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# **The Use of Natural Light and Color in Meditation Spaces**

-- An application in a pavilion in  
China

2020-2021

MASTER'S DEGREE IN ADVANCED STUDIES IN  
DESIGN-BARCELONA(MBDESIGN) CONTEMPORARY  
DESIGN

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## **Abstract:**

This paper is an exploration of meditation and architectural design methodology, based on the author's critique of the crisis of materialism and pragmatism in contemporary Chinese architecture. Starting from the theories of art, aesthetics, psychology, philosophy and other related "architecture and spatial context" and combining with data analysis, this paper designs a meditative space to guide people's thinking and summarizes a theory of architectural design.

First of all, the author argues the current state of the material crisis in contemporary Chinese architecture and draws out the problem to start thinking about solutions. Then by vertically comparing ancient China and showing case studies, it is argued that light plays an important role in the creation of spatial moods. Preliminary design are proposed through field research combined with the influence of light on people, architectural space and context in the previous paper. Then the author argues that color diversity plays an important role in the creation of spatial mood by comparing European countries (Spain) with case studies, and then the author makes a questionnaire survey and analyzes data in order to find the effect of different colors on human emotions. Finally, through the field research on the color of light inside the space, combined with the influence of light and color on people, architectural space and mood in the previous article, the author proposes the final design.

**Keywords:** meditation, space, natural light, color

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## 绪论：

本文是一篇关于冥想与建筑设计方法论的探索，是基于作者对当代中国建筑物质主义危机和实用主义的批判。本文从艺术、美学、心理学、哲学等相关“建筑、空间意境”的理论出发并结合问卷调查和数据分析，设计一个引导人们思考的冥想空间，并由此总结一套建筑设计理论。

首先作者论证了当代中国建筑的物质危机现状，并引出问题开始思考解决方法。然后通过纵向对比中国古代并展示案例研究，论证了光在空间意境的营造上起到重要作用。通过实地调研考察结合前文中光对人、建筑空间和意境的影响提出了初步设计方案。然后作者通过横向对比欧洲国家（西班牙）并结合案例研究，论证了色彩多元化在空间意境的营造上起到重要作用，由此作者为了找到不同色彩对人的情绪的影响做了问卷调查并进行了数据分析。最后作者针对空间内部光的色彩的实地调研，结合前文中光和色彩对人、建筑空间和意境的影响提出了最终设计方案。

关键词：冥想、空间、自然光、色彩、思考

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## Acknowledgement:

I express my warm thanks to Prof. Josep Maria Fort Mir for his support and guidance. He steered me in the right direction whenever I needed it.

I am grateful to my Parents, and boyfriend who have provided me through moral and emotional support in my life.

And finally, last but by no means least, also to everyone in MBDesign, it was great with all of you during one year.

Thanks for all your encouragement!

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## **Chapter 1.**

### **Introduction**

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J. Lobell said in BETWEEN SILENCE AND LIGHT:  
*“Kahn believes that great architecture begins with an unmeasurable comprehension, and then uses measurable tools to build it. When the building is complicated, it leads us back to the unmeasurable comprehension.”*(Lobell 1979) This paper is based on the history of China's development from modern times to modern times, especially the need to look for "fresh examples" of construction in the process of rapid urbanization under the situation of reform and opening up in the past forty years, we can



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easily see some strange phenomena in our lives. Some of them are designed to meet the needs of China's large user community, others are designed to simply be new and different, but all have one thing in common: the goal of attracting attention by driving economic development. This has led to a crisis of more or less materialism and pragmatism in the architectural design of most cities in modern Chinese society.

**Economic Materialism:** Economic Materialism is a term used in social ethics. It refers to the theoretical viewpoint and ideology that takes material life as the first and central point of life, emphasizes the extreme importance of material interests, advocates devotion to material enjoyment, and judges good and evil by the material means of life. Materialism is most closely related to economism, extreme utilitarianism and hedonism, all of which by their nature sever the intrinsic connection between material interests and other things and make the mistake of one-sidedly exaggerating the functions and roles of material or material interests. Materialism ignores or even rejects the value of spiritual culture and morality and ethics, believing that compared to material or material interests, spiritual culture and ethics are completely superfluous, useless, or even harmful, and that the development of spiritual civilization and moral justice in society is a huge waste or destruction of social wealth. Materialism is a kind of pure economicism, and its main manifestation in ethics and morality is often to deny the inherent function and relative independence of ethics and morality, and to recognize only the morality of material or material interests.

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**Pragmatism:** is a philosophical tradition that considers words and thought as tools and instruments for prediction, problem solving, and action, and rejects the idea that the function of thought is to describe, represent, or mirror reality. Pragmatists contend that most philosophical topics—such as the nature of knowledge, language, concepts, meaning, belief, and science—are all best viewed in terms of their practical uses and successes.

As Du Xiaodong said in his article *The Aesthetic Lack of Contemporary Chinese Urban Architecture*, "In the past decade, a large number of buildings have been built in Chinese cities, however, if we look carefully, we will find that there are not many successful buildings among them. There are some common problems in urban architecture, which leads to monotonous urban landscape, single architectural design approach, lack of characteristics, many urban landscape is the same."<sup>1</sup> (杜晓东 2009) Such a status quo is undoubtedly not good for the development of modern architectural design in China, and to a certain extent has a bad influence on the attitude of Chinese people towards life. For example, in Shenzhen, Guangdong Province, one of the fastest growing and most advanced cities in China, there are almost only shopping malls, office buildings and residential areas where people come and go in a hurry, seemingly only to work, study and create value all day long. There are many examples around me, and China even holds an annual competition for the "Top 10 Ugliest Buildings in the Country". Here is an example of the ninth ugliest building in the world, Shenyang Fangyuan Building, selected by CNN's Life Travel website in 2012.

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杜晓东 (2009). "当代中国城市建筑的审美缺失——对建筑风格“复制”的反思." 长春工业大学学报 (社会科学版).

### 1.1 An example of economical expression: Shenyang Fangyuan Building

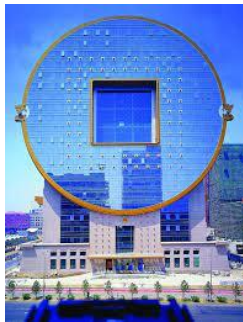


Fig 1: Shenyang Fangyuan Building ; Resource: 人在旅途

Fig 2: Old Chinese coin; Resource: GETIT01.COM

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Shenyang Fangyuan Building (Fig1) is a building area of 48,000 square meters, a building height of 99.75 meters, and a total of 24 floors. It is a professional 5A international Grade A office building integrating international finance, trade, business negotiation and office. Whether it is the external image of the building on the outer circle and the inner side, or the outline of the entire building, it is too much like a huge ancient coin (Fig2).

Usually office buildings are office spaces, places where people work and create value. Although such use is closely related to money, the direct adoption of the shape of ancient Chinese coins as the exterior design of the building attracts attention while bringing down the aesthetic level of the whole city.

In a small way, with the rapid development of China's economy, modern Chinese are always in pursuit of a better material life, doing one thing thinking about another. And because the whole society is like this, people don't feel anything wrong, but are pushed along with the tide of society. This society lacks something to remind them to stop and see the world, or to MEDITATE.

Norwegian architect Norberg Schulzn <sup>2</sup>, the originator of place theory, believed that "place" is not simply a jigsaw puzzle of urban forms. For him, "place" is not a simple jigsaw puzzle of urban forms, but a story within each environmental scene. "Place" is an objective reflection of the city, carrying the historical heritage, humanistic weather, production and living behavior of the city, incorporating tangible and intangible human

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activities into it, enabling people to let go of themselves in this space, thus bringing the "place" cohesive function of people to the best. The function of "place" to unite people is maximized. Phenomenology believes that places and buildings are necessary to support human activities, weaving them into an interlocking web of interdependence with objective places and buildings. Urban entities, such as human-built objects and architectural entities, create a medium for people to interact with the natural environment, which further brings out the functions and roles of the site and gives it a special flavor, thus forming a "place". On the one hand, it enables people to interact with the site. People can rely on the sensory system to perform various behavioral activities in the venue, feel the various functions in the venue, and interact with it to experience the feelings brought by the venue. These feelings include the sense of belonging, comfort, excitement, security, etc. People can choose different places to experience according to their feelings, and even bring into play their subjective initiative to transform the venue in order to achieve the experience they need. On the other hand, the place relies on a certain space, which is a real and objective existence, and all the existences in the space form an internal interrelated whole, and these existences include the material itself, the ideology produced by the material, and the color effect emitted. Moreover, architecture means the concretization of the spirit of place, and architectural design is the creation of the site environment again in a meaningful way, thus forming a place.

*2 Christian Norberg Schulz, born in Norway in 1926, graduated from the Higher Institute of Technology in Zurich, Switzerland in 1949 and received his PhD from the Technical University of Trondheim, Norway in 1963. In his view, place is one of the basic elements of the space of*

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*being, and the concept of place and the concept of space as a system of various places is necessary to find a foothold for being, and places must have distinct boundaries or boundary lines.*

## **1.2 An example of meditation space: A Meditation Space in Downtown New York**

Cloud Architects Office designed and built a multi-purpose workspace in downtown New York City that is used primarily for meditation, yoga, and other

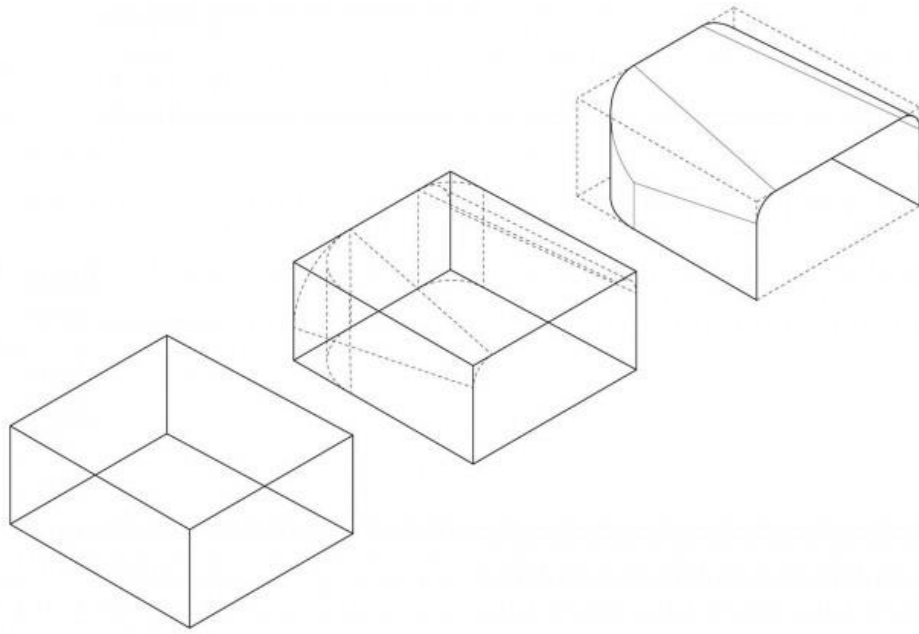
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activities. Meditation entails moving from reality into a free space free of stress and desire; yoga is about focusing on the body to move and breathe. In this regard, the architects decided to create a rounded room that seems to disappear at the end, as if the fog had filled the room and the boundaries had disappeared. The room also needed to have a defined horizon, the absence of which would have been anxiety-inducing. Ultimately, the wall on the entrance side of the room becomes rounded at the junction with the ceiling, creating a sense of warmth.

