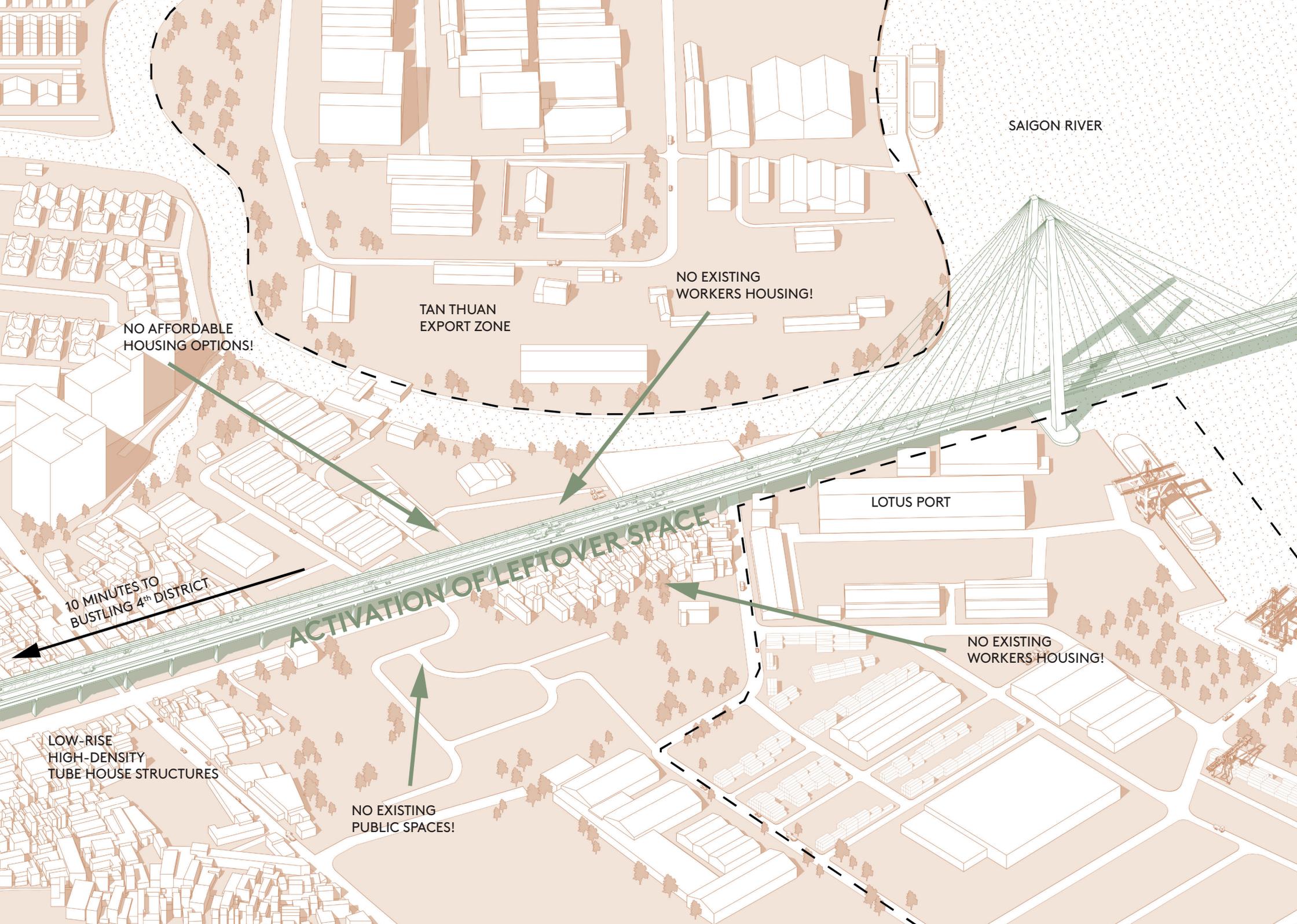


LIVING UNDER A COMMON ROOF

REINTERPRETED TUBE HOUSES

Architecture competition: Under Bridge, 17th Buildner Affordable Housing Challenge by Thu Nga Nadine Do based on Diploma at Gebäudelehre TU Wien supervised by Tina Gregoric and Katharina Urbanek. Project handed in May 2024.





