made in bangladesh

sept. 2024 - july 2025 Global Housing Graduation Studio

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abstract

This project examines the entangled relationship between humanitarianism, colonial history, and the garment industry in Bangladesh. What began as a reflection on the ethics of foreign intervention and the power dynamics that continue to shape global labor systems evolved into a more specific exploration of housing for garment workers inside of these power dynamics. It questions how we, as outsiders, can meaningfully engage in contexts shaped by histories we did not live, but are nevertheless complicit in through the products we consume.

The research traces the path from Bangladesh's rich textile heritage to the present-day realities of fast fashion, where exploitation persists under new names. It unpacks how colonial patterns of extraction have reconfigured into modern systems of labor and aid, where garment workers, often women from rural areas, are caught in cycles of migration, dependency, and vulnerability.

Against this backdrop, the project focuses on the reopening of the Sylhet Textile Mill as a site for reimagining housing for workers. Drawing from both rural housing traditions and lessons from existing factory environments, it proposes an alternative model that addresses the realistic conditions shaping workers' lives, not as passive recipients of aid, but as people navigating a deeply uneven global system.

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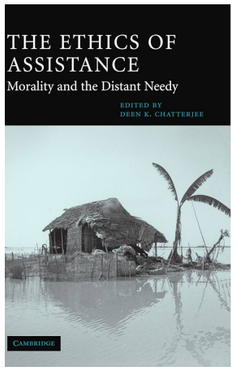
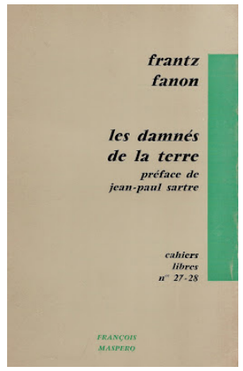
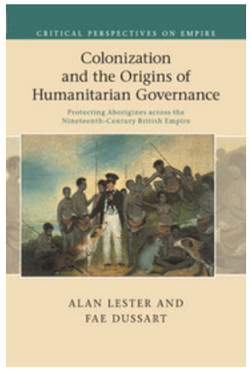
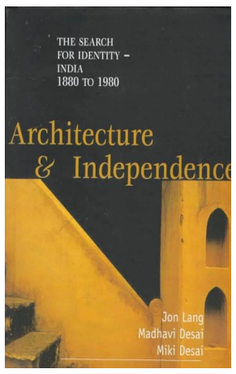
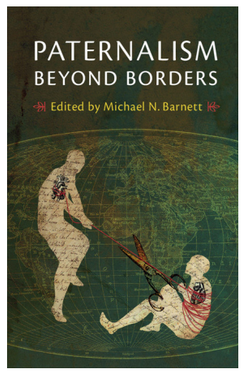
positionality

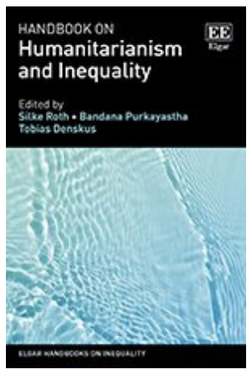












introspective approach

Driven by an interest in humanitarian aid and international work, this project began with a critical, introspective examination of my role in engaging with a country I knew nothing about. It quickly became evident that meaningful involvement in humanitarian efforts requires more than good intentions. It requires a nuanced understanding of the ethics and foundations of humanitarianism itself. I found myself questioning not only my place within the project but also how to approach it from the start. How can I ethically engage in work within a culture and context so far from what I'm familiar with?

These reflections revealed the immense complexity of working in a developing country with which I had no prior connection. Building genuine relationships and a deeper understanding of such a place is not something that can be achieved in a single year. It goes far beyond cultural awareness, it requires a grasp of the country's history, regional dynamics, religious and cultural diversity, and the socio-political forces that shape daily life.

humanitarianism

As the research phase of the project began, my focus turned increasingly toward the impact of colonial history on the societal systems that shape our global dynamics. This exploration naturally led to a critical examination of humanitarian projects and international aid organizations. Understanding the aid flow from the global north to the global south, and unfolding the realities of who truly benefits from these flows in this codependent societal system.

These questions revealed a deeply entangled legacy of colonialism, in which power, profit, and historical injustice continue to define global relationships.

Humanitarianism, as we know it today, emerged in the 19th and early 20th centuries, often in response to the expansion of European imperialism. The roots of modern humanitarian efforts can be traced to the rise of charitable organizations and the concept of “civilizing missions” driven by colonial powers. Initially, these efforts were less about alleviating poverty and more about asserting power, expanding influence, and maintaining control over colonized regions. Humanitarian organizations, in this sense, often served as instruments of Western influence under the guise of benevolence (Lester and Dussart, 2014).

This dynamic continued through the 20th century, when the structures of international aid solidified. Following World War II, decolonization sparked a shift in the global landscape. Former colonial powers sought to maintain economic and political control over newly independent nations, often through aid, trade agreements, and strategic partnerships. The so-called “global South” became a focal point for aid, as new international institutions like the United Nations, the World Bank, and various non-governmental organizations (NGOs) were established to channel resources toward countries in need. But despite the rhetoric of altruism, the distribution of aid was (and often still is) shaped by the same structures of inequality that were first entrenched during colonial rule (“Handbook on Humanitarianism and Inequality,” 2024).

The reality of aid flows reveals an intricate, often exploitative relationship. Western powers, despite presenting aid as a charitable act, have historically maintained significant economic and political leverage over developing countries. International aid has, at times, been wielded as a tool of power - exercising influence over the political and economic decisions of recipient countries. In many cases, aid can create dependencies rather than fostering sustainable development, trapping countries in cycles of poverty while reinforcing the geopolitical status quo.

This pattern is closely linked to the legacy of colonialism. Colonial powers extracted resources from their colonies, often leaving them with weakened economies and fragmented social structures. Post-colonial societies, particularly in Africa, Asia, and Latin America, found themselves locked into relationships of dependence on the very countries that once colonized them. Even today, Western nations and multinational corporations continue to benefit disproportionately from these long-standing imbalances. Aid often flows into countries but fails to empower local communities, instead supporting systems that benefit foreign investors and international organizations (Barnett et al., 2016).

At the same time, the narratives surrounding international aid often overlook the role of local agency. Humanitarianism has frequently been framed in a way that assumes the Global South is passive and dependent, while the Global North is active and benevolent. This oversimplification ignores the complex histories and resilience of local communities, who are often at the forefront of their own development despite the structural challenges they face. Humanitarian efforts that do not recognize the agency of local populations risk reinforcing the very power dynamics that they aim to challenge.

In the context of Bangladesh, these patterns of historical injustice and dependency are evident in industries like garment manufacturing. Here, the remnants of colonial exploitation persist, as multinational corporations continue to profit from cheap labor while failing to address the structural causes of poverty and inequality.

Ultimately, this exploration reveals how colonial legacies continue to shape global dynamics, with power, profit, and inequality being fundamental to understanding modern humanitarianism and international aid. Far from a purely altruistic endeavor, the aid system is intertwined with the same power structures that originated during the colonial era, making it crucial to critically examine who benefits and who bears the burden of global aid flows.



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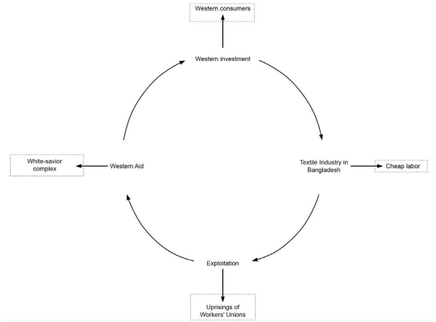
how do we fit into the system ?

To narrow the scope of such a vast subject, the project focused on a symbolic and tangible remnant of these imbalanced dynamics in the context of Bangladesh: the garment. As mentioned in the part prior, one of the objects of neocolonialism is the “Made in Bangladesh” label, which connects us all to a global system of power and exploitation, one in which we, as consumers, are deeply embedded.

The “Made in Bangladesh” label is not just a mark of origin: it represents a much deeper web of economic, political, and social dependencies that persist in the post-colonial world. It serves as a symbol of the ongoing imbalances that continue to define the relationship between the Global South and the Global North.

However, what makes this system even more complex is the undeniable co-dependence that exists within it. The garment workers in Bangladesh, though exploited by multinational corporations, are also dependent on these jobs for their livelihoods. These workers (often women from rural areas) have limited access to alternative sources of income, and the garment industry provides a form of economic stability, however tenuous. In this sense, they are also tangled into a system that they depend on to survive, even as it keeps them in precarious conditions.

This creates a paradoxical situation in which both sides, those who produce and those who consume, are bound together in an intricate web of reliance. The garment industry in Bangladesh exists because of the demand from the Global North, and yet, without the labor force in Bangladesh, the industry could not survive. Each side feeds into the other, sustaining an exploitative system that benefits some while trapping others in cycles of poverty and dependence.



Adding to this complexity is the irony of the global humanitarian response to this exploitation. The very systems that benefit from cheap labor (multinational corporations, Western consumers, and even Western governments) often position themselves as the solution to the problem they originally created. Many NGOs, international organizations, and aid initiatives focus on improving the working conditions and wages of garment workers, offering programs designed to “empower” workers and ensure fair labor practices. However, this is part of a larger, cyclical problem: Western consumers benefit from cheap labor in the first place, then send aid to help fix the very issue that was caused by the demand for cheap products.

In a way, we have started a vicious cycle in which we, as consumers, contribute to the exploitation of workers in Bangladesh through our demand for low-cost garments. Then, in an attempt to “fix” the problem, we direct aid and resources toward improving conditions, essentially trying to solve a problem that we created. This cycle of dependency and aid reflects a deeply flawed system: the global South is caught in a position of needing aid from the same powers that initially profited from their exploitation.

This pattern reinforces the very power dynamics that humanitarian aid seeks to address. The “Made in Bangladesh” label, then, becomes a microcosm of this larger system of neocolonialism.

Ultimately, this paradox highlights the importance of critically examining the role we play in perpetuating the systems of exploitation that we often aim to fix.



research

textile heritage

Although Bangladesh is now a large part of the global garment industry, its relationship with fabric making roots back to the Mughal Era (3rd century CE).

Historically, Bangladesh was renowned for its exceptional textile craftsmanship, particularly the weaving of delicate fabrics such as Dhaka muslin, Jamdani, and Manipuri, each rooted in different regions of the country. These textiles were not only highly prized for their quality but were deeply intertwined with the cultural and economic life of the region.

Dhaka muslin, famous for its fine, lightweight texture, was a marvel of ancient weaving techniques. The fabric was incredibly thin and often described as “woven air,” highlighting the skill and precision of the weavers. Its creation involved a labor-intensive process passed down through generations, making it a symbol of both artistry and expertise. Muslin was a key product of the region, and the craft of its production became a defining feature of the local identity (Ram, 2024).

Jamdani, another well-known fabric, is known for its intricate patterns and motifs woven into the fabric itself. Handwoven on traditional looms, it is one of the oldest surviving textile traditions in Bangladesh. The fabric’s vivid designs and its intricate weaving methods have made it an important part of the country’s cultural heritage. Historically, Jamdani was worn by both the elite and common people, making it a versatile and beloved textile throughout Bengal (Mahapatra, 2016).

Similarly, Manipuri fabrics (as shown below) from the north-eastern regions of Bangladesh, known for their vibrant colors and elaborate designs, were integral to the textile traditions of the region. Each fabric was a testament to the skill of local artisans and the unique cultural influences of the area. The production of these textiles was not just an economic activity but a deeply rooted cultural practice, connecting the community to its heritage through craftsmanship (Manipuri, Banglapedia, n.d.).

As Bangladesh’s textile heritage continues to be a defining aspect of its national identity, these fabrics reflect not just artistic achievement, but a deep, enduring connection to the history and traditions of the region (The Hindu, 2022).





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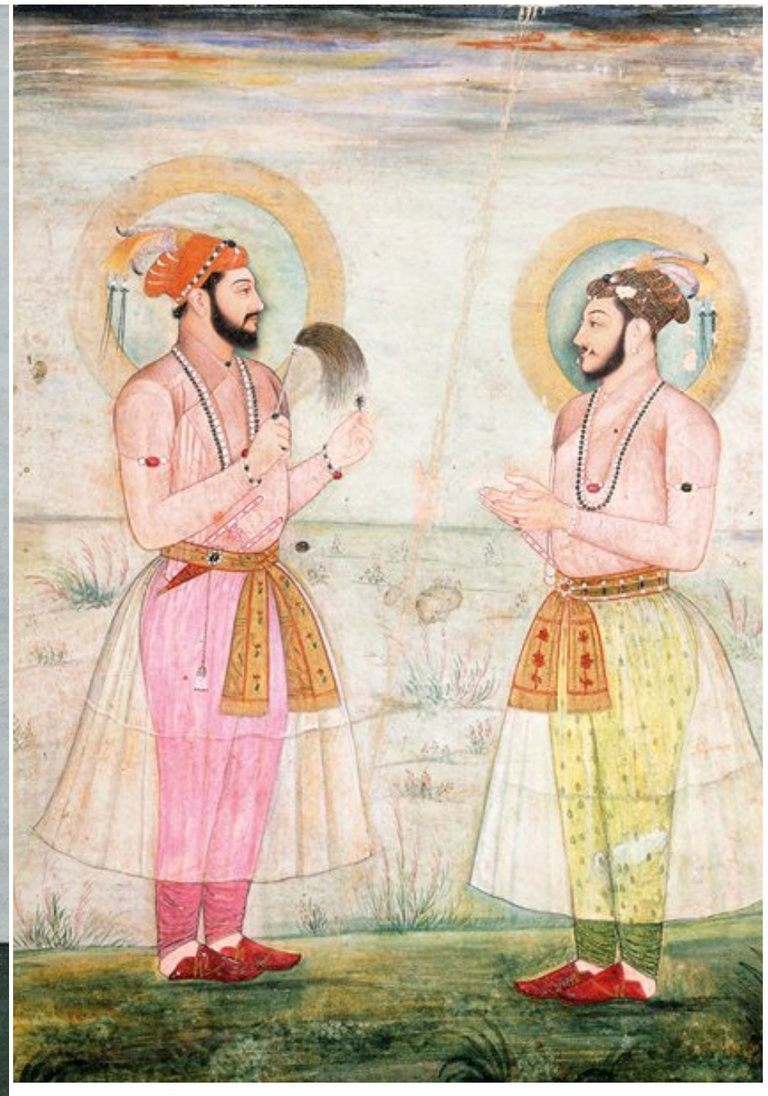

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erasure of heritage and colonial history

The export of Dhaka muslin to Europe began during the colonial period and marked a significant turning point in the history of Bangladesh's textile industry. Muslin, a fine, sheer fabric, was one of the earliest products of Bengal's textile tradition to be traded internationally. The fabric quickly became a symbol of luxury and refinement, prized for its lightweight texture and intricate weaving techniques. As the British East India Company established its colonial presence in Bengal, it capitalized on the region's textile heritage and began exporting Dhaka muslin to Europe in large quantities. The fabric was especially sought after by European aristocracy and became a hallmark of high fashion (Atrey, 2023).

Muslin's popularity in Europe reached its peak in the late 18th century, when it caught the attention of European royalty, including figures like Marie-Antoinette and Joséphine Bonaparte. In the famous painting of Marie-Antoinette by Elisabeth Vigée Le Brun, the Queen is depicted wearing a gown made from fine muslin, showcasing its elegance and exclusivity. Similarly, Joséphine Bonaparte, the wife of Napoleon, was known for her love of muslin, and several portraits show her in dresses made from the fabric. These royal endorsements elevated Dhaka muslin to the status of an elite luxury item, further driving its demand across Europe (T. Ahmed, 2016). The following page shows these paintings.

However, this growing demand also had a significant downside. As British merchants and colonists saw the commercial potential of this fabric, they began exporting it in increasing volumes to satisfy the desires of European markets. The production of muslin, once a localized craft, began to be restructured to meet the demands of colonial trade. The artisans who had once produced muslin in small-scale, family-run workshops were gradually replaced by larger, more industrialized production processes designed to export mass quantities of fabric. The local economy and craftsmanship, which had once centered around quality and artistry, began to shift toward quantity and profit-driven exports.



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The British colonial government's policies, aimed at extracting resources from India, were crucial in shaping this transformation. Bengal's traditional textile industries, including the art of making muslin, were repurposed to feed European demand, often with little regard for preserving the ancient techniques or the well-being of the local artisans. By the early 19th century, the dominance of Dhaka muslin in European fashion led to its mass production, but the delicate, handcrafted quality that had once defined the fabric began to fade. The British began producing muslin-like fabrics in their own mills, eventually leading to the decline of Bengal's traditional weaving industry (Gorvett, 2022).



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garment industry

As the production of Dhaka muslin and other traditional textiles declined due to colonial policies, the fabric industry in Bangladesh slowly transitioned into the industrial age. By the mid-20th century, the demand for handwoven textiles had significantly decreased, and the country's textile sector was no longer centered on artisanal craft. However, the legacy of Bangladesh's textile heritage remained crucial, and with the independence of Bangladesh in 1971, the country faced the challenge of revitalizing its economy and creating employment opportunities (Gorvett, 2022).

The shift to the fast fashion industry in Bangladesh began in the 1980s and accelerated with the expansion of global trade and the rise of multinational garment companies. With its relatively low labor costs and a growing pool of workers willing to take jobs in factories, Bangladesh quickly became an attractive hub for garment production. Unlike the small-scale, family-run workshops of the past, the garment industry in Bangladesh now operates on a massive scale, with large factories producing vast quantities of clothing at a rapid pace.

The rise of fast fashion, a business model focused on quick turnover, low-cost production, and mass-market trends, found a perfect fit in Bangladesh. As multinational brands began outsourcing their production to countries in the Global South, Bangladesh emerged as one of the top exporters of ready-made garments. The global demand for inexpensive, trendy clothing led to the proliferation of garment factories across the country, where millions of workers, many of them women, are employed in often difficult and dangerous conditions. Today, there are over four thousand garment factories in Bangladesh, employing over four million workers, of which 80% are women (Economics Observatory, 2025).

The fast fashion model relies on cheap, low-wage labor, which has deep roots in Bangladesh's labor history, dating back to the colonial period when workers were exploited for their craft. Today, workers in the garment factories continue to face low wages, poor working conditions, and limited labor rights. However, the global demand for affordable clothing keeps the industry thriving, making Bangladesh one of the largest producers of fast fashion in the world (Ullah, 2014).

research approach

problem statement

The evolution of Bangladesh's textile industry, from its rich history of artisanal craftsmanship in fabrics like Dhaka muslin to the rise of mass-produced garments in modern-day factories, highlights a deeply rooted legacy of exploitation and labor migration. While the shift from handwoven textiles to fast fashion has spurred economic growth in Bangladesh, it has also perpetuated cycles of poverty and harsh working conditions for garment workers, especially in Dhaka-based factories. These workers, many of whom migrate from rural areas in search of better economic opportunities, face significant challenges in terms of inadequate housing, long working hours, and poor living conditions.

The Sylhet Textile Mill, which closed twenty years ago, is set to reopen in 2026 as a shoe factory, representing one of the only industrial facilities in the region of Sylhet. This presents a unique opportunity to rethink both the working and living conditions of workers in Sylhet and surrounding areas. The reopening of the mill could offer an innovative model for addressing the issues related to migration, housing, and labor rights outside of Dhaka, while contributing to the long-term well-being of Bangladesh's garment and textile workers.

This research seeks to explore the lessons that can be drawn from the experiences of Dhaka-based garment factories in addressing the housing and migration patterns of workers. Given that most garment workers originate from rural villages, the research also dives into the housing patterns and traditions within these villages. Furthermore, it investigates how the reopening of the Sylhet Textile Mill could provide a model for improving the living conditions of garment workers, reducing urban migration pressures, and fostering more sustainable and equitable labor practices in Bangladesh's garment industry.

research question

What lessons can be drawn from the experiences in Dhaka-based factories in addressing the housing and migration patterns and how can the reopening of Sylhet Textile Mill provide an opportunity to improve the living conditions of garment workers ?

methodology

This research will employ a combination of methods, including interviews, field visits, and case study analysis, to explore the experiences of garment workers in Bangladesh, focusing on the challenges they face regarding migration, housing, and working conditions. The study is divided into three main phases: understanding the workers' places of origin, seeing the places they migrate to, and analyzing the conditions they face at their workplaces.

Interviews with Garment Workers (via WhatsApp Calls):

I have contacted a garment workers' union via FaceBook, which is how I met a man named Khairul. He introduced me to various garment workers, one of which I interviewed both on a WhatsApp call and in person when I went to her house in Savar, accompanied by a translator.

Field Visits to Rural Bangladesh (Places of Origin):

To better understand the context from which garment workers originate, I traveled to rural areas in Bangladesh. There, I noted my observations, especially regarding the use of space and materials.

Site Visits to Garment Factories (Place of Work):

In Bangladesh, I visited one garment factory in Savar (industrial area of Dhaka) to observe the working conditions firsthand. This visit allowed me to document the physical environment of the factories, including issues related to workplace safety, factory layout, employee welfare, and the general conditions in which workers operate.

This was a crucial part in understanding my target group, as garment workers spend six days per week at the factory.

Visit to Garment Workers' Housing :

An equally important aspect of this research was understanding where garment workers live once they have migrated to the urban centers. This assessment defined some things to avoid when designing housing, but also revealed a lot about how garment workers use space.

Case Study of the Sylhet Textile Mill:

Lastly, as a model to reshape the workers' housing conditions, the reopening of the Sylhet Textile Mill in 2026 has been explored as a potential opportunity to address both migration and housing issues.

Through these combined methods, I aimed to provide a nuanced and comprehensive understanding of the conditions that garment workers face in Bangladesh.

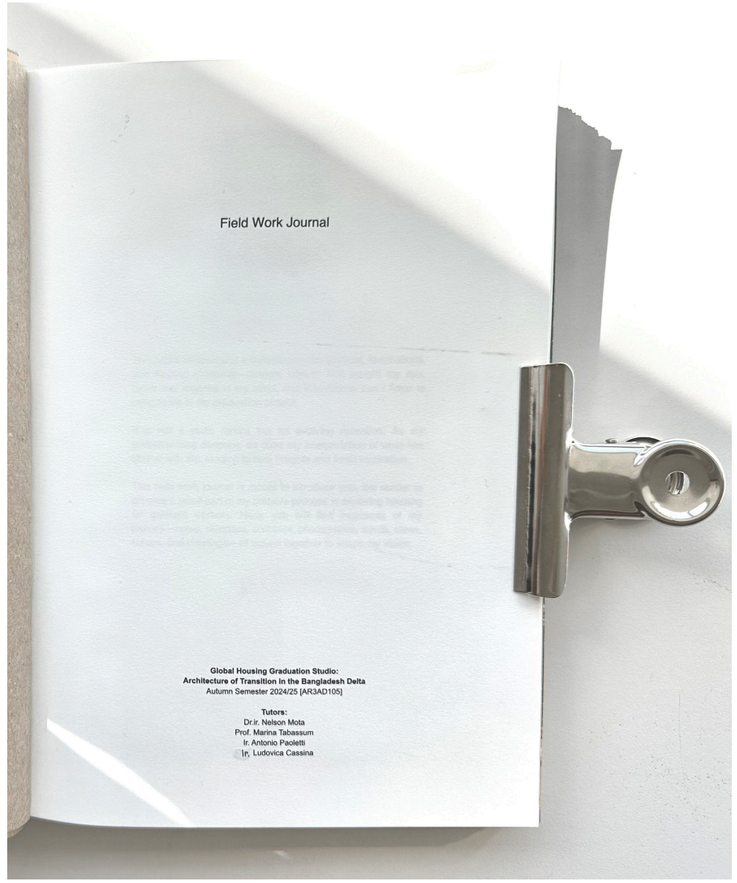
fieldwork

first impressions and the domestic space

During the initial days in Bangladesh, it became apparent that the city is an intense and chaotic environment, where maintaining a clear boundary between public and private space is essential for preserving a sense of mental balance. As part of the cultural immersion and daily life observations, a series of photographs and personal reflections were documented in a fieldwork journal. The collection captures impressions, emotions, faces, and fleeting moments.

What follows is a selection of fragments from that journal.

Together, they aim to evoke the disorientation and wonder of those first encounters with the city, a window into what it felt like to arrive.

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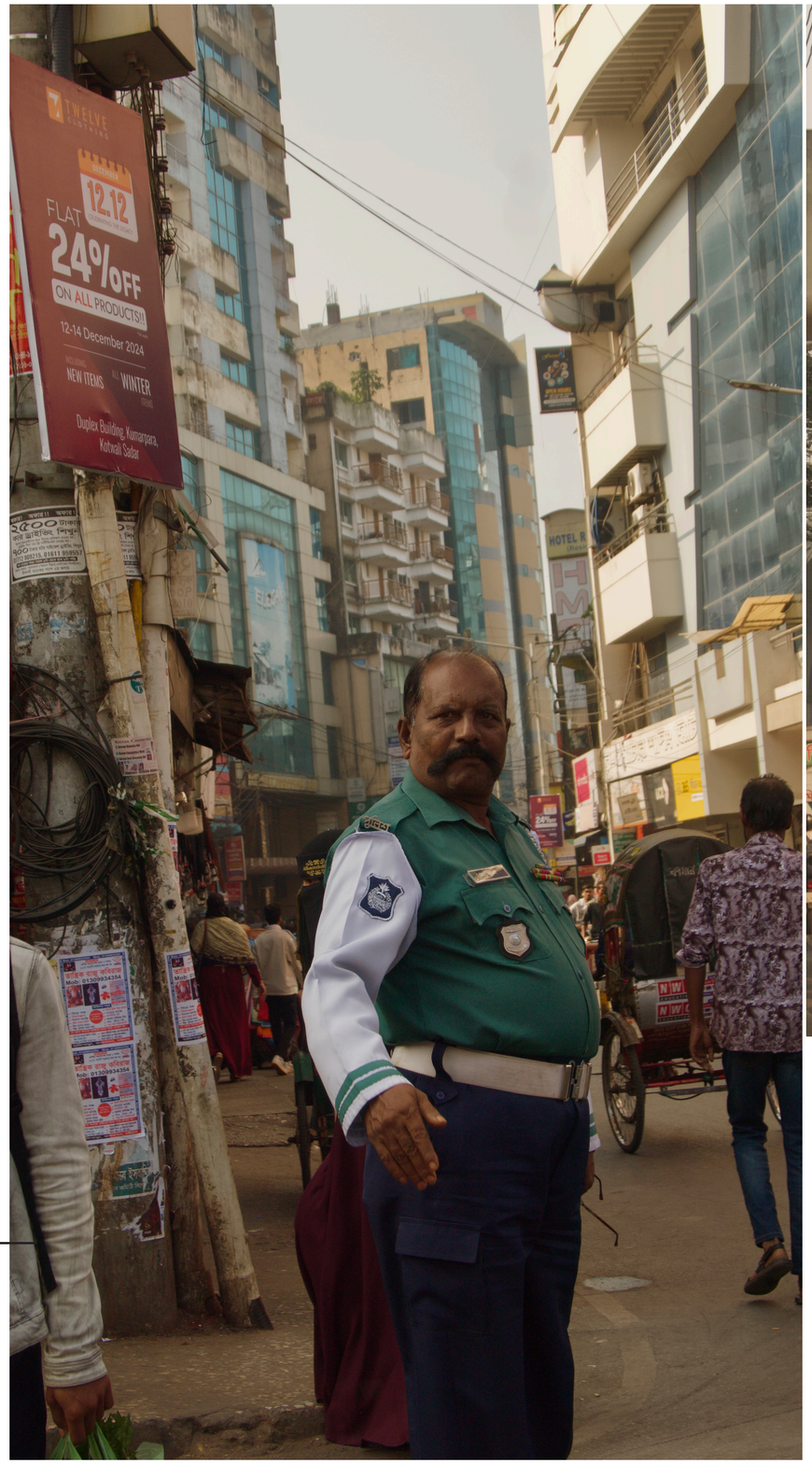
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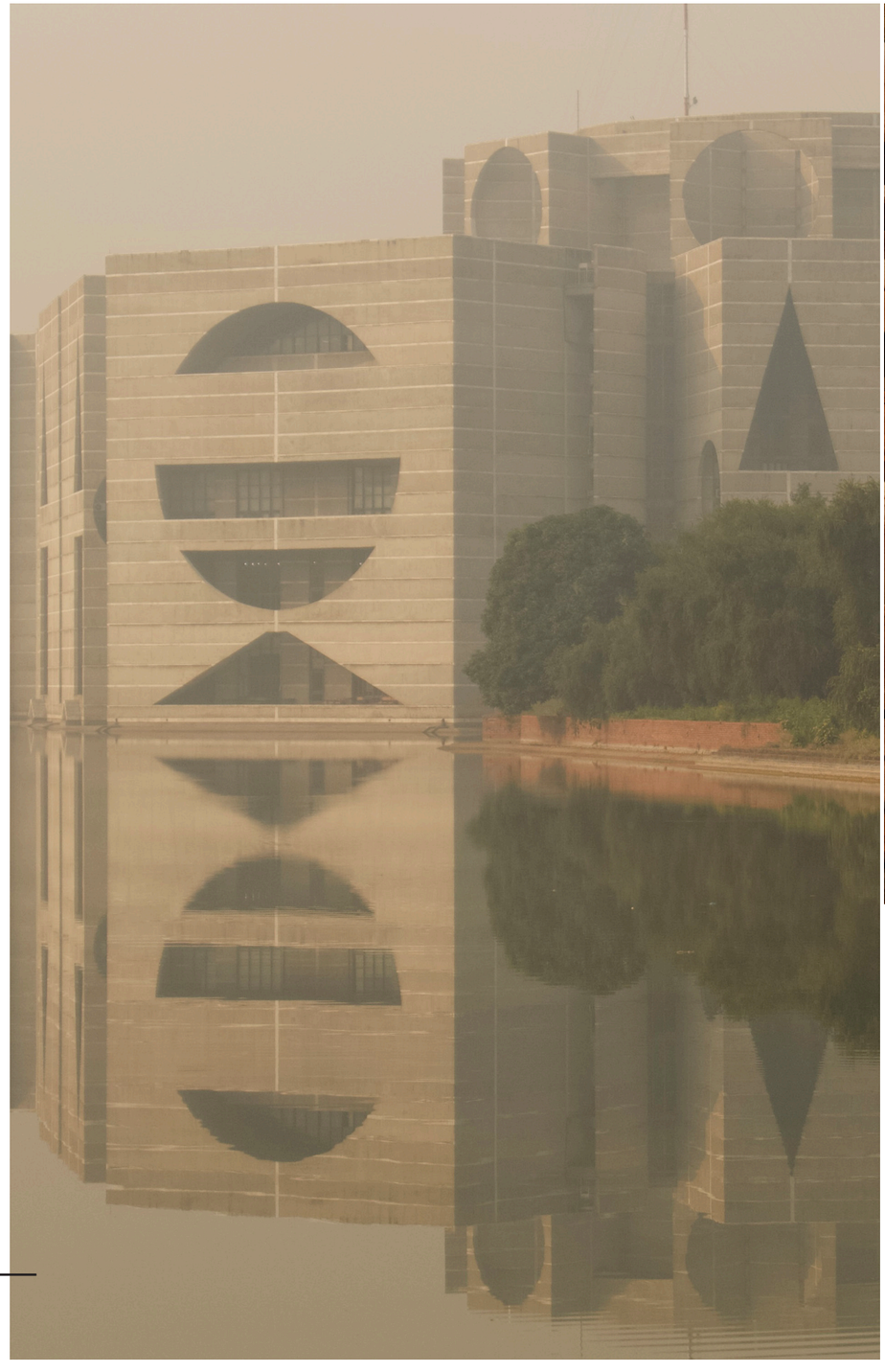


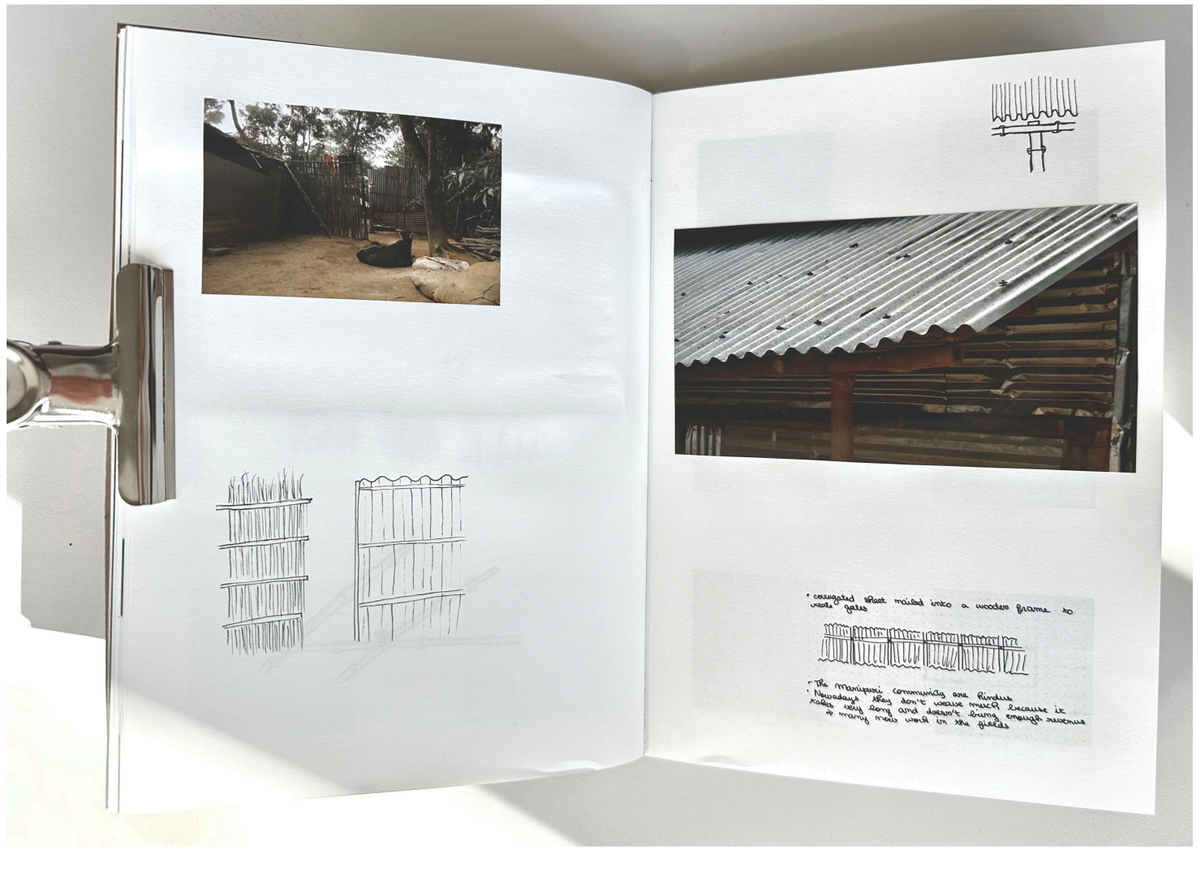




lessons from rural bangladesh

A portion of the previously mentioned fieldwork journal focused on observations made in rural Bangladesh - areas that many garment workers leave behind when migrating to industrial zones in search of employment. These rural contexts play a crucial role in understanding the cultural and social backgrounds of garment workers. Most originate from small villages where daily life revolves around farming, weaving, tending livestock, and other traditional practices. The shift from these rural environments to the dense, fast-paced industrial regions of cities like Dhaka represents a profound transformation that demands significant resilience.

This section presents fragments of that analysis, highlighting aspects such as material usage, spatial thresholds, and daily routines. These elements help draw connections between rural lifestyles and the ways garment workers adapt to their urban dwellings. Later in the fieldwork, comparisons are made to examine how these individuals are reshaping industrial housing environments to reflect familiar rural practices. Ultimately, the findings reveal that garment workers carry their traditions, customs, and cultural values with them, imprinting these influences onto their new homes in the city.








































































lessons from dhaka factories

Factory workers in Bangladesh often leave their rural villages behind in search of employment in the garment industry, relocating to the dense and chaotic industrial zones surrounding the country's main export hubs, particularly Dhaka and Chittagong. Around Dhaka, garment factories are primarily concentrated in Savar and Gazipur, two rapidly developing areas located roughly two hours from the city center.