As you can see from the pictures, the architectural form can be seen as a box with rounded corners. The interior is also very simple, with the architects using pure white latex paint and light-colored wooden floors as the main colors. It is this simple but not boring appearance and fresh and natural colors that can provoke people to think or make them feel their breath in silence.



*Fig3: An example of meditation space; Resource: Clouds Architecture Office*



*Fig4:Shape of the multi-purpose workspace;  
Resource: Clouds Architecture Office*



*Fig5: Meditation space of the multi-purpose workspace  
Resource: Clouds Architecture Office*



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**Meditation** is a practice in which an individual uses techniques such as mindfulness or focusing the mind on a specific object, thought or activity to train attention and awareness and to achieve a state of mental clarity, emotional calm and stability. It is first recorded in the ancient Hindu texts of the Vedas, where meditation plays an important role in the contemplative repertoire of Hinduism and Buddhism. Positive thinking, on the other hand, is the practice of subconsciously pulling your mind back to what you are doing in the present moment. I've had this problem since high school: I often feel like I'm in a trance, and it's very painful because I have a hard time focusing on what I'm doing in the present. My thoughts easily drifted out of the present and into the past or the future. Through questionnaires, I found that many young Chinese people have the same problem as me. In addition to this problem, most young Chinese today also suffer from depression, anxiety and melancholy, which can be alleviated by meditating through the "positive thinking" method.

With this as the social background, this paper uses questionnaires, fieldwork, literature review and data analysis as methods to design a meditation space with the aim of calling people to slow down and feel themselves. It also tries to conclude the methodology of space design that can create a mood and induce people to think about this space.

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## **Chapter 2.**

**Vertical Contrast -  
Returning to a time  
when thinking and light  
were interdependent**

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## 2.1 The meaning of light in the ancient East

床前明月光，疑是地上霜。举头望明月，低头思故乡。——唐，李白《静夜思》

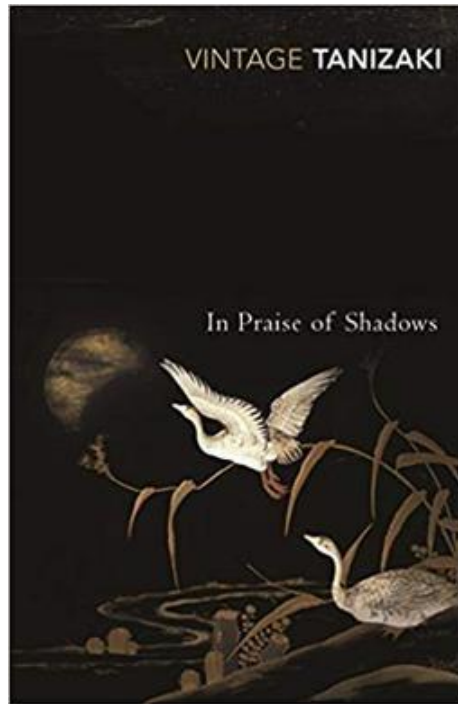
The moonlight in front of the bed is suspected to be the frost on the ground. Raise your head to look at the bright moon, lower your head to think of your hometown.

—— Tang Dynasty, Li Bai, Silent Night Thoughts

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"Thinking" is inherently difficult to define in precise terms or with objective data, so I would like to use an equally obscure poem to describe this concept. It is an old Chinese poem that tells the process of "seeing the moonlight through the window - creating a mood - triggering a person to think". Not only in China, but in fact the whole Eastern culture has the habit of combining space, light and shadow and reflection.

JUNICHIRO TANIZAKI has a similar expression in *IN PRAISE OF SHADOWS*. The essay discusses traditional Japanese aesthetics in contrast with change. Comparisons of light with darkness are used to contrast Western and Asian cultures. The West, in its striving for progress, is presented as continuously searching for light and clarity, while the subtle and subdued forms of oriental art and literature are seen by Tanizaki to represent an appreciation of shadow and subtlety. In addition to contrasting light and dark, Tanizaki further considers the layered tones of various kinds of shadows and their power to reflect low sheen materials like gold embroidery, patina and cloudy crystals. In addition, he distinguishes between the values of gleam and shine. Tanizaki explores in close description the use of space in buildings, lacquerware by candlelight, monastery toilets and women in the dark of a brothel. The essay acts as "a classic description of the collision between the shadows of traditional Japanese interiors and the dazzling light of the modern age".(Tanizaki 2001)



*Fig6: Cover of In Praise of Shadow*

*Resource: Junichino Tanizaki*

As Li Xiaofeng said in his graduation thesis Research on the application of light in the interior space of monumental architecture, "Light is an essential and pure substance, which has a natural connection with the human spirit. Light creates space, light gives logic and soul to space, and light gives emotion to space. Light is extremely plastic, and it can be closely combined with other elements to express profound connotations and create a poetic atmosphere. All great architecture cannot be separated from the presence of light, and this is especially true of monumental architecture that is closely linked to the human spirit." (李晓丰 2015) Light is an indispensable element in creating an atmosphere within an architectural space. Therefore I decided to include the element of natural light in my design

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*Tanizaki, J. i. (2001). In praise of shadows, Random House.*

*Jun'ichirō Tanizaki (谷崎 潤一郎, Tanizaki Jun'ichirō, 24 July 1886 – 30 July 1965) was one of the major writers of modern Japanese literature, and he is perhaps the most popular Japanese novelist after Natsume Sōseki. Some of his works present a shocking world of sexuality and destructive erotic obsessions. Others, less sensational, subtly portray the dynamics of family life in the context of the rapid changes in 20th-century Japanese society. Frequently his stories are narrated in the context of a search for cultural identity in which constructions of the West and Japanese tradition are juxtaposed. From Wikipedia*

李晓丰 (2015). 光在纪念性建筑内部空间中的应用研究, 华南理工大学.

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## **2.2 The effect of light on space and human emotion**

In physics, "light" refers to discontinuous electromagnetic waves that, when they come into contact with an atom, interact with the electrons surrounding the atom and are either absorbed to release energy or reflected to react with our gaze. Light can be understood as "sunlight" and "nothing" and is one of the sources of life on earth. In the Chinese tradition, the unity of heaven and man is emphasized. In the environment of nothingness, each substance is not

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influenced by the outside world and does not interfere with each other, achieving a harmonious atmosphere. Light makes the particles in the air vibrate, cut through the clouds, intersperse and hover in various crevices, touch the surface of everything, and between the infinite collision and rebound, transfer energy to the object, making it visible. Together with the rhythm of light and shadow, in the interweaving of light and dark, light becomes the link between people and the world.

In contemporary society, people have realized that the beauty produced by the interaction of space and light is the most valuable part of architectural space, but in architectural design, the building entity is still the main object of research and discussion, so the "appearance" and "form" of the building are considered more. But space is the essence of architecture, and light gives life to architectural space. Therefore, light is not only a means of lighting, if the role of light is only presented in the light, then the subtle perceptual feelings that the atmosphere of light and shadow can convey in the building will no longer exist, and the beauty of light and shadow will disappear. Therefore, in architectural design, light and shadow are not only the absolute brightness without contrast, but also the emotional space with visual expression characteristics. Therefore, it is very important to explore the connotation and role of light and shadow.





*Fig7: Kimbell Art Museum by Louis Kahn*

*Resource: Christopher Martin*

### **2.2.1 Light and shadow shape the imaginary space**

In architectural space, gaining spatial value is not only reflected in creating use space, architecture needs not only rational but also interwoven sensual design in it. Architecture exists for people, which requires architecture to have more spiritual meaning in addition to its use function. Architectural space provides people with the experience of experiencing the context formed by light and shadow on architecture. The shaping of imaginary space by light and shadow is expressed in the creation of defined space and sacred space. When light acts on an object, it creates a junction line between light and dark, thus defining space, which is imaginative and multidimensional. The defining effect of light creates a division of space, dividing the complete space into different dimensions. On the other hand, light and shadow are inseparable from sacred space, which relies

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to some extent on the mystery and sacredness of light itself. Sacred space is a space of faith, a space where people seek to communicate with the imaginary world, so light is fundamental to the creation of sacred space. In this sense, architecture itself is a space of light, and architecture interacts with light. Through the use of light in architectural design, a unique and artistic architectural space can be achieved. The context produced by light and shadow on architecture is a unique aesthetic vocabulary. The creation of context is a manifestation of the architectural space sublimated through light and shadow. The beauty brought by light and shadow is given a unique meaning by architecture.

### **2.2.2 Light and shadow give human emotion in architectural space**

Architecture impresses people through its spiritual connotation, while light and shadow convey the spirit of architecture. Light and shadow give architectural space emotionality, which is reflected in the use of natural light in architectural design to make the interior space bright and build a warm living environment. In the traditional sense, light and darkness are opposites, and light means hope, while darkness means fear. This is the psychological intuitive response of people to light and darkness, bright light also therefore forms a guiding role in space, in architectural space, people tend to follow the bright place, and avoid walking through the dim space. Therefore, the architectural space should be designed and created in response to the psychological characteristics of people. The use of light to create the atmosphere, the architectural space to convey the emotion of the space to the experience of the space, so

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as to guide the experience of the behavior pattern in the space . Light and shadow can produce an interior atmosphere with a sense of temperature and brightness, which can make people feel the emotion of the space in the building. People enjoy in the space, which is also the fundamental purpose of architectural design, and light and shadow bring more sensual enjoyment. In the design of the residence, the primary requirement is bright light and wide vision. Good lighting is the basic design factor of the building, which is also the direct manifestation of emotional care for people. Taking light and shadow as the main body of the design of architectural space is conducive to shaping a more emotional use of space, allowing people to get more pleasure and enjoyment in the space.

### **2.2.3 Techniques of shaping light and shadow space**

①Compose space with different forms of light in points, lines and surfaces. In the architectural space, the optical dynamics presented by light and shadow should be different, not only in light and dark, but also in shaping the strength of space levels through the role of light, and guiding people's emotions through light. Considering light and shadow as spatial composition elements of point, line and surface, according to different combinations of light to make people's eyes guided, highlighting the various levels of space.

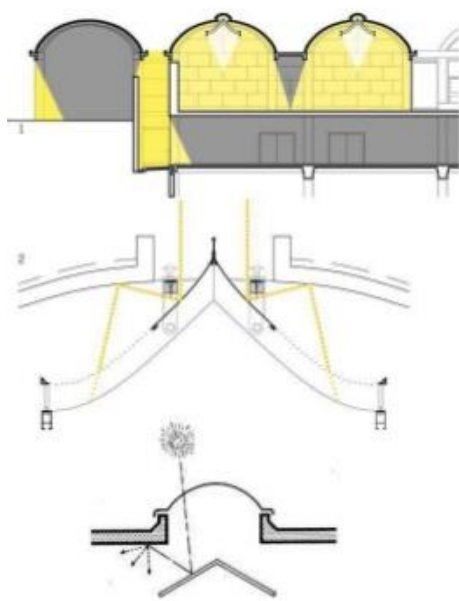
②Shape the space by enhancing the contrast between light and dark. The contrast between dark space and light space creates the spiritual connotation of "dark light" and gives the building connotation and meaning.

