P O R T F O L I O

2021-2025

【Exploring New Frontiers】

ALEX XING XU'S PORTFOLIO

2021-2025

ALEX XING XU
Tel : 008617308001760
Email : alexxu20011125@gmail.com

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Student Member of the Architectural Society of China
Student Member of the China Civil Engineering Society
Tel : 008617308001760
Email : alexxu20011125@gmail.com
GPA: B.Arch 3.75/4, M.Arch 3.71/4
(QS 2025:46th, Top C9 League Universities in China)

EDUCATION

Harbin Institute of Technology	B. Arch	September 2020 – June 2024
Harbin Institute of Technology	M.Arch	September 2024 – June 2026
Politecnico di Milano	Exchange Student	September 2023 – February 2024
Curtin University	Exchange Student	February 2024 – March 2024
National Tsing Hua University	Exchange Student	July 2024 – September 2024
UNITAR	Intern	January 2025 – February 2025
APSCO	Intern	October 2025 – December 2025

HONORS

Scholarship

2023	China National Scholarship	First Prize
2025	Academic Scholarship of Harbin Institute of Technology	First Prize
2024	NTHU Wu Ta-You Scholar Program Research Grant	NTD 9,000
2024	Academic Scholarship of Harbin Institute of Technology	First Prize
2023	Academic Scholarship of Harbin Institute of Technology	First Prize
2022	Academic Scholarship of Harbin Institute of Technology	First Prize

Honors

2025	"Distinguished Student" from UNITAR and a recommendation letter
2025	"Outstanding Student Model" of Harbin Institute of Technology
2024	Excellent Bachelar Dissertation Award of Harbin Institute of Technology
2024	Outstanding Graduate of Harbin Institute of Technology
2024, 2025	Heilongjiang Province Distinguished Students
2022	Outstanding Student of Harbin Institute of Technology
2021	Outstanding Student of Harbin Institute of Technology

ACADEMIC

Publications

1. **Xing Xu**, and Minghui Xue. 2025. "Concept for the Future Utilization of Lunar Underground Space and Adaptive Design Strategies" Buildings 15, no. 22: 4057. https://doi.org/10.3390/buildings15224057 *SJR2024(0.652, Q1)*
2. Yukun Ma, Hongyuan Mei, **Xing Xu**, Wente Pan, and Lianzi Wang. 2026. "Computational Morphogenesis Method for the Lunar Shelter Based on the Principle of Inverse Hanging Simulation and Bi-Directional Evolutionary Structural Optimization." Acta Astronautica 238, Part B: 377–390. https://doi.org/10.1016/j.actaastro.2025.10.035 *SJR2024(1.277, Q1)*
3. Li Shuqi, Fei Teng, Wu Menghao, **Xing Xu**, and Jiang Ziyi. "A Typological Study of Lunar Architecture Based on Content Analysis " Journal of Xi'an University of Architecture and Technology (Natural Science Edition), 2025. https://doi.org/10.15986/j.1006-7930.2025.02.0011 *SJR2024(0.245, Q2)*
4. **Xing Xu**, Pan Wente, Xue Minghui."The Concept of Utilization of Underground Space on the Moon Based on the Perspective of Architecture".Proceedings of the 8th Academic Symposium on Underground Space, Architectural Society of China, 2024.
5. Pan, Hua, Ma, Xu'ao, **Xing Xu**. 2024. A lunar base protection structure. Patent (CN202411739894.6)

Competition

2025	10th Cross-Strait Huacan Award	Third Prize
2024	China-Russia Student Architectural Design Competition	First Prize
2024	9th Cross-Strait Huacan Award	First Prize
2024	The 22nd Asian Design Award	Bronze Award
2023	9th Cross-Strait Huacan Award	Second Prize
2022	9th Cross-Strait Huacan Award	Third Prize
2021	Logo Design for Chengdu Survey and Design Association	Third Prize

EXPERIENCES

Chengdu Architectural Design Institute	2023.01-2024.02
The Architectural Design and Research Institute of HIT	2024.01-2025.07

Campus Experience

2024.09-2025.06	School of Architecture and Design	Class Monitor
2020.09-2024.09	School of Architecture and Design	Teaching Assistant
2021.09-2022.07	Served as Host for the School Gala on Two Occasions	
2021.09-2022.09	Appeared in the Admissions Promotional Video for the School	

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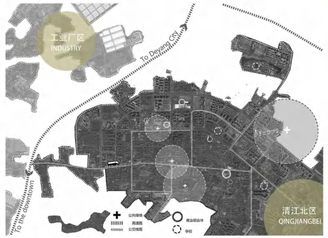
01 City of Dandelions

2024 Sino-Russian College Students Competition on Urban and Architectural Design First Prize

This plan is to insert a three-dimensional community garden over the existing high-density urban sprawl residential environment, not only to implant horticultural therapy in it to alleviate mental health problems, but also to cover the roofs of surrounding buildings with soil and spread seeds onto them through the wind to achieve green spread. Through the linkage of various gardens, a complete set of green system is formed over the community to attract people to gather and communicate and stimulate the vitality of the community,which dispels the high-density urban sprawl through the spread of the garden, so as to realize the revival of the garden city over the city.

SITE

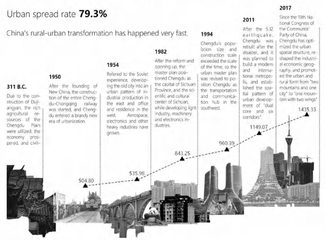


BACKGROUND

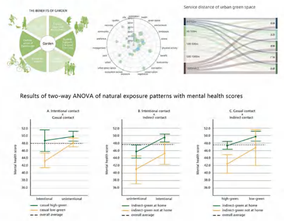
Suicide became **the second** leading cause of death in people aged 15 – 29 years

Urban spread rate **79.3%**

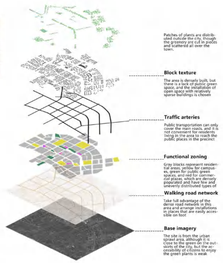
China's rural-urban transformation has happened very fast.



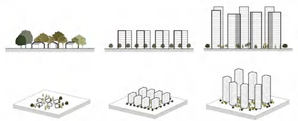
PROPHASE ANALYSIS



With the continuous advancement of urbanization, the urban sprawl rate is rising, and the suicide rate of urban residents is gradually increasing, even becoming the second leading cause of death among people aged 15-29. At the end of the 19th century, faced with the same rapid urbanization and the consequent health problems, Howard proposed the concept of the Garden City to create new, more livable cities.

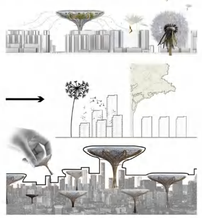


SOLUTION



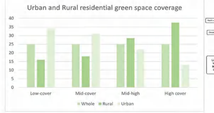
Through the statistics of the search frequency of relevant keywords, we pay attention to urban green space. The roof of the surrounding buildings is covered with soil, and seeds are spread on it through the wind, so as to achieve green spread., just like dandelion. A complete set of green system is formed over the community, attracting people to gather and communicate, stimulating the vitality of the community, dispelling high-density urban sprawl through the spread of gardens, so as to realize the revival of garden city over the city.

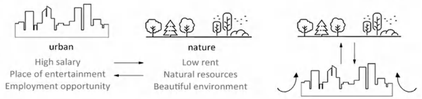
INTENTION



The analysis of crowds'demands

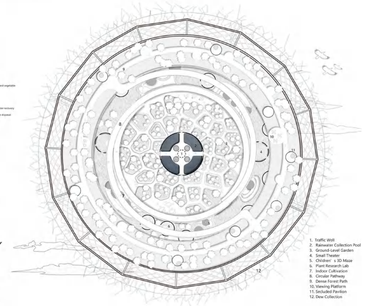
Propose





we propose to transform the magnetic relationship on the surface into three-dimensional space, insert a three-dimensional community garden over the existing high-density urban sprawl residential environment, and implant horticultural therapy in it to alleviate mental health problems.

Plan



Apply Horticultural Therapy

Visual hearing smell taste touch

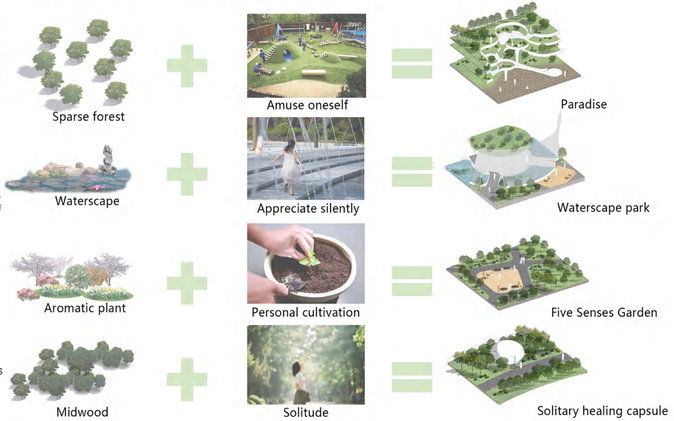
transform to green space

Horticultural therapy:

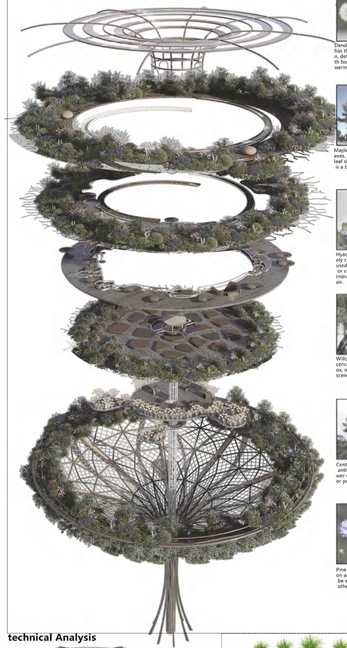
1.The color brought by the plant produces electromagnetic wavelength to promote the gland to secrete hormones, affecting the body and mind.
2.We can create a beautiful and pleasant auditory environment through reasonable plant collocation to delight the body and mind and smooth the mood.
3.It can stimulate the nerves of the elderly by the secreted substances of flowers and plants to achieve the auxiliary treatment function.

- Postive engagement
- Negative engagement
- Landscape engagement
  - Participatory garden
  - Children's Park
- Environmental therapy
  - Garden of the Five Senses
- Aromatherapy
  - Fragrant garden
- Waterscape therapy
  - Aquaponics

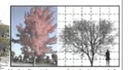
Postive engagement+Negative engagement



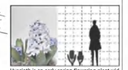
Explosion axis mapping



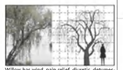
Dandelion, whole grass for medicinal purposes, has the effect of clearing heat and detoxification, detumescence and dispersing. It is a plant with high ornamental value, with a longer flowering period and ornamental value.



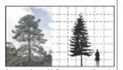
Maple, all parts have medicinal value, maple leaves, fruits are ornamental value, it is a beautiful leaf shape, neat branch order, light tree posture, is a beautiful leaf viewing plant.



Hyacinth is an early spring flowering plant solid, with a beautiful shape and fragrant flowers, used for arranging flower beds, flower borders or courtyards. The smell is more strong, can eliminate indoor odor, eliminate bacteria in the air.



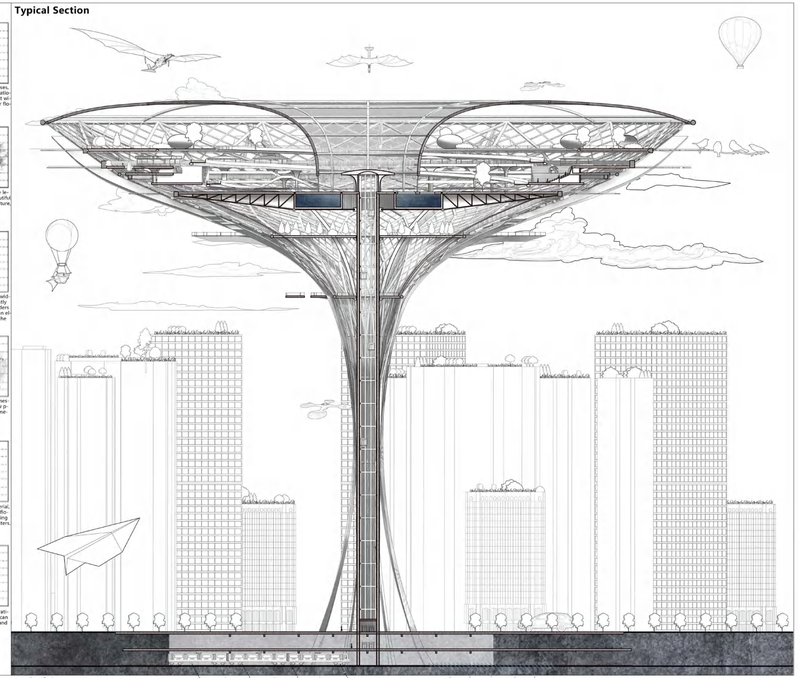
Willow has wind, pain relief, diuretic, detumescence, etc. Willow branches can cure yellow phlegm, dampness, wind, hemostasis, detumescence effect.



