



# women as developers

Women's Involvement in Housing Initiatives on Financial Sustainability, Resident Satisfaction, and Community Cohesion in Sylhet, Bangladesh.

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# I. Introduction







# Gender inequality

“I raise my  
voice not so I  
can shout, but  
so that those  
without a voice  
can be heard.  
We cannot  
succeed when  
half of us are  
held back.”

Malala Yousafzai

Bangladesh, with a population exceeding 174 million, faces nuanced gender imbalances despite a slight numerical advantage for women recorded in the 2022 census. This discrepancy is particularly evident in public spaces, where women's presence is notably scarce, prompting inquiries into their activities, safety, and the underlying causes of their limited visibility outdoors.

The trajectory of women's rights in Bangladesh has shifted, yet challenges persist. Women often find themselves confined to domestic roles, burdened with household responsibilities, and experiencing higher rates of poverty, illiteracy, and violence compared to men. Cultural norms such as *Purdah* restrict their movement and access to education, employment, and healthcare. However, there is a noticeable societal shift as women challenge these norms, advocating for their right to move freely and participate fully in public life, influencing architectural changes.

Sylhet, Bangladesh, boasts a diverse cultural landscape but grapples with pronounced spatial separations and



gender discrepancies, and the absence of sufficient semi-private spaces in most residences is apparent. Female migrants play a significant role in architectural transformations, adapting homes to blend traditional and modern elements and advocating for inclusivity and social fairness. Despite these efforts, gender disparities in spatial utilization persist, particularly in regions like Sylhet, where conversations with residents reveal a lack of semi-private spaces in residences and visible gender disparities in spatial utilization. These circumstances underscore the necessity for housing initiatives tailored to accommodate women's needs and foster more unified communities. If women exclusively led these initiatives, would there be a discernible distinction compared to constructions approached from a male perspective? This led to the following question:

*“How can the involvement of women in planning and executing housing initiatives in Sylhet, Bangladesh, affect financial sustainability, resident satisfaction, and community cohesion?”*

Addressing these disparities requires understanding the role of women in promoting equitable spatial access and participation in both public and private spheres. Exploring women's leadership in housing initiatives offers insights into financial management, design preferences, and community-building strategies, contributing to more holistic and inclusive societal developments. Understanding how women oversee these projects financially and handle resources is crucial, unveiling diverse approaches and shedding light on their distinctive leadership styles. This exploration offers insights into what truly thrives in these initiatives, emphasizing both genders' unique strategies in steering these endeavors.

Bangladesh grapples with complex gender dynamics, spatial disparities, and housing challenges, especially in regions like Sylhet. Understanding and addressing the role of women in these issues are crucial for societal inclusivity, equitable spatial access, and fostering cohesive communities, ultimately leading to sustainable development and social harmony.







## II. Location



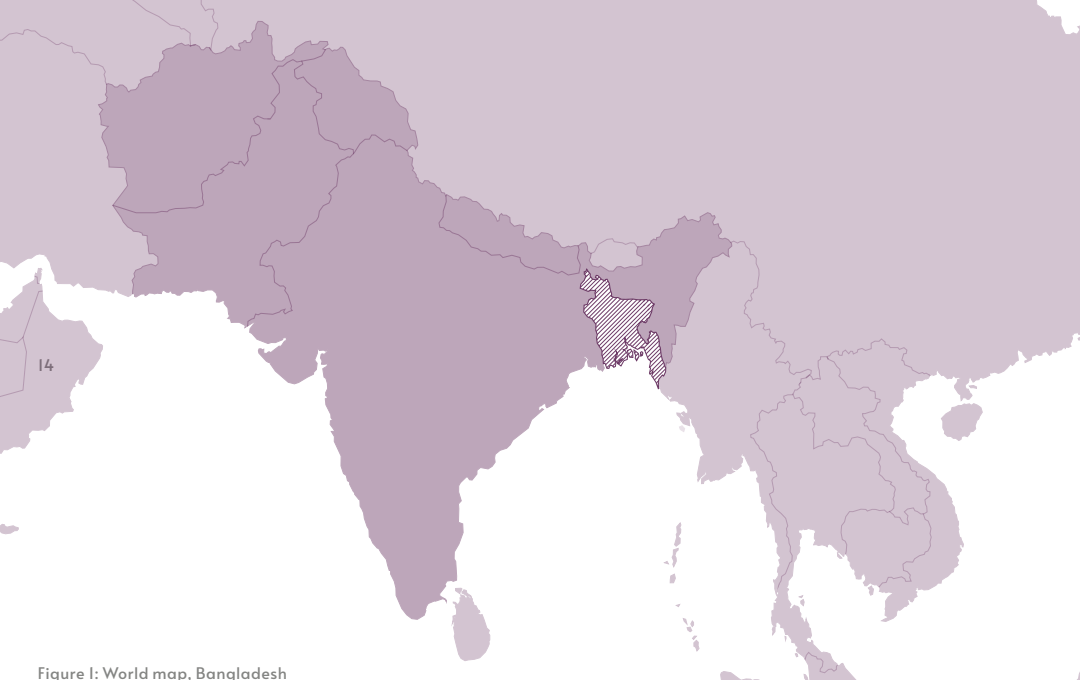


Figure 1: World map, Bangladesh

# Geography bangladesh

Bangladesh, situated in Asia, shares borders with India and Myanmar and boasts a coastline along the Bay of Bengal. Its geography is characterized by its predominantly flat riverine landscape. About 80% of the country consists of the Bengal Delta, formed by the confluence of the Ganges, Brahmaputra, and Meghna rivers (Smith et al., 2021). This deltaic plain is one of the most fertile regions globally, yet it is also highly prone to flooding due to the monsoon climate and the numerous rivers crisscrossing the country (Islam & Paul, 2019).

Bangladesh's climate is tropical monsoon, with distinct wet and dry seasons. The country experiences high temperatures and humidity year-round, and heavy rainfall during the monsoon season from June to September leads to frequent and severe flooding. The northeastern region, particularly Sylhet, receives the highest annual precipitation.

Urbanization in Bangladesh is advancing rapidly, particularly in major cities like Dhaka and Chittagong. However, these urban areas face significant challenges,

such as overpopulation, inadequate infrastructure, and environmental degradation. In rural regions, problems like landlessness and food security are common. Many rural areas rely heavily on agriculture despite having limited arable land and experiencing recurrent natural disasters, exacerbating these issues. The country's rapid urban growth and rural challenges necessitate comprehensive planning and sustainable development strategies to address these concerns effectively (Islam & Paul, 2019).

Research on Bangladesh's geography often focuses on the impacts of climate change, which exacerbates issues like flooding, sea-level rise, and cyclones. These environmental challenges necessitate ongoing efforts in disaster management and climate adaptation to safeguard the country's population and economic stability (Islam & Paul, 2019).

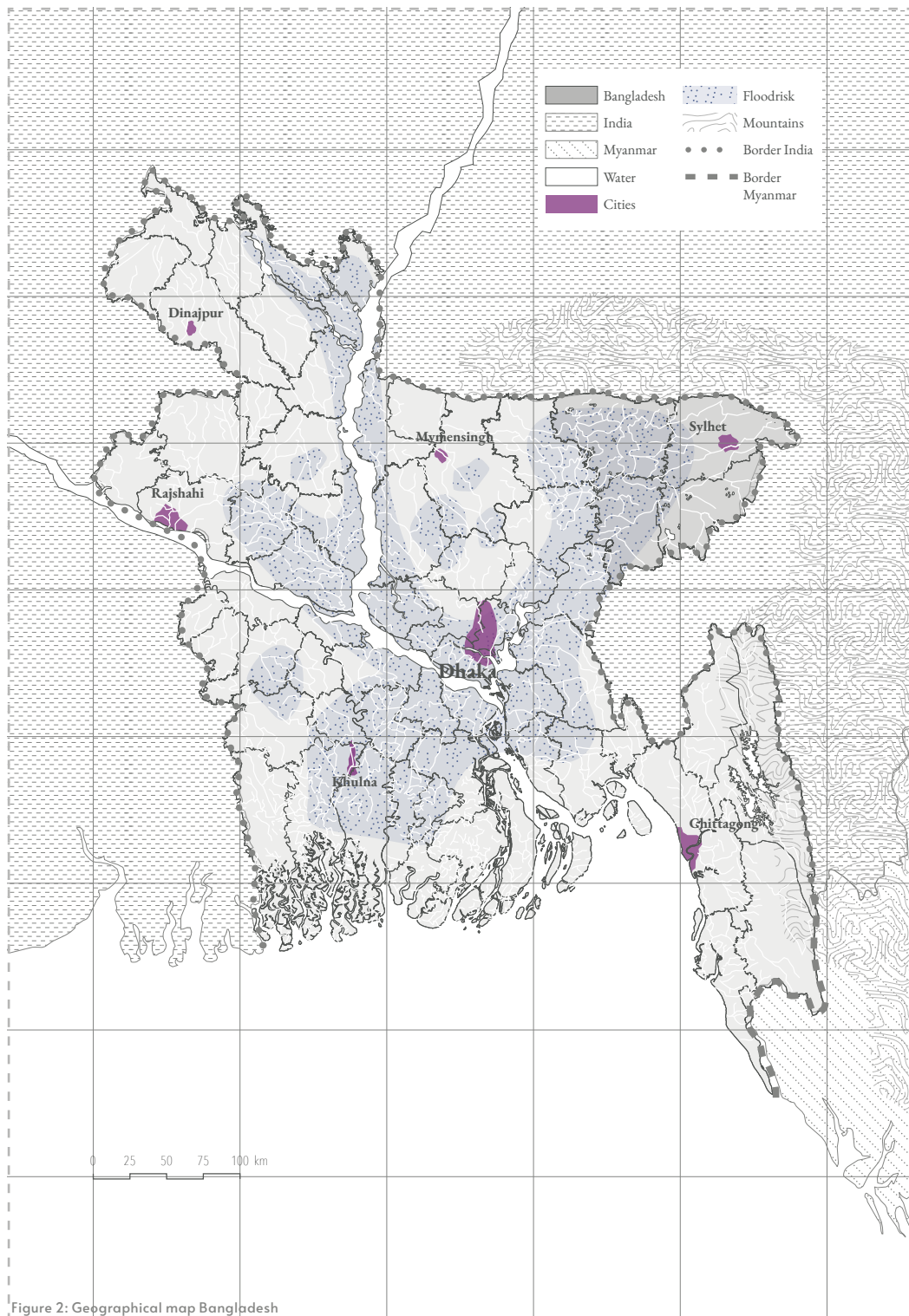


Figure 2: Geographical map Bangladesh

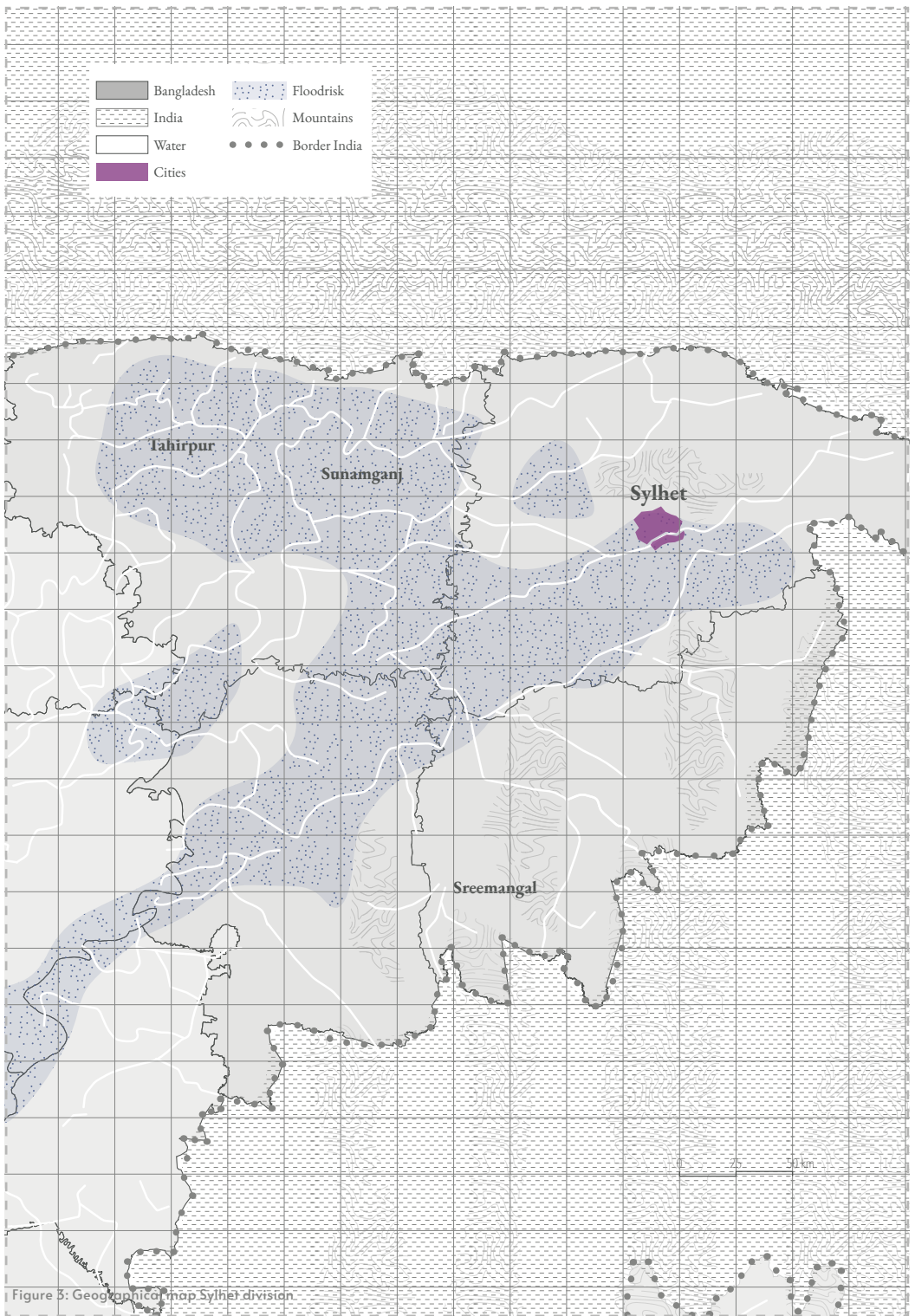


Figure 3: Geographic map Sylhet division

# Geography sylhet

Research on the geography of Sylhet highlights its unique blend of cultural, spiritual, and environmental characteristics. The wetlands of Sylhet, particularly the haor basins, play a critical role in the region's ecology. These wetlands are biodiversity hotspots, supporting a wide range of freshwater species, including many that are endemic and threatened. Conservation efforts are crucial to protect these habitats from overfishing and environmental degradation. The haor systems act as natural reservoirs, mitigating floods during the monsoon season and sustaining local agriculture and fisheries (Sarker et al., 2022).

Urbanization in Sylhet is heavily influenced by its spiritual and cultural heritage, which shapes the urban landscape through sacred sites and community spaces.

The integration of these elements highlights the need for urban planning that respects cultural values while addressing modern infrastructural needs.

Research from Shahjalal University of Science & Technology (SUST) has been pivotal in identifying the region's vulnerabilities to natural disasters such as tropical cyclones and floods. The studies emphasize the importance of developing sustainable practices and robust management strategies to enhance the region's resilience to these environmental challenges.

Sylhet's geography is a complex interplay of natural and cultural landscapes. To preserve its unique character and ensure sustainable development, it requires integrated conservation, urban planning, and disaster management approaches.



Haors are unique wetland ecosystems known for their seasonal flooding, which creates vast water bodies. This phenomenon is typical for the Sylhet Division, where for six months a year, the land is submerged, and people adapt to living both in and on the water.







Photo 1: Tanguar Hoar, Sunamganj, Bangladesh - Moazzem Mustakim, 2018



Figure 4: Density The Netherlands versus Bangladesh

# Demography

Bangladesh has a very high population density, around 1,329 people per km<sup>2</sup>, ranking it among the world's most densely populated nations. This is significantly higher than the Netherlands, which has about 522 people per km<sup>2</sup>. Sylhet Division, however, has a slightly lower density at 873 people per km<sup>2</sup>, with Sylhet district being the densest in the region. Dhaka district has the highest density in the country, influencing Bangladesh's overall population density.

Sylhet Division's population is approximately nine million, making up about 6.4% of Bangladesh's total population. Covering 12,596 square kilometers, it represents 8.5% of the country's land area. The population here is mostly rural, with only 12.5% living in urban areas, compared to the national urban population of 23% (Sylhet Division - Banglapedia, n.d.).

Bangladesh benefits from a youthful population, predominantly under 30, which is different from aging populations in many Western countries, like the Netherlands. This youthful demographic can boost

economic growth but also poses challenges, such as pressure on healthcare and education and the need to tackle youth unemployment.

In Sylhet Division, educational attainment is lower, with higher dropout rates compared to national averages. Children often start school later and leave earlier due to economic factors and lack of awareness. The region also struggles with educational infrastructure, particularly at the primary level, where facilities are often lacking (Bangladesh Education Article, 2021).

A significant feature of Sylhet Division is the high migration rate, especially to the United Kingdom. Non-Resident Bangladeshis (NRBs) send remittances that support the local economy, covering daily expenses, construction, education, and local institutions (Bangladesh Education Article, 2021).

Health indicators in Sylhet Division vary, with child labor and early marriage being common issues. Early marriage, influenced by socio-economic factors, is linked

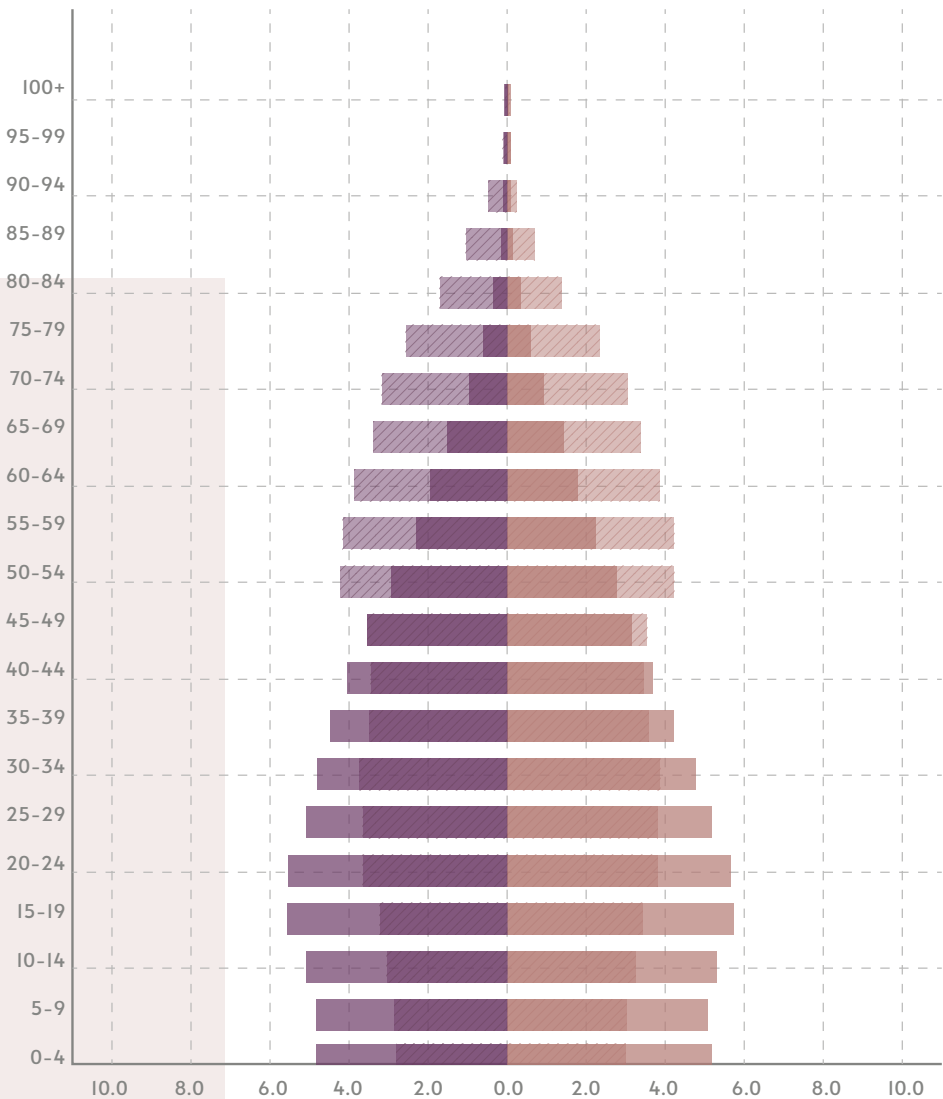


Figure 5: Ages The Netherlands versus Bangladesh

to lower educational attainment and higher poverty. Efforts to combat these issues include improving educational facilities and raising awareness about the benefits of education and the drawbacks of early marriage (Bangladesh - Demographic and Health Survey 2017-2018, 2020) (Billah et al., 2023).

