

03 New "Garbage" City

Urban and architectural renovation

February—June, 2024
Mokattam village, Egypt
Academic work,
2 person Team work (team leader, contribution: concept 60%, research 50%, design 50%, Graphical Representation 60%)
Instructor: Lifeng Lin

The Zabbaleen people, who rely on waste recycling for their livelihood, have an impressively efficient recycling system, but their living conditions require urgent improvement. This project focuses on a quarter of the village as a prototype, approaching the issue from both community system planning and individual building design. By organically integrating with the site, it proposes a new community model that balances both the work of recycling waste and the residents' living needs.

Intended to explore the relationship and collaboration between **architecture and urban planning**, while prioritizing a **human-centered**, localized design approach **based on the specific context**. It seeks to address **social issues** through architectural and planning languages.

Egypt Today

news that happened in Egypt

·location
·timeline
·past bad situations

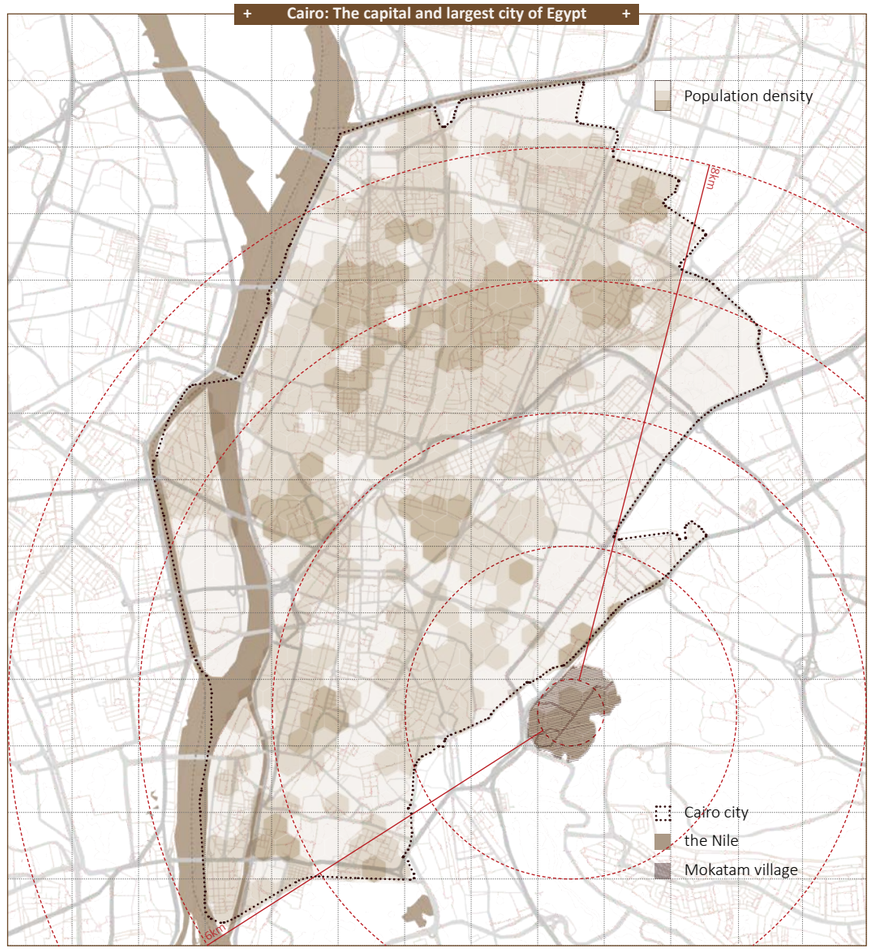
·marco block design strategy
·road system overivew

·units design strategy (residential housing, shop, school,hospital)

