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The transformation of Industrial Heritage Sites into Public Spaces: Design Techniques and Means

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Research Object and Research Topic

Research Object:

The primary object of this research is industrial heritage sites, specifically the transformation of these sites into public spaces. The focus is on how to preserve the historical, cultural, and technological values of industrial heritage while adapting them to modern urban needs.

Research Topic:

The main topic of the research is the transformation of industrial heritage into public spaces, with an emphasis on design techniques and tools based on spatial narrative theory. The study explores various design strategies such as adaptive reuse, industrial archaeology and narrative display, landscape-first renovation, age-friendly design, and low-carbon and sustainable design as ways to transform industrial heritage sites into functional, culturally rich public spaces.



Research Objectives



- ✦ **To explore how industrial heritage can be transformed into public spaces:** The study aims to understand how spatial narrative theory can be applied in the design process to ensure that industrial heritage is preserved while introducing new functions.
- ✦ **To analyze key design techniques and tools for industrial heritage transformation:** The research identifies and examines methods such as adaptive reuse, industrial archaeology, and sustainable design to maintain historical authenticity and meet modern urban needs.
- ✦ **To provide practical design strategies for urban regeneration:** The research aims to develop a comprehensive design framework that can guide the transformation of industrial heritage into public spaces, contributing to sustainable urban regeneration and cultural heritage preservation.
- ✦ **To address ecological, cultural, social, and economic aspects of industrial heritage reuse:** The study intends to highlight how these transformations contribute not only to cultural preservation but also to ecological restoration and social inclusivity, in line with global sustainable development goals.



Concept and research background

Definition and Category

Industrial heritage = Industrial land, buildings, and associated spaces that have been left idle due to capacity transfer or the shutdown of production.

Mechanism of formation

Primarily driven by industrial restructuring, technological advances, and shifts in urban functions; although their original production roles have weakened or disappeared, they still retain strong potential for regeneration and adaptive reuse.

International background

Under the framework of the 2030 Agenda for Sustainable Development and the Paris Agreement, the reuse of old industrial heritage sites has risen from optimizing urban functions to a key measure for addressing climate change and sustainable development (low-carbon, circular, and socially inclusive).