In conclusion, Sylhet Division has rich cultural heritage and economic potential but faces significant challenges in education, health, and infrastructure. Addressing these issues with targeted policies and sustainable development is essential for improving the region's quality of life and socio-economic outcomes.









A vibrant gathering of women, highlights their active participation in public life and collective strength. Despite challenges such as limited educational opportunities and early marriage, their engagement in social activities underscores their resilience. With an average age of 30, these women significantly contribute to the region's socio-economic development.





Photo 3: a praying transgender hijra community, 2024

# Religion

The religion in Sylhet is predominantly Muslim, with 81.16% of the population adhering to Islam. Hinduism is the second-largest religion in the region, making up 17.80% of the population. Other religious groups include Christians, 0.06%, Buddhists, 0.02%, and others, 0.96% (Gates Cambridge, 2017). This religious diversity is reflected in the social and cultural life of Sylhet, with various religious festivals and practices contributing to the region's vibrant cultural landscape. The coexistence of multiple religious communities has shaped the identity of Sylhet, making it a notable region for both historical and contemporary religious significance in Bangladesh.

Purdah, derived from the Persian word for "curtain," is a practice that involves the seclusion of women from public observation by wearing concealing clothing and using physical barriers within the home. In Bangladesh, particularly in Sylhet Division, purdah is widely practiced among Muslim communities and has deep historical and cultural roots. It encompasses both veiling and gender segregation, influencing women's mobility, education, and participation in public life (Rahman, 2020),

In modern Sylhet, purdah continues to shape the socio-economic landscape, especially for women. It often

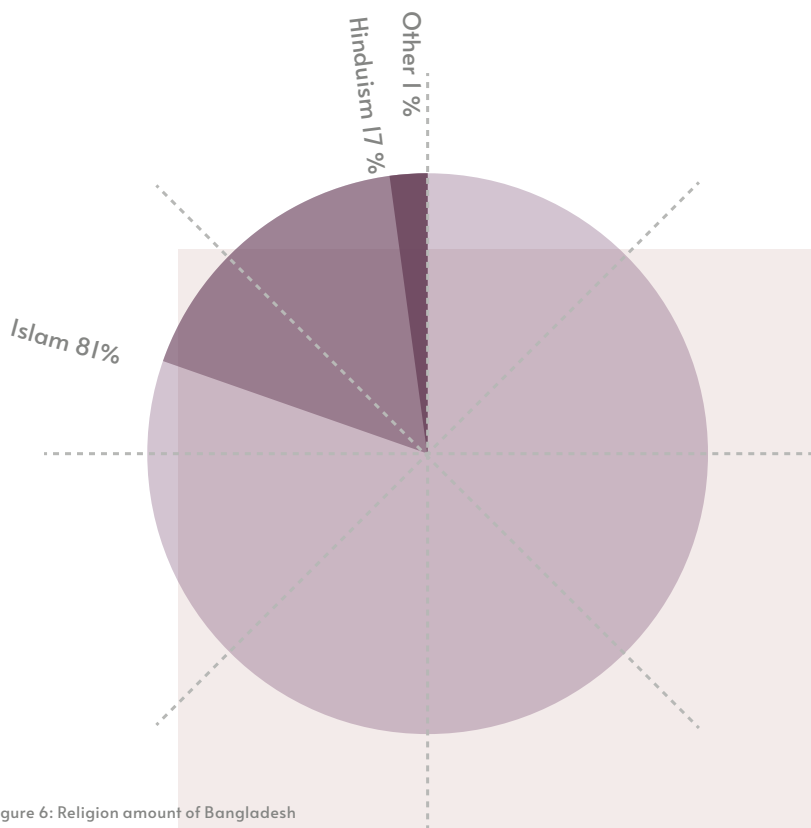


Figure 6: Religion amount of Bangladesh

restricts women's access to public spaces and their participation in the workforce. Women who adhere to purdah are less likely to engage in formal employment and more likely to work in informal sectors, which are seen as more compatible with societal expectations of modesty and seclusion (Lata et al., 2020). This restriction limits their economic opportunities and contributes to the gender gap in employment.

Despite these challenges, Bangladesh has made significant strides in women's empowerment. The government has implemented policies to promote gender equality, such as reserving seats for women in parliament

and local government and encouraging female education through scholarships and free schooling. These efforts have increased female participation in the workforce, particularly in the garment industry, which employs many women (Rahman, 2020).

While purdah remains a significant cultural practice, ongoing efforts are to balance traditional values with the need for women's economic and social empowerment in Bangladesh. Addressing the limitations imposed by purdah is essential for achieving greater gender equality and enhancing women's roles in both the public and private spheres.





The image features two women from the chest up, wearing traditional purdahs. The woman on the left is in an orange purdah with a white mesh eye opening. The woman on the right is in a white purdah with a similar mesh eye opening. They are set against a solid green background. The entire image is framed by a dashed white border.

Purdah is a cultural and religious practice involving the seclusion of women from public view, achieved through wearing concealing clothing and using physical barriers within the home. Predominantly observed in some Muslim communities, it includes both veiling and gender segregation. Purdah affects women's mobility, education, and participation in public life, often limiting their access to public spaces and formal employment.

Photo 4: Women and Purdah

# Women's patterns

Most women in Sylhet begin their day at dawn with a series of household chores. The first task is to prepare breakfast, which typically comprises rice, lentils, and vegetables. This is followed by cleaning the house, which includes sweeping, mopping, and organizing living spaces. They also ensure that children and other family members are ready for school or work, assisting with bathing, dressing, and packing meals.

As the morning progresses, women engage in various activities depending on their individual circumstances. In rural areas, many women participate in agricultural work, such as tending to fields, livestock, or home gardens. Sylhet's tea gardens employ numerous women who pluck and process tea leaves. Additionally, some women run small businesses from home, including tailoring, handicrafts, or selling homemade snacks, which provide supplemental income and a measure of financial independence (Akter & Ahmad, 2020). Market visits for fresh produce and household essentials are also a part of their routine.

Lunchtime is a busy period. It involves preparing and serving a substantial meal of rice, fish, meat, vegetables, and lentils. This can be time-consuming, requiring grinding spices and cooking various dishes.

In the afternoon, women continue with their responsibilities. They spend time with their children, helping with homework and supervising activities. Social visits to neighbors and relatives are common, fostering strong community bonds and emotional support networks. Women involved in crafts like weaving and

embroidery often use the afternoon hours to balance work and leisure.

Evenings are dedicated to preparing dinner, which involves routines similar to lunch. After dinner, women clean up, wash dishes, and tidy the kitchen. The later hours are often reserved for personal time, religious practices, or relaxation, such as watching television or conversing with family members. Planning for the next day's activities is also a common task during this time.

Community activities play a significant role in the lives of women in Sylhet. Participation in local cooperatives and self-help groups allows women to support each other economically and socially. These groups discuss common issues and seek collective solutions, covering topics like health, education, and women's rights, providing a platform for empowerment and advocacy. Cultural activities, including preparing for and celebrating local festivals, strengthen community bonds and preserve cultural heritage.

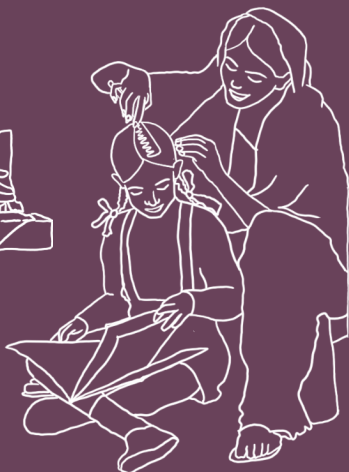
Despite their structured routines, women in Sylhet face numerous challenges. Balancing household duties with economic and social responsibilities can be overwhelming, and the demanding nature of their daily activities leaves little room for leisure or personal development. Limited access to resources like healthcare, education, and financial services further impacts their ability to improve their quality of life. However, women adapt by leveraging community support, participating in local cooperatives, and using technology to access information and services that enhance their lives.



Going to the market



Making textiles



Taking care of children



Cooking breakfast/lunch/dinner



Having a little shop themselves



Having a hobby



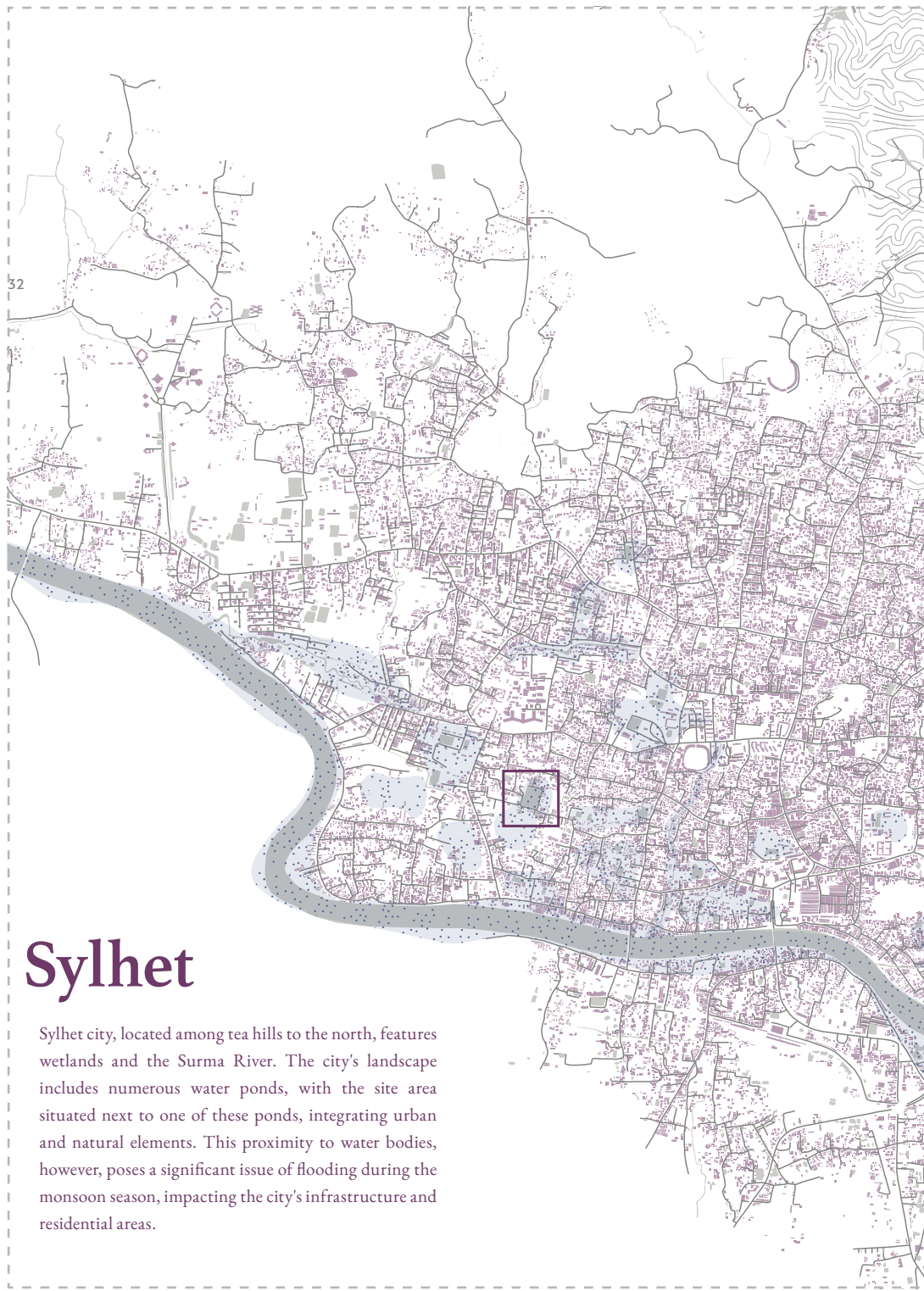
Doing the laundry

### III. Site

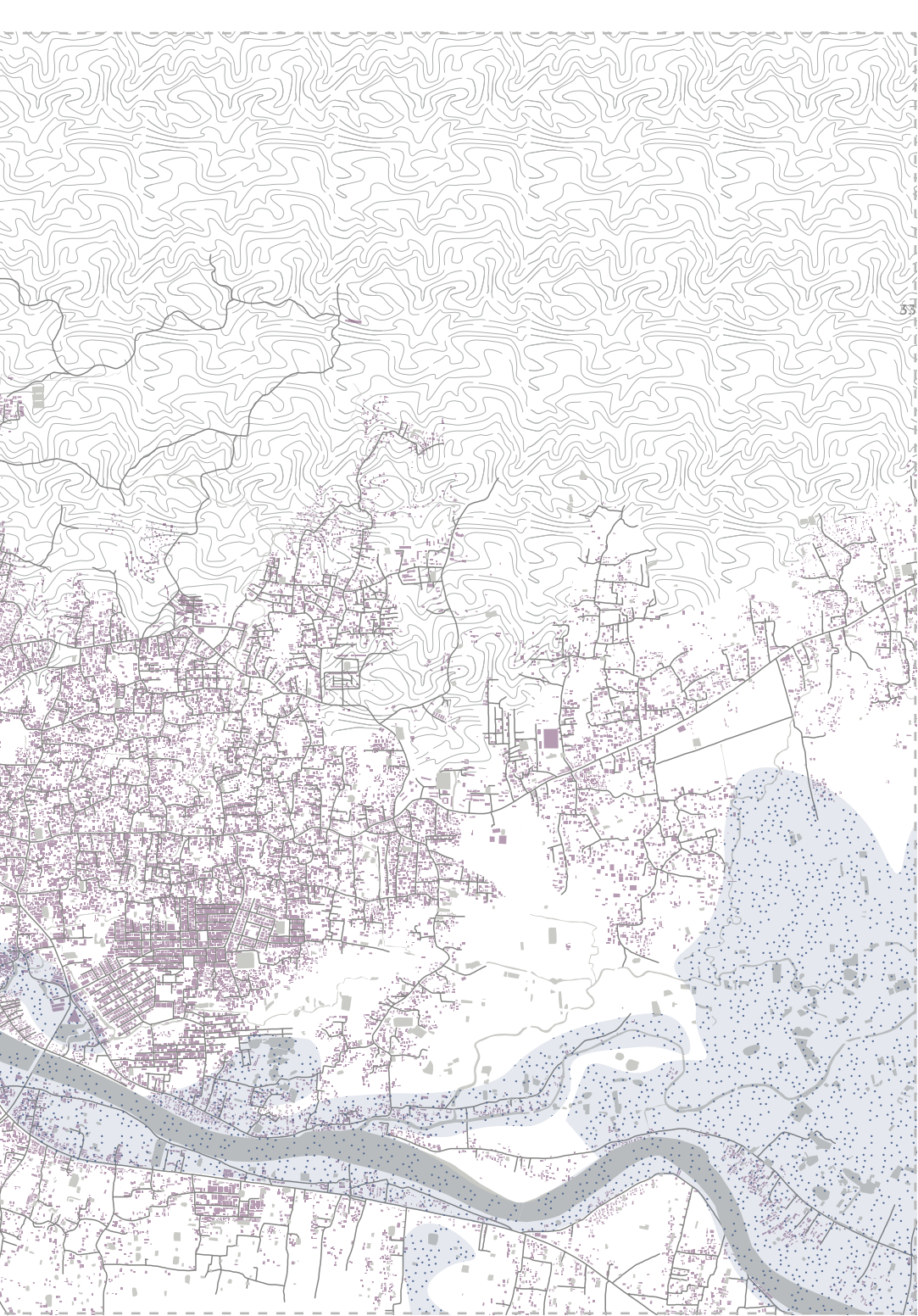


# Sylhet

Sylhet city, located among tea hills to the north, features wetlands and the Surma River. The city's landscape includes numerous water ponds, with the site area situated next to one of these ponds, integrating urban and natural elements. This proximity to water bodies, however, poses a significant issue of flooding during the monsoon season, impacting the city's infrastructure and residential areas.











# Laladighi pond

Laladighi pond in Sylhet is a vital resource for the local community, used for washing, fishing, and social interactions. Its significance is heightened during the monsoon season when surrounding land floods up to three feet, making the pond central to daily life.

The pond is more than just a utility; it serves as a community hub where people connect, share news, and reinforce social bonds. The residents' dependence on

Laladighi for various aspects of daily life underscores its role as an essential element of the local ecosystem. The use of the pond for fishing provides a source of food and livelihood for many, while its role in social interactions helps maintain the cultural fabric of the community.

Moreover, the pond's environmental significance cannot be overstated. It plays a crucial role in managing the area's water levels, especially during the monsoon



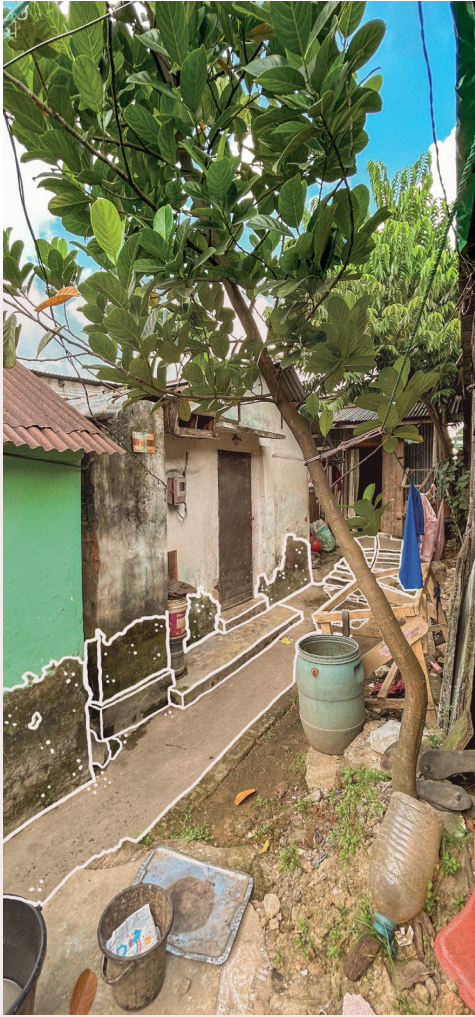


season, helping to mitigate the impact of flooding. The community's wish for a dedicated space next to the pond for gatherings indicates a desire to enhance the social utility of this natural resource further.









# Informal settlement

The informal settlement on the abandoned plot next to Laladighi pond in Sylhet is home to a predominantly Muslim community. Each family, consisting of 6-7 members, lives in cramped spaces of up to 30 m<sup>2</sup>. The settlement faces significant challenges, including broken infrastructure leading to holes in roofs and walls, and frequent flooding during the monsoon season. During our visit, we spoke with various residents who expressed deep concerns about the lack of public and

community spaces. They highlighted the severe impact of the monsoon floods, which disrupt daily life and limit mobility, making it difficult to keep their feet dry. Additionally, residents emphasized the need for dedicated spaces where they could open stores or small businesses, as this would significantly improve their economic situation. The community is vibrant and closely knit, but the inadequate infrastructure severely impacts their quality of life. Many residents work in local





hospitals or as cleaners, and children often play in open fields despite the lack of proper recreational areas. Trash accumulation and the scarcity of greenery are ongoing problems, further complicating living conditions.