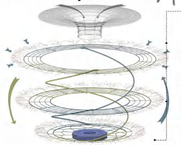
Centaurea has anti-inflammatory, antibacterial, antitumor, diuretic and other effects. Cornflower can be used for flower beds, grass edging or potted flower viewing, large natural clusters.

Pine is an important tree for forest regeneration and afforestation. Some kinds of seeds can be eaten or used for medicinal purposes, and others can be used as garden trees.

Typical Section

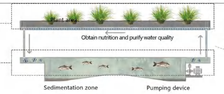


technical Analysis



To ensure equal growth of plants, the water supply direction is periodically changed

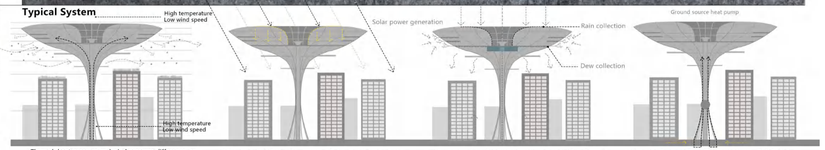
water circulation system



The fish-plant symbiosis system is a symbiosis of fish, microorganisms and plants, which can decompose fecal residues, produce mineral elements, and purify and filter water quality; Build an ecological circulation system in which fish farming does not change water and plants are planted without fertilization.

The system can enable the growth of green plants to obtain continuous nutrient supply and reduce water waste. At the same time, the cultivation of ornamental fish has increased the interest of the space

Typical System

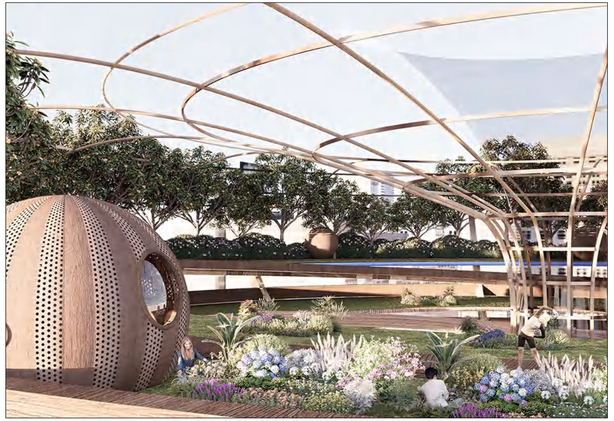


Through heat pressure and wind pressure difference, an upward air flow is formed, which helps the diffusion of seeds and pollen, and then falls to the surface of the city with the wind and attaches to growth.

Solar photovoltaic panels are set on the top to form a certain amount of self-sufficient energy, which can provide lighting for plants at night,

Water is supplied by collecting rainwater and dew through the device. The collected water can be sprinkled to the city to cool down and eliminate dust.

The ground source heat pump system installed in the foundation could use geothermal energy to make full use of renewable energy.

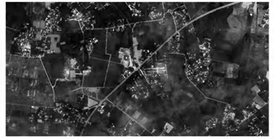


02 Star-Chasing Archaeological Museum

2024 Cross-Strait Emerging Design Huacan Award Competition National Second Prize

The design site is located in Sanxingdui Site, Sanxingcun, on the south bank of Yazi River in Guanghan City, Sichuan Province. The site covers an area of about 3200 square meters, with a stream (Mamu River) on the west side, a sacrificial pit excavated by archaeology on the east side (about 5 meters above ground level), agricultural land on the north side, and a straight-line distance of 200 meters from the Sanxingdui Site Workstation of Sichuan Provincial Institute of Cultural Relics and Archaeology on the south side. The Sanxingdui Civilization, located at 30 degrees north latitude, still has many unsolved mysteries to this day. To address the contradictions and conflicts between chaos and order, antiquity and technology, human civilization and extraterrestrial civilization on this magical land, and to integrate and develop them, we hope to convey this doubt through architecture and seek our own answers from every visitor. (The venue information is sourced from online sources and may deviate from reality.

■ Project location



Located within the one hour commuting circle of Chengdu, the northern extension of Tianfu Avenue in the future can reach the internal location of the base with superior overall conditions and strong transportation accessibility.

The base is rich in geographical elements, with archaeological excavations of sacrificial pits on the east side (about 5 meters above ground level), streams (Mamu River) and undulating mountains of Guanghan Mountain on the west side, and archaeological pits on both sides of the streams containing remnants of ancient Shu city walls. How to adapt to the terrain differences, the water flow of the Mamu River, the scattered boreholes in archaeological pits, and the historical relics within the site as the key focus of treatment

■ Problem discovery:

From Sleep to Awakening: Archaeology of the Blue Thread of the Road in the Past Century

- 1929 — First discovery
- 1931-1934 — Ge Weihan, Lin Mingjun; Focus on exploration
- 1963 — Feng Hanji; Focus on exploration; Establish the basic appearance
- 1980-1986 — Institutional leadership; System exploration; In-depth study
- 1986 — Major time; Major excavation; K1 and K2 pits
- 1988-2005 — Institutional leadership; Environmental study of the excavation of ancient sites; China-US Joint Venture Technology application
- 2006-2018 — Systematic organization; Large-scale investigation; Excavation trial; In-depth study
- 2019 — Major New Discovery; Six sacrificial pits
- 2020 - Present — Official excavation of K2-K8; Archaeological research cabin; Integration platform; Laboratory Preparations; Live streaming on the internet

1. According to the development of archaeology (although there are Sanxingdui Museum and Sanxingdui Museum New Building, there is no specialized archaeological site museum related to Sanxingdui built on the basis of the surrounding archaeological site)

2.Compared to the West, civil engineering and architectural sites in Chinese history often present a phenomenon of "diverse underground atmosphere and scattered earth mounds on the ground". How to revitalize and present the historical prosperity has become an urgent problem to be solved

The Evolution System of Ancient Shu Culture

- 8000BCE — Baodun Culture Period
- The first peak of development — The Sanxingdui Culture Period
- The second peak of development — The Jinsha Culture Period
- Late period of ancient Shu culture — Late period of ancient Shu culture

3.Sanxingdui is currently the oldest known historical center of the ancient Shu Kingdom in the Chengdu Plain, and the first peak of the development of ancient Shu civilization, pushing the history of ancient Shu forward by 2000 years

Chasing Stars on Peddles, From Sleep to Awakening - The Peddles Chasing Stars - Archaeological Site Museum Plan Emerges

■ concept generation

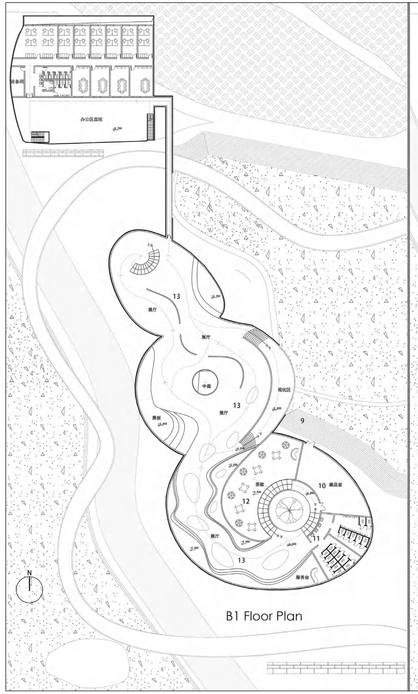
Learn from the past to understand the present, starting from the cultural context of Sanxingdui

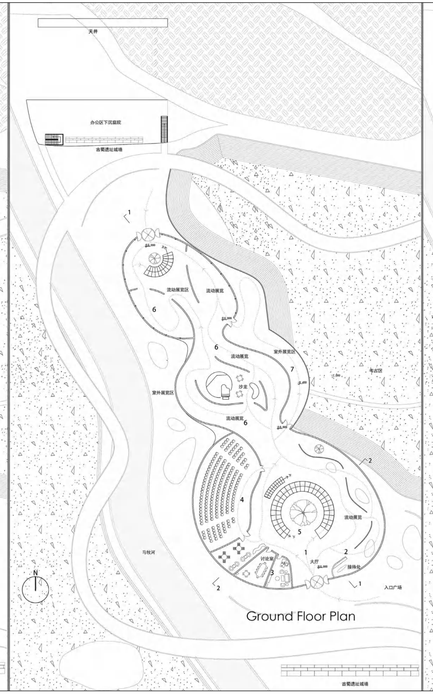
The legendary story of Sanxingdui starts with the stars - the name Sanxingdui comes from A romantic metaphor for Three mounds of earth arranged like stars. Based on the stars 'thi, in a mysterious way, revealed another side of Chinese civilization

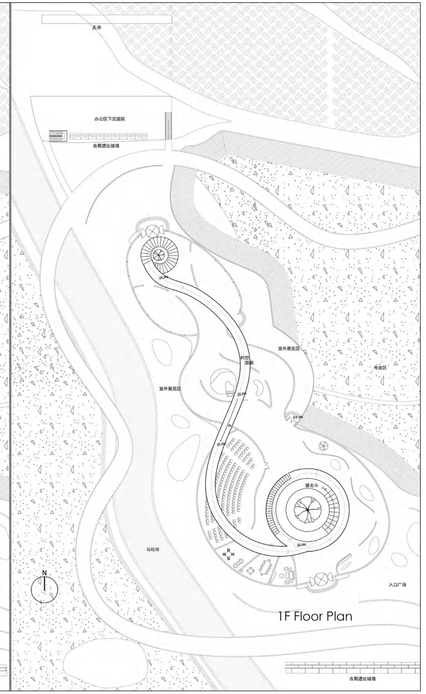
In the spoken language of Sichuanese, 'dui' means artificially built, and Sanxingdui can be understood as three earth platforms built artificially. These three loess mounds are located at 104.2 degrees east longitude and 31 degrees north latitude. To its northeast, there is a broken city wall resembling a crescent moon, with mounds of soil and the wall facing each other across the Mamu River. So, the locals gave this landscape the elegant title of "Three Stars Accompanying the Moon".

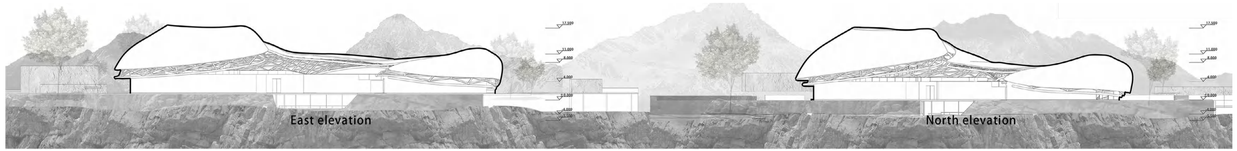
Most of the historical sites in the Chengdu Plain, such as the Sanxingdui Site, Jinsha Site, and Chengdu Ancient City, exhibit an axis relationship of 30 degrees north by east(30 degrees east by south), forming the unique spatial texture of the Chengdu Plain region. The plan continues the unique 30 degree east-west axis relationship in the Chengdu Plain area