Concept and research background

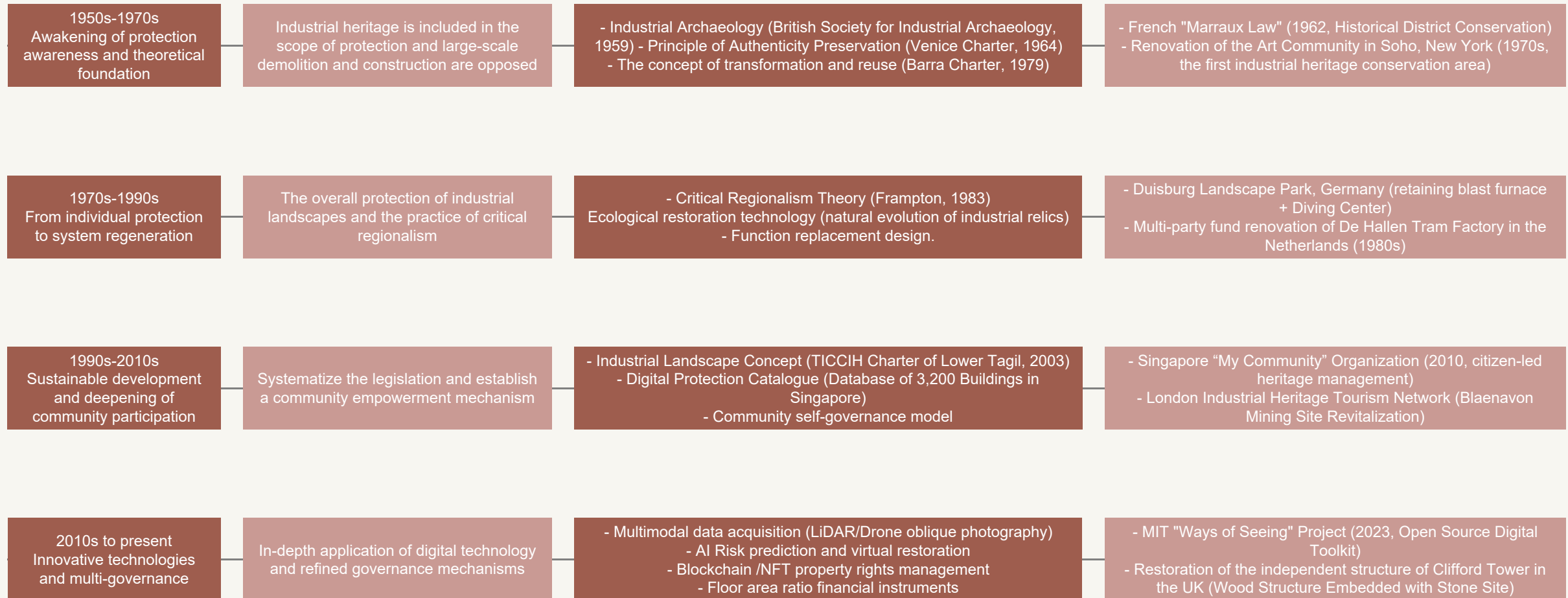
The relevant policies issued by China

2011	Regulations on the Expropriation of Houses on State-owned Land and Compensation	Standardize the procedures for house expropriation and clarify the rules for identifying unregistered buildings; Administrative forced demolition is prohibited. It is required to apply to the court for enforcement of relocation.	Safeguard the rights and interests of those whose properties are being expropriated and restrain demolition activities
2020	Implementation Plan for Promoting the Protection and Utilization of Industrial Heritage in Old Industrial Cities	Propose the goal of "transforming industrial rust belts into life show belts"; It is required to protect industrial heritage at different levels and develop cultural tourism, cultural and creative industries and other business forms. Promote the transformation of production shorelines into ecological living shorelines.	Prioritize protection, promote conservation through utilization, and activate the value of industrial heritage
2021	Notice on Preventing Large-scale Demolition and Construction in the Implementation of Urban Renewal Actions	Strictly control the demolition ratio ($\leq 20\%$) and the demolition and construction ratio (≤ 2); Preserve historical buildings and the layout of the old city. Prohibit the felling of old trees and the destruction of texture. Carry out a minor transformation of "embroidery skills".	Curb large-scale demolition and construction and strengthen historical protection
2023	Administrative Measures for National Industrial Heritage	Improve the criteria for identifying industrial heritage (historical, technological, social and artistic values); Establish a five-year dynamic review mechanism; Support the construction of industrial museums and research and study bases.	Equal emphasis should be placed on institutionalized protection and activated utilization
2025	Opinions on Continuously Promoting the Urban Renewal Action	Clarify the priority principle of "retention, modification and demolition", and only allow the demolition of D-level dilapidated houses and prefabricated slab houses with potential hazards. Support REITs financing; Deploy the "Four Good Construction".	Promote the transformation of the update model, taking into account both security and the continuation of the cultural context



Concept and research background

The development stages related to the protection of industrial heritage at the international level and the renewal of urban stock



Design method

Literature research method

By systematically reviewing and analyzing domestic and international literature on “industrial heritage conservation and adaptive reuse,” “industrial landscapes and brownfield remediation,” “typologies of cement-industry heritage,” and “spatial narrative theory,” this study establishes a robust theoretical framework and practical foundation for the paper.

Literature
research
method

Case analysis method

By conducting an in-depth examination of exemplary projects with characteristics comparable to the Jiangnan Cement Factory, this study provides practical references for the design research of the Jiangnan Cement Factory site.

Case analysis
method

Field investigation method

A multi-dimensional field investigation will be conducted centered on the Jiangnan Cement Factory, examining building morphology, floor-to-floor heights, dimensions, and structural systems, among other factors. In addition, the study will assess environmental and ecological conditions and analyze prospective user groups for future use.

Field
investigation
method

Design result



Methods for transforming industrial land

- **Adaptive Reuse**

Minimize intervention by retaining structural elements and material textures. Add new functions using lightweight, reversible components (like steel walkways or platforms). Preserve the industrial character through visible original materials and selective structural reinforcement.