SAIGON RIVER

NO EXISTING WORKERS HOUSING!

TAN THUAN EXPORT ZONE

NO AFFORDABLE HOUSING OPTIONS!

LOTUS PORT

ACTIVATION OF LEFTOVER SPACE

NO EXISTING WORKERS HOUSING!

10 MINUTES TO BUSTLING 4th DISTRICT

LOW-RISE HIGH-DENSITY TUBE HOUSE STRUCTURES

NO EXISTING PUBLIC SPACES!

BUILDNER SUSTAINABILITY AWARD UNDER BRIDGE COMPETITION, 2024

CONTEXT & TUBE HOUSE TYPOLOGY

Vietnam's rapid economic growth has driven urbanization, leading to dense cities and unaffordable housing. To address this, it's vital to utilize forgotten urban spaces.

The Phu My Bridge in Ho Chi Minh City, spanning 750 meters, holds significant unused space beneath it. This untapped gem will serve as resource for the proposed design which is adaptable to every bridge situation on an international agenda.

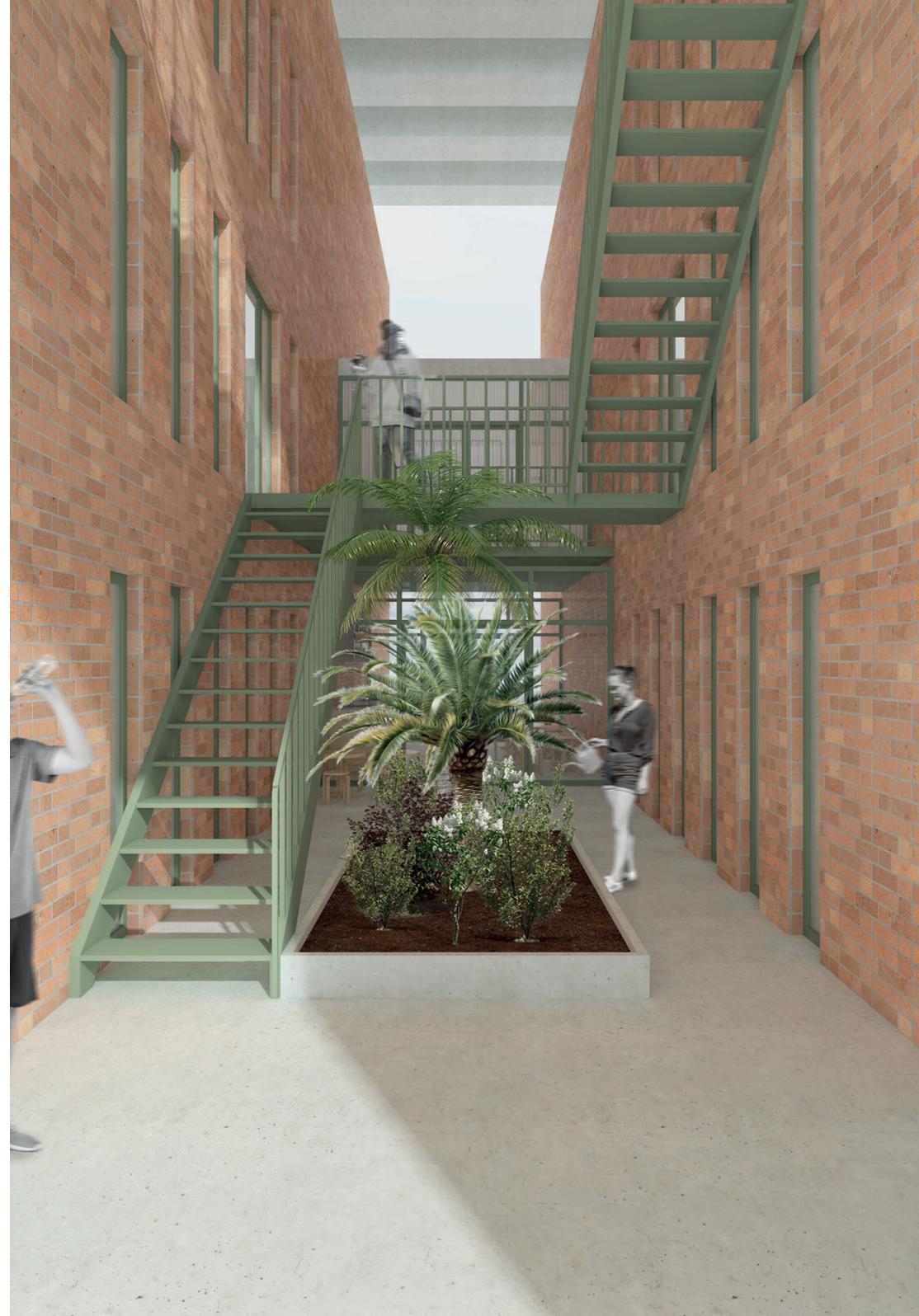
Tube houses as the most widespread typology in urban areas, can be considered as the archetypical urban dwelling in Vietnam. The name is derived from their unique shape. Traditional tube houses are characterized by a narrow width, an exceptional length and a sequence of courtyards and interior spaces. However, as these structures evolved, outdoor spaces crucial for both, climate control and communal activities, have diminished. Regarding the adjacent industrial zones, offering many workplaces, the design aims to take up lost qualities of the typology to offer a near-by neighborhood with affordable housing, public spaces and local amenities.