These outskirts starkly reveal the limitations of Dhaka's urban expansion. The lack of basic infrastructure is immediately visible, marking the edge where planned urban development gives way to unchecked industrial sprawl. The atmosphere of Savar and Gazipur speaks volumes about the priorities that have shaped these areas - where economic output has taken precedence over livability, planning, and long-term resilience.



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Flowing with the wave of garment workers stepping into one of the factories at 7:30 a.m. in Savar, the pace is mechanical, as hundreds of workers move through security checks and punch in for their shifts. Inside, the factory is a vast and tightly organized space, where loud noise coming from sewing machines, fabric cutters, and electric generators is constant.

Rows upon rows of workers, mostly women wearing brightly colored saris, sit shoulder to shoulder performing the same task over and over again with remarkable precision. On average, they work about 60 hours per week and make 15 000 taka per month (about 105 euros), which equates to about 40 cents per hour.

As an outsider, it’s impossible not to feel the contrast between the scale of the operation and the anonymity of the individuals behind it.

I asked if I could take a few photos, and to my surprise, the factory owner agreed without hesitation. But when I later asked him a few questions using Google Translate about the workers’ well-being, his demeanor changed instantly. The word “well-being” seemed to trigger something, and he started to panic as he quickly asked me to delete all the photos I had taken. He was suddenly nervous, fearing that my questions and images might be published or used in a way that could expose the realities of the factory.

He got me out of the factory as quickly as he could, afraid that he might have made a mistake of letting me inside in the first place.

Those images, like the experience itself, are a quiet testament to a system that thrives on invisibility, and the power of simply bearing witness.














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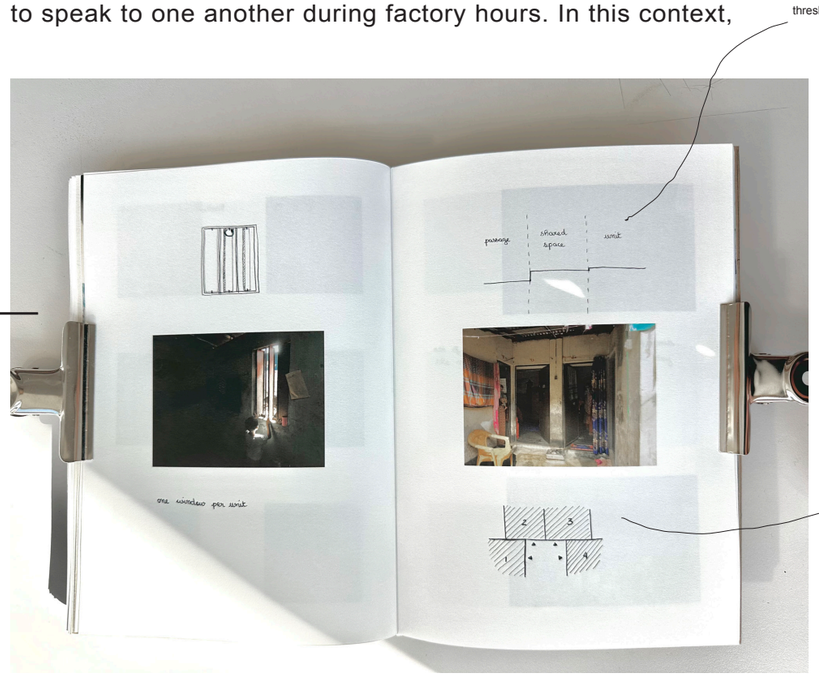
lessons from garment workers' housing

Factory workers in Bangladesh mostly work in Chittagong, Savar, and Gazipur. As part of the fieldwork, Gazipur and Savar villages were visited to assess the current living conditions of garment workers. Savar and Gazipur are two major industrial areas on the outskirts of Dhaka (about two hours away from Dhaka). It quickly became evident that garment workers' living environments are oftentimes even worse than their working conditions. Families of all sizes are crammed into small rooms, often without bathrooms and no cross ventilation. These homes are plagued by issues such as flooding, excessive humidity, unpleasant odors, and a lack of privacy.

Garment workers reported that rent for these rooms typically ranges from 2,500 to 3,500 taka (approximately 17.80 to 25 euros), with an additional 1,500 taka (around 10 euros) for utilities and services. After covering these basic expenses, most workers are left with only about 65 euros per month to support their families, which is far below what is needed to live properly.

The visits to garment workers' housing in Savar and Gazipur revealed not only the severity of the living conditions, but also the resilience of the residents and the thoughtful ways they inhabit their spaces. It became clear that certain spatial elements are deeply valued by the community- not just for function, but for fostering a sense of connection. Many of these spaces support social interaction and community building, which are especially important given that workers are often not permitted to speak to one another during factory hours. In this context,



shared spaces become essential for restoring a sense of dignity, belonging, and human connection.

shared entrance space with their neighbors

In many of the housing complexes, the entrance areas are shared between neighboring units. These transitional spaces become informal social hubs - places for conversation, gossip, cooking, resting, watching over children, and simply being outside. They function as communal living rooms and are essential to daily life. This spatial logic will be integrated into the design to encourage social interaction and foster a sense of community.

thresholds

A strong spatial distinction between public and private realms is evident in both rural villages and worker housing blocks. This is often achieved through subtle level changes - typically one or two steps - marking the transition from the public street to the private dwelling. These thresholds not only define territory but also offer a sense of dignity and ownership. The design will draw on this principle to create clear separations between shared and private spaces.

shared circulation space and gallery

Access to individual units often comes through a shared semi-private gallery or walkway. These circulation spaces function like miniature streets, activated by daily routines and collective life. Residents personalize these galleries with plants, hanging laundry, seating areas, and small interactions that transform circulation into community. This quality of shared space will be an important element in the design, supporting both movement and meaningful social engagement.

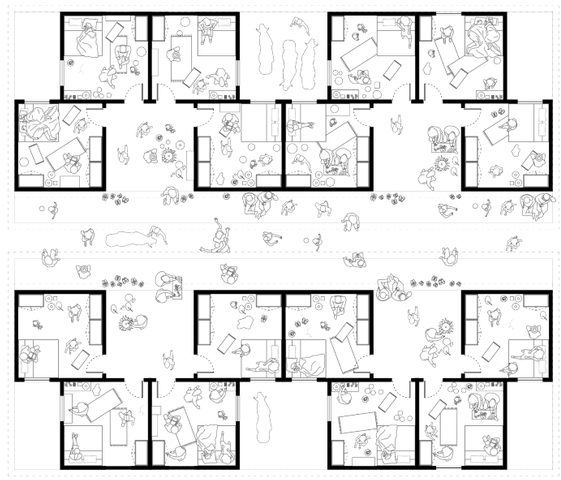
overcrowded

no cross-ventilation

"one size fits all"

no greenery

open sewers





























no storage / hanging space



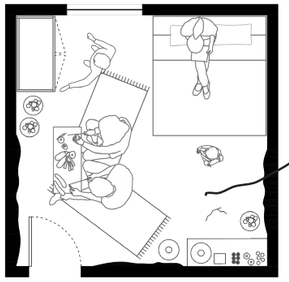


humidity



very dark



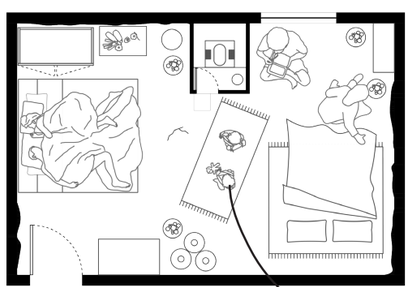


no toilets

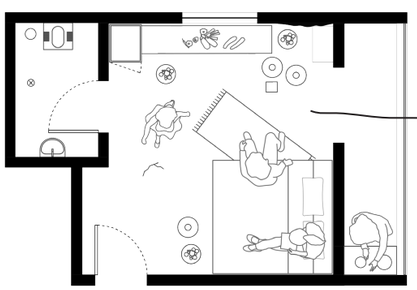




poor maintainance



no privacy



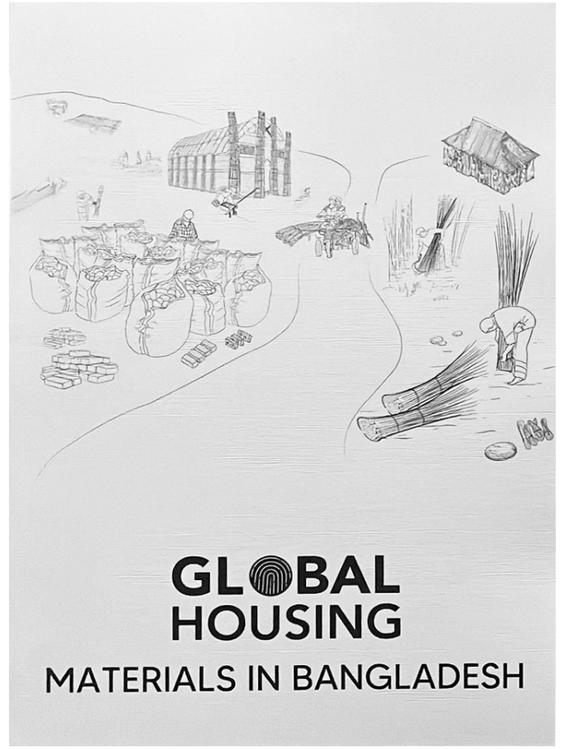
over-crowded

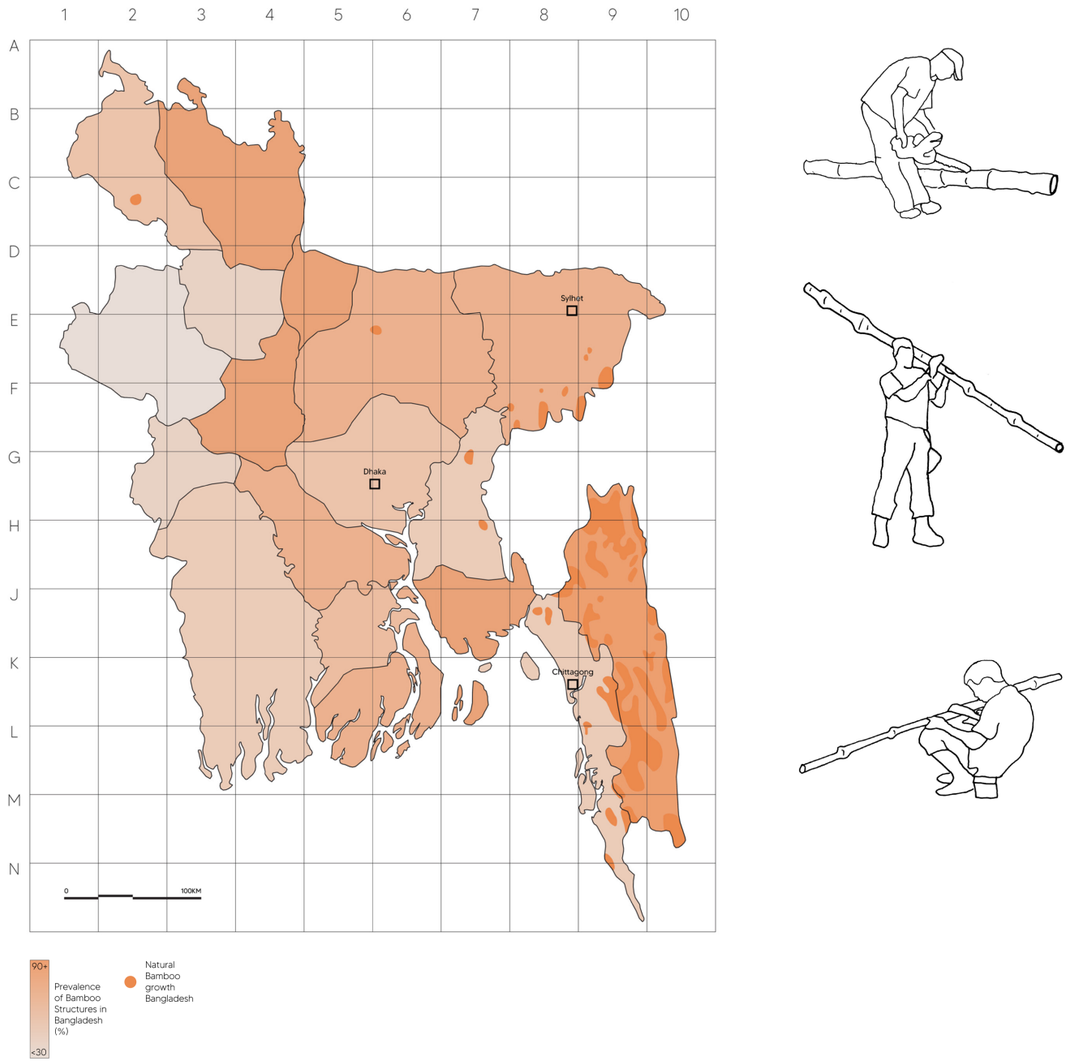
material study

As part of the fieldwork and research phase of the project, a group-led material study was conducted. The outcome of this study was a comprehensive material book that documents the research, production processes, and places of origin of the materials commonly used in Bangladesh.

This next section offers a brief analysis of selected materials, focusing on their origin, sustainability, labor requirements, and cost. A series of maps and comparative tables provide further insight into each material's key characteristics, which informed the material choices made for the project.

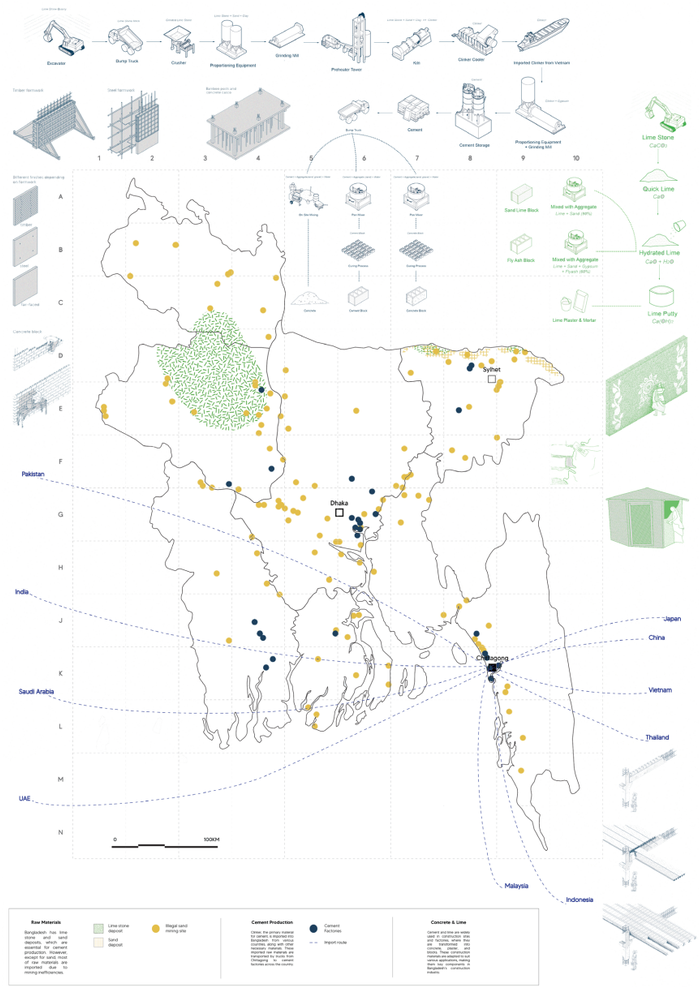






bamboo

Bamboo is widely used across both rural and urban areas in Bangladesh due to its structural strength, sustainability, and deep roots in traditional construction techniques. It is easily accessible and often grown informally in household gardens or forested areas. Because its production is not centralized, the exact origin of structural bamboo is difficult to trace, but its use in Bangladeshi homes is widespread and culturally embedded.



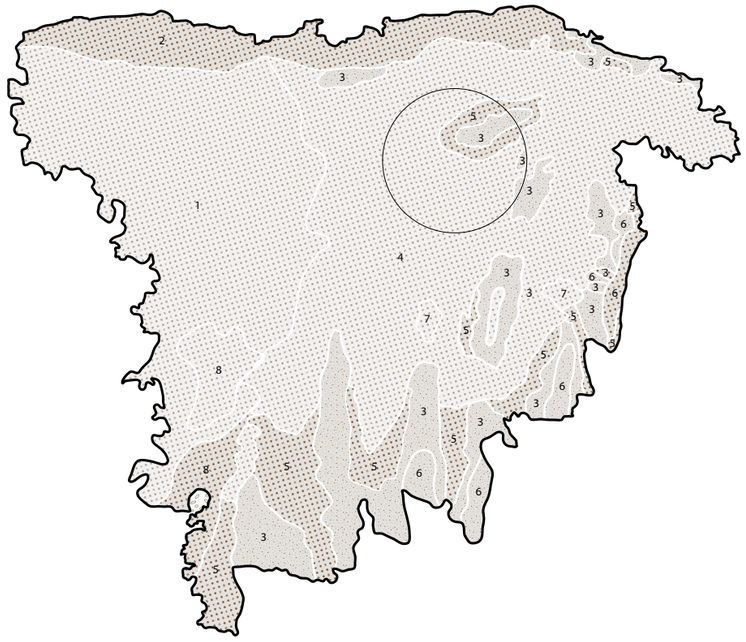
concrete

Concrete is one of the most commonly used materials in Bangladesh, found in everything from slabs and structural frames to staircases. While not inherently sustainable, its widespread availability and long lifespan make it a practical choice for certain applications. It is particularly suitable for spaces that are meant to remain static and unchanged over time.





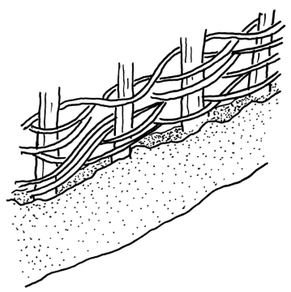




1 Soils of Sylhet basin, Arial basin, and lower Purnabhaba floodplain. Seasonally deeply flooded.
2 Soils of part of the northen piedmont plain. Mainly Acid basin clays, seasonally deeply flooded with some sandy and loamy piedmont soils adjoining the northern hills.
3 Mainly deep brown (some red) soils on low hills. Mainly steep, occasionally gently sloped.
4 Surma Kusiyara floodplain soils. Seasonally wet or flooded grey floodplain soils on ridges. Mainly with slight to medium acid clay subsoils, and strongly acid heavy clays in deep basin.
5 Grey, red or brown, strongly acidic loams to clays on seasonally wet or flooded piedmont plains adjoining the eastern hills.
6 Deep and shallow bron soils on very steep, high hill ranges.
7 Permanently wet basin peat and muck, partly has alluvial topsoils.
8 Dark grey, finely mottled brown soils with dark grey flood coatings. Seasonally acid topsoils and near-neutral topsoils. Seasonally flooded soils.

mud and earth

In rural regions, mud is commonly used as plaster and for constructing walls using methods like wattle and daub (sketch to the right). Though often associated with low-income communities, mud has versatile architectural potential. When stabilized with cement and shaped using a manual press, it can produce compressed stabilized earth blocks (CSEB) that are both durable and visually refined. These bricks can be made directly from soil found on site, reducing environmental impact and cost.





Based on the findings of this material study, the material palette of the project was selected according to the specific requirements of each space, balancing accessibility, function, durability, and sustainability.

For a more detailed understanding of each material, refer to the material study book.

material	source	lifespan (years)	compressive strenght (MPa)	thermal condutivity W/m·K / R-value	thermal regulation heat storage	CO2 embedded (kg CO2 / ton)	CO2 transport (kg CO2 / ton)	earthquake resistancy (good, neutral, bad)	water resistency (good, neutral, bad)	sustainability (recycleble)	building height (low/mid/high)	expertise needed (basic/skilled/expert)	cost (USD per ton)
Class 1 Manual Brick (bangla)	locally sourced	75-100	10-15	0.6-1	mid	330		neutral	neutral	good	mid-rise	skilled	33.84
Class 2 Manual Brick (bangla)	locally sourced	30-50	7.5	0.8-1.2	mid	330		neutral	neutral	good	low-rise	skilled	19.32
Automated/ceramic brick	locally sourced	100+	15-23	0.5-1	mid	150-200		neutral	neutral	good	mid-rise	skilled	60.2
Hollow Brick	locally sourced	50-100	3.5-10	0.3-0.6	high	200		neutral	neutral	neutral	low-rise	skilled	89.6
Reinforced concrete	combination	50 - 100	20 -100	1.4 - 3.6	high	1000 - 1100	...	good	good	bad	high-rise	expert	57-70
Lime (hydraulic)	imported	50 - 200	2 - 10	0.2 - 0.6	mid	300 - 500	...	neutral	good	good	low-rise	basic	52-87
Lime (non-hydraulic)	imported	100 - 500	1 - 4	0.2 - 0.6	mid	100 - 200	...	neutral	bad	good	low-rise	basic	52-87
Lime block	combination	100+	2 - 10	0.2 - 0.6	mid	300 - 600	...	bad	neutral	neutral	low-rise	skilled	
Cement block	combination	50 - 100	3.5 - 40	0.5 - 1.7	high	500 - 800	...	bad	good	bad	mid-rise	basic	20.71-33.13
Wood - Teak	locally sourced	50-70	38-100	0.1	mid	40 - 720	...	good	neutral	good	low-rise	skilled	22.76 - 97.55
Wood - Sal	locally sourced	100-150	55-130	0.1	mid	40 - 720	...	good	neutral	good	low-rise	skilled	22.76 - 97.55
Bamboo	locally sourced	20-30	57.3	0.17–0.20	mid	(-480) - (10)	...	good	neutral	good	low-rise	skilled	121.21 - 159.09
Limestone	combination	50-100	30-80	1.3-1.7	mid	800-900	50-100	neutral	neutral	bad	mid-rise	skilled	27.52
Sandstone	locally sourced	50-80	20-100	1.8-3.0	mid	600-800	30-80	neutral	neutral	neutral	mid-rise	skilled	24.70
Shale	locally sourced	40-70	20-50	0.3-2.0	high	400-600	30-60	bad	bad	bad	low-rise	basic	14.30
(Grano)Diorite	combination	80-250	80-250	2.0-3.5	low	100-200	20-50	good	good	bad	high-rise	expert	16.75
CI Sheets	combination	20-40	N/A	50-60	low	500-700	40-90	woble woble	bad	neutral	low-rise	basic	1 432
Rammed earth	locally sourced	50-150	0.2-2.0	0.3	mid	...	...	woble woble	neutral	good	low-rise	basic	107
Mud bricks	locally sourced	15-100	0.1-1.0	0.8	mid	...	...	woble woble	neutral	good	low-rise	basic	20-50

synthesis
and design

design principles

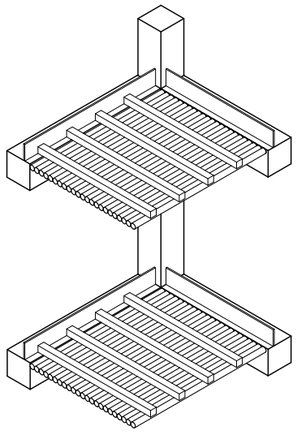
The dwelling design is defined by various elements that were found in rural villages in Bangladesh, which are the places where garment workers are originating from. In that sense, the fieldwork was translated directly into the dwelling design, taking into consideration the most important spaces of the house related to different activities (cooking, eating, socialising, resting, maintaining and cleaning).

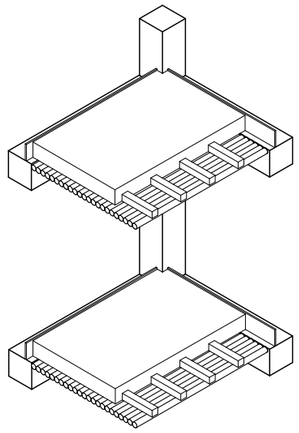
With that approach, the analysis of garment workers' housing in the industrial region of Dhaka (Savar and Gazipur) revealed a lot about the ways in which people use the space too. Although these housing blocks are to to be taken as counter examples - given how poorly they are constructed, how small they are, and their lack of amenities - they do reveal how resilient people are and how they use what they are given.

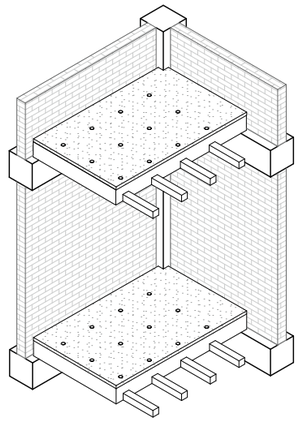
In that sense, the fieldwork regarding rural villages outside of cities and current garment workers' housing in Savar and Gazipur translated into the actual dwelling design, taking into consideration how people use space, what amenities they need, and what to avoid.

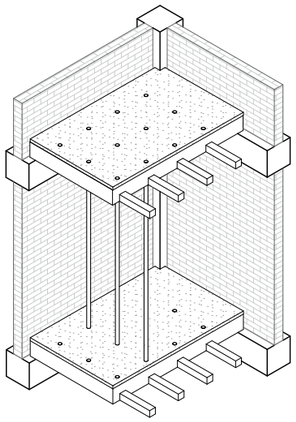
Furthermore, it is important to consider that garment workers move to industrial areas to work in factories, bringing their families with them. This also means that within one household, there could be one factory worker, but there could also be five. The ratio between family size and income is not static, and depends fully on how many members have the capabilities and age to work within the family. Due to this phenomenon, the dwelling needs to allow for adaptation to each family. One small dwelling could house five people, or it could house two, depending on the family's income and what they are able to afford together. Therefore, a small dwelling might need only one partition, or it could actually need two or three. The design of the flexible partition system is key to the composition of the space.

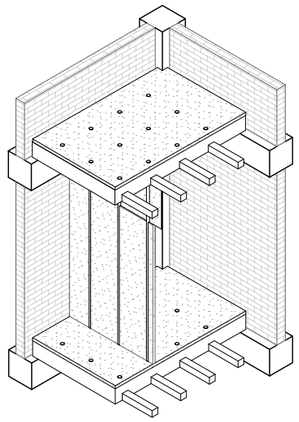
The design considerations, variants, and partition system all stemmed from this principle of one size does not fit all.







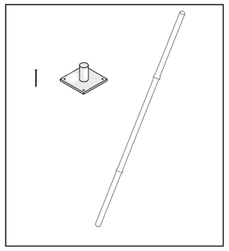


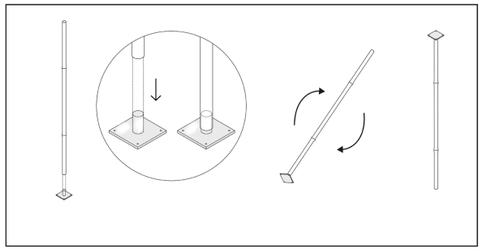


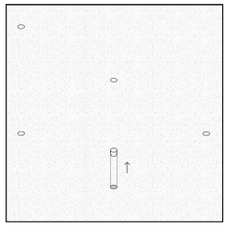
construction of units

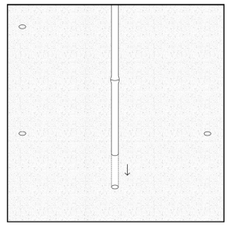
The units are built using a concrete structural frame with infill made from compressed stabilized earth blocks (CSEB), and enclosed within a lightweight bamboo envelope. Interior partitions are constructed using vertical bamboo poles that span from floor to ceiling, filled in using the traditional wattle and daub technique. These are flexible and can be adapted to the needs of each household. The flooring system plays a key role in allowing flexibility for these partitions.

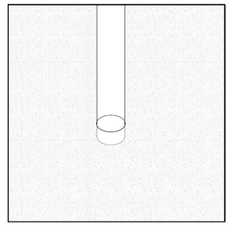
Concrete floors are cast over bamboo formwork supported by timber beams, which also carry the horizontal bamboo poles. Once the concrete has dried, the bamboo formwork is removed, while the timber beams remain embedded in the slab.

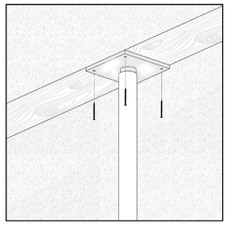


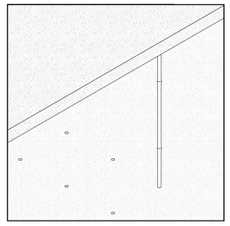


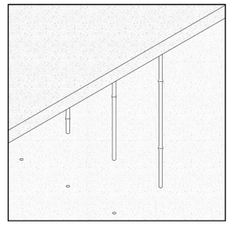


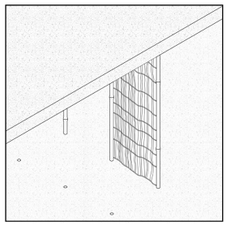


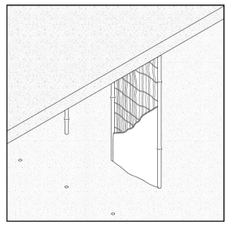






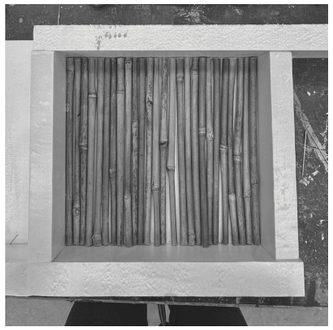






These beams serve as structural anchors and allow the bamboo poles to be connected to the ceiling using wooden joints.

For the floor attachments of the partitions, wooden blocks matching the diameter of the bamboo poles are embedded in the concrete before it sets. These blocks are arranged in a grid that aligns with the timber beams in the ceiling. When installing a partition wall, the corresponding wooden block can be removed and a bamboo pole inserted directly into the hole, creating a secure and adaptable mounting system.



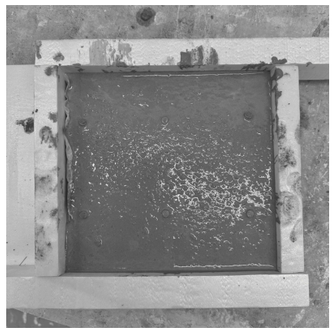
bamboo formwork



timber beams holding
up bamboo poles

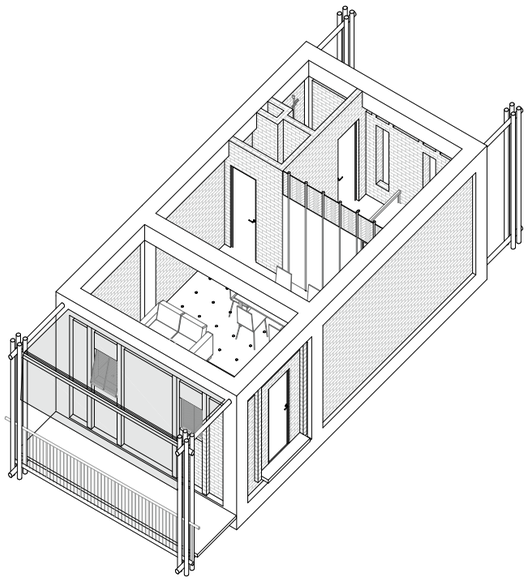


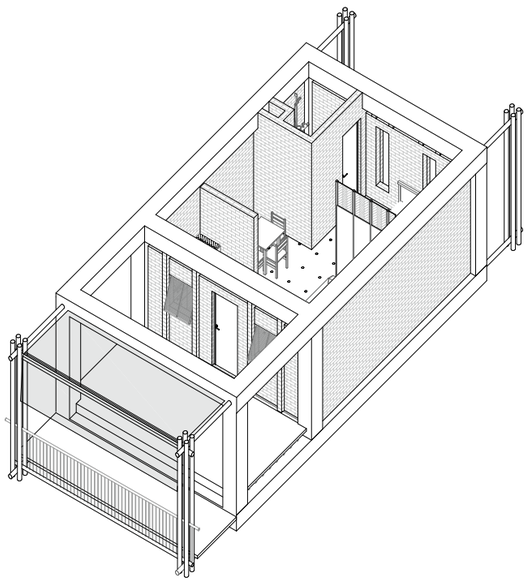
pouring concrete and
adding timber fillers

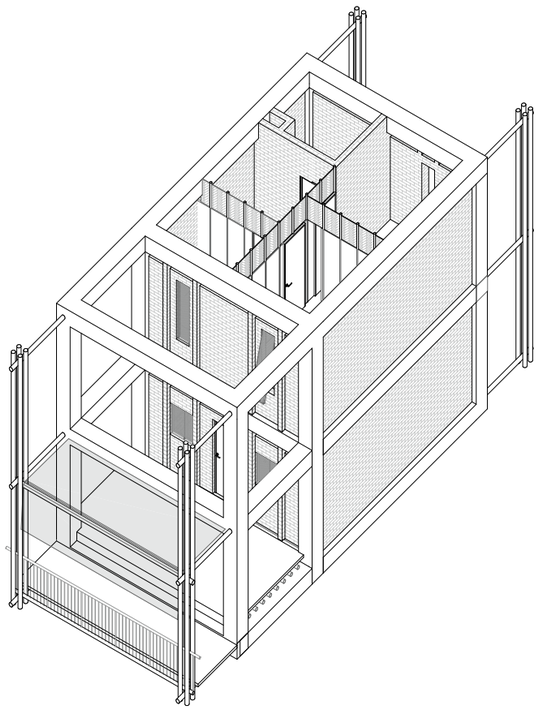


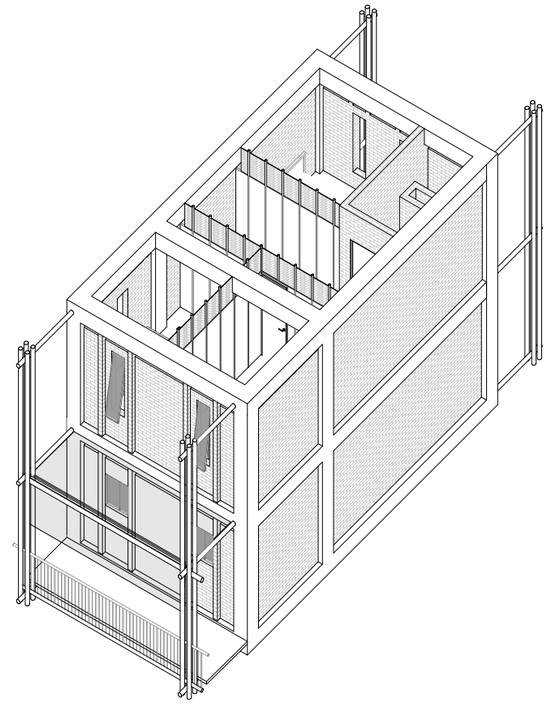
concrete curing with
timber cylinders
apparent







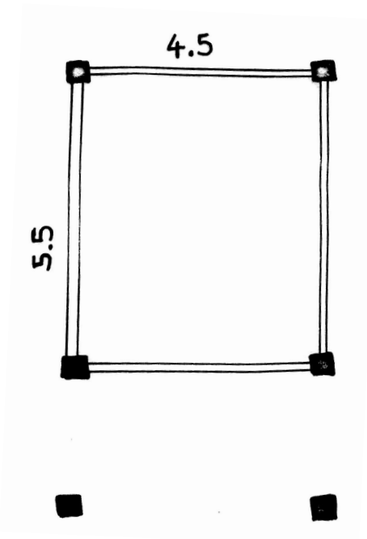


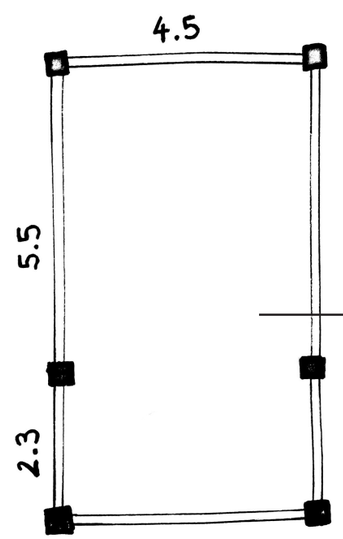


dwelling

There are four dwelling types (A, B, C, D) - two singleplex and two duplex apartments. Each unit is equipped with a bathroom and kitchen, and the partitioning of the space can be adapted to fit the needs of the specific family. The apartments come together in a cluster of three with the small type in the middle and the larger types on the sides. This composition is a reaction to the composition of space found in current garment workers' housing, where a shared entrance is valued as a space for socialising and gossiping.