- **Industrial Archaeology and Narrative Display**

Study the site's history, production flow, and key facilities. Create walkable, experience-driven routes that highlight historical nodes. Use authentic materials and minimal alterations to communicate the site's legacy clearly to visitors.

- **Landscape-First Transformation**

Restore soil and ecology before spatial design. Use permeable surfaces, rain gardens, and wetland features to manage water. Revive buried waterways and plant native species to enhance biodiversity and public interaction with nature.

- **Age-Friendly Design**

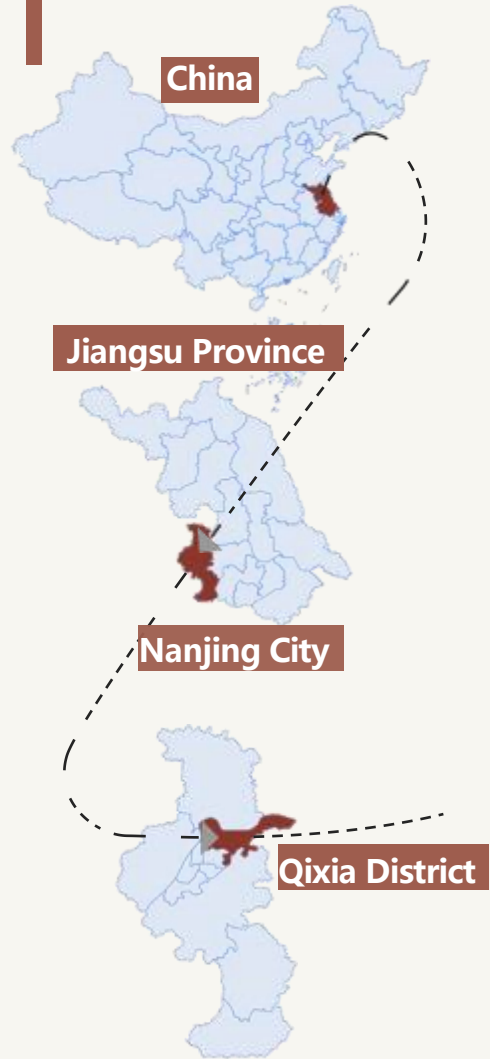
Ensure barrier-free access, safety, and comfort for all ages. Include shaded seating, child-safe play areas, quiet zones for seniors, and open plazas for communal activities, encouraging cross-generational engagement.

- **Low-Carbon and Sustainable Design**

Prioritize recycled and local materials to reduce emissions. Use rainwater collection and eco-friendly drainage. Combine architecture with green infrastructure to improve thermal comfort and support long-term ecological health.



Location Analysis



■ Site



Location Analysis



- Project site
- Industrial land
- Residential area land
- School land
- Tourist attractions/green Spaces
- River channel/water body

Overview of the venue

The renovation area is located at the eastern foot of Qixia Mountain Scenic Area. It is approximately 1,200 meters away from Nanjing Happy Valley in a straight line and about 870 meters away from the Yangtze River in a straight line. Meanwhile, there are several residential areas and four schools around the factory area.



Current Situation Analysis



There are industrial legacy buildings of relatively high height in the building complex to the north of Jiangnan Cement Plant. Although it has been in disrepair for a long time and lacks management, it still exudes the unique weighty atmosphere of heavy industry.

The water-adjacent area of the north entrance and exit is poorly managed and overgrown with weeds.