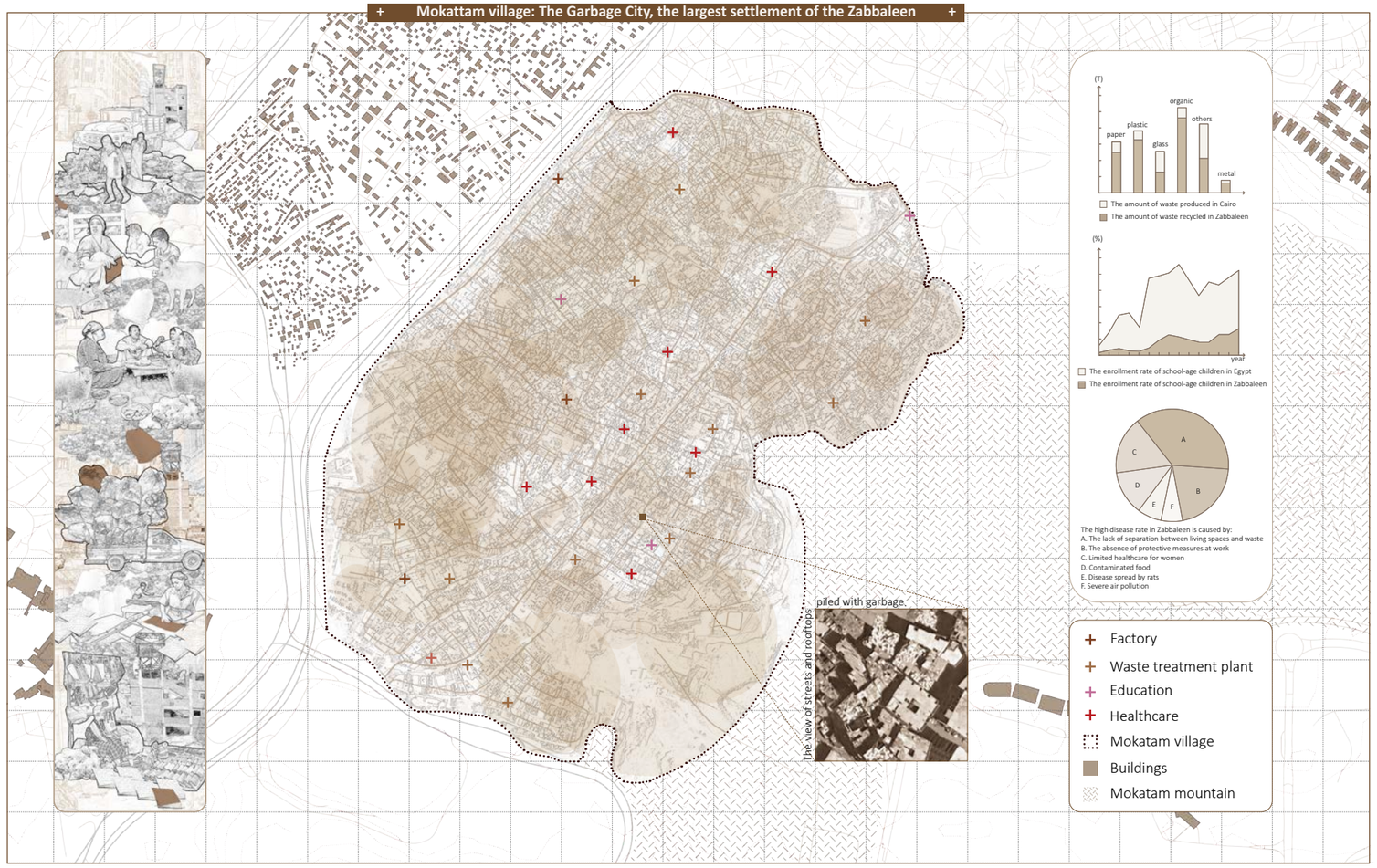
·factories design strategy (4 types garbge: paper, metal, plastic, glass)

· Aerial view from the roof

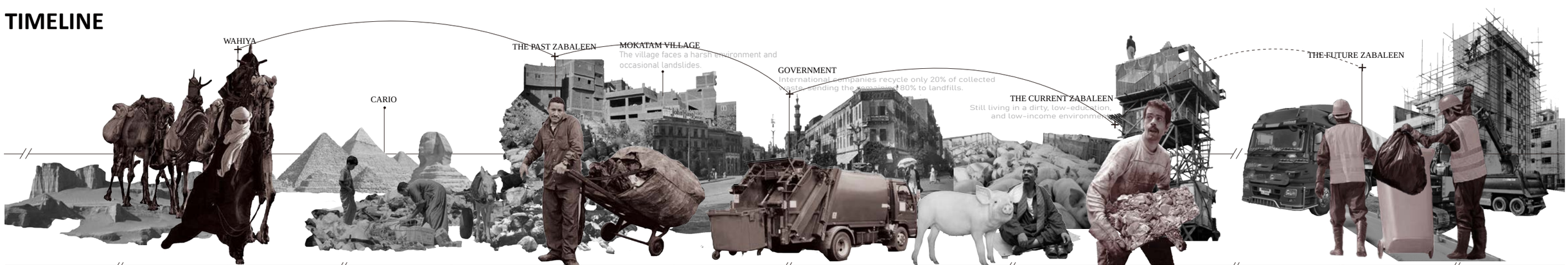
+ Cairo: The capital and largest city of Egypt +