③The change of the building form creates light and

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shadow in the internal space. The distance, reality and void of the space can be shown through light and shadow, making the space rhythmical, sequential and rhythmic. Through the convexity and concavity of the building form, the opening and closing, the virtual and real space can produce corresponding changes inside the space, which can make the space produce mood beauty.

④Use the role of light and shadow on the material of space to create space. The mapping and reflection of light on the material will enhance the expressive power of space.

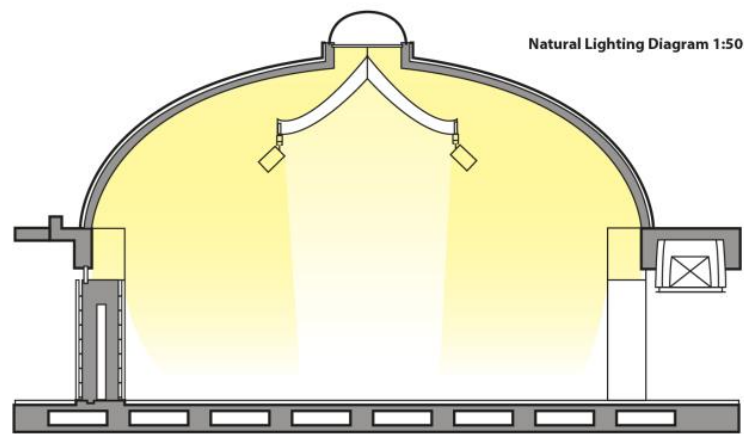
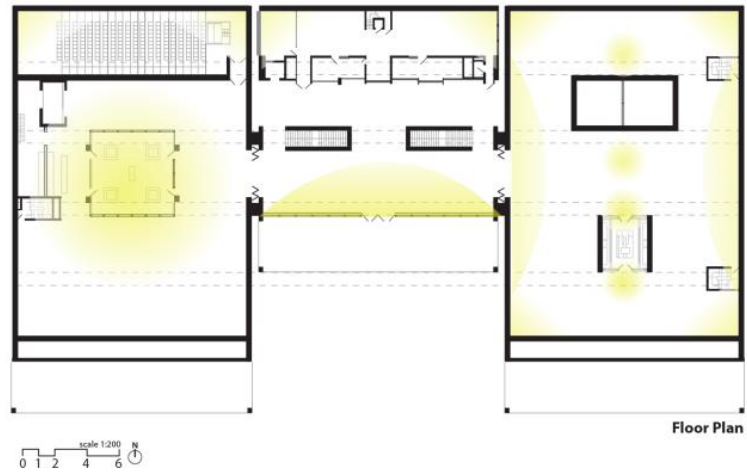


### Kimbell Art Museum

- Anodized aluminum wings are used to reflect the sun light to give a silvery lighted roof
- Glass is used under the aluminum wing
- Shape of the aluminum wing is defined by computer
- it is one of the first architectural elements ever to be designed with computer technology.
- Artificial lighting is provided from the edge of the glass panels

Lighting

*Fig8:Diagram of Kimbell Art Museum*  
*Resource: Jon Pennington*



*Fig9:Diagram of Kimbell Art Museum by Louis Kahn*  
*Resource: Jon Pennington*

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## **Chapter 3.**

# **Field Research on Strategies of Design with Light.**

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### **3.1 Field Research on Tadao Ando's Church of Light Reproduction Exhibition**

Up to now, I have distilled three elements: natural light, emotion and space, and the first name that pops into my mind is Tadao Ando. Looking at the Pritzker Architecture Prize winners who are oriental architects who can use light skillfully, no one would overlook him. Rather than an architect, he is a magician who plays with

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the magic of light. In his works, there is no overly strong architectural form; he values the atmosphere of space more than the manipulation of form, especially the change of light and shadow in space, which is the focus of his architectural magic performance. This magic of light is even more evident in religious architecture, and Tadao Ando's churches are classics in the history of modern architecture, especially the "Church of Light", which is the ultimate work of Tadao Ando. Everyone who enters the church of light will be fascinated by the cross shaped by light, and even moved by the divine light! It fully echoes the biblical account that "God is light".

I was determined to visit the Church of Light in Osaka, Japan, when I decided that "natural light" was the key element. Unfortunately, due to the global pandemic of the COVID-19 virus, I was unable to visit this building, which is a very important reference for me. But happily, the fourth stop of Tadao Ando's world touring architectural exhibition "The Challenge" is in Shanghai, China, and will include a 1:1 spatial installation of the Church of Light and the Church of Water. Almost as soon as I found out this information, I bought a ticket to Shanghai.

On the morning of May 27, after a two-and-a-half-hour flight and an hour-long subway ride, I arrived at the Shanghai Pavilion, the fourth stop of Tadao Ando's 2021 global touring exhibition "The Challenge. Although this pavilion is located in the center of Shanghai, it is divided into a relatively quiet area for literary activities with two cafes and a small square next to it, with the cafes to the southeast, the small square to the southwest, and the Huangpu River to the north. I



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followed the huge sign into the ticket office on the second floor and bought my ticket and went straight up to the second floor - where the Church of Light is located.



*Fig10: Front door of Fosun Foundation*

*Resource: Made by the author*

Since it was a Thursday morning, there were not many visitors. After taking the elevator up to the second floor I entered a huge exhibition hall where drawings and models of some of Tadao Ando's wonderful design works were placed up close to the walls for everyone to see and learn.



*Fig11, Fig12: Tadao Ando's architectural model*

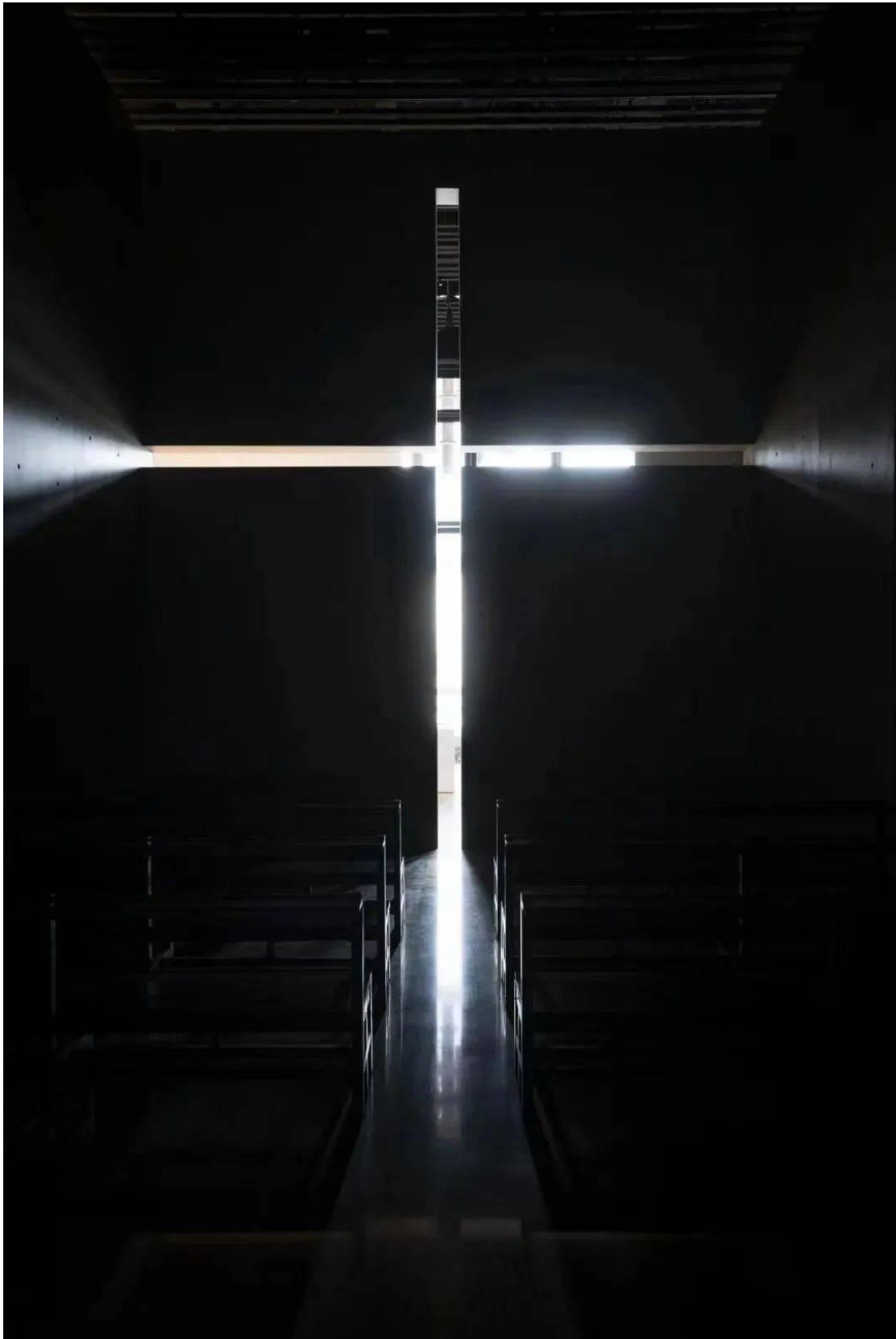
*Resource: Made by the author*

And surrounded by these models in the middle is the 1:1 Church of Light.

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## **Church of Light**

Its entrance was so inconspicuous that I didn't even see it at first. After hurriedly browsing around the exhibition hall on the second floor and not finding the Church of Light, I was a little anxious, so I went back around to the elevator to ask the security staff where the entrance to the Church of Light was. After receiving clear instructions, I again walked quickly to the center of the exhibition hall, and this time I found this inconspicuous entrance. The second I stepped into this space, I found that my steps slowed down very naturally.



*Fig13:1:1 model of Church of Light*  
*Resource: Made by the author*



*Fig14: 1:1 model of Church of Light*

*Resource: Made by the author*

Looking to the right through the entrance, a 1:100 model of the Church of Light was placed in the middle of the room, and further ahead were three rows of pews and the world-famous wall with a hole in the shape of a cross. People walked by me from time to time, but my attention was firmly drawn to the light behind this cross. The completely opaque rectangular plain concrete walls of the interior made the entry of outside light more direct and more noticeable. I sat frozen in the first row of benches for close to half an hour, just sitting there watching the light in the gap and the occasional visitor walking by outside the gap. Although I am not a Christian, I must say I had a rare feeling of sacredness in the face of such a strong image of the cross, and my mind became quieter in this space, as evidenced by the slowing of my steps when I first entered the space.

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In *The Expression of Light in Architectural Space*, Tian Mengqi says, "The Church of Light, designed by Tadao Ando, uses the torn "cross" wall to transmit light and give it a luminous divinity. The overall darkness of the church's square box accentuates the brightness of the light, and people feel the oppression and uneasiness inside when they enter the dark space, and believers feel the light in the dark environment under the contrast of light and extreme darkness, thus stimulating the inner dialogue with God and thinking about life in this pure land. Light itself is invisible, but when given a shape, it creates infinite possibilities. Brightness gathers in people's eyes, as if the particles floating around it move and expand rapidly, generating a centripetal force that draws attention to it." (田盟琪 2019) So I began to think: what were those specific reasons that caused such a change in my state of mind? Perhaps they were what I was looking for on this trip, and I looked at the glowing cross and fell into contemplation. I think the beauty of the whole space is undoubtedly the "cross of light", which is different from the previous religious buildings with crosses and statues of Jesus, but is a natural and simple way of opening the windows. The sunlight comes in through the cross-shaped opening and draws long shadows on the floor and walls. The praying congregation, in the dark, faces the cross as if they see the light of heaven, where the role of light is no longer limited to illumination, but has a symbolic meaning. The strong contrast between light and darkness in the space seems to divide and isolate a quieter place in the human mind.