Residents expressed a strong desire for a community space next to the pond, which would serve as a hub for social gatherings and economic activities. This space could facilitate small businesses and provide a

venue for communal events, enhancing both social cohesion and economic opportunities. Given the current maximum building height of six stories, there is potential for developing multi-functional spaces that can accommodate these needs.









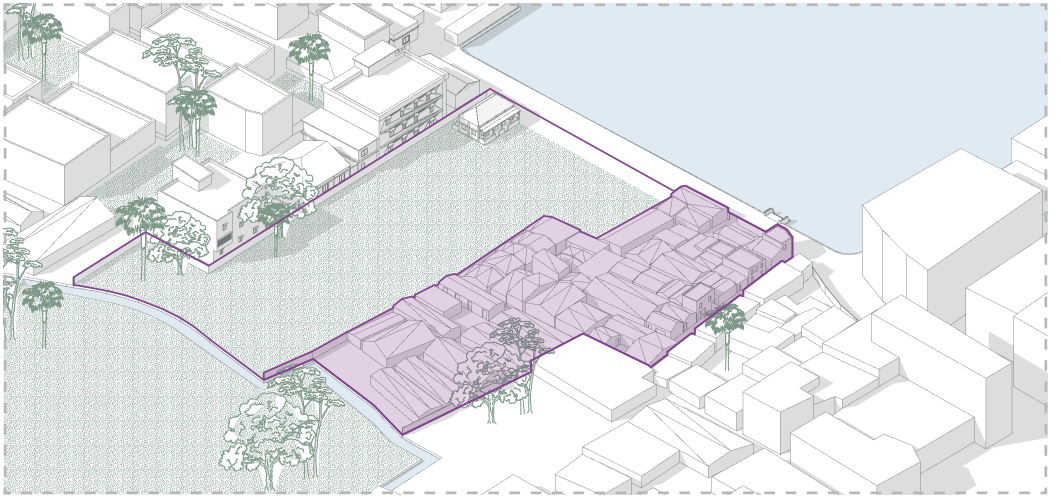
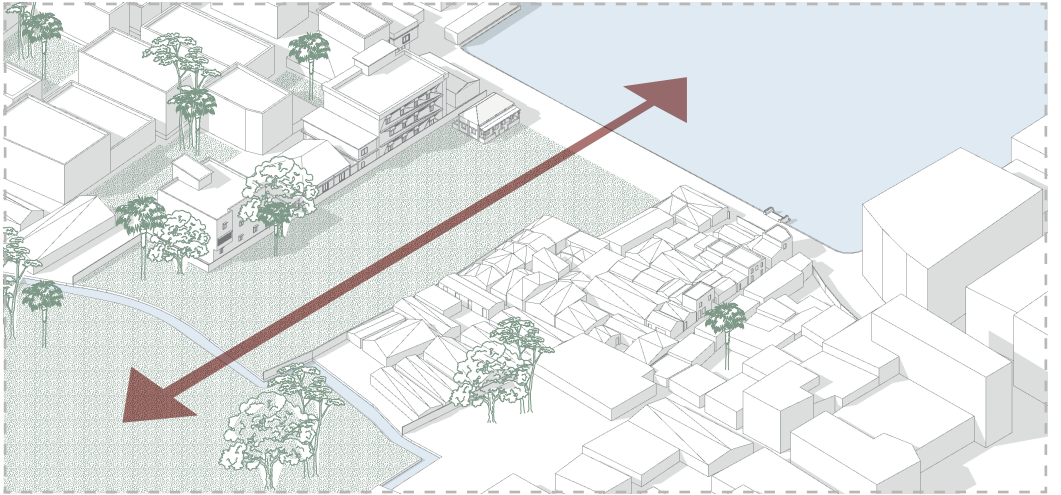
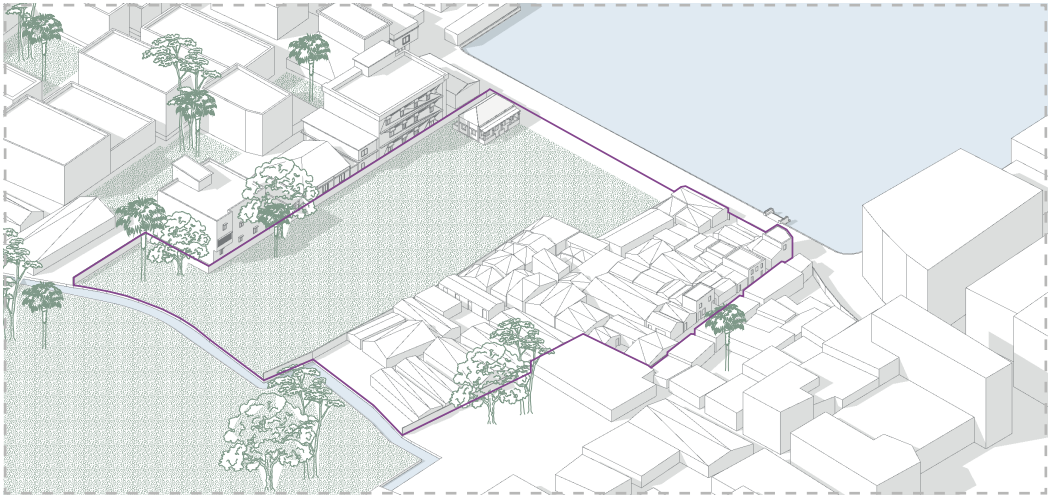
# Site analysis

The pond connects to a nearby cricket field, serving as a recreational hub where children often play. During the day, the site can feel very hot due to the lack of shading and greenery. The wind predominantly comes from the southeast, while a continuous road runs in front of the plot, impacting accessibility and safety.

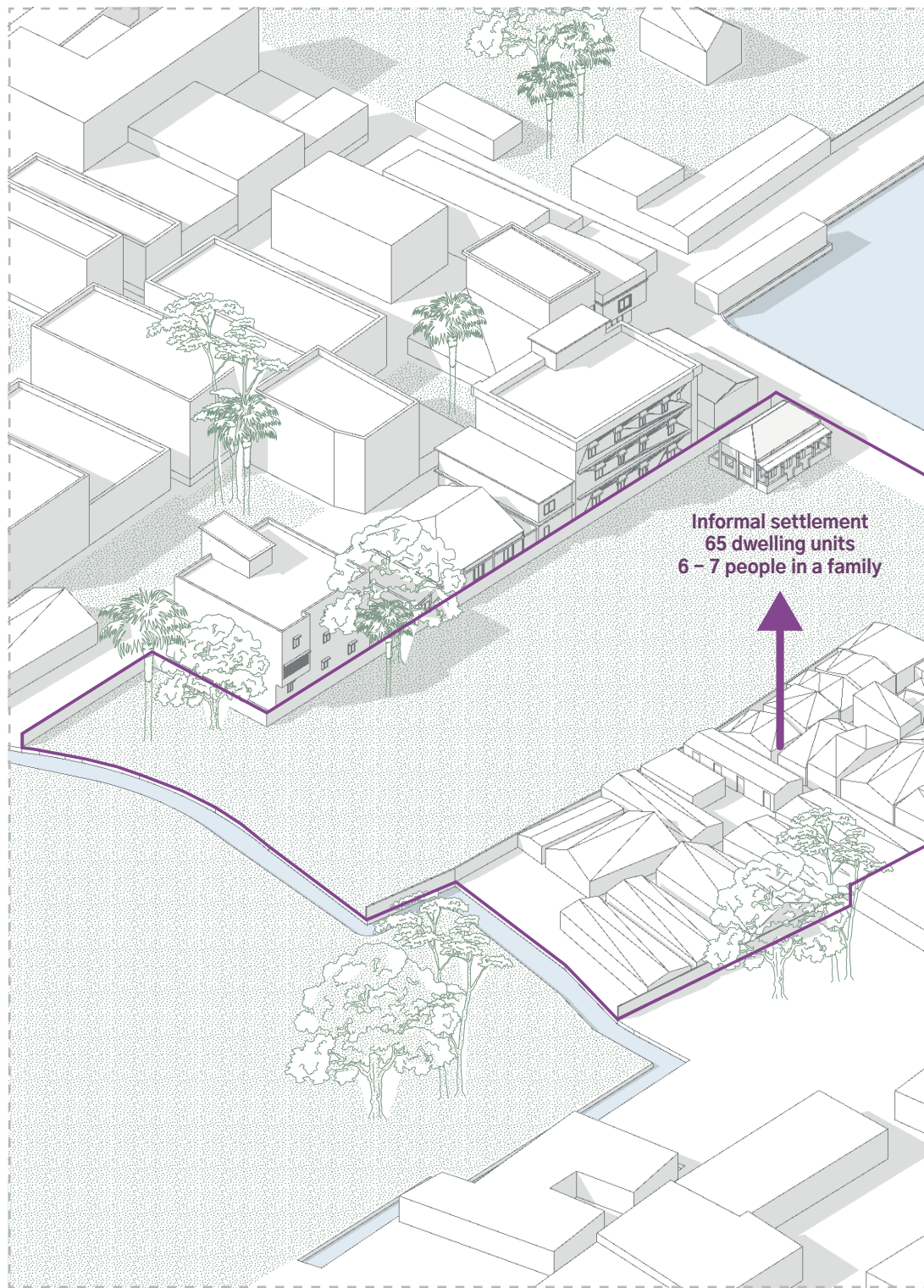
Currently, 65 families live on the 6040 m<sup>2</sup> plot in substandard housing. The site has a Ground Space Index (GSI) of 0.34 and a Floor Space Index (FSI) of 0.39.

The area includes a Bangla baton house, an original regional architectural typology.

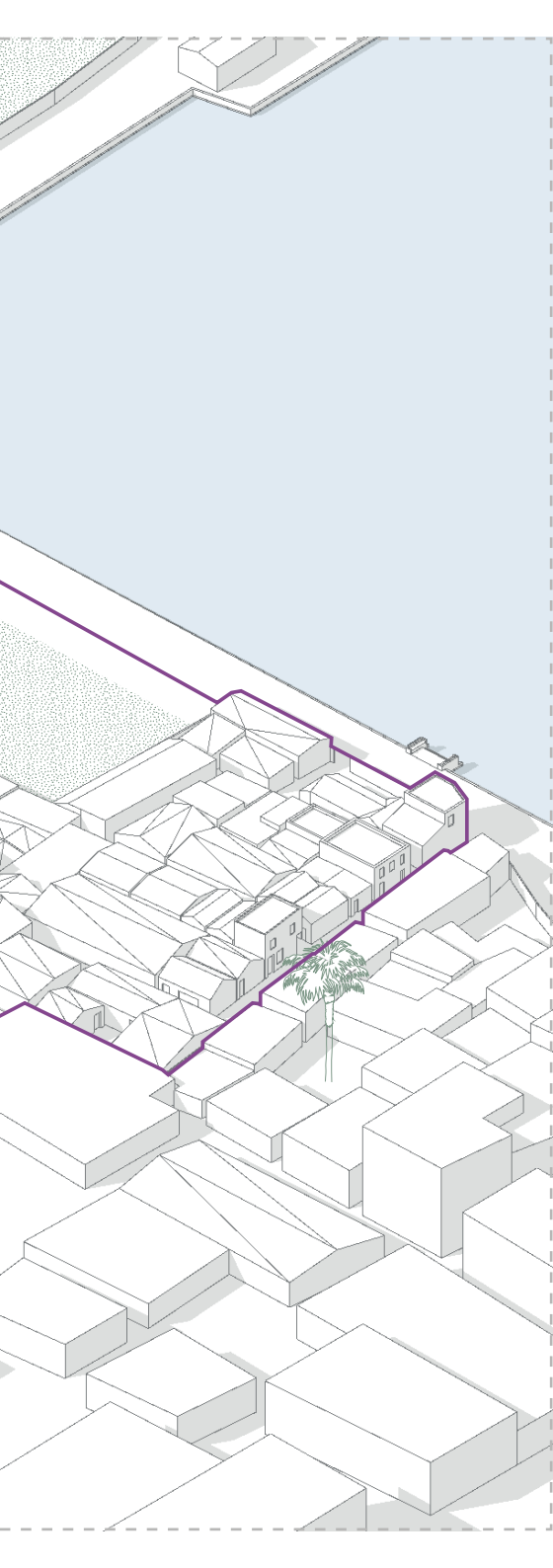
The residents face challenging living conditions, particularly due to the inadequate housing that results in issues like holes in roofs and walls. During the monsoon season, the area floods up to three feet, complicating daily life further. Despite these challenges, the community remains vibrant, using the pond and cricket field for social interactions and recreational activities.







**Informal settlement**  
65 dwelling units  
6 – 7 people in a family

**6040 m<sup>2</sup>**

3340 m<sup>2</sup> empty plot  
2700 m<sup>2</sup> informal settlement

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plot size

**0,34**

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GSI  
Ground Space Index

**0,39**

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FSI  
Floor Space Index

**107 d/ha**

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65 dwelling units

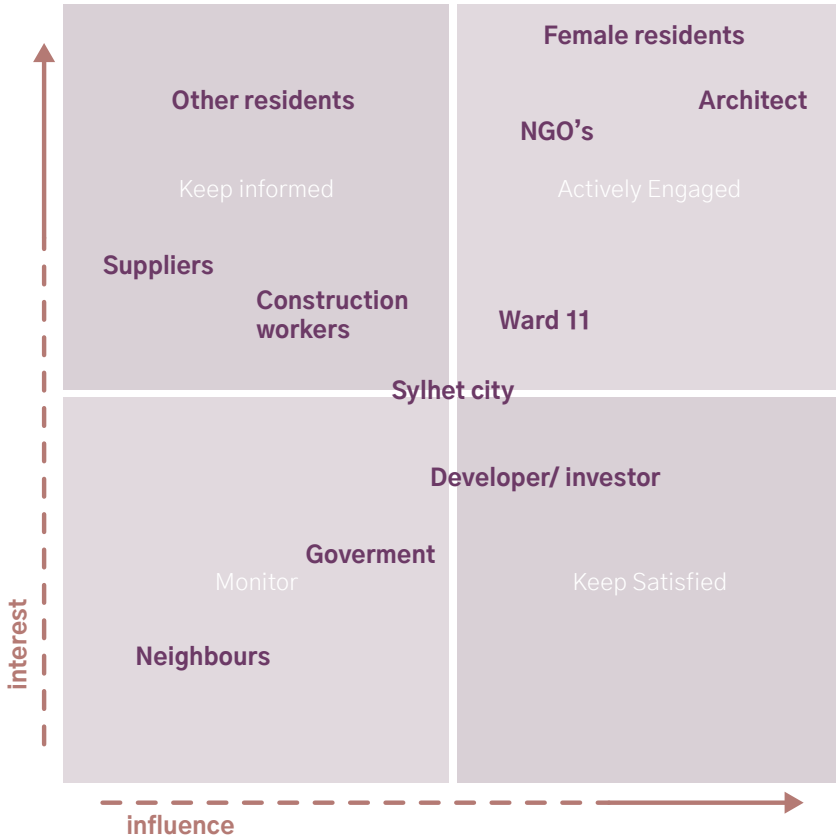
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Density  
Dwelling units per  
hectare



## **IV. Managerial strategy**





# Stakeholders

The vision of this project is to create a sustainable, affordable, and inclusive housing community that enhances the quality of life for its residents and integrates seamlessly with the surrounding neighborhood. The key objectives are to ensure the active participation of female residents in decision-making, utilize sustainable construction practices, foster collaboration among all stakeholders, achieve regulatory compliance and support from the government, and enhance the socio-economic environment of the neighborhood. For stakeholder engagement, the internal stakeholders include the

architect, NGO, female residents, developers, suppliers, and construction workers. The architect will lead the design process with community input, focusing on sustainable and culturally appropriate designs. The NGO will act as a mediator and facilitator, ensuring that the needs and voices of the residents, especially female residents, are heard and integrated into the project. Female residents will be empowered through participatory planning workshops, ensuring their needs and preferences shape the housing design and community amenities. Developers will work closely with

the architect and NGO to ensure the project remains feasible, within budget, and on schedule. Suppliers will source sustainable and local materials to reduce costs and support the local economy. Construction workers will be provided fair wages, safe working conditions, and opportunities for skill development.

To further support the female residents and their communities, NGOs such as SPARC India, WIEGO, and Co.Creation - POCAA will be engaged. SPARC India specializes in providing resources and support for community-driven urban development projects, ensuring that residents have the tools and knowledge to actively participate in shaping their environment. WIEGO (Women in Informal Employment: Globalizing and Organizing) focuses on empowering women working in the informal economy, helping them gain better livelihoods and working conditions through advocacy, research, and practical support.

Co.Creation - POCAA offers collaborative design and planning assistance, fostering an inclusive approach that integrates the residents' perspectives into the project design.

External stakeholders include the neighborhood, government, and Sylhet City. Engagement with the neighborhood will occur through regular community meetings to address concerns and build support. This proactive communication will ensure that the project aligns with the local community's needs and aspirations. Collaboration with the government will ensure compliance with regulations, secure necessary permits, and gain support for infrastructure improvements. Aligning the project with Sylhet City's development plans will help secure partnerships for larger urban improvement initiatives, enhancing the project's impact and sustainability.

Stakeholders

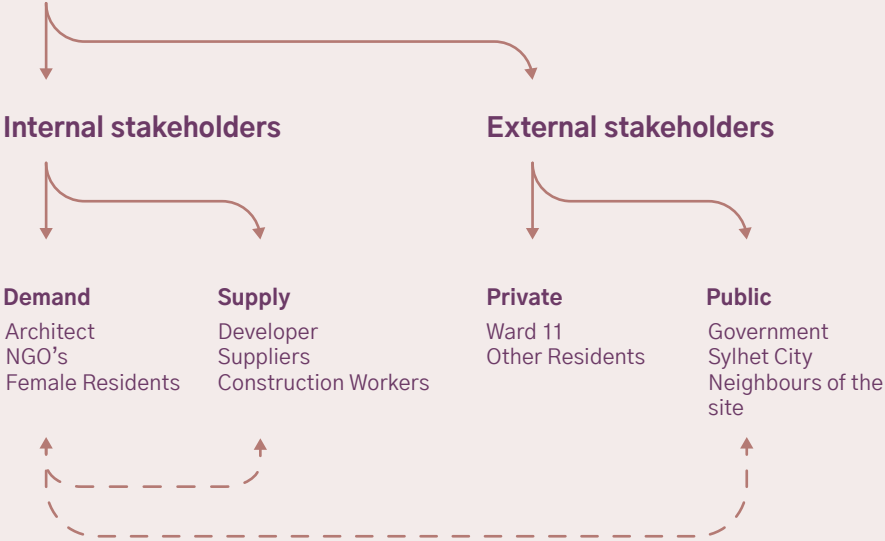




Photo 5: Tanguar Hoar, Sunamganj, Bangladesh – Moazzem Mustakim, 2018





Photo 6: Home based workers



Photo 7: Community led project management

## Women's developers organisation

Analysis of several initiatives shows that involving women in designing their homes leads to more practical, culturally relevant, and sustainable housing solutions. The SPARC Mahila Milan initiative in Mumbai shows that women from informal settlements can significantly improve their housing conditions through direct involvement and collaboration. Their community-oriented approach, such as sharing toilets to save space and costs, proves that practical and collective thinking can lead to more efficient solutions.

WIEGO emphasizes the importance of informal workers, including women, participating in policymaking. This leads to better understanding and addressing their

unique needs, resulting in improved infrastructure, greater access to services, and better economic opportunities for home-based women. WIEGO's advocacy for inclusive urban planning underscores the importance of including these groups in policymaking.

The collaboration between Co.Creation Architects and the Platform for Community Action and Architecture demonstrates how participatory design processes empower communities to shape their living spaces. Workshops and training allow residents to express their needs and preferences, creating designs that better reflect their cultural and social context. This process fosters ownership and responsibility within the community.