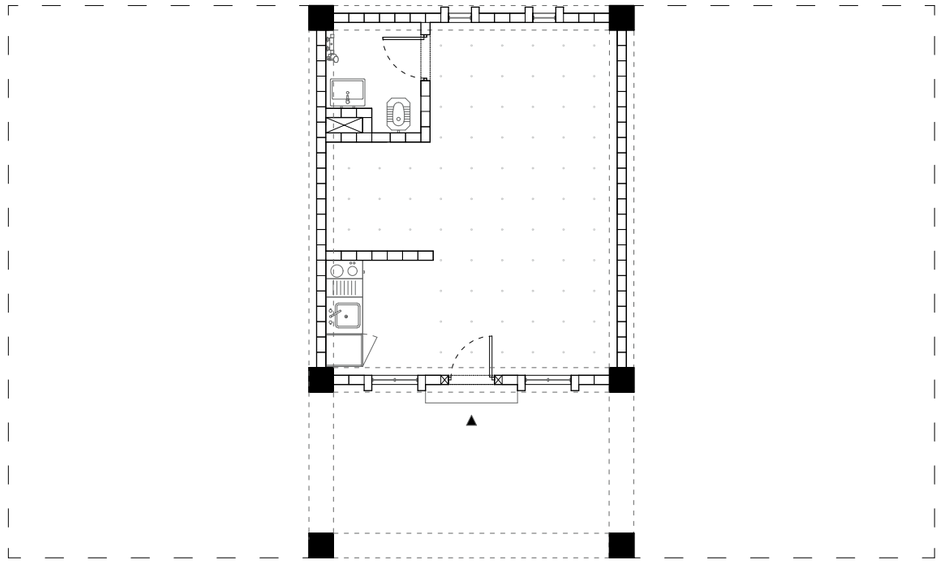
In the next section, each variant is detailed to show the basic dwelling as well as various ways to partition the space.



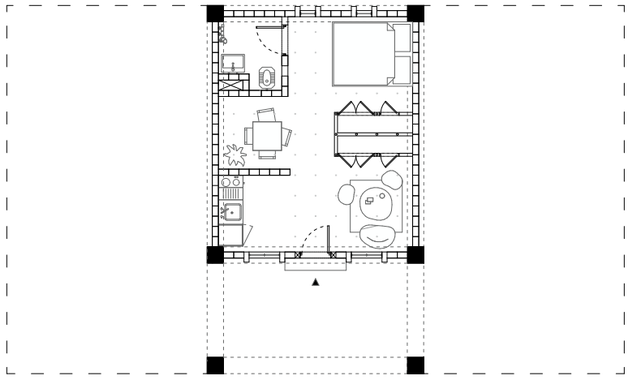


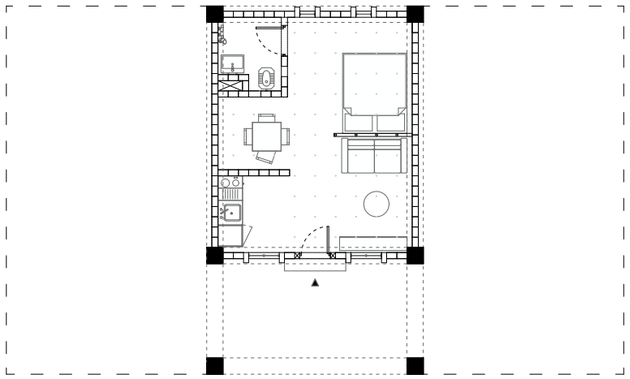


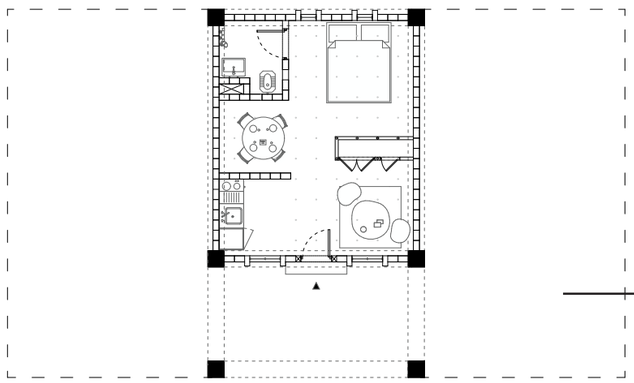
type A elevation 1:50



type A floorplans 1:100







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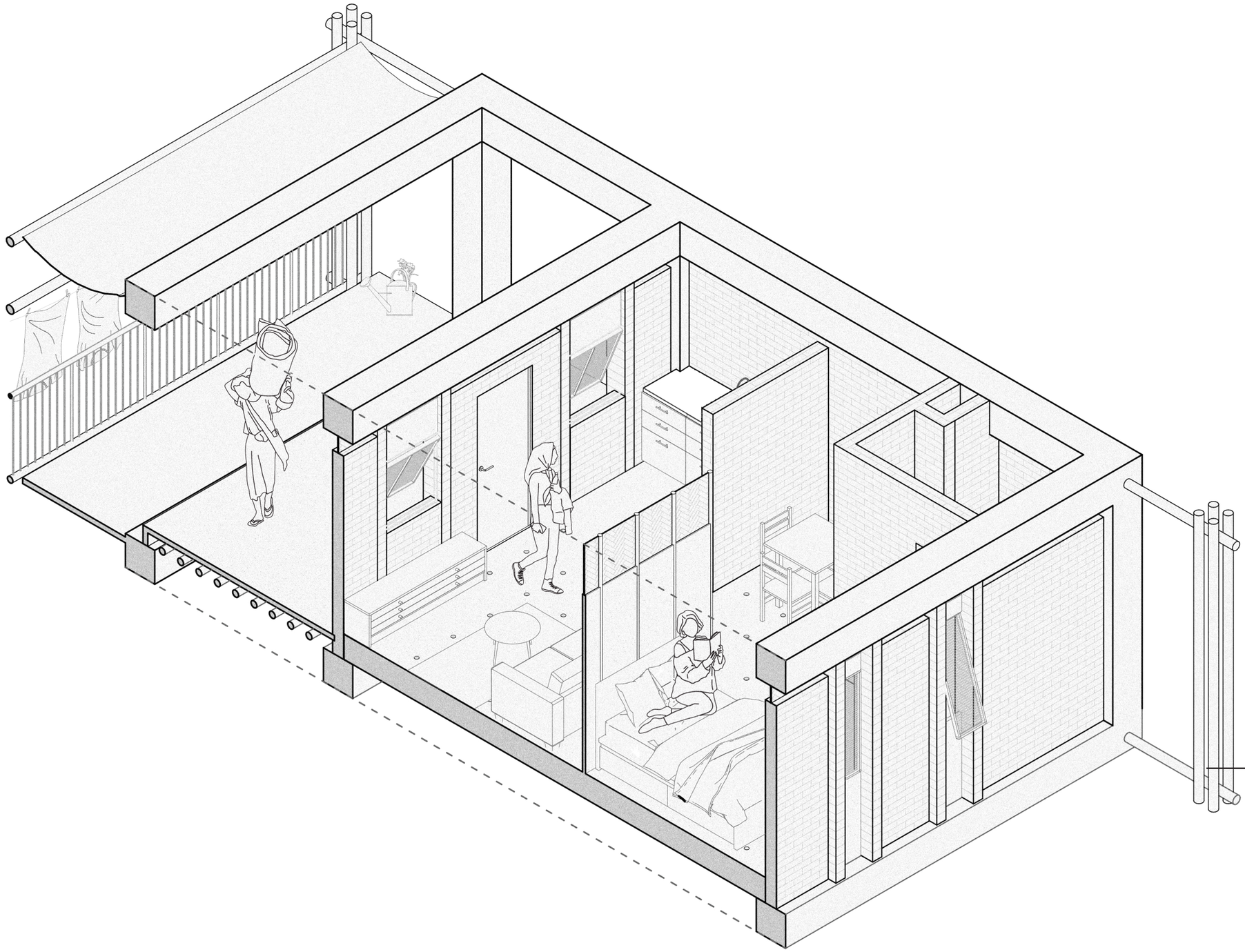

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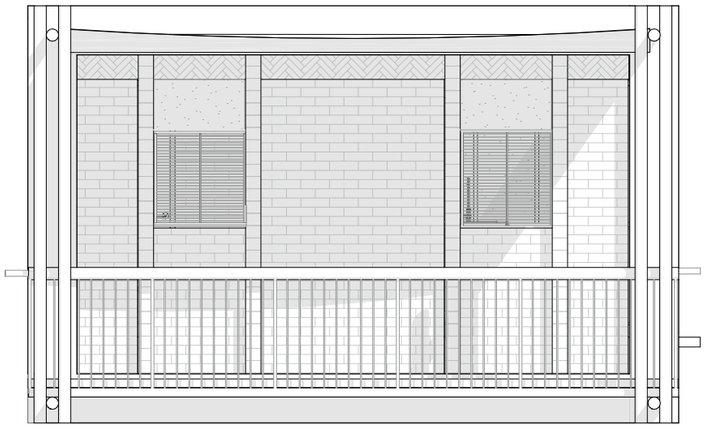

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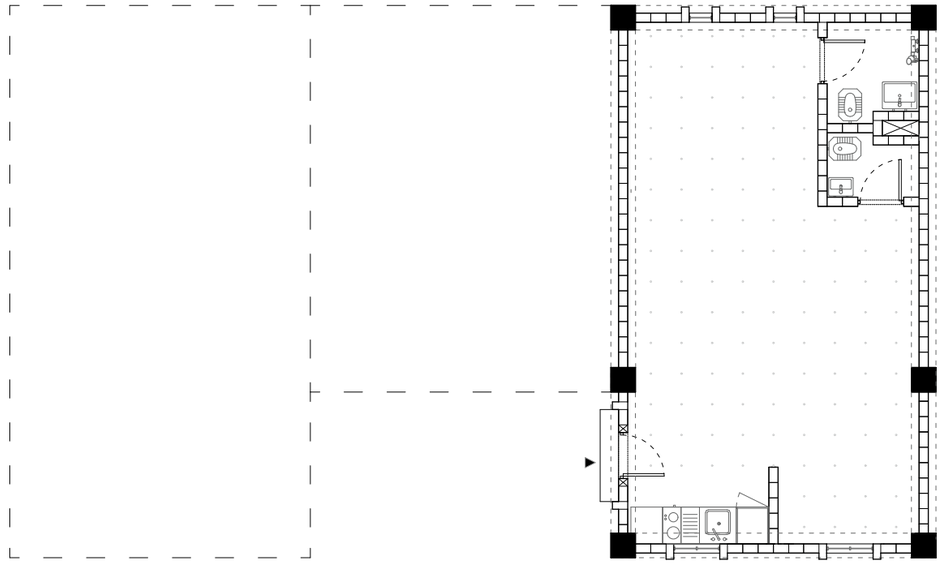

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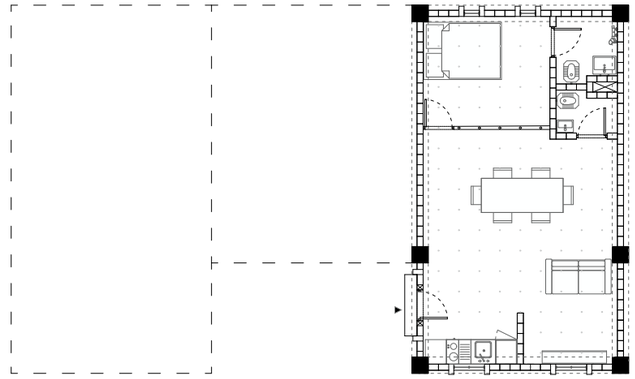

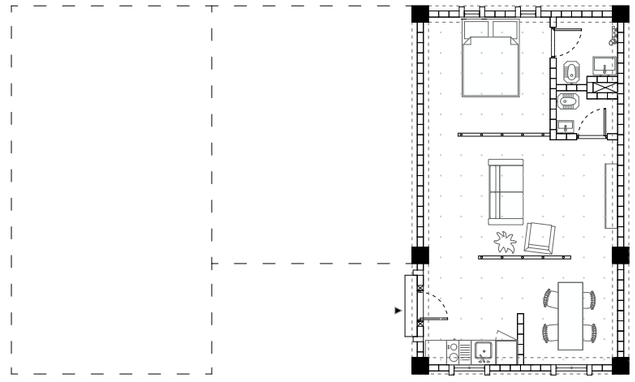

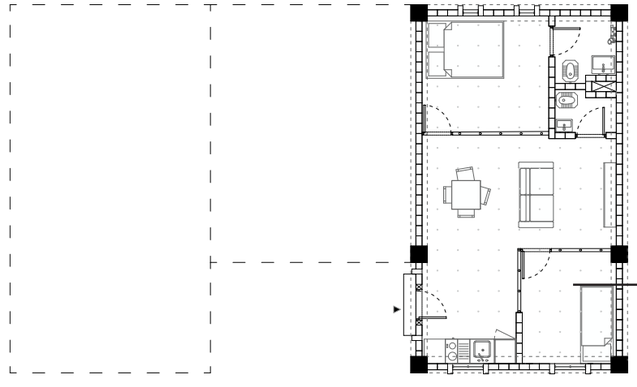

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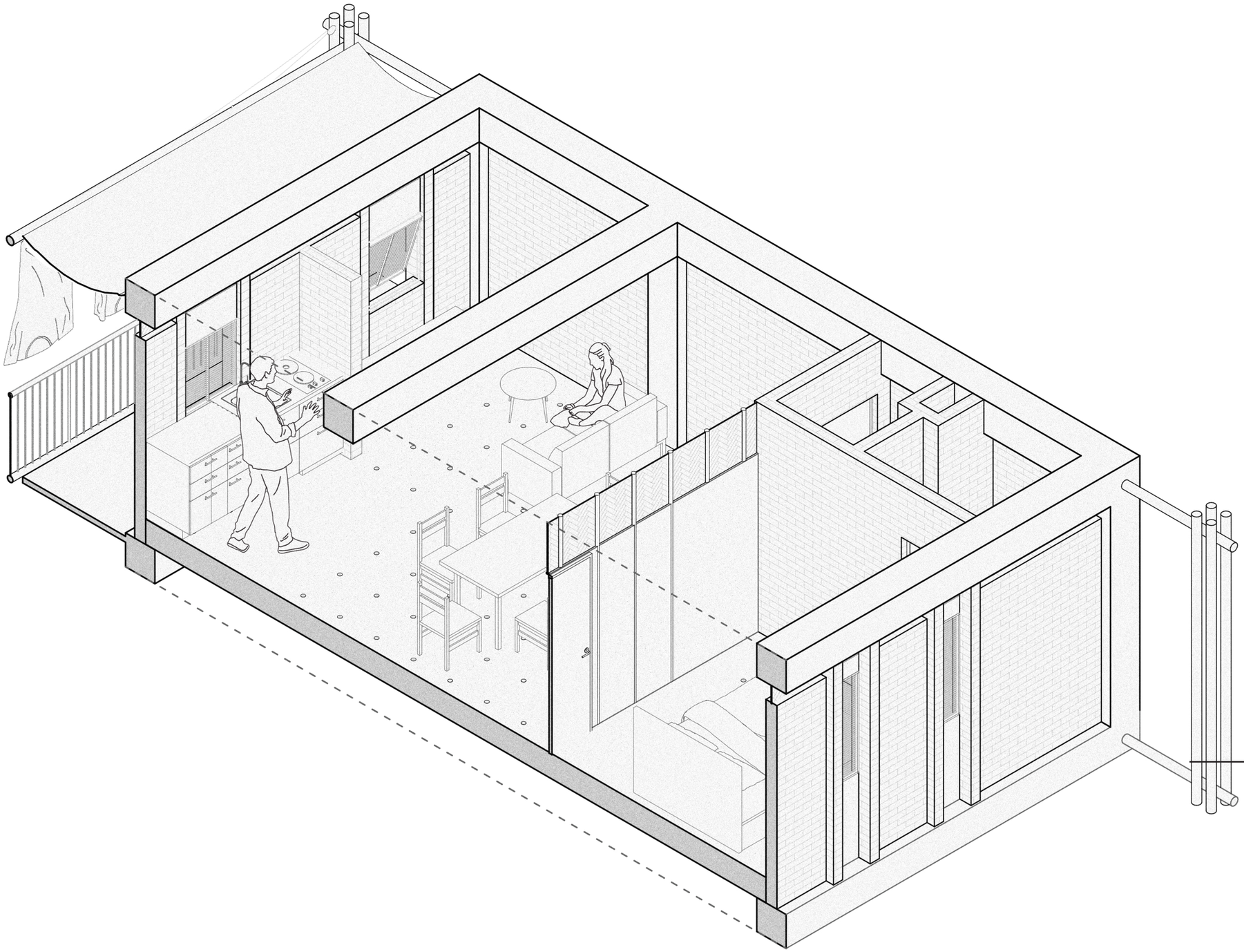

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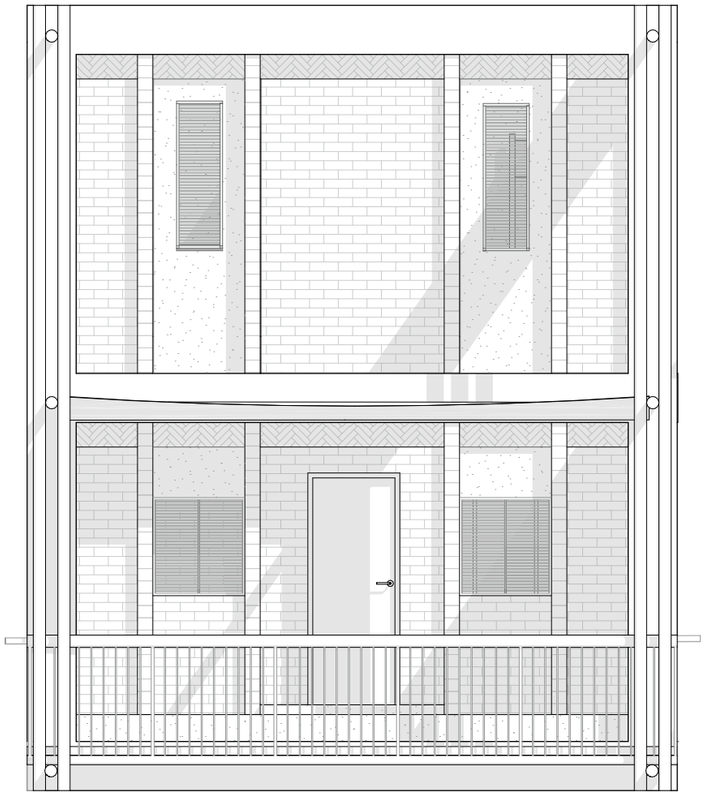

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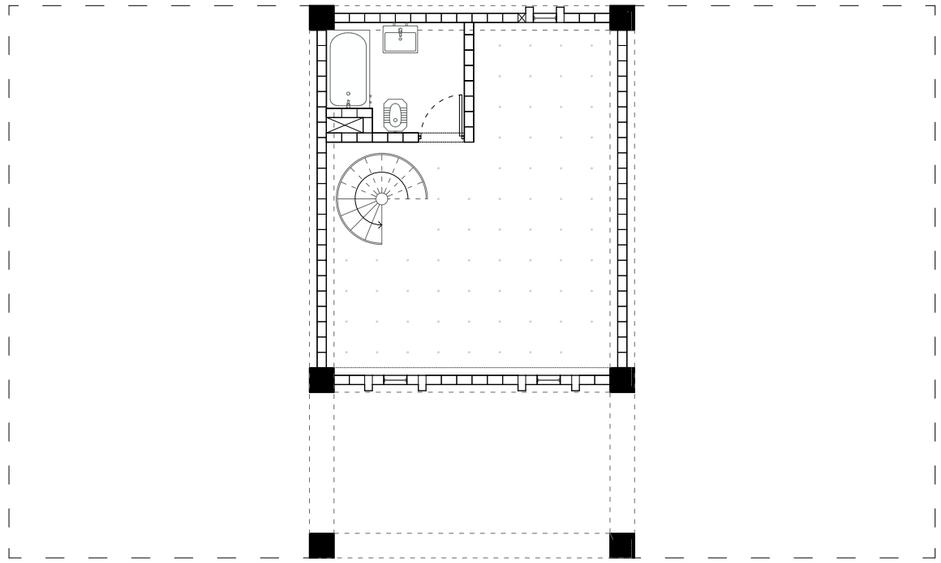

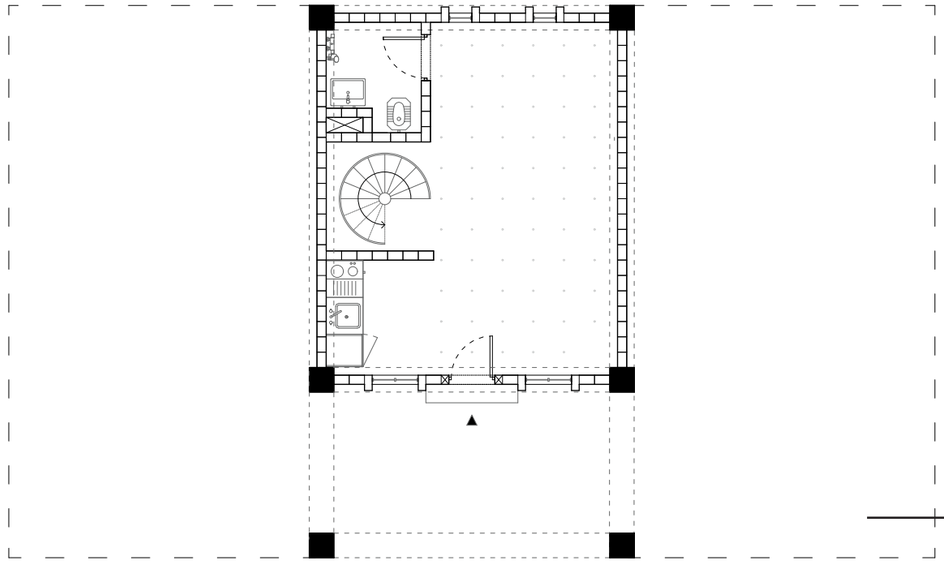

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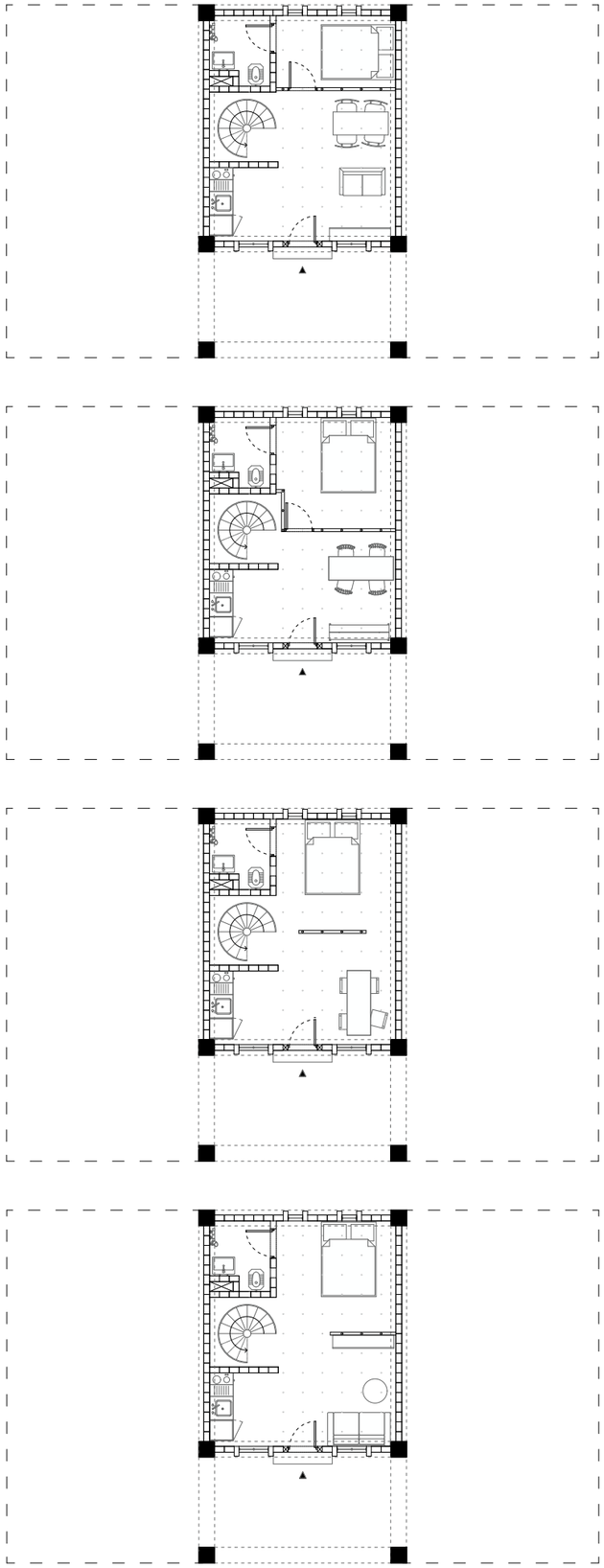

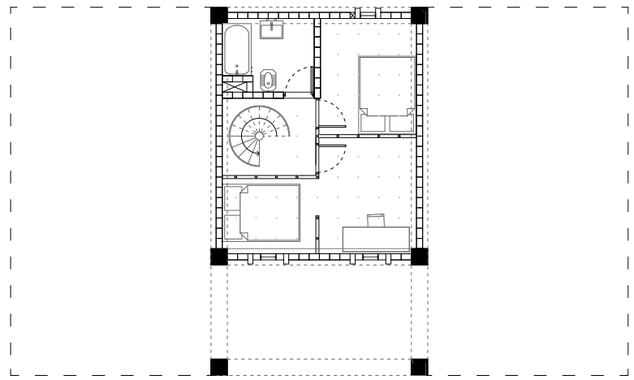

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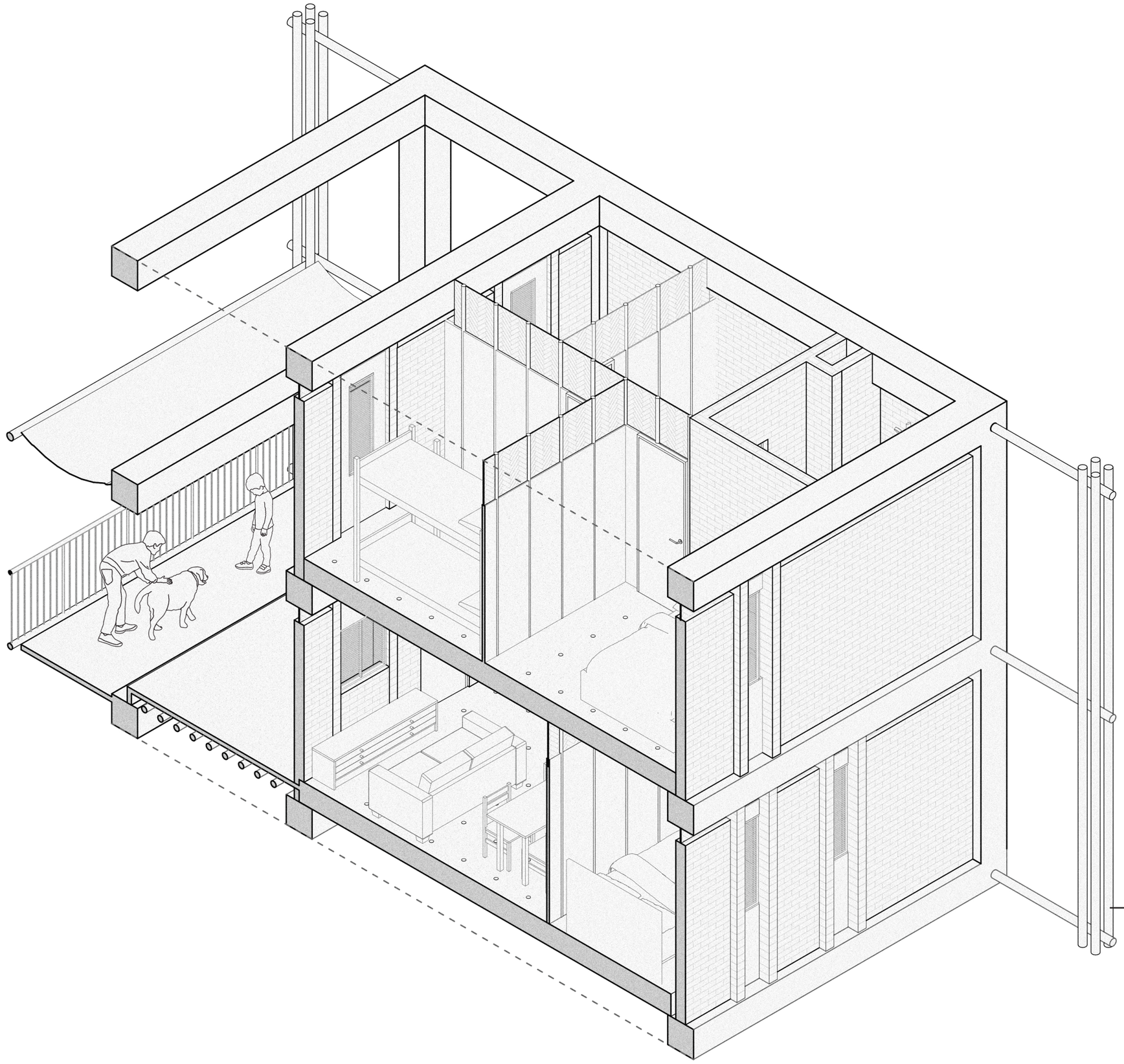

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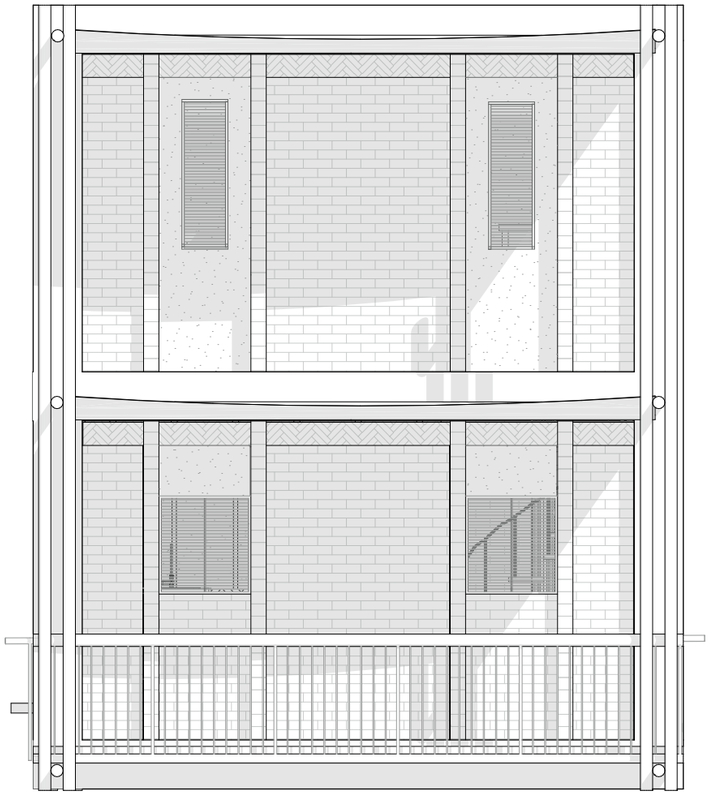

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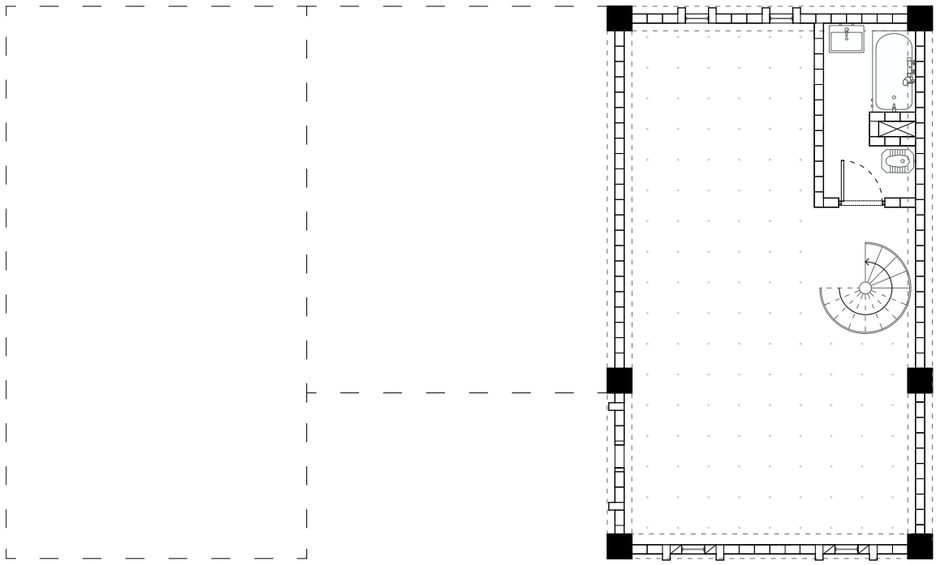

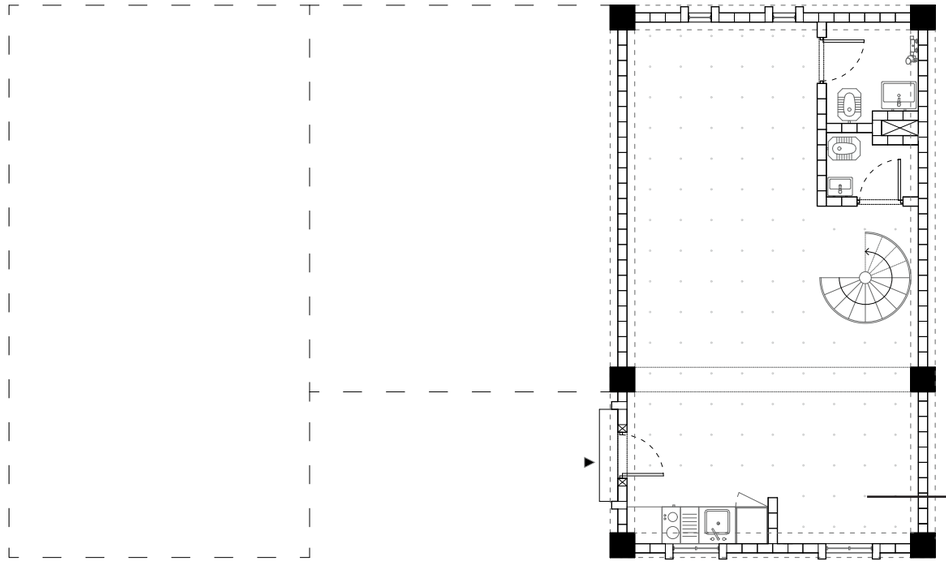

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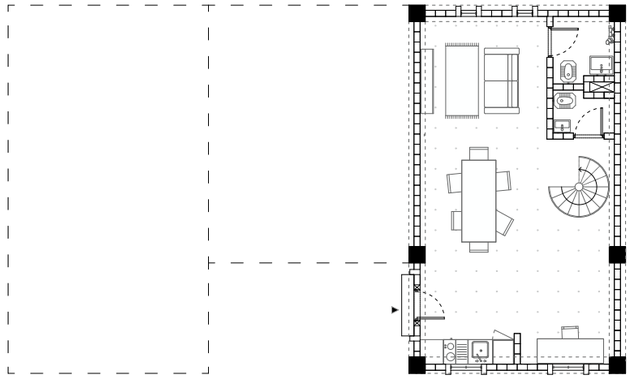