田盟琪 (2019). "光在建筑空间中的表达." 美与时代(城市版)(02): 20-21.

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## **3.2 Conclusion of designing with shape of light**

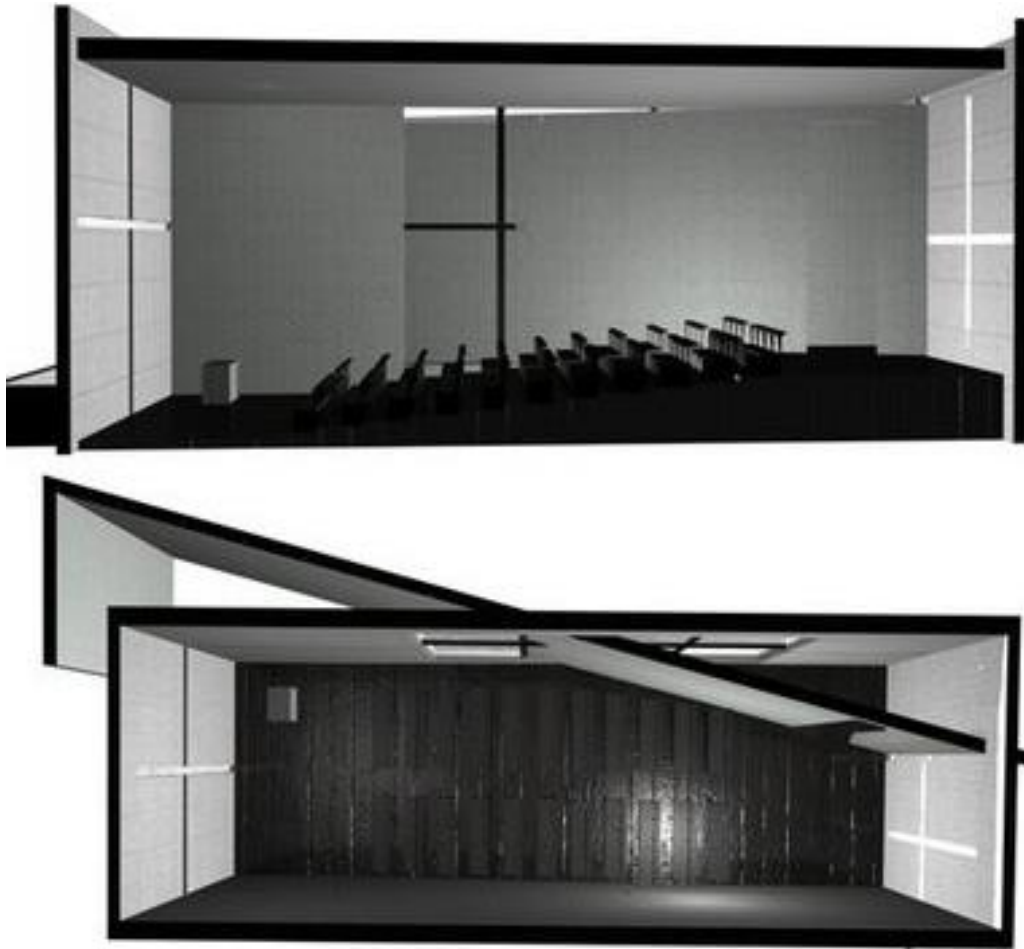
Tadao Ando is not creating architecture, he is using architecture as a tool to create an atmosphere, a feeling, or what we called before, a sense of experience. This is exactly in line with my design philosophy in this case, so I can learn a lot of skills in dealing with the shape of light.

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### **3.2.1 Simple lines of wall opening shapes**

Ando is good at making minimal lines and smaller geometric spaces interact to produce a rare sense of atmosphere in the interior spaces of buildings. Imagine the feeling inside when you see a white body shirt and a heavy jacket with exaggerated patterns. Naturally, the simpler you see, the more calming it is. In the case of the Church of Light, there are only two cross-shaped wall openings and one window in a space of about 113m<sup>2</sup>, but there is another wall outside this window as a shield, so natural light does not enter the room directly from it. This makes the cross openings one of the few direct sources of light in the room, naturally emphasizing the shape of the cross. Since shapes are inevitably emphasized in interior spaces, the lines and shapes of the wall openings should not be too cluttered, but rather simple and clear for a building that is meant to be a place of quiet reflection.





*Fig15: Section view of Church of Light*

*Resource: Andrew Kroll*

### **3.2.2 Ventilation by the gap between the wall and the top**

The ventilation of the Church of Light does not rely on the open window on the wall, but on the gap between the wall and the top, this gap is the light opening too, and the light comes in against the wall, using the contrast between light and shadow, with small direct shadows and large oblique shadows. This contrast can outline the shape of objects, make them three-dimensional, increase the interior decoration, and give people a powerful visual impression. The entire

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church has no windows, and the ventilation mainly relies on the gap between the wall and the top. This gap is also a light-transmitting opening, and the light penetrates close to the wall or the ceiling, so the overall space is visually dim. The enclosure of the concrete walls is used to create a space that creates the feeling of walking into another world.



*Fig16: Detail of Church of Light*

*Resource: Andrew Kroll*

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## **Chapter 4.**

# **Generation of Preliminary Designs**

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## **4.1 Design 0, 1, 2 by Light**

In this design, I hope to use the simplest form as the appearance of this meditation space, because it is not only easy to carry, but also the simpler the thing is, the more it can provoke people to think. Rectangular space is the most common form of space, with a strong single direction, no sense of direction on the facade, is a more stable space, is relatively static and good retention space. Therefore, when designing the meditation space, I chose this kind of rectangular space which brings people a sense of quietness. And the tall building space will give people the feeling of sublime, or grand, or sacred, or

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ascending upward, etc.. The height of the building was set at 6m in order to make the whole building closer to a simple square, so I chose the concept of "BOX" in the beginning.

The scale of the design is briefly described here as a rectangle of 8m in length and 6m in height, set at 8m in length and width due to research and practice that has found that group meditation can have a more positive impact on people and even society than meditation alone. In 1978, a meditation group of 7,000 people who aimed to have a measurable positive impact on the surrounding town undertook a 3-week meditation. The results showed that they changed the collective energy of the city during the meditation period, and overall crime, violence and casualties decreased by an average of 16%. Those who did not meditate or even know they were conducting this experiment were affected to some degree with statistically measurable changes in their behavior. Suicide rates and auto accidents were also reduced. In fact, there was also a 72% reduction in terrorist incidents throughout the period of group meditation.

This discovery has led to a great deal of practice and research, which scientists call the "Maharishi effect". The secret of the global Maharishi effect is known in physics as the "field energy effect" or "resonance effect".

In 1916, the famous Swiss psychologist Jung introduced the concept of "collective consciousness" (also known as "collective unconscious" which refers to the long-term accumulation of universal mental experiences of human beings over generations since primitive societies), and he regarded collective consciousness as

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the deepest expression of intelligence and self-knowledge. The following is his famous quote on the fundamental interconnectedness of all humanity: Our individual psyche is only shallow, like the ripples of the collective psyche's ocean. The powerful factor that changes our lives, that changes the surface of the known world, and that writes history, is the collective psyche. This runs on laws that are entirely different from individual consciousness.

However, this movable temporary installation was not suitable to be designed too large, so I designed the bottom space to accommodate up to 16 people meditating at the same time - 8m\*8m, with a minimum distance of 2m between each two people, which also meets the healthy distance during the new coronavirus epidemic.



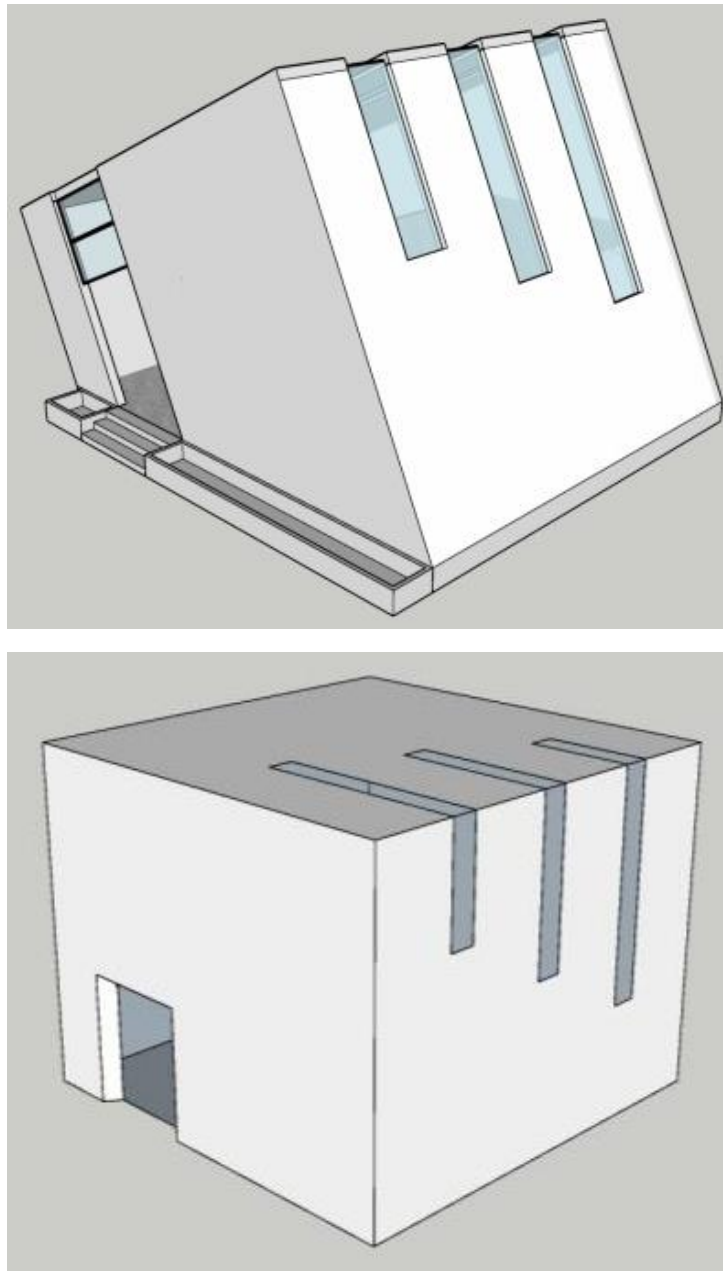
*Fig17: People doing meditation*

*Resource: Made by the author*

When the proportion of architectural space is not in line with the inherent definition of the laws of life, it will not only cause psychological burden to people, but also increase the unsuitability of life; on the contrary, when the proportion of architectural space is in line with human habits, people will feel more comfortable in it. The design of architectural space can consciously use the effect of space ratio on human behavior and

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psychology to achieve the space effect that the designer wants. For example, the large space inside the palace will make people unconsciously awe of the high imperial power, and the use of large building space will reflect the majesty of the emperor to the fullest. For example, some daily life spaces such as dining room, guest room, bedroom, etc., should be designed according to the ergonomic space ratio to create a friendly and comfortable living space.

