

MAZU TECHPLE

媽祖科技廟

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MAZU TEMPLE

媽祖科技廟

臺灣海峽，屢屢被譽為全世界最危險的地方：夾在世界最大的陸地與海洋之間，穿越過海峽的季風與洋流不僅塑造了臺灣的自然景觀，也深刻影響了臺灣人民的生活，並且形塑了臺灣的信仰與無信仰。數百年來，這片海域帶來的風險與挑戰，滋養了臺灣獨特的信仰文化，並且在今日轉化為臺灣護國神山的後盾。在臺灣生根的媽祖信仰，歷經了數百年的演變，成為今日百花齊放的樣貌。

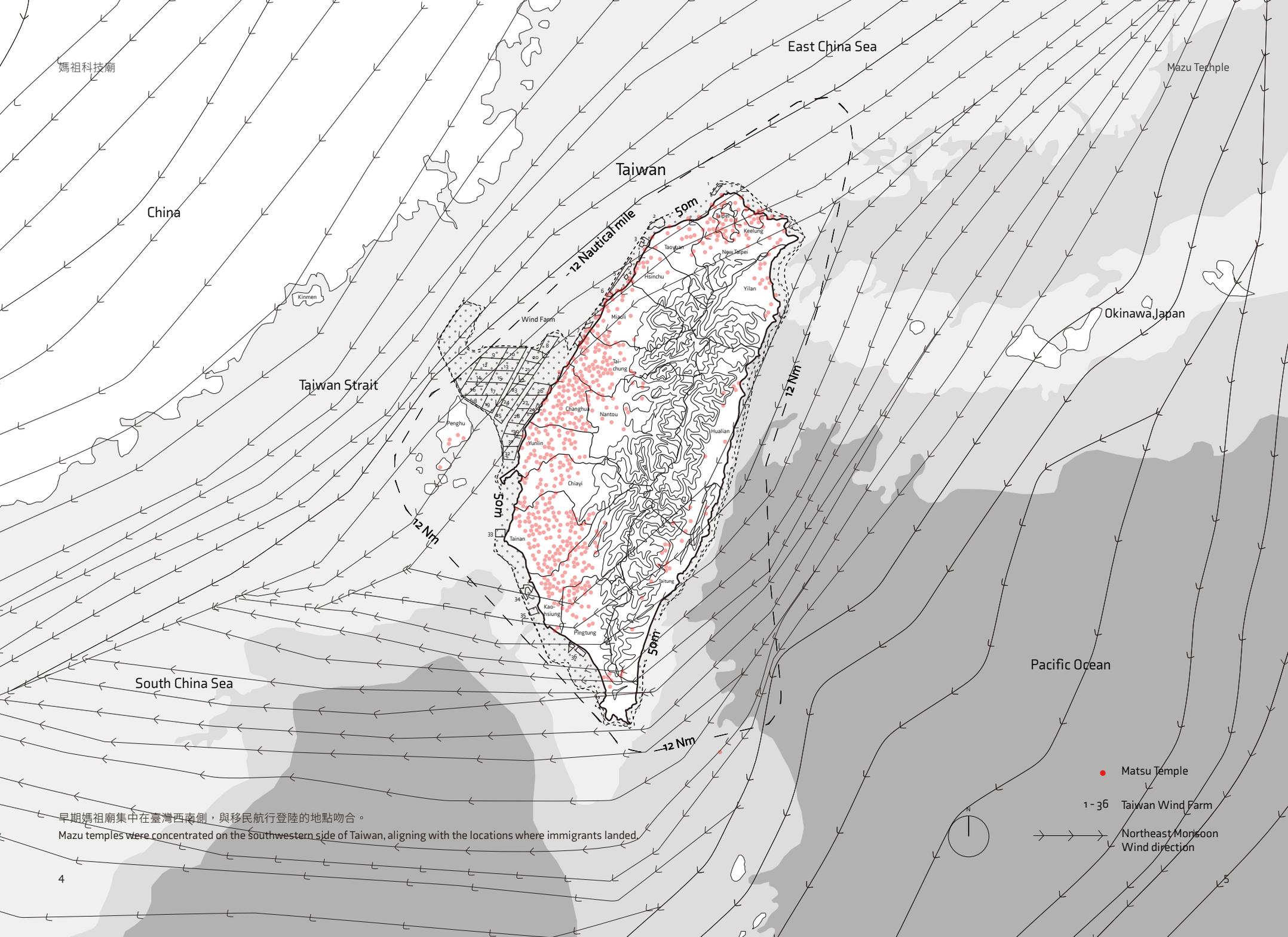
信仰是心靈最深的寄託，人們總會以自身所擁有的最好事物來回應信仰。今日人們對於信仰空間的期望未變，如何能夠以今日可得工法、回應當前社會問題，建造能讓年邁信徒、年輕信徒，都能夠起共鳴的信仰空間，是我們面對的核心問題。

The Taiwan Strait has often been referred to as one of the most dangerous places in the world: wedged between the world's largest landmass and ocean, the monsoons and ocean currents crossing the strait not only shaped Taiwan's natural landscape but also deeply influenced the lives of its people, molding both its belief and non-belief. For centuries, the risks and challenges of this sea have nurtured Taiwan's unique religious culture, which today has transformed into the spiritual backbone of Taiwan's national protector mountain. The Matsu belief, which took root in Taiwan, has evolved over centuries, and today it is a vibrant expression of diverse forms.

Belief is the deepest form of spiritual solace, and people always respond to their belief with the best they have. Today, people's expectations of belief remain the same. The core issue we face is how to build a space of belief that resonates with both elderly and young worshippers, using available construction methods that address current issues.



北港朝天宮，臺灣最具盛名的媽祖廟之一。Beigang Chaotian Temple, the most renowned Mazu Temple in Taiwan
攝影：蔡侑樺。Photo by Yu-Hua Tsai



媽祖科技廟

East China Sea

Mazu Temple

China

Taiwan

Okinawa, Japan

Taiwan Strait

South China Sea

Pacific Ocean

早期媽祖廟集中在臺灣西南側，與移民航行登陸的地點吻合。

Mazu temples were concentrated on the southwestern side of Taiwan, aligning with the locations where immigrants landed.

● Matsu Temple

1-36 Taiwan Wind Farm

→ → → Northeast Monsoon Wind direction

海上行舟的庇佑者

Protector of Sea Voyagers

媽祖，原名林默，是閩南地區的海神，庇護海上行舟的漁民與航海者。過去，航行臺灣海峽是一項極為危險的事：從流體力學的角度來看，南北向的季風洋流在臺灣海峽附近因截面積縮小而造成劇烈擾動，海上洶湧的浪濤與強烈的季風，使得每一趟跨越海峽的航行都充滿了不可預測的危險。在船隻與航海技術突破之前，生死難測的跨海之旅使人們更加依賴神祇，媽祖信仰也在隨著一批一批的移民在西部平原落腳，成為臺灣最具代表性的民間信仰之一。

媽祖

隨著時代變遷，媽祖信仰逐漸走出沿海：從早期海岸平原到今日遍布全臺的媽祖廟，無論是在繁華都市街頭，還是偏遠山區，媽祖廟的存在向人們訴說著這段與大海搏鬥的歷史，也見證了臺灣社會的變遷與發展。對於種種不確定的災難與無法理解的異動，臺灣傳統信仰在先民開臺之始，提供了能被詮釋的慰藉。近代最出名關於媽祖的傳說，當屬媽祖接住空襲炸彈的故事：第二次世界大戰末期，臺灣慘遭美軍

空襲，臺灣在彰化鹿港、雲林北港、嘉義朴子、臺南鹽水、屏東萬丹等地，都傳出了媽祖顯靈，用手或裙襖承接了炸彈，保護了居民、避免城鎮受到戰火波及。這份來自天上的母性慈愛，或許是所有在承受苦難人民心中共同的期待。

過去，我們常借助信仰祈求風調雨順、出入平安。然而，在今日這個遠在 1000 公里外的颱風路徑也能被 AI 準確預測的時代，許多過去依賴神祇庇佑的日常，今天都可以透過科學來預測風險、降低災害。儘管如此，我們卻無力應對變化過快的社會環境。與過去穩定的農村社會相比，現代人顯得更加疏離孤單。臺北的霞海城隍廟是北部知名的廟宇之一，過去即是一座香火鼎盛廟宇，近年來更是廣受年輕人喜愛，為的是祈求月老賜予良緣，連日本、韓國觀光客都慕名而來。



北港朝天宮媽祖像。Mazu Statue in Beigang Chaotian Temple

攝影：蔡侑樺。Photo by Yu-Hua Tsai

Mazu, originally named Lin Mo, is the sea goddess of the Minnan region, protecting fishermen and sailors. Crossing the Taiwan Strait was extremely dangerous due to the intense turbulence caused by the north-south monsoon currents and the narrowing of the strait's cross-sectional area. The rough waves and strong winds made every journey unpredictable. Before advancements in shipbuilding and navigation, the uncertainty of sea voyages led people to rely heavily on deities. As immigrants settled in the western plains, the Mazu belief took root and became one of Taiwan's most representative folk beliefs.

Mazu, Heavenly Mother

The Mazu belief has expanded beyond Taiwan's coastal areas. Originally concentrated along the coastal plains, Mazu temples are now found across the island, from bustling urban streets to remote mountain. These temples embody the history of struggles with the sea and reflect Taiwan's social changes and development. In the face of unpredictable disasters and challenges, traditional beliefs provided comfort and explanations from the island's earliest days. One famous modern legend

about Mazu is her miraculous intervention during World War II when Taiwan was bombed by the U.S. military. Reports from towns like Lukang, Beigang, Puzi, Yanshui, and Wandan tell of Mazu supposedly catching bombs with her hands or skirt, protecting residents and preventing destruction. This divine maternal love became a symbol of hope for those enduring hardship.

People used to rely on faith to pray for favorable weather and safety. Nowadays where typhoon paths 1,000 kilometers away can be accurately predicted by AI, many everyday fears once addressed by deities can now be predicted and mitigated by science. However, we are still powerless to cope with the rapidly changing society. Compared to the stable agricultural society, people feel more alienating and lonely today. The Xiahai Chenghuang Temple in Taipei is one of the well-known temples in the northern region, which was once a bustling place of worship. In recent years, it has gained popularity among young people who come to seek blessings from the God of Marriage, and even tourists from Japan and Korea.



霞海城隍廟。Xiahai Chenghuang Temple
攝影：Majo Ussat。Photo by Majo Ussat

東方宗教建築類型學

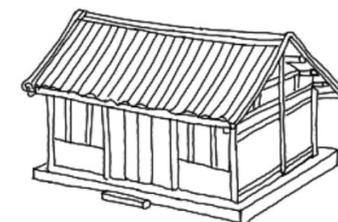
Typology of East Religious Architecture

在建築類型學上來說，東方的宗教建築，並不像西方的教堂有著獨立的建築類型，東方傳統建築主要是依構造上的繁複程度來辨別地位高低，而非依使用機能區分。位於東亞季風帶影響範圍內的傳統建築，基本上是一套專門對抗春夏強降雨的建築型態，透過醒目傾斜、並懸到牆面外的大屋頂，快速將雨水排出。西方建築通常通過立面 (facade) 來展現建築物的價值觀；而東亞季風帶地區的建築，則以屋頂的繁複程度來表達建築在社會中的地位。從中國、韓國、日本，一路向南到越南、馬來西亞、印尼，這些地方的傳統建築都能看到各種變化形態的大屋頂。大屋頂的下方，延伸至牆面外的屋簷，在力學上是需要一段懸臂梁的支撐，在勞力很划算的過去，這段懸挑從力學需求逐漸變為極富裝飾效果的構造：一段懸臂梁演化為托挑梁的斜撐，再演化成承接垂直力的斗與水平橫梁的拱，利用短小材料相互扣合分散屋頂的重量。

自宋代《營造法式》成書並確立規範以來，超過一千年的東亞建築歷史中，屋頂的形制、正面開間數量與斗拱的繁複程度，都是禮制的重要體現。東亞傳統構築出的室內空間幽暗深邃，籠罩著神秘莊嚴的氣氛，這與東亞季風帶春夏強降雨以及可取得建材有關：層層交疊的斗拱讓屋面開口失去意義；主動在屋頂上開口，進而成為潛在防水破口，這在過去是無法想像的事；能夠透光的玻璃作為建材，直到近代才在東方普及。這使得東方幽暗神秘的宗教空間與西方教堂中開高窗、以明亮的形象象徵天堂，形成了鮮明的對比。