# SPARC India

## Mahila Milan

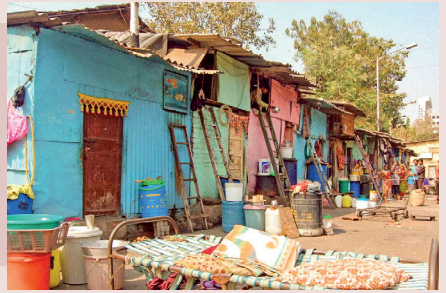
The SPARC (Society for the Promotion of Area Resource Centres) Mahila Milan initiative in Mumbai showcases a successful example of community-driven urban development. Mumbai's informal settlements house many families in precarious conditions. SPARC, established in 1984, addresses these housing needs. Mahila Milan, a network of women's collectives, emerged from SPARC's efforts, aiming to secure stable housing through community mobilization.

Motivated by the need for better living conditions, 536 women of families of pavement-dwellers in Mumbai formed Mahila Milan. They organized and strategized to engage government authorities and advocate for land allocation. Persistent advocacy and negotiations led to the successful allocation of land by the government. The women's active participation and presentation as contributors to urban development were key to this achievement. The women designed their homes using familiar measurements from everyday items like floor mats and saris. Architects helped translate these grassroots designs into viable building plans.

A popular loft-like design, with a height of 4,5 meters, accommodated larger families and facilitated home-based work. The community chose to share toilets to save space and reduce costs, reflecting a practical and collective mindset. Mahila Milan members actively participated in the construction, ensuring homes met community standards. This hands-on involvement empowered the women and provided them with valuable skills.

The initiative demonstrates that marginalized communities can effectively advocate for their rights and contribute to city planning. It highlights the importance of community-led design in creating practical, culturally relevant, and sustainable housing solutions. SPARC Mahila Milan illustrates how collective action and innovative thinking can transform lives. By securing land and building homes, the women improved their living conditions and set a precedent for community-led housing solutions, offering valuable lessons for policymakers and urban planners.

Bringin together groups of women  
from urban poor communities



Offering educational sessions  
and training programs

Advocate for their rights and  
negotiate with government officials  
to secure land for housing projects



Identify and acquire suitable  
land for housing projects



Empower these women to design  
and construct their own homes

Understanding of housing  
conditions' impact on productivity

Advocating for policies  
recognizing. Housing as a  
productive asset

Empowering home-based workers  
with training programs

Partnering with stakeholders to  
implement housing projects

Monitoring and evaluating



# WIEGO

Women in Informal Employment: Globalizing and Organizing (WIEGO) is a global network advocating for the rights of urban informal workers, emphasizing their recognition as legitimate economic contributors. These workers often face challenges due to stigmatizing narratives labeling them as illegal and unproductive, which are reflected in harsh city policies and practices.

WIEGO stresses the importance of a participatory process where workers' organizations are involved in policymaking, ensuring their needs and perspectives are considered. Key needs identified by WIEGO include access to public space, services, basic infrastructure, and opportunities to compete in public procurement bids.

WIEGO advocates for urban policies recognizing homes as workplaces and integrating informal economic activities into local development plans. This involves extending tenure security, improving infrastructure in informal settlements, and ensuring transport services connect workers to markets and workplaces.

WIEGO's successful advocacy includes initiatives by the Self-Employed Women's Association (SEWA) in Ahmedabad, India, which have significantly increased the incomes of home-based workers. Regional conferences and declarations, such as the Asian Cities Declaration and the Delhi Declaration, highlight the importance of supporting home-based workers as vital economic actors.

Overall, WIEGO's work underscores the need for inclusive urban planning that supports informal workers. By considering the needs of home-based workers in economic development plans and decision-making processes, cities can enhance their productivity and livelihoods, contributing to more equitable and sustainable urban development.

# Co.Creation \ POCAA

Co.Creation Architects (Co.Creation) and the Platform for Community Action and Architecture (POCAA) collaborate to support community-driven development in underserved areas, empowering local communities through participatory design and planning.

They conduct workshops where community members actively design their living spaces and public amenities, ensuring outcomes align with the community's vision. They provide technical knowledge in architectural design, construction methods, and sustainable practices, building local capacity for independent project maintenance and advancement.

Co.Creation and POCAA also mobilize local resources and volunteers, fostering a sense of ownership among community members. They organize community meetings, develop local leadership, and create supportive networks. Additionally, they advocate for community-led development at various levels to influence policy and planning practices to be more inclusive.

Their projects often transform neglected spaces into vibrant community hubs, including public parks, pedestrian pathways, community centers, and housing projects. Emphasizing environmentally friendly and culturally appropriate design, they enhance residents' quality of life and ensure the built environment's resilience.

Community mapping is crucial, converting community information into visual representations for better understanding and communication between professionals and residents. This process helps in discussing settlement-building rules, human needs, and other issues with organizations. Residents divide their community into sections for problem-solving and planning, co-designing sustainable homes that fit the community's environment, culture, and lifestyle.

Community engagement, through mapping and planning



Collective planning



Co-designing (housing and settlement)

Sourcing/ procuring appropriate construction material

Cost estimation and construction

# Development site

The site currently contains 65 households. To facilitate the development, the existing residents will be relocated by the developer to a temporary place within Sylhet City. This relocation will impose a time-limit on the developer to complete the project. While the development is underway, female residents will be divided into groups to form a cohesive community. These groups will be educated about the design process and trained on how to maintain the community, including setting up and running their own enterprises. This will empower them to take an active role in the project's success and ensure the long-term sustainability of the community.

Participatory planning and design will be central to the project. Community workshops involving female residents, neighborhood representatives, and other stakeholders will be conducted regularly to gather input and feedback. Collaborative design sessions, or design charrettes, will allow the architect, residents, and other stakeholders to work together to refine housing plans. Building several prototype units based on initial designs will help test and gather feedback before full-scale

construction begins. This iterative process will ensure that the final designs meet the needs of the residents and are practical and feasible.

Sustainable practices will be prioritized throughout the project. Locally sourced, sustainable materials will be used to minimize environmental impact and support the local economy. Renewable energy sources, such as solar panels, rainwater harvesting, and energy-efficient appliances, will be incorporated to enhance energy efficiency. Robust waste management systems, including recycling and composting programs, will be implemented to manage waste effectively. These practices will ensure that the project is environmentally responsible and sustainable in the long term.

Capacity building will be another focus area. Training programs for female residents in financial literacy, home maintenance, and small business development will be offered. These programs will empower residents to manage their finances, maintain their homes, and develop small businesses, contributing to the economic



**Architect**

## 65 houses

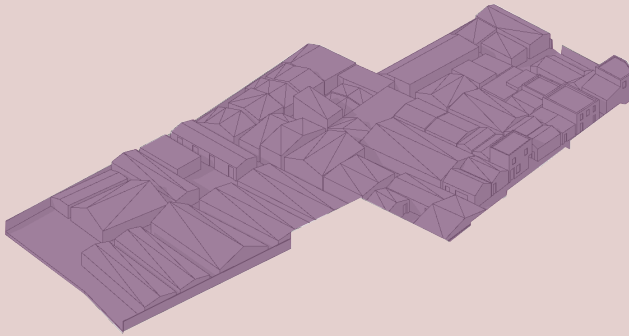
= 65 families = 65 women

---

**Developer**

temporary relocate  
to other place  
in the city

59



+ middle income

+ high income

+ commercial spaces

Architect

65 houses

= 65 families = 65 women

SPARC India

Co.Creation  
POCAA

group 1  
= 16 women

group 2  
= 16 women

group 3  
= 16 women

group 4  
= 16 women

design process

76 new dwellings

cluster 1  
= 16 women

cluster 2  
= 16 women

cluster 3  
= 16 women

cluster 4  
= 16 women

economical advantages

76 new dwellings + workspaces

WIEGO

sustainability of the community. Construction workers will be provided with opportunities to learn new skills and improve existing ones, enhancing their long-term employability and contributing to the success of the project.

Financial management will be transparent and accountable. A detailed budget will be developed with input from all stakeholders, and funding will be sought from a mix of sources, including government grants, NGO funds, and micro-financing options for residents. Regularly reviewing expenditures against the budget will help avoid cost overruns and ensure financial sustainability. This transparent approach will build trust among stakeholders and ensure that the project remains on track financially.

Monitoring and evaluation will establish key performance indicators (KPIs) to measure progress toward project objectives, including resident satisfaction, construction quality, and financial performance. Monthly progress reviews with all stakeholders will help address issues promptly and adjust plans as needed. Ongoing feedback systems from residents and other stakeholders will be implemented to continuously improve the project. This iterative approach will ensure that the project remains responsive to the needs of the residents and adapts to changing circumstances.

Finally, advocacy and policy engagement will be crucial. Developing a strong relationship with local and national government bodies will help advocate for supportive policies and funding. Public awareness campaigns will highlight the project's benefits, garner public support, and attract potential investors or donors. By raising awareness and building support, the project can secure the resources and backing needed for its success.

## V. Concept











Clustering communities



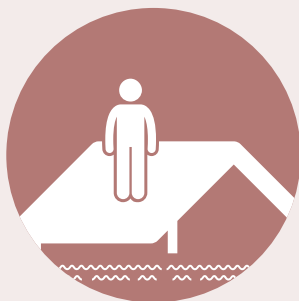
Mixed income

# Design principles





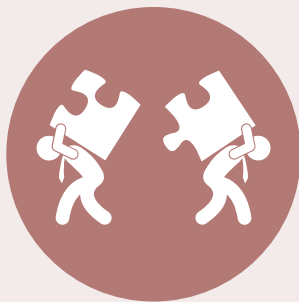
Provide income generating opportunities



Flood resilience



Provide more shared public spaces



Adaptability

# Concept

Imagine a neighborhood where the architecture itself invites community and connection. Picture low-rise building blocks thoughtfully designed to balance sufficient density with open, communal spaces. These spaces are more than just courtyards; they are secure havens where women can comfortably and openly engage in their daily activities.

As an architect, my role is to lay the groundwork, literally and figuratively. I provide the essential sanitary elements and a robust structural framework. This foundation ensures safety, hygiene, and stability, setting the stage for the residents to truly make the space their own.

The magic happens when the residents step in. They have the freedom to personalize and fill in the spaces between the buildings. This isn't just about decorating; it's about fostering a deep sense of ownership and community involvement. Each resident's contribution adds a unique touch, transforming the neighborhood into a vibrant tapestry of individual stories and collective harmony.

In this way, the architecture doesn't just create buildings; it builds a community, weaving together safety, functionality, and personal expression into a living, breathing neighborhood.





Photo 8: Geneva Camp Dhaka



Photo 9: The Generic House - Previ

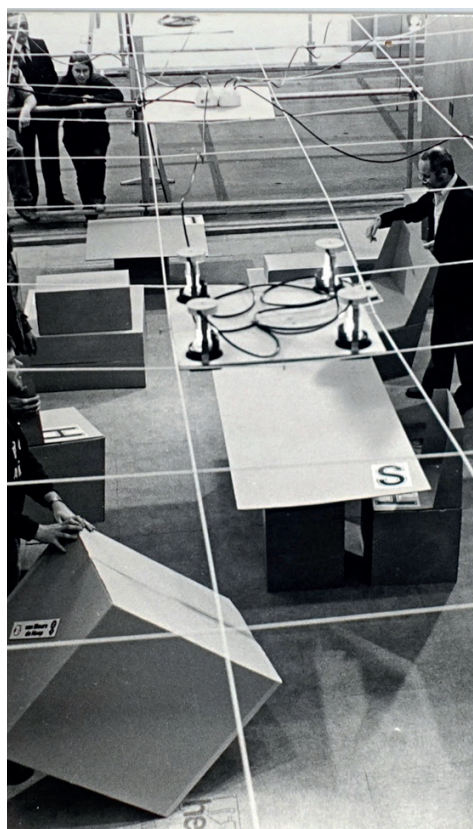


Photo 10: Research to de Dragers - John Habraken

71

## Case studies

Analysis of several initiatives shows that involving women in designing their homes leads to more practical, culturally relevant, and sustainable housing solutions. The SPARC Mahila Milan initiative in Mumbai shows that women from informal settlements can significantly improve their housing conditions through direct involvement and collaboration. Their community-oriented approach, such as sharing toilets to save space and costs, proves that practical and collective thinking can lead to more efficient solutions.

WIEGO emphasizes the importance of informal workers, including women, participating in policymaking. This leads to better understanding and addressing their

unique needs, resulting in improved infrastructure, greater access to services, and better economic opportunities for home-based women. WIEGO's advocacy for inclusive urban planning underscores the importance of including these groups in policymaking.

The collaboration between Co.Creation Architects and the Platform for Community Action and Architecture demonstrates how participatory design processes empower communities to shape their living spaces. Workshops and training allow residents to express their needs and preferences, creating designs that better reflect their cultural and social context. This process fosters ownership and responsibility within the community.





# Geneva Camp Dhaka

Geneva Camp, located in Dhaka, Bangladesh, is home to a community of Biharis, often referred to as "stranded Pakistanis." These individuals moved to what was then East Pakistan (now Bangladesh) around the 1947 partition of India. Following the 1971 Bangladesh Liberation War, they were left stateless. Established in 1971, Geneva Camp is one of the largest Bihari camps in Dhaka (Sohel et al., 2023).

The camp is densely populated, with limited space for its residents. This results in a tightly packed environment where buildings and shelters are very close to each other, often sharing walls. The structures are typically single—or two-story buildings made from brick, concrete, and corrugated metal. The limited space leads to vertical expansion where possible, though this is constrained by resources and safety concerns. Houses in Geneva Camp are makeshift and have evolved over time, with many homes starting as temporary shelters but gradually converting into more permanent structures.

Public spaces within the camp are minimal, with narrow alleyways serving as communal areas for social interaction, trade, and daily activities. Essential services like water supply, sanitation, and electricity are often

inadequate, with residents relying on overstretched and under-maintained communal facilities.

The architecture of Geneva Camp shows significant improvisation. Residents modify their homes to optimize space, improve living conditions, and adapt to seasonal changes. Rooftops are common, serving as additional living space, drying areas for clothes, and even small gardens.

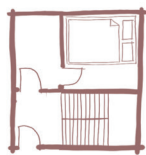
Economic limitations significantly impact architectural development. Most residents have low incomes, restricting their ability to invest in substantial improvements to their homes. Many structures are built incrementally, with families adding rooms or reinforcing structures as and when they can afford it.

Geneva Camp's architecture is a testament to the resilience and adaptability of its residents. It reflects a complex interplay of cultural heritage, economic constraints, and the quest for stability and identity. While the camp faces significant challenges, ongoing efforts to improve infrastructure and legal recognition offer hope for a better future for its residents.



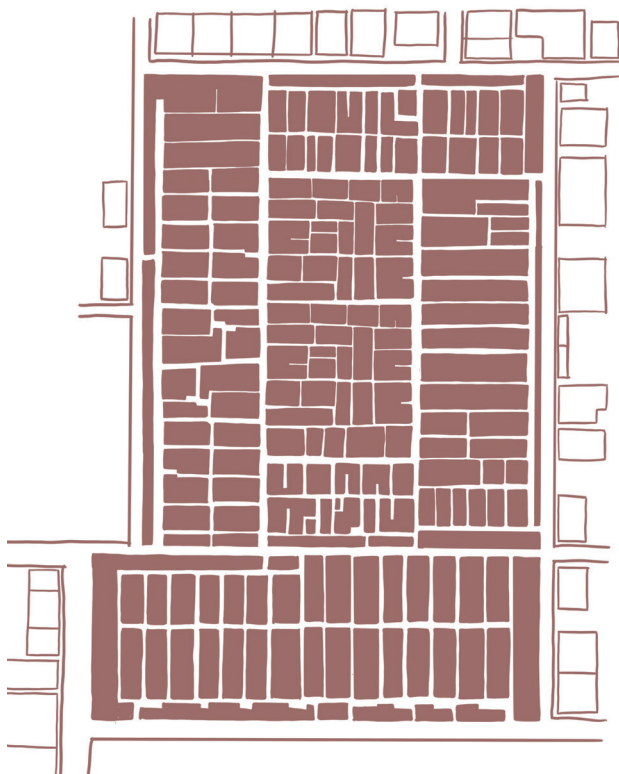
Size 2440 x 2440  
4 persons

Size 2440 x 3048  
6-8 persons

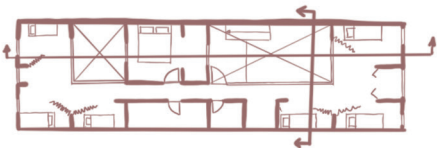


Size 2440 x 3048  
2 - 4 stories  
15 - 30 persons

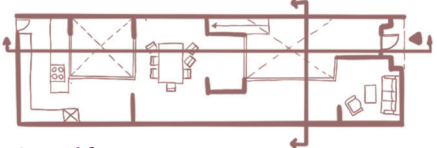
Size 3048 x 36576-  
2 - 4 stories  
15 - 30 persons



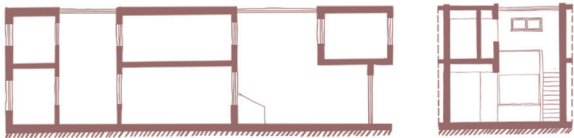
Geneva camp urban plan



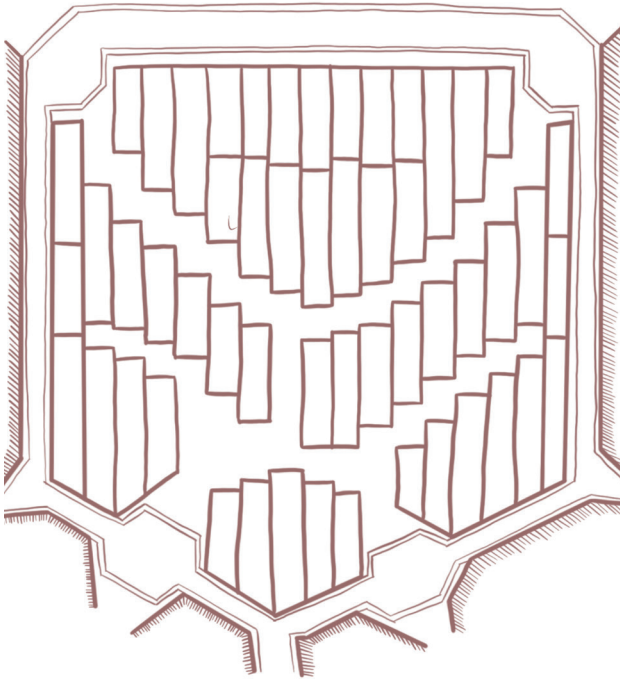
First floor



Ground floor



Section



The generic house urban plan

# The Generic House

## Christopher Alexander

The PREVI (Proyecto Experimental de Vivienda) project, initiated in late 1960s Lima, Peru, aimed to address urban housing needs with innovative solutions. Prominent international architects, including Christopher Alexander, designed prototype houses. Alexander's Generic House reflected his philosophy of user-centered design, adaptability, and creating environments that feel "alive" and responsive to human needs.

In his book "A Pattern Language," he writes about three principles:

1. Pattern-based design means using recurring patterns that can be adapted and replicated to create harmonious and functional living spaces.
2. User Adaptability: Allowing future residents to modify and personalize their homes to suit their changing needs.
3. Incremental Growth: designing homes that can be expanded or altered incrementally as the family grows or needs change.

The Generic House is characterized by a modular and flexible layout. The primary structure comprises simple, repetitive units that can be easily reconfigured. This modular approach supports incremental growth and personalization, aligning with Alexander's belief in adaptable living spaces. Alexander emphasized using locally available materials and construction

techniques that were straightforward and cost-effective. The construction system was designed to be easily understood and implemented by local builders, promoting community involvement and self-sufficiency. The Generic House features a clear spatial hierarchy, with distinct areas for social interaction, private activities, and utility functions. This organization enhances the functionality and livability of the home, creating a balance between open communal spaces and more secluded private areas. Alexander's design integrates the house with its surrounding environment. Courtyards, gardens, and transitional spaces like verandas blur the boundaries between indoor and outdoor living, fostering a connection with nature and the community.