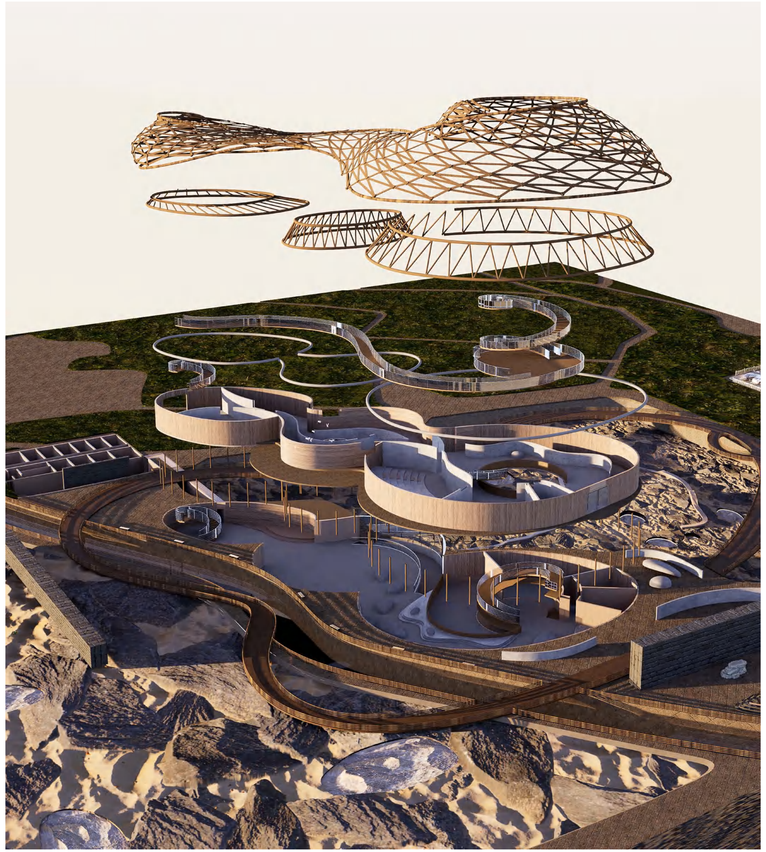
■concept model

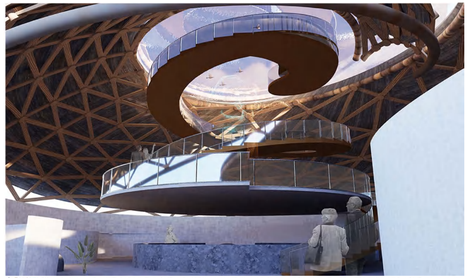

B1 Floor Plan


Ground Floor Plan


1F Floor Plan


East elevation
North elevation



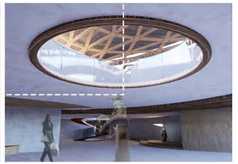


1.Prologue——The Golden Foyer draws visitors into the building. Guided by the spatial flow of the public hall, they descend into the B1 Spiral History Exhibition Hall, where the atmosphere becomes still and contemplative, immersed in the long river of history, the journey of exploration begins.

2.Beginning 1——the flowing space guides visitors into a mottled corridor of historical relics, inviting them to explore the life paths of ancient ancestors from thousands of years ago.

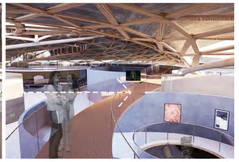
2.Beginning 2——Following the spiral exhibition path, natural light cascades from the rooftop. Throughout the day's shifting light, the architecture subtly embodies the ancient Shu people's reverence for the sun.

4.Climax——Dialogue Between Past and Present: The ancient masks and modern faces meet face to face at Sanxingdui, gazing, contemplating, and imagining — where the power of culture touches both body and soul.



3.Development——The circular atrium channels golden daylight reflected by oak into the exhibition hall, guiding visitors to ascend the stairs to the second floor and offering them a unique perspective.

5.Further Development——Stroll through the corridor of time and space and immerse yourself in Sanxing culture.



6.Ending——Looking back along the corridor of history, one laments the fleetingness of life and arrives the endless flow of the Yangtze River. The mysterious Sanxingdui offers profound inspiration.

03 Time Planning Burean

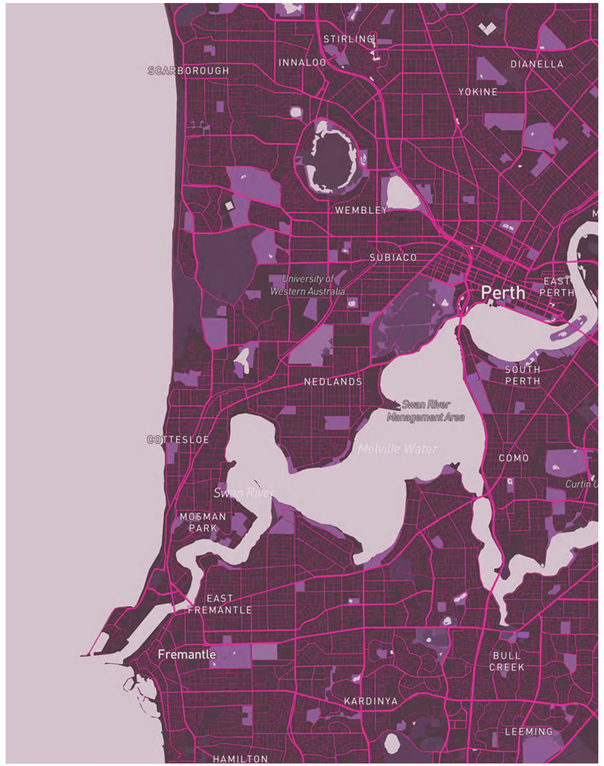
2024 Design Project at Curtin University（Exchange Student）

It is mentioned in the Perth 2050 urban plan that Perth's population will increase by 1.5 million by2050. Faced with this population growth of a large number of foreign residents, as well as the low-density decentralized growth of Perth's city, a large number of job opportunities are concentrated in theCBD. However, practical housing is in short supply, and there is an urgent increase in housing rents(monthly rent > monthly loan for house purchase). Despite this, there are still phenomena in the currenturban CBD that office buildings are idle at night and have low utilization rates.

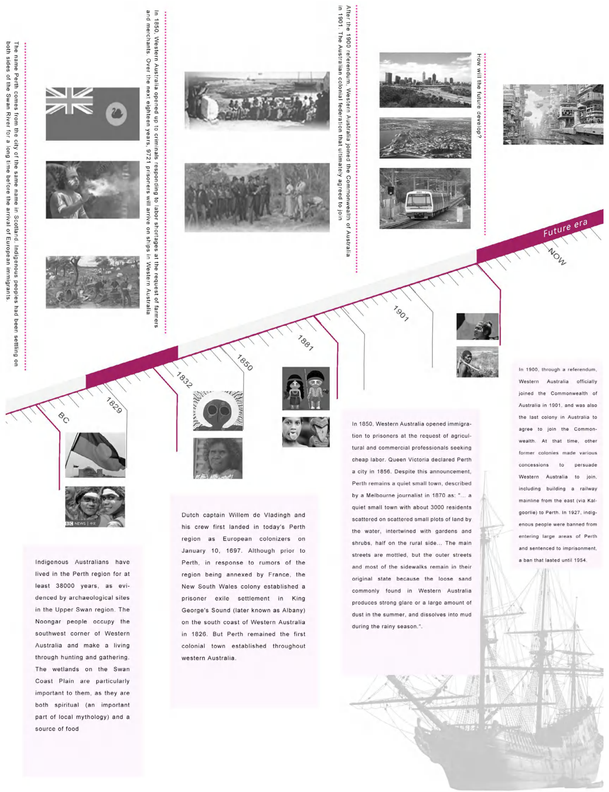
We hope to put forward the loopholes The concept of "time planning bureau" improves the occupancyrate of the building itself, makes full use of the 24 hours a day in the building, combines the networkcity model, and radially combines with the development of surrounding areas. We propose a conversionmodel based on time and space efficient utilization of the lower office to carry the architecture.

Location Analysis

The project is located in the capital of Australia western Australia state, which is also the fourth largest city in Australia. Perth is ranked among the best cities in the world to live in every year, reflecting that Perth is an excellent city in terms of living environment, quality of life and social welfare.

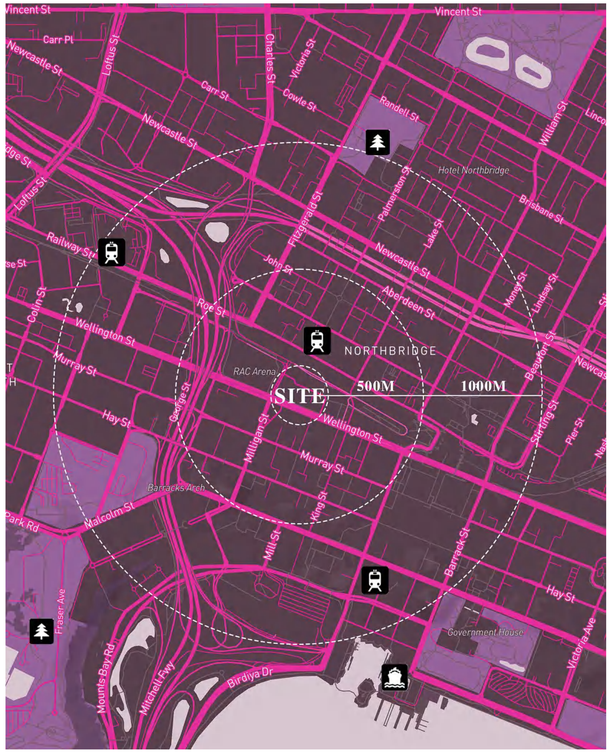


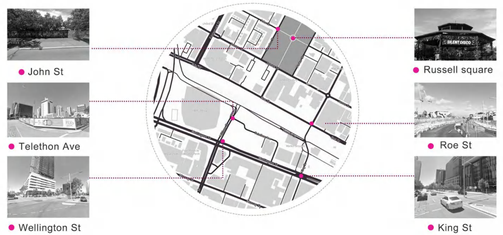
Historical Evolution

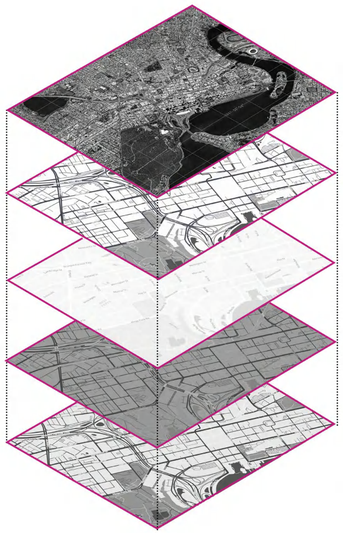


Site Analysis

Geographically, Perth's CBD is small in size and a large population is concentrated on the outskirts of the city. The CBD area is easily accessible, with multiple train stations within 1 km, Perth Station being the largest transit centre, and a port. Convenient transportation is a realistic guarantee to improve the utilization rate of CBD buildings and accommodate more people







Each city, depending on its geographical location, along with different civilizations,cultures and customs, has gradually formed a unique urban style in the process of historical development.

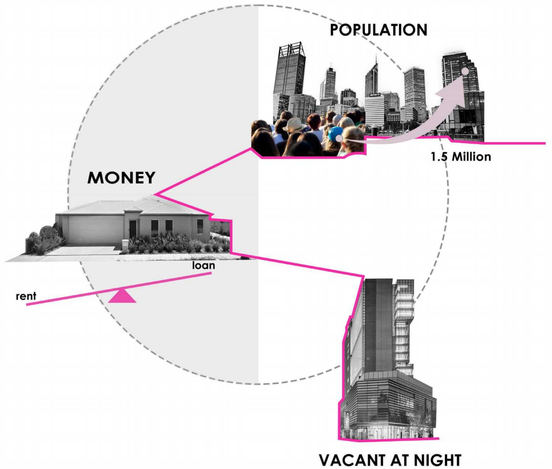
These buildings, streets, road networks, green spaces, and lakes constitute its unique urban texture.

From these satellite maps, we can get a glimpse of the history of urban development from God's perspective without leaving home.

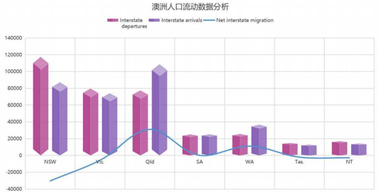
Perth, Australia's evolving land-scape reflects urban growth, withexpanding infrastructure, modernarchitecture, and sustainable devel-opments.

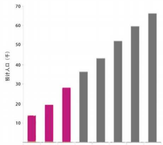
Waterfront rejuvenation,green spaces, and a thriving citycenter characterize Perth's dynamicland transformation.

Current Issues



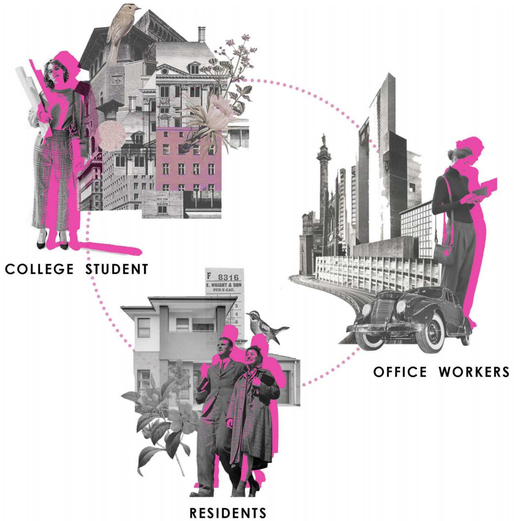
With Perth's office buildings vacant at night, and housing at a much higher monthly rent than the monthly payment to buy a house, and Perth's population is expected to grow by 1.5 million by 2050, finding ways to increase the availability of office buildings at night is the only way to improve the housing problem.