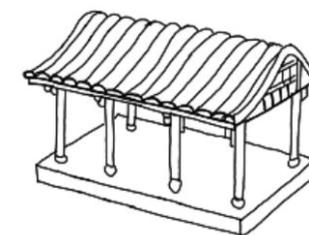
硬山頂



懸山頂



假四重複合式屋頂



捲棚頂



歇山頂

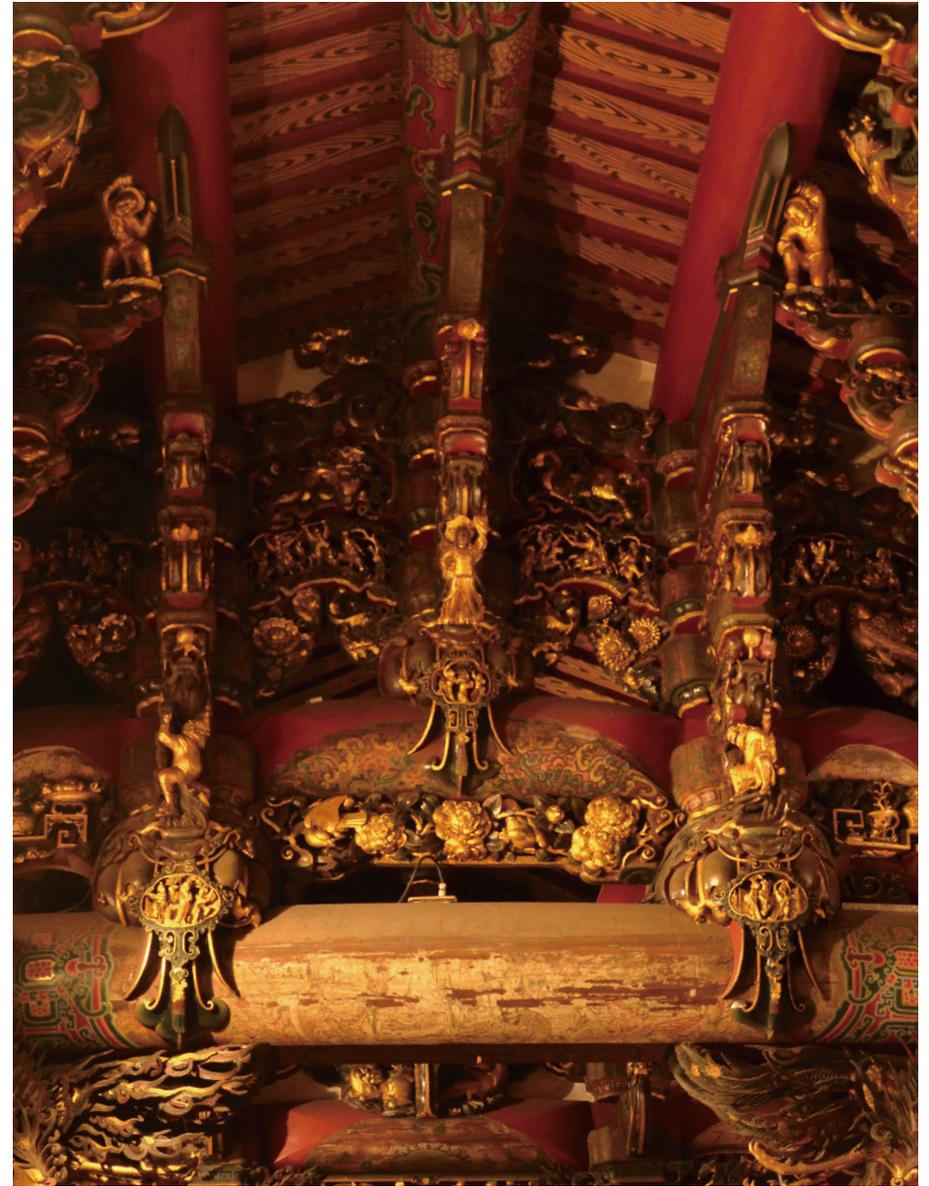


重簷歇山頂

東方建築屋頂形式。Roof Typology of the Eastern Architecture
本研究繪製。Illustrated by the research team

In terms of typology, Eastern religious buildings do not have a distinct architectural type like Western churches. Traditional Eastern architecture is primarily distinguished by the complexity of its structure, which reflects the building's rank rather than its functionality. Traditional buildings in East Asia, located within the monsoon belt, are designed to withstand the heavy rainfall during summer. A key feature is the large, sloping roof that extends beyond the walls, quickly directing rainwater away. While Western architecture often expresses the building's identity through its facade, in East Asia, the complexity of the roof reflects its social status. From China, Korea, and Japan to Vietnam, Malaysia, and Indonesia, various forms of large roofs can be seen in traditional architecture. Beneath these expansive roofs, the eaves extend beyond the walls, requiring cantilever beams for structural support. In times when labor was inexpensive, this cantilever gradually evolved from a physical necessity into a highly decorative element. The cantilever beam developed into a slanted support beam, which then evolved into a bracket and horizontal beam system, utilizing smaller materials to interlock and distribute the roof's weight.

Since the Song Dynasty, when the *Yingzao Fashi* (Treatise on Architectural Methods) was written and established as a standard, the roof design, the number of bays in the facade, and the complexity of the dougong (bracket system) have all been important representations of status in East Asian architecture for over a thousand years. The traditional interiors in East Asian buildings are dim and profound, creating a mysterious and solemn atmosphere. This is closely related to the strong spring and summer rainfall in the East Asian monsoon belt and the available building materials. The overlapping dougong system renders roof openings meaningless, and actively creating openings in the roof, which could become potential points of water leakage, was unthinkable in the past. The use of transparent glass as a building material only became available in the East in modern times. As a result, the dim and mysterious religious spaces in the East stand in stark contrast to the high windows of Western churches, which use light to symbolize heaven.



北港朝天宮屋架構造。The Roof Structure of Beigang Chaotian Temple

攝影：蔡侑樺。Photo by Yu-Hua Tsai



北港朝天宮藻井構造。The Roof Structure of Beigang Chaotian Temple

攝影：蔡伯謙。Photo by Yu-Hua Tsai

北港朝天宮

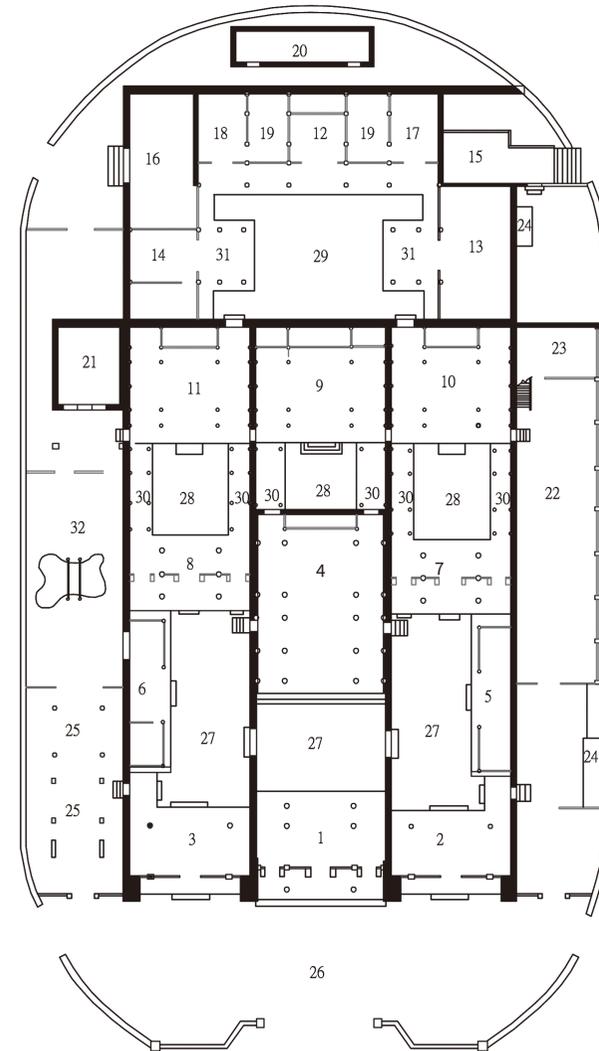
Beigang Chaotian Temple

臺灣的民間信仰建築，數百年前隨著先民的移入而傳入臺灣，對於大眾而言，寺廟的形象往往與起翹的屋簷、繁複的斗拱結構、以及鮮豔的紅牆黃瓦緊密相連。在臺灣媽祖信仰中，最具盛名的廟宇之一便是北港朝天宮。這座廟宇於 17 世紀末，從中國福建湄州朝天閣恭奉天后聖母神像，並在當時的臺灣諸羅笨港登陸設立，至今已有一百三十多年歷史，長久以來庇佑了無數大海的子民。

經過多年擴建，現在的朝天宮佔地近千坪，我們可以從成功大學建築系蔡侑樺老師的研究中看到北港朝天宮空間規制完整精彩：殿宇分為四進，二進為正殿，又稱聖母殿，建在高達七十公分的臺基上，殿內分為前後兩段，屋頂前為捲棚式，後為硬山式，二間裡簷相近，間設水漕連結而成。從大木構造到雕刻剪黏彩繪等，每一處細節都展現出卓越的工藝水準，這些工藝成果也是信徒們虔誠信仰的結晶。

信仰是心靈最深的寄託，人們總會以自身所擁有的最好事物來回應信仰，以宗教建築來說，過去往往會運用當時最先進的技術來建構信仰的空間。北港朝天宮的正殿，原為大木作，自 17 世紀末興建以來，一直是閩南大木作在臺灣最精彩的作品之一。進入 1960 年代，恭奉媽祖聖像的正殿改建為鋼筋水泥的閣樓式建築。

1950 年代，戰後的臺灣在美援的支持下，逐漸接納來自美國的技術與建材，鋼筋混凝土建築作為現代建築的代表，也隨著美援大量進入臺灣。鋼筋混凝土建築以其優越的結構性能和經久耐用的形象，在臺灣迅速受到歡迎，甚至連宗教建築也在極短的時間內跟上了這股新興建築技術的潮流。然而，即使是一座以鋼筋混凝土為主要構造的廟宇，信徒們所認同的，依然是那個熟悉的形象：傾斜的屋頂、起翹的屋簷、繁複的斗拱結構，與鮮豔的紅牆黃瓦。從鋼筋混凝土的結構特性來看，一個簡單的懸臂梁就足以解決懸臂問題；但為了符合信徒期待，臺灣的工匠們在努力之下，保留了這些傳統廟宇



1950 朝天宮配置圖 Chaotian Temple

- | | |
|-----------|---------------------------|
| 1. 三川門 | MAIN ENTRANCE |
| 2. 龍門 | DRAGON ENTRANCE |
| 3. 虎門 | TIGER EXIT |
| 4. 聖母殿 | HEAVENLY MOTHER'S HALL |
| 5. 娘娘殿 | GODDESS'S HALL |
| 6. 雙公廟 | TWO-DEITIES TEMPLE |
| 7. 凌雲閣 | LING-YUN PAVILION |
| 8. 聚奎閣 | JU-KUI'S PAVILION |
| 9. 佛祖殿 | BUDDHA'S HALL |
| 10. 三界殿 | THREE-SPHERES HALL |
| 11. 文昌殿 | WEN-CHANG'S HALL |
| 12. 聖父母殿 | HOLY PARENTS HALL |
| 13. 辦事處 | OFFICE |
| 14. 南華閣 | MULTI-FUNCTIONAL PAVILION |
| 15. 貧民施診所 | PAUPER CLINIC |
| 16. 建築合作社 | ARCHITECTURE COOPERATE |
| 17. 開山殿 | FOUNDER'S HALL |
| 18. 休息室 | LOUNGE |
| 19. 儲藏室 | STORAGE |
| 20. 倉庫 | WAREHOUSE |
| 21. 金爐 | JOSS PAPER MONEY BURNER |
| 22. 參拜者休息 | VISITORS LOUNGE |
| 23. 工人室 | STAFF OFFICE |
| 24. 廁所 | RESTROOM |
| 25. 涼亭 | GAZEBO |
| 26. 廟庭 | TEMPLE YARD |
| 27. 前庭 | FOREYARD |
| 28. 天井 | SKYWELL |
| 29. 後庭 | REARYARD |
| 30. 邊廊 | HALLWAY |
| 31. 南華閣 | MULTI-FUNCTIONAL HALL |
| 32. 花園 | GARDEN |