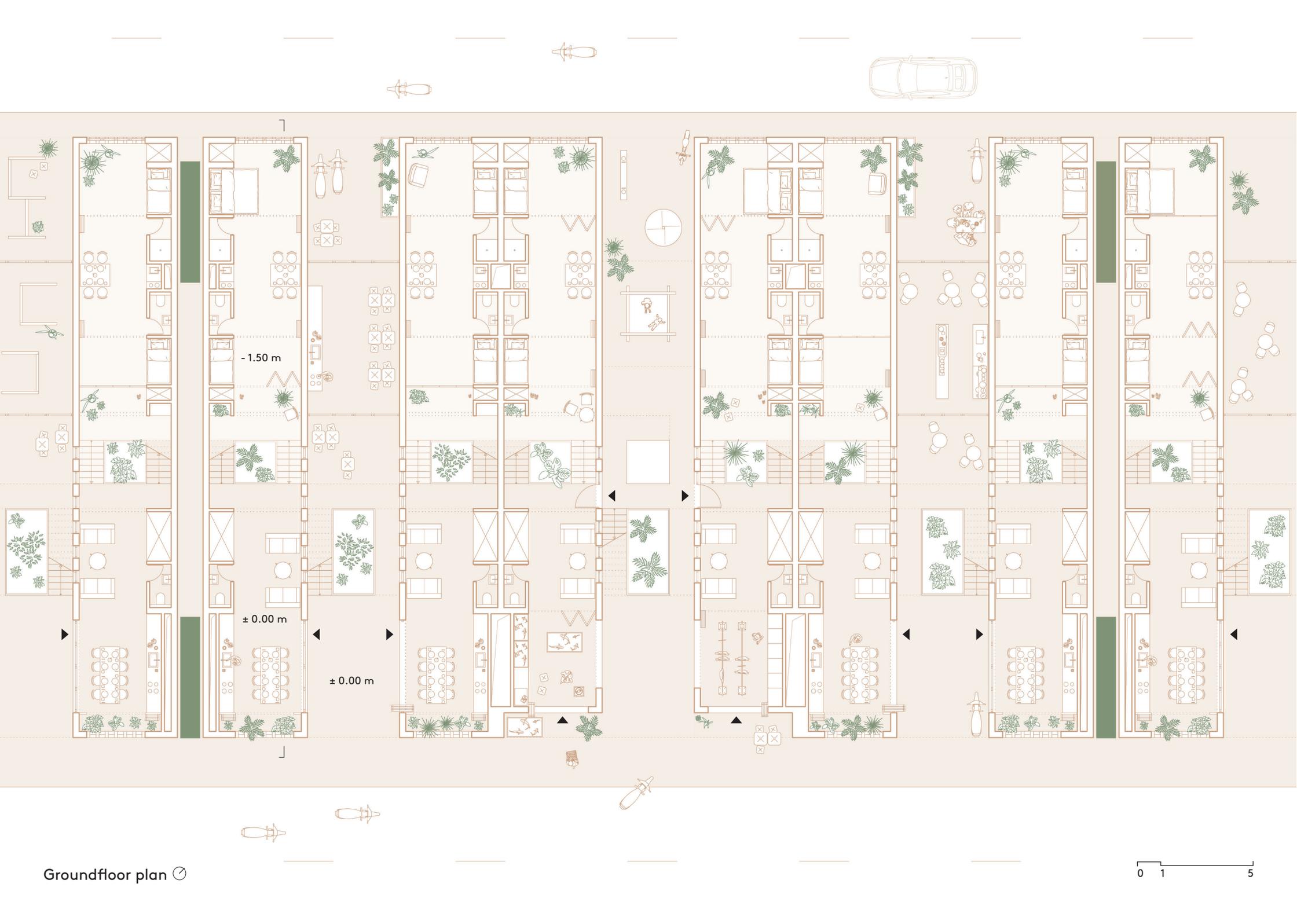
CONCEPT & ORGANIZATION

The low-rise, high-density design focuses on transition zones, reflecting Vietnamese cultural values in blending indoor, outdoor, private, and shared spaces.

Each unit comprises two tube houses connected by an „inbetweenner“ space, serving as the main vertical circulation and communal area. The ground floor of these „inbetweenners“ is designed as a public space, hosting playgrounds, shops, childcare facilities, and areas left unplanned for resident appropriation. An analogy to the street as a gathering space is created with a common roof terrace that connects all units, featuring a running track, sports stations, green spaces, and urban gardening.

The tube house itself can be divided into three zones. The front zone accommodates shared spaces like the kitchen and living areas, while the rear zone, set half a story higher, contains private sleeping areas. An intermediate space between these zones acts as a buffer, offering secondary circulation and interesting visual connections through split levels.