+ Mokattam village: The Garbage City, the largest settlement of the Zabbaleen +



TIMELINE



1910
The Wahiya people migrated from Egypt's western desert to Cairo.

1940
The Zabaleen migrated from Egypt's western desert to Cairo.

1970
The Zabalin settled at Mokatam , earning a living by taking over garbage recycling rights from the Wahiya.

2003
The government contracted companies for Cairo's waste collection, leaving the Zabaleen without work.

2009
The Zabalin's pigs were culled over bird flu concerns, despite no cases in Cairo, reflecting religious influences.

2017
After the contracts with multinationals ended, the Zabaleen, resumed waste collection in Cairo.

2030
Under the designer's plan, what changes could there be in the difficult lives of the Zabalin people?

MACRO BLOCK DESIGN STRATEGY

Original situation

New situation



The garbage used to be stored in various places inside the house.



The garbage is now stored on the ground floor along the main street.



The roads used to be used by garbage trucks for transportation.



The garbage is now transported from the main street to the houses and factories through a conveyor belt.



The ground floors of the buildings along the street used to be shops.



The shops are moved to the second floor and are connected by external corridors.



The open spaces on the ground used to be piled with garbage.



The spaces near the street are chosen for public spaces, while the others are used for cultural exhibition spaces.



The rooftops that used to be piled with garbage.



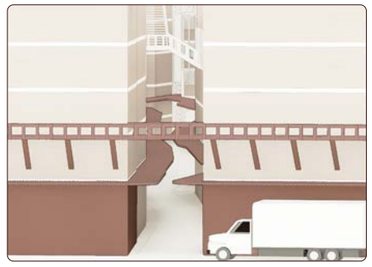
The rooftops are now transformed into public spaces, with all public spaces connected by corridors.



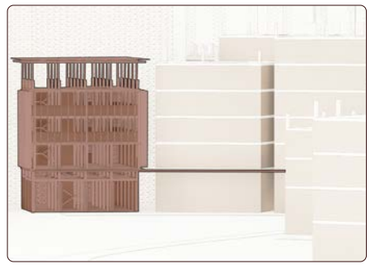
The factories that used to be on the site.



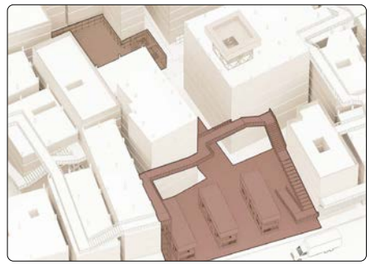
The buildings are now transformed into schools and hospitals.



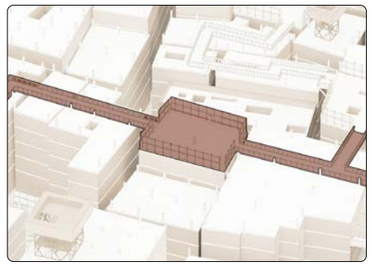
Shop corridor, Garbage conveyor, Garbage storage



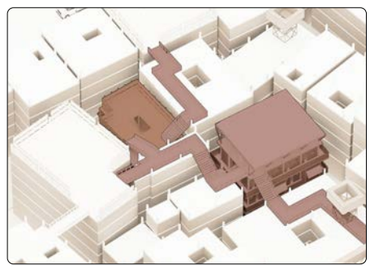
The garbage conveyor is connected to the factory.