繪製：蔡侑樺。Provided by Yu-Hua Tsai

元素，並使用 RC 結構模仿出大木作的建築特色，就如同古希臘建築用石材模仿原來木構建築的特色一樣。

Taiwan's folk religious architecture, which was introduced by early settlers hundreds of years ago, is often associated with temples featuring upward-curved eaves, intricate dougong structures, and vibrant red walls and yellow roof tiles. One of the most renowned temples in Taiwan's Mazu belief is the Beigang Chaotian Temple (North Harbor Toward Sky Temple). Established at the end of the 17th century, the temple enshrined the statue of Mazu from the Chaotian Pavilion in Meizhou, Fujian, China and was set up in the then-Jhuluo Ben Port of Taiwan. With a history of over three hundred years, the temple has long been a protector of the seafaring people. After many years of expansion, the current Chaotian Temple occupies nearly 3,300 square meters. From the research of Professor Yu-Hua Tsai from the Department of Architecture at National Cheng Kung University, we can see the complete and impressive spatial arrangement of Beigang Chaotian Temple. The temple complex is divided into four sections, with the second section serving as the main hall, also known as the Heavenly Mother Hall, built on a platform raised 70 centimeters above the ground. The hall is divided into front and rear sections, with a roll-up roof in

the front and a gabled roof in the back. The two sections are connected by a water trough. From the large wooden structure to the intricate carvings, cut-and-paste decorations, and colorful paintings, every detail showcases exceptional craftsmanship, and these artistic achievements reflect the sincere faith of the devotees.

Belief is the deepest form of spiritual solace, and people always respond to their belief with the best they have. In terms of religious architecture, it was common in the past to employ the most advanced technology available to construct spaces for worship. The main hall of Beigang Chaotian Temple was originally built with large timber construction and, since its establishment in the late 17th century, has been one of the most remarkable examples of Minnan-style timber architecture in Taiwan. In the 1960s, the main hall housing the Mazu statue was reconstructed into reinforced concrete.

In the 1950s, Taiwan gradually embraced American technology and materials through the support of U.S. aid. Reinforced concrete, as a representative of modern architecture, entered Taiwan in large quantities. Known for its superior structural

performance and durability, reinforced concrete buildings quickly gained popularity in Taiwan, with even religious buildings adopting this emerging construction technology in a short period. However, even in a temple primarily made of reinforced concrete, what the devotees still recognized and appreciated was the familiar image: the sloping roof, curved eaves, intricate dougong structures, and vibrant red walls with yellow roof tiles. From the perspective of reinforced concrete's structural properties, a simple cantilever beam would have been sufficient to address the cantilever issue. However, to meet the expectations of the faithful, Taiwanese craftsmen preserved these traditional temple elements, using reinforced concrete to replicate the architectural features of timber construction, much like how ancient Greek architecture used stone to imitate the characteristics of original wooden structures.



北港朝天宮廟埕 (前埕)。Beigang Chaotian Temple's yard



媽祖繞境活動。Procession and incense pilgrimage



北港朝天宮一、二進天井中的天公爐。Incense Burner at the Foreyard



正殿 / 聖母殿。Heavenly Mother's Hall

攝影：蔡侑樺。Photo by Yu-Hua Tsai



北港朝天宮正殿 / 聖母殿 (相片中最高者) 在 1960 年代改為鋼筋混凝土建築。

攝影：蔡侑禕。Photo by Yu-Hua Tsai

Heavenly Mother's Hall (the highest in the photo) has been reconstructed into RC in the 1960's



北港朝天宮廟口大街，可以看到臺灣人對於宗教的多元自由。

攝影：蔡侑樺。Photo by Yu-Hua Tsai

The Main Street in Front of the Temple, one can see the religious freedom of the Taiwanese. (The yellow sinage said "one should repent and believe in Jesus")

寄生之廟

Parasitic Temples

隨著臺灣從農業社會進入工商社會，大量人口湧進城市，當代臺灣擁有全球最高的都市化比例，近 80% 的臺灣人居住在城市中。隨著人口向都市集中，信仰空間也從鄉村移入都市。過去廟宇往往在聚落中獨立設立，但隨著都市土地資源日益緊張，這些信仰空間開始與都市中的各種空間相融合，從建築師賴伯威的著作《寄生之廟》中，看到臺灣都市夾縫中，各種適應社會變遷的常民街廟。也因為宗教建築的獨特性與神聖性，讓這些廟宇以無奇不有的姿態存在都市的各個角落。情感上的鄉愿，讓建管單位不得不默許它們的存在。

As Taiwan transitioned from an agricultural society to an industrial and commercial society, a large population flocked to the cities. Today, Taiwan has one of the highest urbanization rates in the world, with nearly 80% of its population residing in urban areas. As the population concentrated in cities, religious spaces also moved from rural areas to urban environments. In the past, temples were often independently established within settlements, but with the increasing scarcity of urban land resources, these spaces of faith began to integrate with various urban spaces. In architect Bo-wei Lai's work *Parasitic Temples*, we see how Taiwanese urban street temples adapt to societal changes in the narrow gaps of the city. Due to the uniqueness and sacredness of religious architecture, these temples exist in every corner of the city in the most imaginative ways. The emotional attachment to tradition has led building and management authorities to tacitly accept their presence.



街屋廟：臺北大同臺疆樂善壇。Townhouse Temple: Leshan Temple in Taipei

照片提供：賴伯威。Photo provided by Po-Wei Lai



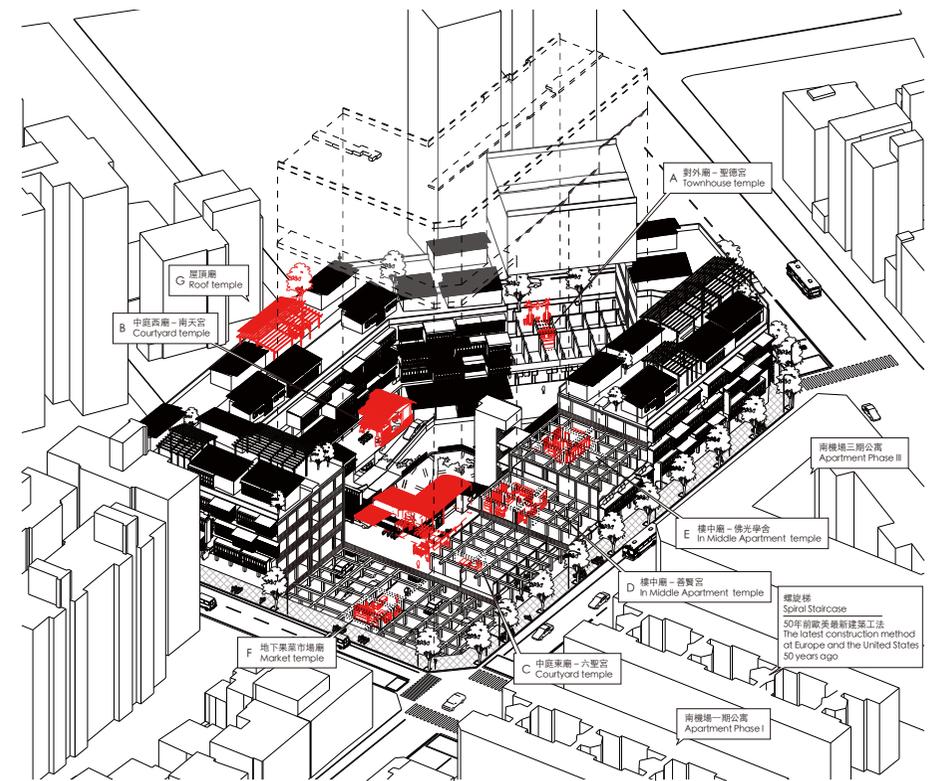
橋下廟：臺北萬華奉天宮（上）。Underbridge Temple (Up).
 路上廟：新北石碇八分寮福德宮（中）。Traffic Island Temple (Down).
 畸零地廟：新北三重福隆宮（右）。Slice Temple (Right).
 照片提供：賴伯威。Photo provided by Po-Wei Lai

在臺灣極度快速的都市化過程中，空間量是第一個被滿足的目標，像是右圖臺北機場二期公寓，為了擠進最多戶，住宅空間相當狹小，其中被夾在住宅單元間的環形長廊，被居民充分占用，往上往外搭蓋違建以爭取原本缺少的空間，像是洗衣空間，也還有像是宗教空間。整個南機場二期公寓中有七座廟宇，包含三個一樓改造廟、兩個樓中廟及市場廟、屋頂廟各一座。它們所屬的廟公不同，但沒有因此產生派系，為常民無神不拜的最佳體現。在科學昌明的 20 世紀，眾多現象已可被解釋，然而，居民依舊需要心靈寄託。

南機場公寓至今超過 50 年，其建築已不符合當代使用。同時間，當傳統民間信仰空間逐漸脫離日常生活的必需，隨著老一輩逐漸凋零，這些存在於都市角落的宗教空間，未來是否依然能夠持續存在呢？