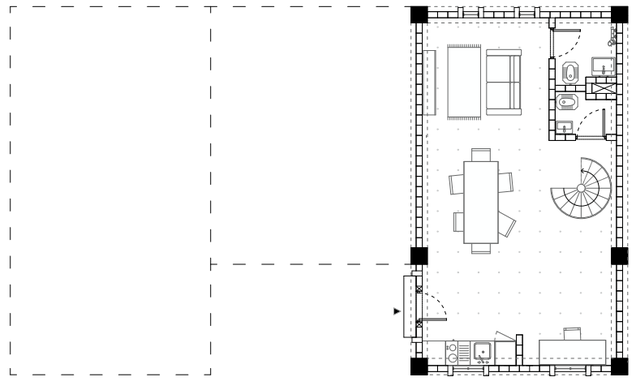

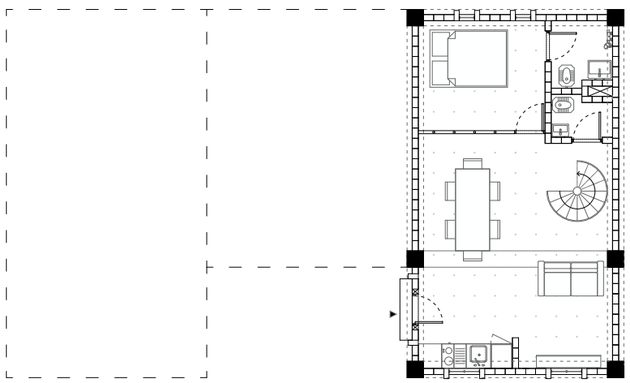

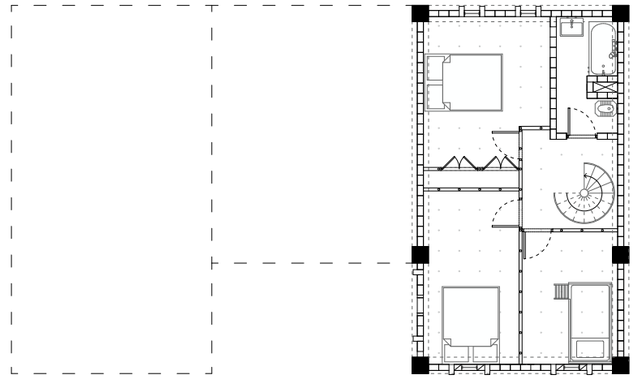

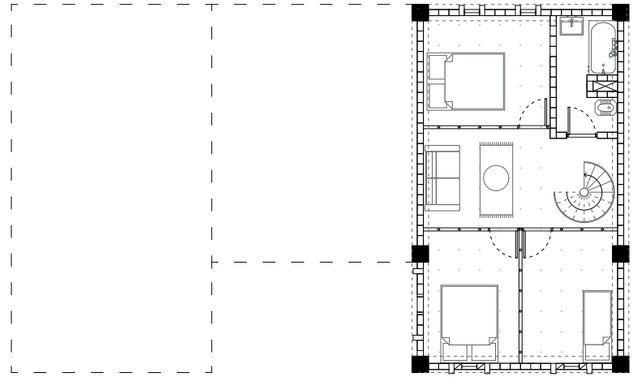

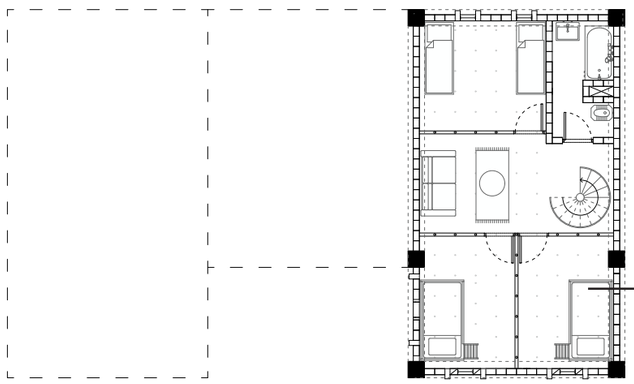

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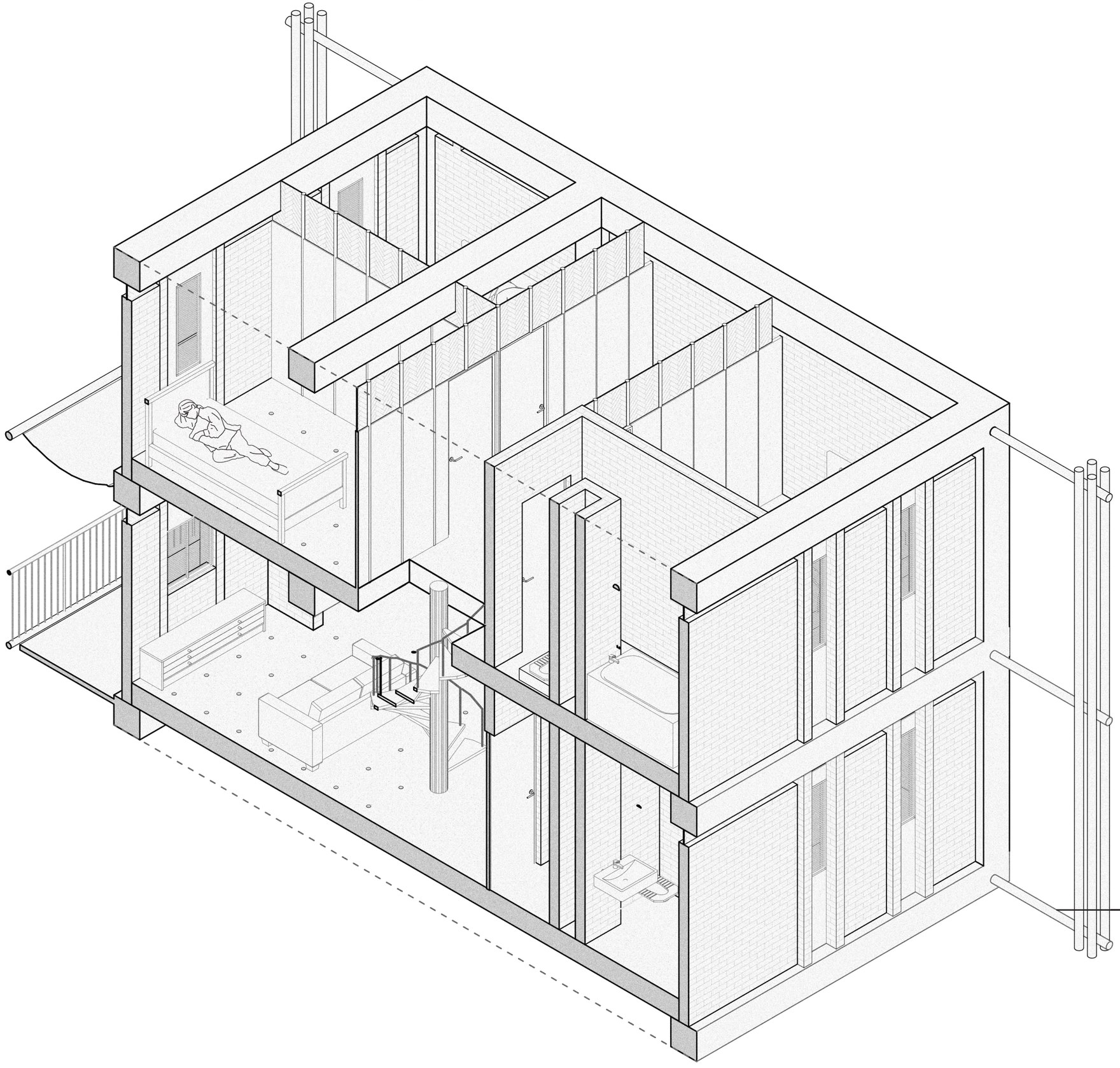


type D section 1:100



site : sylhet textile mill

The Slhet Textile Mill, once a thriving factory in the 1970s, produced and exported threads across Asia. It first shut down in 1991, briefly reopened in 1996, and then closed again in 2001, unable to keep pace with the accelerating demands of the fast fashion industry. Abandoned now for 24 years, the site remains in a state of disrepair on the outskirts of Sylhet. Notably, it is the only factory in the city. Plans are currently underway to reopen it in 2026 as a shoe manufacturing facility, though the brand behind the relaunch remains unnamed, as requested by Abdur, the financial director overseeing the project.

During a site visit, Abdur shared the history of the mill and provided a tour of the full complex. The grounds span 11 hectares and include a mosque, a cafeteria, a pond, guest houses, staff housing, and old workers' quarters - silent remnants of a once-active industrial community. Approximately one-third of the site contains significant topography, which will play a role in the design proposal.

The Sylhet Textile Mill is set to employ around 2,000 workers at its upcoming factory, yet currently has no plans to provide housing for these families. Existing on-site accommodations consist of just 16 units, housing approximately 80 people in substandard conditions, nowhere near sufficient for the workforce expected in 2026. This project addresses the critical shortfall by proposing new housing for garment workers directly on the Sylhet Textile Mill site. The goal is to establish a new benchmark for factory worker accommodations in Bangladesh. Moreover, the factory's opening presents an opportunity to decentralize the garment industry from Dhaka, offering workers access to improved living conditions in a less congested, better-serviced environment.



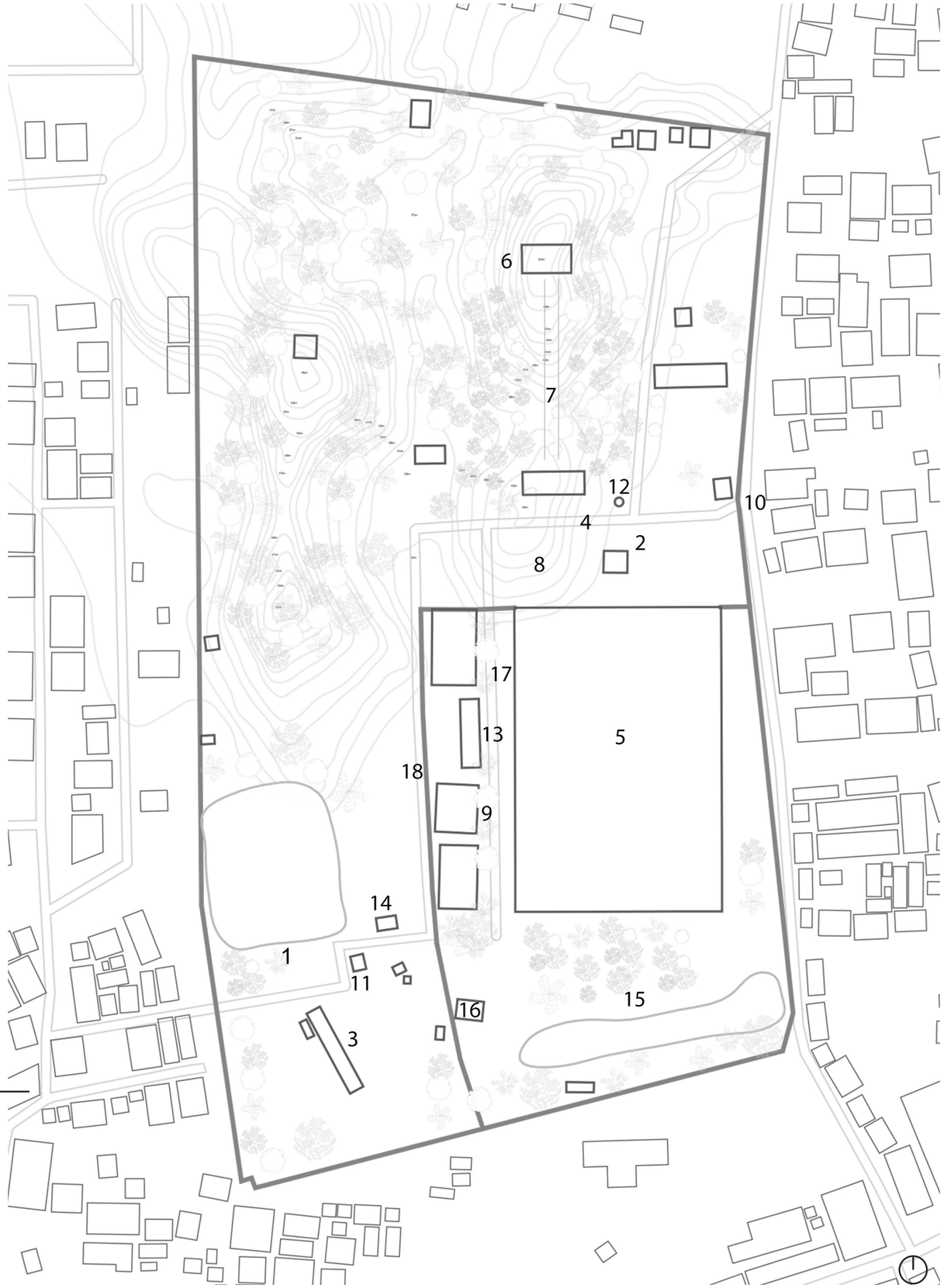


1 Gate house
2 Storage
3 Administration
4 Staff quarter
5 Staff meeting room
6 Guesthouse
7 Shed
8 Mosque
9 Pavilion
10 Factory gate
11 Factory building
12 Raw materials
13 Finished products
14 Cafeteria
15 Housing block
16 Informal settlements
17 Wetland
18 Pond
19 Site gate

existing site

1:2 000



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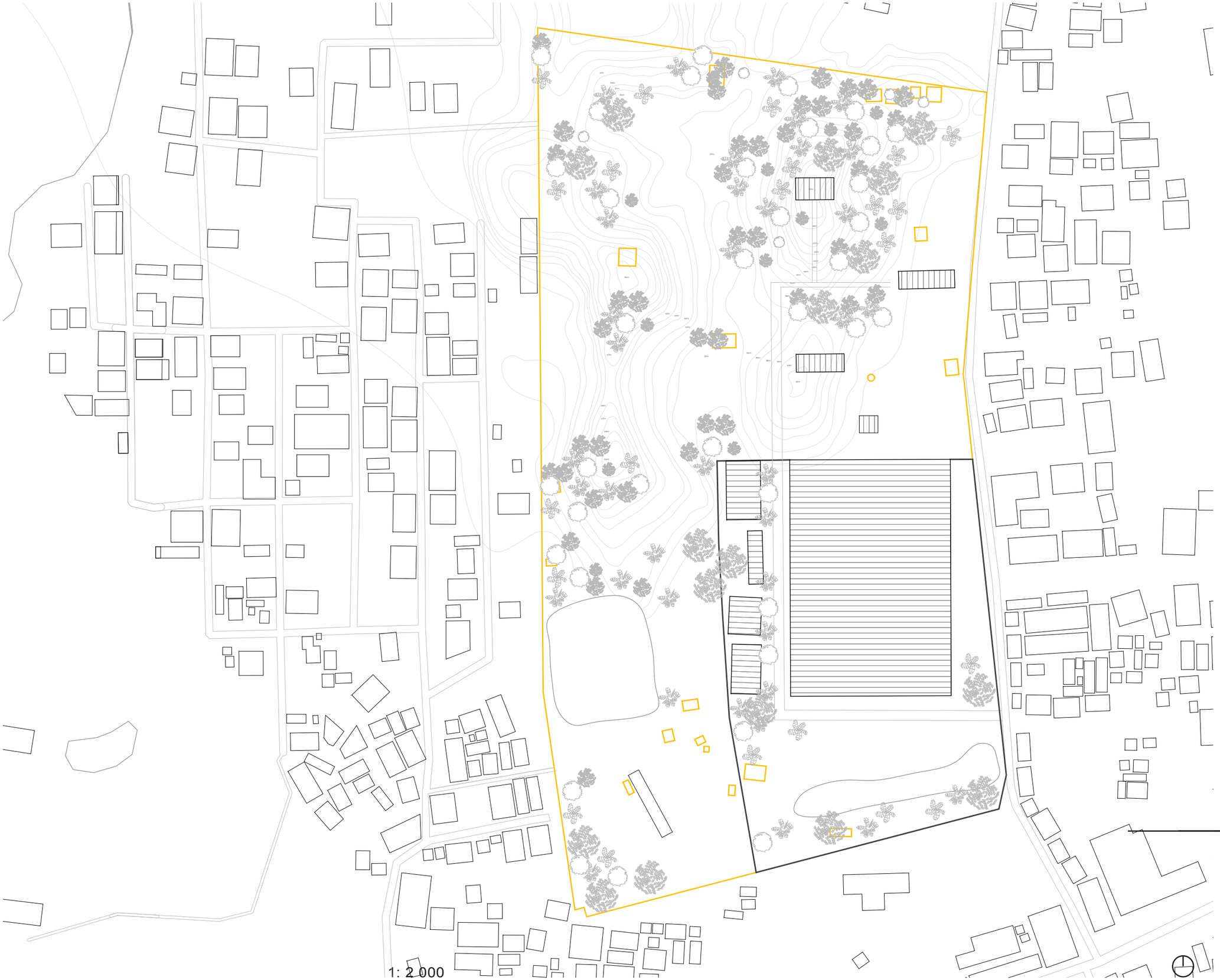
	demand	offer goal	building quantity	actual offer		
Factory					11 600 m²	11 600 m²
Staff quarter					325 m²	975 m²
Raw material and finished product storage					1 710 m²	1 710 m²
Garment workers' housing	2 000 workers	850 workers	21	850 workers + families (1 450 people)	5 292 m²	15 876 m²
Staff housing	200 staff	100 staff	2	100 staff	504 m²	1 512 m²
Guesthouses	50 guests	50 guests	1	70 guests	252 m²	756 m²
Cafeteria					285 m²	570 m²
Training center, community center, workshops					250 m²	750 m²
Mosque					70 m²	70 m²

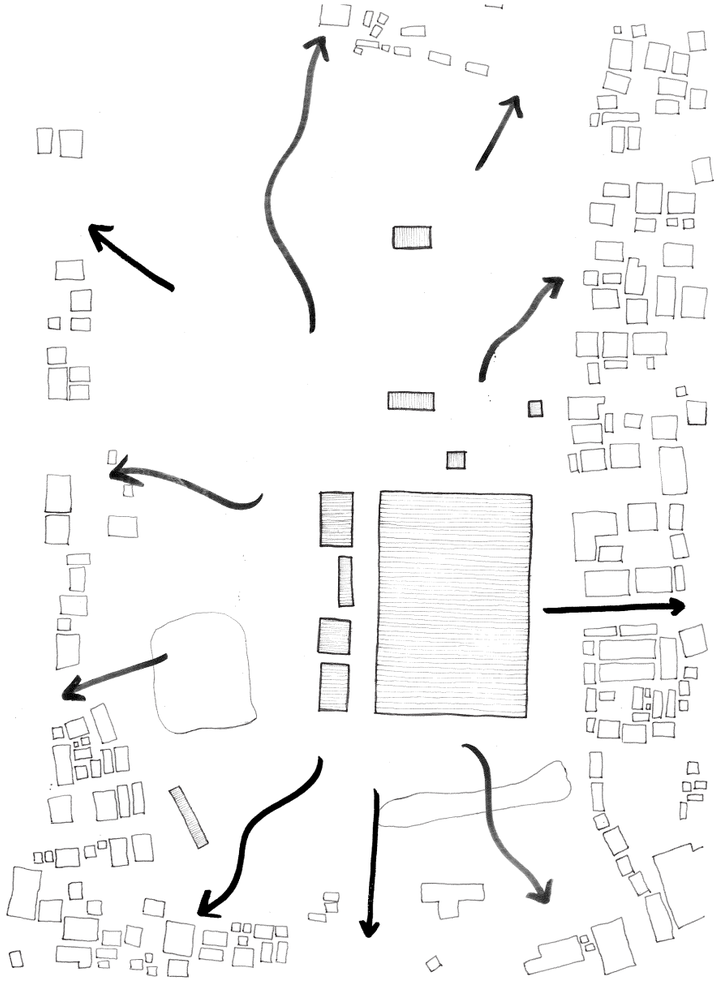
total site is 11 ha

without factory GSI = 0.06 FSI = 0.18
with factory GSI = 0.18 FSI = 0.31

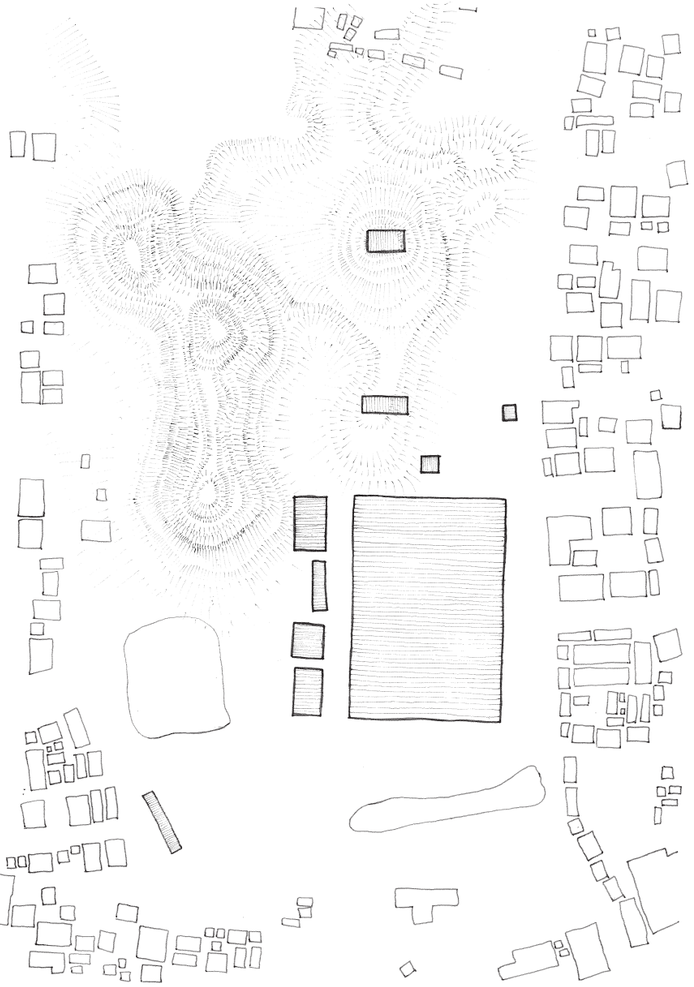


demolishment

1: 2 000





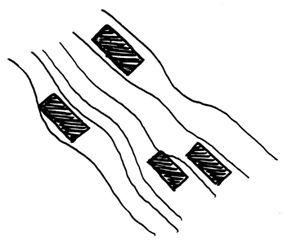


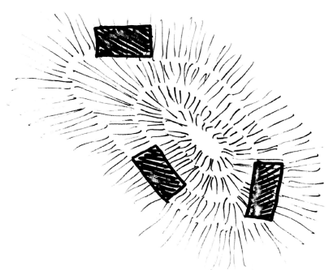
urban strategy

The urban strategy for the Sylhet Textile Mill site is shaped by a careful understanding of both its physical features and its social context. The goal is to create a space where garment workers are no longer marginalized, but fully integrated into the life of the city.

a sense of belonging

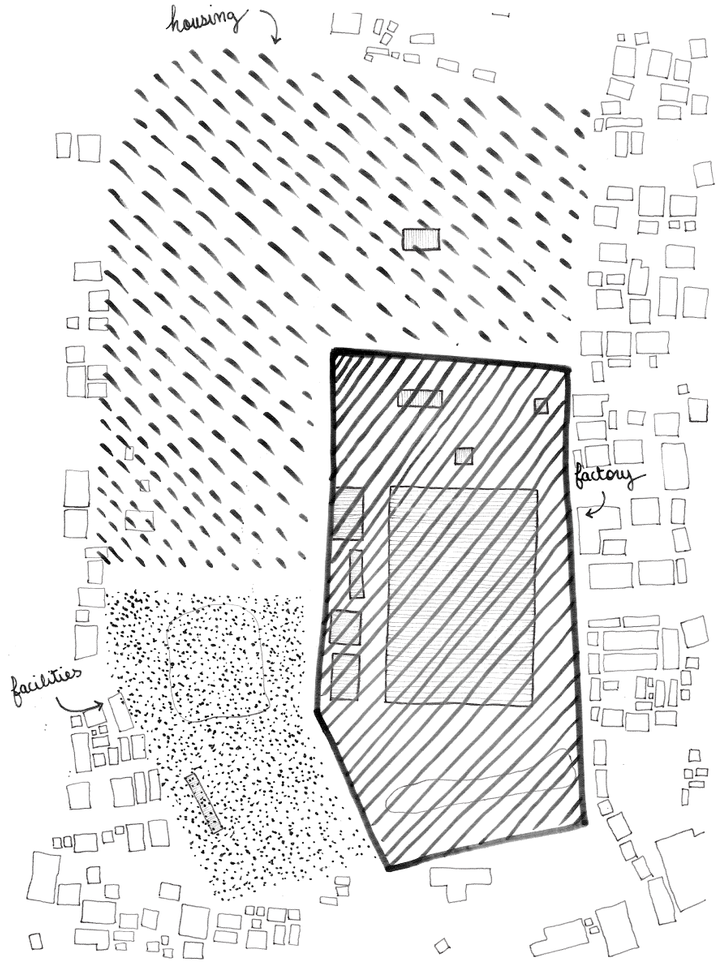
A central principle of the design is to cultivate a real sense of belonging for garment workers. Instead of being isolated from urban life, they are reconnected with it. The site, originally a gated industrial complex, is reimagined through a simple but symbolic act: the existing gate is removed and relocated to enclose only the actual factory buildings. This act frees up nearly 7 hectares for public use, creating space for worker housing and a range of community facilities.





topography

The site includes two main hills and a smaller third rise, with an elevation gain of about 20 meters. This hilly terrain makes up nearly half of the total site area but is currently unused. Most development is concentrated on the flatter sections, which are also the most prone to flooding, particularly during the long rainy season. Shifting development to higher ground not only reduces flood risk but also emphasizes the value of the workers' presence by placing their homes above the industrial area.



the pond as social Infrastructure

At the southern edge of the site is a large pond that is currently gated off and disconnected from the surrounding city. During visits across Bangladesh, it became clear that ponds and waterways often serve as important social spaces where people gather to bathe, wash clothes, sit together, and play. These water bodies are active and meaningful public spaces. By opening up the pond and surrounding it with public functions such as daycare centers, cricket courts, training facilities, and a cultural center, the site gains a vibrant social core that connects the workers with the broader community.

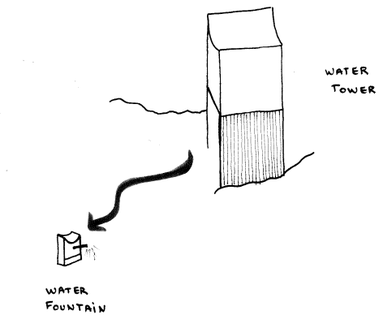
zoning and spatial logic

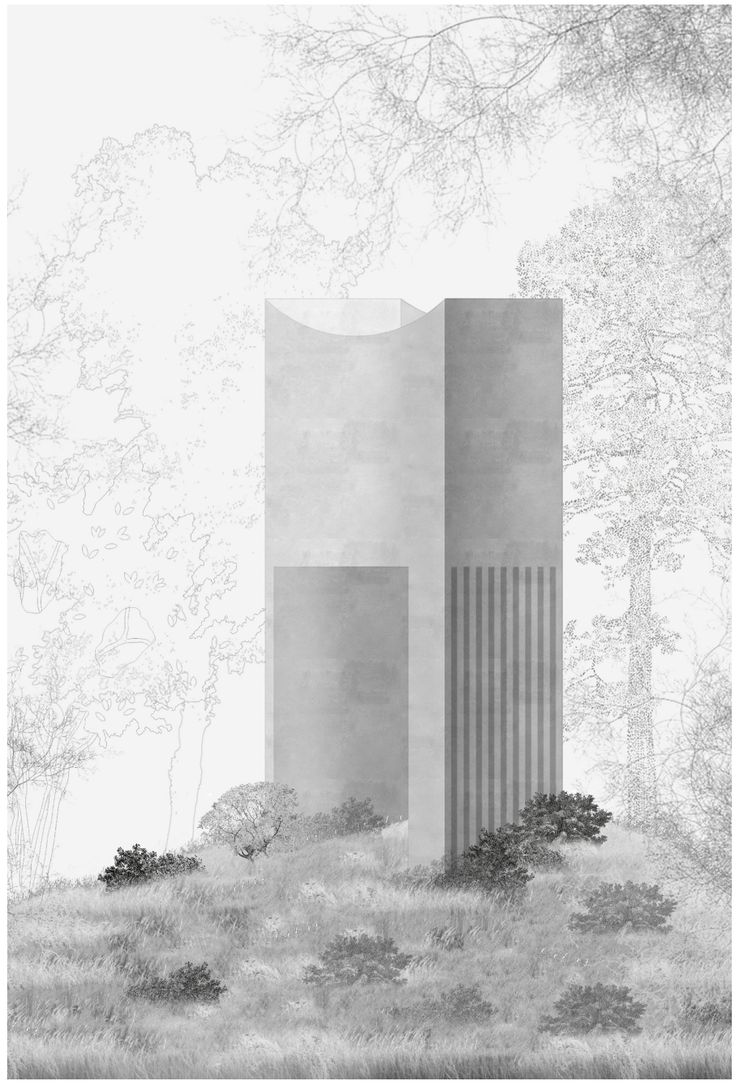
The natural features of the site lend themselves well to a clear zoning strategy. Public facilities are located in the southwest corner, clustered around the pond. Worker housing is positioned on the elevated land to the north, making use of the topography for safety and symbolism. The existing factory buildings will remain in place and be enclosed within a smaller gated area dedicated to industrial activity.

reimagining hierarchy

The final principle of the urban strategy involves rethinking the existing hierarchy of the site. Today, the large factory buildings dominate the landscape, reinforcing the industrial system's power over the lives of the workers. This design seeks to reverse that relationship. By placing the housing above the factory, both physically and in terms of importance, the design puts the workers at the center.

This shift is further emphasized through a system of sculptural water towers placed on the two main hills. These towers serve a practical function but also act as landmarks, signaling the presence and value of the people who inhabit the site. They become symbols of life and visibility in an industry often marked by anonymity. In this way, the project affirms that the true foundation of the project is not its industry, but the people who power it.