The Generic House was designed not as an isolated unit but as part of a larger community. Alexander envisioned neighborhoods where individual homes collectively form a cohesive and supportive environment. This reflects his broader vision of architecture to enhance community life and social interaction.

Christopher Alexander's Generic House for the PREVI project is a seminal work that embodies his architectural philosophy. It emphasizes modularity, adaptability, and community integration, offering a timeless approach to designing homes that evolve with their occupants' needs. This project showcases how thoughtful design can contribute to sustainable and livable urban environments.

# De Dragers

## John Habraken

John Habraken, a Dutch architect and theorist, is known for his participatory and adaptable housing ideas. His 1960s concept of "De Dragers" underpins his theory of Supports and Infills, advocating for a separation between a building's structural framework (supports) and customizable dwelling units (infills). This flexible housing framework empowers residents to control their living spaces, promoting a democratic, user-centered design process over traditional top-down architectural practices.

The supports refer to the structural elements of the building, such as the load-bearing framework, shared services, and communal spaces. These components are designed to be durable and long-lasting, providing a stable foundation for the housing complex.

Key characteristics of the supports include a structural grid and a modular framework defining the building's spatial organization and structural integrity. Shared infrastructure involves centralized systems for water, electricity, and other utilities that serve the entire complex. Communal areas are designated spaces for community activities, social interaction, and shared amenities.

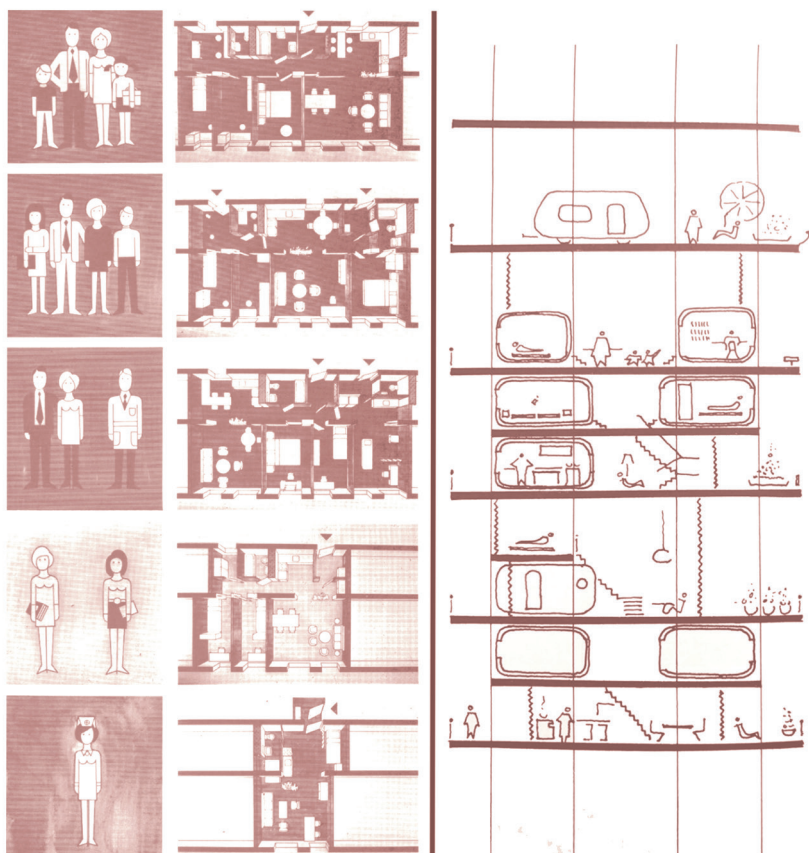
The infills are the customizable parts of the dwelling units that residents can modify according to their needs

and preferences. This flexibility allows for diverse living arrangements and fosters a sense of ownership among inhabitants (Kendall & Dale, 2023). Features of the infills include modularity, where units are designed to allow for easy reconfiguration, expansion, or contraction. Personalization allows residents to choose materials, layouts, and finishes, tailoring their living spaces to their lifestyles. Incremental development means units can be built or altered over time, accommodating changing family needs and economic circumstances (Kendall & Dale, 2023).

The spatial organization within De Dragers balances private and communal spaces. Each dwelling unit is connected to shared corridors and common areas, promoting interaction among residents while maintaining privacy. The flexibility in the infill design ensures that the spatial configuration can adapt to various household sizes and compositions.

The separation of supports and infills contributes to the housing complex's sustainability and resilience. The robust structural framework ensures longevity, while the adaptable infills allow continuous upgrades and improvements without significant structural changes. This adaptability makes the housing complex more resilient to social and economic shifts (Kendall & Dale, 2023).





John Habraken, De Draggers "a house for every family"



# Conclusion

The architectural concepts behind Geneva Camp, Christopher Alexander's PREVI project, and John Habraken's De Dragers share several core principles, emphasizing adaptability, user participation, and community integration. These projects reflect a commitment to creating living environments that respond dynamically to their inhabitants' needs.

Geneva Camp in Dhaka exemplifies an architecture of resilience and improvisation. Established post-1971, it houses a densely populated community in makeshift structures that evolve incrementally over time. The camp's layout is characterized by close-packed buildings with minimal public spaces, where residents frequently modify their homes to optimize limited space and resources. Despite economic constraints, the community adapts through continuous, small-scale improvements, fostering a sense of identity and ownership.

Christopher Alexander's Generic House, part of the PREVI project in Lima, also underscores flexibility and

user-centered design. Alexander's approach involves a modular and adaptable housing framework where primary structures support incremental growth and personalization. His design philosophy integrates local materials and straightforward construction techniques, encouraging community involvement and self-sufficiency. The spatial organization balances private and communal spaces, blending indoor and outdoor living to enhance functionality and social interaction.

Similarly, John Habraken's De Dragers separates structural frameworks (supports) and customizable dwelling units (infills). This concept empowers residents to modify their living spaces according to personal needs and preferences, promoting a democratic, participatory design process. The supports provide a durable and stable foundation, while the infills offer flexibility for reconfiguration, expansion, and personalization. This approach fosters a strong sense of community and belonging, emphasizing sustainability and resilience.

## **VI. Design**





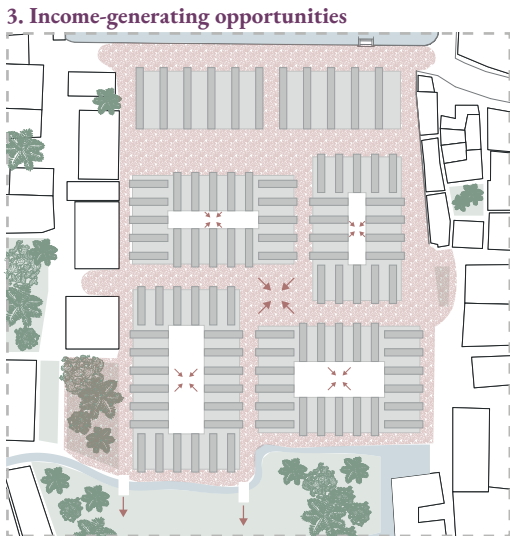
# Urban strategy



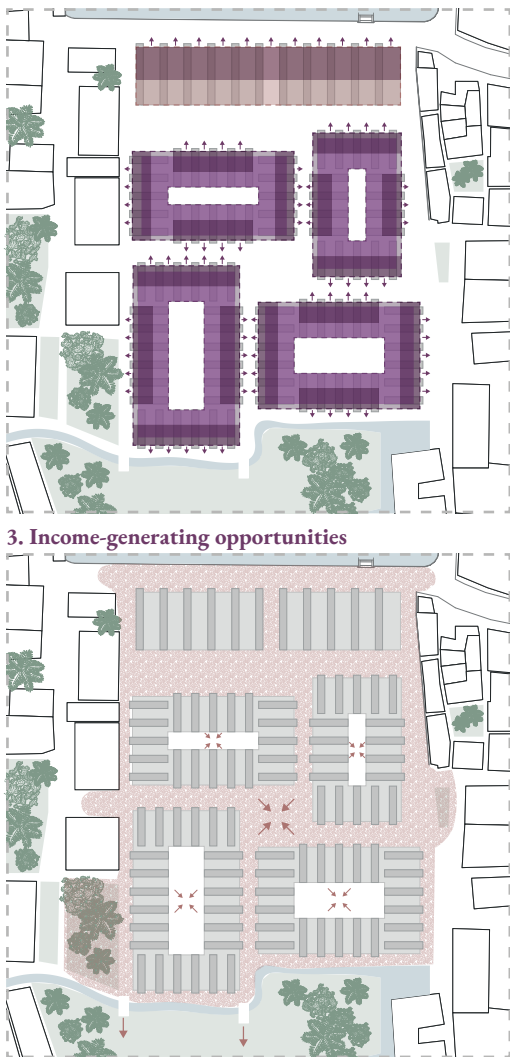
1. Clustering communities



2. Mixing income levels



3. Income-generating opportunities



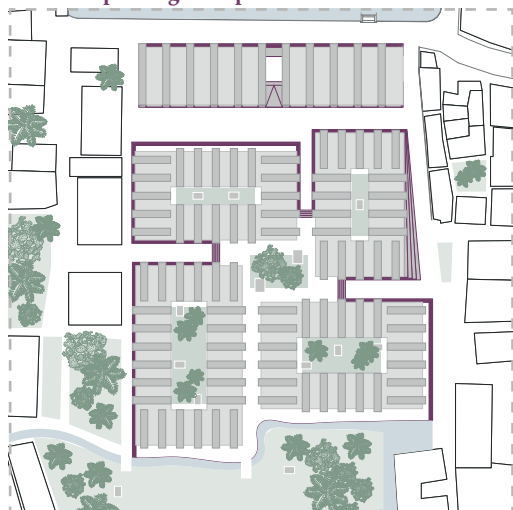
4. Shared public spaces



5. Shared public green spaces



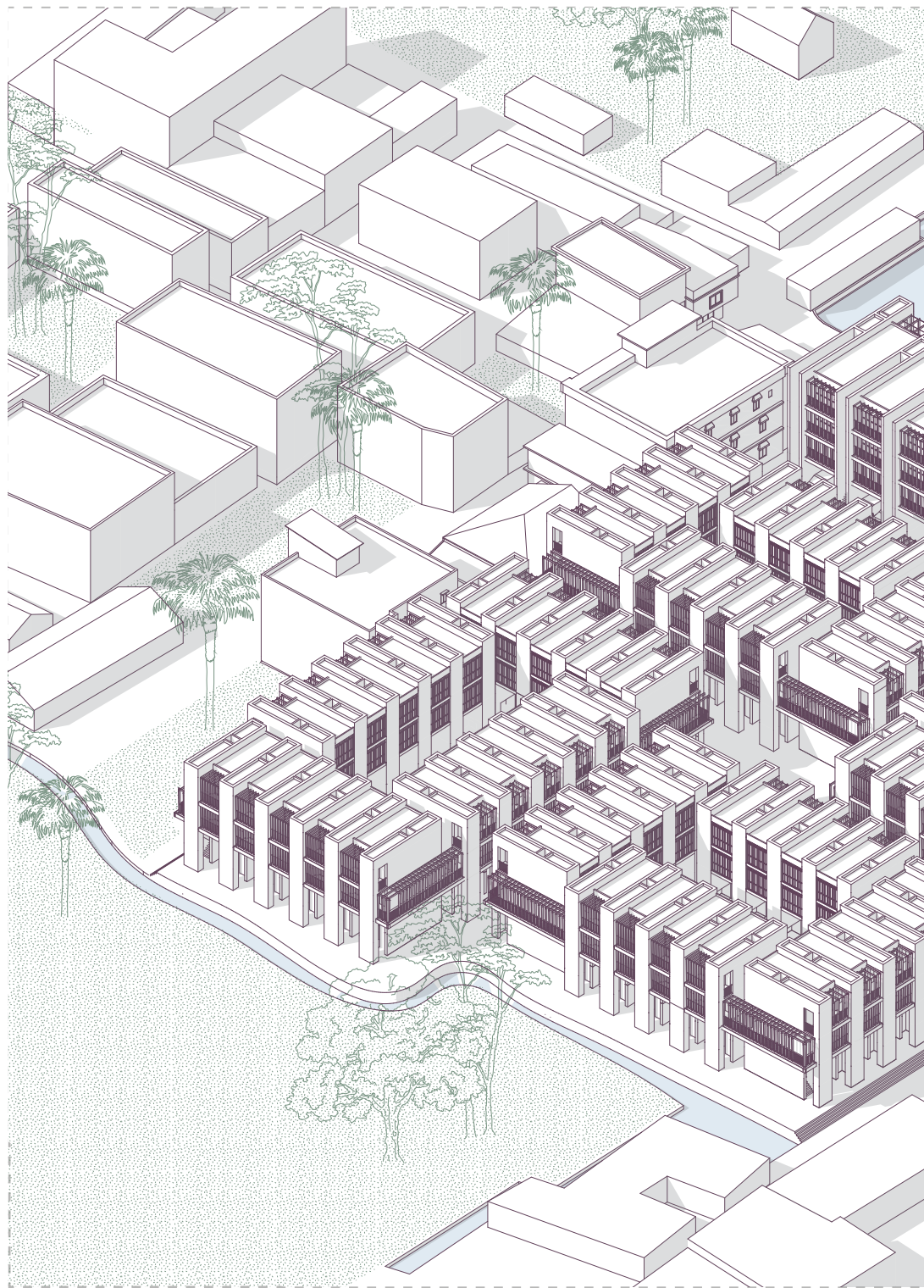
7. Adaptability

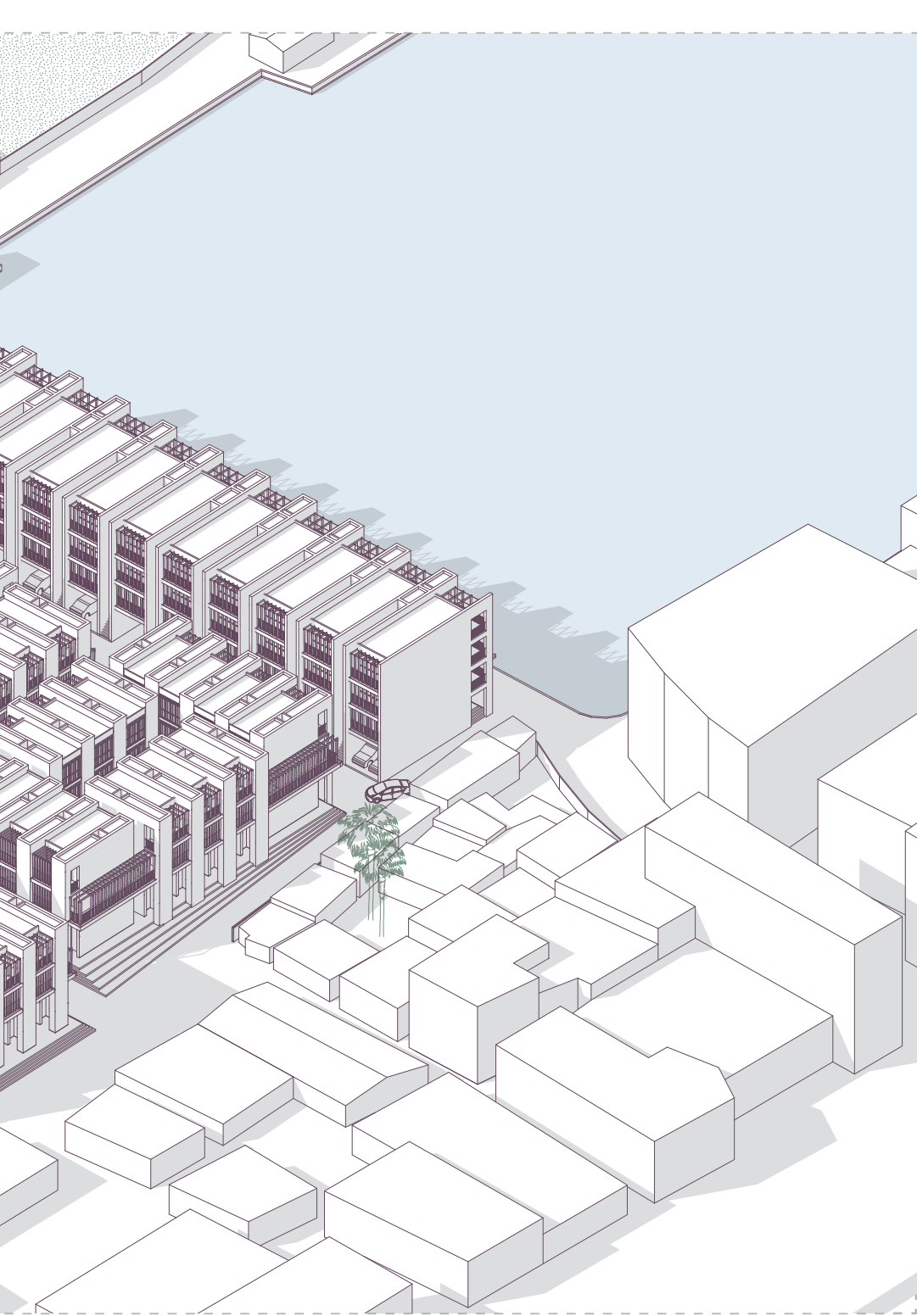


6. Flood resilience



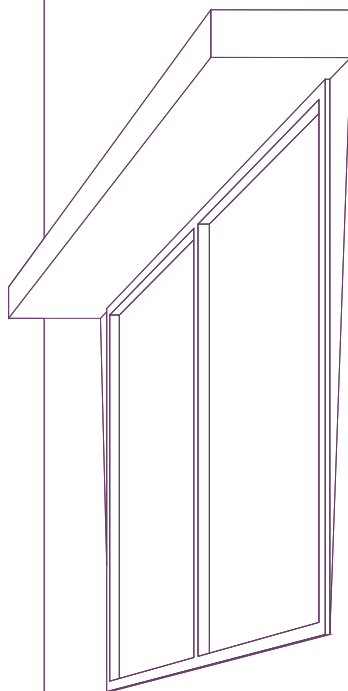
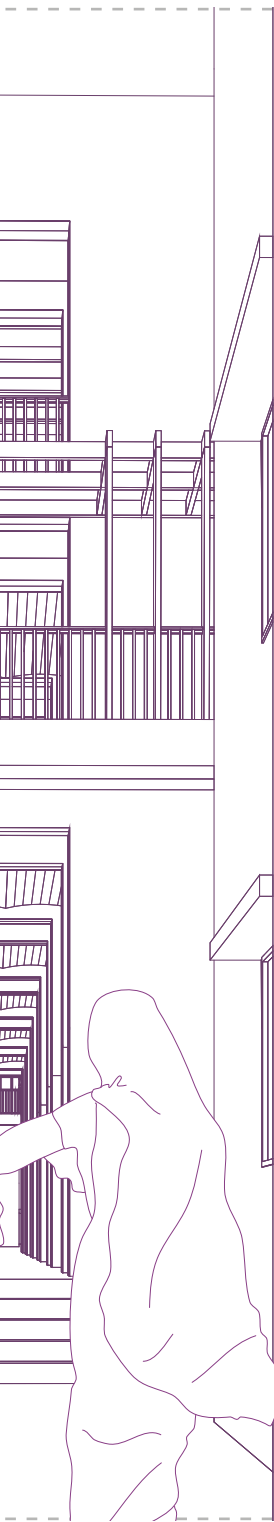
8. Total