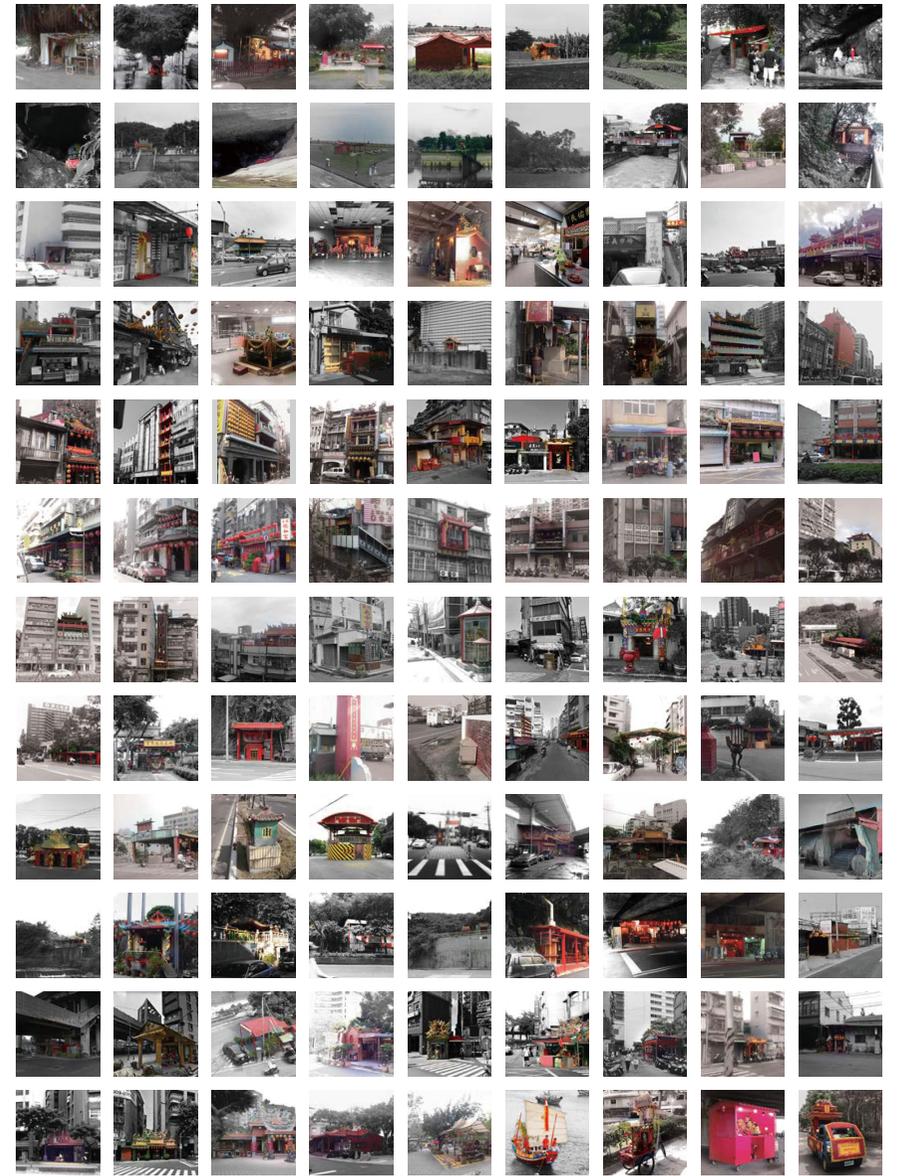
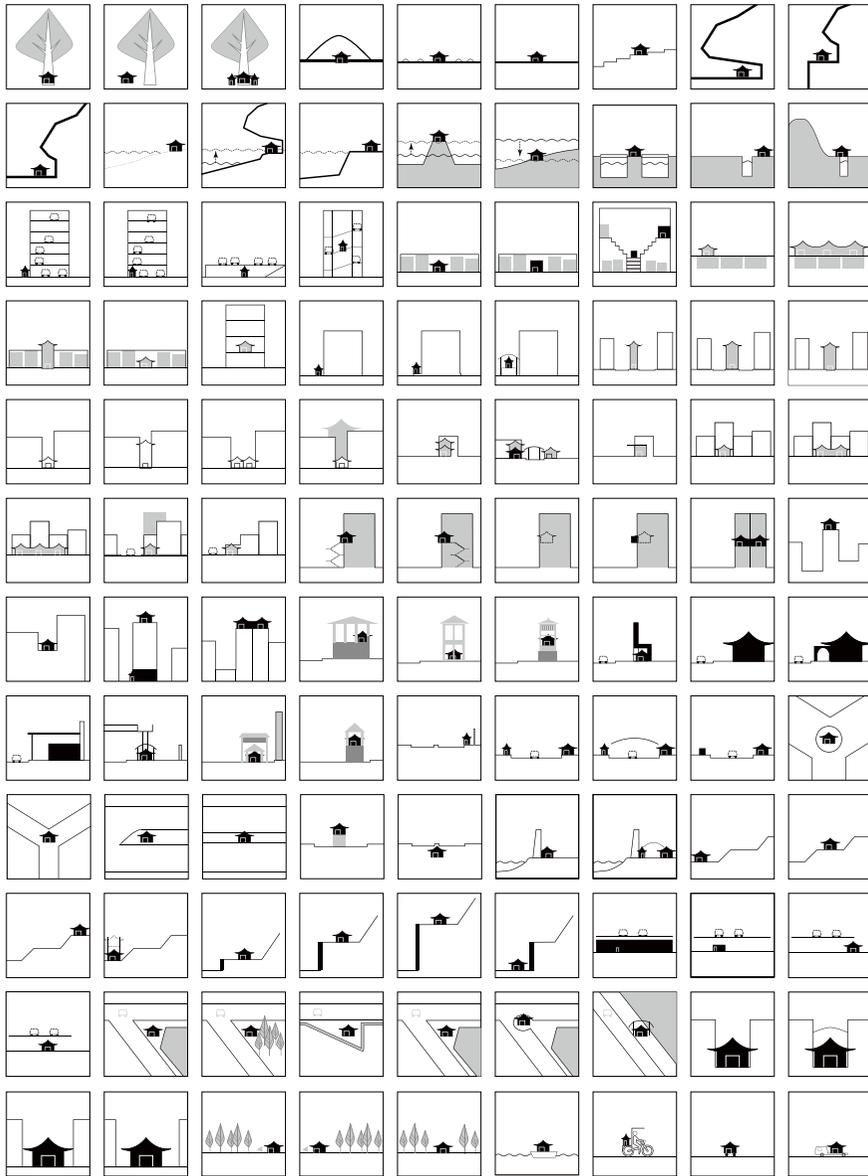
In Taiwan's urbanization process, the quantity of space takes priority. Take the Second Apartment Building of Nanjichang in Taipei as an example. To maximize the number of households, the residential spaces are extremely small. The circular corridor between the units is fully occupied by residents, who claim the missing space for purposes such as laundry or religious activities. The entire Nanjichang complex houses seven temples, including three converted temples on the ground floor, two in-between-floor temples, a market temple, and one rooftop temple. Although these temples are managed by different individuals, no factions have emerged, which best reflects the common people's universal belief in gods.

The Nanjichang complex has now stood for over 50 years, and its architecture no longer meets contemporary needs. At the same time, as traditional folk religious spaces gradually detach from everyday necessities and the older generation diminishes, will these religious spaces, tucked away in the corners of the city, continue to exist in the future?



一樓七廟：臺北機場二期公寓。Seven Temples: the Second Apartment Building of Nanjichang in Taipei

照片提供：賴伯威。Photo provided by Po-Wei Lai



廟分類，出自《寄生之廟》。Temple Taxonomies, excerpt from Parasitic Temples

資料提供：賴伯威。Provided by Po-Wei Lai

鹽埕朝后宮

Chaohou Temples of the Salt Pan

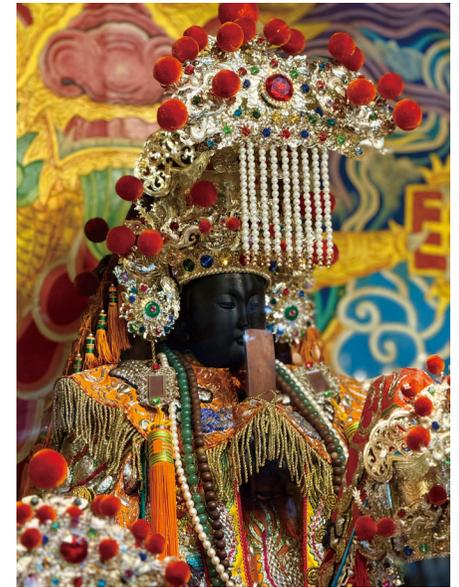
2024 年年初，一座在高雄港口邊的媽祖廟找到我們，廟方希望我們在有限的預算內，新建一座信眾們能夠看得懂的媽祖廟，也希望藉由新的廟宇建築，能夠吸引年輕信徒回來媽祖廟。高雄朝后宮，分靈自北港朝天宮，隨著移居高雄的雲林同鄉會，落腳在愛河畔的鹽埕埔，每年農曆三月步行遶境至祖廟北港朝天宮進香。

目前現況是一棟鋼構建築，充滿常民的彈性：一樓為廟宇的主要信仰空間，過去廟宇空間由於結構構造緣故，通常只有使用地面層，但朝后宮卻有二樓，作為儲藏室，存放繞境所需的物品，像是轎子、鑼鼓、儀仗等，建築的側面有一個大型開口，透過內部的天車吊架，將繞境的轎子吊至二樓儲存。外觀設計上，正面一樓環繞著翹起的屋簷，並融入繁複的斗拱結構及鮮豔的黃瓦紅柱，以這些符號來喚起信徒對信仰空間的情感共鳴；而正立面則以北港朝天宮的照片為背景，並將文字改為「朝后宮」，印製在帆布上，包覆在正面的輕鋼結構。

In early 2024, a Mazu temple located by the Kaohsiung port reached out to us with a request. The temple sought to design a new Mazu temple within a limited budget, one that would be easily understood by the believers. The goal was to attract young devotees back to the temple. Kaohsiung Chaohou Temple, a branch of Beigang Chaotian Temple, was established by the Yunlin County Association after relocating to Kaohsiung. It is situated by the Love River in Yancheng District, an area that was once a salt pan. Every year, during the third month of the lunar calendar, the faithful walk to Beigang to participate in the pilgrimage.

The current building is a steel structure, demonstrating the flexibility of Taiwanese architecture. The first floor serves as the primary religious space. Traditionally, temple spaces were limited to the ground level due to structural constraints, but Chaohou Temple includes a second floor, used for storing items needed for the pilgrimage, such as palanquins, gongs, drums, and other ceremonial objects. The building has a large opening on the side, through which a crane lifts the palanquins to the second floor for storage.

The front façade is decorated with sloping eaves and incorporates intricate bracket structures, along with vibrant yellow roof tiles and red columns. These symbols are intended to evoke an emotional connection with the traditional temples. The "facade" features a photo of Beigang Chaotian Temple, with the name digitally altered to Chaohou Temple. This image is printed on canvas and wrapped around the lightweight steel structure.



朝后宮媽祖聖像。Mazu Statue of Chaohou Temple



朝后宮正立面。The Facade of Chaozhou Temples

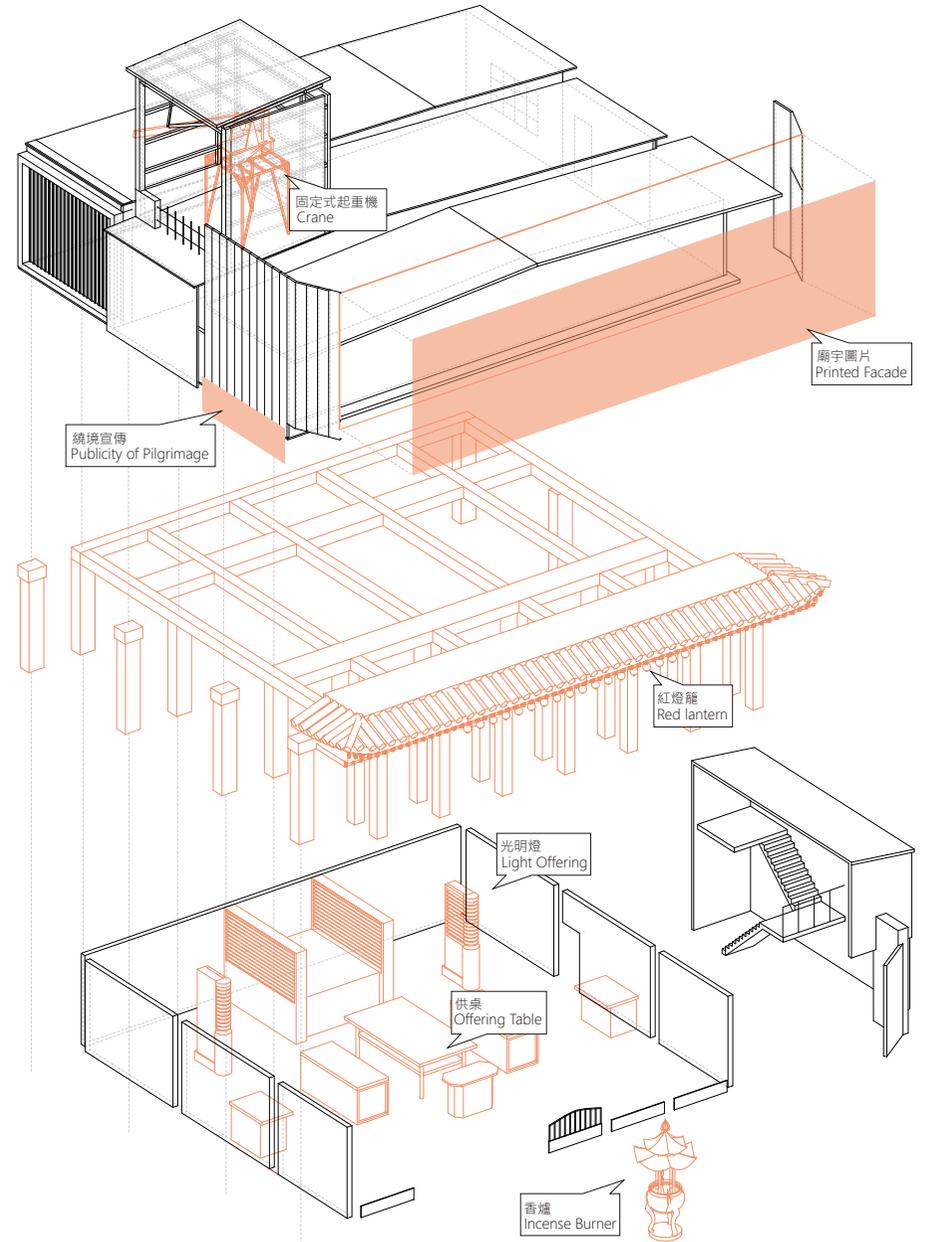
媽祖聖像以及其駕前將軍千里眼順風耳

The statue of Mazu and her generals in front of the palanquin, Thousand-Mile Eye and Wind-Following Ear.