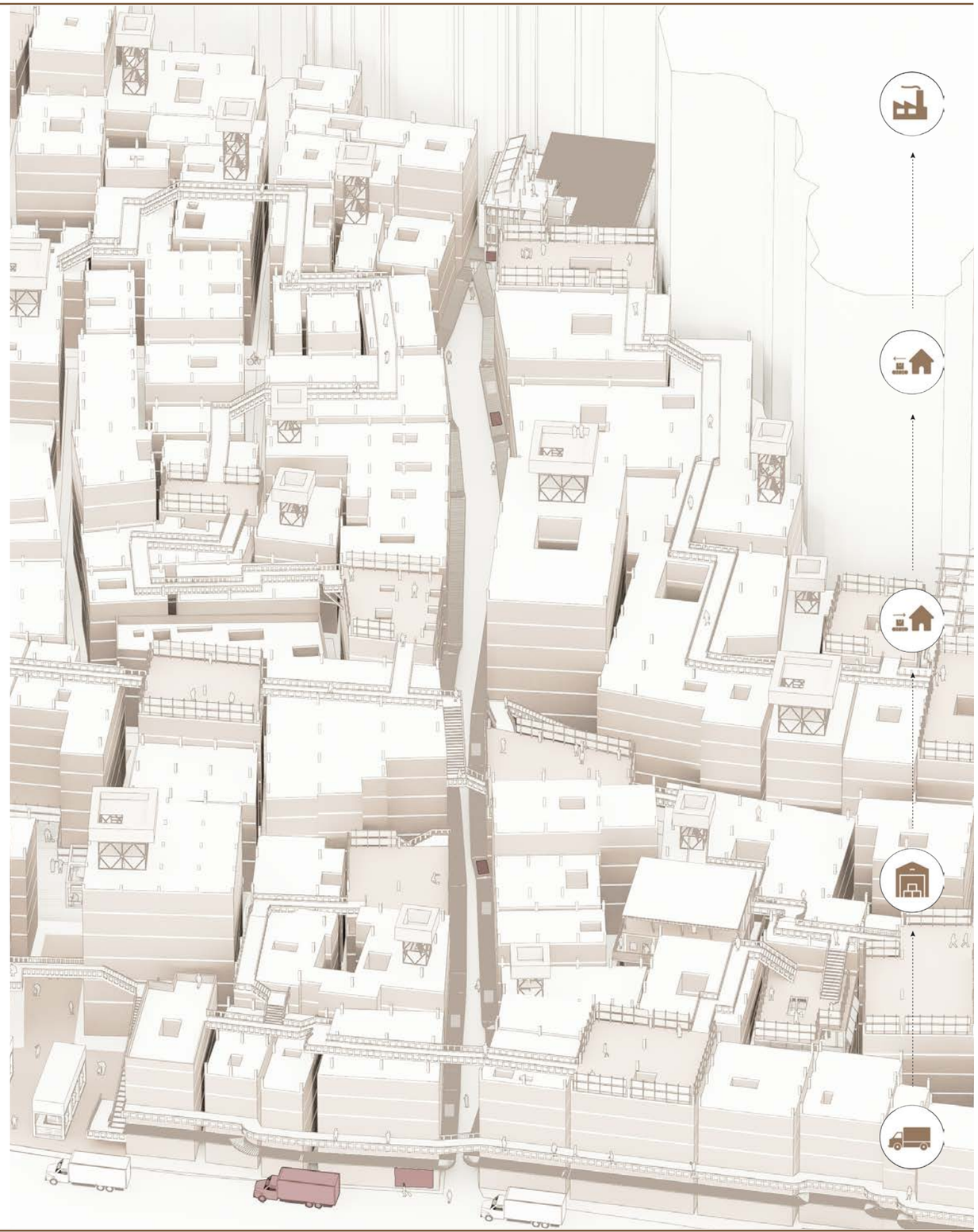
Street-adjacent public spaces have corridors to rooftops.



The rooftop public space is connected by corridors.



The facilities rooftops are also part of the corridor system.



UNITS DESIGN STRATEGY

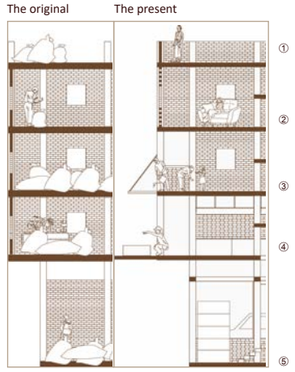
Residential housing

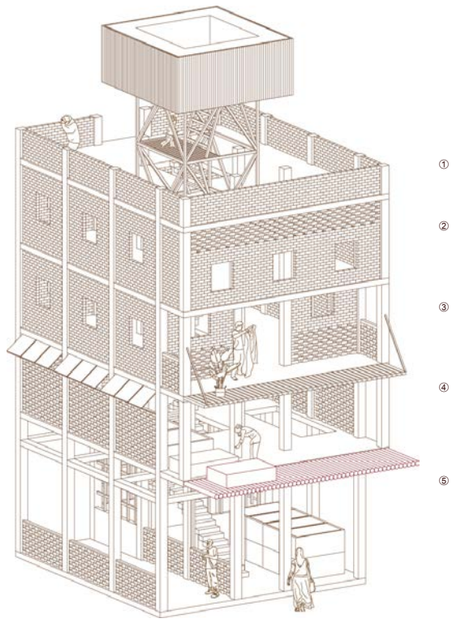


① Recreation area
② Living area
③ Living area
④ Rubbish sorting area
⑤ Landfill area

The public workspaces are separated from the private living areas, while also adapting to the road system.