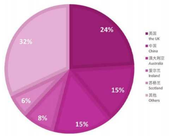
In terms of domestic population flows, Western Australia, where Perth is located, is second only to Queensland in terms of net population growth. Population growth is expected to continue over the next 10 years

Crowd Analysis

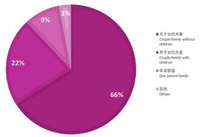


Proportion of population in different age groups

The proportion of ancestral origin



The family structure



Looking at Perth's demographics, people aged 20 to 39 account for about half of the total population, and the population is younger. The United Kingdom is a major source of immigration. In terms of family composition, two-person families without children account for about 7 percent

SWOT Analysis

S STRENGTH 优势

1. **Convenient Transportation**
   There are 32 bus stops within a 5-minute walk and a train station within a 10-minute walk
2. **Complete Facilities**
   The 15-minute walking distance can cover the surrounding business and cultural buildings.
3. **Large Target Audience**
   The site is close to the school, containing a large amount of student ; located in the CBD, which is full of office workers

W WEAKNESS 劣势

1. **High Rent**
   located in the city center, high cost of living
2. **Crowds are Tidal**
   Population vitality is different in different time periods

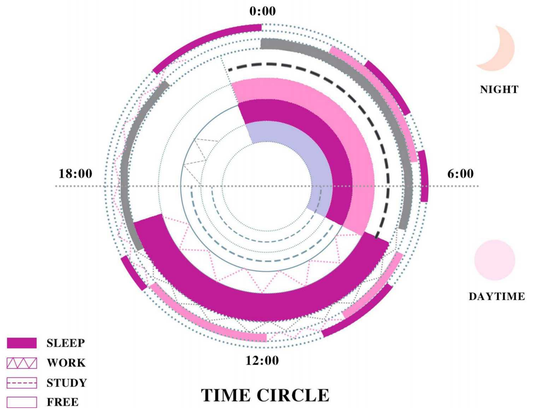
O OPPRETIONS 机遇

1. **Policy Support**
   The government expects the population to grow to 3.5 million by 2025, with an increase of 700,000 housing units.
2. **The vacancy rate in office buildings is high.**
   Through the renovation of office space, more people can be provided with homes

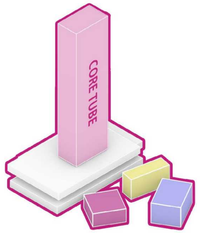
T THREATS 挑战

1. **Market Treat**
   New homes are on the rise, audiences are diverse, and competition is fierce
2. **Privacy**
   Converting public office space into residential space increases the need for privacy

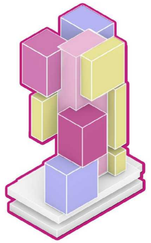
Concept Generation



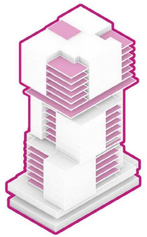
Block Generation



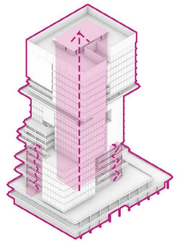
Determine the approximate volume of the group house and the core, and set up three different functional block "building blocks"



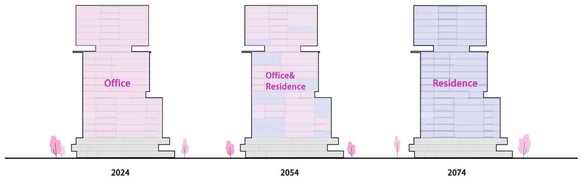
Insert different functional blocks on the core



Embed platforms between different blocks to enhance the connection between them

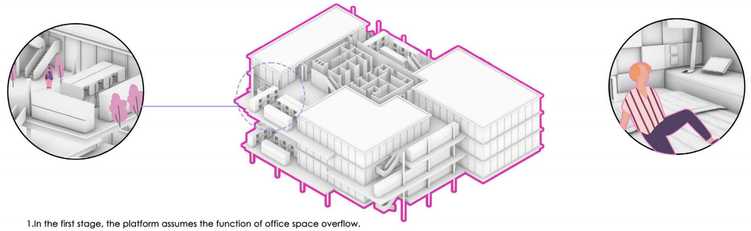


Increase vertical transportation and connect public areas



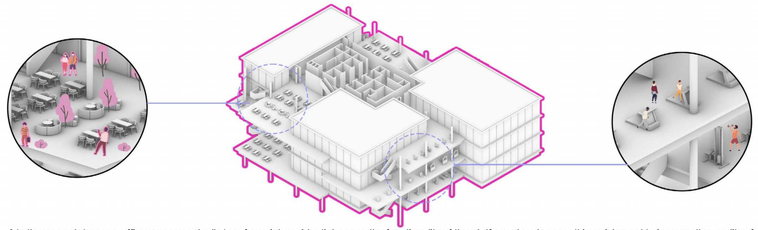
The box and platform functions of the two modules will gradually transition to residential functions in the future, and the whole transition can be roughly divided into three stages, and it is expected that the transformation of all modes will be realized in 2074

Functional transformation over time



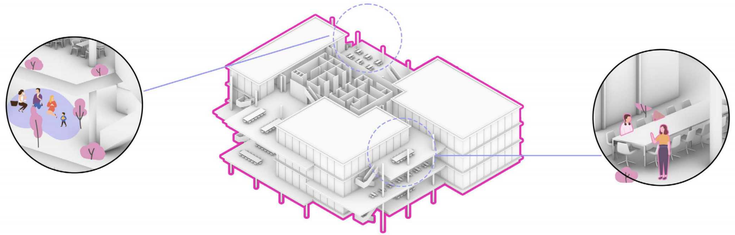
1.In the first stage, the platform assumes the function of office space overflow.
2.A temporary resting place on the platform, such as a space capsule.
3.The emergence of temporary rest areas has saved office workers time commuting between home and work, improving time utilization.

First Stage



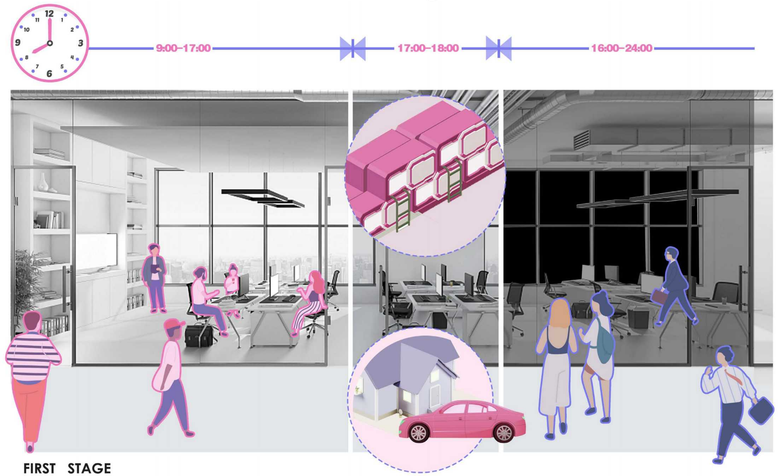
1.In the second stage, as office space gradually transforms into residential space, the functionality of the platform also changes. It is mainly used to improve the quality of office space.
2.Coffee, fitness and other leisure auxiliary functions have become the main functions of the platform

Second Stage



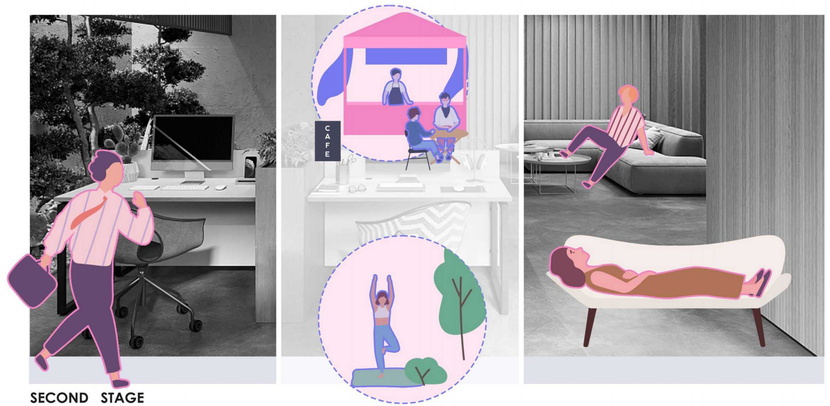
1.In the third stage, residence becomes the main function of the building. The office area has been streamlined again, but the quality of office has gradually improved. At the same time, ecological elements such as plants have been introduced to create a new model of ecological office.
2.The vacant platform has become a good place for residents to relax and provide more outdoor interaction opportunities.

Third Stage



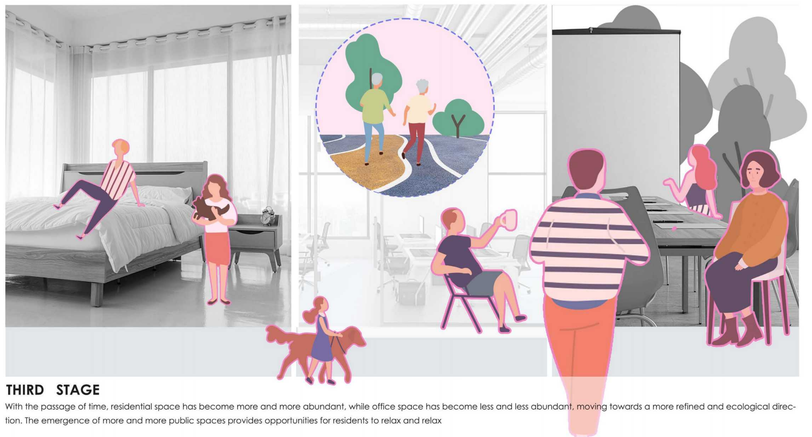
FIRST STAGE

The office is rotated by multiple groups of people. After one group of people finish their work, the vacant office is taken over by another group of people. The person who finishes work can choose to drive home or temporarily stay in the spacecraft.



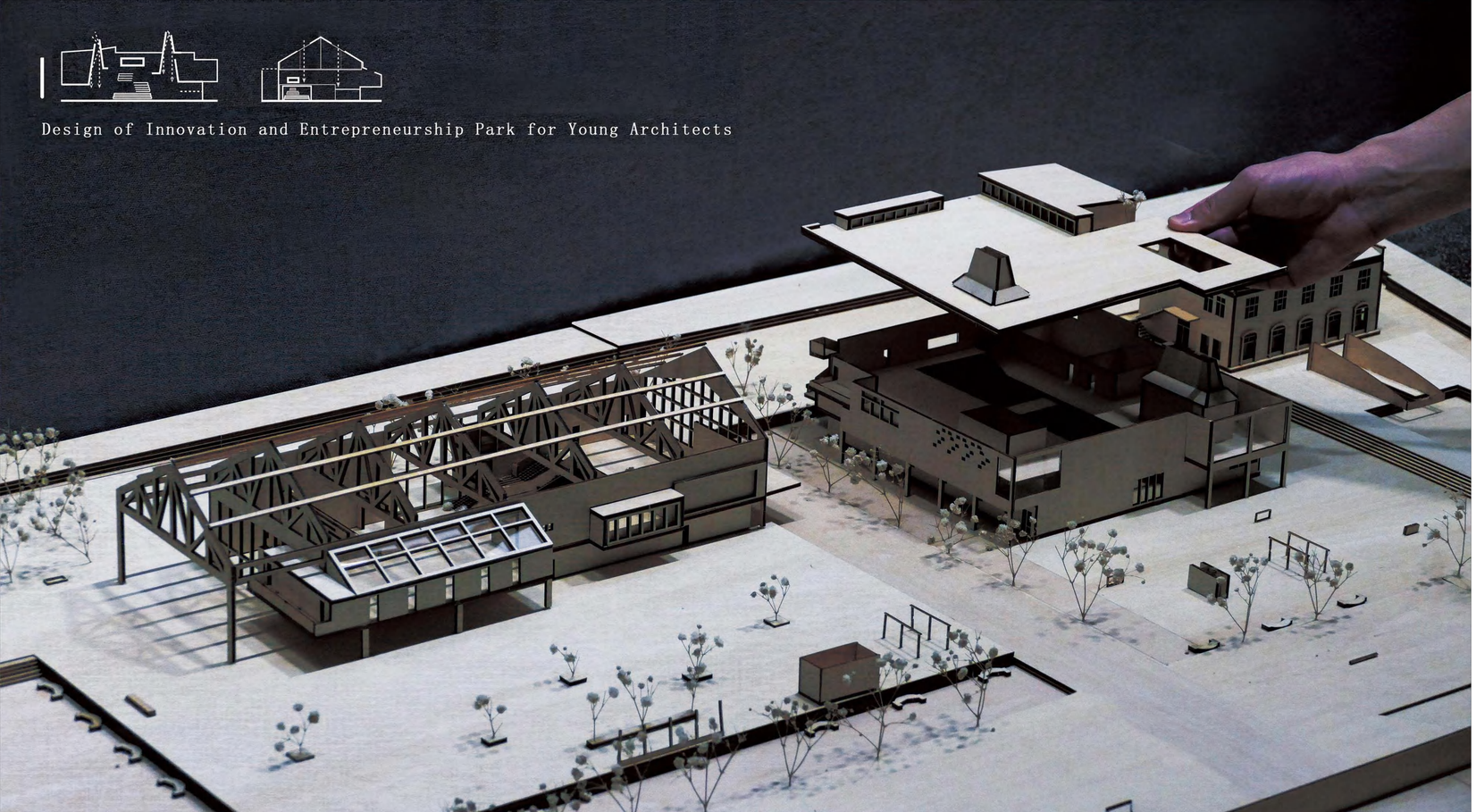
SECOND STAGE

The spatial form has changed to include both office and residential functions. This form can save the commuting time of the staff. More free time allows office workers more time to relax and exercise.