上圖攝於 2025 年，下圖 2024 年。2024 年三個襲擊臺灣的颱風讓河畔的大樹少了一半

The top image was taken in 2025, and the bottom image in 2024. The three typhoons that struck Taiwan in 2024 caused the large trees by the riverbank to lose half of their foliage.



朝后宮等角透視示意圖。The Axonometric Diagram of Chaohou Temple



愛河畔的朝后宮，側面開口可見吊車、冷氣室外主機，金爐煙囪連結上屋頂

Chaohou Temple by Love River, side opening with a crane. The chimney of the furnace extended to the roof



農曆三月徒步至祖廟北港朝天宮進香。The faithful walk to Beigang to participate in the pilgrimage.



照片提供：朝后宮。Provided by Chaozhou Temple



農曆三月徒步至祖廟北港朝天宮進香。The faithful walk to Beigang to participate in the pilgrimage.

照片提供：朝后宮。Provided by Chaohou Temple

當代大木作

Modern Traditional Timber Framing

過去在勞力划算而建材取得不易的年代，東亞季風帶的建築發展出了斗拱的系統；在人工費用大漲的今日，寺廟重建預算無法負擔勞力密集、手工繁複的鋼筋混凝土仿斗拱建築。如何能夠以今日可得工法、回應當前社會問題，建造能讓年邁信徒、年輕信徒，都能夠起共鳴的信仰空間，是我們面對的核心問題。

我們提出以當代的木構造技術，讓流於裝飾的斗拱恢復其結構作用，重新詮釋傳統宗教建築：在從懸臂梁演化到短小的斗與拱的過程中，中間的卡榫接頭越來越複雜，這套結構系統成功的關鍵，來自於純熟的大木作匠師的經驗。斗作為承接上下小橫梁（即拱）的構件，製作過程中必須在一塊原木上挖開溝槽，才能使上方的小梁穩固地扣合。在化工產業研發出強力黏著劑，能夠承受建築物水平側向力之前，斗在承受此類力時，僅能依賴木材纖維本身的物理特性。

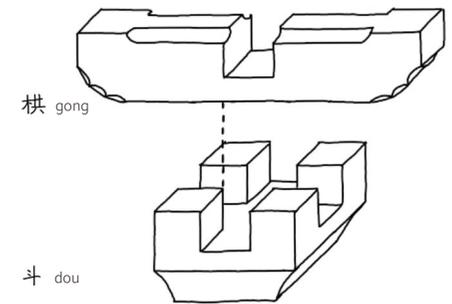
在缺工缺料的當下，我們得另尋一條當代大木作的路。

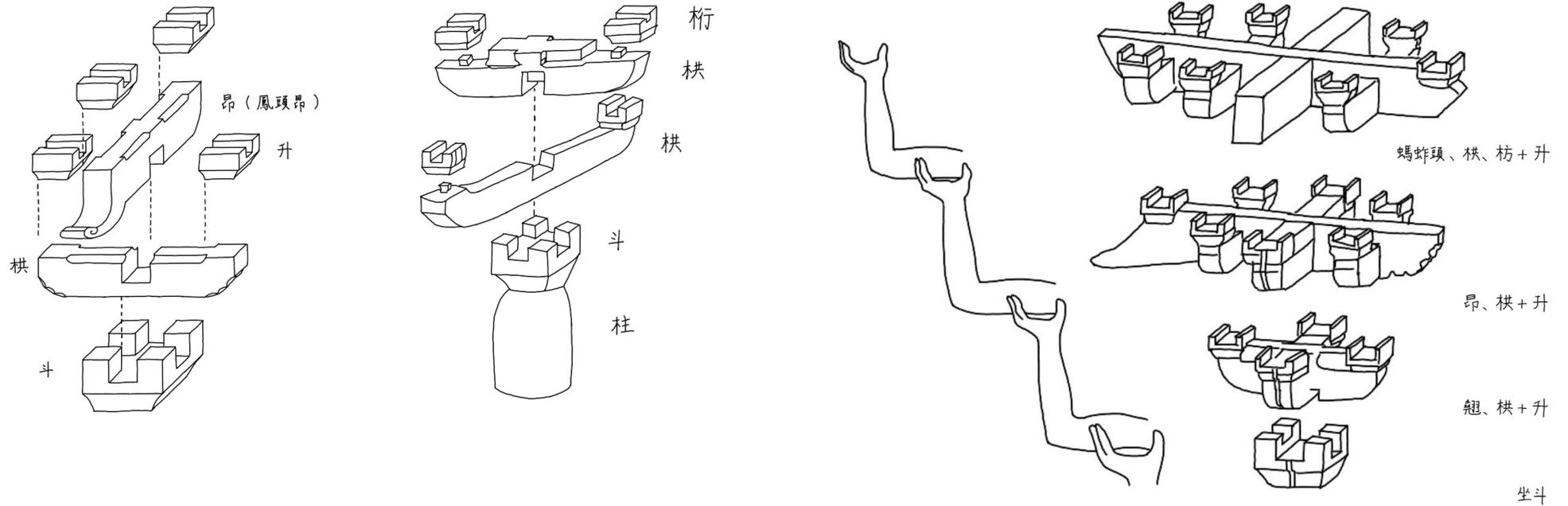
Once, when labor was inexpensive but building materials were scarce, architecture in the East Asian monsoon region developed the dougong (bracket) system. Today, with labor costs soaring, the budget for temple reconstruction cannot support the labor-intensive and intricate process of creating reinforced concrete dougong-style structures. The core challenge we face is how to construct a sacred space using current construction methods that address contemporary social issues, while resonating with both elderly and younger devotees alike.

We propose using modern timber construction techniques to restore the structural function of the dougong system, which has often been reduced to a decorative element, and reinterpret traditional religious architecture. Over time, from cantilever beams to short brackets and arches, the mortise and tenon joints that connect them have become increasingly complex. The success of this structural system lies in the expertise of skilled large timber craftsmen. The dou, as a component that supports the small horizontal beams (i.e., the arches) above, must

have grooves carved into a single piece of timber during its production process to ensure the upper beams fit securely. Before the advent of the chemical industry and strong adhesives capable of withstanding lateral forces, the dou relied solely on the physical properties of the wood fibers to bear such forces.

Given the current shortage of both labor and materials, we must find a contemporary path for large timber construction.





傳統斗拱系統

東亞季風帶下的大屋頂，需要一套有效分配屋頂重量的構造形式，所謂的「斗拱」，最基礎的是有承接垂直力的斗與水平橫梁的栿，將分散的重力集中傳到柱子上，隨著時間推進，構建越來越繁複。這些建築構材，也在儒家社會中扮演了劃分建築等級的功用，包含斗拱的尺寸、數量，都有相關規定。

Dou Gong, Asian Bracket System

The large roofs under the East Asian monsoon belt require a structural form that effectively distributes the weight of the roof. The so-called "dougong" (a traditional bracket system) consists primarily of a bracket that bears vertical forces and an arch with horizontal beams, channeling the distributed weight to the columns. Over time, the structure became more and more complex. These building components also played a role in the Confucian society in classifying the hierarchy of buildings, with regulations regarding the size and number of the dougong.

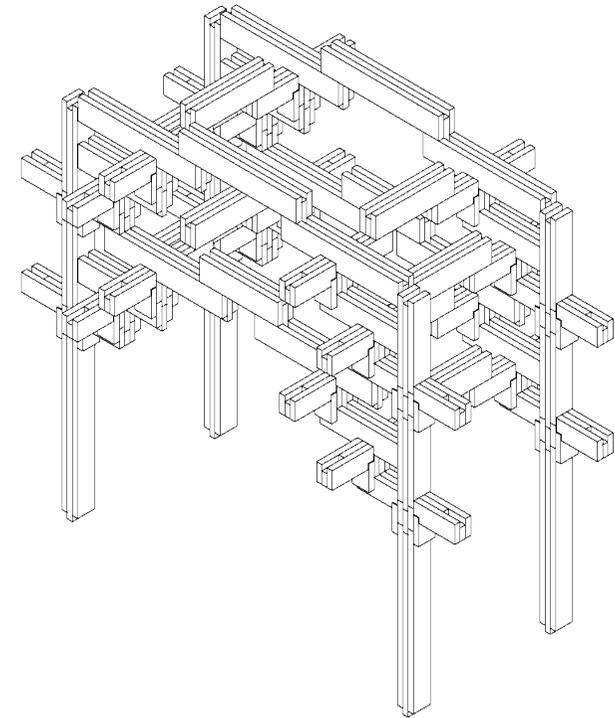
斗拱系統分解示意圖。Axonometric Diagram of Dou Gong. 本研究繪製。Illustrated by the research team

以現代工法保存傳統

如今，越來越少人以勞力密集產業作為人生志業，整個營建缺工嚴重的情況下，我們與成功大學建築系葉玉祥老師合作，汲取傳統的榫接工藝，試圖透過營建自動化來減少勞動投入，並讓成品能夠喚起人們對傳統大木作的記憶。本研究專注於疊斗架棟工法中的瓜筒，過去需要以一塊原木並人工挖掘凹槽，現在則改為將瓜筒切割成數片，分別用 CNC 加工切割成所需的凹凸尺寸，最後以螺栓固定，創造出卡榫結構，並將多個單元反覆搭接，形成承受屋面重量的構架系統。

Preservation with Latest Technique

Today, fewer people choose labor-intensive industries as their life's work, and with the severe labor shortage in the construction industry, we have collaborated with Professor Yu-xiang Ye from the Department of Architecture at National Cheng Kung University. By drawing on traditional joinery techniques, we aim to reduce labor input through construction automation, while creating products that evoke people's memories of traditional large timber construction. This research focuses on the guatong (melon-shaped) component in the stacked dou construction method. In the past, this required a single piece of timber to be manually hollowed out, but now it is modified by cutting the guatong into several pieces, each CNC-machined to the required concave and convex dimensions. Finally, bolts are used to secure the parts together, creating a mortise-and-tenon structure. Multiple units are then repeatedly connected to form a frame system that can bear the weight of the roof.



新斗拱系統。New Timber Framing System

瓜筒

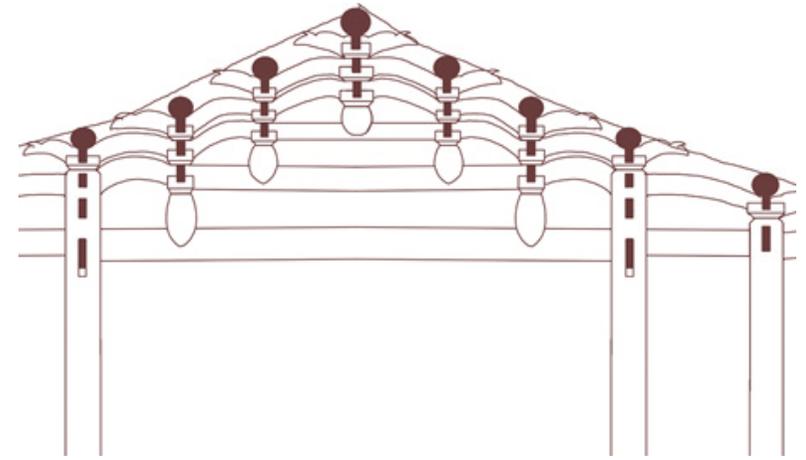
當化工黏著劑尚未問世時，市面上可得的黏著劑大多來自天然材料，如糯米或殼灰等，然而這些材料無法有效抵抗側向力。當時，也有使用金屬穿透連結的可能方式，但由於加工技術尚未突破，防鏽技術有限且成本高昂。過去最為合理的材料連結方式，主要依賴材料的物理特性，例如木材纖維間的緊密程度。因此，傳統結構通常需要透過卡榫來完成。

例如，疊斗架構法便是透過一層層的梁將屋頂的力量傳遞到柱子上。梁與梁之間的短柱形狀如同哈密瓜，將上下結構連接。右圖展示了不同類型的瓜筒，這些均為一體成形的設計，依靠木材本身的物理性質達到結構穩定。可以想見，匠師需要投入多少心力與精工，才能完成這些精緻的結構元件。

Melon Columns

Before the advent of chemical adhesives, commonly available adhesives were mostly made from natural materials, such as glutinous rice or shell lime, which could not effectively resist lateral forces. Another potential method for material connection involved using metal fasteners, but anti-corrosion techniques were poor, and the costs were too high then. The most reasonable method for material connection relied on materials itself. This is also why traditional structures had to be completed through mortise and tenon joints.