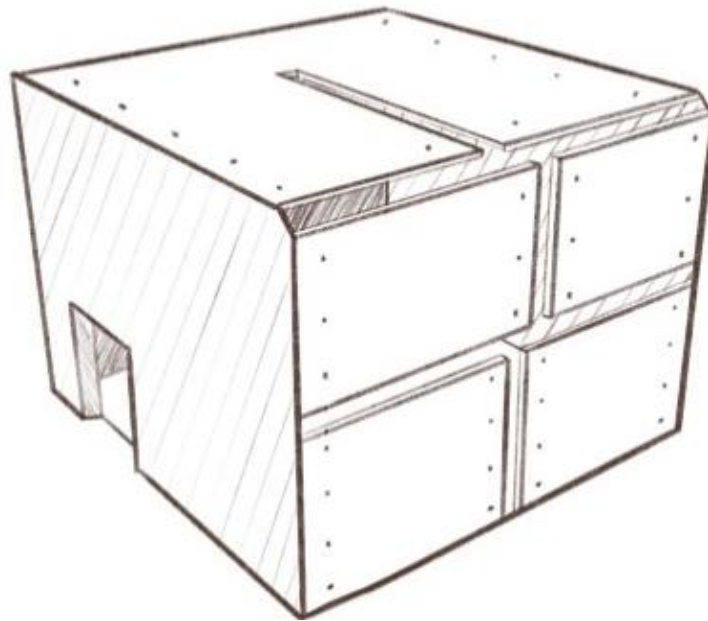


*Fig18, Fig19: Axial diagram of Design 0 & Design 1*

*Resource: Made by the author*

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Based on the accumulation of the first two chapters, I realized that architectural space, especially as a meditative space whose purpose is to be calming less is more, should be dominated by the building itself and by the light and shadow determined by the openings, as the titles of Louis I Kahn's talks at Princeton: 'Architecture: The White Light and the Black Shadow.' In Design0 I wanted to first explore whether the building's form could be changed in a simple BOX, for example, with a Professor Josep said that my idea was good, but I had to explain why I wanted to change the angle so that everyone would accept it. He also said that the most important thing about the design was the light and the interior of the building, while the exterior was secondary. I was enlightened by these words, and at this stage I seemed to have moved away from the core concept to something less important, and came up with Design1, the simplest BOX shape.



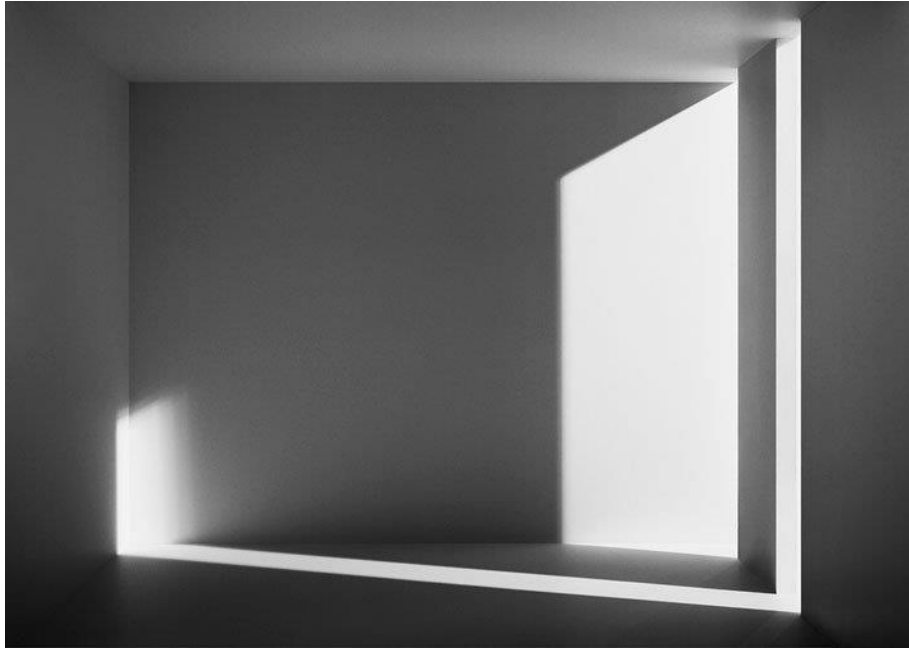
*Fig20: Drawing of Design 2*

*Resource: Made by the author*



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After deciding that the shape would be a rectangle of 8m in length and 6m in height, I started thinking about the window opening, which meant I had to start designing the shape of the light. Meditation spaces are generally atheistic, especially in an atheistic country like China. So the main points I learned and applied in the Church of Light were "the contrast between light and dark in the interior space" and "the use of small openings to increase the dark space and enhance the user's sense of security". The meditation space should not be a suffocating place completely isolated from the outside world, but it should not be so open that the user is disturbed by the outside world either. Many meditation spaces are designed with rounded chamfered interiors to make the user feel "wrapped up and safe" and to meditate on the need to move from reality into a free space free of stress and desire and to focus on the body to breathe. For this I decided to create a room where the end seems to disappear, where the light comes in through a crack in the corner of the space and the border seems to disappear. The room also needed to have a defined horizon, the absence of which would be anxiety-provoking. Ultimately, the junction of the wall and ceiling to the right of the room's entrance becomes a window, creating an entrance of light, which softly handles the corners of the building's interior and creates a certain sense of envelopment. The cross-like opening divides the wall in a regular way, creating a bit of mystery. I did not choose open windows because this is a movable facility, which means it can be quiet or noisy outside, and I wanted the design to be a quiet space no matter what kind of environment it is in.



*Fig21: Light in the room*  
*Resource: COPE/ARNOLD*

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## **Chapter 5.**

### **Horizontal Contrast - the role of color in the design of meditation spaces**

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When I think of meditative spaces in cities, I can't help but think of a feeling I had while studying and traveling in Europe: almost every city in European countries has fine churches in the center, or old town. I have been to Spain, France and Italy and have experienced this. In addition to looking up to God, churches actually count as a space for reflection or meditation. I think maybe we can find a solution to the problem from this aspect.

In China, a building closer in meaning to a church is a temple, but because temples need to meet the needs of worshipers, food and shelter for monks, and because the

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Chinese believe that the closer you are to the sky, the closer you are to the gods, temples are usually built on high mountains. This has led to a lack of "meditation spaces" in Chinese cities.



*Fig22: Foguang Temple is a Buddhist temple located five kilometres from Doucun, Wutai County, Shanxi Province of China*  
*Resource: Wikipedia*

But when it comes to faith, it is certainly inappropriate to crudely cram a "church" into a Chinese city. So I began to think: Apart from the significance of religious beliefs, is there any spatial design method in European churches that is worth studying and learning from? I decided to look for answers from the Gothic church design, which has been so popular in history.

Gothic art is the medieval art of the 13th to 15th centuries, the result of the prosperous development of feudal cities in Western Europe, and the peak of medieval art in Europe. The construction of Gothic churches flourished, and the city churches competed and compared with each other in terms of the scale of

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their design, the height of their buildings, and the beauty of their architecture. The architectural forms varied from church to church, but the one element that was always present was the stained glass windows. More and more people are also paying attention to the art of stained glass windows in churches, and even to the charm of the language of color. People associate it with modern artistic life, calling this mysterious decorative color a wonder in the history of world art. In China, for architecture, transparent colorless glass is used a lot, but in some western countries, stained glass is used frequently, whether for church or for the interior decoration of one's own home.







*Fig23, Fig24: Notre-Dame de Paris*

*Resource: Wikipedia*

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## **5.1 Overview of the development of colored glass**

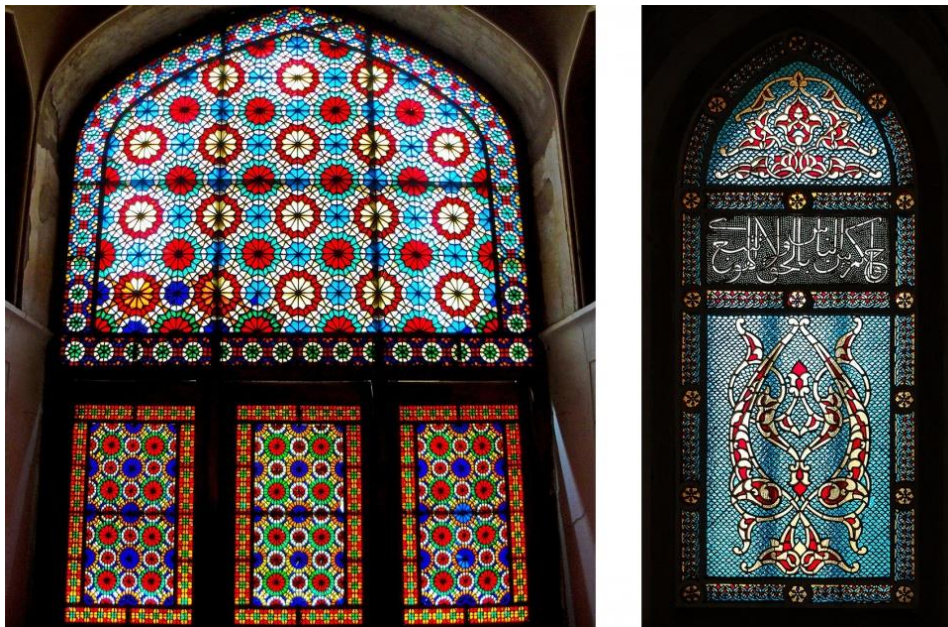
Western religions have a preference for glass for reasons. Light was considered a symbol of God's manifestation in medieval religion, and it was a symbol of beauty. Light through stained glass, bringing changing colors, rendering a sacred atmosphere, as if seeing a brilliant and glorious heaven. At the same time, glass has also



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experienced the characteristics of the baptism of fire, it originally came from the lowly worthless material sand and stone green after grilling but became a transparent and noble substance, all these make the glass with a poetic and symbolic function of religion and harmony. Therefore, it can be said that religious art has explored the artistic charm of glass. Stained glass painting came into being at this time, and also developed to its zenith at this time.

Stained glass, or colored inlaid glass, has a long history and has existed in ancient times. The earliest stained glass is seen in the windows of Gothic church buildings. Gothic style of architectural art originated in the second half of the 11th century in France, in the 11th to 12th century AD period, the glass area is small, low transparency, stained glass windows in blue tones, the color is heavy and dark.

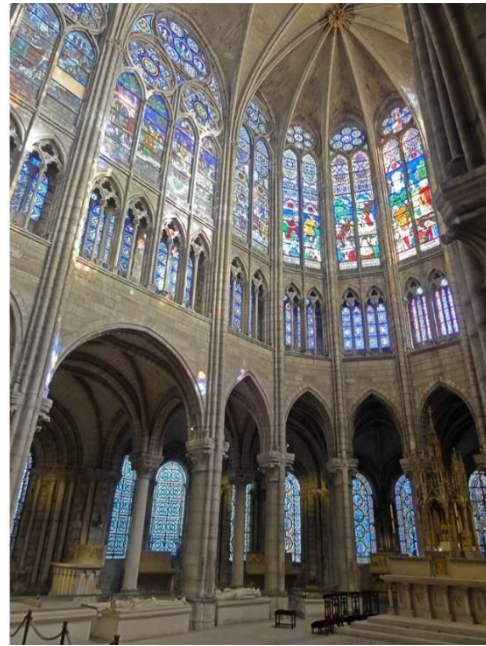


*Fig25: Stained glass in yazd & in a mosque in the Old City of Jerusalem*

*Resource: gooood.cn*

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It was popular in Europe in the 13th and 15th centuries. The most distinctive features of Gothic architecture are the towering spires, pointed arches, rose windows and stained glass windows with biblical stories. The early stained glass windows were simple single portraits complemented by vivid colors. 12th century windows became larger in size and introduced relatively complex narrative scenes of people.