●Analysis of the Existing buildings of Jiangnan Cement Plant

Current Situation Analysis



●Floor plan of Jiangnan Cement Plant 1:250



Design plan

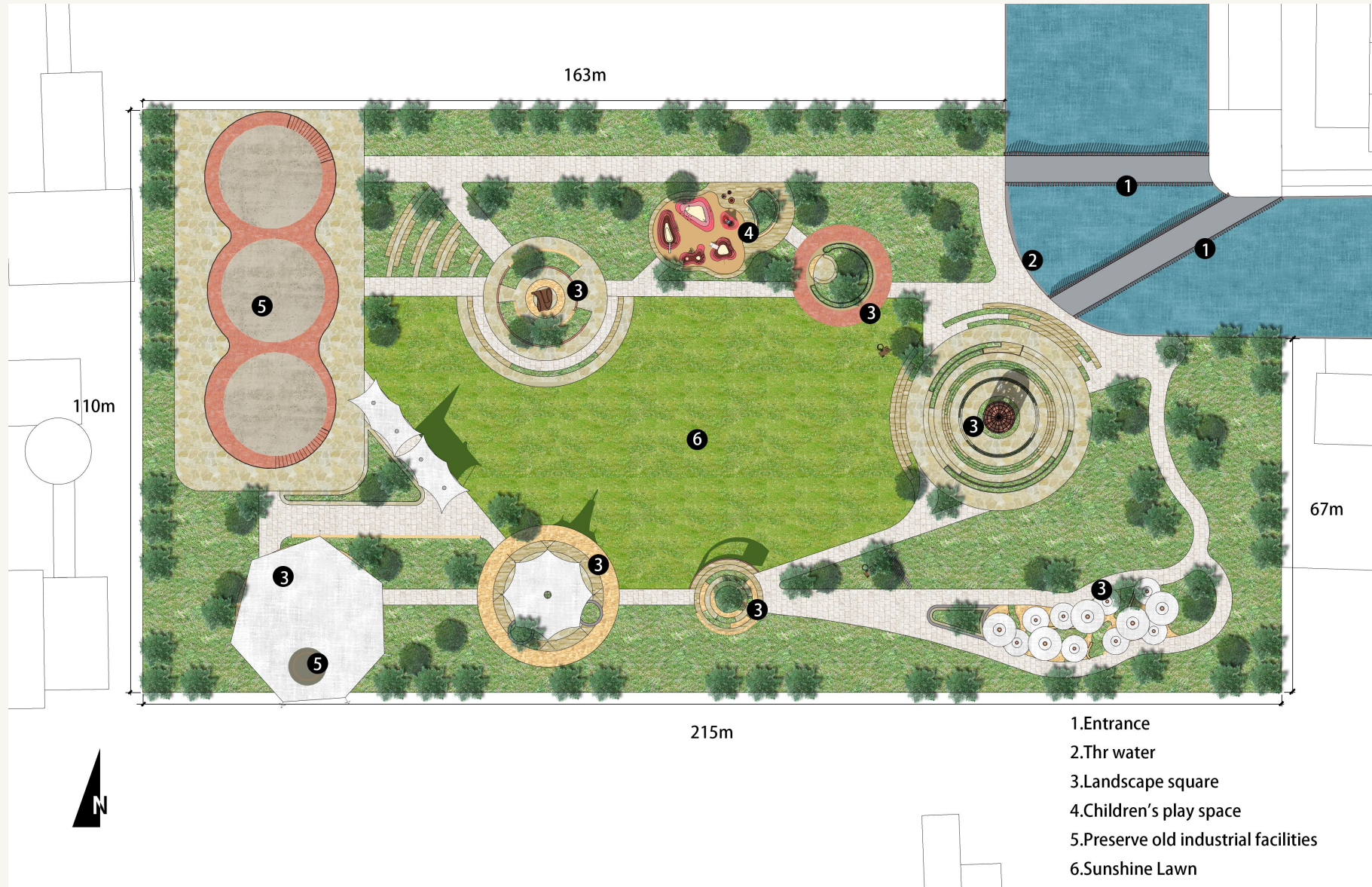