For example, the construction of a stacked dougong (bracket) framework involved layers of beams that transferred the roof's forces down to the columns. The short columns between the beams, shaped like melons, connected the upper and lower parts. In the image on the right, you can see different types of melon-shaped columns, all formed as a single piece. These structures relied on the inherent physical properties of the wood to achieve structural function. One can imagine how much effort craftsmen must have put into completing these intricate works.



瓜筒形式。Melon Columns

本研究繪製。Illustrated by the research team

缺工時代新思維

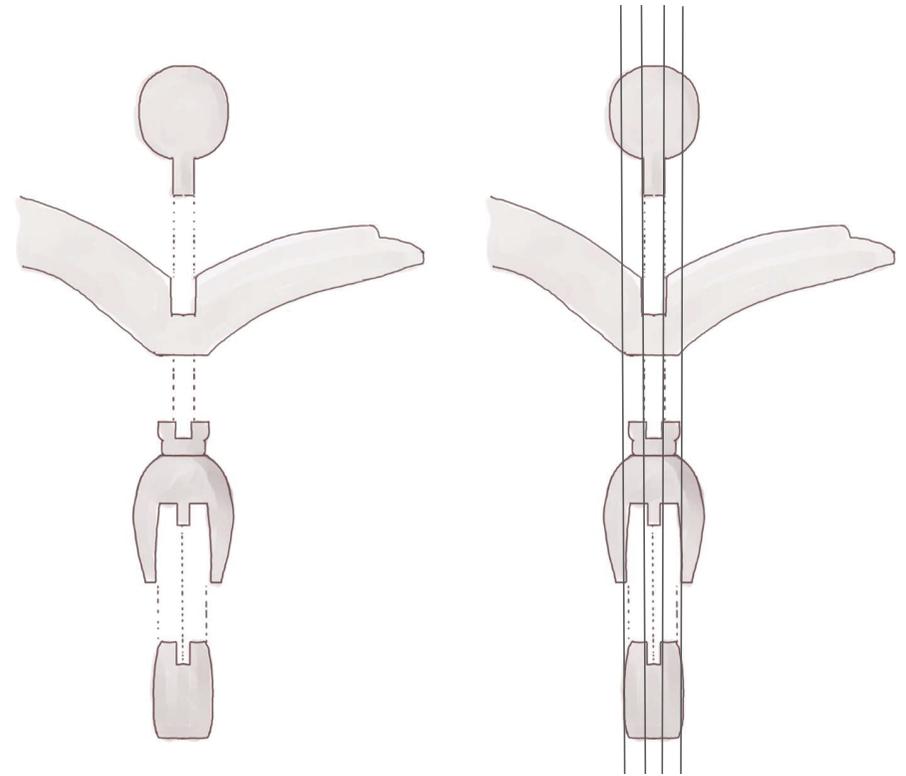
臺灣目前既有的大木作匠師凋零，且以今日的工程費用，往往無力負擔勞力密集的传统工法。我們試圖尋求一套新方式，讓未來的新建宮廟能夠大量運用自動化建造模式，同時保有熟悉的氛圍，並希望能將這種方法應用於現有大木作廟宇的修復工作。

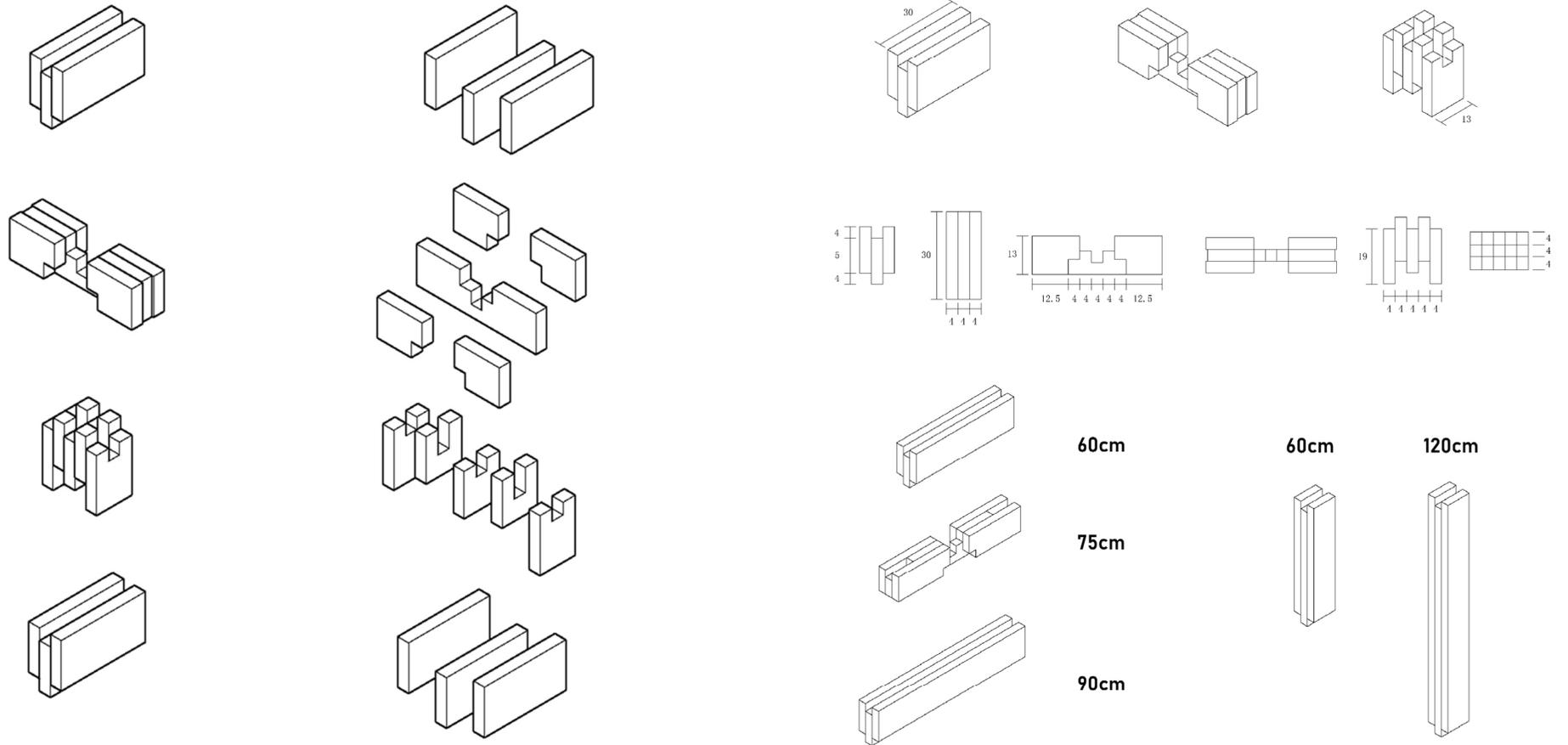
我們汲取傳統榫接工藝的精髓，將斗拱進行切片，利用易於取得的標準化板材，經 CNC 加工切割成所需的凹凸尺寸，再以螺栓固定組合。這樣組合後的斗拱系統可以實現反覆搭接，並以當代技術來協助保存並傳承傳統工藝。

Less Work, Better Timber

Currently, the number of traditional woodworkers in Taiwan has gradually diminished, and with today's construction costs, it is often difficult to afford labor-intensive traditional methods. We are exploring a new approach that allows for the use of a largely automated construction model in future temple buildings while preserving a familiar atmosphere. We also hope to apply this method to the restoration of existing large wooden temples.

Drawing from the essence of traditional joinery techniques, we have sliced the dougong (bracket system) and used easily accessible standardized timber panels, which are CNC-machined and cut into the required convex and concave dimensions. The components are then secured together with bolts. This assembled dougong system can be repeatedly connected, using contemporary technology to help preserve and pass down traditional craftsmanship.



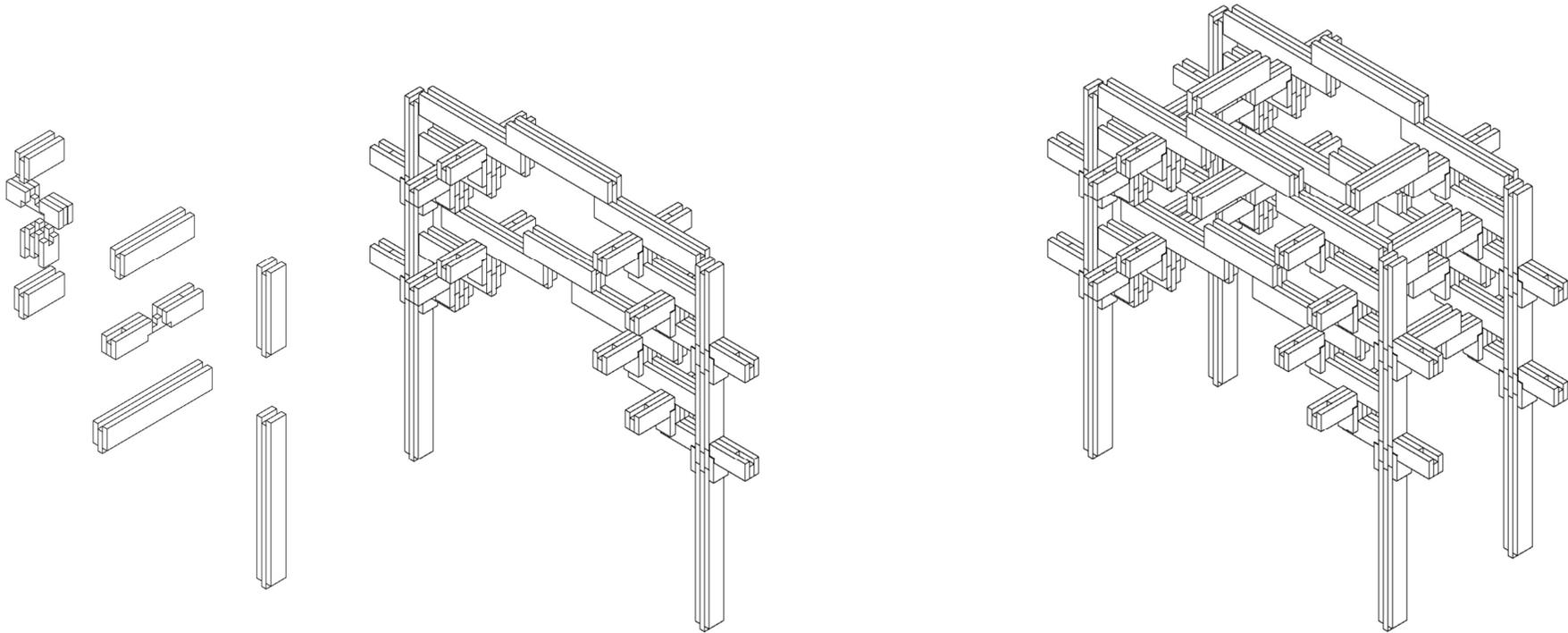


現代木構造技術使得接合處的抗破壞能力超過木材本身的物性。因此，我們將牽涉到瓜筒的垂直接合部件，採用板材集成的方式進行拆解與重組，重現出的部件保留了傳統建築的特徵，同時製造過程也變得更加便捷。

Modern timber construction technology allows the joint connections to have a higher resistance to damage than the material properties of the wood itself. Therefore, by disassembling and reassembling the vertical connecting components involved in the melon-shaped columns using a panel integration method, the resulting components retain the characteristics of traditional architecture but are easier to manufacture.