*Fig26, Fig27: Basilica of Saint Denis*  
*Resource: gooood.cn*

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By the 14th and 15th centuries, Jean Cassin introduced glass painting called silver staining, giving artists a wider range of colors to choose from. This magnificent stained art was originally intended to educate the illiterate masses and illustrate biblical scenes. The art of stained glass window mosaics is one of the wonders of world art history, an art form that developed with the rise of Gothic church art and the prevalence of Christian thought.



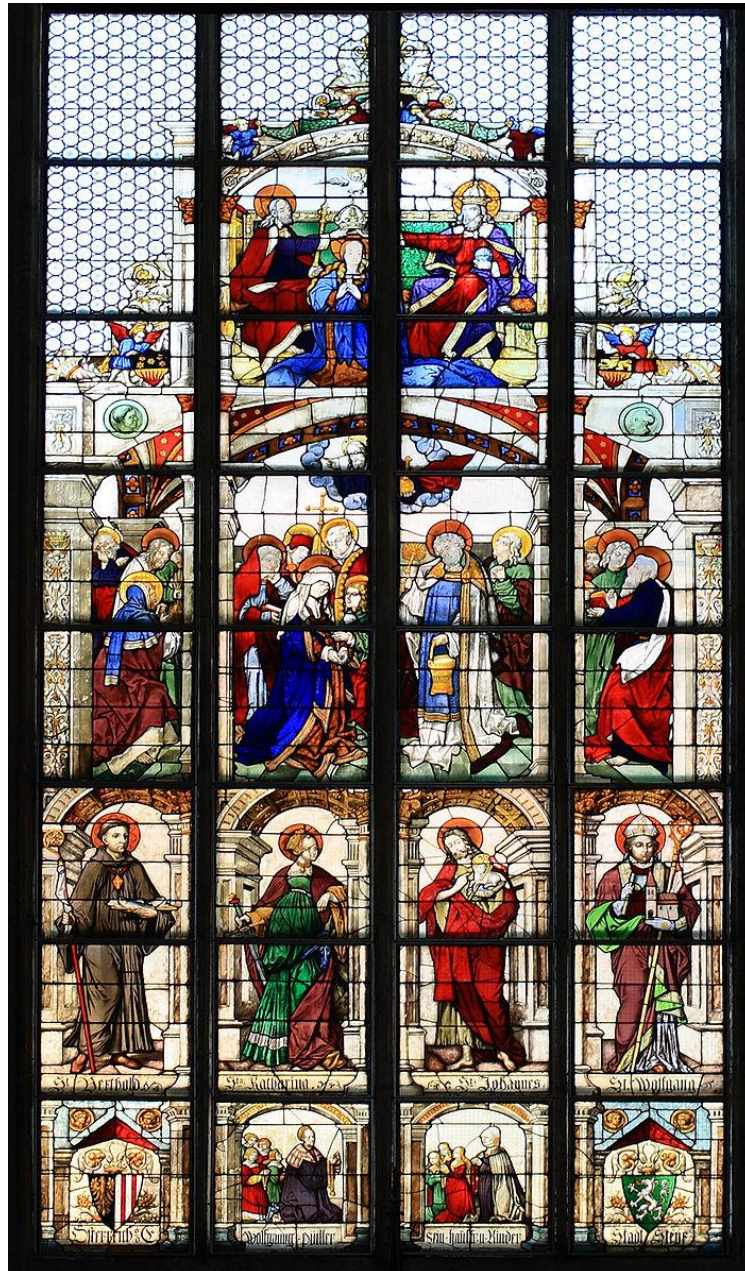


Fig28: The Death and Assumption of the Virgin Mary,  
Church of SS Ägidius and Koloman, Steyr, Austria  
Resource: gooood.cn

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## **5.2 Artistic features of stained glass**

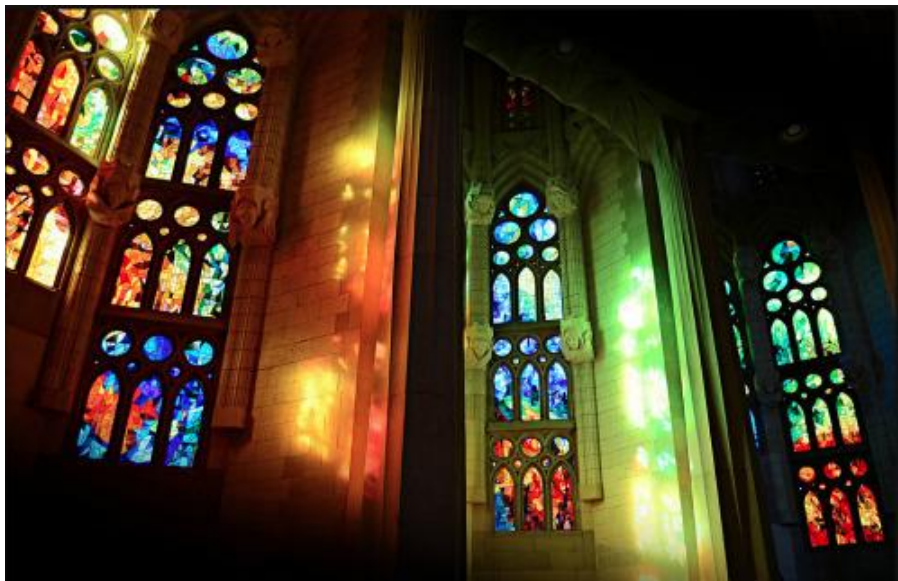
### **Reference. La Sagrada Familia**

The stained glass of the Holy Family Cathedral combines ancient customs with modern aesthetics and techniques, and in my opinion is most worthy of study. For the artistic and aesthetic effects of the interior stained glass windows of the Holy Family Church, I will discuss them separately from the perspectives of the subject matter and style of the decorative patterns, color characteristics, and technical characteristics.

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### 5.2.1 Decorative patterns

The overall shape of the stained glass windows of the Sagrada Familia is dominated by round, oval, pointed arch, rectangular and other contours, and the subject matter of the stained decorative patterns is not dominated by obvious religious scenes and narrative figures, but by the patchwork of abstract geometric color blocks. The use of a large number of bright translucent colors and two-dimensional irregular geometric patterns became the main decorative means of the stained glass windows of the Sagrada Familia, so the overall presentation of the abstract and bold decorative style.



*Fig29: Stained glass of La Sagrada Familia*

*Resource: Stainedglassfoerver.tumblr*

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### 5.2.2 Color characteristics

The color language of stained glass windows in churches began to emerge with the rise and development of Gothic architectural art in the Middle Ages in Europe and the influence of religious thought. The interior decoration of most churches is mainly based on the combination of stained glass windows and light effects, and the colors of the windows are mainly red and blue, with blue symbolizing the kingdom of heaven and red symbolizing the blood of Christians. In addition to red and blue, yellow and green also account for a large part of the interior decoration of the stained glass windows of Holy Family Church. And after my personal field observation, I found that these four thematic hues are not directly divided from each other, but interspersed and integrated with each other. The color blocks and color blocks are not involved with each other, and the color tones are uniform from a distance, while the colors are rich and give changes when viewed up close. All these, together with the indispensable natural light, make the colors and shadows complement each other and match seamlessly, thus making the overall visual effect inside the church colorful and fascinating. This makes one understand why Taine in *Philosophy of Art* has such a passionate description, "The light put in from the stained glass turns into the color of blood red, into the flamboyant color of purple quartz in topaz, into a mysterious flame of pearlescent light, the illumination of the wondrous art, as if opening to the windows of heaven."(Taine 1873)

*Taine, H. (1873). The philosophy of art, Holt & Williams.*

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### 5.2.3 Technical characteristics

The most common stained glass inlay techniques in churches can be divided into two types, one is stained glass and the other is stained glass. The biggest difference between the two is the word "painting". Obviously, the "painting", meaning "painting, hand-painted". It also refers to painting. The oldest known complete stained glass window in existence, the window of Augsburg Cathedral in Germany, dates back to the early 12th century AD and is now over 900 years old. The Sagrada Familia stained glass windows highlighted in this article are mainly of the former type. The process of making this stained glass inlay is very complex: first, a sketch of a smaller size than the actual window is designed, confirmed, further modified and adjusted, and then a full-size drawing, or base, is drawn to show the hue, shape, and position of the lead strip used to hold the glass block in place. The pattern is then taken from the base drawing, placed on colored window glass or white glass, and the pattern is cut. Next, the pattern is drawn on a portion of the glass if needed, and then fired in a kiln so that the pattern drawn with the special color is integrated into the glass backing. The glass is then embedded in the lead strip grooves, followed immediately by welding of the joints. Finally, the glass is mounted to the bars or brackets of the window.

In general, colored inlaid glass has the characteristics of low input cost, energy-saving and time-saving, rapid production, etc., and can be freely designed, making the pattern colorful and varied.



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## **Chapter 6.**

# **The Effect of Different Colors on Human Emotions**

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After I decided to make color the second most important element of this design, the next question I had to consider was what kind of color to choose. It is well known that different colors have different effects on human emotions, but it is difficult to quantify this difference scientifically and difficult to describe. After realizing this problem, the first thing I did was to look for the relationship between color and human emotions in the major scientific literature forums, and there were indeed many rewards.

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As it says in *Color and emotion: effects of hue, saturation, and brightness* “Previous studies on emotional effects of color often failed to control all the three perceptual dimensions of color: hue, saturation, and brightness. ...These effects are not only determined by the hue of a color, as is often assumed, but by all the three color dimensions as well as their interactions.”(Wilms and Oberfeld 2018) This article looks at the relationship between the three primary colors and the hue, saturation and brightness of colors and the physiological indicators of the human body (such as heart rate).

Another example is in *Analysis of Cross-Cultural Color Emotion*, The authors concluded after expanding the range of subjects to a sample of 440 from seven different regions “For Swedes, it seems that hue is more important, ... Chroma is more important for observers from Hong Kong and Italy, whereas hue is a decisive factor for those from Japan, Taiwan, Sweden, and Spain. For Thai people, chroma and hue are almost of the same importance.”(Gao, Xin et al. 2007)

As stated in *Relationship between color and emotion: a study of college students*, “it seems that a color-related emotion is highly dependent on personal preference and one's past experience with that particular color.” (Kaya and Epps 2004) Even though there have been many investigations and studies on the relationship between color and human emotions in the scientific and artistic communities today, because color emotions are influenced by the age, gender, and ethnic and cultural backgrounds of the subjects, only targeted investigations in a specific region and age group, or even after identifying specific religious beliefs and social

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backgrounds, can yield reliable information on the relationship between color and emotions in that region. The relationship between color and emotion in the region. Therefore, I decided not to refer exclusively to existing studies, but to develop my own questionnaire and re-experiment the results.