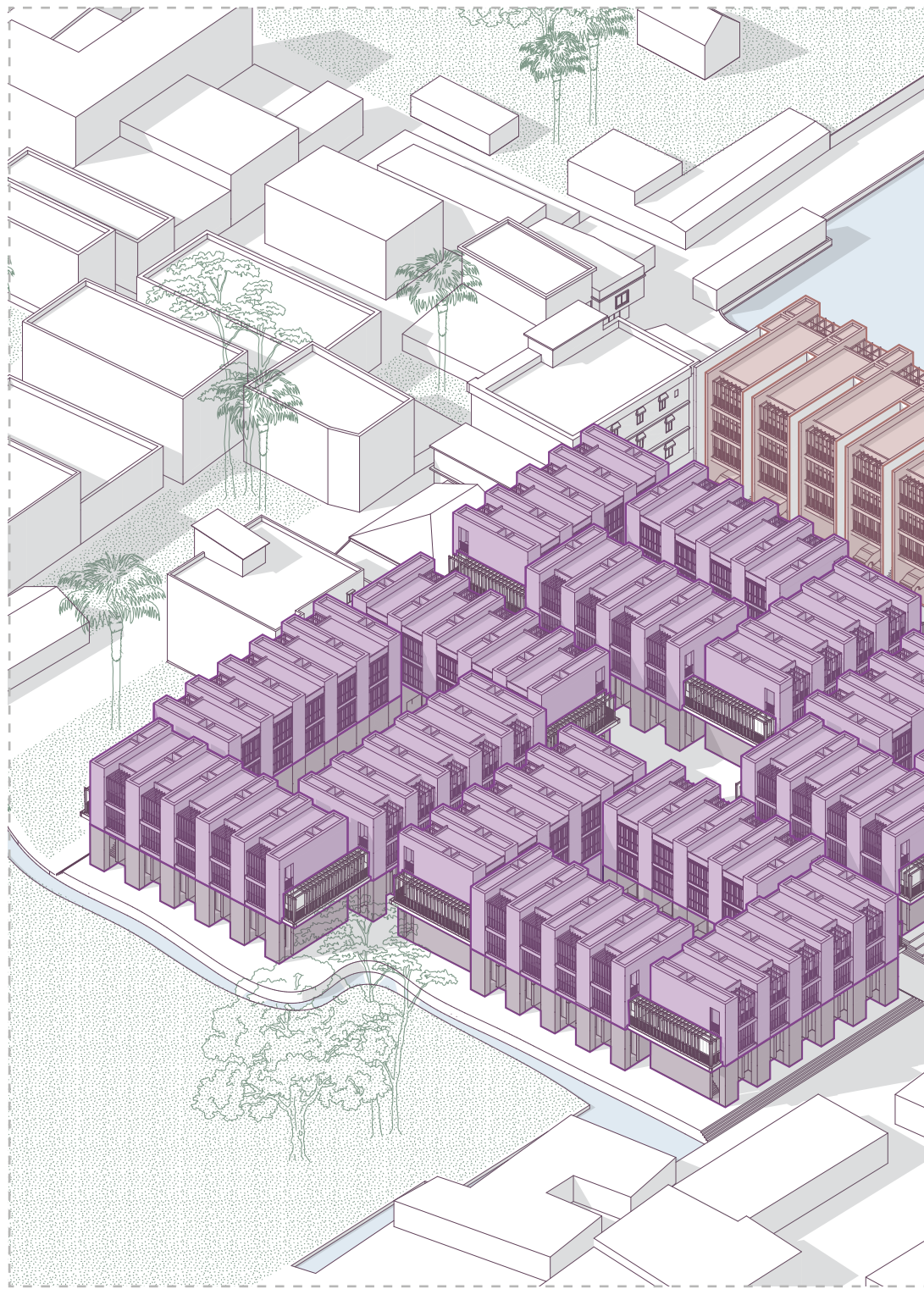


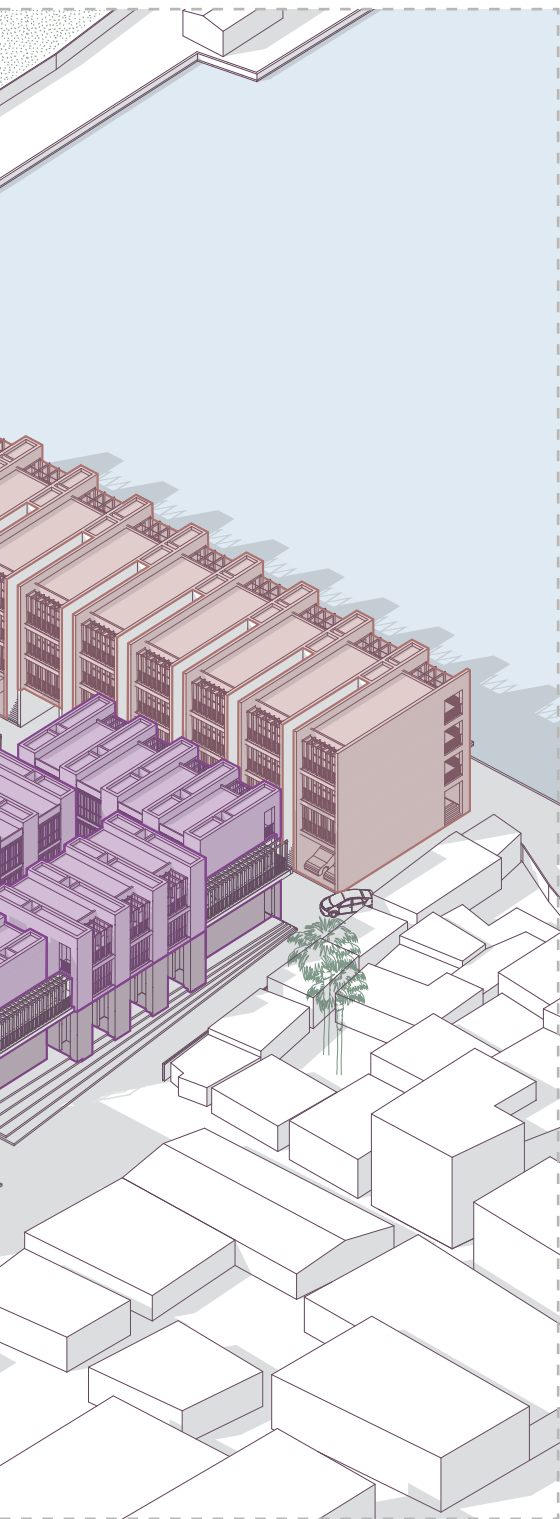












**7435 m<sup>2</sup>**

6040 m<sup>2</sup> original size  
1395 m<sup>2</sup> added area

plot size

**0,39**

GSI  
Ground Space Index

**1,45**

FSI  
Floor Space Index

**208 d/ha**

65 dwelling units

Density  
Dwelling units per  
hectare

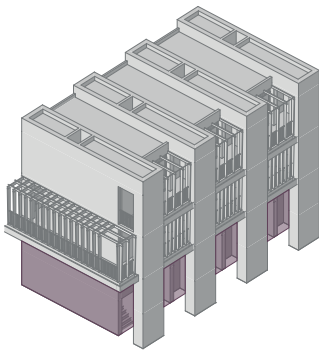
**10 units**

Commercial spaces

# typologies

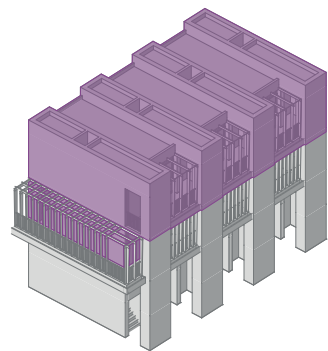
## low-income dwelling

30 - 60 m<sup>2</sup>



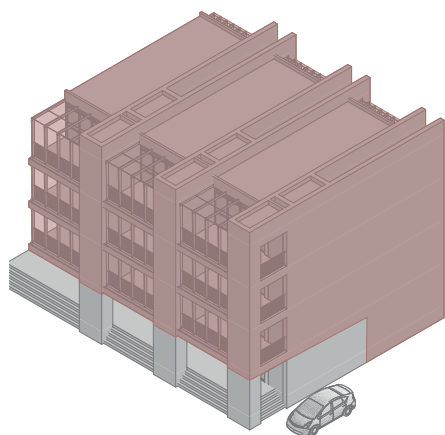
## middle-income dwelling

60 - 90 m<sup>2</sup>



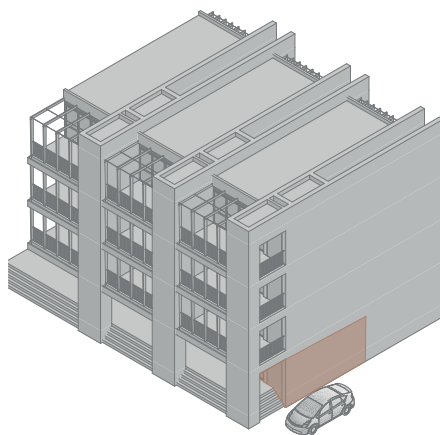
## high-income dwelling

90 m<sup>2</sup>



## commercial spaces

30 m<sup>2</sup>

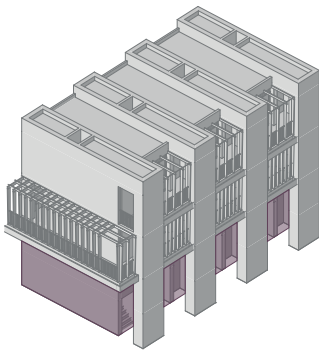




# typologies

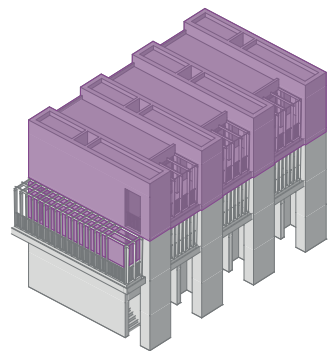
## low-income dwelling

30 - 60 m<sup>2</sup>



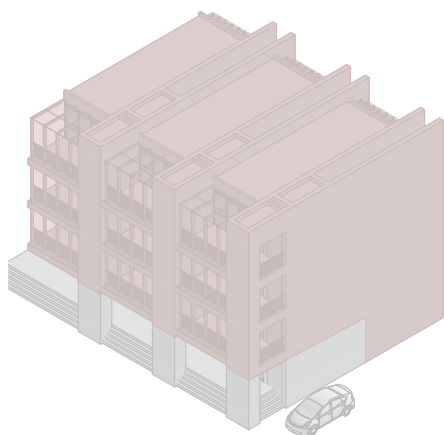
## middle-income dwelling

60 - 90 m<sup>2</sup>



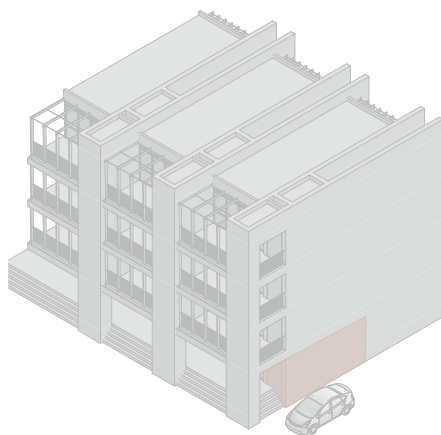
## high-income dwelling

90 m<sup>2</sup>

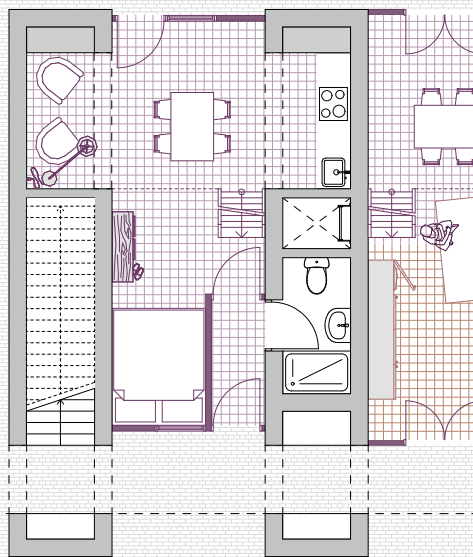
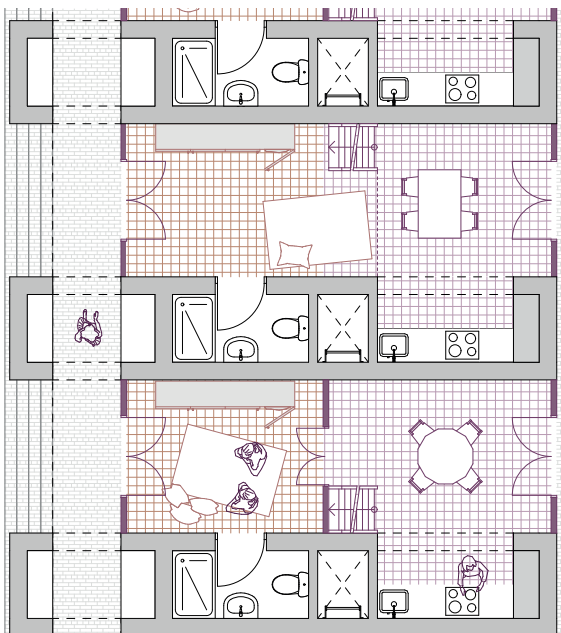


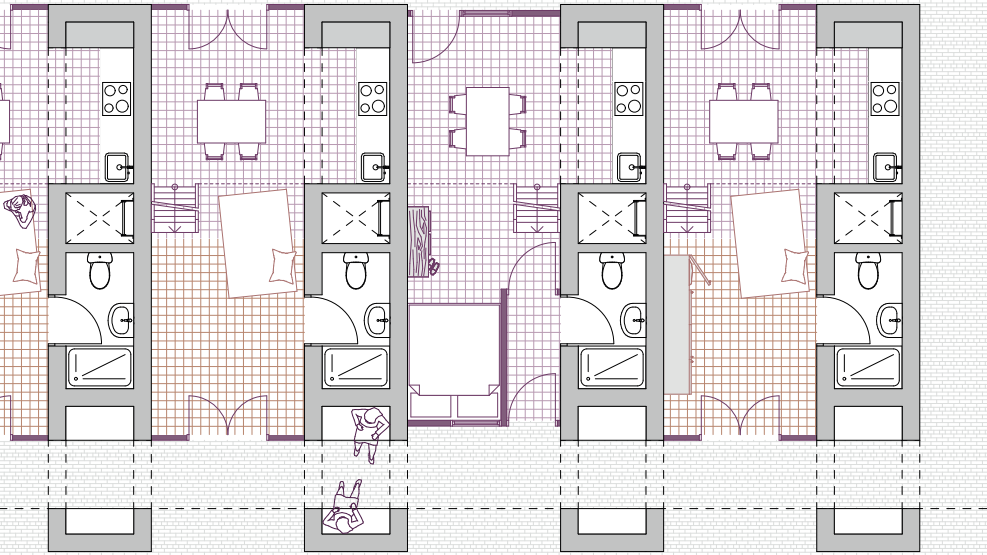
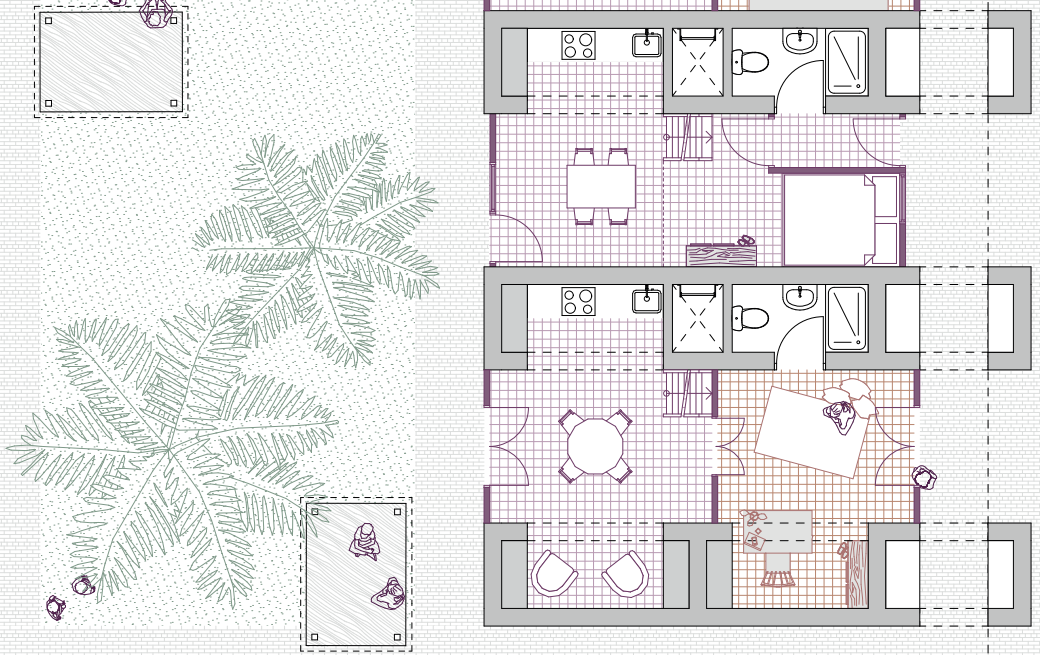
## commercial spaces

30 m<sup>2</sup>



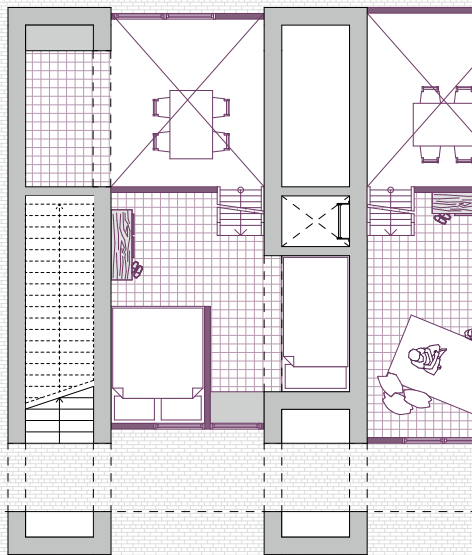
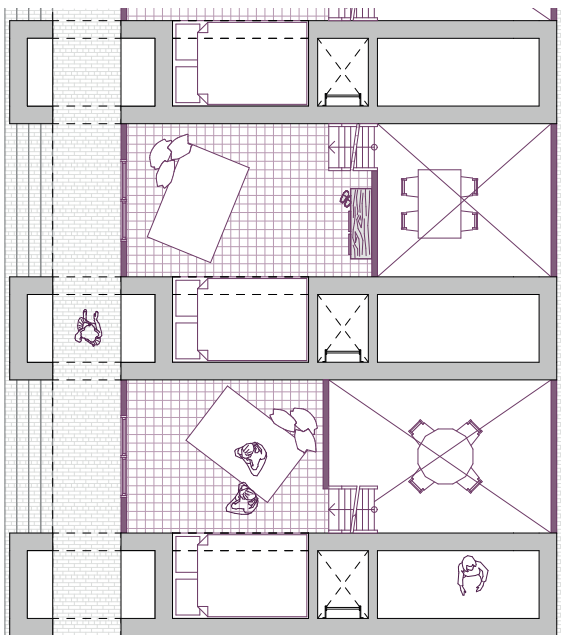
# cluster ground floor