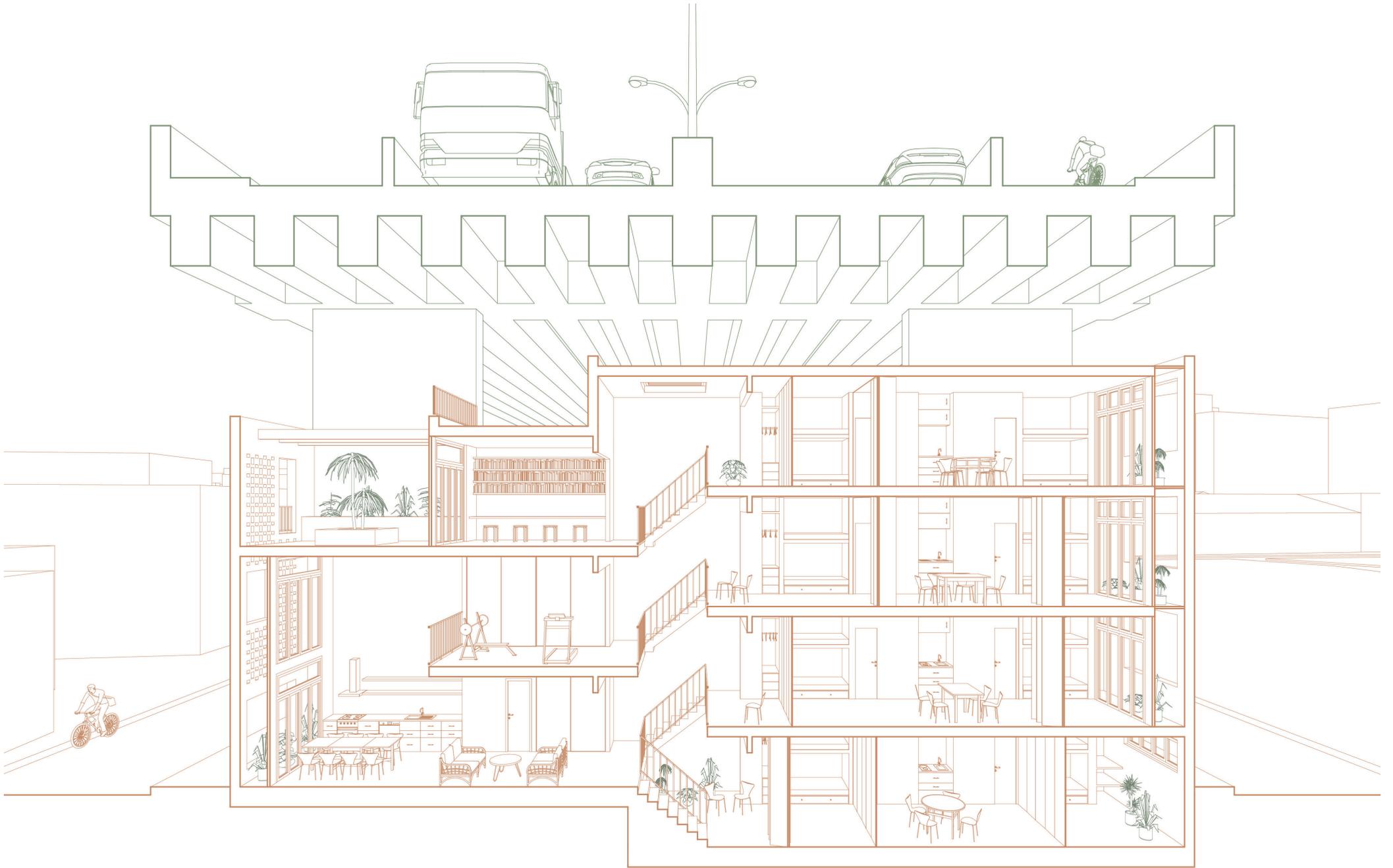
- 1.50 m

± 0.00 m

± 0.00 m

Groundfloor plan

0 1 5



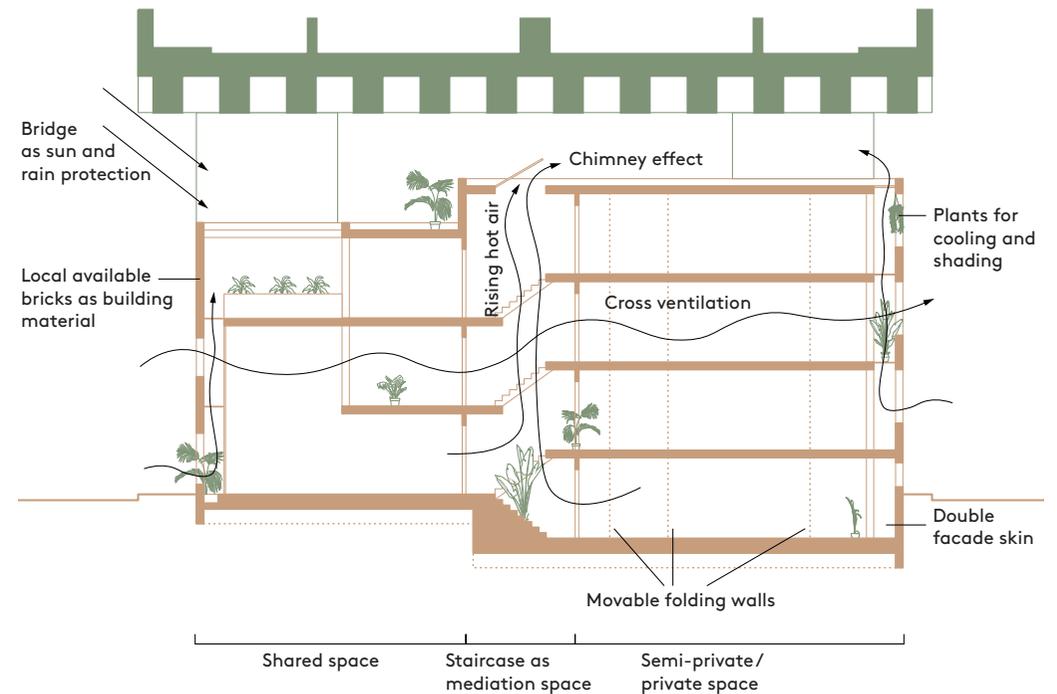
Perspective section



BUILDING MATERIALS & CLIMATE

Clay, a key material in traditional Vietnamese architecture, is chosen for its excellent properties and local availability in the Mekong Delta, minimizing transport distances. Steel for the lightweight construction of the intermediate spaces is also locally sourced, with easy delivery by truck or ship.