Overview of the project site

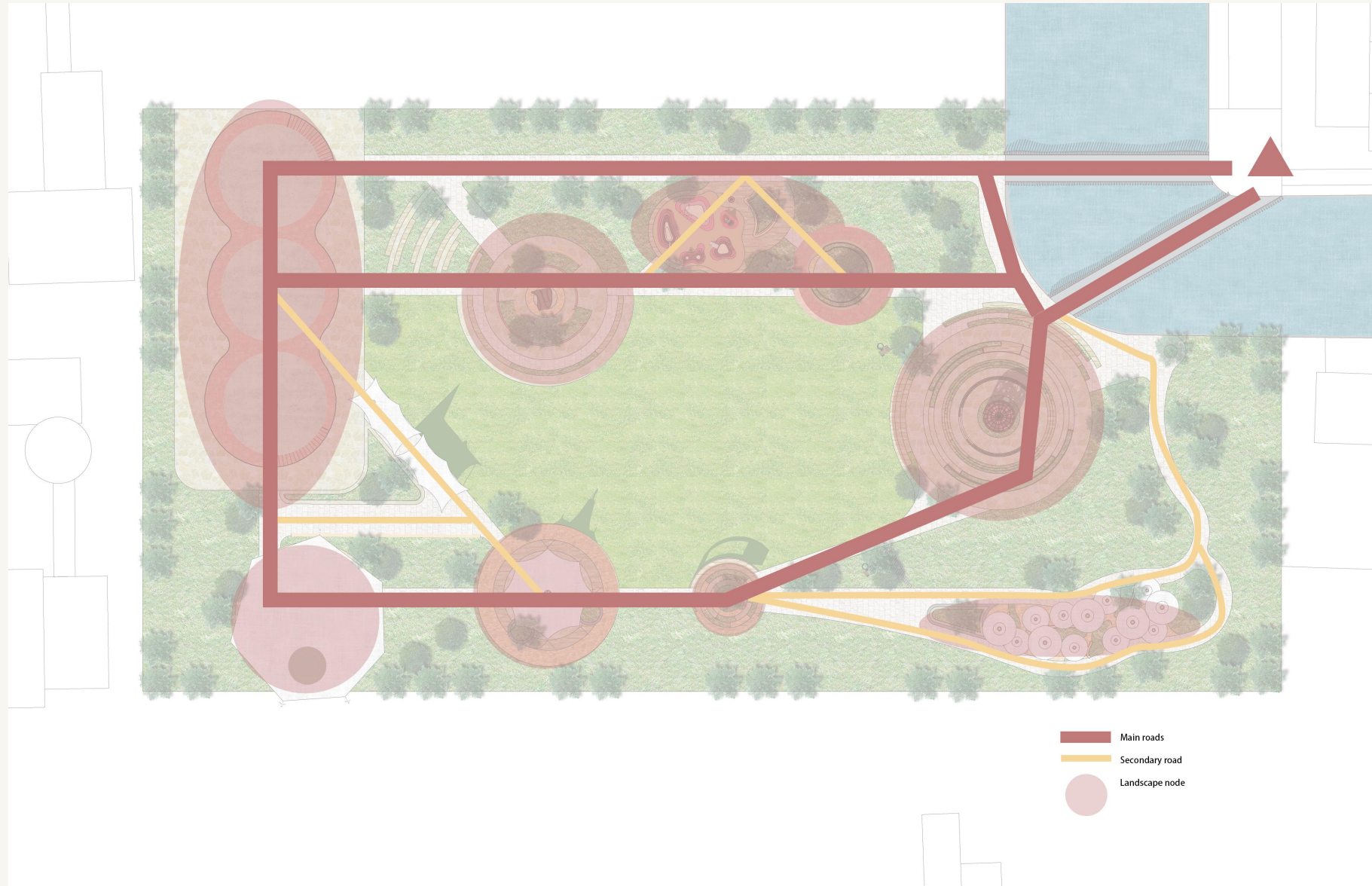
The renovation area is the central part of Jiangnan Cement Plant, with an area of approximately 23,650 square meters.