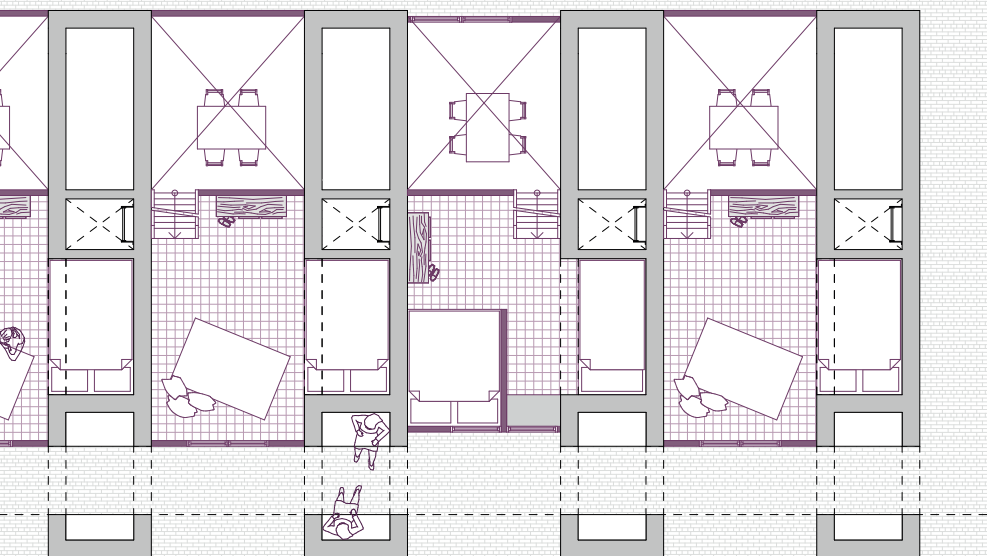
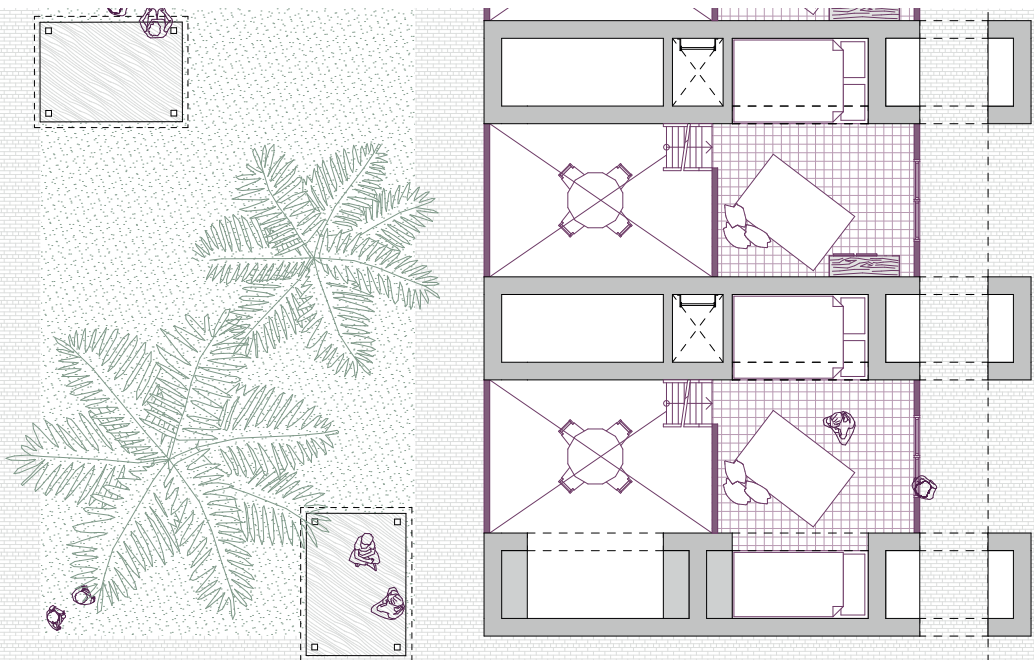


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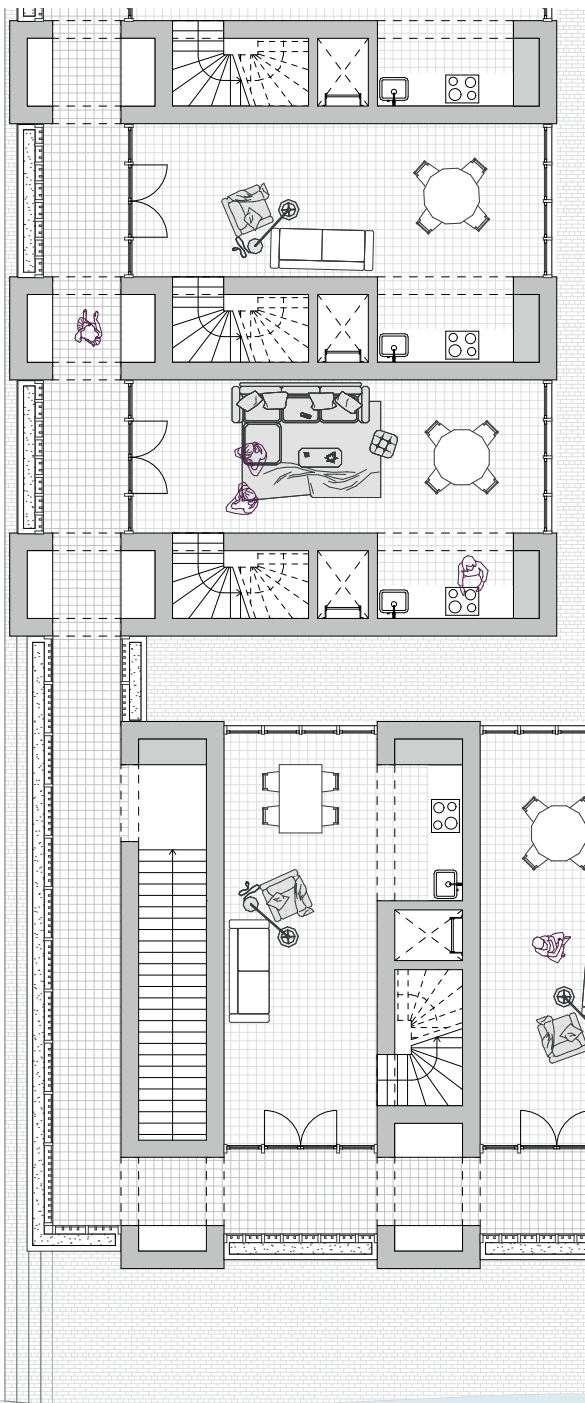
or +

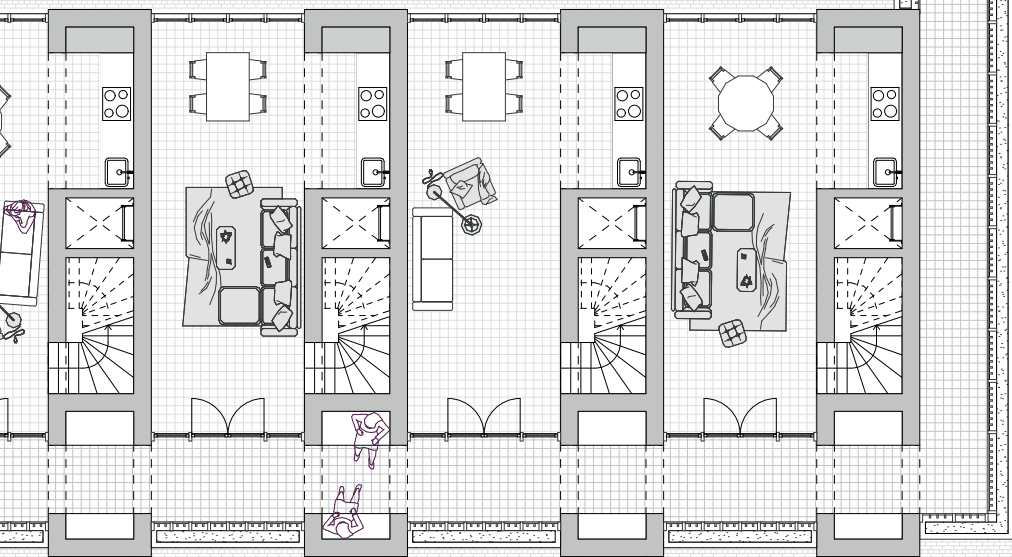
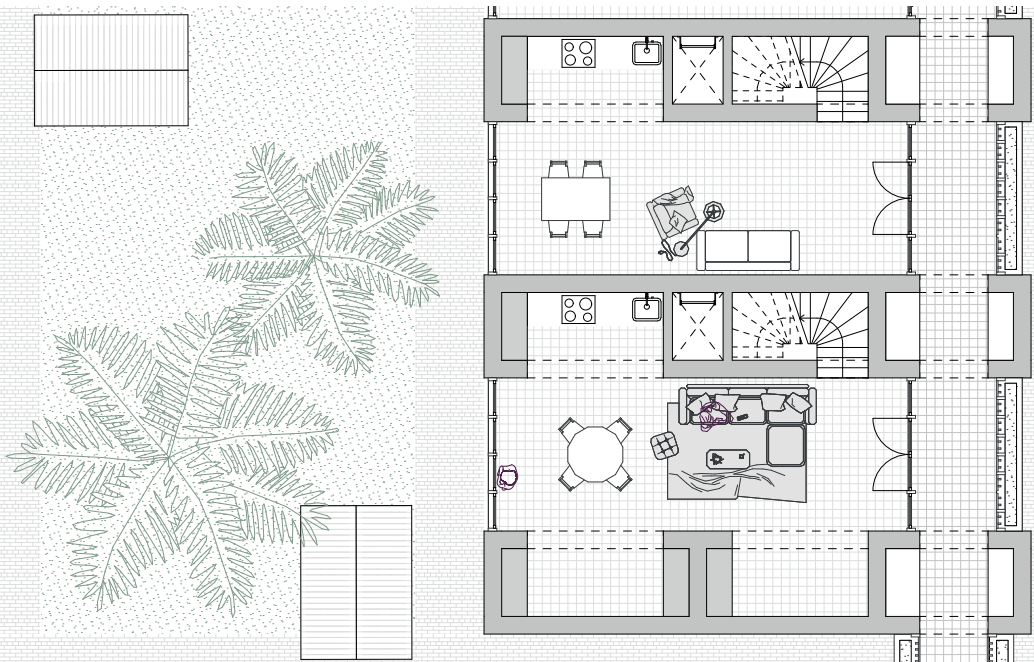




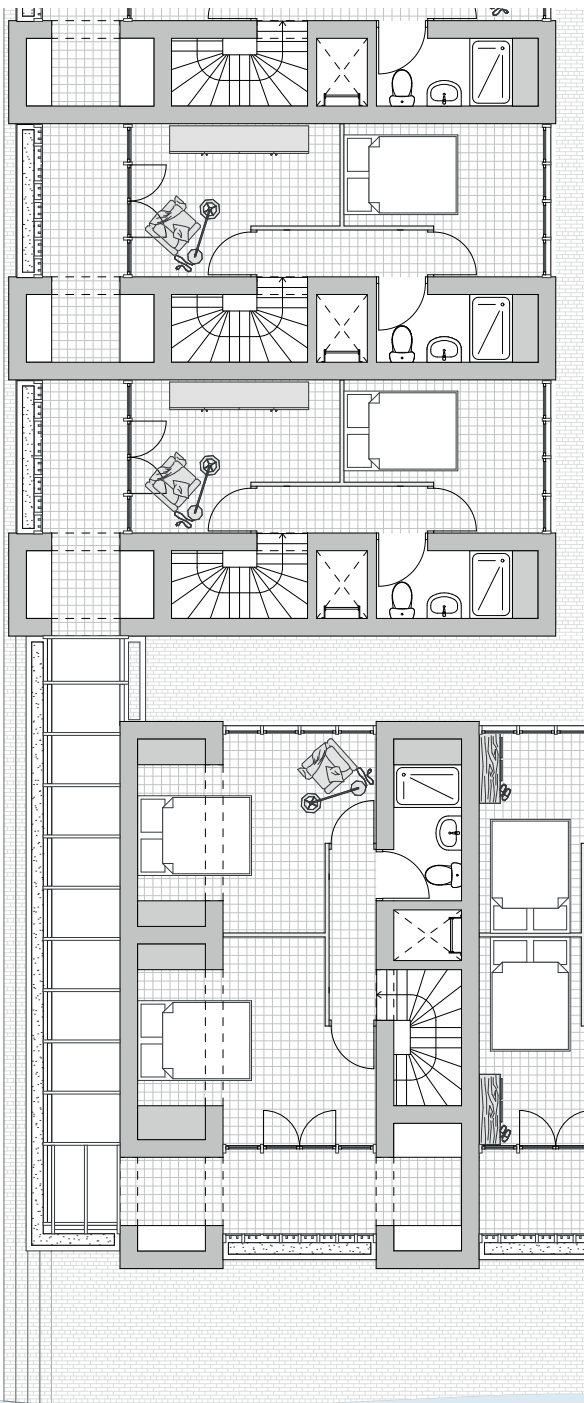


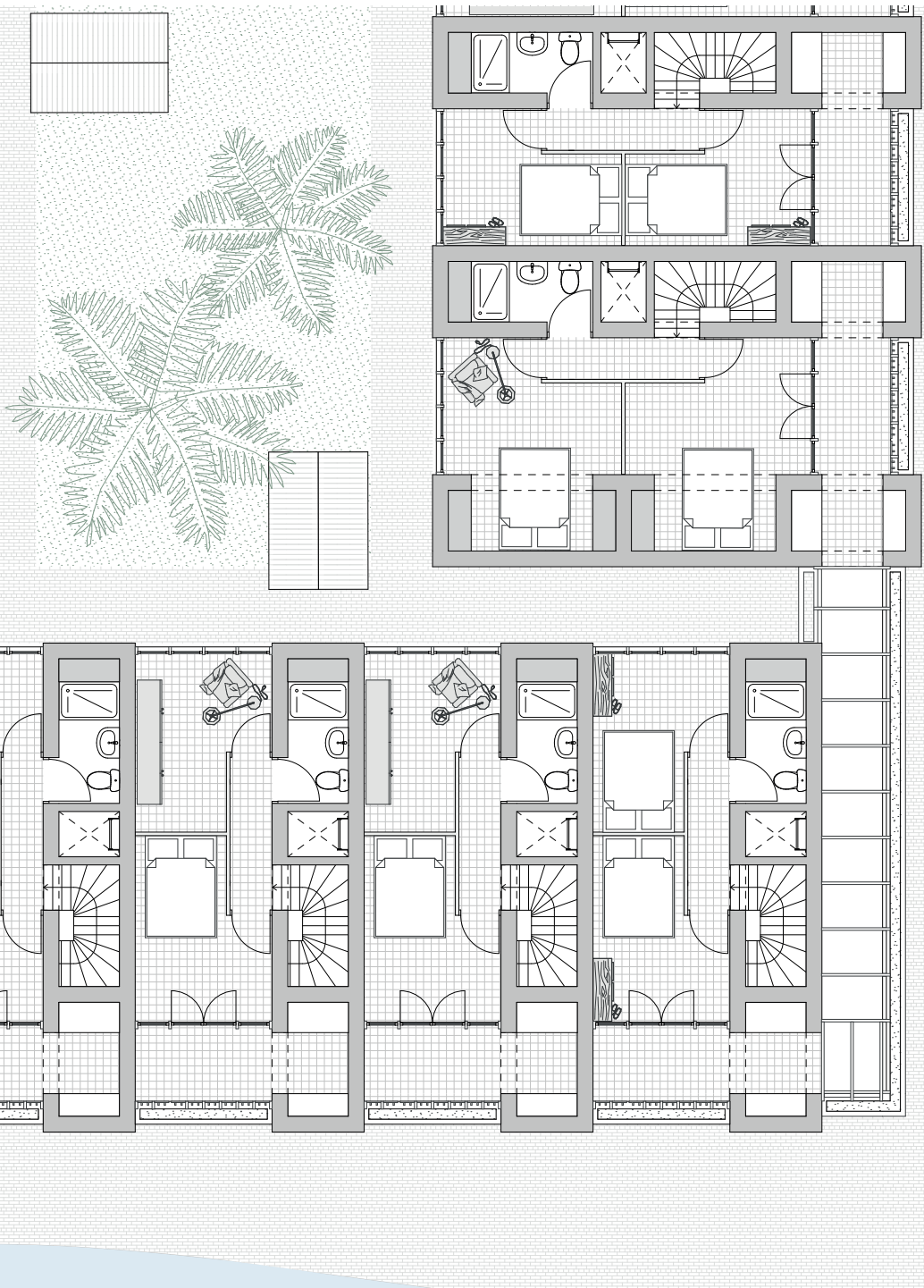
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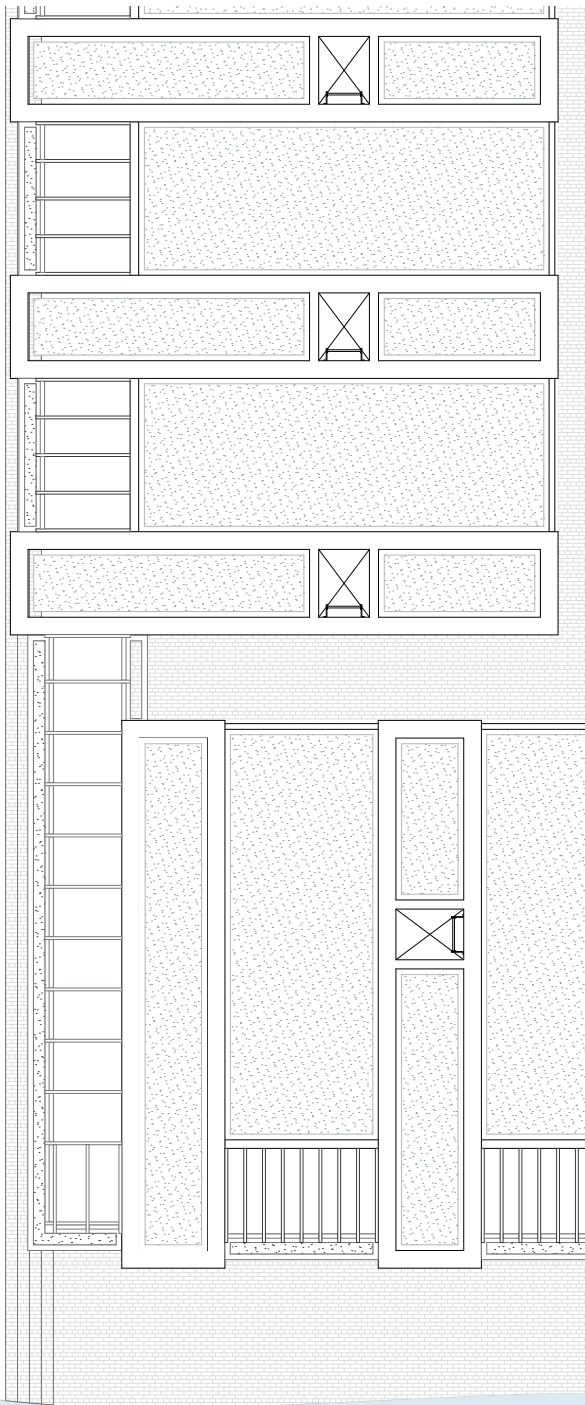
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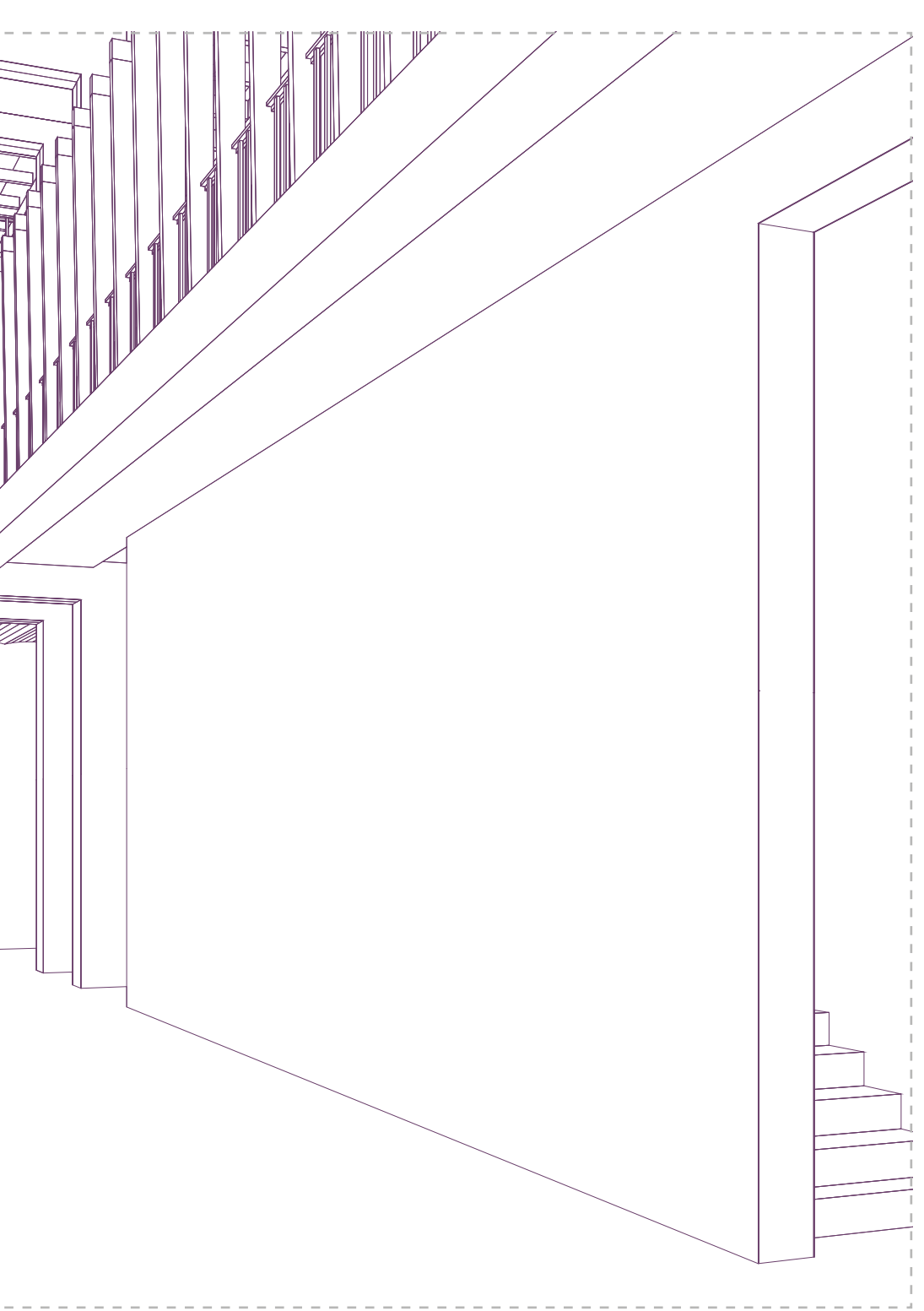


