunan University: "In fact, no one understands the Church of Light, many people say that the cross-shaped light is very beautiful, I care about the equality of everyone, in the Vatican, the church is high, the priest stands higher than the audience, and I hope that the priest and the audience in the Church of Light are equal, in the Church of Light, the steps are down so that the priest stands as tall as the seated audience so that the psychology of inequality is eliminated, which is the essence of the Church of Light" (Mr Allen, 2015).

5. Conclusions and Recommendations

Tadao Ando, who is deeply rooted in Eastern philosophy, integrates Japanese culture with nature, respects nature, and has a unique way of expressing and understanding nature. He used simple concrete, green trees, water light, mountain wind, glass, and steel frames to create a series of masterpieces. At the same time, it pays attention to the experience and emotional communication between people and buildings in the space and creates an emotional space for people. As an oriental nation, Japan has better handled the relationship between the local culture and foreign culture, and at the same time carried forward the excellent architectural style and architectural culture of the nation, and embarked on an architectural road with Japanese characteristics.

Based on the above analysis of the characterization of the natural elements of Tadao Ando's "Church Trilogy" in church architecture, how to combine natural elements with Chinese local culture under the influence of international architectural trends is a question that planners and architects of the beautiful countryside should think deeply about.

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