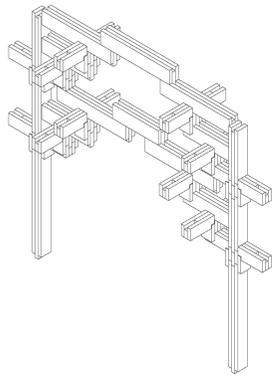
材料選用易於取得的木材規格，並切割出每片板材所需的缺口。經過組合後，便可形成無需長時間雕刻的斗拱部件，分別為昂、栱和斗。考慮到更大尺度的構架組裝，我們將升部的結構方式與栱結合，形成 75 公分的部件，這些部件相互結合後可改變方向，並實現垂直向上的交疊。

The materials are based on easily accessible timber specifications, with each panel cut to the required notches. Once assembled, they form dougong components—specifically the "ang," "gong," and "dou"—without the need for extensive carving. Considering larger-scale frame assembly, we combine the "sheng" construction method with the "gong," resulting in 75 cm components. These components can be interconnected to change direction and vertically overlap.

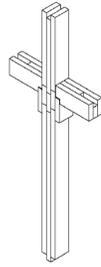


從初始的三種組件延伸，60 至 120 公分之間的垂直與水平部件，只需通過卡扣即可組成框架。75 公分部件兩端留下的接口則可讓框架無限延伸。這種構架不僅能夠自由拆解與重組，還可以利用相同的組裝方式來調整所需長度。

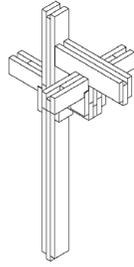
Extending from the initial three components, vertical and horizontal parts between 60 and 120 cm can be assembled into a framework simply using interlocking joints. The interfaces left at both ends of the 75 cm components allow for the infinite extension of the framework. This structure is not only easy to disassemble and reassemble but also allows for length adjustments using the same construction method.



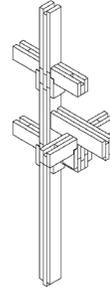
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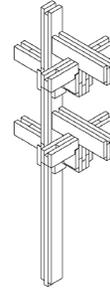
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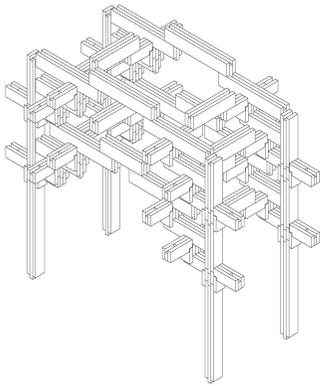
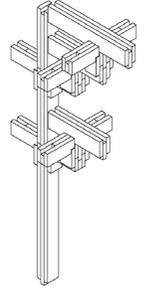
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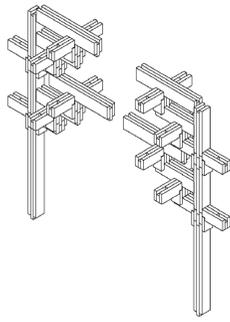
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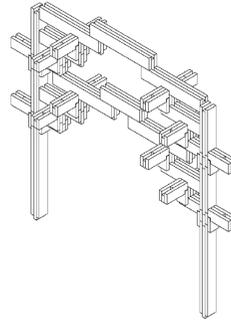
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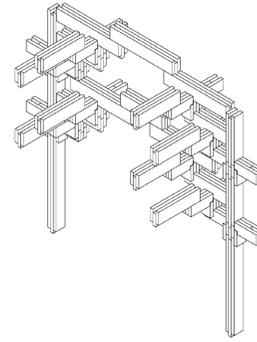
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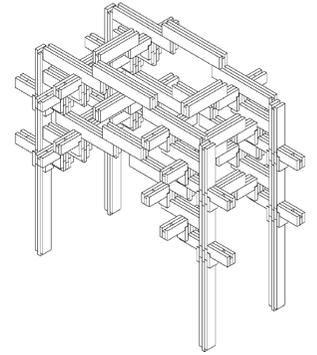
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一封給土地的情書

A Love Letter to Our Island

一個嶄新的概念能否迅速被接受並融入主流價值觀，關鍵在於這個新概念或新做法是否能夠有效解決現有問題。以新型木構造技術設計的廟宇為例，雖然廟方與信眾在初次接觸此提案時，無法立即熱烈擁抱，但我們仍然保持審慎樂觀的態度。

臺灣寺廟中常見塔型光明燈座，這個“傳統”與西方教堂中點燃蠟燭的做法非常相似。過去，寺廟常在廟埕廣場上，將成千上百的蠟燭或油燈擺放在臺子上，讓信徒點亮光明燈，象徵著“照亮前途”。光明燈的收費，也是許多廟宇重要的香火收入來源之一。到了 1960 年代，小巧的燈珠開始普及，部分寺廟便將傳統蠟燭改為小燈珠，並將原本平放的光明蠟燭改為層疊式的光明燈塔，每一層設有小隔間，內部安置小燈珠，外側則會在透明小窗上貼上或寫上信徒的名字和生辰。這種光明燈塔的設置逐漸在臺灣寺廟中廣泛傳播開來。如今人們往往認為寺廟本來就應該有光明燈塔，但實際上這一“新傳統”是在過去 50 年內才被發明並逐步普及的。

Whether a brand-new concept can be quickly accepted and integrated into mainstream values depends on whether the new idea or approach can effectively solve existing problems. Taking the example of temples designed with new wooden construction techniques, although the temple and its followers may not immediately embrace this proposal upon first encounter, we remain cautiously optimistic.

A common feature in Taiwanese temples is the tower-shaped votive lamps, which closely resemble the practice of lighting candles in Western churches. In the past, temples often placed thousands of candles or oil lamps on platforms in the temple courtyard, allowing believers to light the lamps as a symbol of "illuminating the future." The revenue from votive lamps was also one of the important sources of income for many temples. By the 1960s, small light bulbs became more available, and some temples replaced traditional candles with small bulbs, transforming the original flat light candles into a tiered light tower. Each tier had small compartments for bulbs, and the exterior featured transparent windows with the names

and birthdates of the devotees. This design of the light tower gradually spread widely in Taiwanese temples. Today, people often believe that temples should naturally have light towers, but in fact, this "new tradition" was invented and gradually popularized only in the past 50 years.



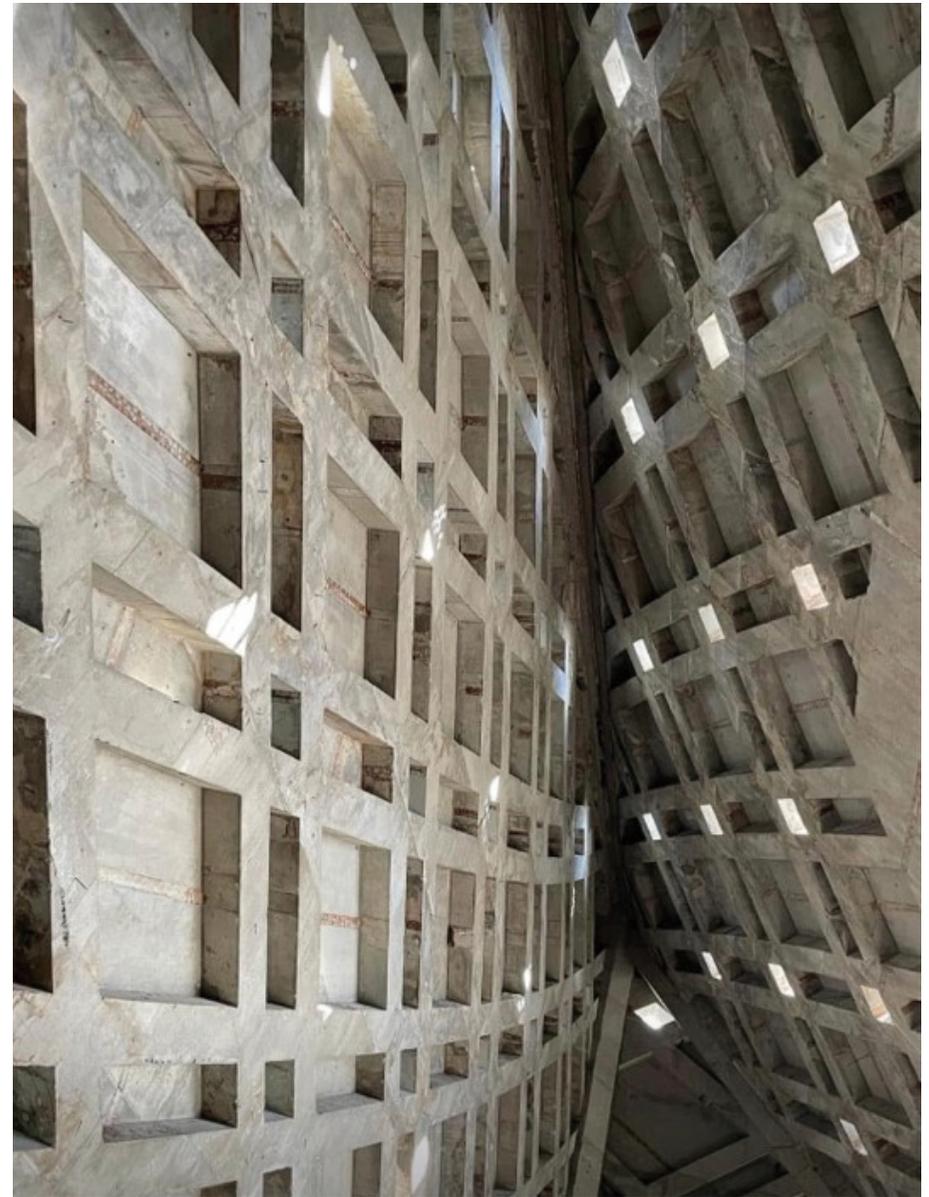
朝后宮光明燈。Votive Lamp of Chaohou Temple

當年，先民在橫越洶湧的臺灣海峽來臺，在亞熱帶氣候的土地上努力求生，面對病媒蚊、傳染病等健康威脅，還有無法預測的颱風、地震、土石流等災難，他們在這些困境中建立了各式民間信仰，不僅提供了解釋天地運行的方式，也成為先民們心靈的寄託。隨著科學知識的發展，這些傳統信仰的解釋逐漸被科學觀點所取代。在《寄生之廟》問世已近十年，今天我們又應該如何看待臺灣的民間信仰建築呢？

雖然災難可被詮釋，但心靈的惶恐仍須要信仰的支持：土地公是另一個臺灣重要的民間信仰，長期與聚落發展共存類似於羅馬文化中的「地靈」(genius loci)。在臺中大河里福德祠的設計案中，建築師戴育澤以「大屋頂」作為廟宇與大地之間延伸的象徵，融合傳統與當代建築語彙。期間廟方發起光明燈認捐，以光明燈為隱喻之菱形造型，並與成大建築系 (RAC-Coon) 合作數位模板，連結數位設計與數位製造，重塑臺灣地方信仰空間。

Once, facing health threats such as disease-carrying mosquitoes and infectious diseases, as well as unpredictable natural disasters like typhoons, earthquakes, and landslides, the folk beliefs not only provided explanations for the workings of the universe but also became a spiritual refuge for the ancestors. As scientific knowledge developed, these traditional explanations were gradually replaced by scientific perspectives. How should we view Taiwan's folk belief architecture today?

The Land God belief is another important folk belief in Taiwan, similar to the concept of "genius loci" in Roman culture. In the design of the Taichung Dahu Li Fude Temple, architect Yu-Ze Tai used the "Big roof" as a symbol of the temple's extension into the earth, blending traditional and contemporary architectural vocabularies. Meanwhile, the temple initiated a donation campaign for votive lamps, using the diamond-shaped form of the lamps as a metaphor. In collaboration with the Department of Architecture at National Cheng Kung University (RAC-Coon), they used digital fabricated mold to connect digital design with manufacturing, reshaping Taiwan's local religious spaces.