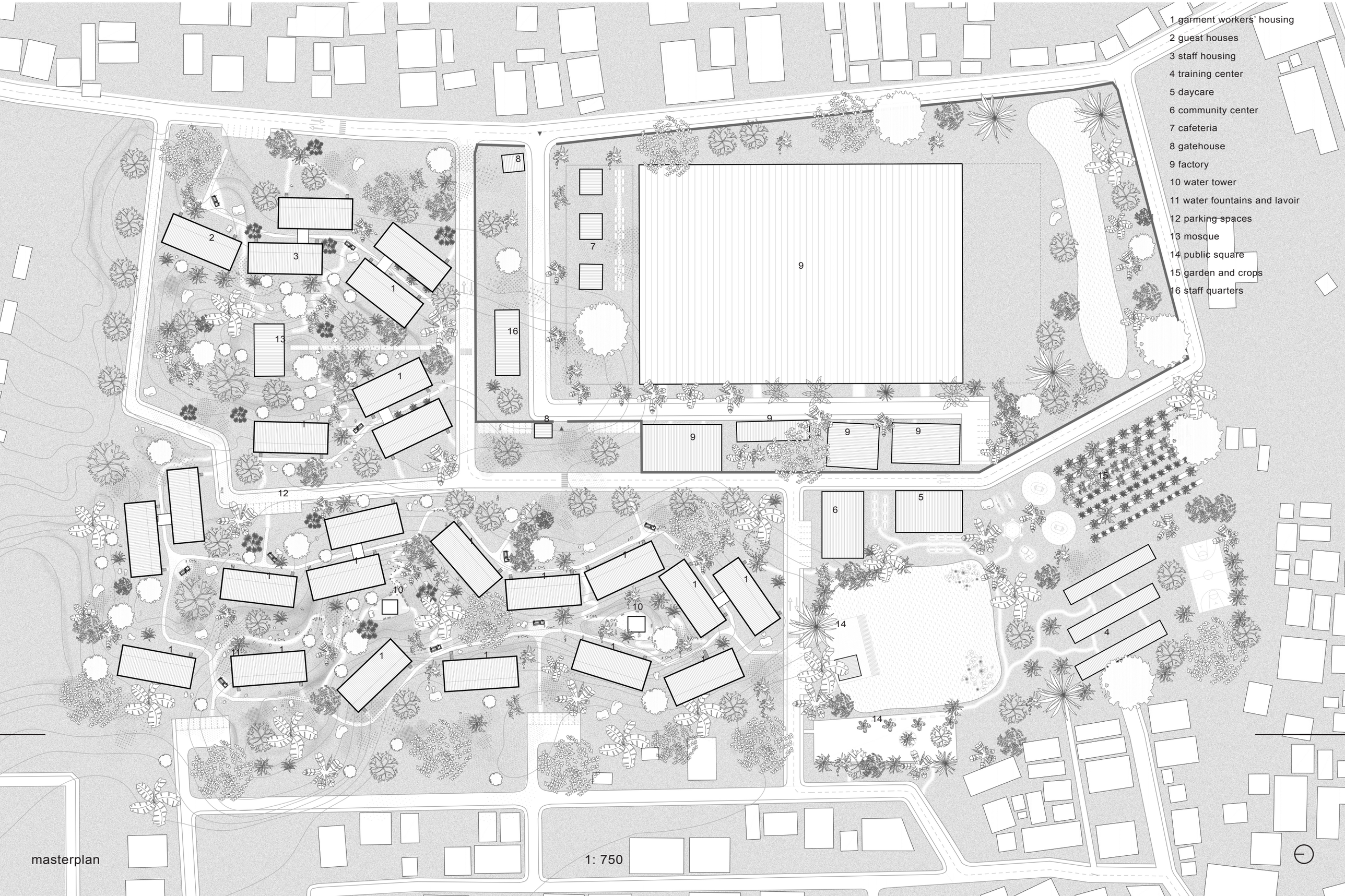






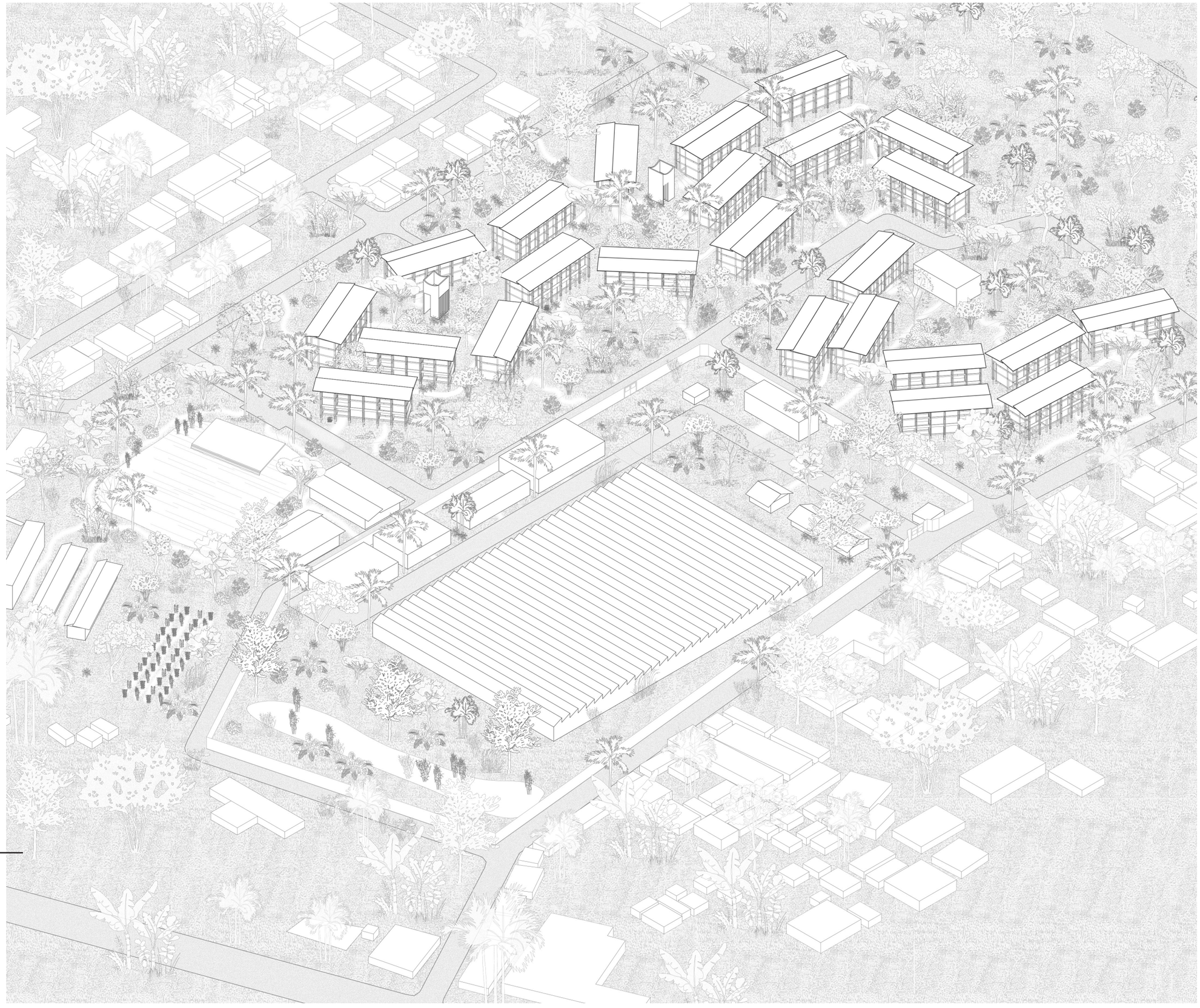


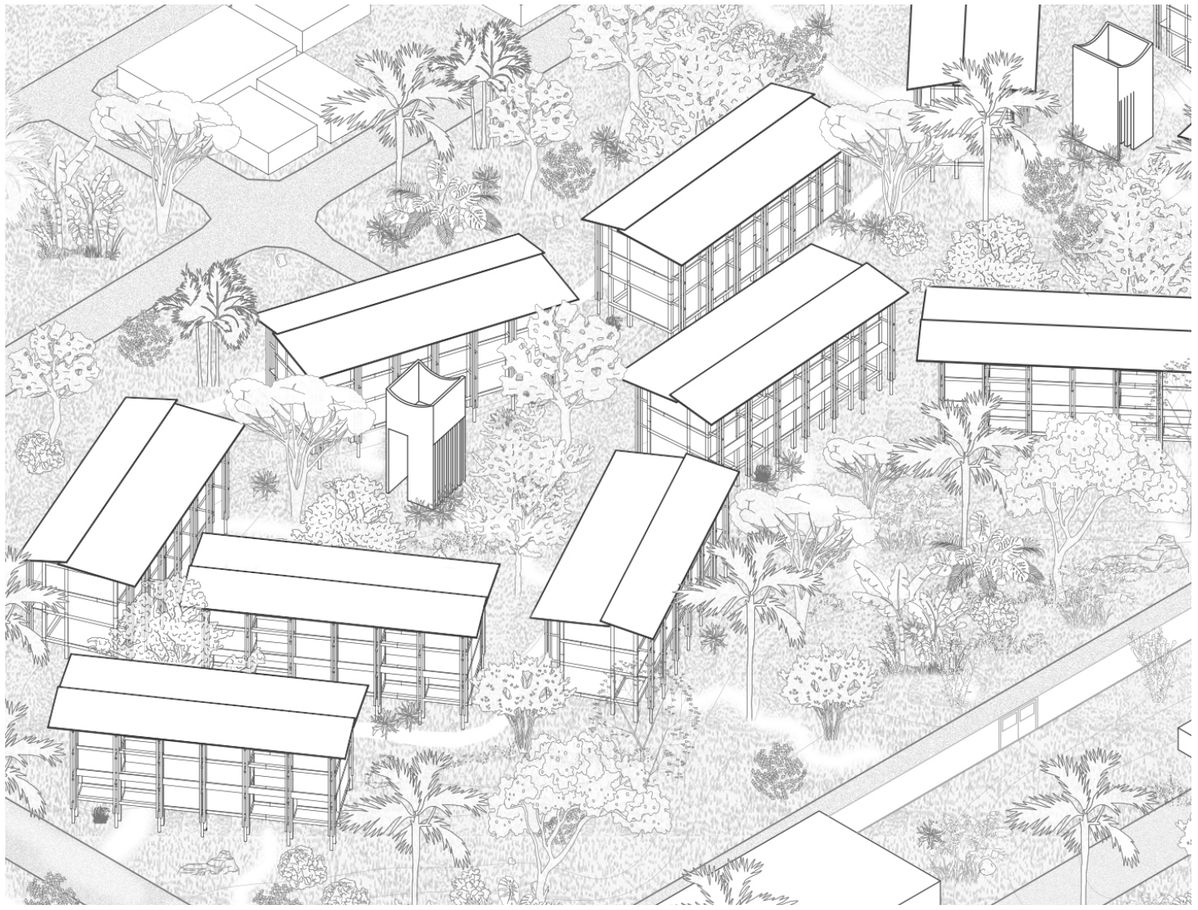
urban masterplan 1: 5 000

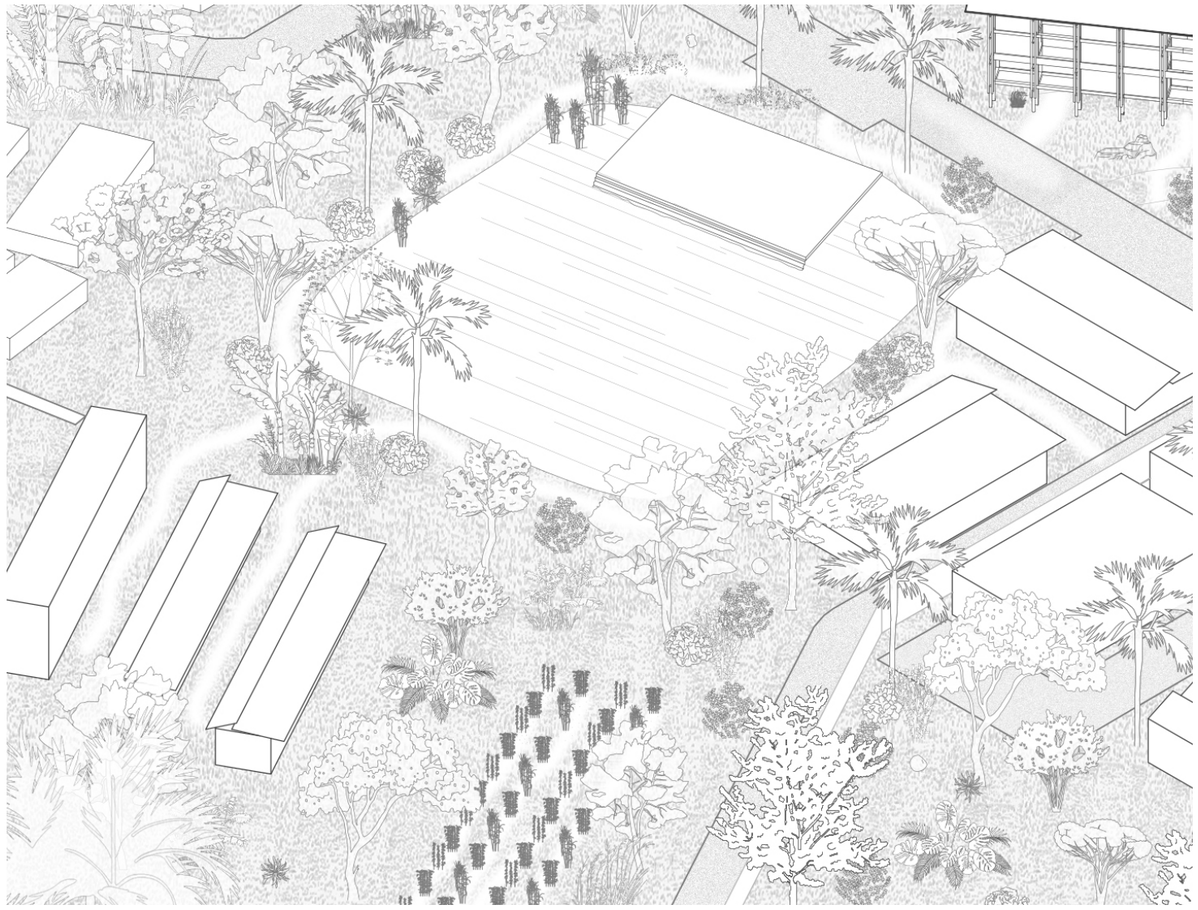


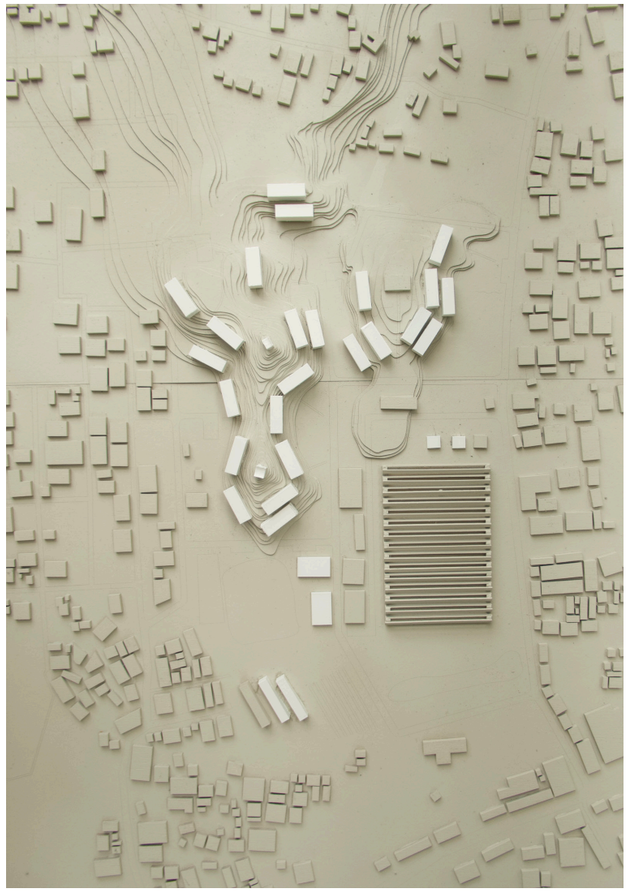
masterplan

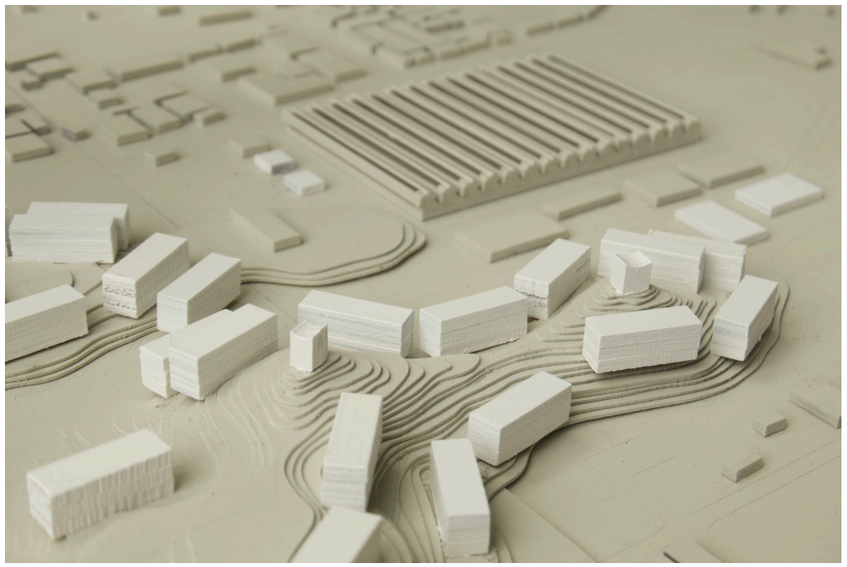
1: 750





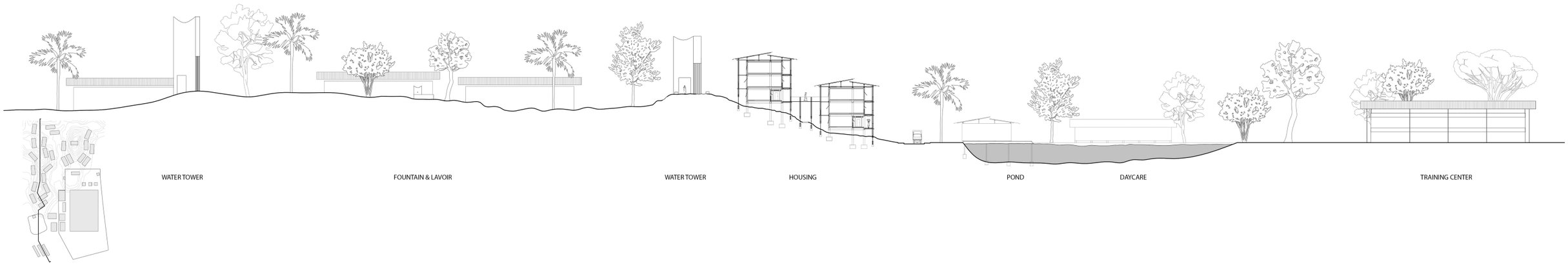






site model

1:1000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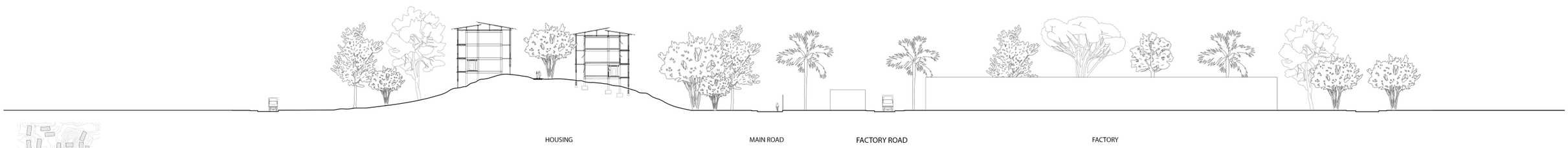
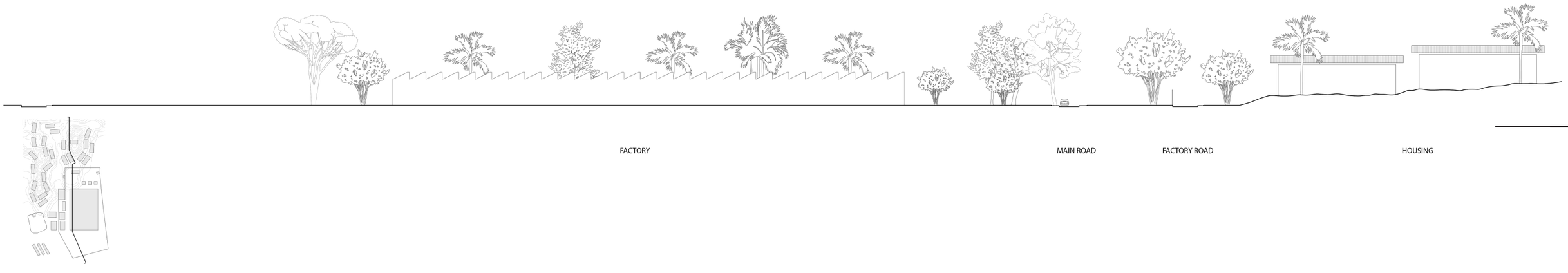
FOUNTAIN & LAVOIR
WATER TOWER
HOUSING
POND
DAYCARE
TRAINING CENTER

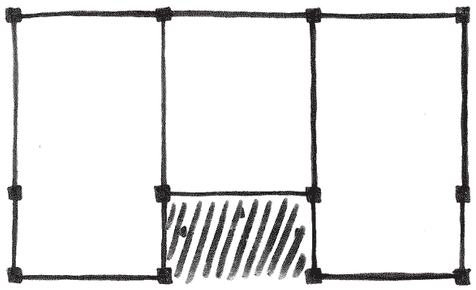

HOUSING
MAIN ROAD
FACTORY ROAD
FACTORY


FACTORY
MAIN ROAD
FACTORY ROAD
HOUSING



cluster of three units

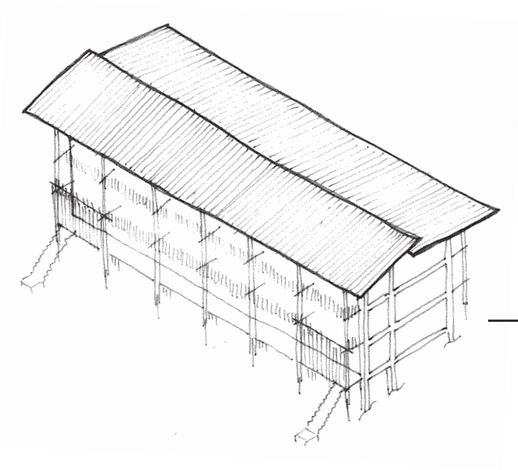
At the smallest scale of the project, the design consists of four unit types - two singleplex and two duplex variants. These were developed through specific fieldwork in both rural Bangladesh and existing garment worker housing, drawing connections between the spatial logic of village compounds and urban housing blocks. The outcome is a cluster of three units, composed of two large units and one smaller one. This arrangement creates a shared outdoor space - a semi-private threshold where residents can cook, socialize, gossip, or simply sit in the shade. The stacking of units within each cluster is based on whether the units are duplex or singleplex, but always consists of three floors in total for the building.



building scale

At the next scale, these three-unit clusters are paired to form a building block, essentially six units per floor. While the system could theoretically be extended linearly (tripled or quadrupled), the length of each building is constrained by the topography, specifically by the tightest curve of the contour lines on the site. This ensures each building fits naturally into the landscape. The decision to maintain consistent building dimensions across the site was intentional, providing clarity in repetition while allowing for variation through topographical adaptation.

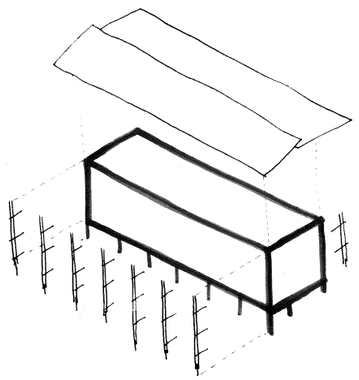
Each building is composed of three floors, accessed via a system of staircases and gallery walkways. These circulation spaces are framed in bamboo, introducing lightness and flexibility while enabling semi-open communal movement.



materiality

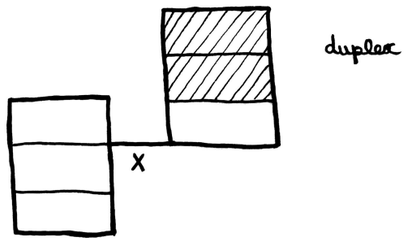
The buildings are conceived as a hybrid structure, balancing permanence with adaptability. A reinforced concrete frame forms the durable structural core, infilled with Compressed Stabilized Earth Blocks (CSEB) for thermal mass and sustainability. Surrounding this core is a lightweight bamboo envelope, particularly used in circulation. To fit this concept of lightness on the exterior, shading fabrics are used and attached to the bamboo structure. These fabrics are made from fabric scraps coming from the factory, and all differ in color.

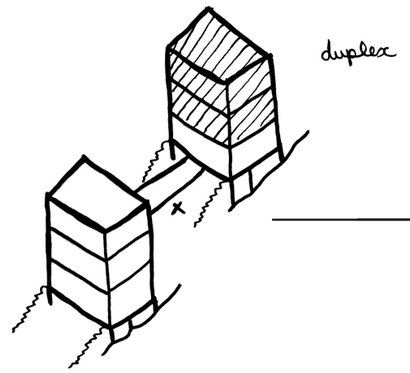
This material strategy separates the robust, long-lasting elements from the more exposed and easily replaceable components, allowing for long-term maintenance without disrupting the building's core. Given that the circulation spaces are subject to heavier use by residents, it's essential that these elements are easily replaceable and easy to maintain.



single or paired blocks

In cases where the topography permits, two buildings are joined by a footpath bridge, forming a larger residential block. The distance (x) between these paired buildings is determined by the slope, allowing the footpath to connect the lowest level of the upper building to the highest level of the lower building. Site slopes range between 19 and 33 degrees, and the bridging system works only within a part of that gradient. Where the slope does not accommodate this configuration, the building remains a single standalone unit. This explains the variation across the masterplan, where some footprints show single buildings, while others are paired.