The sheltered positioning underneath the bridge protects the materials used, but also helps the residents to withstand the extreme seasonal climatic conditions caused by extreme heat and heavy rainfall. The installation of a serving wall that runs along the building's length, which houses serving rooms and fixed furniture, allows cross-ventilation. Additionally, the double facade, the chimney effect in the middle of the tube houses, and plant use contribute to natural cooling.



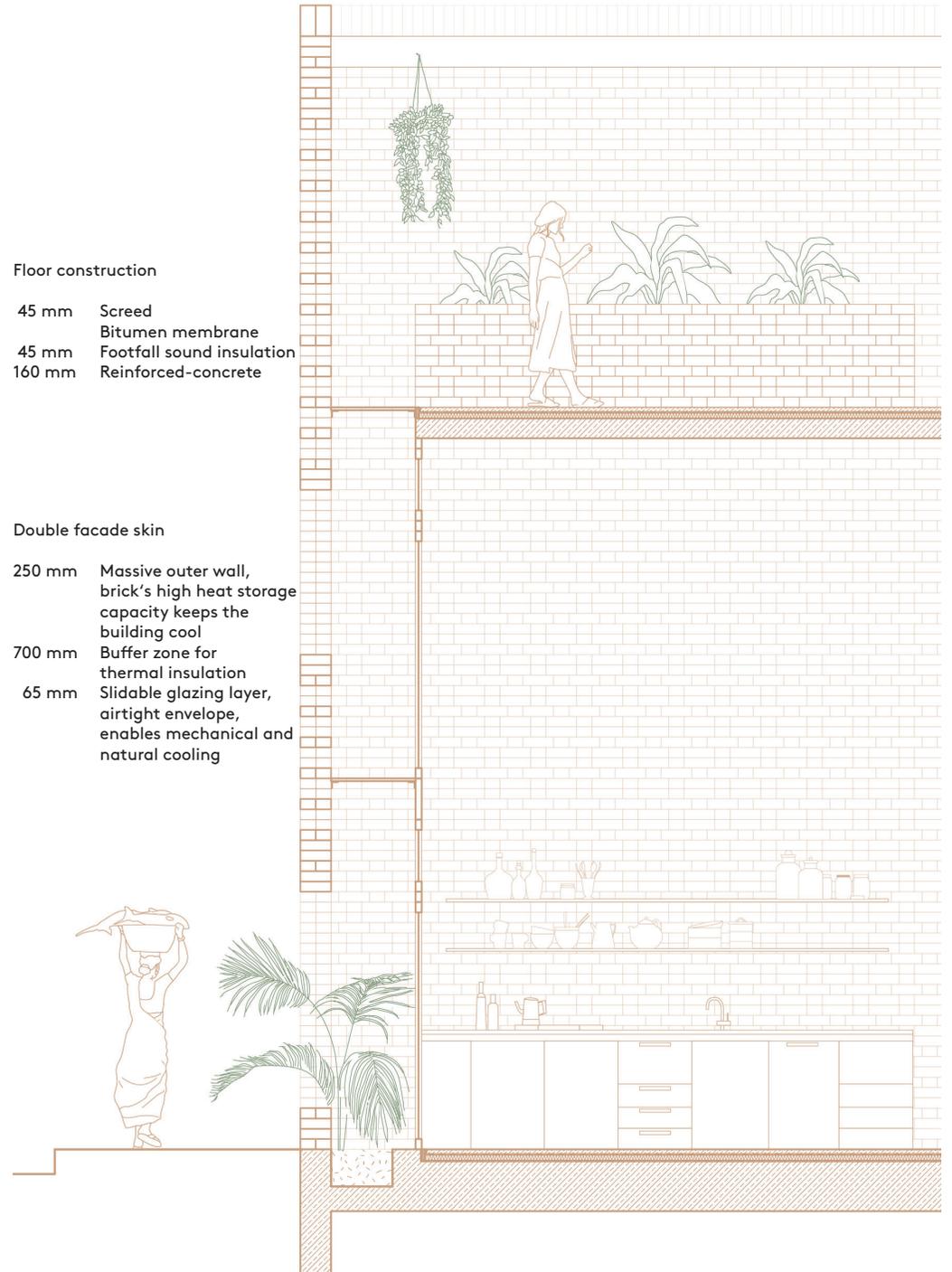


Floor construction

- 45 mm Screed
- Bitumen membrane
- 45 mm Footfall sound insulation
- 160 mm Reinforced-concrete