*Wilms, L. and D. Oberfeld (2018). "Color and emotion: effects of hue, saturation, and brightness." Psychol Res 82(5): 896-914.*

*Gao, X.-P., et al. (2007). "Analysis of cross-cultural color emotion." Color Research & Application 32(3): 223-229.*

*Kaya, N. and H. H. Epps (2004). "Relationship between color and emotion: A study of college students." College student journal 38(3): 396-405.*

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## **6.1 Experimental procedure and method. A survey**

### **Method:**

### **Participants**

As the main question of this paper is to investigate the solution to the problem of stagnation in the minds of

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urban workers due to the rapid development of modern Chinese society through the design of a meditation space from the perspective of architectural design, I chose 70 young people aged 18-35 working in Shenzhen, China, with a male to female ratio of 1:1.

## **Stimuli**

Each person was asked to take the Ishihara Color Blindness Test. (The Ishihara test is a color perception test for red-green color deficiencies, the first in a class of successful color vision tests called pseudo-isochromatic plates ("PIP"). It was named after its designer, Shinobu Ishihara, a professor at the University of Tokyo, who first published his tests in 1917. From:

[https://en.wikipedia.org/wiki/Ishihara\\_test](https://en.wikipedia.org/wiki/Ishihara_test)). To ensure that none of the participants had color vision defects, Ten fully saturated hues were selected from the Menzel color system: red, yellow, green, blue, violet, yellow-red, green-yellow, blue-green, purple-blue and red-violet. The Menzel symbols are shown in Table N. The color samples were prepared by using FreeHand 10.0 software, in which the Menzel color symbols are available in this computer program.

## **Procedure**

Participants were tested individually while sitting in an office space in front of a personal computer. Each color sample (10 Cm\_12 Cm) was displayed in the center of the computer screen, one at a time, on a neutral gray background, Munsell N/7. The order of presentation of the color samples was randomized among the

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participants. Participants were asked /"What is your emotional response to this color? How does this color make you feel? /". These questions were adapted from Boyatzis and Varghese (1994) and Hemphill (1996). Their answers were recorded on an observation sheet. Each experiment lasted approximately 5 minutes.

*Boyatzis, C. J., & Varghese, R. (1994). Children's emotional associations with colors. Journal of Genetic Psychology, 155, 77-85.*

*Hemphill, M. (1996). A note on adults' color-emotion associations. Journal of Genetic Psychology, 157, 275-281.*

#### Munsell Notations for Color Samples

Color	Hue	Value/Chroma
Red	5R	5/14
Yellow	7.5Y	9/10
Green	2.5G	5/10
Blue	10B	6/10
Purple	5P	5/10
Yellow-red	5YR	7/12
Green-yellow	2.5GY	8/10
Blue-green	5BG	7/8
Purple-blue	7.5PB	5/12
Red-purple	10RP	4/12

## Results

The main purpose of this study was to examine color-emotion associations in young adults aged 18-35 years working in Shenzhen, China (project address) with reference to color stimuli in the standard Menzel color system. The study was based on the Menzel color system and used five primary colors (i.e., red, yellow, green, blue, and violet) in addition to five intermediate

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colors (i.e., yellow-red, green-yellow, blue-green, violet-blue, and red-violet).

Data on the subjects' emotional categories are summarized in Table 3, based on their choices. Overall, the vast majority of subjects (90%) felt excited when they saw red, and a small percentage (30%) felt scared. The majority of subjects (75.7%) felt excited when they saw yellow. Nearly half of the subjects (42.4% / 55.7%) felt calm and comfortable when they saw green. The vast majority (84.3% / 80.5%) felt calm and comfortable when they saw blue. In fact, this finding has some similarities with Saito's findings in his 1996 article *Comparative Studies on Color Preference in Japan and Other Asian Regions, with Special Emphasis on the Preference for White*. He said the color green is refreshing and very beautiful. The reasons for the positive response to green suggest that it is associated with nature, grass and trees, and is reminiscent of outdoor activities and spring. And the article states that "some Asian subjects who preferred green expressed positive feelings about green because of its association with the image of the forest. Blue evoked a large number of positive emotional responses, including feelings of relaxation and calm, happiness, comfort, peace and hope, and few negative responses, including sadness and depression. The reason blue triggers positive emotions appears to be because many participants associate blue with the ocean, beach, water or sky, which produces a relaxing and calming effect. Blue evokes negative emotions because it is associated with the night and dark skies and therefore depresses people. One respondent said that blue makes her sad because 'it makes you feel blue'." Interestingly, bright blue is mentioned in this literature published by Saito in



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1996 as the preferred color for almost all Asians, who see blue as positive, fresh, beautiful and bright. This is different from the view that blue represents melancholy in some surveys for Western regions.(Saito 1996)

Saito, M. (1996). "Comparative studies on color preference in Japan and other Asian regions, with special emphasis on the preference for white." *Color Research & Application* 21(1): 35-49.

People are associative creatures, and some of my subjects told me about their associations. A 27-year-old employee of the marketing department of an Internet company in Shenzhen told me, "Blue and green remind me of the sea and the sky, which makes me feel relaxed." Another 24-year-old employee of a real estate company in Shenzhen told me, "Green makes me think of mint and blue makes me think of chewing gum, and they are both very refreshing."

	Excited	Angry	Calm	Comfortable	Fearful	No emotion	Other emotion
Red							
Yellow							
Green							
Blue							
Purple							
Yellow-red							
Green-yellow							
Blue-green							
Purple-blue							
Red-purple							

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	Excited	Angry	Calm	Comfortable	Fearful	No emotion	Other emotion
Red	90%	61.4%			30%	10%	
Yellow	75.7%	12.9%		22.9%		7.1%	
Green	20%	4.29%	41.4%	55.7%	8.6%	8.6%	
Blue			84.3%	80.5%	11.4%	4.3%	
Purple	37.1%	1.4%	2.9%	24.3%	20%	37.1%	Sexy
Yellow-red	52.9%	7.1%		4.3%		10%	
Green-yellow	12.9%		2.9%	10%	4.3%	5.7%	Disgusted
Blue-green	5.7%		22.9%	40%	4.3%	17.1%	Happy
Red-purple	20%	2.9%	10%		1.4%	11.4%	Depressed

## Conclusion:

I am glad I went for this experiment authentically, it allowed me to design my own meditation space for young people in Shenzhen in a more targeted way. Since a meditation space is a place where people need to calm down very much, I decided to settle on blue, green and blue-violet as the main colors in conjunction with this form.

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## **Chapter 7.**

# **Field Research and Generation of Final Designs**

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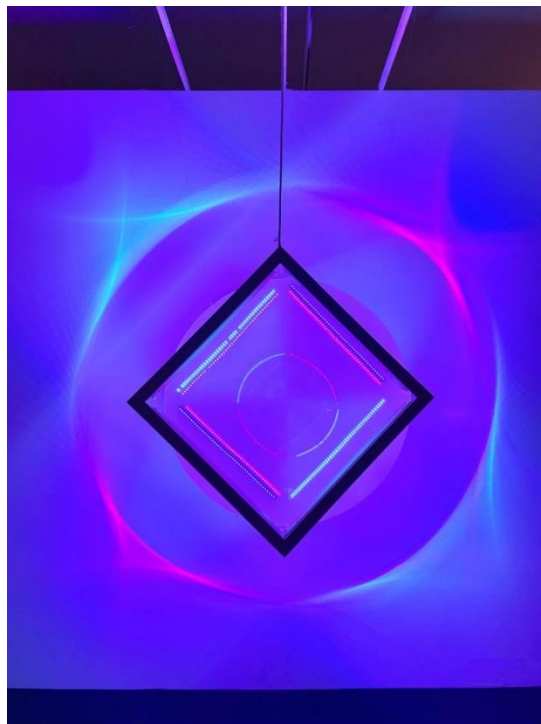
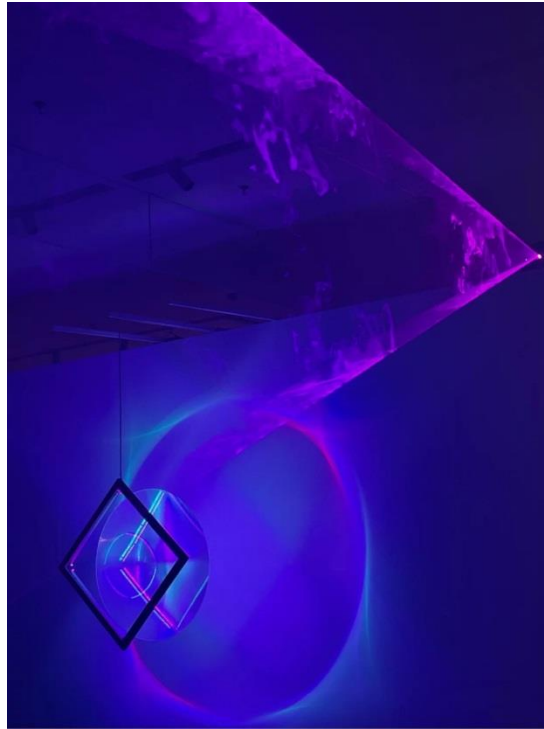
Most Chinese architecture is as "conformist" as most Chinese people, so I had a hard time finding a building in the city that had multiple colors other than black and white and gray to use as a reference for my color scheme. This put me in a quandary, and I had no progress for several days. One day when I was bored playing TIKTOK, I found an exhibition about interior lighting in Shenzhen, called "Between the Different Realms", which showed the effect of colorful interior lighting. This suddenly gave me inspiration! I thought: Although my design element is natural light, artificial light was originally created to simulate natural light. So why can't I use natural light and some special materials to simulate the kind of atmosphere created by artificial light?

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## 7.1 Field research on "Between Otherlands" color light exhibition

I immediately searched for information about this exhibition, which is located in the gallery of the exhibition hall of the Shenzhen Guangming Art Center, about an hour away from my house by subway. Because I didn't want too many tourists to interfere with my experience of the quiet space and taking field photos for my thesis, I got up early on the morning of May 30 and arrived at the Guangming Art Center at exactly 10:00 a.m., just in time for the exhibition.

When I arrived, I found out that "Between Otherlands" is only a small part of this art gallery, which is located on the second floor of the Light Art Center in Gallery A. It is free of charge. Although this gallery is small, it is very well designed. Light needs to be projected on a carrier in order to be seen by the human eye, and one cannot see the light that is still in the air. But the Tyndall effect can show the path of light. In the upper right corner of the picture is an interactive device that creates the Tyndal effect. There is a button on the wall, and when I walked over and turned it on, the nozzle on the wall blasted out a fan-shaped dry ice area at a set angle, and then if the light passed through this area, it would be imaged, showing the real, moving light.