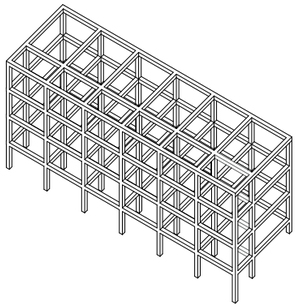




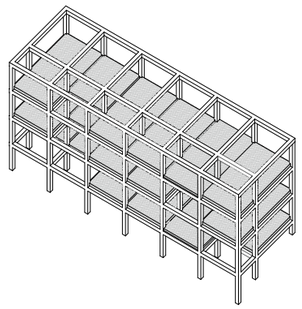




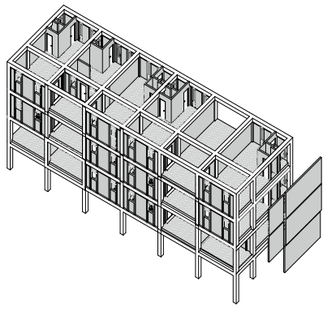
building model 1:100



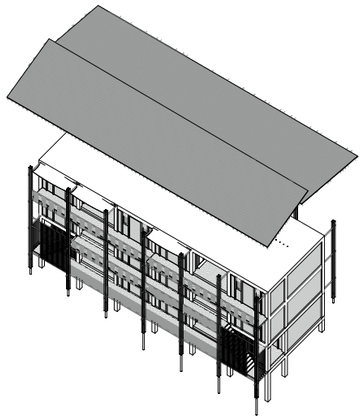
concrete
structure



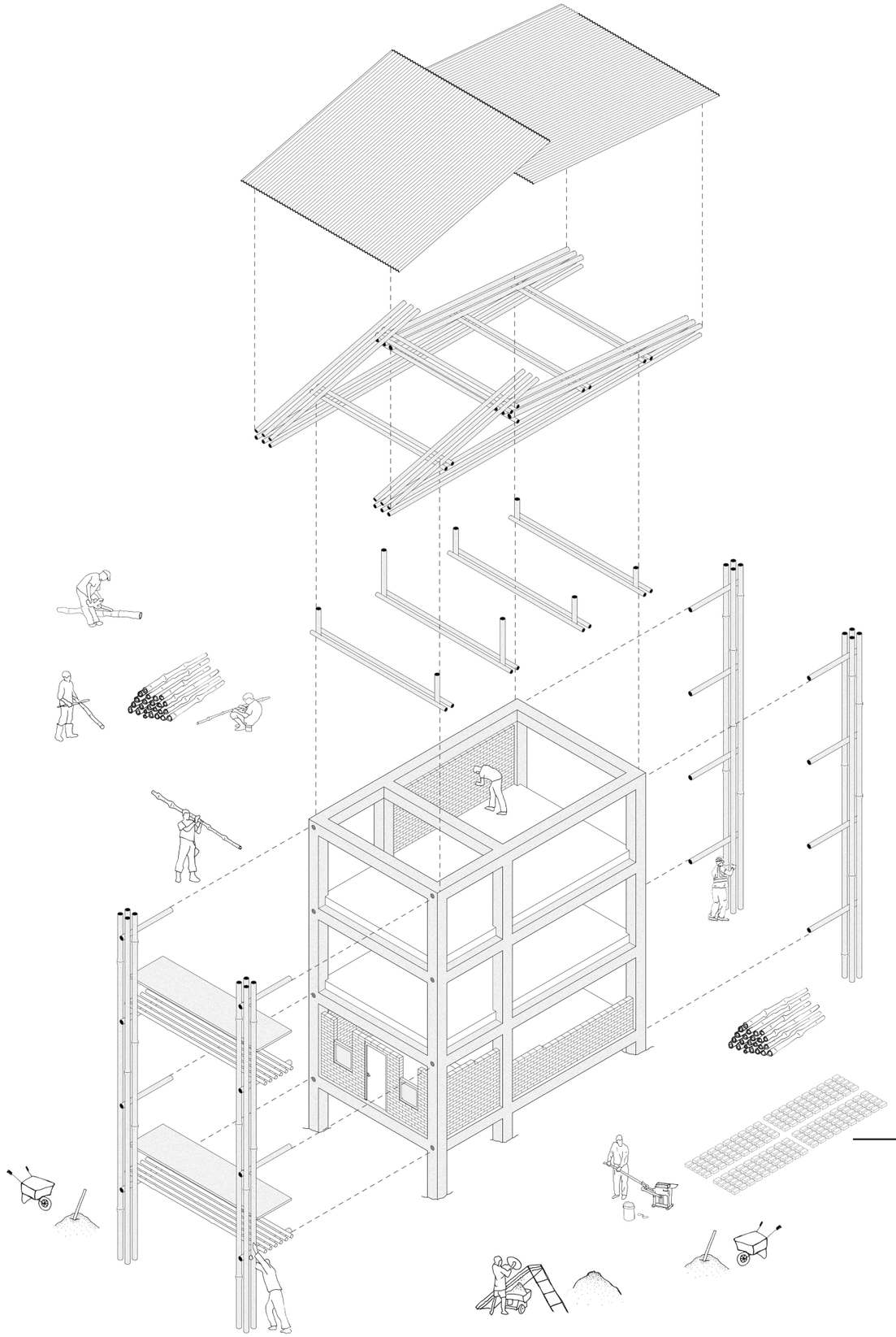
concrete
floors

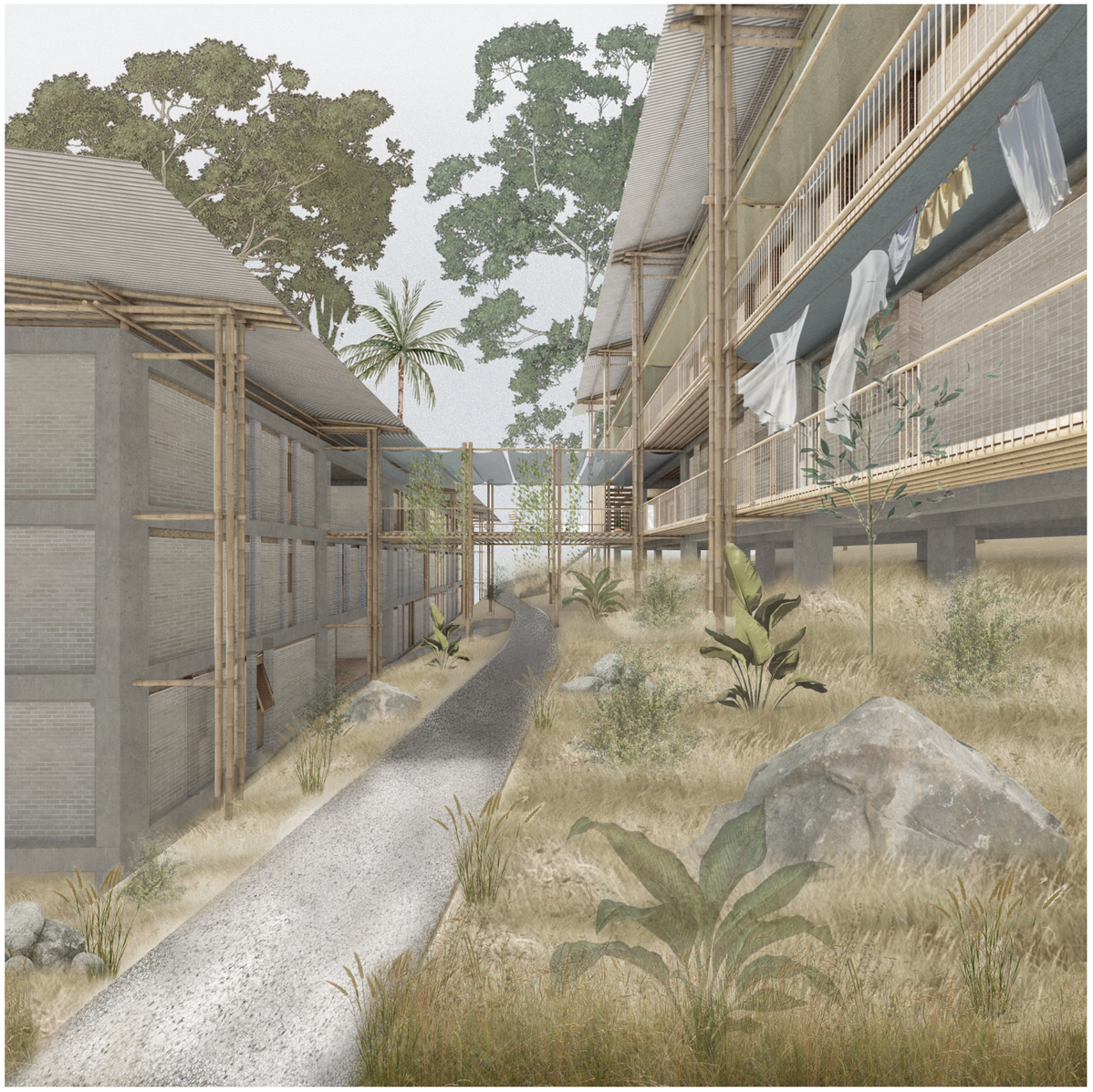


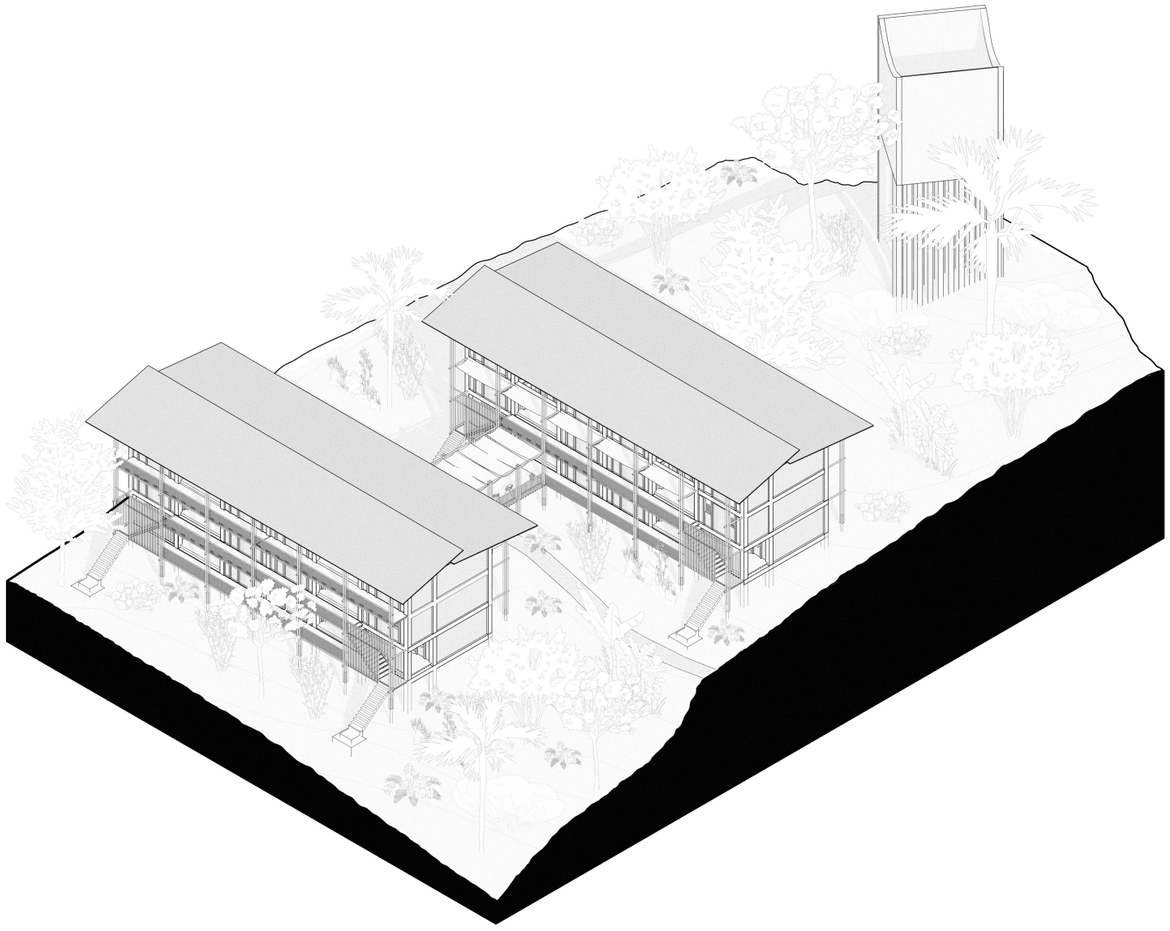
CSEB infill



bamboo envelope and corrugat-
ed roof





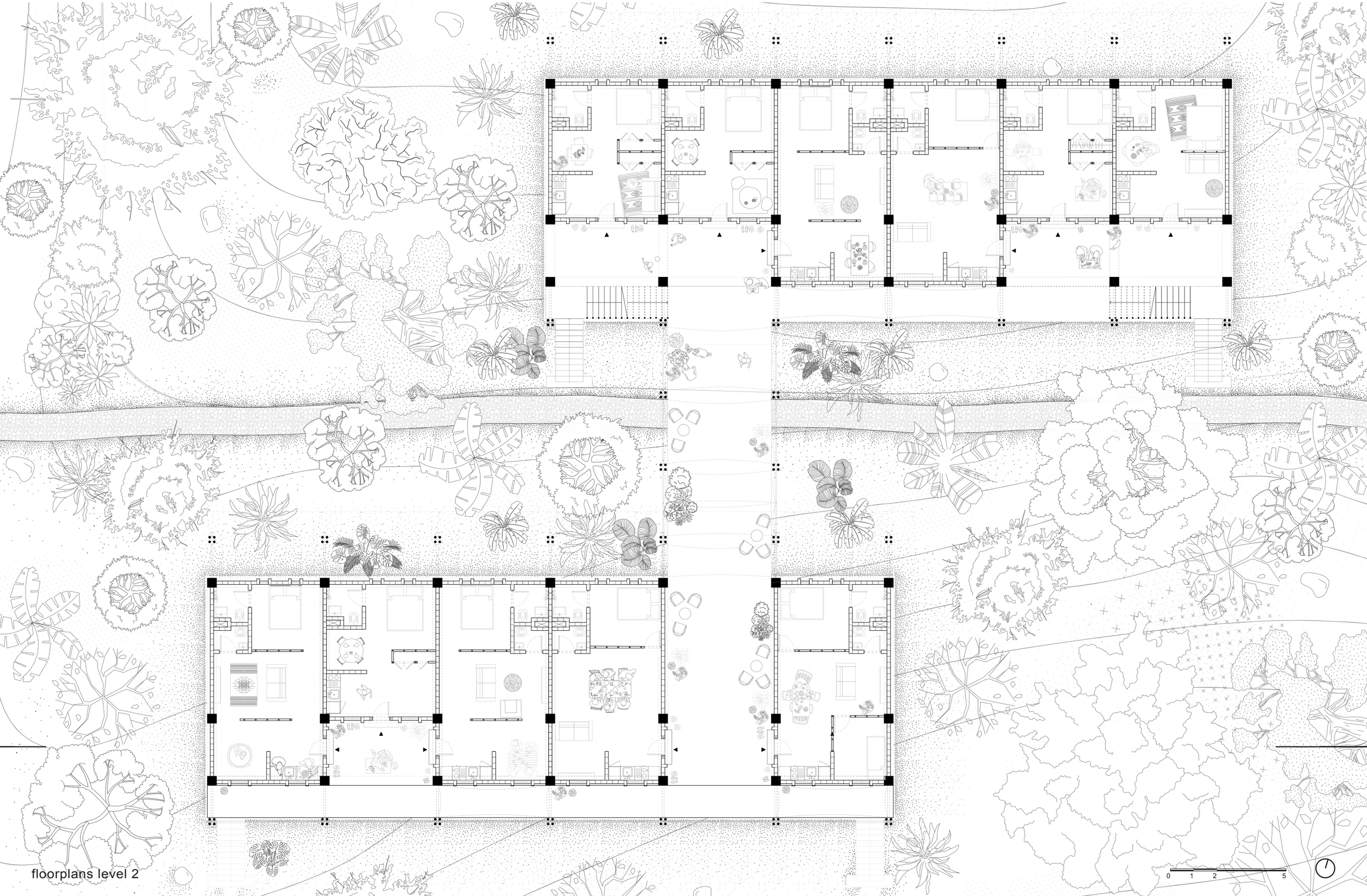


floorplans level 0

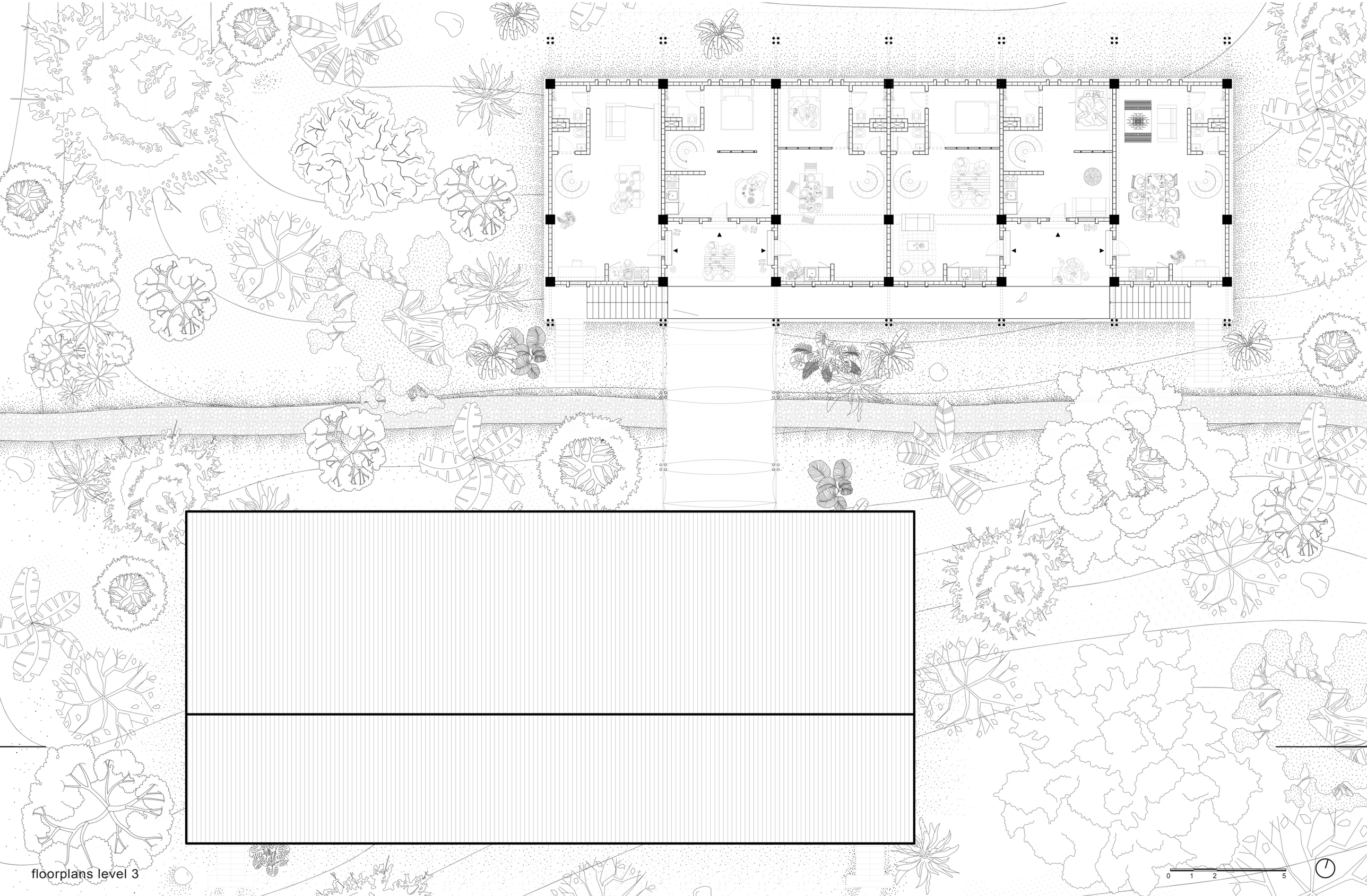
0 1 2 5

floorplans level 1

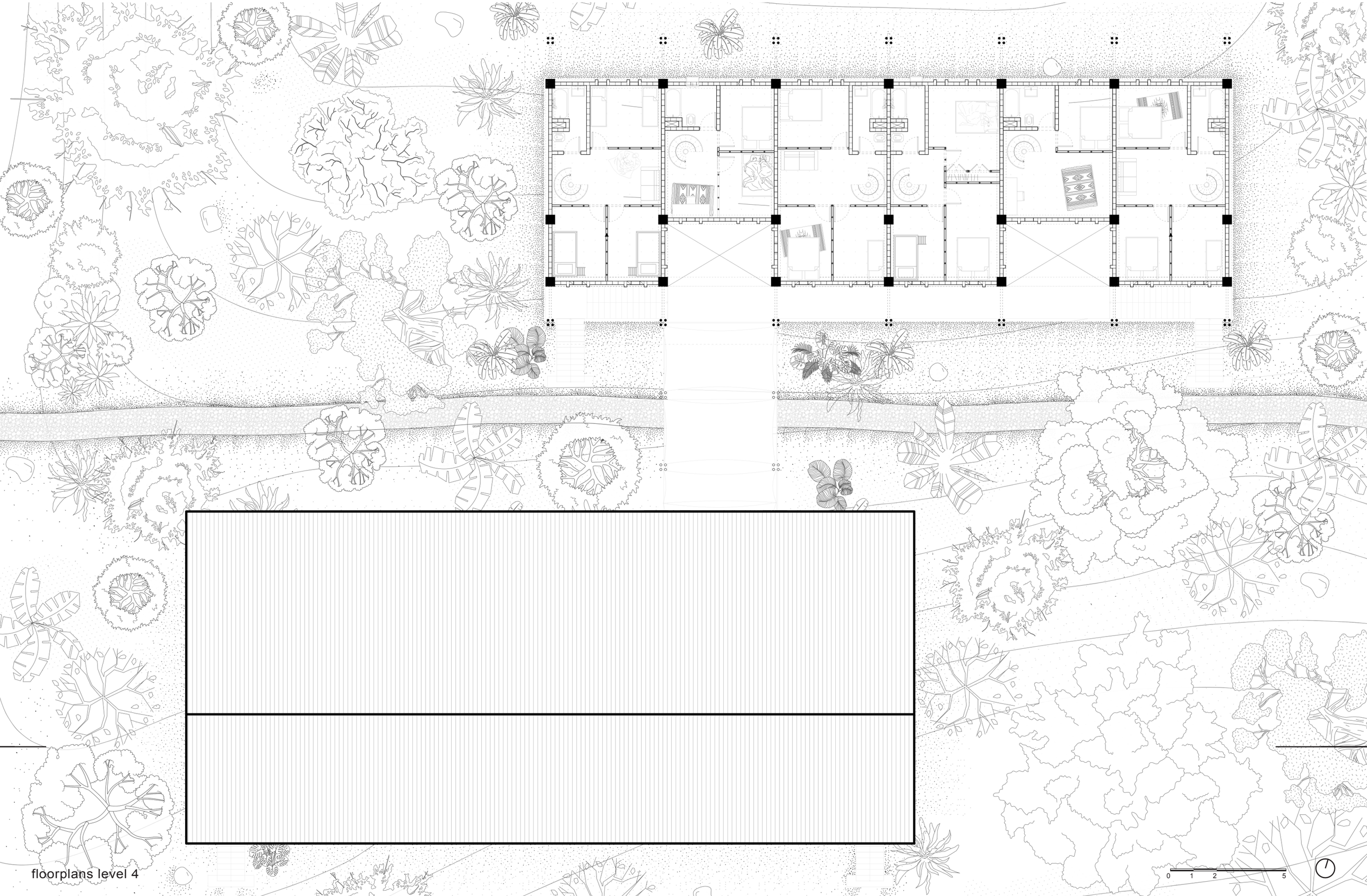
0 1 2 5



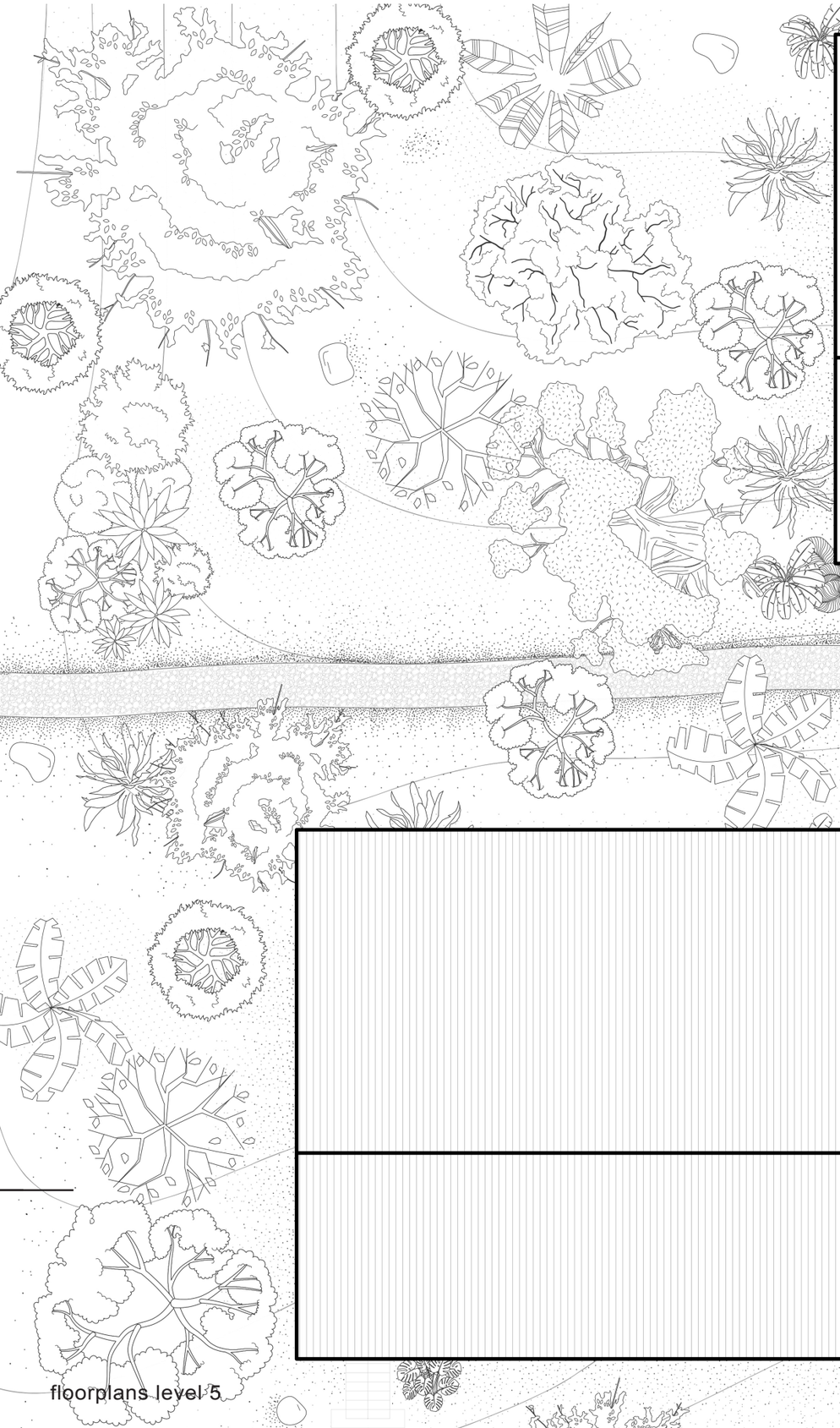
floorplans level 2

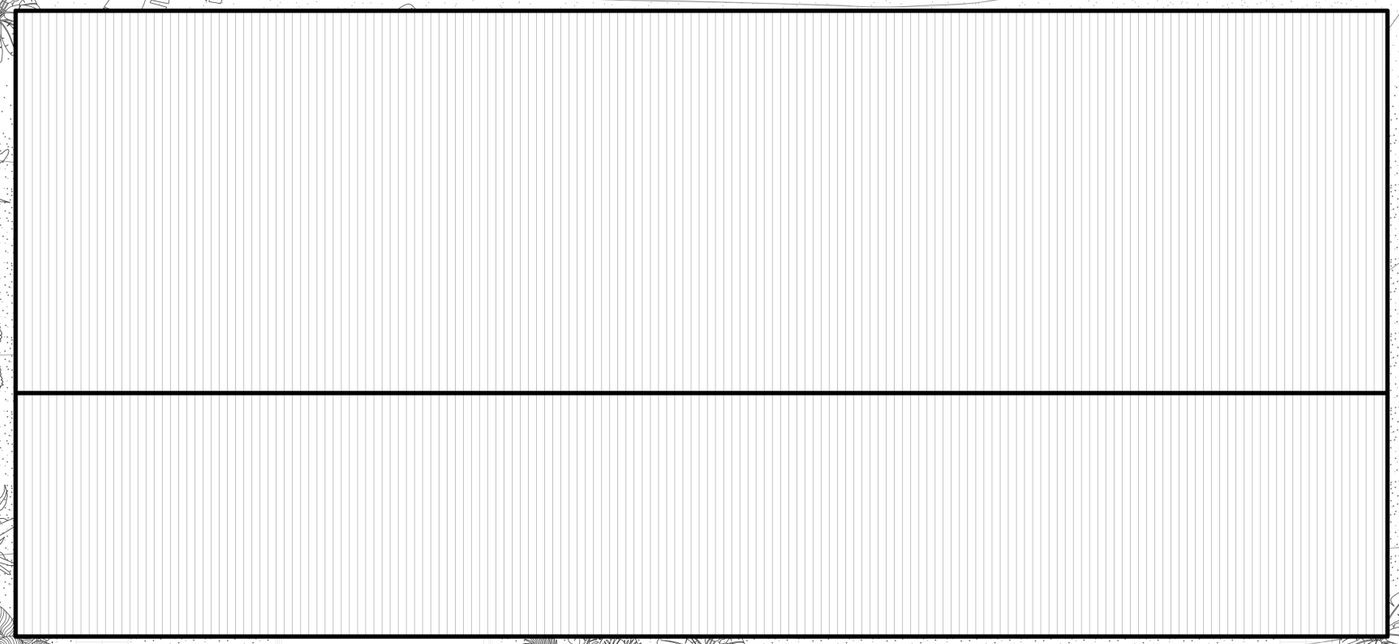


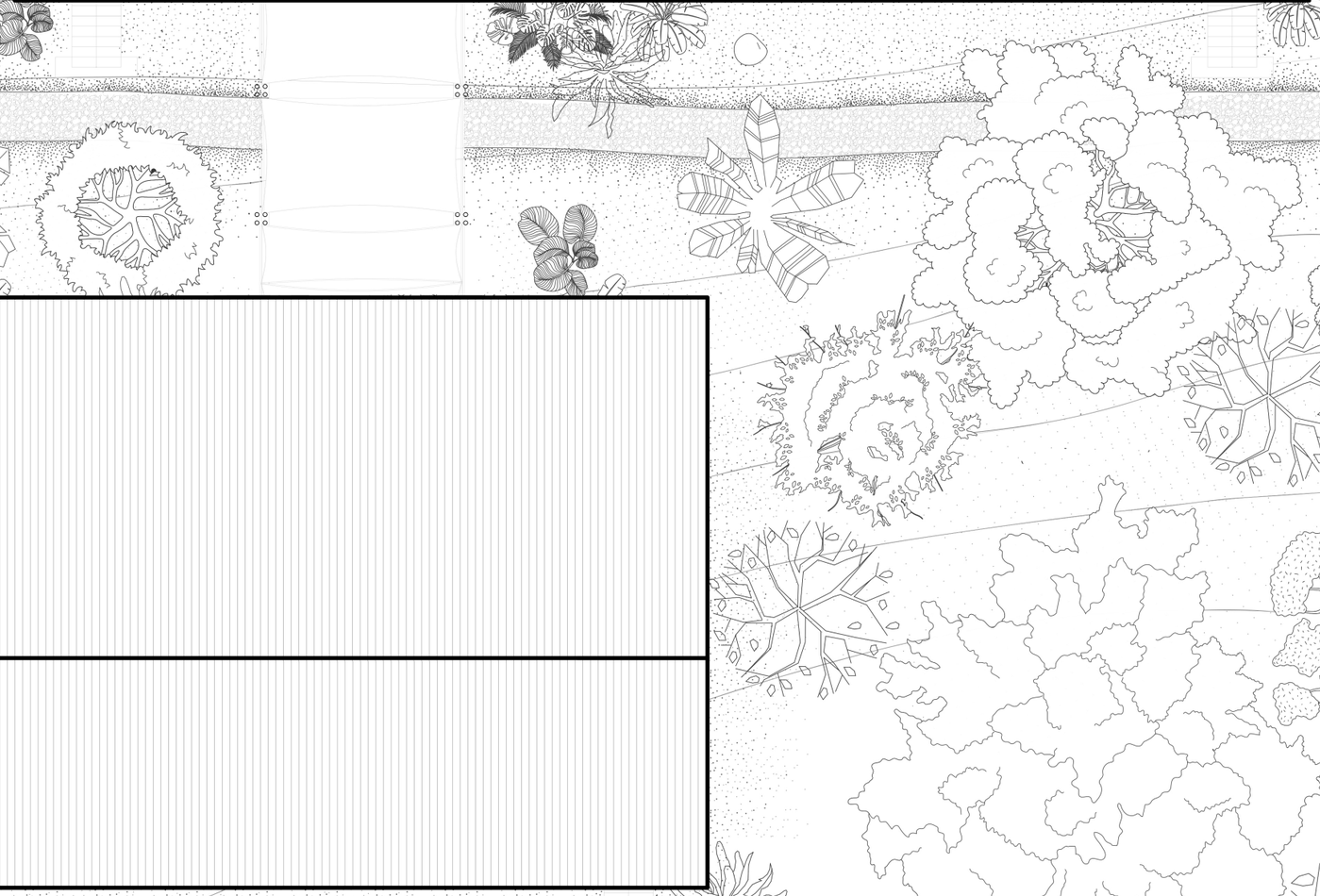
floorplans level 3



floorplans level 4

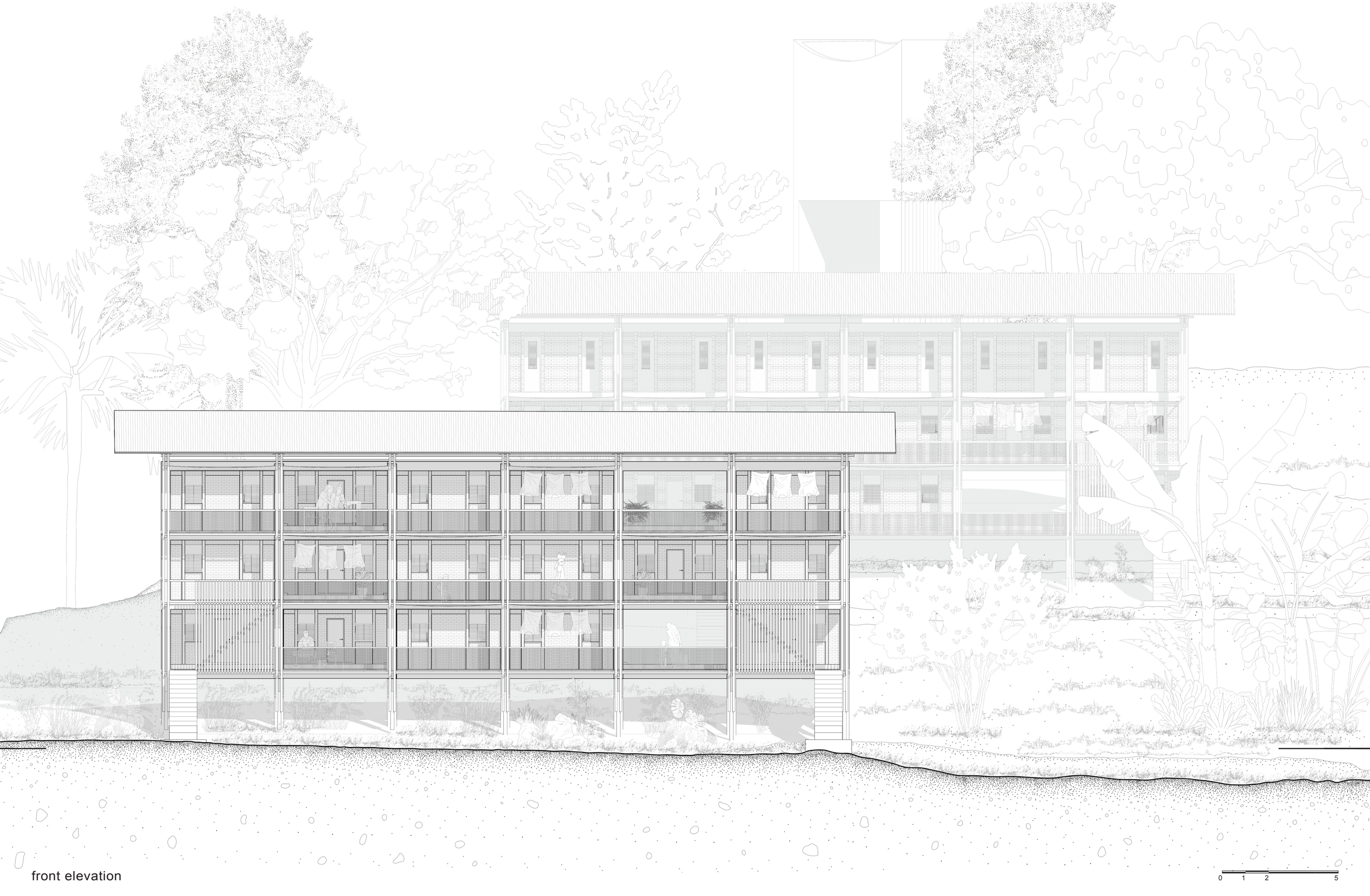






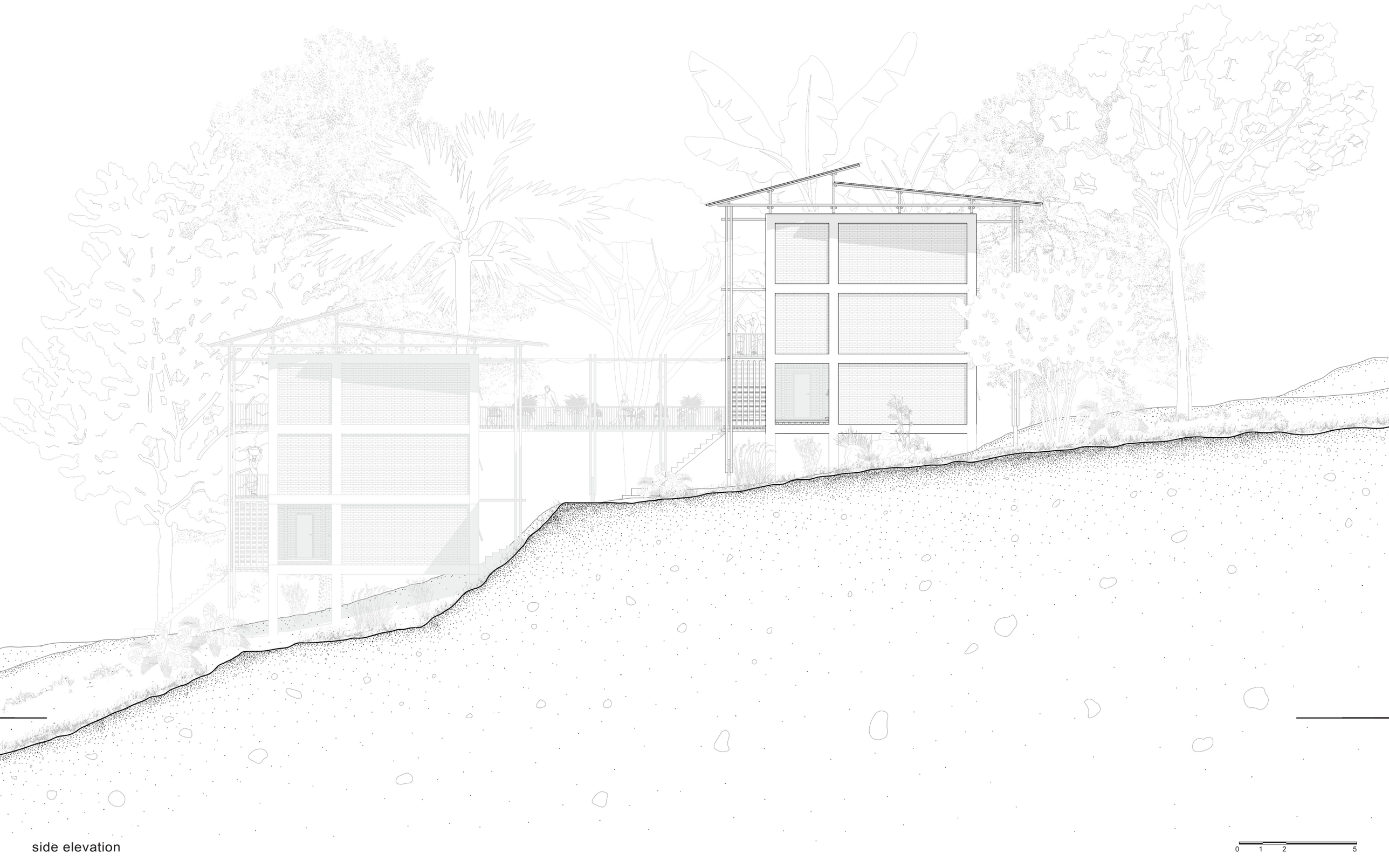
floorplans level 5

0 1 2 5



front elevation





side elevation

0 1 2 5





back elevation

0 1 2 5







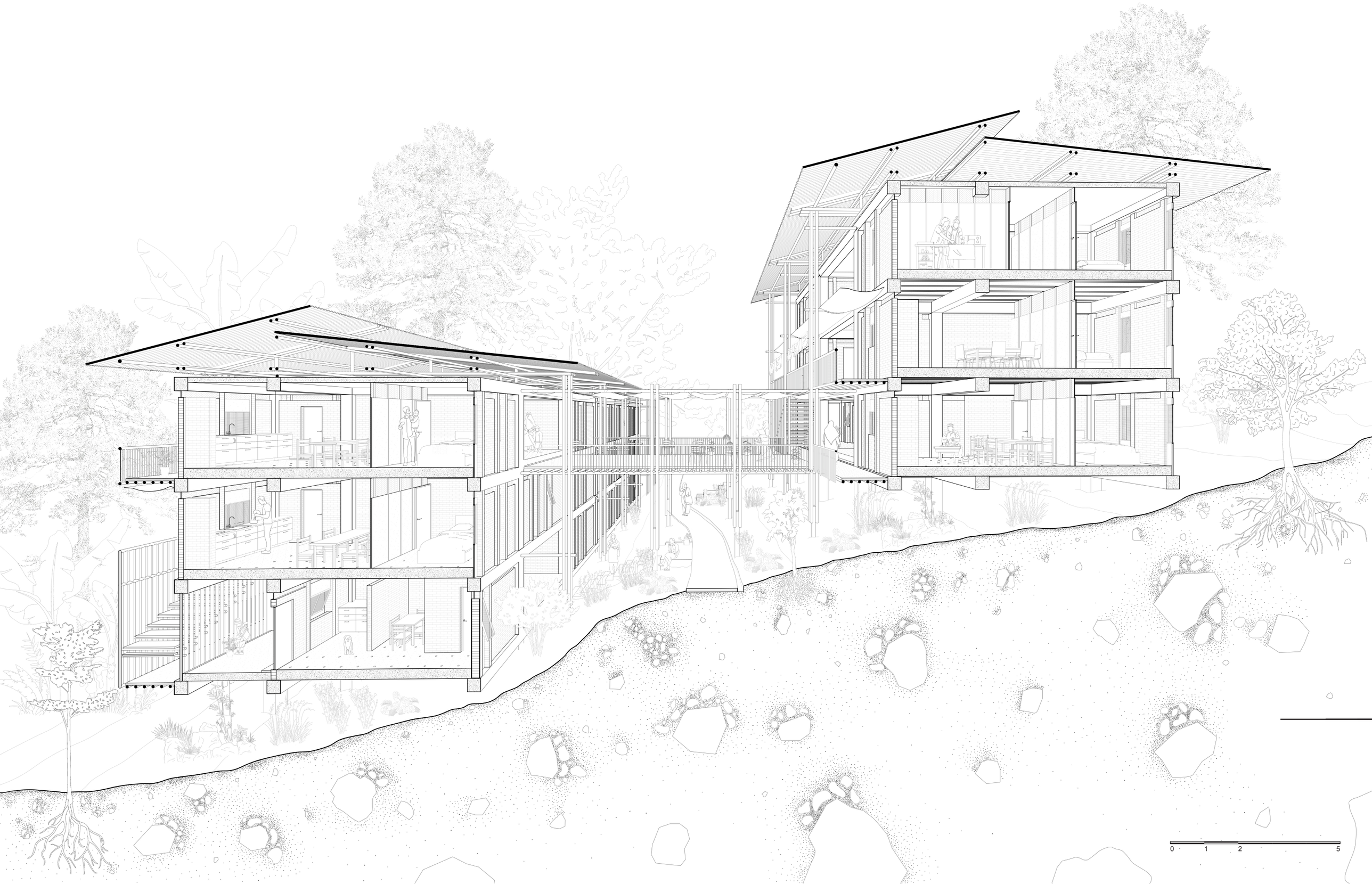


fragment model

1:33



longitudinal section


0
1
2
5



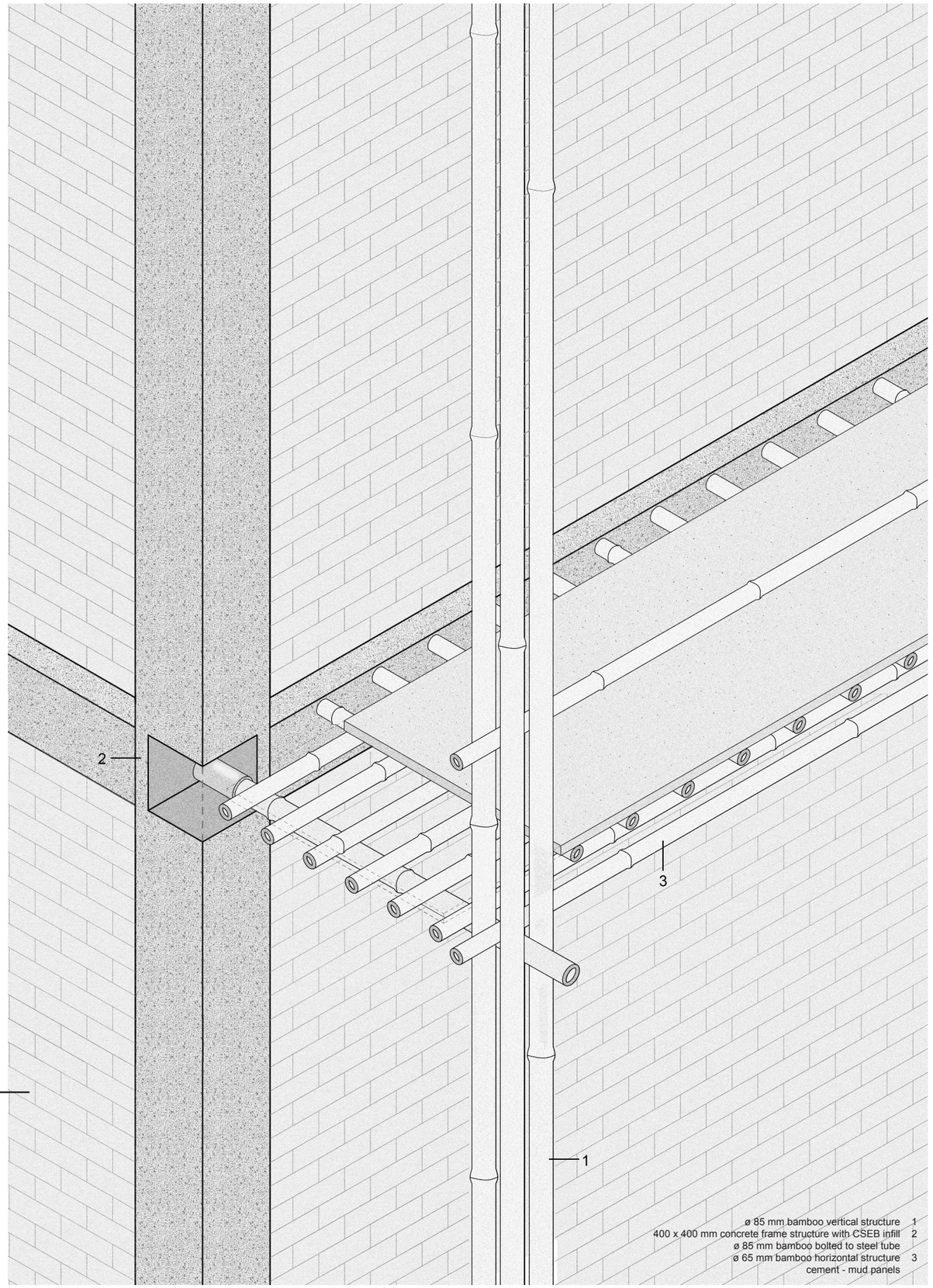


detailing

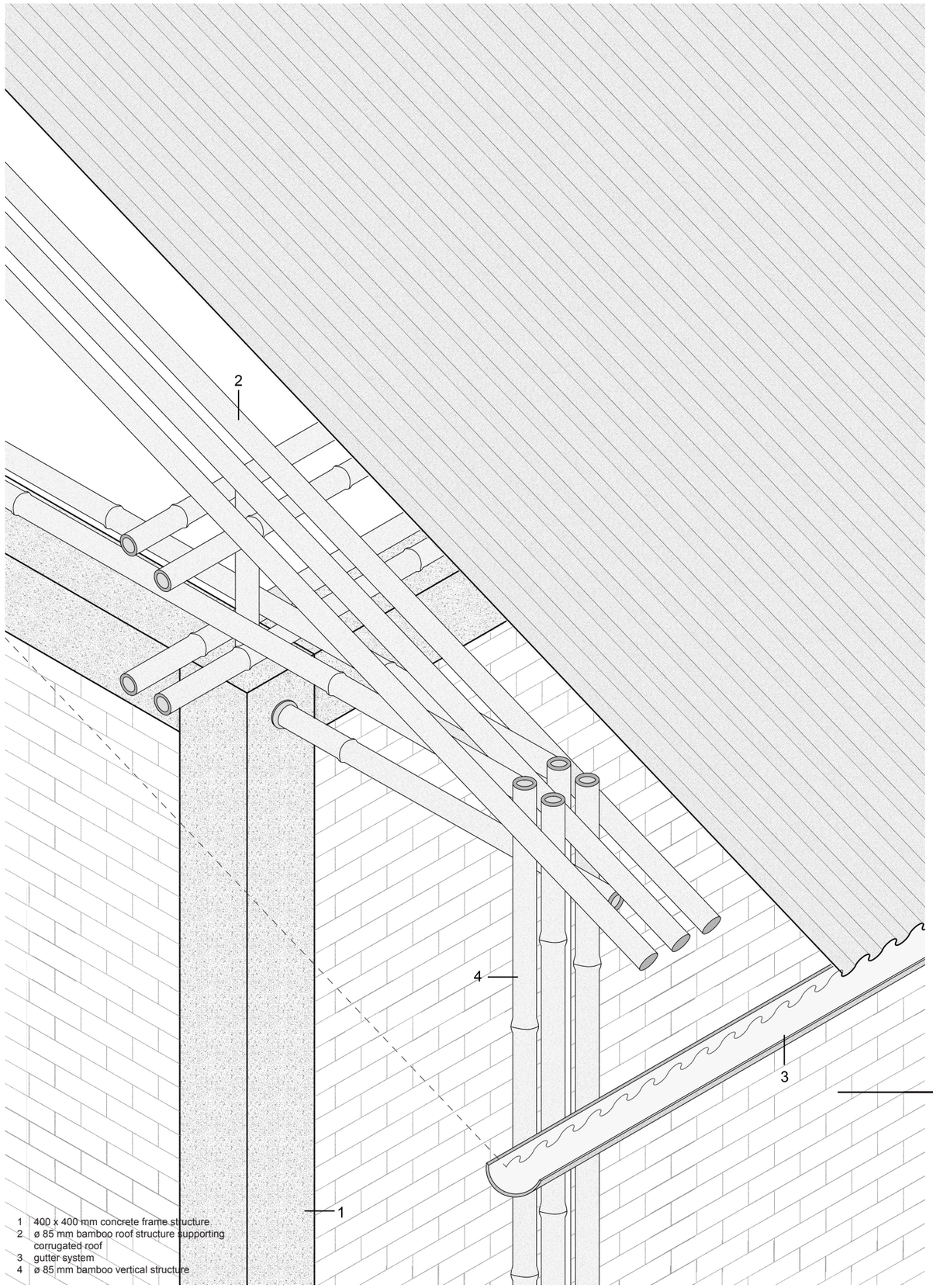
heavy core - light envelope

A central design principle of the project is the distinction between a heavy concrete core and a light bamboo envelope. This conceptual split drives both the architectural language and the construction logic, making the detailing between these two elements critical.