The original The present

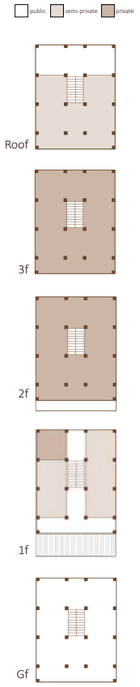




Adaptation of residential houses to the waste system

Based on the original dwelling, the living space is raised and the working space (waste sorting) is lowered, adapting the waste system to completely separate living and working.

Functional layout

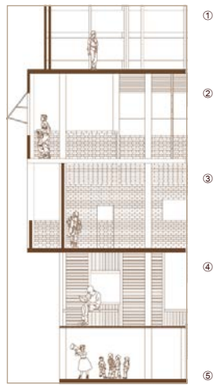


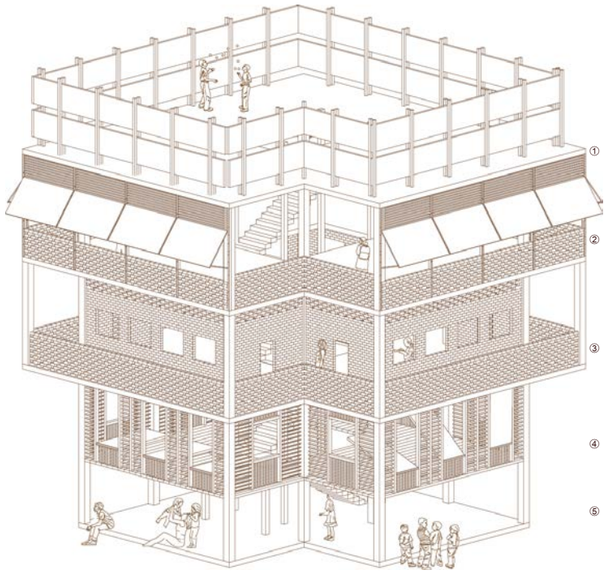
School



Original factory building

① Public outreach activity area
② Public education area
③ Classrooms
④ Public education area
⑤ Public outreach activity area

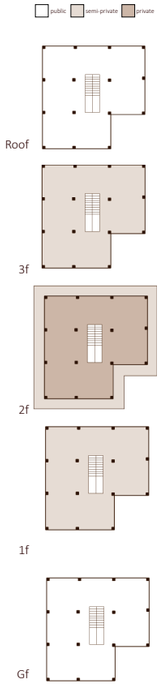




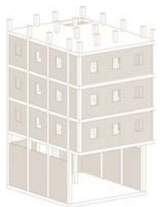
A public school based on the renovation of an abandoned factory

The abandoned factory has been transformed into a school to enhance the basic education level of residents. To adapt to the road system, the building spaces are divided based on their level of privacy.

Functional layout



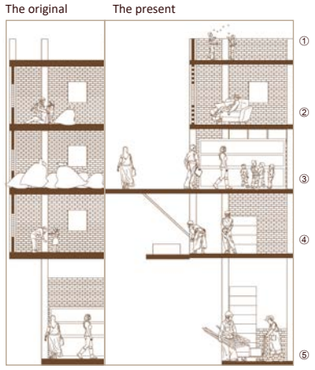
Shop Building

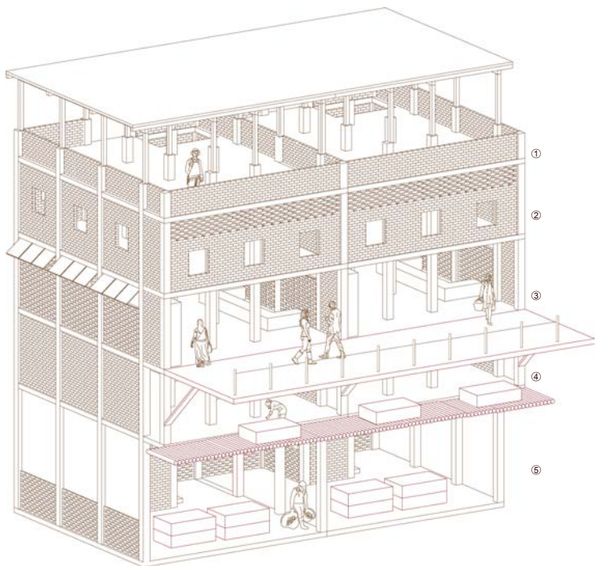


① Recreation area
② Living area
③ Shopping area
④ Waste Conveyance area
⑤ Waste Storage Area

Due to the rubbish system, the ground and first floors of the shops are interconnected, while the commercial and residential areas are shifted upward.