THIRD STAGE

With the passage of time, residential space has become more and more abundant, while office space has become less and less abundant, moving towards a more refined and ecological direction. The emergence of more and more public spaces provides opportunities for residents to relax and relax



04 A Chronicle of Framed Views

Design of Innovation and Entrepreneurship Park for Young Architects

2022 World Campus Masters Top108

The project is located on the former site of the Harbin Welding Research Institute, now an abandoned industrial relic. Anchored by the symbolic presence of the site's original chimneys, the design seeks to revive the fading memory of the place through spatial storytelling, material expression, and cultural continuity. The chimney serves not only as a physical remnant but also as a spiritual core, reinterpreted through the classical Chinese concept of "framed views."

The site is organized radially, with Phase I featuring an Exhibition Hall for Young Architects and Phase II housing an Innovation and Entrepreneurship Center. Phase I adopts a strategy of "subtraction and perforation" on a structural box, exposing and extending truss systems to evoke the industrial character of the old factory. Circulation is guided through layered framed spaces—thresholds, corridors, and view corridors—encouraging a gradual unfolding of the exhibition experience.

Phase II continues the narrative with a central courtyard and multifunctional stepped plaza that connects dynamic and quiet zones. Red brick light wells echo the texture and memory of the original buildings, creating contemplative zones where light and shadow animate the surfaces. Traditional "moon gates" are reimagined as spatial filters, creating a sequence of partial views that invite exploration and foster a poetic spatial rhythm.

By integrating structural language, historical memory, and spatial experience, the campus re-establishes a dialogue between the industrial past and the creative future, transforming the forgotten site into a vibrant hub for architectural exchange and innovation.

Historical evolution and current situation analysis

China Harbin Welding Research Institute was established

National Welding Materials Center was established

Large building size

The middle is a full-height

1956 — 1991 — 1994 — 2019

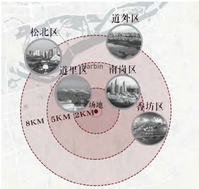
The first large-scale welding robot workstation was developed

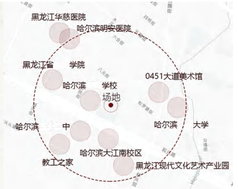
Original factory buildings were reassigned

Abandoned industrial facilities

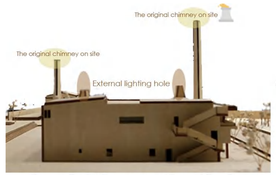
Steel plate attached to the wall

Location Analysis





Design Concept



Responding to the memory of the welding site

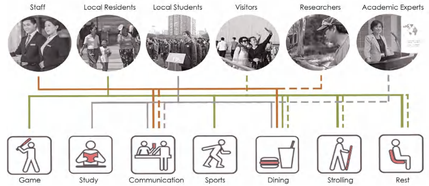
Welding factory remnants

Framed View

chimney

Meditative Light Space

Crowd Analysis



Site Plan

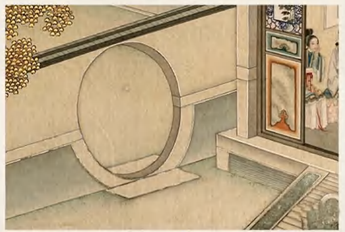
Young Architects Pavilion Framed View Journey and Narrative

"Drawing on the moon gate's interplay of solid and void to evoke a subtle sense of intrigue."

1."Framed Views at the Entrance — A Prelude"

"Hey, what's on that big staircase over there?"
"Let's go around and check it out."

"Like a pipa player half-concealed behind her instrument — partially visible yet never fully revealed, the space naturally arouses curiosity and invites deeper exploration."

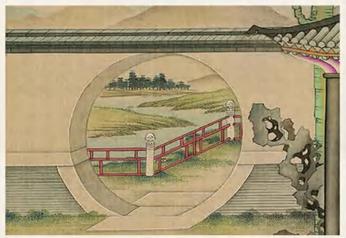


"A blurred aesthetic reminiscent of a beauty half-hidden behind her pipa — subtle, restrained, and full of allure."

2."Fuzzy Frame — The Opening"

"We still can't see it fully. Let's hurry over."
"Yeah, let's get closer and take a look."

"The opening offers a glimpse into the scenery beyond, functioning as a frame that guides the viewer's gaze."



"Grey bricks and soft-hued tiles compose a serene scene — a setting that gently draws in the quiet soul."

3."Framing at the Terminus — Progression"

"Dad, that building outside the window looks so special. Can we go over and check it out?"

"A journey from confinement to openness — where the interplay of light and darkness enhances spatial tension."

"A scene with every step, a changing view with every move."

4."Phase Two Framing — The Highlight"

"That building outside the window is really unique — it totally has that vibe of an old factory chimney on the site."

"A nuanced treatment of the threshold between inside and outside — deliberately blurred and spatially enriched."

"The doorway frames a harmonious scene of garden and foliage in mutual reflection."

5."Flowing Frame — The Conclusion"

"The skylight, framed by trusses and unified design, balances presence and openness in dynamic interplay."

"Framed by the moon gate's shifting interplay of form and emptiness, the garden presents a harmonious view."

"Layer upon layer of doors, as if stepping between the realms of the mundane and the ethereal."

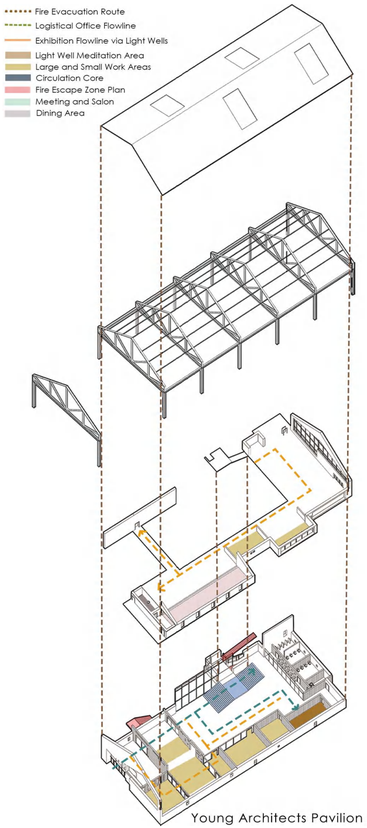
6."Mirror Journey Framing — The Epilogue"

"The glass box's openness fosters an exchange of sightlines, bridging the outdoor plaza with the indoor presence."

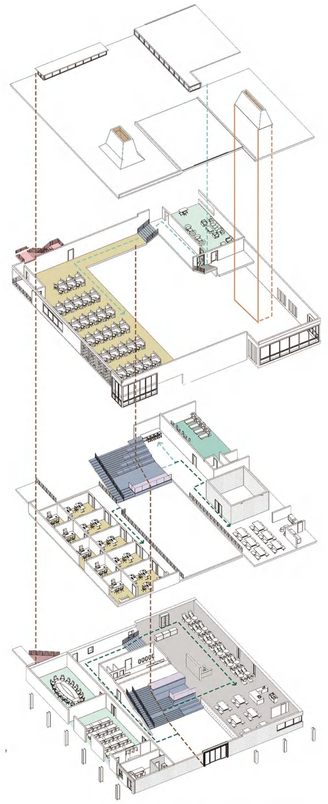
"Garden imagery woven into the industrial factory — as cene where the ethereal meets the contemporary."

Exploded Axonometric Drawing

- Fire Evacuation Route
- Logistical Office Flowline
- Exhibition Flowline via Light Wells
- Light Well Meditation Area
- Large and Small Work Areas
- Circulation Core
- Fire Escape Zone Plan
- Meeting and Salon
- Dining Area



Young Architects Pavilion



Young Architects Innovation Hub

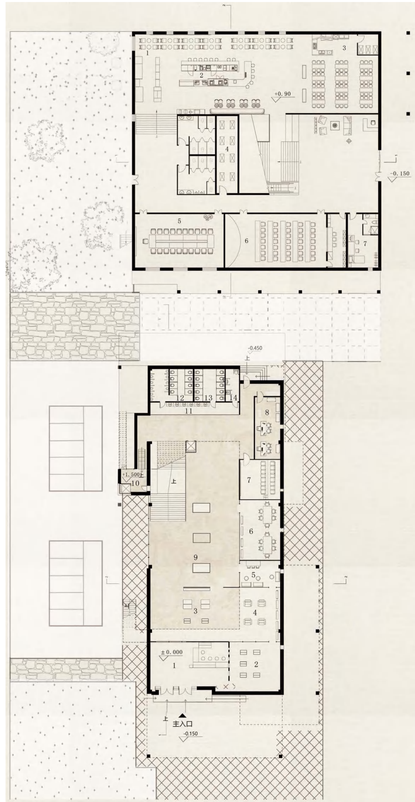
Innovation Center Framed View Journey and Narrative

Beginning — "By flattening the 'moon gate' from the French gardening style, a 'planar framed view' is created, shaping a stepped platform that combines both function and imagery."

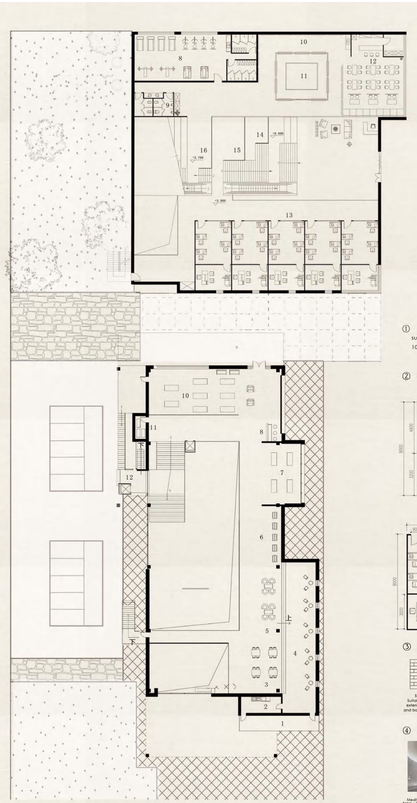
Development — "The layout evolves from linear spatial nodes to the shaping of spatial volumes, with steps ascending in different scales, creating a rhythmic beauty rich in contrast."

Climax — "The essence lies in the 'spatial-temporal mode of viewing,' which is subtle and profound, evoking new vitality in the old factory building; the transition between indoor and outdoor spaces is treated with a blurred yet rich approach."

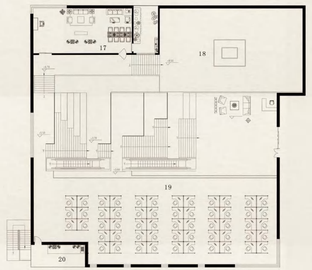
Technical Drawing



Ground Floor Plan



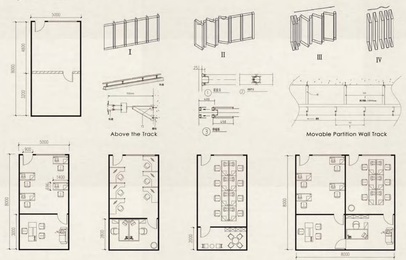
First Floor Plan



三层平面图 1：100

① Large and small workspaces, based on a 5000mm × 8000mm modular grid, feature movable and foldable walls for flexible subdivision and reconfiguration. This creates versatile shared offices that can be independently rented by small teams of 5 to 10 people.Designed for the dynamic workflows of young architects, tenants can adapt the space to suit activities such as

② Flexible Divider Wall



③ Brick Bonding Method

Stretcher Bond: Bricks laid lengthwise expose ends, with stable and balanced load transfer.