The bamboo envelope is designed to be easily demountable for maintenance and replacement. To achieve this, steel sleeves are embedded into the concrete frame at key connection points, primarily along the roof edge and facade. Bamboo poles are inserted into these sleeves and secured with bolts on either side. This allows individual elements to be removed and replaced without disturbing the rest of the structure. This system applies uniformly across all contact points between the concrete frame and the bamboo skin.



ø 85 mm bamboo vertical structure 1
400 x 400 mm concrete frame structure with CSEB infill 2
ø 85 mm bamboo bolted to steel tube
ø 65 mm bamboo horizontal structure 3
cement - mud panels

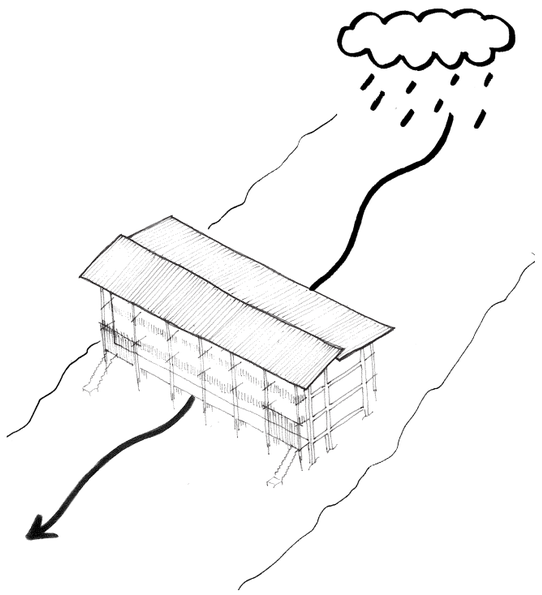


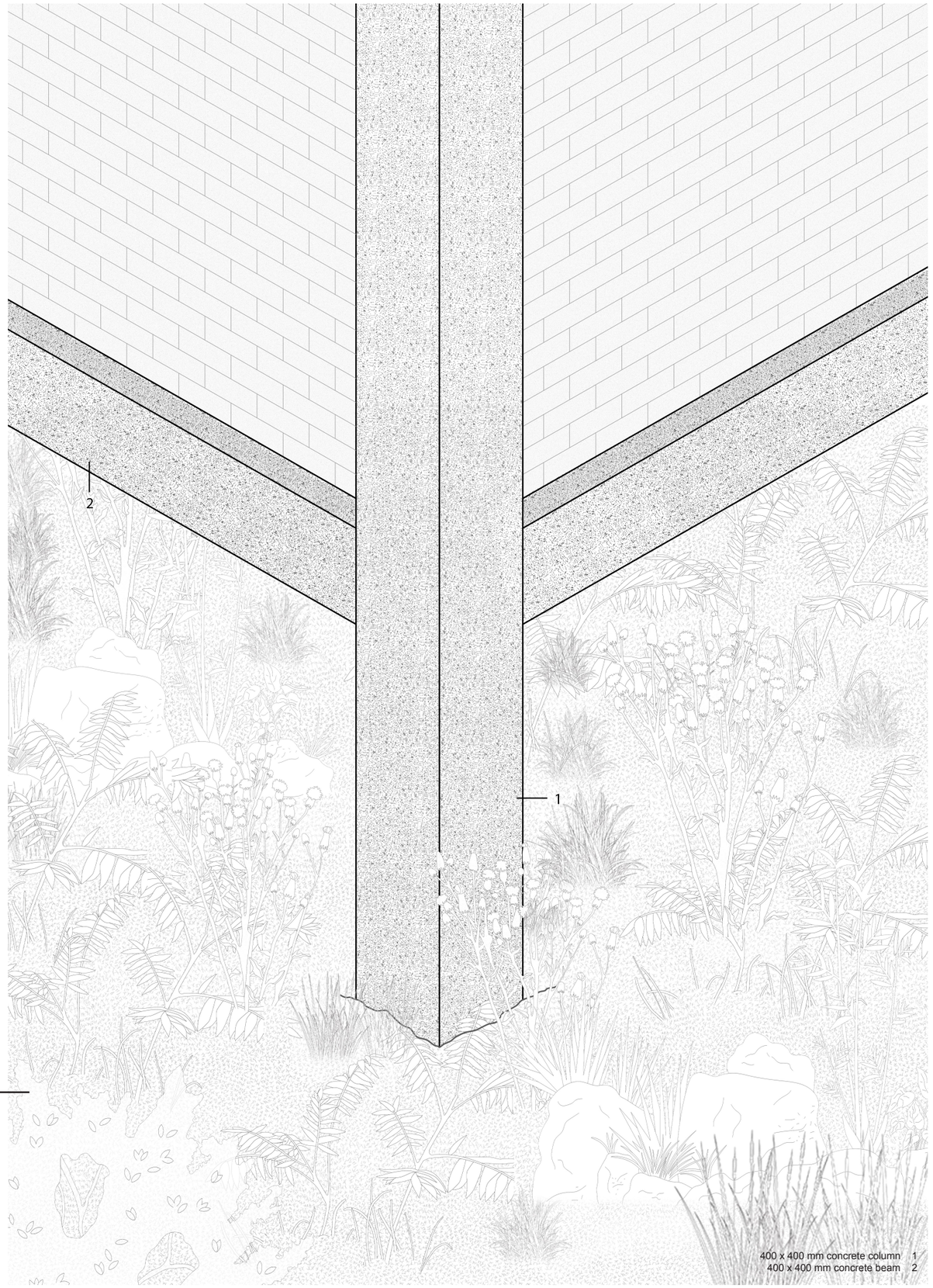
1 400 x 400 mm concrete frame structure
2 ø 85 mm bamboo roof structure supporting corrugated roof
3 gutter system
4 ø 85 mm bamboo vertical structure

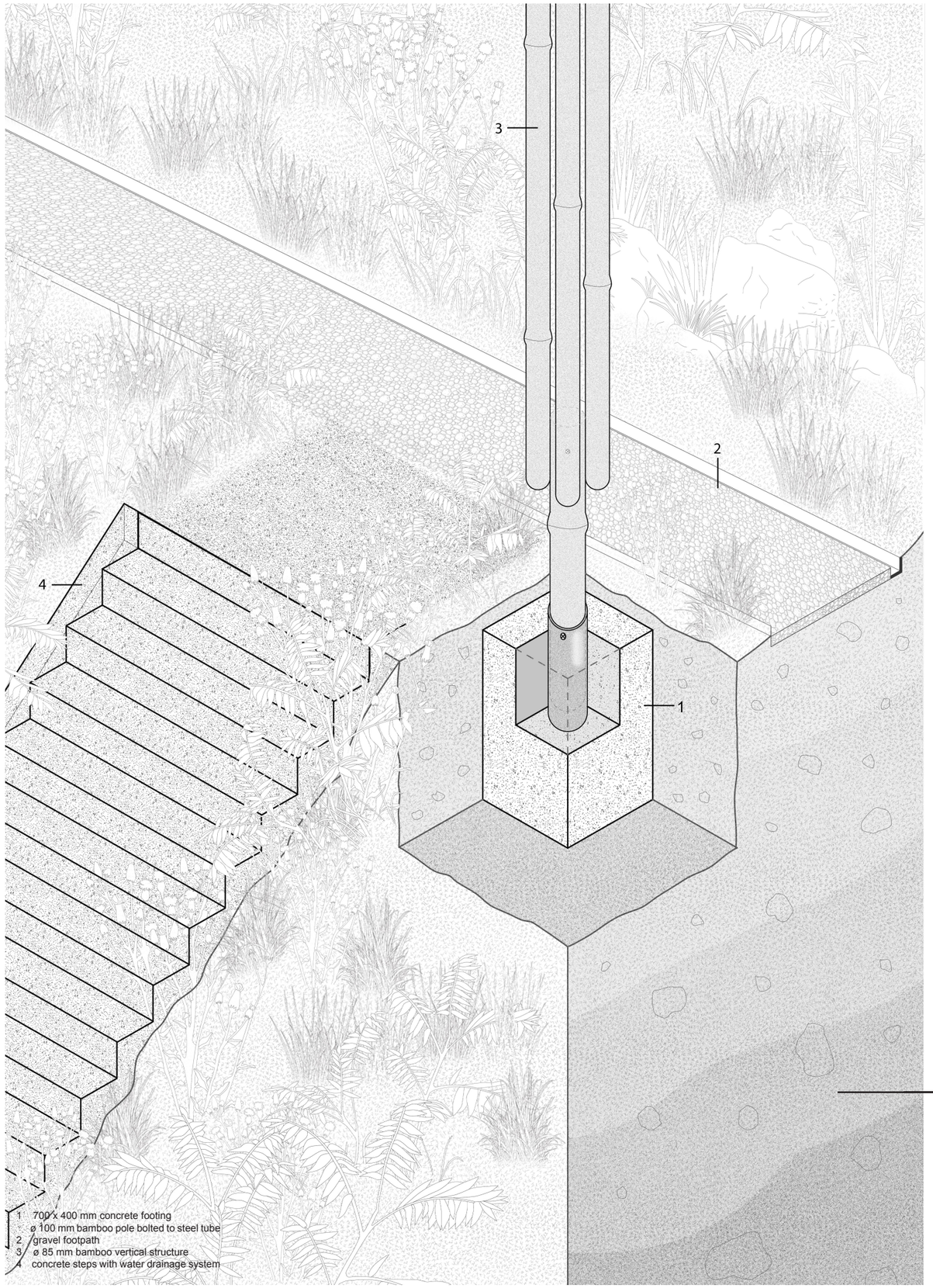
contact with the ground

Ground connection is another key aspect of the structural strategy, closely tied to the site’s topography. The concrete frame is anchored into the ground using deep-set concrete piles, forming the foundation. Similarly, the bamboo envelope, though lighter, also makes contact with the ground through smaller concrete footings. These footings replicate the steel tube and bolt system used in the facade, allowing the bamboo supports to remain secure yet removable.

This approach enables the building to adapt to varying terrain, ensuring structural stability while maintaining flexibility across the site.




2
1
400 x 400 mm concrete column 1
400 x 400 mm concrete beam 2


3
2
4
1
1 700 x 400 mm concrete footing
ø 100 mm bamboo pole bolted to steel tube
2 gravel footpath
3 ø 85 mm bamboo vertical structure
4 concrete steps with water drainage system





joint detail model

1:3

thresholds and floor systems

The concept of thresholds, observed frequently during fieldwork in both rural and urban housing, also informed the structural and material logic of the project. In many domestic settings, subtle level changes and shifts in materiality mark transitions between public and private space.

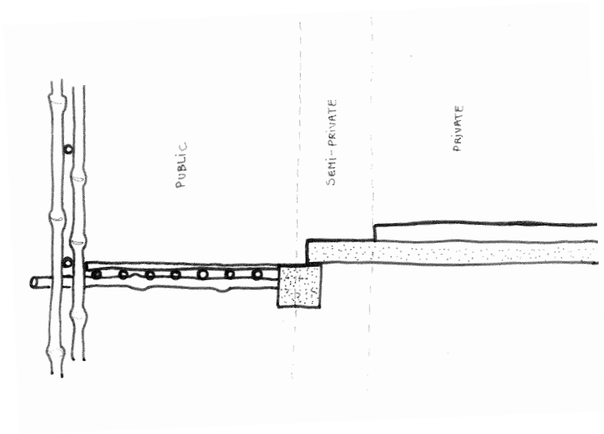
This is echoed in the design through differentiated flooring systems:

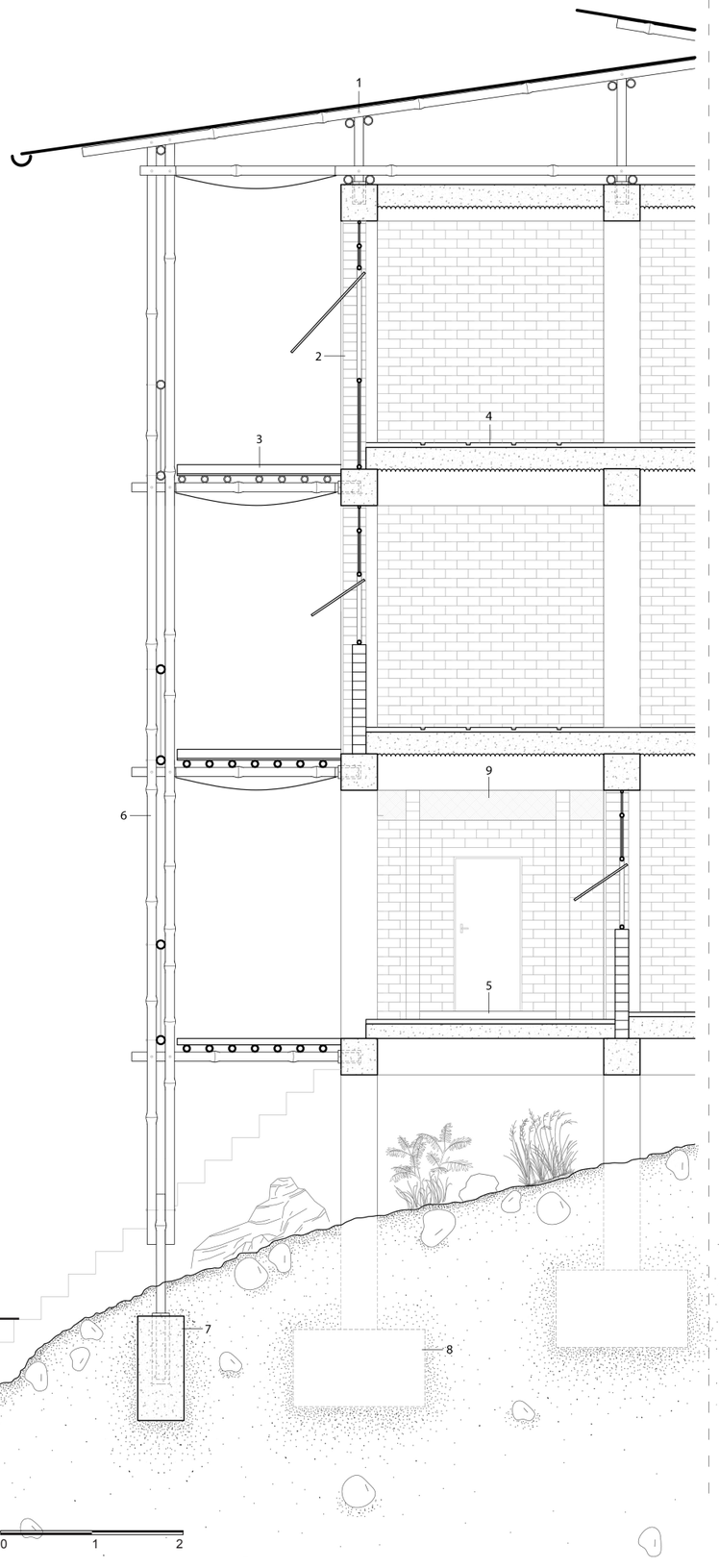
Circulation areas use lightweight bamboo floors, allowing for airiness and a sense of openness.

Entrances and semi-private zones use thinner cast-in-place concrete, bridging the gap between outside and inside.

Interior spaces are built with thicker concrete slabs, poured over bamboo formwork, offering greater solidity and acoustic privacy.

These material transitions reinforce spatial hierarchy (public spaces are lighter and lower, while private spaces are heavier and raised) creating a subtle, spatially intuitive sense of privacy and progression throughout the building.





1 corrugated metal roofing sheets
ø 85 mm bamboo roofing structure
steel tube built-in concrete structure
400 x 400 mm concrete beam

2 250 x 150 x 100 mm CSEB brick infill wall
wattle & daub opening filler
bamboo frame opening

3 cement-mud mix
ø 65 mm bamboo structure
ø 85 mm bamboo structure bolted to steel tube
built-in concrete beams
textile shading made from fabric scraps from factory

4 cement finish with built-in wooden blocks
in-situ concrete floor poured on bamboo formwork

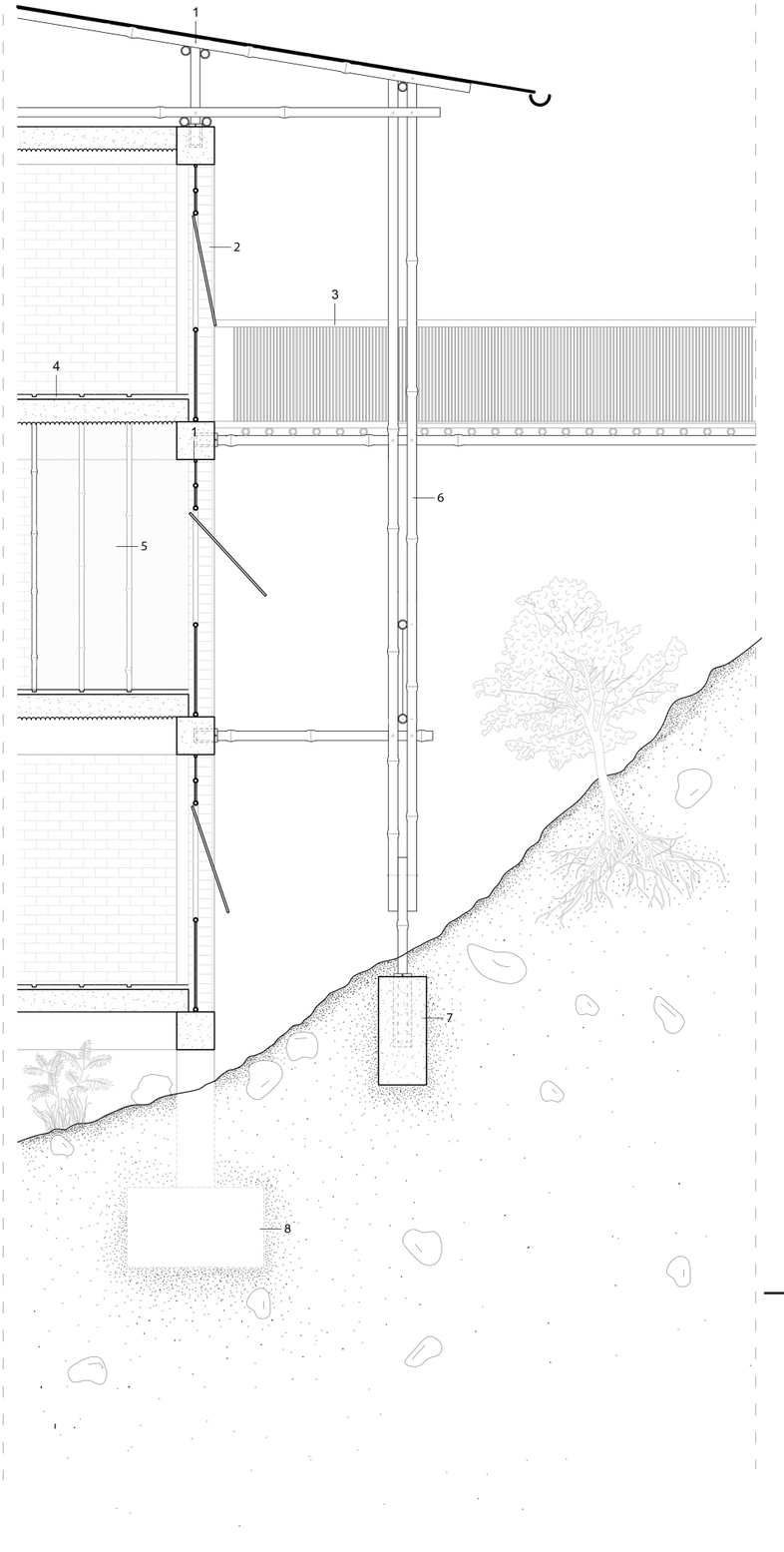
5 cement-mud mix step
cement-mud mix finish
concrete floor

6 ø 85 mm bamboo vertical envelope structure

7 concrete footing
built-in steel tube
ø 100 mm bamboo foot bolted to steel tube

8 concrete footing

9 weaved bamboo and jute infill



1 corrugated metal roofing sheets
ø 85 mm bamboo roofing structure
steel tube built-in concrete structure
400 x 400 mm concrete beam

2 250 x 150 x 100 CSEB brick infill wall
wattle & daub opening filler
bamboo frame opening

3 ø 50 mm bamboo railing
cement-mud mix
ø 65 mm bamboo structure
ø 85 mm bamboo structure bolted to steel tube
built-in concrete beams

4 cement finish with built-in wooden blocks
in-situ concrete floor poured on bamboo formwork

5 flexible bamboo partition system

6 ø 85 mm bamboo vertical envelope structure

7 concrete footing
built-in steel tube
ø 100 mm bamboo foot bolted to steel tube

8 concrete footing

sustainability

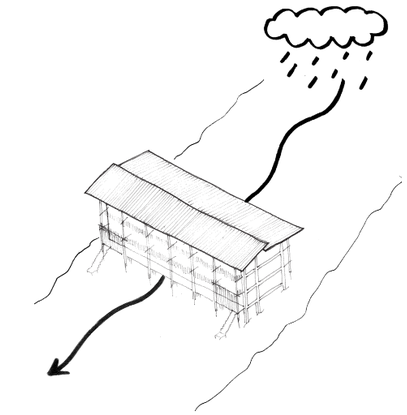
climatic considerations

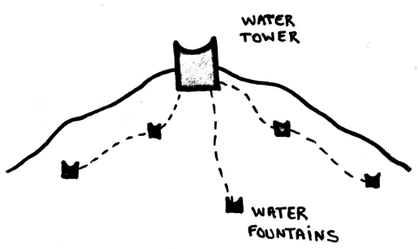
The climatic strategies in this project are essential not only for ensuring the residents' long-term well-being but also for supporting a resilient and empowering living environment. Several key elements were developed to address the challenges of the local climate.

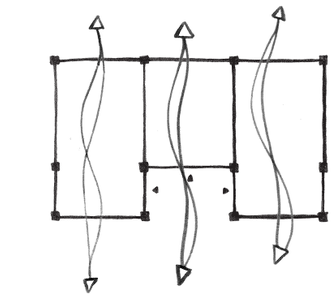
flood risk
The site is located in Sylhet, a region highly prone to flooding. In response, buildings are elevated on pilotis and placed sensitively on the topography. This approach minimizes disruption to the landscape, allowing water to flow freely underneath the structures and preventing flooding of the homes. Water is not stagnant beneath the buildings, as the natural slope allows it to drain toward the foothill.

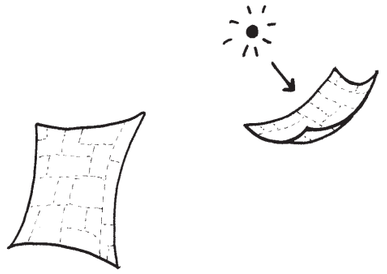
water management
To take advantage of the topography and water flow, two water towers are positioned on the highest points of the site. These towers, previously described as sculptural landmarks, serve a critical function. Each includes a rainwater collection system, filtration mechanism, and gravity-fed distribution network that supplies clean drinking water to fountains across the site.

For non-potable water used in washing and cleaning, runoff is collected from roof gutter systems on each block and stored in underground tanks. Every morning, water is pumped into five overhead Gazi tanks per block, from which it is distributed to bathrooms and kitchens in each unit. Wastewater is discharged into several septic tanks located throughout the site.









ventilation
Given the high temperatures in Bangladesh, natural ventilation is a key design priority. The walls are built with a deliberate gap between the CSEB brickwork and the concrete frame at the top, allowing air to circulate freely throughout the dwellings. These openings can be closed using woven bamboo or jute, maintaining airflow while providing protection and privacy.

shading
Effective shading also plays a major role in creating comfortable interiors. Shared entrance areas are partially recessed to provide shaded outdoor seating for residents. Additionally, gallery spaces are shaded using fabric made from discarded scraps from garment factories. This method, observed during fieldwork, involves residents collecting, washing, sorting by color, and sewing fabric waste into new materials such as curtains, blankets, and clothing.

All of these strategies come together in a climatic section drawing, which illustrates how environmental conditions were carefully integrated into the architectural response.

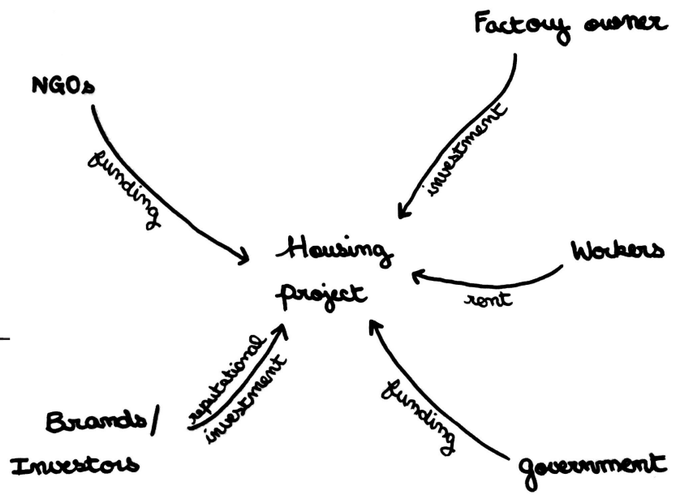

500 000 L
1 000 L
GAZ!
LAVOIR AND FOUNTAIN
DRAINING WATER
WATER TANK
500 000 L
RAINWATER
SEPTIC TANK

manegerial strategy

Ideally, the factory owners and brands producing in the factory would be the ones paying for the construction of the housing blocks. However, the funding for this project would likely come from a range of different stakeholders.

The development of garment workers' housing on the Sylhet Textile Mill site presents an opportunity to reimagine not just the living conditions of workers, but also the financial and operational models behind such housing. Realistically, funding for construction would likely come from a combination of sources. The factory owner, who stands to benefit from a stable, nearby workforce, could provide land and partial investment as part of a long-term workforce strategy. The government may also play a critical role, particularly through infrastructure support or incentives tied to decentralizing the garment industry from Dhaka.

To make the housing both affordable and sustainable, a blended financial model would be necessary. Rents could be subsidized through employer contributions, development agency support, or partnerships with international apparel brands committed to ethical sourcing and improved labor conditions. Brands may invest as part of their corporate social responsibility or ESG goals, helping to cover construction or maintenance costs. NGOs and microfinance institutions might also support workers through rent-to-own schemes or cooperative housing models. Ultimately, this approach not only addresses an urgent housing need but sets a precedent for equitable, cross-sector investment in Bangladesh's industrial future.



replicability

As the design proposal unfolds, it becomes clear that the most replicable elements are the residential units themselves. These apartments are conceived as site-independent and could, in principle, be placed in a variety of contexts. The small cluster of three units, arranged around a shared outdoor space, offers a flexible and scalable module that can be replicated and adapted to suit different locations.

However, this replicability has its limits. The quality of the access space (particularly the gallery that connects the units) is dependent on scale. If extended too far, it loses its spatial and social character. In that sense, the gallery acts as a threshold, marking the boundary where the unit cluster's replicability begins to break down.

When these unit clusters are stacked and repeated to form a building, a different kind of complexity emerges. Access points, which allow residents to enter the building, begin to shape the overall plan. In some cases, certain units must be removed to accommodate circulation or entry. These access points are defined by site-specific conditions, such as whether a block is approached from above or below. At the Sylhet Textile Mill site, for example, buildings are entered from the front or back, depending on the slope of the adjacent footpath.

This means that while the unit and cluster can be repeated, the overall configuration of each building block must respond to its terrain. Even within the same site, each block is subtly different, shaped by its topography. This is not a limitation, but an intentional aspect of the design. The goal was never to create one-size-fits-all copies, but rather a series of unique, site-sensitive buildings.

It is intentional, in that regard, to create a set of unique blocks that are not exactly replicated.

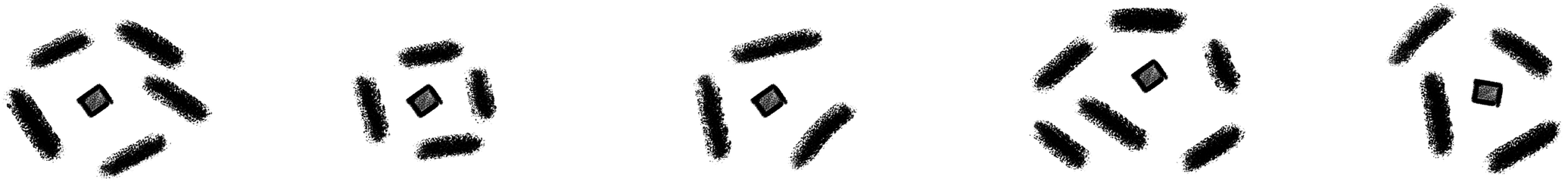
Is the project then replicable ?

From the beginning, the project was not driven by the desire for replication, but by a desire for understanding. It began with a close study of what garment workers leave behind in their rural homes, the spaces they inhabit upon arriving in industrial zones, and the realities of their daily lives—both at home and at work.

Rather than producing a single design to be reproduced, the aim was to develop a system of principles that could guide future designs. A system that could adapt, not simply repeat, and fit the needs of garment workers with the aim of creating new housing standards for them.

In that sense, the project does propose a form of replicability, but one that is qualitative and systemic, rather than geometric or fixed. This approach was a way to create a far more meaningful system of principles that would work together and be, as needed, tweaked to suit a particular site. And in some ways, I believe the replicable system that is created throughout the project is far more interesting than the buildings themselves being independent from the site.

In my view, a replicable design is one that never fully responds to the site it's on. But a replicable system is adaptive.



So what is the replicable system that is developed in the project ?

The replicable system that emerges from this project includes four core principles:

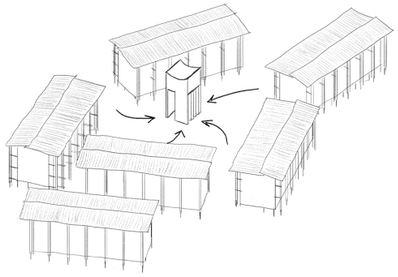
materiality : A clear distinction between light and heavy materials - light for circulation and communal spaces, heavy for private areas - establishes a spatial and emotional hierarchy.

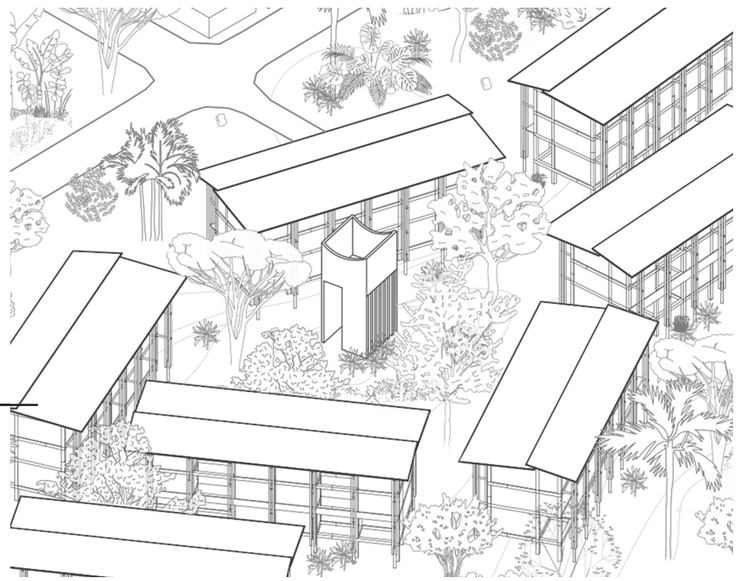
pilotis : The entire structure is lifted from the ground. The height and configuration of the pilotis are site-responsive, whether to accommodate a slope, prevent flood damage, or allow airflow and informal social use below.

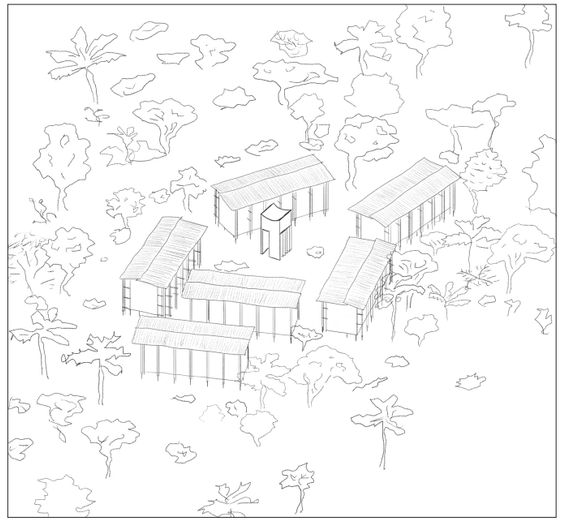
the footpath as a connector : Circulation isn't just about movement but about connecting buildings and communities. The footpath acts as a social spine, weaving through the site and linking residents in subtle but important ways.

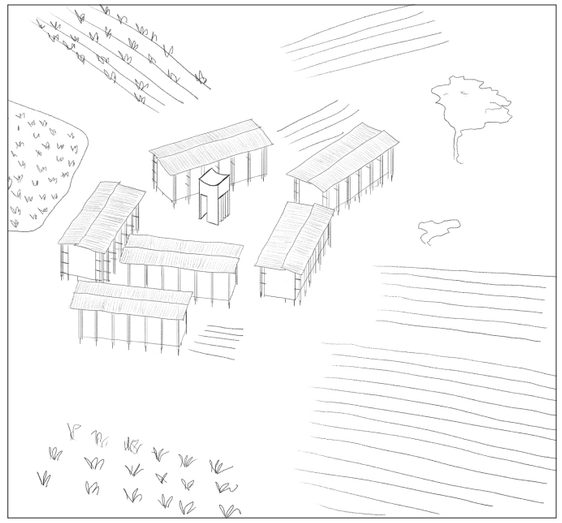
the water tank as a social space : Far from being a purely infrastructural element, the water tank becomes a gathering point, a shaded, elevated platform where everyday interactions can unfold, which remind the rest of the city of the people driving the garment industry.