Double facade skin

- 250 mm Massive outer wall, brick's high heat storage capacity keeps the building cool
- 700 mm Buffer zone for thermal insulation
- 65 mm Slidable glazing layer, airtight envelope, enables mechanical and natural cooling

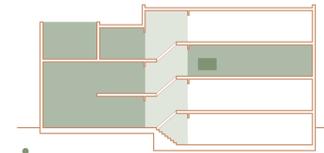


Facade detail

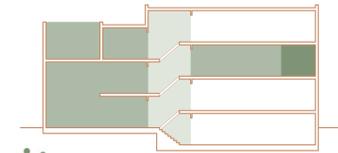
ADAPTIVITY, AFFORDABILITY & SUSTAINABILITY

As sustainability is a question of functionality as well as the ecological component, a building must be able to respond dynamically to the needs of its residents. This design allows users to individually control their private space based on their living and financial situations, with a focus on reducing private areas in favor of communal spaces.

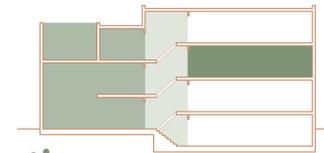
The minimum private area is a bed niche, which can be expanded as needed. For example, the rear area of a unit can become a private space for two people using folding walls and can even extend to an entire floor. The adaptable secondary circulation within the house enables the connection of private rooms on different levels through adding communal areas, offering flexibility in living arrangements. As private spaces are expanded, other residents receive financial relief as compensation for lost communal areas. When the extended private space is no longer required, it reverts to the building community. The design is not seen as a finished proposal, but rather as a constantly evolving process.



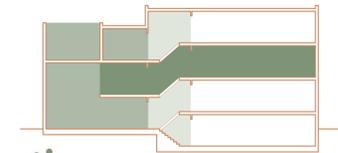
Roanh rents a bed in a shared room, since he is new to HCMC and is working in the Lotus port.



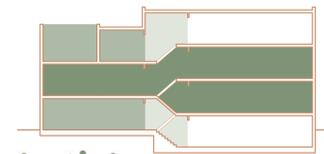
After dating Hue for several years, they decided to move together into the back part of the room.



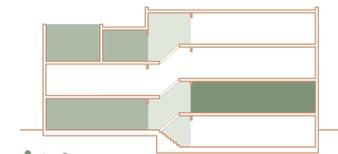
As the family grew, they needed more space and took the opportunity to get their own apartment after the roommates moved out.



Since the kids are getting older, Hue wants to work again. In consultation with the other inhabitants they transformed the former shared library into her private office.



Roanh and Hue's parents joined the family since they need support in their daily lives. The office is expanded and transformed into a kitchen. Additionally the room below is merged.



After the kids moving out and the passing of Roanh's parents, they decided to move into the lower part of the flat and give the larger part to a family who needs the space.

■ Private space ■ Shared space ■ Staircase as mediation space

This project uses clever space planning methods to achieve a compact layout that feels livable and flexible. The in-between zones maintain grade-level porosity and create a rhythm, so the project does not function as an urban barricade. The double-skin facade and utilization of passive environmental control demonstrate a high level of technical resolve and sensitivity to the local climate.

Blake T. Smith | Buildner guest jury | BIG - Bjarke Ingels Group

The advantage of the project lies in creating diverse housing with outstanding facades that respect vernacular tradition, coupled with a strong community feel. Nice overall design.

Avi Friedman | Buildner guest jury | Professor at McGill University

Flexibility in usage options is well thought out. Site selection makes sense - well placed. The project considers sustainability initiatives such as inclement weather protection, natural light and ventilation, materials, and greenery.

Samista Jugwanth | Buildner guest jury | Associate and shareholder