The original The present

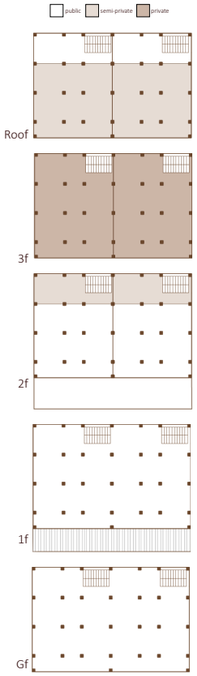




Adaptation of waste systems for retrofitting shop buildings

The shops along the main road are turned into rubbish dumps on the Ground floor and first floor due to the creation of the rubbish system, and the overall commercial area is moved up to create the walkway, while the living is moved up.

Functional layout

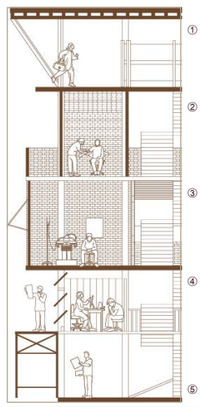


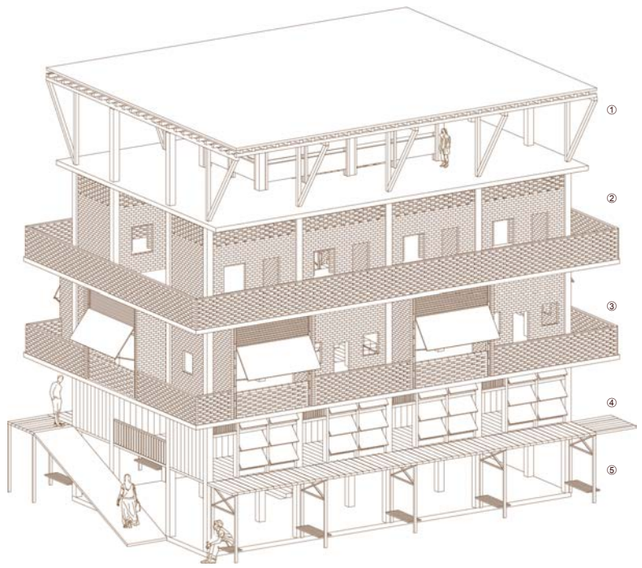
Hospital



Original Factory building

① Activity area
② Injury treatment area
③ Inpatient ward
④ Injury treatment Public
⑤ outreach activity area

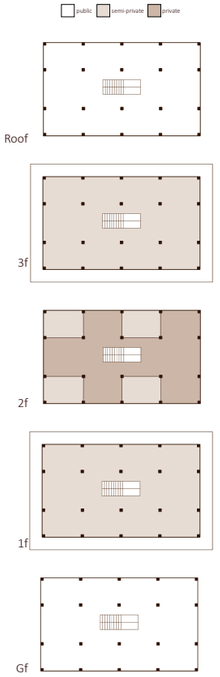




A public hospitalbased on the renovation of an abandoned factory

The abandoned square factory has been transformed into a hospital to improve residents' health and enhance the treatment of specific diseases. To adapt to the road system, the building spaces are organized according to their level of privacy.

Functional layout



·location
·timeline
·past bad situations

·marco block design strategy
·road system overivew

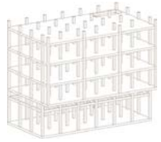
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·factories design strategy (4 types garbge: paper, metal, plastic, glass)