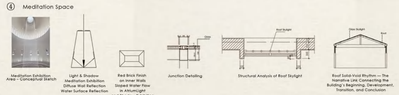
Concrete bricks echo the industrial structural elements of the Phase II factory, conveying a sense of solidity and structural strength.

A weathered brick wall with a rough, aged texture is used on the plaza facing Nanjin, blending texture with structural rhythm.

The inner wall of the light industrial workshop is a refined red brick, adding warmth and texture through a rich mix of tones.

Perforated brick walls enhance the light and shadow effects and evoke the old factory's historical character.

④ Meditation Space



Meditation Exhibition Area—Conceptual Sketch

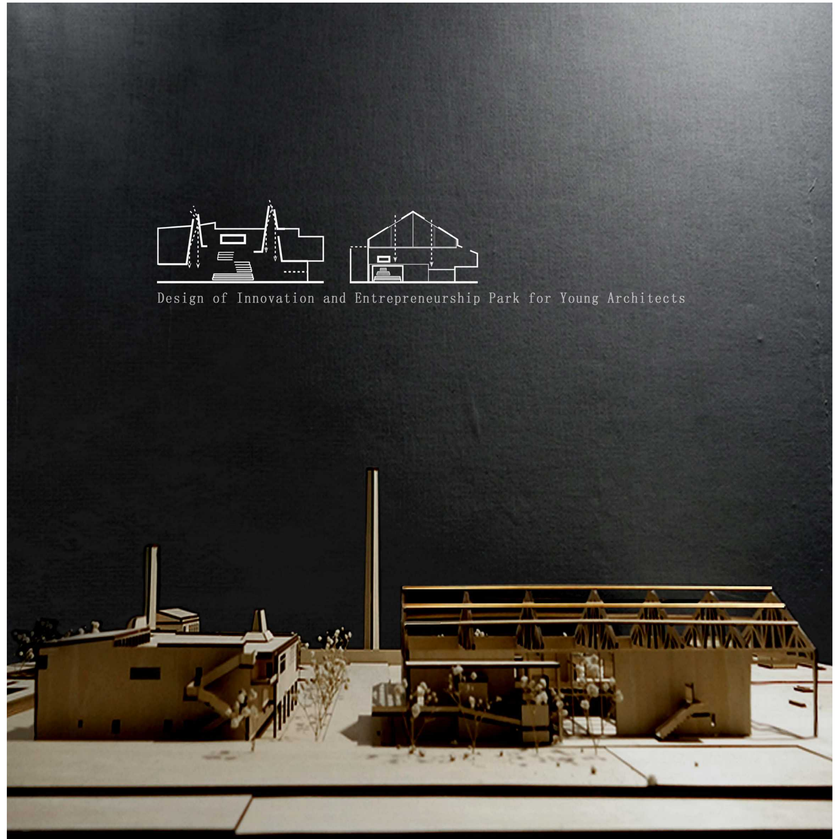
Light & Shadow Meditation Exhibition Area—Inspired by Shadows Water Surface Reflection

Red Brick Finish on Inner Walls Enhances the Ambiance in Moonlight and Shadow Exhibition

Junction Detailing

Structural Analysis of Roof Skylight

Roof Solid-Void Rhythm — The Narrative Line Connecting The Beginning, Development, Climax, Transition, and Conclusion



05 Chengde National Fitness Center Design

The 22th Asian Design Award(2024) Bronze Award

Located in the northern part of the main urban area of Shuangcheng District, Chengde City, Hebei Province, this project serves as the northern gateway to Chengde. Set against a backdrop of mountains and water, the site occupies a transitional edge between nature and urban life. The surrounding context is predominantly residential, including several apartment communities and the nearby village of Shuangfengsi.

Currently, the area lacks adequate public spaces and large-scale sports facilities—most recreational amenities are limited to school playgrounds. While a nearby circus provides some commercial infrastructure, such as hotels and banquet halls, the need for a comprehensive, county-level public building is evident to enrich the community's daily life and activate the region's social vitality.

In response to the site's unique topography—enclosed by mountains on three sides and bordered by water on the fourth—the design draws inspiration from the ridgelines of the surrounding hills. These lines inform the roof form, creating a sculptural silhouette that blends seamlessly into the natural landscape. The architecture aims to resonate with its environment, achieving a poetic dialogue between built form and nature.

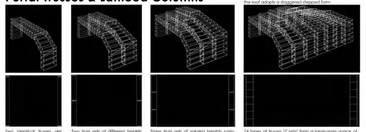
Analysis of the current situation of the site

Intention Extraction&Structure Establishment

Extracting the ridgelines of the surrounding three-side mountainous terrain

Responding to the site, integrating with nature — roof form generation inspired by the height

Portal Trusses & Latticed Columns



To achieve ample indoor natural lighting, Beyond 24m, adopt portal trusses.

Two identical trusses are connected to form one unit

Two truss sets of different heights combined with 0.2m spacing

Three truss sets of varying heights combined at 0.2m intervals

14 types of trusses (7 sets) form a large-span space of 35m×140m

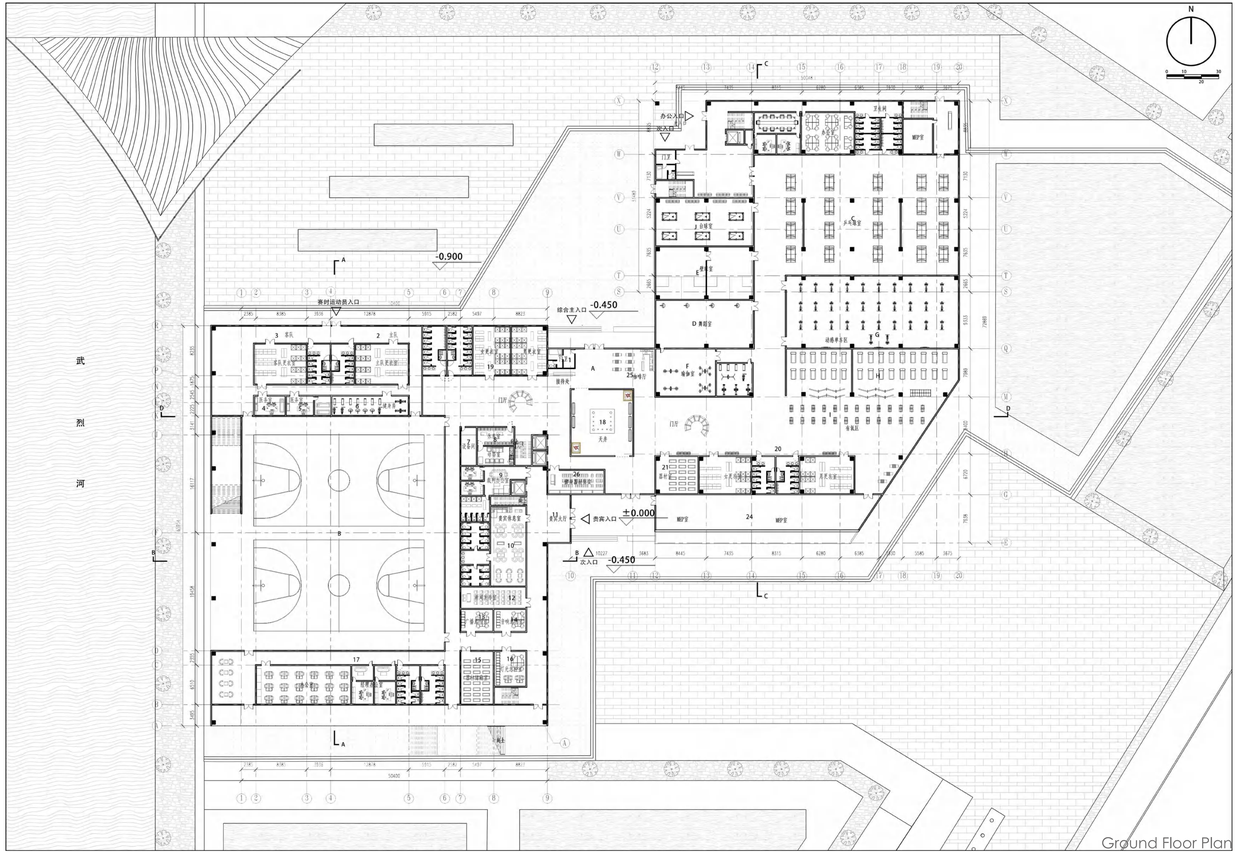
Macro level preliminary analysis

policy support

16.Promote the integrated development of sports and tourism. Promote and popularize outdoor sports such as ice and snow, mountain outdoor activities, aviation, water sports, marathons, bicycles, cars, and motorcycles.

17 .Create a social atmosphere for nationwide fitness. Popularize the national fitness culture, promote the Chinese sports spirit centered on patriotism and socialist core values, and strengthen the popularization and promotion of the Olympic spirit.