Design the functional partition map



Design the analysis diagram of road and landscape nodes



- Analysis of road and landscape nodes



Aerial view of the design



Design renderings

- Entrance area I



Picture display area



Design renderings

- Entrance area II



Picture display area



Design renderings

- Landscape square I



Picture display area



Design renderings

- Landscape square II



Picture display area



Design renderings

- Landscape square III



Picture display area



Design renderings

- Landscape square IV



Picture display area



Design renderings

- Landscape square V



Picture display area



Design renderings

- Landscape square VI



Picture display area



Design renderings

- Landscape square VII



Picture display area

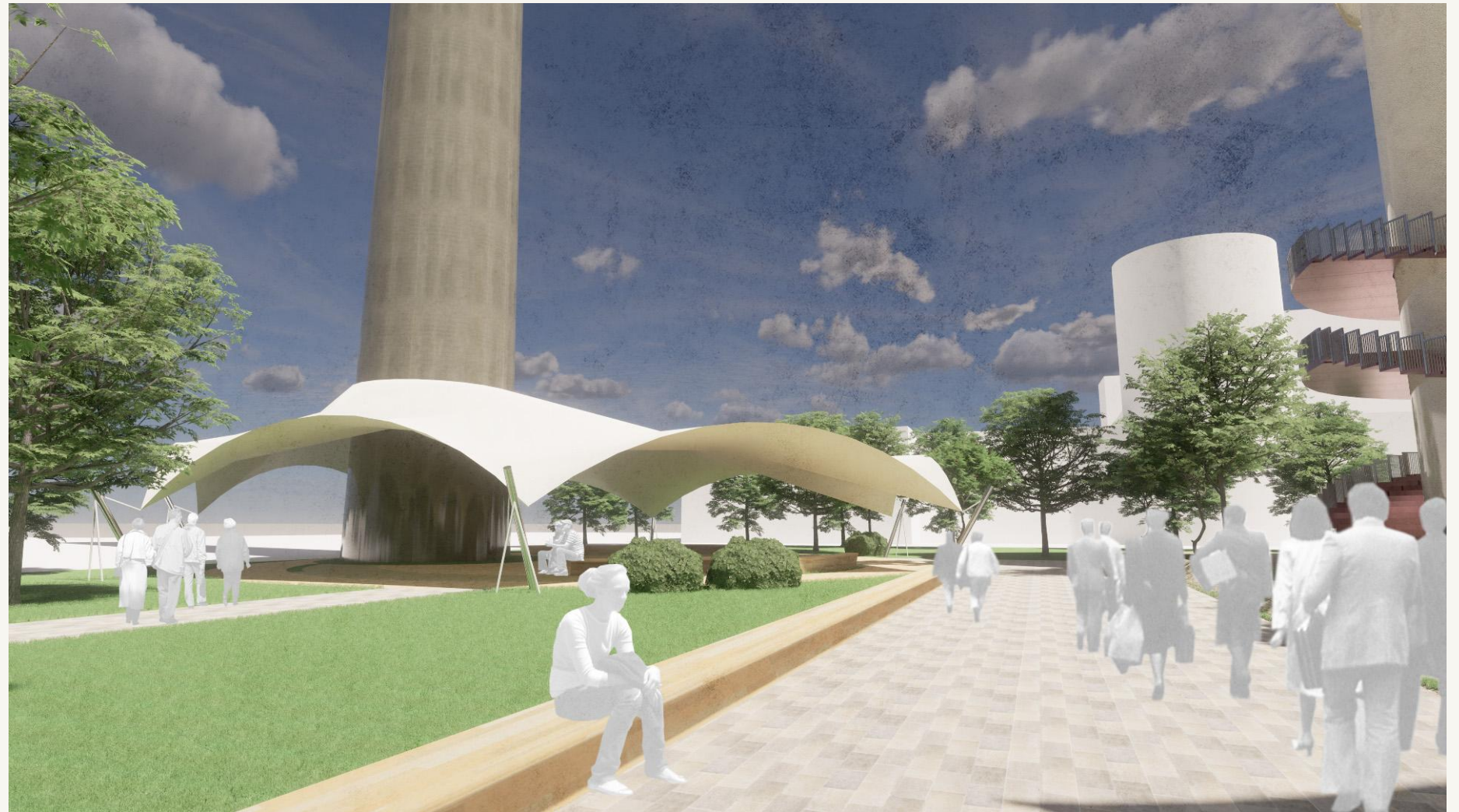


Design renderings

- Landscape square VIII



Picture display area



Design renderings

- Children's play area



Picture display area

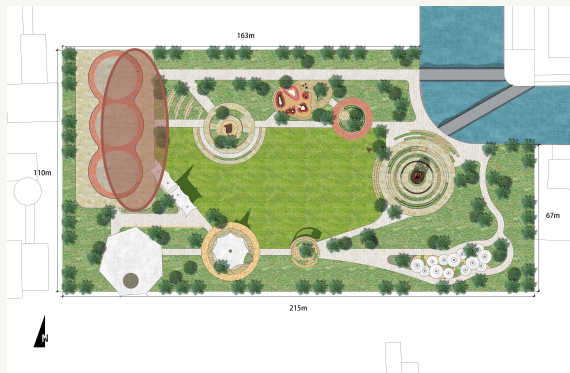


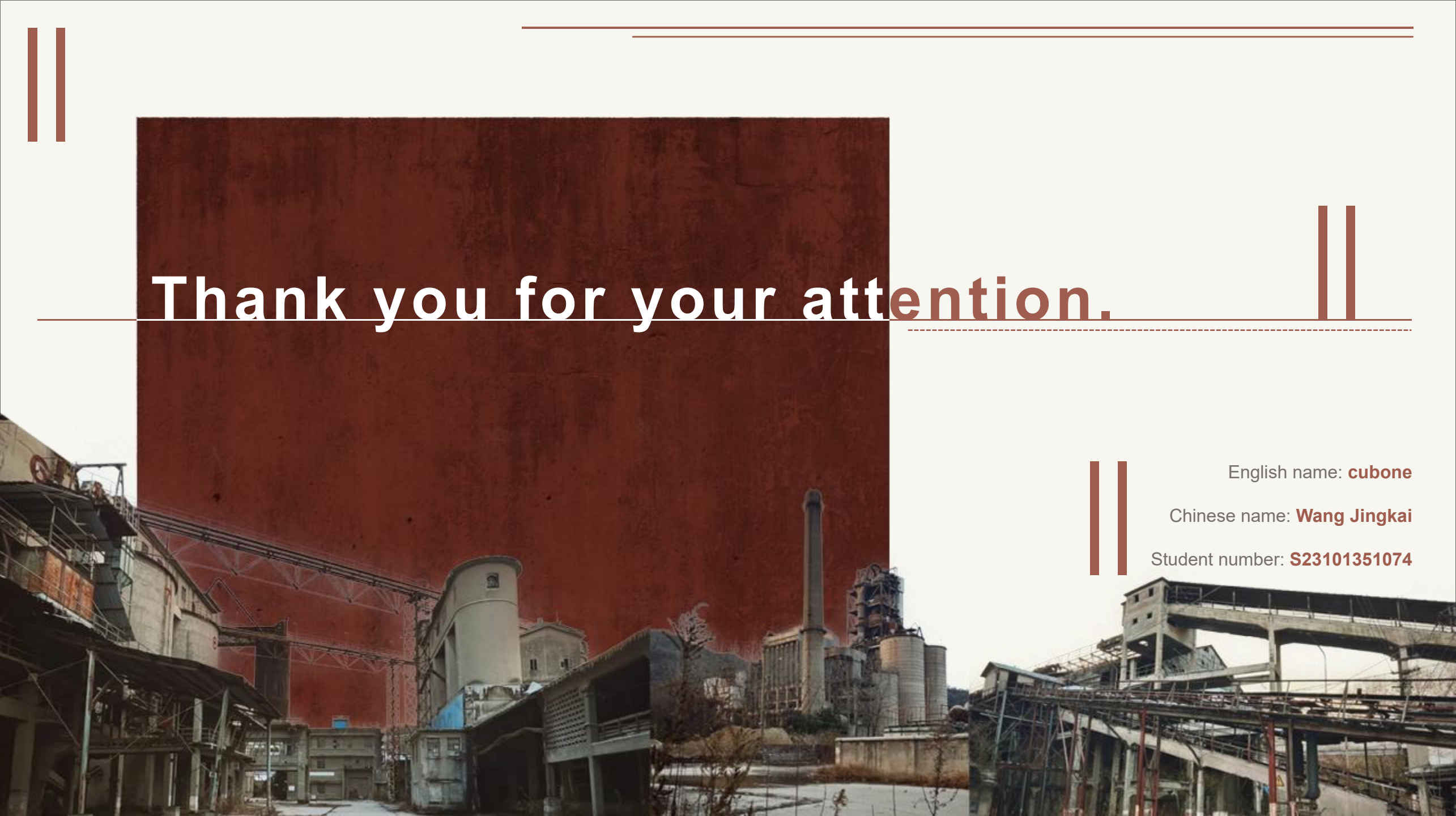
Design renderings

- Retain the building area



Picture display area





Thank you for your attention.

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