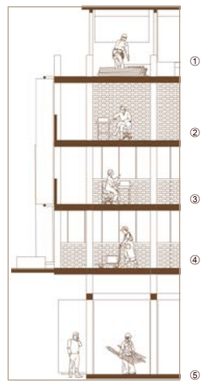
· Aerial view from the roof

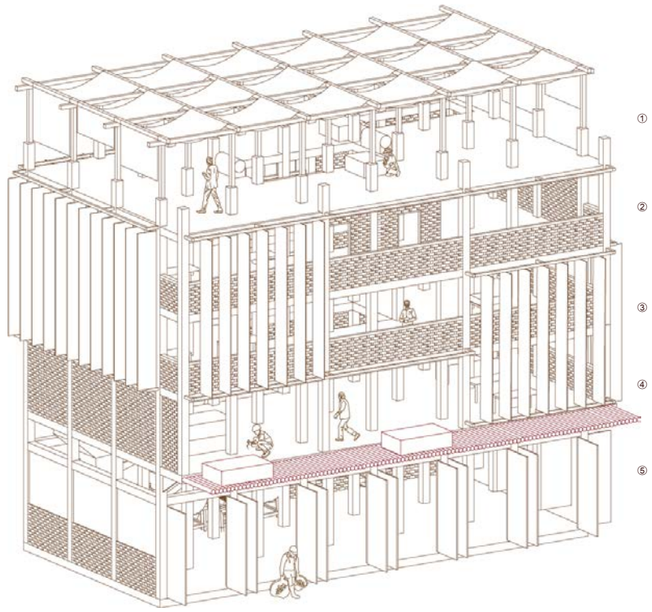
FACTORIES DESIGN STRATEGY

Paper factory



① Selling area
② Workshop area
③ Workshop area/Clean area
④ Waste Conveyance area/Crash area
⑤ Garbage handling area/Crash area



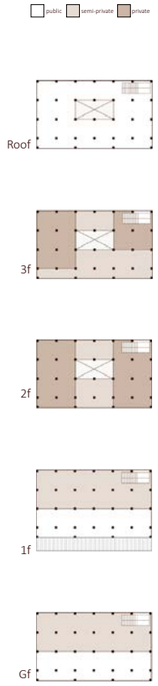




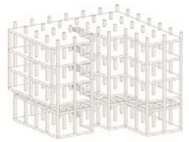
Residential renovation into a paper factory

A residential building at the end of the garbage conveyor belt on Road No. 1 has been selected for renovation into a paper factory.

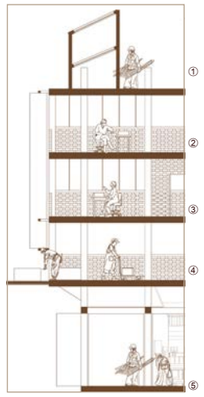
Functional layout

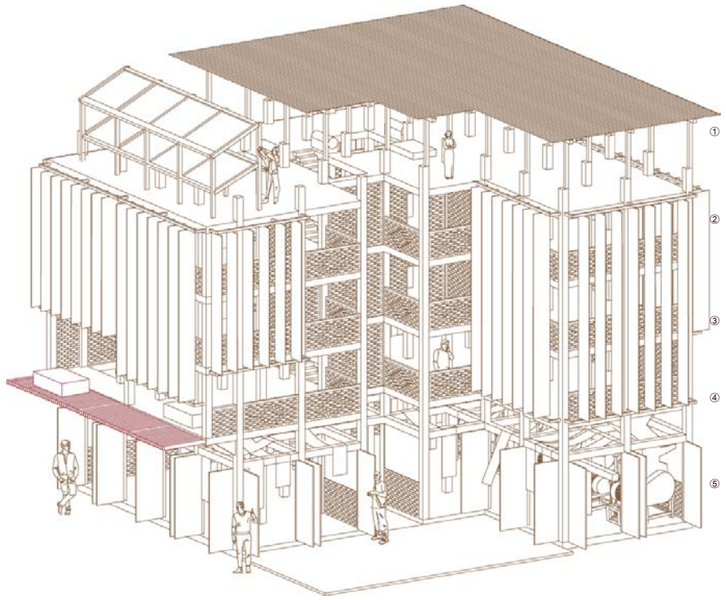


Plastic factory



① Drying area/Selling area
② Workshop area
③ Workshop area
④ Waste Conveyance area
⑤ Garbage handling area/Crash area



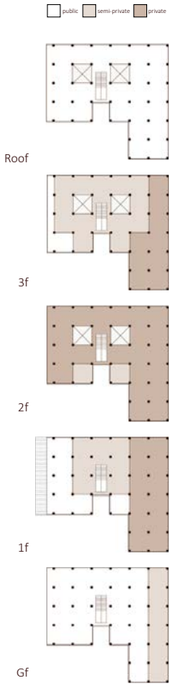




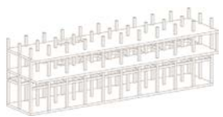
Residential renovation into a plastic factory

A residential building at the end of the garbage conveyor belt on Road No. 3 has been selected for renovation into a paper factory.