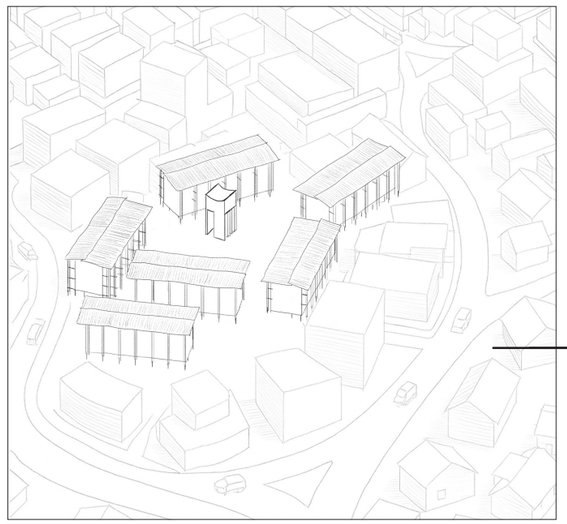
Ultimately, replicability is not about repeating form, but about establishing a framework of ideas, an architecture that responds rather than imposes. A truly replicable system is one that changes shape to fit its context while holding onto the values that made it meaningful in the first place.









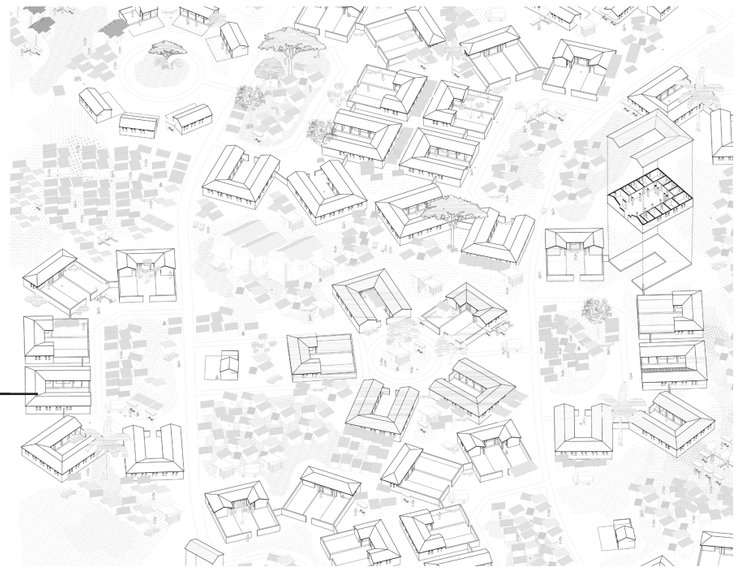


future of the site

It is important to consider the long-term future of the site. If the gate is removed and the area is opened to the city, it is likely that informal settlements may begin to appear around the garment housing blocks. The presence of large green and open spaces makes this a real possibility, as these areas could attract people seeking to settle near the development.

To reflect on this potential outcome, the case of Tema Manhean serves as a valuable point of comparison. This project was studied early on to understand the dynamics between externally imposed housing models and the actual needs and behaviors of local communities. It also illustrates the disconnect that can occur between foreign architects' intentions and local realities.

In Tema Manhean, Ghana, the London-based office of Maxwell Fry, Jane Drew, and Denys Lasdun was commissioned to design housing as part of a broader effort to reshape postcolonial environments. Their work across at least sixteen countries, mainly in former British colonies, included several projects in West Africa. One of their key commissions was in Ghana, where they planned a new village to replace an existing fishing community.





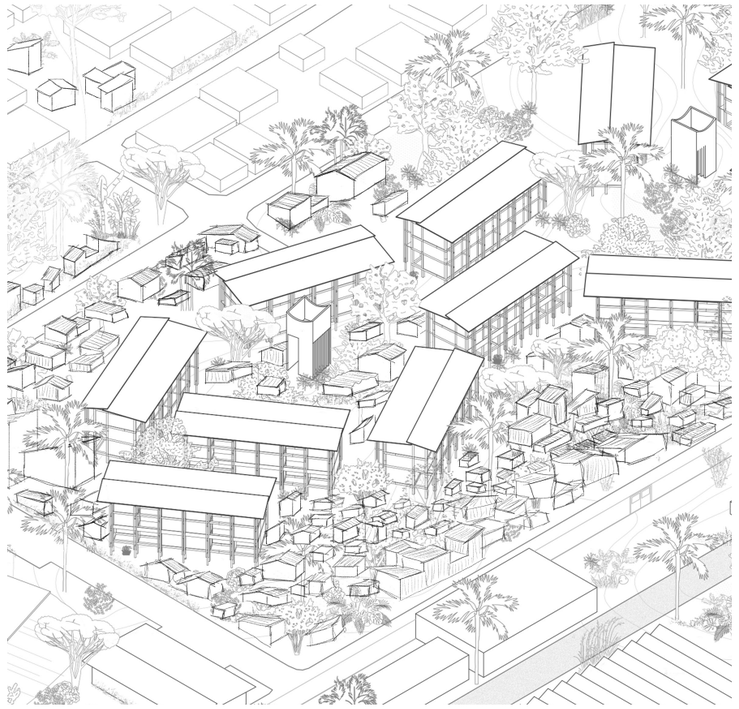
Fry and Drew adopted a participatory approach, working closely with local chiefs. After their initial plan was rejected by villagers, they revised it using a hierarchical neighborhood model inspired by English New Towns. The final plan featured four neighborhoods surrounding a central area with schools, shops, markets, a chief's palace, and a fish smoking area. Houses were designed to accommodate extended families, with flexible layouts and standard compound shapes such as circles, rectangles, diamonds, and stars.

Although the architects responded to community feedback, such as replacing flat roofs with pitched ones, which were seen as more respectful, many traditional practices and informal uses were not accommodated. Houses were built using modern materials like sandcrete blocks and steel roofs, and while the design improved basic services like water and sanitation, the exclusion of informal economic activities and lack of essential amenities such as electricity and indoor plumbing created frustration among residents.

Over time, the village deteriorated. Its separation from the rest of Tema, originally intended to preserve its cultural identity, led to increasing isolation and decline. Today, surrounded by industry and pollution, Tema Manhean is marked by informality, with its original structure almost erased by unregulated extensions and new settlements. Satellite images clearly show how the original plan has been overtaken.



This outcome is not unique to Ghana. Similar processes of informal growth occur in Bangladesh as well. However, instead of resisting them entirely, it is possible to design with future change in mind. In this project, the existing trees and topography provide some natural limits to informal encroachment. At the same time, the project is intentionally open to change. It is designed to adapt, grow denser, and gradually blend garment workers into the broader urban context. Rather than isolating them, the aim is to reintegrate them into the fabric of Sylhet, making space for both planned and unplanned forms of urban life.



reflection

This section seeks to review the research and design conducted as part of my graduation project in the Global Housing studio. It will address the approach of the research and the design, as well as the academic context in which it took place, its methodology, and finally the outcome and transferability of the results.

approach baseline

This graduation project began as a critical approach to humanitarian projects and social work - specifically, how the supposed beneficiaries of humanitarian aid often end up reinforcing the systems of dependency. The project started with a period of reflection, focusing on our role as an academic studio intervening in Bangladesh as outsiders.

research phase

As this intra-driven research progressed, I was advised by my research tutor to condense my object of study and focus on one aspect. I found that the dynamics of neocolonialism that had interested me from the beginning are clearly present in the garment industry in Bangladesh. The research shifted towards textiles as a remnant of colonial history - first through a historical investigation into the traditional arts of weaving and fabric-making, and then through an analysis of how these practices were transformed during British colonization and the Industrial Revolution. Fabric production, once a central and independent part of local culture, was restructured to serve colonial economic interests. Today, the garment industry remains a system that primarily benefits the Western world, while keeping Bangladesh economically dependent - a modern form of co-dependence rooted in colonial history.

The approach of using one element of Bangladeshi culture - fabrics - to understand the enduring effects of colonialism proved effective, opening up a broader inquiry into the world of garment factories and the workers involved. In order to intervene in Bangladesh as an outsider, it was crucial for me to reflect on my own position, how I could make a meaningful proposal without relying on an idealized or romanticized perspective. This awareness emerged through the study of fabric, both as a cultural artifact and a symbol of historical transformation.

methodology research

The first part of the research was driven by a desire to understand the garment industry and its implications for both exporters and importers. Throughout my research and design process, the societal and ethical dimensions of the industry - along with the complex dynamics in which it operates - remained central to my approach in every phase of the project.

preparation for the trip

As the research went on, I wanted to adopt a hands-on approach by connecting with garment workers and their workers' unions, visiting factories, and gaining insight into the living conditions around these industrial sites. In preparation for my trip to Bangladesh, I reached out to a garment workers' union via Facebook, which led me to connect with several garment workers. I organized a WhatsApp call with one of them, which gave me valuable insight into the daily routines of garment workers in Dhaka. Through Instagram, I also found a woman who had studied architecture in Dhaka and now works with locally crafted fabrics to preserve and promote the ancient art of weaving. She helped me understand the distinction between traditional textile craftsmanship and mass-produced garments. This interview-based approach prior to my trip proved to be a strong foundation for the research. It set the context for my work in Bangladesh, shaped what I would be looking for, and ultimately allowed me to meet garment workers in person and visit a garment factory while I was in Dhaka.

the trip to bangladesh

Throughout the trip, fieldwork was a crucial part of my hands-on approach. I spoke with a group of women working in a garment factory on the outskirts of Dhaka, who invited me to their village. There, I was able to visit their homes, gain an understanding of their lives, and observe how they organize their living spaces between the public and private realms. This offered valuable insight into the house as a form of architecture - not only within Bangladeshi culture but specifically within the garment worker community.

A few days later, I was invited to visit the garment factory where one of the women works. It was important for me to understand not only where these women live, but also how they spend their days - considering they work six days a week, between 11 and 13 hours a day (not including overtime, which can add up to 3 extra hours daily). I arrived at the factory at 7:30 a.m., when the workers began their shifts, and toured the facility, observing all stages of production: cutting, assembling, fixing, buttoning, labeling, and more. Ultimately, the fieldwork gave me deep insight into the lives of the people I was designing for, and allowed me to feel truly connected to them. I realized that while the working conditions are undoubtedly harsh, the living conditions - where they spend what little free time they have - may be even worse. Although I believe this to be true, it seems that in recent years, the Western world has focused its criticism on the industry by highlighting the working conditions, while overlooking the broader issue of the environment in which these people inherently live.

outcome

Eventually, the outcome of my research led me to a site in Sylhet: the Sylhet Textile Mills, located to the east of the city. This factory operated in the seventies but shut down in the early 2000s as it failed to keep up with the demands of the fast fashion industry. There is very little information available about the closed factory, which prompted me to visit the site in person. Upon arriving at the gate, I was greeted by a man who, without hesitation, allowed me to enter. We discussed my interest in the site, and he shared that he had worked there for over 30 years (I brought along a student from the university who agreed to translate for me). He provided valuable insight into the factory's history, the garment workers who once worked there, the impact of its closure, and the plan to reopen the factory in 2026 as a shoe factory exporting to Europe. I chose this site for my graduation project, where I decided to design housing for the new workers who will be arriving in 2026 to work at the shoe factory.

academic and societal value

Eventually, I took a stance and found that as one architecture student in TU/Delft, I cannot change the dynamics of fast fashion and cheap labor production for western benefit. And unfortunately, we are somehow all part of this system, even if we reject this kind of consumption. That's why I thought that as an architect, I could still have an impact on the places that these garment workers go home to.

transferability of the project

This research offers valuable groundwork for future students and researchers at TU Delft, particularly those interested in the social and political dimensions of architecture. By combining historical inquiry, fieldwork, and housing design, the project presents a methodology that can be adapted to other contexts where architecture intersects with issues of labor, inequality, and post-colonial legacy. The focus on housing for industrial workers adds a practical layer to the research, addressing the urgent need to design for those living on the margins of global production systems. This aspect of the research highlights how architectural thinking can respond to systemic issues often overlooked in mainstream discourse. The interdisciplinary nature of the work encourages further exploration at the boundaries of architectural theory, social justice, and global development. It lays the foundation for continued

investigation into how architecture can engage critically and constructively with the complexities of today's world.

academic context

When I decided to study architecture, I knew I wanted to make a meaningful impact on people and use my knowledge to empower others. During my master's degree at TU Delft, I aimed to explore various facets of architecture as a practice. With Borders & Territories in my MSc1 and Architecture and Theory in my MSc2, I examined the spectrum of architecture, from tangible, concrete design to its more theoretical and philosophical dimensions. My interest in the social and political implications of architecture led me to engage with both ends of this spectrum, from designing a mega-structure of machines for a space travel campus during MSc1, to exploring architectural theory in Athens during MSc2. After my first year at TU Delft, I continued my studies as an exchange student at the École Polytechnique Fédérale de Lausanne in Switzerland. There, I worked on a humanitarian project in South Sudan, designing a women's center with human scale at the core of every decision. It was during this exchange that my passion for socially-driven architecture was truly affirmed, leading me to choose a similar focus for my graduation project. The program at TU Delft encourages exploration across a broad range of architectural themes, and my experiences with such diverse topics ultimately brought me back to my original fascination: architecture as a catalyst for social empowerment. In that sense, the relationship between my graduation project topic and the university's programme is only evident, where all of the exploration and I seeked throughout my study led me to this particular topic.

appendix

pilot project - nov. 25

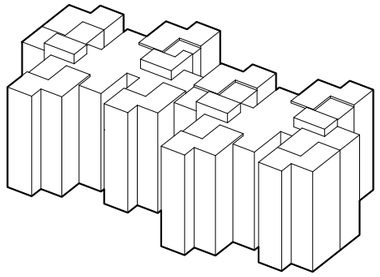
The goal of the pilot project was to meet a Floor Space Index (FSI) of 2.5 within one hectare, using both the Ground Space Index (GSI) and FSI as guiding parameters. This approach was explored through case studies analyzed earlier in the semester.

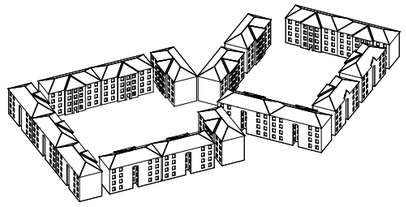
The project takes inspiration from two sources — the student hostels at the Sylhet Polytechnic Institute by Muzharul Islam and Stanley Tigerman, and Peabody Square in Blackfriars by Henry A. Darbishire. By combining elements from both, the plan reimagines a mid-rise development that balances climatic performance with social infrastructure.

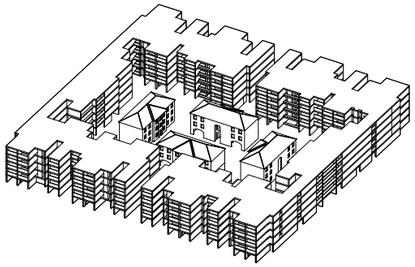
The Sylhet hostels offer valuable lessons in passive cooling and ventilation, which are essential in Bangladesh's climate. Their linear form and thoughtful orientation are used throughout the design to promote airflow and reduce heat gain across the site.

However, while the Sylhet model is strong in climate responsiveness, it lacks shared outdoor spaces. This is where the Peabody Square layout becomes relevant. Adapted to the local context, the courtyard arrangement supports gardens, markets, school canteens, play areas, and informal gathering spaces. These courtyards become the social and functional core of the development, encouraging activity and interaction throughout the day.

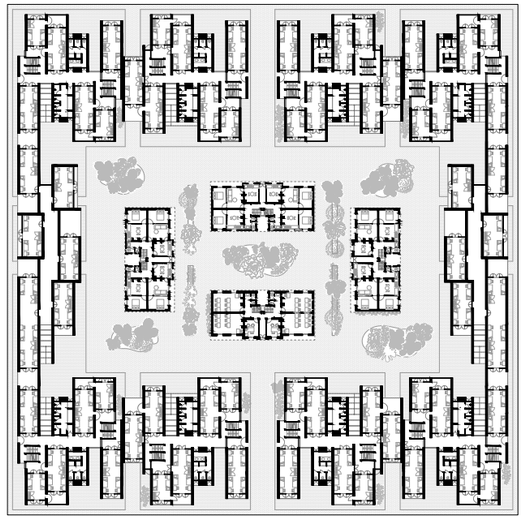
The program includes a mix of housing types such as student dormitories, studios, and one-bedroom apartments, along with a school and commercial spaces. The ground floor of the student housing is used for markets, creating an open and lively public edge. Meanwhile, the Peabody-inspired buildings include shops and school canteens on the ground floor, expanding the range of uses and ensuring the project engages with both residents and the surrounding neighborhood.







Altogether, the plan integrates approximately 23,000 square meters of student housing and 2,000 square meters of Peabody-style units, successfully achieving the FSI target of 2.5. By merging the climatic logic of the Sylhet hostels with the social vibrancy of Peabody Square, the project offers a development that is practical, community-focused, and well-suited to its context.







P2 - jan. 21

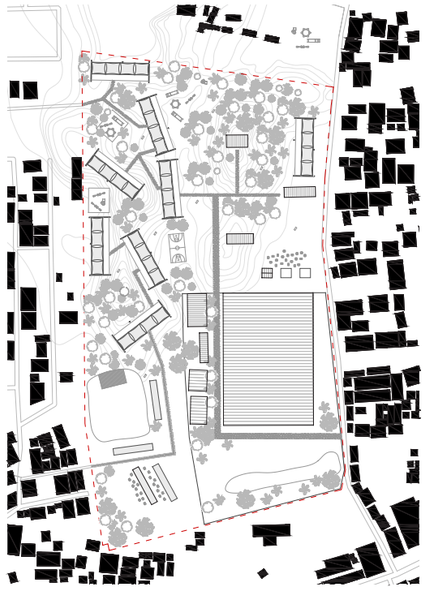
P2 marked a pivotal phase in the development of my master's thesis. It served as a platform to test and articulate the first design intuitions that emerged in response to the chosen site. Many of the initial concepts introduced during P2 were retained and carried through to the final design, although they were significantly transformed based on the critical feedback received.

One major point of discussion was the treatment of site boundaries. During P2, these borders had not yet been clearly defined. Following the critique, more attention was devoted to clarifying the spatial relationships between the industrial site, the housing for garment workers, and the surrounding urban context. The ultimate objective became to integrate factory workers into the city rather than isolate them from it.

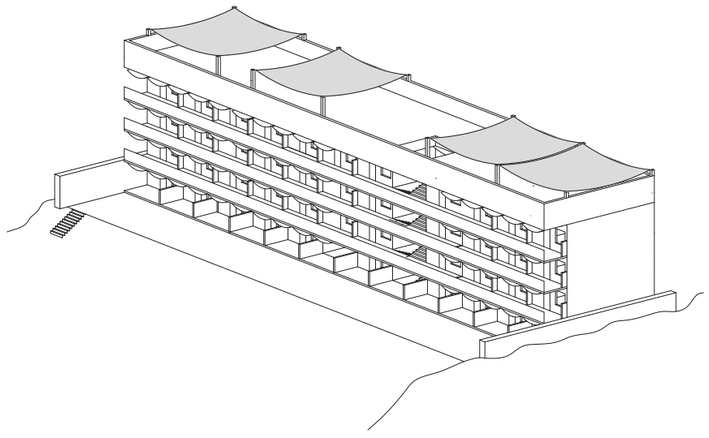
Another key aspect was the building's relationship with the topography. At the time of P2, this was still unresolved and prompted an extensive exploration of how the structure could interact with the natural slope without becoming a barrier. For instance, the behavior of rainwater runoff played a crucial role in shaping decisions about the building's position and elevation. Eventually, the most practical solution was to elevate the structure in order to accommodate both the landscape and drainage requirements.

The internal organization of the units and the structural system also remained open-ended at this stage. Given the diversity in household compositions and incomes among the intended residents, it became clear that a flexible partitioning system would be the most appropriate solution. While this system was not yet defined during P2, the feedback emphasized its importance and guided its further development.

In essence, P2 was a valuable moment of expression. It allowed for the rapid externalization of fresh ideas and impressions gathered from the trip to Bangladesh, which later served as the foundation for a more thoughtful and cohesive design process.







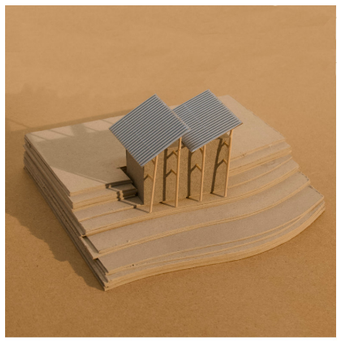


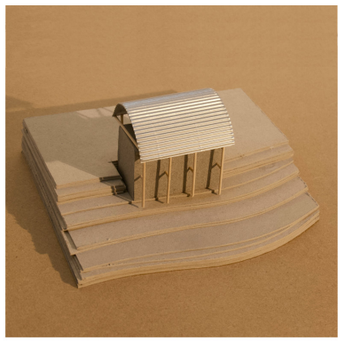


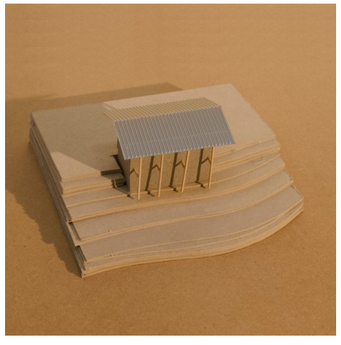
P3 - march 17

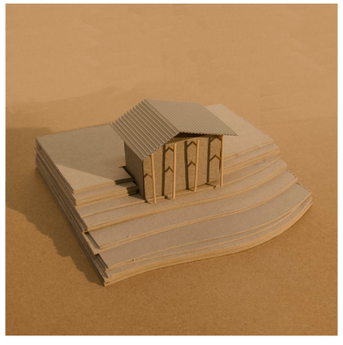
For the P3 presentation, the design was further developed and supported by working models that helped clarify key decisions. These models were particularly useful in exploring aspects such as materiality, unit dimensions, the structure and form of the roof, and the building's relationship to the topography. P3 served as a valuable opportunity to test the nearly finalized design across all scales, allowing for a more comprehensive evaluation before the final stage.

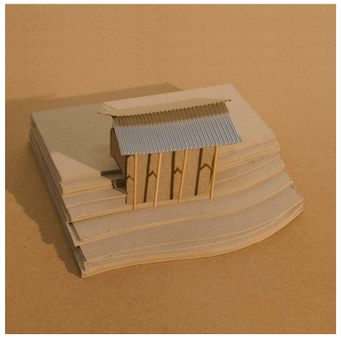


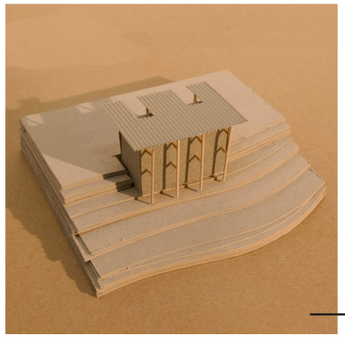












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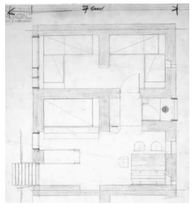
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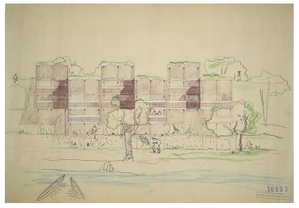
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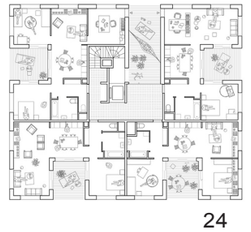
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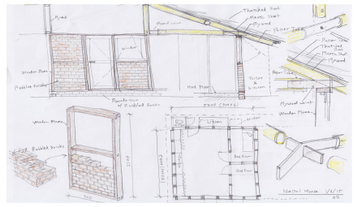
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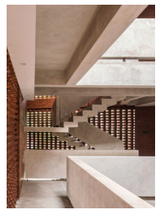
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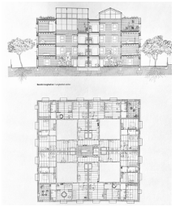
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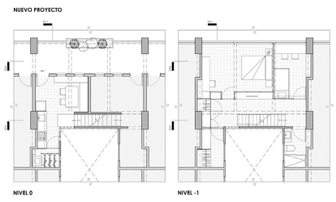

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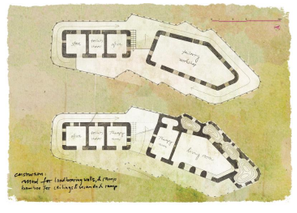

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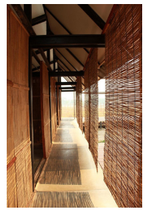

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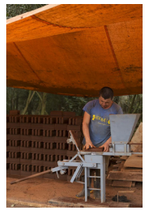

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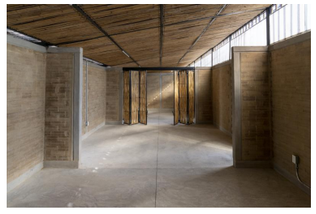

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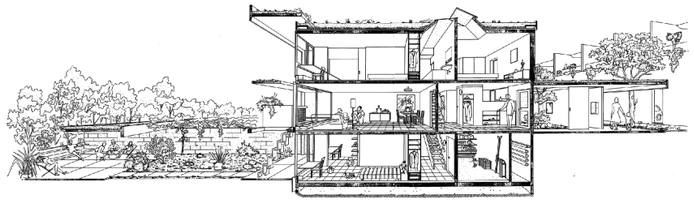

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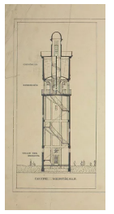

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1. Maison “Murondin”, Le Corbusier and Pierre Jeanneret, 1940. Unbuilt.
2. Roq et Rob, Le Corbusier, 1949. Unbuilt, Roquebrune-Cap-Martin, France.
3. Chittagong University, Muzharul Islam, 1971. Chittagong, Bangladesh.
4. Angoori Bagh Social Housing, Yasmeen Lari, 1973. Lahore, Pakistan.
5. Life Insurance Corporation Housing, Balkrishna Doshi, 1973. Ahmedabad, India.
6. Barrio de Sào Victor Social Housing, Álvaro Siza, 1977. Porto, Portugal.
7. Quinta da Malagueira, Álvaro Siza, 1977. Évora, Portugal.
8. Belapur Housing, Charles Correa, 1983. Mumbai, India.
9. Aranya Low-Cost Housing. Balkrishna Doshi, 1989. Indore, India.
10. Curtain Wall House. Shigeru Ban, 1995. Tokyo, Japan.
11. Gando Primary School, Francis Kéré, 2001. Gando, Burkina Faso.
12. Gando Primary School Extension, Francis Kéré, 2008. Gando, Burkina Faso.
13. Luzi House, Peter Zumthor, 2002. Jenaz, Switzerland.
14. Zero Carbon DIY Design Project, Yasmeen Lari, 2005. Unknown.
15. Handmade School, Studio Anna Heringer & Eike Roswag, 2007. Dinajpur, Bangladesh.
16. Post-Tsunami Rehabilitation Houses, Shigeru Ban, 2007. Hambantota, Sri Lanka.
17. Desi Training Center, Studio Anna Heringer, 2008. Rudrapur, Bangladesh.
18. HOMEmade Family Houses, Studio Anna Heringer, 2008. Rudrapur, Bangladesh.
19. Center for Earth Architecture, Francis Kéré, 2010. Mopti, Mali.
20. Ruca Dwellings, Undurraga Devés Arquitectos, 2011. Santiago, Chile.
21. Building Chulahs, Yasmeen Lari, 2011. Pakistan.
22. Pemulung House, IBIKU, 2011. Denpasar, Indonesia.
23. Bamboo-frame Shelters, Yasmeen Lari, 2011. Sindh Province, Pakistan.
24. Logements collectifs ZAC Luciline 76, Sophie Delhay, 2012. Rouen, France.
25. Amber Denim Loom Shed, Jubair Hasan Architects, 2013. Gazipur, Bangladesh.
26. 52 Social Housing, Aguilera | Guerrero Architects, 2013. Terragona, Spain.
27. Benga Riverside Residential Community, Francis Kéré, 2014. Tete, Mozambique.
28. Paper Log House II, Shigeru Ban, 2014. Cebu, Philippines.
29. Nepal Disaster Relief Shelter, Shigeru Ban, 2015. Nepal.
30. Women center, Yasmeen Lari, 2015. Sindh Province, Pakistan.
31. MPavillion, Studio Mumbai, 2016. Melbourne, Australia.
32. Zero Carbon Cultural Center, Yasmeen Lari, 2017. Makli, Pakistan.
33. Casa CCFF, Leopold Banchini, 2017. Geneva, Switzerland.
34. HIKMA, atelier masomi, 2018. Dandaji, Niger.
35. Anandaloy Center, Studio Anna Heringer, 2019. Rudrapur, Bangladesh.
36. Marramarra Shack, Leopold Banchini, 2020. New South Wales, Australia.
37. Kos Haji Baun Public Residence, FFFAAARRR, 2019. Jakarta, Indonesia.
38. Al Naseej Textile Factory, Leopold Banchini, 2020. Bani Jamrah, Bahrain.
39. Various proposals and studies, DOGMA, 2018 - 2022. Belgium, Switzerland, Russia. Unbuilt.
40. 24 VPP Pere Matutes 72, 08014 Arquitectura, 2022. Ibiza, Balearic Islands.
41. 54 Social Housing, Joan Josep Fortuny Giró & Alventosa Morell Arquitectes, 2022. Inca, Balearic Islands.
42. 60 VPP Macabich 3-7, Estruch Martorell Arquitectes, IBAVI, 2022. Ibiza, Balearic Islands.
43. Sanjaynagar Slum Redevelopment Project, Community Design Academy, 2022. Ahmednagar, India.
44. 19 VPP Salvador Espriu 37, IBAVI, 2022. Palma, Balearic Islands.
45. Social Housing in Turó del Sastre, DATAAE & Xavier Vendrell Studio, 2022. Montgat, Spain.
46. Centro productivo comunitario Las Tejedoras, Juan Carlos Bamba, Natura Futura Arquitectura, 2023. Chongón, Ecuador.
47. Bash Residence, Philipe Dubus Architectes, 2023. Saint-Herblain, France.
48. Khudi Bari, Marina Tabassum Architects, ongoing. Various, Bangladesh.
49. Matter Space Soul Pavillion, Two Fold Studio, 2021. Noakhali, Bangladesh.
50. Rohingya Cultural Memory Centre, Rizvi Hassan, 2022. unknown, Bangladesh.
51. Multifamiliar Cupa Apartment Refurbishment, Escobedo Soliz, 2021. Mexico City, Mexico.
52. Monterrey Housing, ELEMENTAL, 2010. Monterrey, Mexico.
53. Urbina 65 House, EPArquitectos, 2022. Mazatlán, Mexico.
54. Casa Alferez, Ludwig Godefroy Architecture, 2023. Mexico City, Mexico.
55. Casa Taller, Agustín Berzero, Manuel Gonzalez Veglia, Tectum Arquitectura, 2021. La Paisanita, Argentina.
56. Casa Martha, Naso - José Ignacio Vargas, 2020. Malinalco, Mexico.

57. El Paseo Gastronómico, Demain Architecture Paysage, 2018. Calceta, Ecuador.
58. Fair Trade Zone, Juergen Strohmayer, Chrili Car, 2022. Akuse, Ghana.
59. Anandaloy, Anna Heringer, 2019. Rudrapur, Bangladesh.
60. Earthen School Tipu Sultan Merkez, Ziegert, Roswag, Seiler Architekten Ingenieure, 2006. Jar Maulwi, Pakistan.
61. Moving Schools 001, Dan LaRossa, Building Trust international, Amadeo Bennetta, 2013. Mae Sot, Thailand.
62. Vivienda Takuru, José Cubilla, 2016. Piribebuy, Paraguay.
63. Centro Comunitario en Xoxocotla, Re:lab Arquitectos, Federico Colella, 2020. Xoxocotla, Mexico.
64. Pani Community Center, Schilder Scholte Architecten, 2015. Rajarhat, Bangladesh.
65. Rana House, Made in Earth, 2013. Tiruvannamalai, India.
66. Social Housing Production: Exercise I, Communal Taller de Arquitectcura, Pobladores de Tepetzintan, 2015. Tepetzintla, Mexico.
67. Low Cost House, Vo Trong Nghia Architects, 2012. Dongnai, Vietnam.
68. Siedlung Halen, Atelier 5, 1961. Berne, Switzerland.
69. Arcadia Education Project, Saif Ul Haque Sthapati. South Kanarchor, Bangladesh.
70. House in Moledo, Eduardo Souto de Moura, 1998. Moledo, Portugal.
71. Sala Yangnar, Yangnar Studio, 2023. unknown, Thailand.
72. Marinho da Serra House, Vazio S/A, 2022. Marinho da Serra, Brazil.
73. Ecocasa Atelier, Encaixe Soluções Alternativas, 2020. São Roque, Brazil.
74. Church of Seed, O Studio Architects, 2011. Huizhou, China.
75. The Noodle Rack, Lukstudio, 2015. Changsha, China.
76. Habitat Initiative Cabo Delgado, Ziegert, Roswag, Seiler Architekten Ingenieur, 2005. Maputo, Mozambique.
77. Transformation Lù Chatarme, Deschenaux Follonier, 2019. Evolène, Switzerland.
78. Community Center, Palma, 2015. Mexico City, Mexico.
79. Art Studio, 11.29 Studio, 2023. Rayong, Thailand.
80. Casa Convento, Enrique Mova, 2014. Chone, Ecuador.
81. Water Tower for the University of Aveiro, Alvaro Siza, 1989. Aveiro, Portugal.
82. Water Tower, Le Corbusier, 1917. Podensac, France.
83. Water Towers, bernd Becher and Hilla Becher, 1972-2009. Various.

credits

1. Dutch ships arriving in the harbours of Bengal.
2. Robert Clive’s victory in Bengal marked the beginning of British colonial dominance in South Asia
3. Unknown painting from the Mughal Empire depicting emperors wearing Dhaka muslin.
4. Portrait of a Mughal Princess, 17th century.
5. 1665 depiction of princes Dara Shikoh and Sulaiman Shikoh Nimbate.
6. “Muslim Lady Reclining” by Francesco Renaldi, late 18th century.
7. Portrait of the French empress Joséphine Bonaparte in a white muslin dress, painting by Francois Gerard via State Hermitage Museum, 1801
8. Marie Antoinette in a Muslin Dress, painting by Élisabeth Vigée Le Brun, 1783.

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correspondences and interviews

Exchanges with Naeemah Zaman, November 2024.

Call with Tania from Denim Asia Ltd., November 5, 2024.

Exchanges with Prof. Dr. Eng. Ayub Nabi Khan from the BUFT University of Fashion and Technology, Dhaka.

Exchanges with Amrin Hossain Annie and Khairul Mamun Mintu from the Bangladesh Garments and Sweaters Workers' Trade Union Center in Dhaka.

Exchanges with Facebook contact of the Bangladesh National Garment Workers Federation in Dhaka.

Exchanges with Hasib Ahmed, member of the Bangladesh National Garment Workers Federation.

Meeting with garment workers' union in Dhaka, December 2024.

Meeting with Tania and her family in her home, December 2024.

Visit to anonymous factory in Savar, December 2024.

Meeting with factory owner, December 2024.

Meeting with Abdur from Sylhet Textile Mill, December 2024.

Thank you

Tania
Khairul
Laily
Naeemah
Abdur
Raiyan
Aqib
Tawsif
Fahim
Amrin
Raiyan
The Gazipur and Savar region villages
Bangladesh Garments and Sweatworkers' Union
Visited factory (kept anonymous)

All of my great mentors for guiding me throughout this journey

My lovely family and friends for supporting me

Printed by Elco Print
and binded by Boekbinderij Hennink
in Amsterdam

TU Delft Delft University of Technology