——Notice of the People's Government of Hebei Province on Issuing the Implementation Plan for National Fitness in Hebei Province (2021-2025)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武烈河
-0.900
-0.450
±0.000
-0.450
赛时运动员入口
综合类入口
贵宾入口
次入口
办公入口
A
B
C
D
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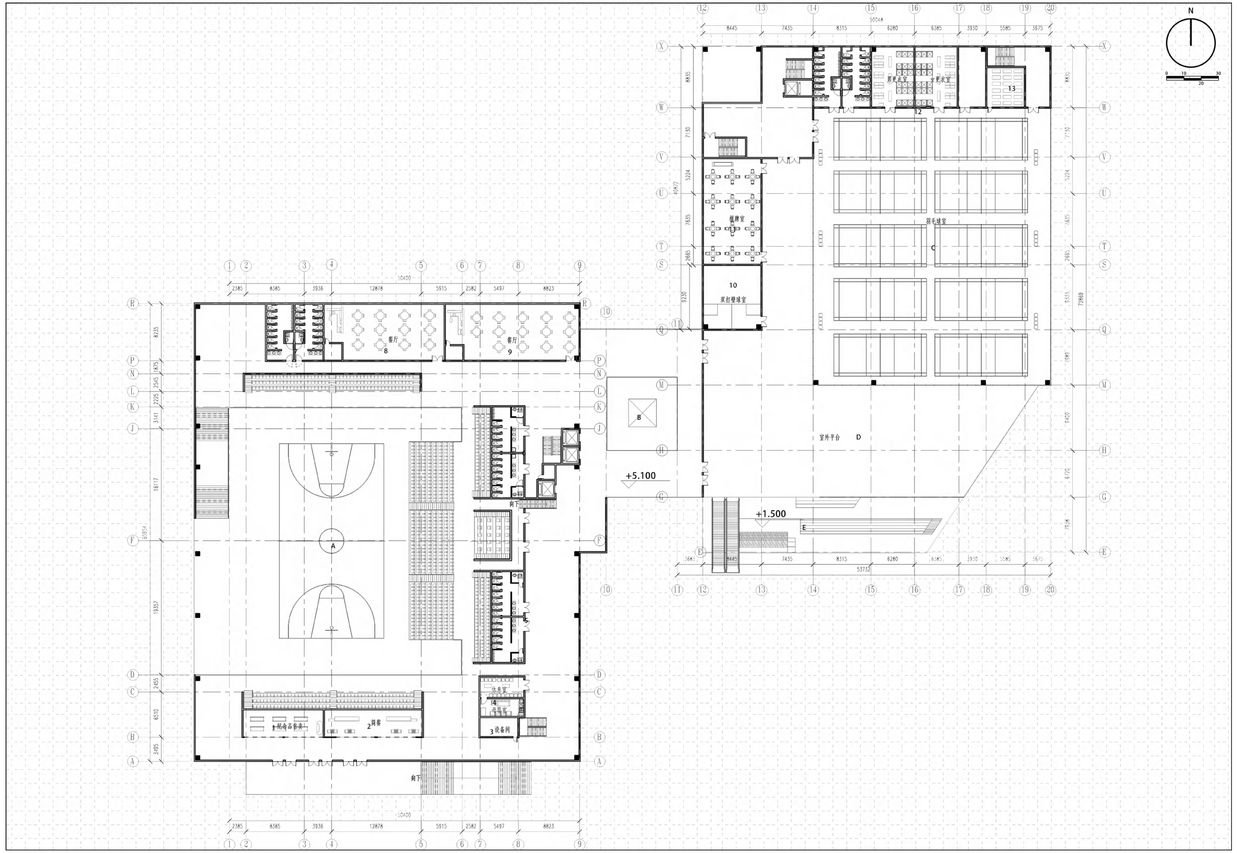
篮球场
排球场
羽毛球场
乒乓球场
D 舞蹈室
E 舞蹈室
F 舞蹈室
G 舞蹈室
H 舞蹈室
I 舞蹈室
J 舞蹈室
A 舞蹈室
B 舞蹈室
C 舞蹈室
舞蹈排练室
舞蹈表演室
男卫
女卫
卫生间
楼梯
电梯
门厅
Ground Floor Plan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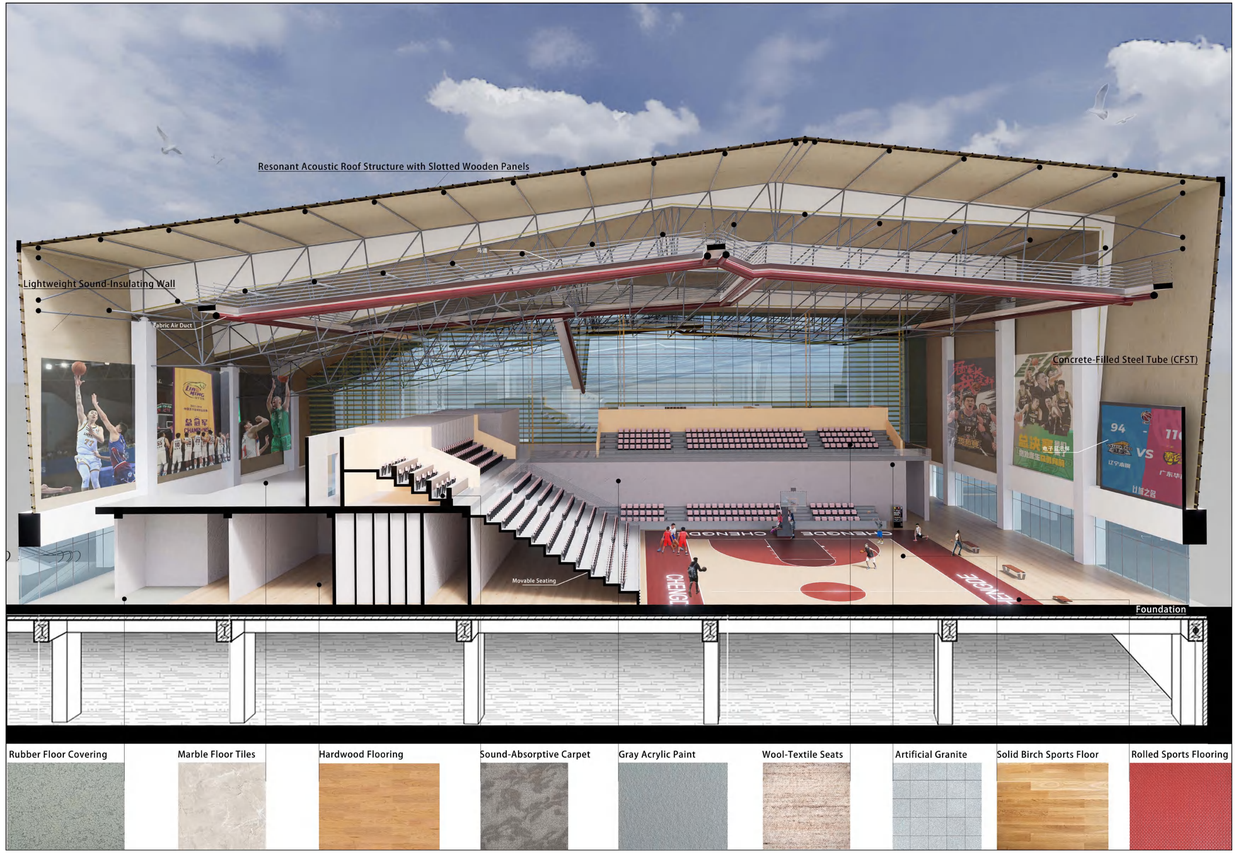
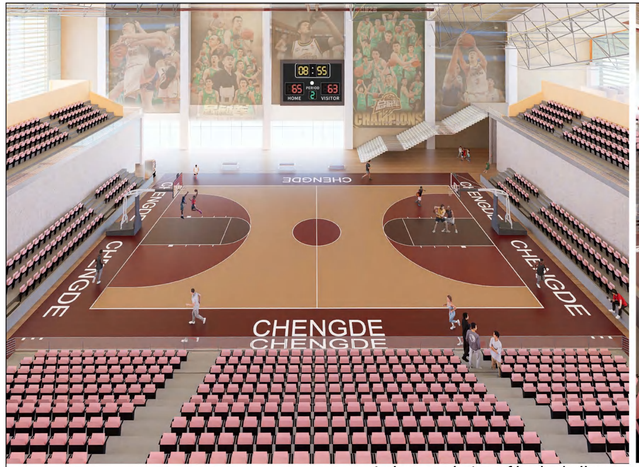
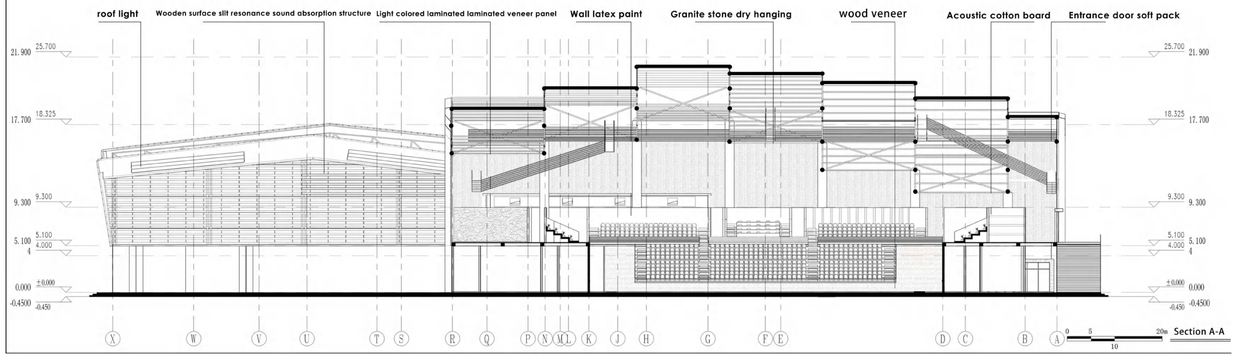

Resonant Acoustic Roof Structure with Slotted Wooden Panels
Lightweight Sound-Insulating Wall
Fabric Air Duct
Concrete-Filled Steel Tube (CFST)
Movable Seating
Foundation
Rubber Floor Covering
Marble Floor Tiles
Hardwood Flooring
Sound-Absorptive Carpet
Gray Acrylic Paint
Wool-Textile Seats
Artificial Granite
Solid Birch Sports Floor
Rolled Sports Flooring



Indoor rendering of basketball court

Indoor rendering of basketball court



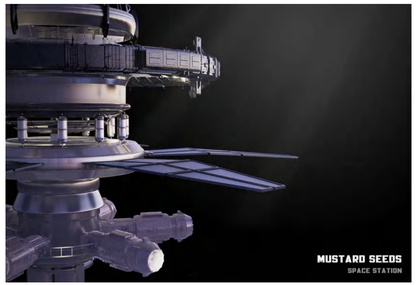
Other Works

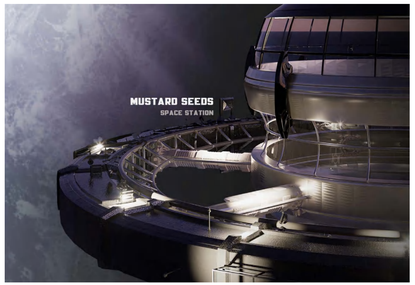
06 Mustard Seed — A Future Prefabricated Space Station

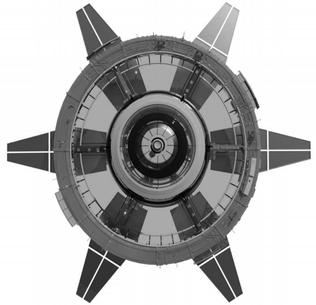
China HIT Space Station Space Science and Load Creative Innovation Design Competition

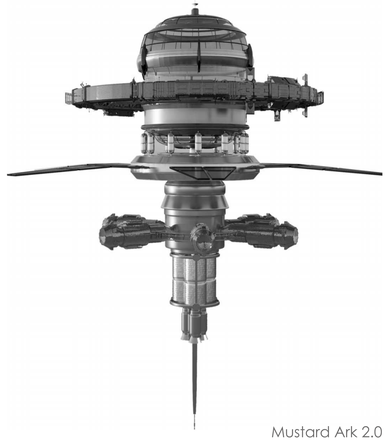
The purpose of this design is to use the concept of assembly in architecture to divide the future space station into the form of units, each type of unit has a corresponding function and space carrier, and can be combined according to actual needs. This design applies the existing prefabricated concept in architecture to the design of the space station, modularizes the components of the space station, and each type of unit can be combined between experimental units, residential units, storage units, etc., which greatly facilitates the construction, use, modification, disassembly and other processes of the space station.

Conceptual Model Iteration









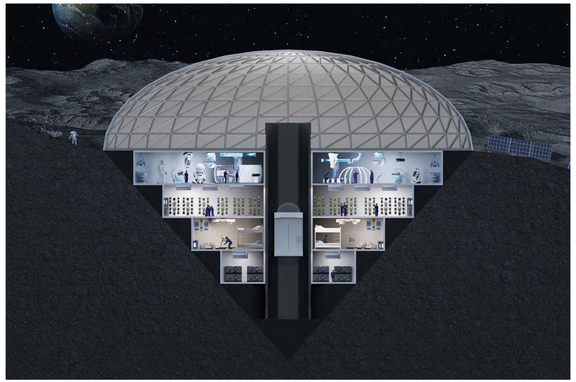
Mustard Ark 2.0

Other Works

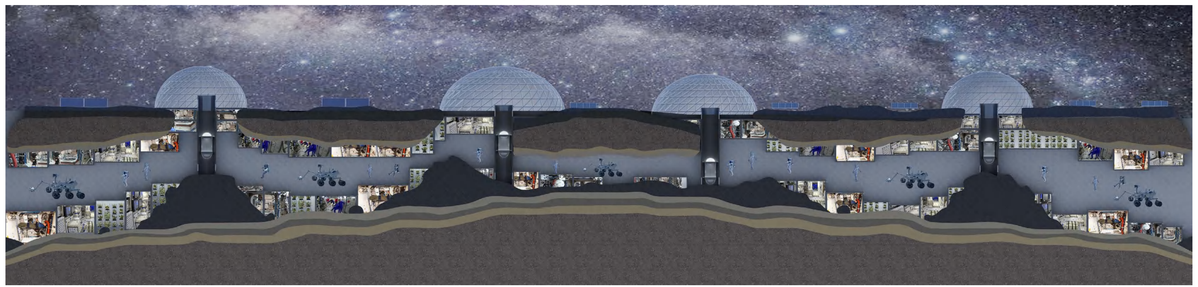
07 Lunar Underground Space Utilization in the 1.0 to 4.0 Era

Published in the 2024 Conference Proceedings of the Underground Space Committee, Architectural Society of China

The lava tube provides an open, stable environment that naturally shelters humans from cosmic radiation, temperature extremes, and micrometeorite impacts.

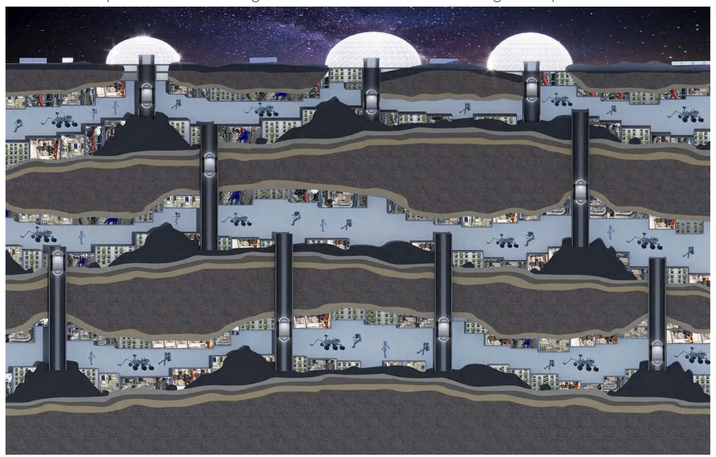


1.0 Era: Lunar underground utilization development 1.0: point-shaped underground space facilities.



2.0 Era: Development of lunar underground utilization 2.0: linear underground space facilities.

3.0 Era: Development of lunar underground utilization 3.0: surface underground space facilities.



4.0 Era: Development of lunar underground utilization 4.0: three-dimensional underground ecological city.

The development of lunar underground space should follow a phased and orderly approach based on evaluations of geological, environmental, and technical conditions. This article outlines **five key principles** and proposes a staged framework for future utilization from **Era 1.0 to 4.0**.