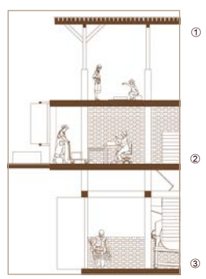
Functional layout

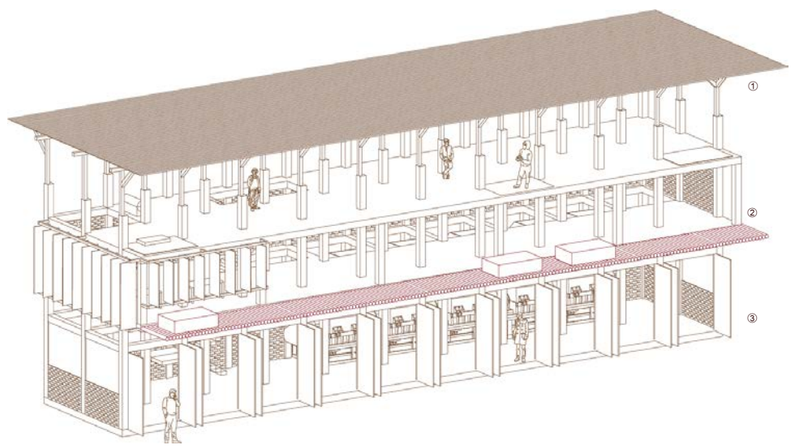


Metal factory



① Selling area
② Waste Conveyance area /Workshop area
③ Garbage handling area /transport



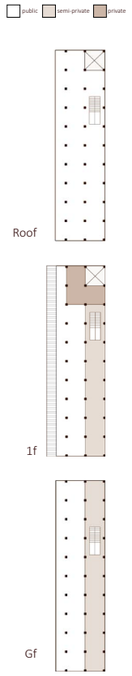




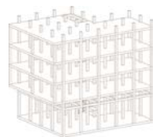
Residential renovation into a metal factory

A residential building at the end of the garbage conveyor belt on Road No. 2 has been selected for renovation into a metal factory.

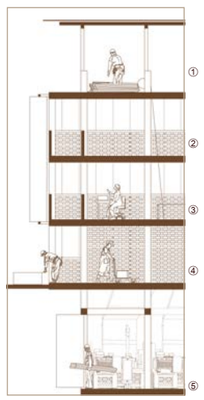
Functional layout

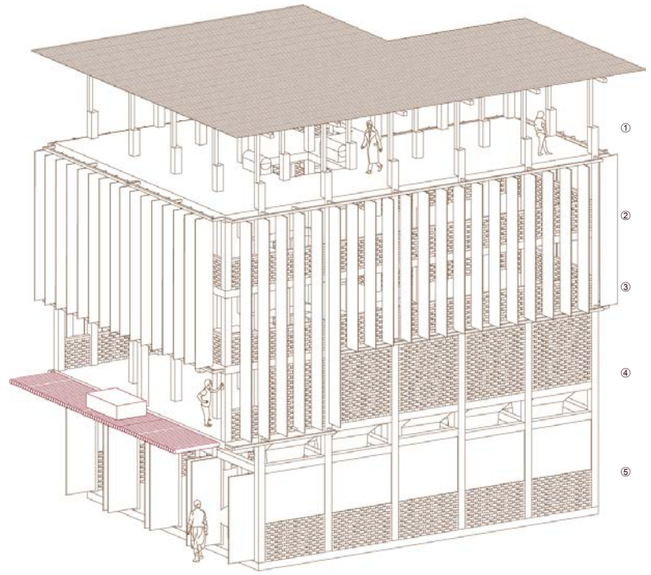


Glass factory



① Selling area
② Workshop area
③ Workshop area
④ Waste Conveyance area/Clean area
⑤ Garbage handling area/Crash area



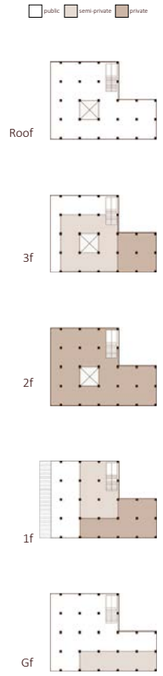




Residential renovation into a glass factory

A residential building at the end of the garbage conveyor belt on Road No. 4 has been selected for renovation into a glass factory.

Functional layout



AERIAL VIEW FROM THE ROOF