臺中大河里福德祠數位模板製作的大屋頂。Big Roof made by the digital fabricated mold
照片提供：戴育澤建築師事務所。Provided by TAI Architect & Associates

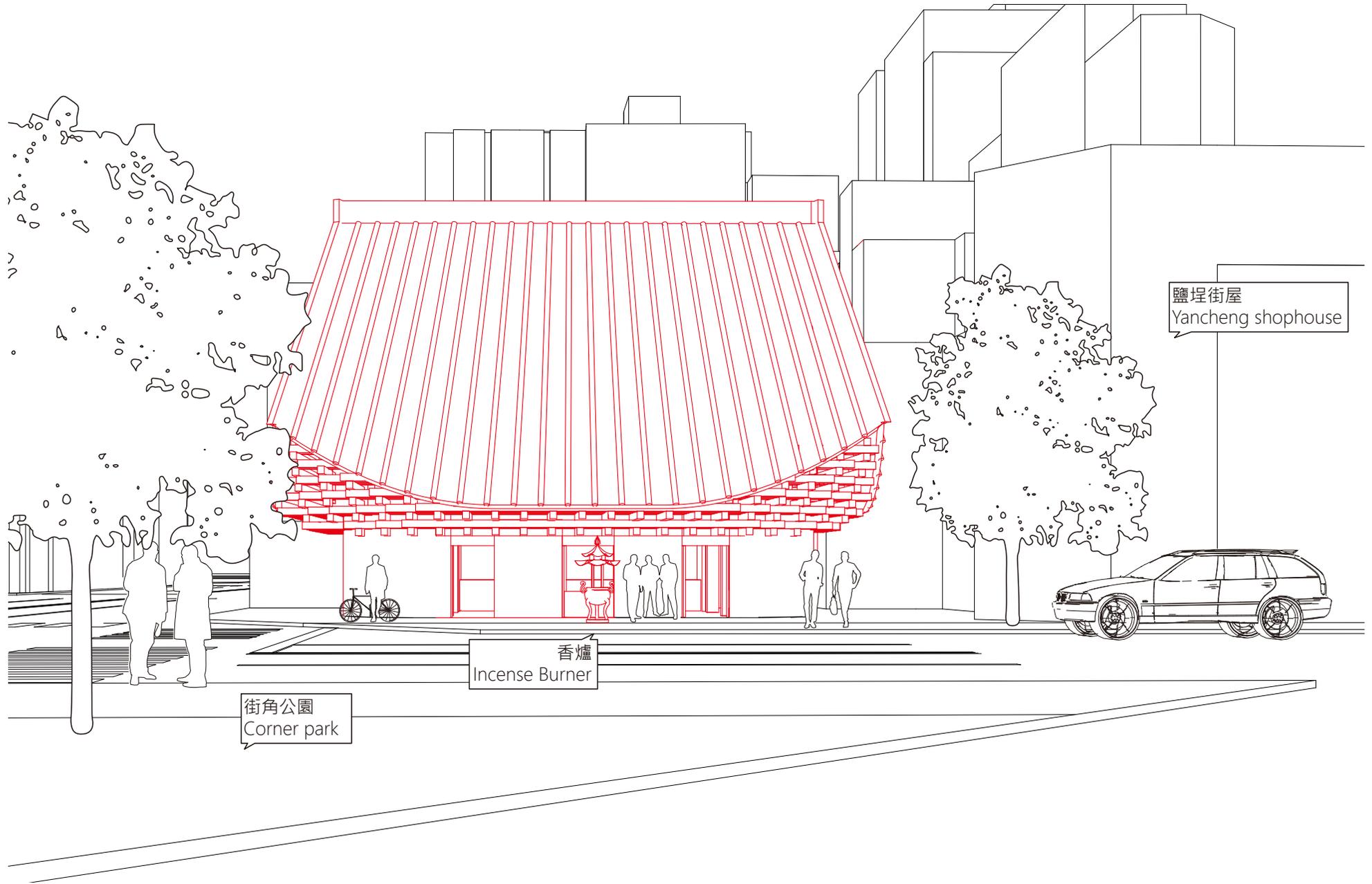
在臺灣海峽中，洋流極為複雜：西側是由北向南的中國沿岸流，而東側則是由南向北的黑潮支流。隨著黑潮支流向北的營力逐漸遞減，它在雲林彰化外海沉積出雲彰隆起，形成了這片 30 到 40 公尺的淺灘，而這裡是當代全球最具開發潛力的風力發電區域之一。隨著現代科技的發展，這片複雜的水域被轉化為綠色能源的場所。至 2025 年 2 月，臺灣的風力發電已突破 1300MW，為了晶片產業提供綠色能源。季風與洋流，過去是渡臺的挑戰，如今成為臺灣的後盾。

未來，不是歷史的對立面，我們無法以今日為基準，一刀兩斷，切分出過去與未來，未來是每一個昨日與今日的累積。這座媽祖廟是我們寫給這塊土地的一封信，它回應了信徒的期盼，也蘊含了我們對城市未來的憧憬。我們當今所處的城市並不完美，但值得我們為之努力。我們相信：在意城市、在意建築、真實建構、回應社會環境的挑戰，我們的建築會在這片土地生根。

In the Taiwan Strait, the ocean currents are incredibly complex: to the west is the China coastal current flowing from north to south, while to the east, there is the Kuroshio Current branch flowing from south to north. As the force of the Kuroshio Current branch weakens as it moves north, it deposits the Yunlin-Changhua Rise off the coast, creating a shallow sandbank 30 to 40 meters deep. This area is one of the most promising wind power development zones in the world today. With the development of modern technology, this complex waterway has been transformed into a site for green energy. By February 2025, Taiwan's wind power generation has exceeded 1300MW, providing green energy for the chip industry. The monsoons and ocean currents, once challenges for crossing to Taiwan, have now become Taiwan's support.

The future is not the opposite of history. We cannot divide the past from the future based solely on today; the future is an accumulation of every yesterday and today. This Mazu temple is a love letter we write to this land. It responds to the hopes of the believers and contains our vision for the future of the city. The city we live in

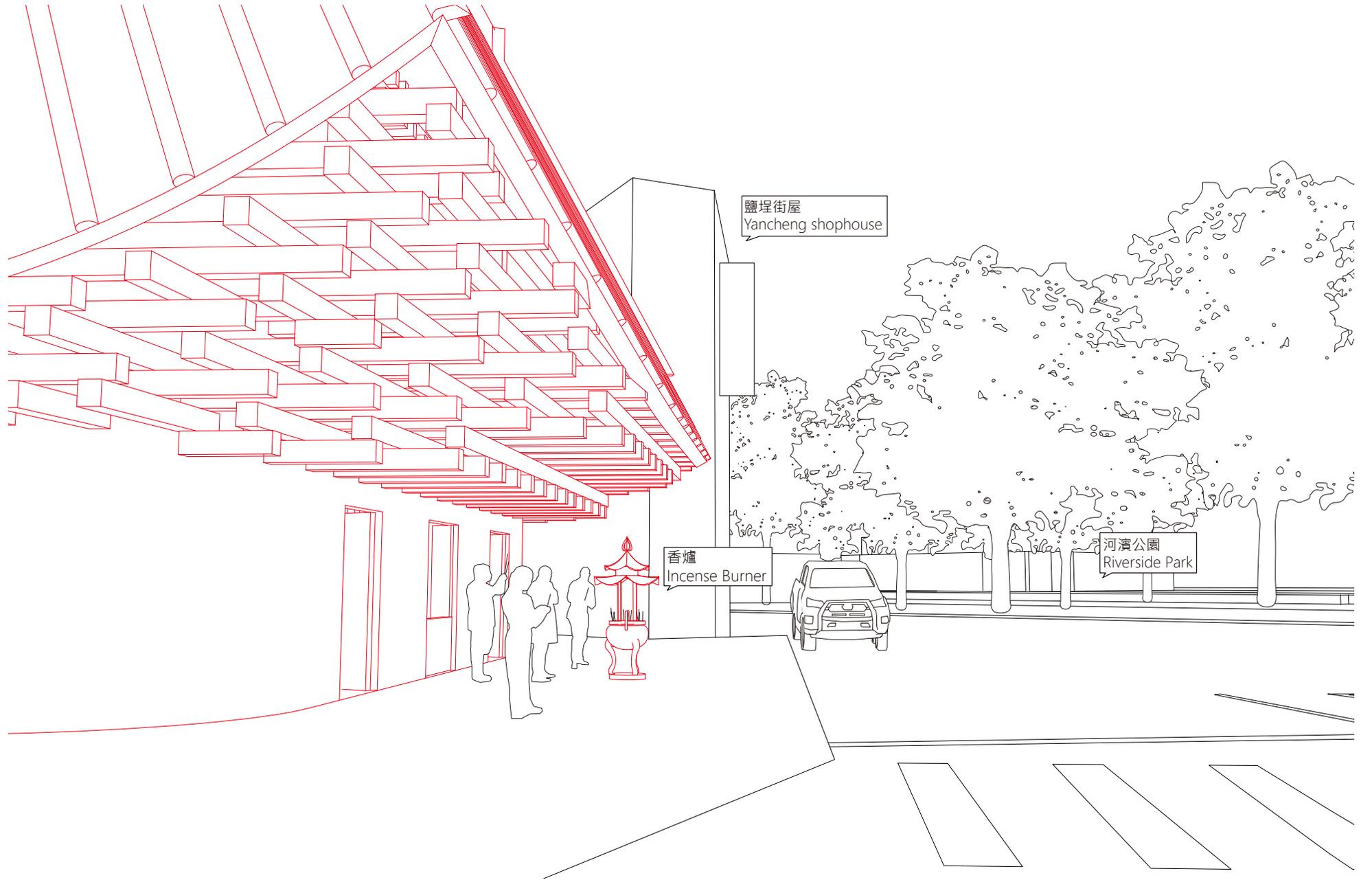
today is not perfect, but it is worth our efforts. We believe that by caring for the city, the architecture, and responding to the challenges of the social environment, our buildings will take root in this land.



鹽埕街屋
Yancheng shophouse

香爐
Incense Burner

街角公園
Corner park



媽祖科技廟

Mazu Techple

Taiwan, situated between the largest landmass and the largest ocean, has its beliefs and NON-Beliefs shaped by the Kuroshio Current and monsoons.

夾在最大的陸地與最大的海洋間的臺灣，黑潮與季風形塑了臺灣的信仰與 [無] 信仰。

#Kuroshio Current #黑潮
#Monsoons #季風
#Mazu #媽祖
#Windfarm #風場
#Constructing belief #建構信仰





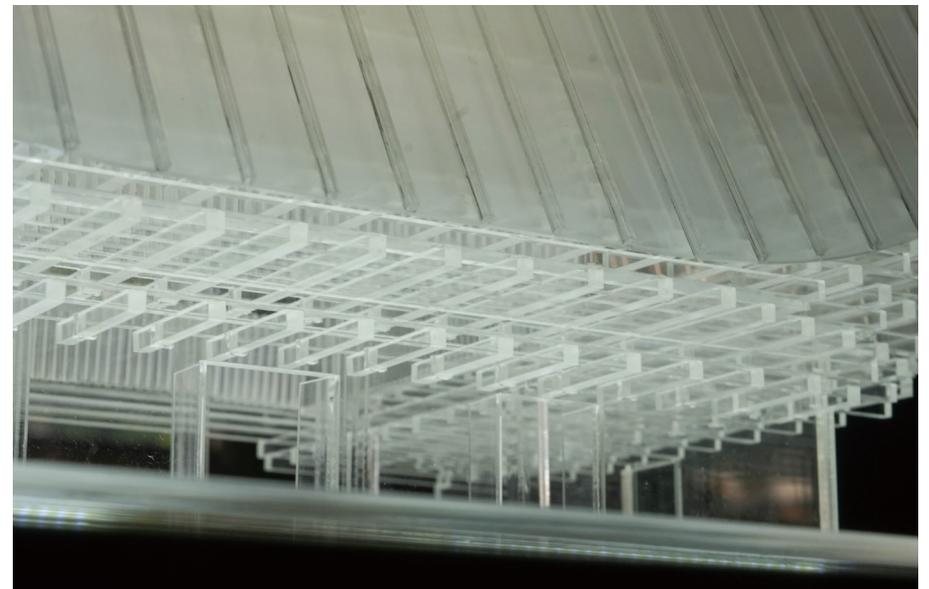
Mazu Techple_Model

Photo by Pan-Yu Li



Mazu Techple_Model

Photo by Pan-Yu Li



Mazu Techple_Model

Photo by Pan-Yu Li