(1) Earth–Moon Integration
Lunar underground development requires combining Earth-based advances in materials, energy, and life systems with deep-earth technologies like air regeneration and water recycling. This integration supports efficient and sustainable lunar base construction and operation.

(2) Environmental Protection
To preserve the lunar environment, Earth-originating biological materials and pollutants must be strictly controlled. Excavation should avoid damaging lunar geology and maintain ecological balance.

(3) In-situ Utilization
Natural lunar features like craters and lava tubes offer protection and usable space. Local resources such as soil and minerals should be used for on-site construction, reducing dependence on Earth.

(4) International Cooperation
Lunar space is a shared human asset. Global collaboration in technology, research, and standard-setting is key to achieving mutual benefits in lunar development.

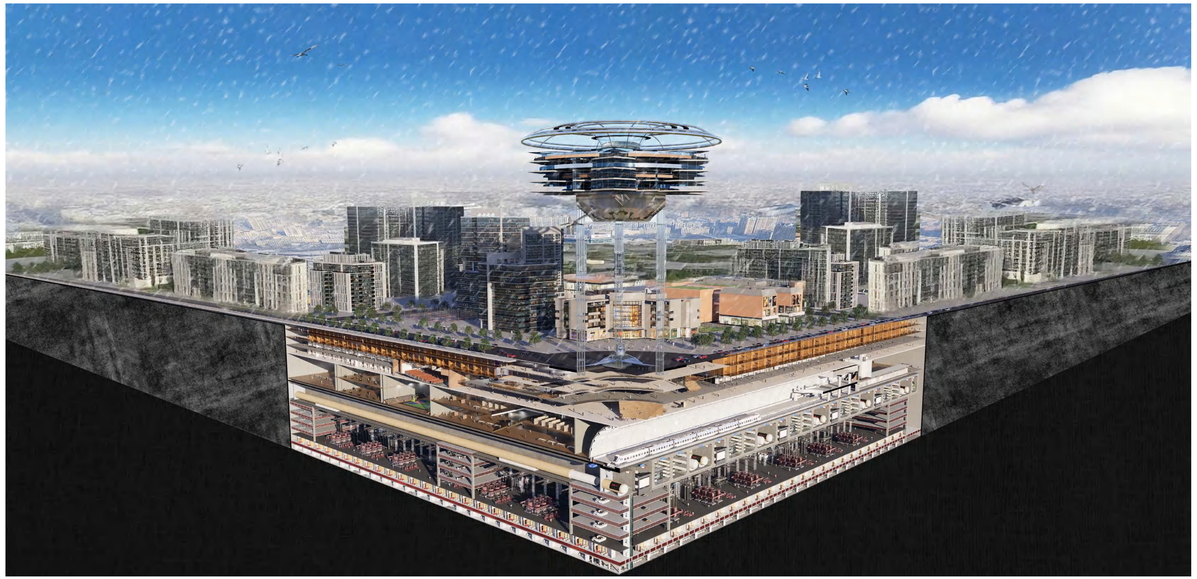
(5) Sustainable Development
Lunar underground resources are limited and should be used responsibly. Green, smart, and efficient strategies are essential to ensure long-term sustainability.

Other Works

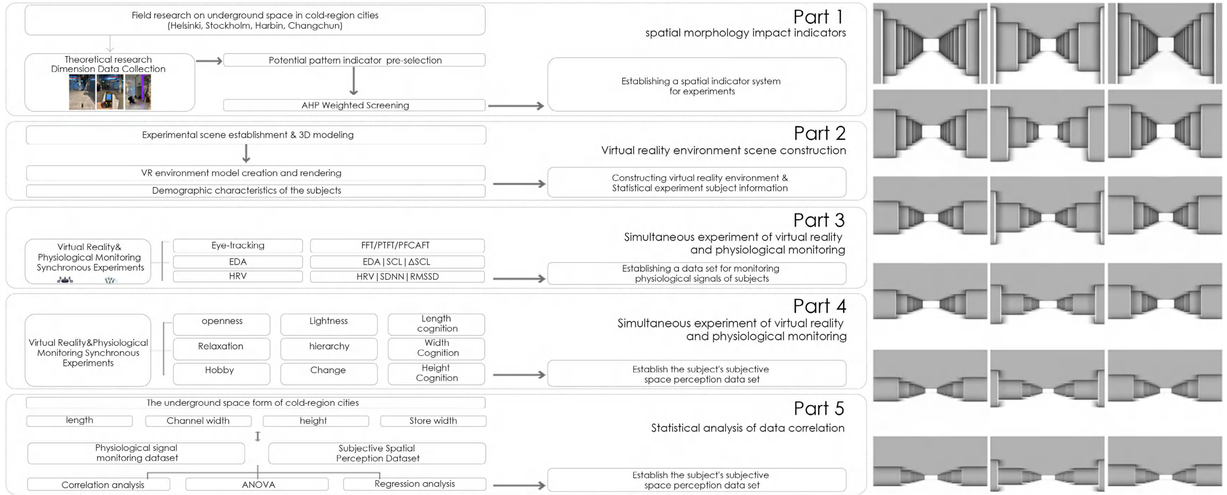
08 ColdLand Beneath: Human-Centered Underground Design in Cold Cities(Evidence-Based Design)

2024 Sino-Russian College Students Competition on Urban and Architectural Design

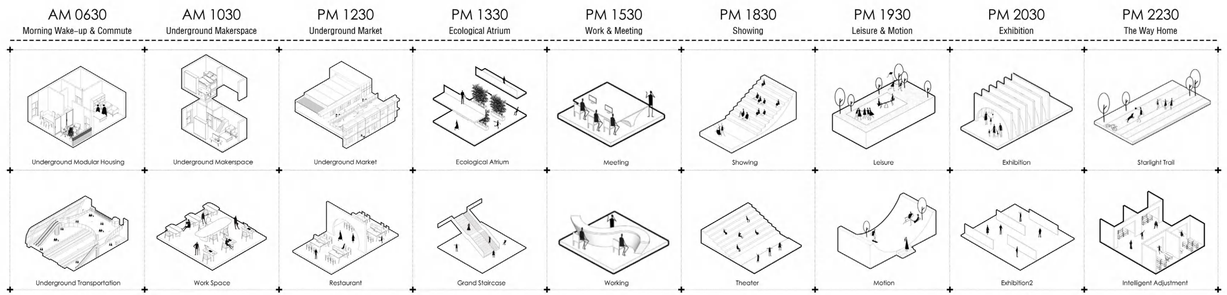
With accelerating urbanization in cold regions, the challenges of extreme climates on livability are becoming more pronounced. Providing high-quality, all-weather public space during long winters has become a key issue in cities like Harbin, China.This proposal, located in Harbin's Hongbo Square (former site of St. Nicholas Church), not only preserves historical memory but also envisions a future-oriented underground ecological city. Integrating ergonomics and the theory of "deep ecological city," the design adopts a five-scale system (macro–far–medium–near–micro), deriving spatial motifs from urban texture to build a multi-level ecological system.Through VR behavior experiments and physiological monitoring, the psychological and behavioral effects of spatial design are dynamically assessed. Meanwhile, a self-sufficient system of light, ventilation, water, and energy creates a model underground city that blends ecology, comfort, and cultural continuity—offering a new paradigm for sustainable public space in cold climates.



VR-Human Factors Feedback Verification Experiment



Activity Scene Time Series Analysis



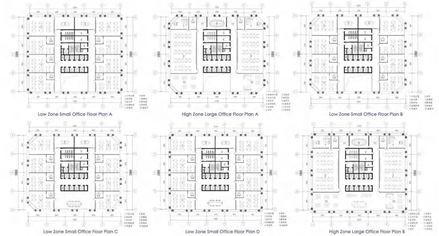
Other Works

09 TOD-Based International Financial Tower

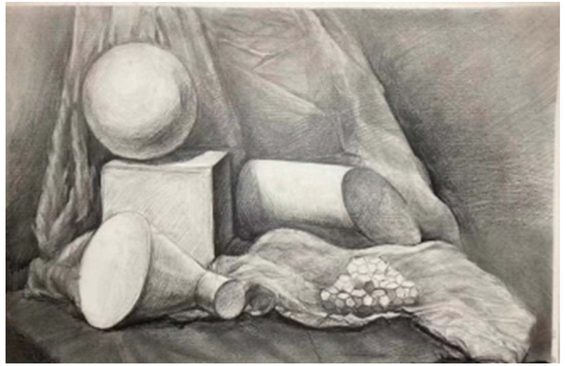
2024 Cross-Strait Emerging Design Huacan Award Competition National Third Prize

The site is located at a key transport hub in Harbin, near the high-speed rail station, airport expressway, and directly above a subway entrance. As a vital gateway for international exchange, it is expected to boost Harbin's financial and economic growth. To reflect its urban façade role and promote global interaction, the design adopts an exoskeleton structure, creating a simple, elegant, and strong architectural presence.

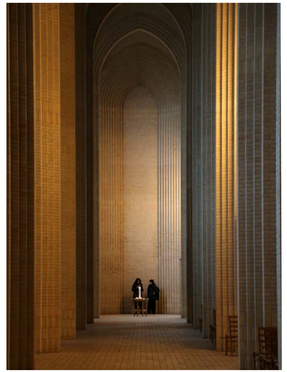
Ground Floor



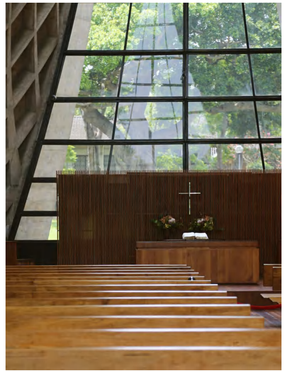
Drawing Works

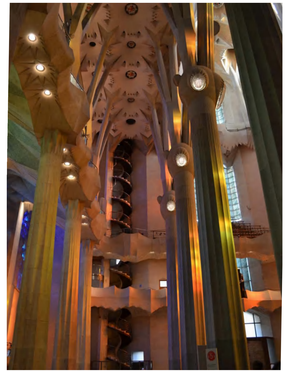


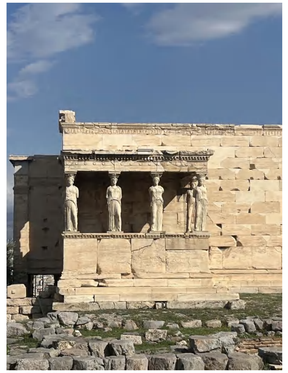
Photography Works


Grundtvig's Church, Copenhagen

Original Temple of Mazu, Meizhou Island

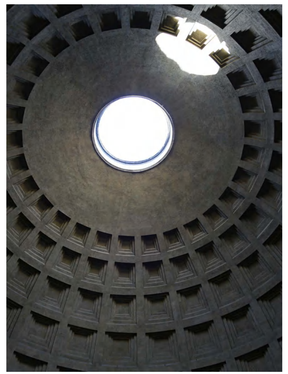

Luce Memorial Chapel, Taichung


Sagrada Familia, Barcelona

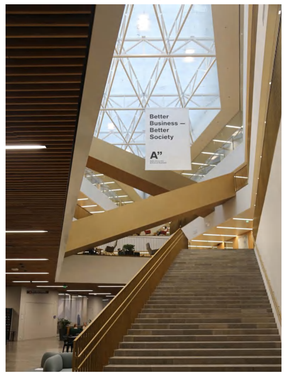

The Erechtheion, Athens

The Wiener Musikverein, Vienna

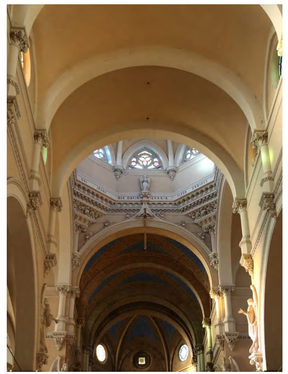
University of Western Australia, WA


Pantheon, Rome

Duomo di Milano, Milan



Aalto University, Helsinki


Church by the Milan Canals, Milan

Turin Cathedral, Torino

The Louvre Museum, Paris

St. Pierre Cathedral, Geneva