*Fig30, Fig31: Electric light in the room*

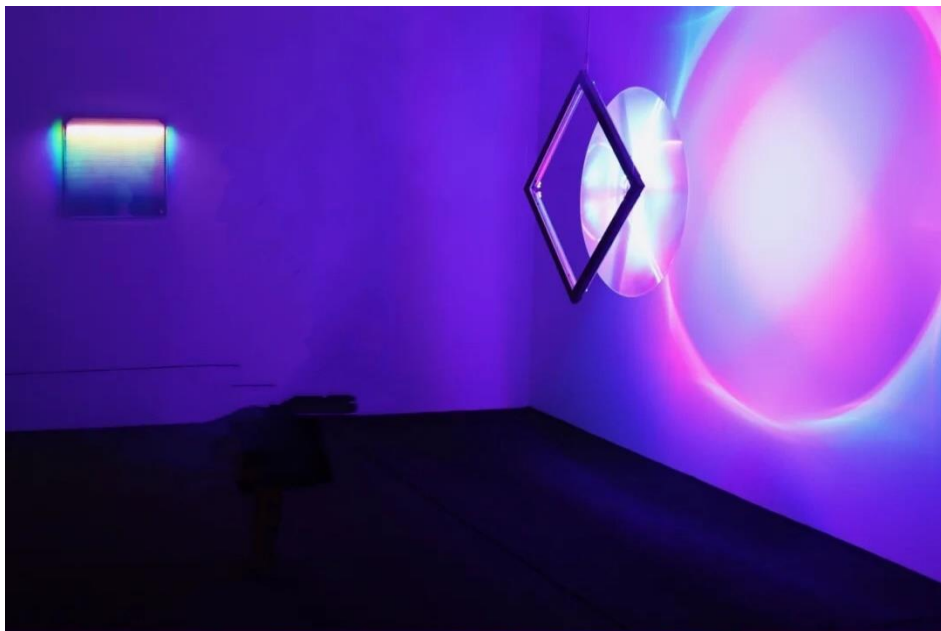
*Resource: Made by the author*

But I was more interested in the circular light projected on the wall. The designer used a suspended box with colored light sources attached to the edges and a circular transparent convex mirror superimposed to present a roughly circular light shadow on the wall with blurred borders mixing multiple colors.

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My feelings when looking at this exhibition are as Aki Ishida said in *Blurred Transparencies in Contemporary Glass Architecture: Material, Culture, and Technology* “The blurred borders of light and shadow are better than clear borders to calm people down and disperse their thoughts. Especially when I turned off the beep of my phone, suggesting to myself that this is a meditation space, I looked at the blue and purple light and even began to think about the meaning of life.”(Ishida 2020)

*Ishida, A. (2020). Blurred Transparencies in Contemporary Glass Architecture: Material, Culture, and Technology, Routledge.*



*Fig32: Electric light in the room*

*Resource: Made by the author*

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## 7.2 Conclusion

Interior colors not only adjust the lack of light, but also affect people's senses and emotions. The warm and cold tones will greatly affect the user experience, affecting the functional division of the interior and the transmission of emotions, so the creation of indoor space and its choice of interior decorative colors have the necessary link, so in the design of the interior environment color will give people a strong visual sensation, so that people's psychology has a great change.



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### **7.2.1 The psychological impact of warm decorative colors on people**

The brighter the color, the more it can stimulate the senses and make people happy. Warm colors, mainly orange, will prompt blood pressure to rise, blood flow to speed up, producing hyperactivity and agitation, making people excited and active, causing changes in human endocrine thus briefly appearing nervous and excited feelings. Take the restaurant as an example, most of the background color of the restaurant will use the color saturation of high color, such as yellow, orange and other bright warm colors, because warm colors will bring a sense of pleasure to the human psyche, giving people a lively and restless feeling. In the interior color selection, warm colors will increase the psychological temperature of people, sweep the indoor environment of the cold, in the indoor environment to enhance the level of human excitement, inspire people's role, the appropriate stimulation can make people's minds become active and creative thinking. However, warm colors are not suitable for environments that require long-term concentration. Because of the high saturation of warm colors, excessive stimulation of the human senses, such as the use of large areas of warm colors, long time in the warm atmosphere, will make people working in it feel uncomfortable, in the restlessness, this feeling of restlessness, will make the psychological interference, increase excitement and restlessness, is not conducive to maintaining attention, reduce efficiency and emotional stability.



*Fig33: Mc Donald's in Canada*

*Resource: Eliza Erskine*

### **7.2.2 The psychological impact of cool decorative colors on people**

In color psychology, cool colors physiologically lower blood pressure, reduce sensory stimulation and calm people, which can effectively offset the impact of depression on people. In the hospital work area, you should use cooler shades, such as blue and green. The use of such colors, because blue, green can make people think of the blue sky, green grass and other things full of vitality, such things will give patients a strong psychological implication function, it is because of the

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close relationship between these colors and people, so the space created by the atmosphere and the changes in the surrounding environment is more in line with the human psyche, this color and the surrounding environment can be effectively neutralized, green, will make people think of green plants, blue will make people think of the sky. The introduction of such colors will add vitality to the interior environment, and to a certain extent eliminate the mitigation of unfavorable factors. In addition, the use of cool colors can also reduce the work pressure of health care workers to a certain extent, making people calm, reduce visual fatigue and focus on work.



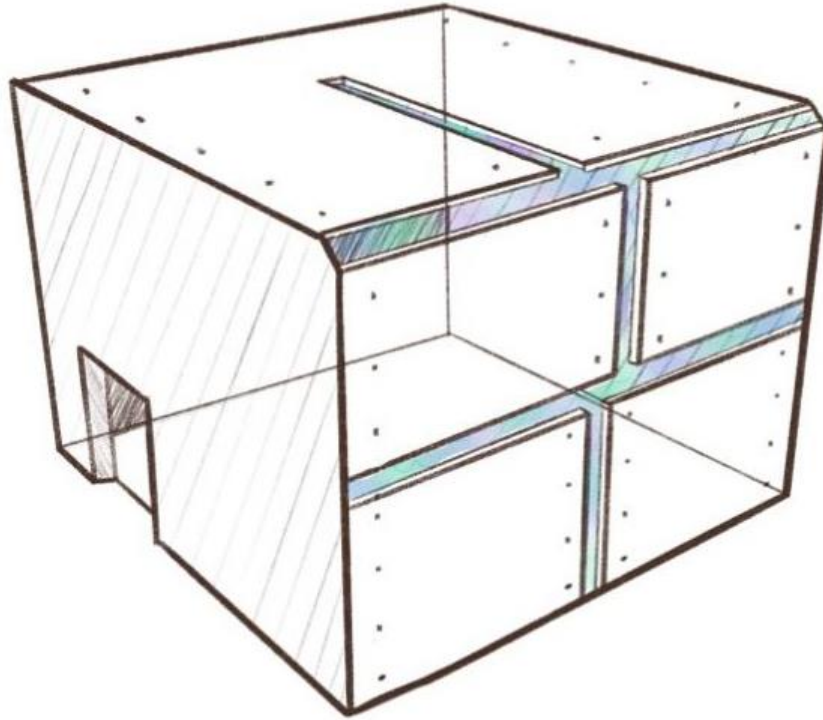
*Fig34: Hospital Emergency Room Interior*

Resource: Ahsan MuGhal

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## 7.3 Final Design

After doing the above-mentioned research and investigation, I decided to continue the design on the basis of Design2. That is, to add stained glass windows, for which I built a 1:500 solid model to simulate the effect of colored light in the interior of the space.



*Fig35: Drawing of Design*

*Resource: Made by the author*



*Fig36: Model of Design*

*Made by the author*

At first I simply imitated the Holy Family Cathedral by stitching together blue and green pieces of glass for the windows, but with

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the actual lighting simulating sunlight, I found that the edges of the color blocks of light and shadow in the interior were too clear. As stated in the book *Salute to Shadows*, mentioned in Chapter 2, the West is represented as constantly searching for light and clarity in its striving for progress, while the subtle and understated forms of Eastern art and literature are seen by Tanizaki as representing an appreciation of shadows and subtlety. So I thought that in learning from the Western churches that use



*Fig37: Shape of interior light of Design*

*Resource: Made by the author*

specific colors of stained glass windows to influence the mood of the users, I should not forget that the actual users of this design are almost entirely Chinese - we appreciate the hazy beauty more.

*Fig37: Made by the author*

So I changed the ordinary glass into water pattern glass, it is a kind of decorative glass, with the help of water bead paint performance method, can be processed into an elegant, new art glass shaped like hot fused glass, like water waves have a rippling and soft feeling. On a sunny day, compared to the violent feeling of "randomly spilling in", water glass comes with a soft light effect. It

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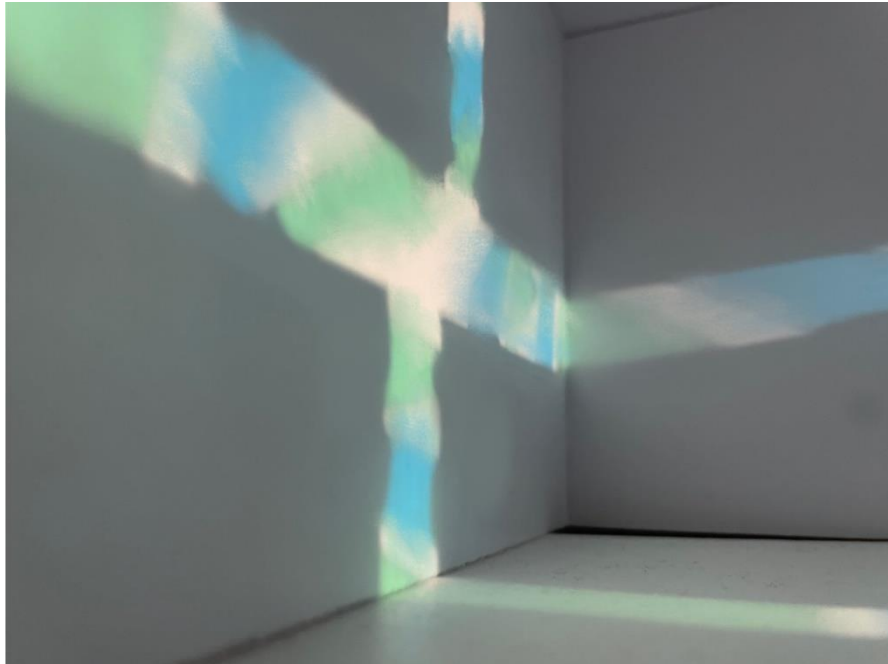
partially blocks the harsh light source, and then filters it into a soft and heavy light feeling, making the environment extremely gentle.



*Fig38:Water Pattern Glass*

*Resource: canaloptique.tumblr*

The interior of the space after changing the glass material is shown in the picture.



*Fig39:Shape of interior light of Design*

*Resource: Made by the author*





*Fig40: Effect picture of Design*

*Resource: Made by the author*





*Fig41: Effect picture of Design*  
*Resource: Made by the author*



*Fig42: Effect picture of Design*  
*Resource: Made by the author*

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# **Chapter 8.**

# **Conclusion**

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In China, only people who studied science in high school can choose architecture in college. This may seem to understand architecture as a discipline full of logic and rationality. It has to be said that there are many architectural design approaches that are indeed rational, but human emotions are emotional. As a vessel to carry people, architectural space should also carry their emotions. In this paper, I argue the effect of natural light and color on human emotion by designing a meditation space and come to the following conclusions.

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- (1) Natural light, whether in ancient or modern times, in the East or in the West, is a factor that provokes human thinking and strengthens human emotions. In addition to the design and selection of functions and materials in architectural spaces, attention should be paid to the application of this element of natural light, which can be achieved through different shapes of openings on the walls.
  
  - (2) It is well known that color can have an impact on human emotions. For example, fast food brand McDonald's store interiors are often decorated with highly saturated colors such as red and yellow, as they can make customers excited and thus dine faster for the next group of customers. It is important to note, however, that people may react emotionally to the same color differently in different regions and cultures. Designers can conduct research based on the population of a specific region and choose more targeted colors to assist in the design.

Of course, in addition to these two elements there are many other factors that can have an impact on people's emotions in architectural spaces, such as smells and sounds, which I have not introduced much here.



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