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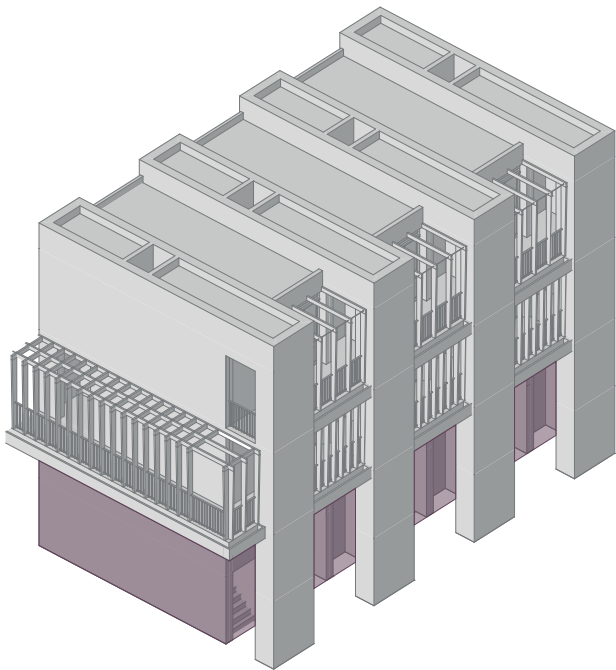




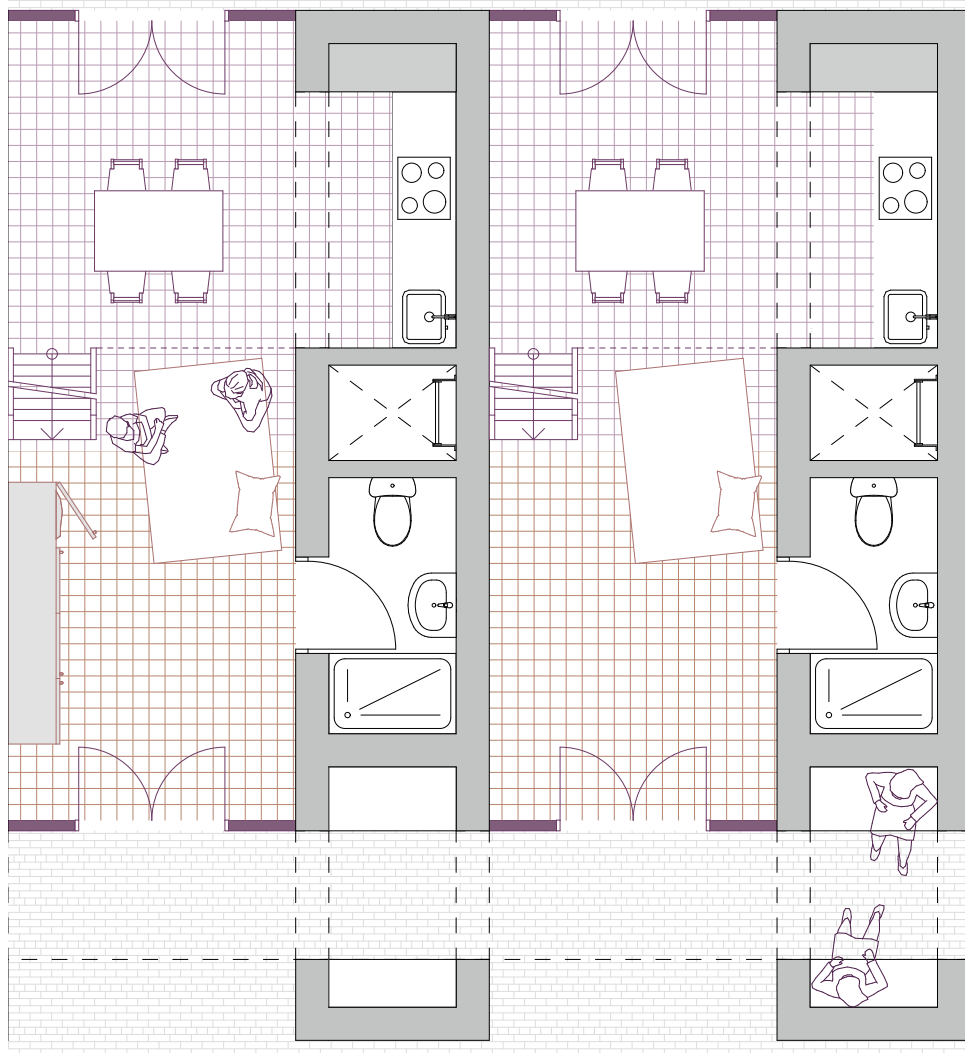




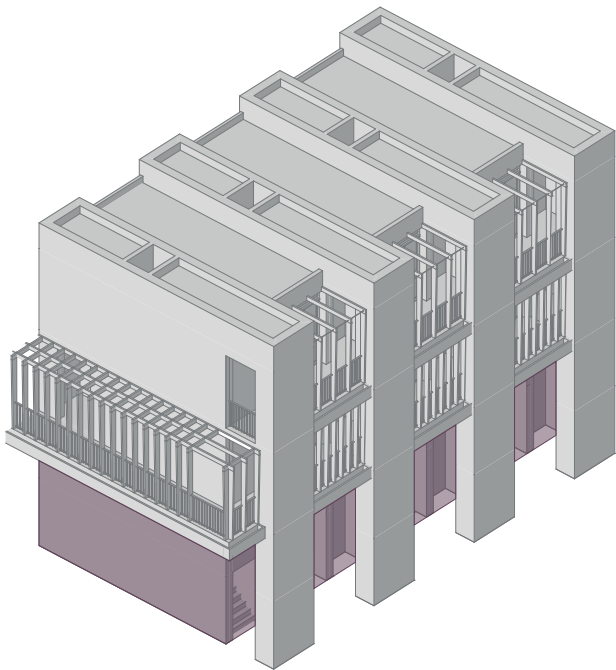
# low income dwelling

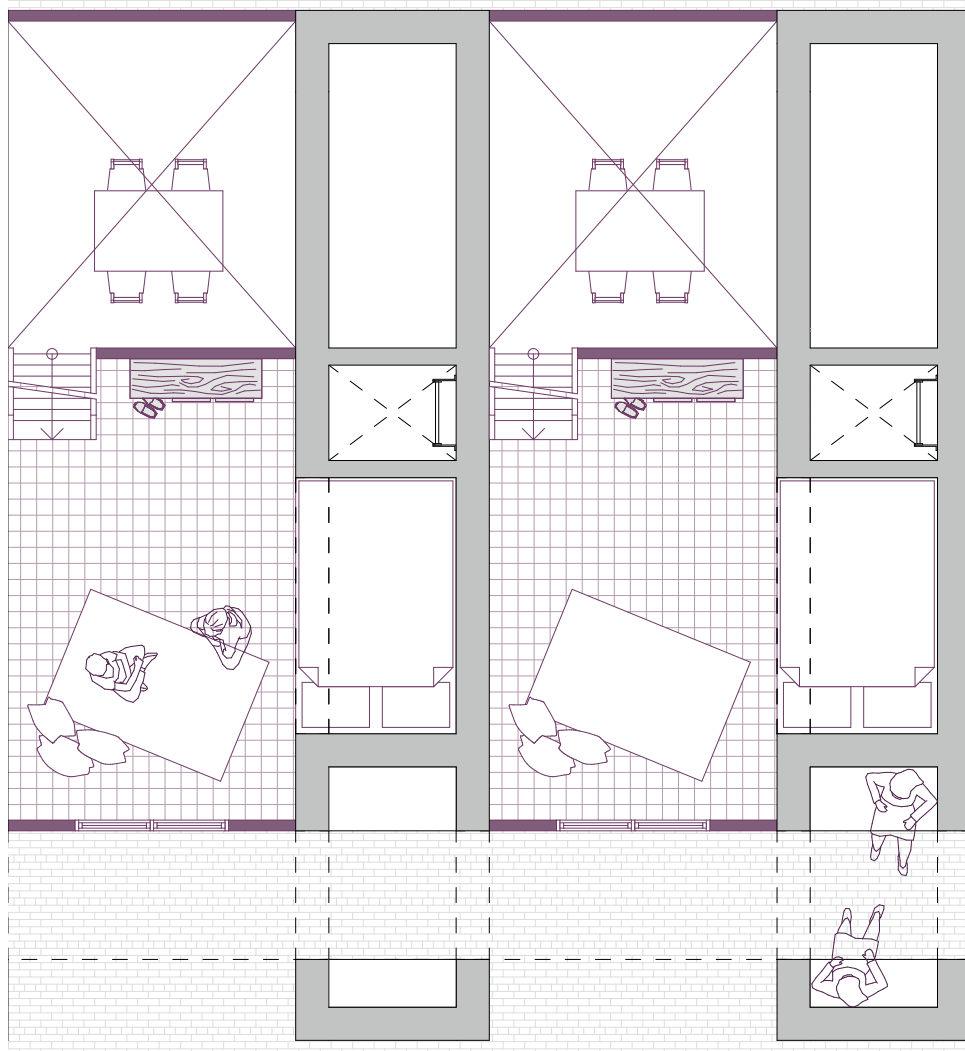


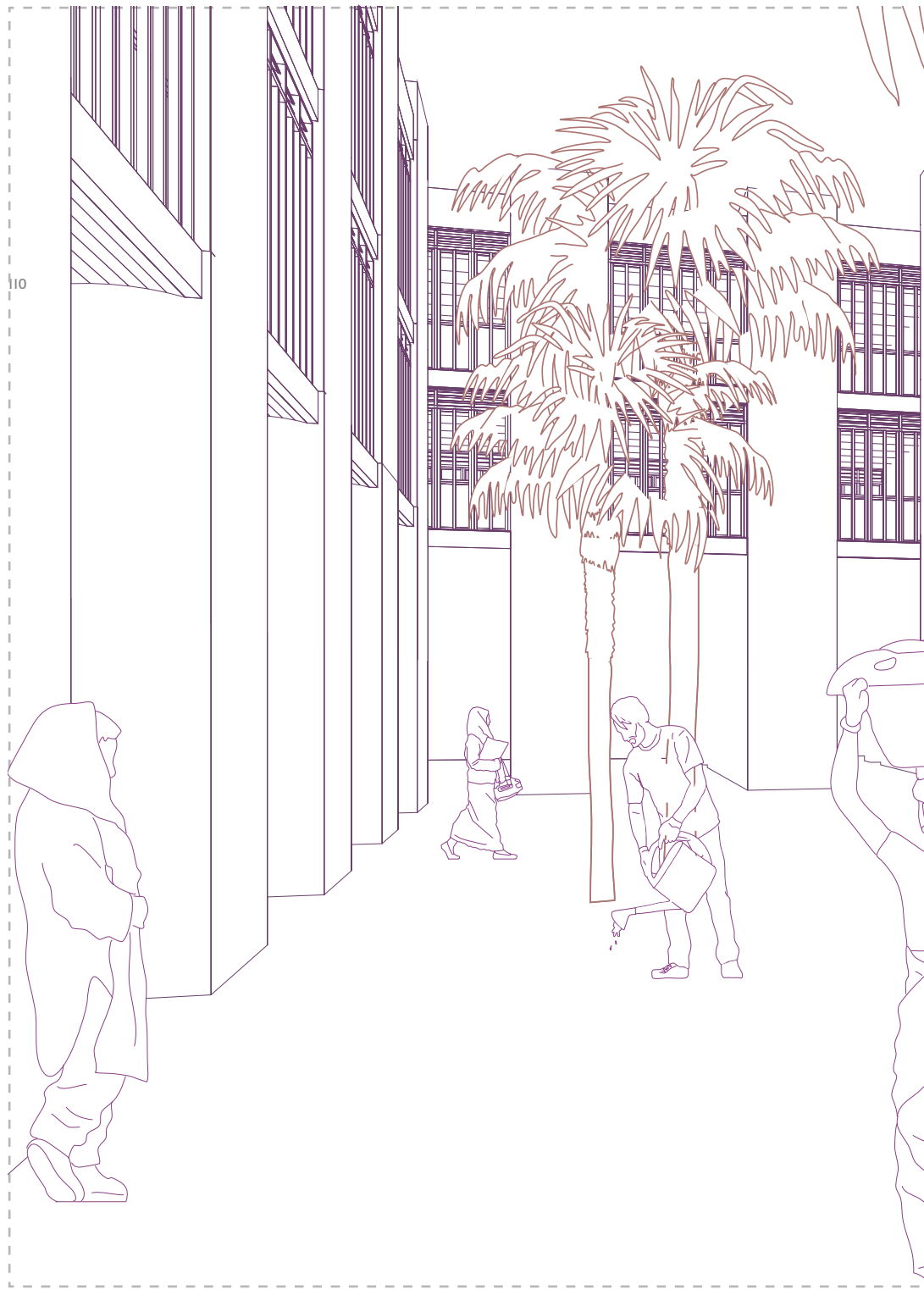


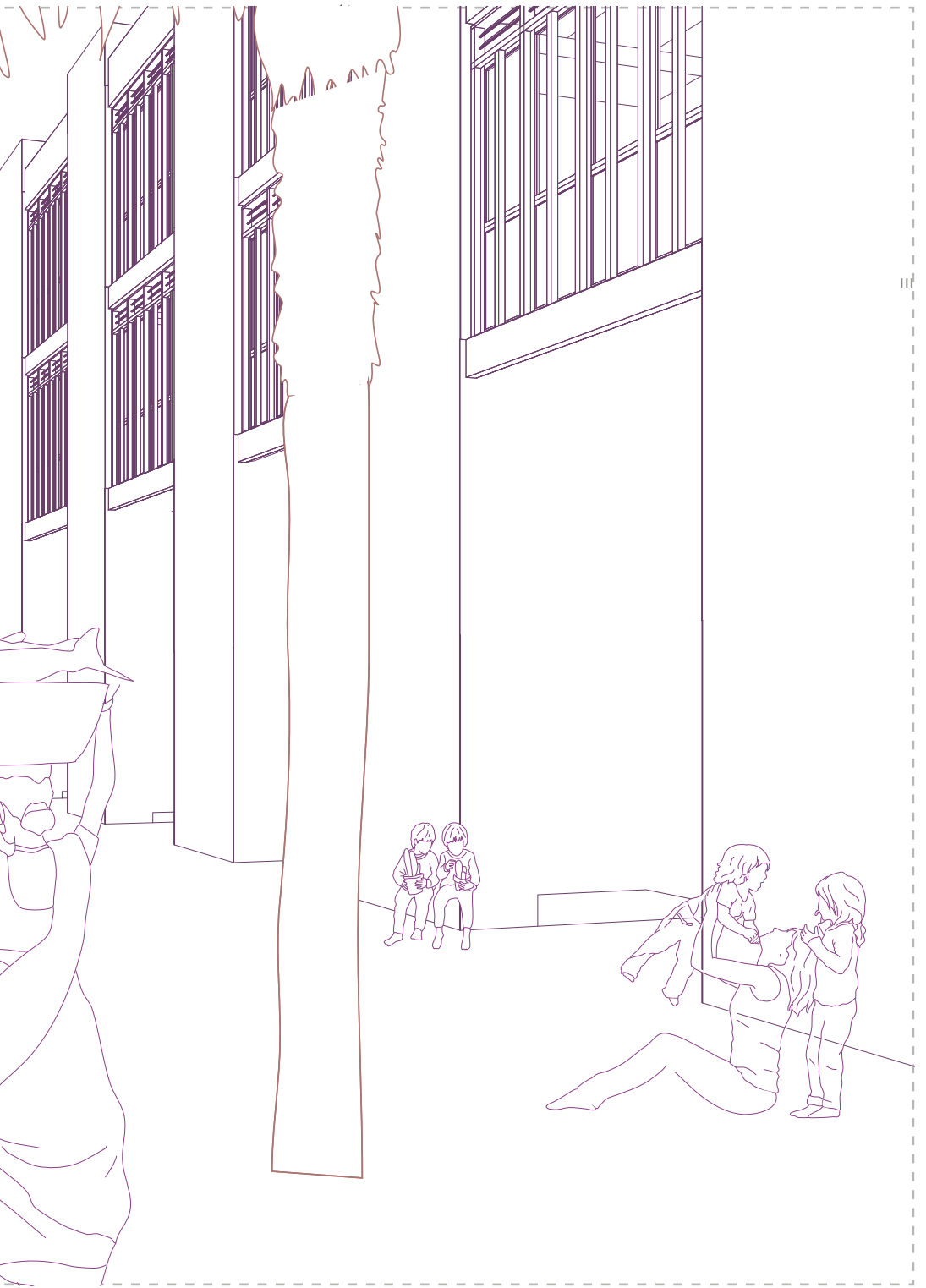


# low income dwelling

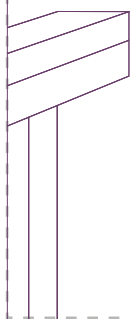






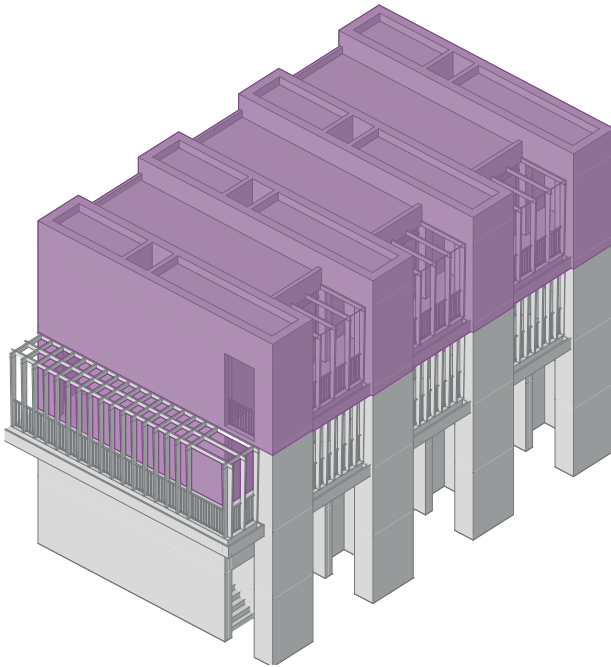


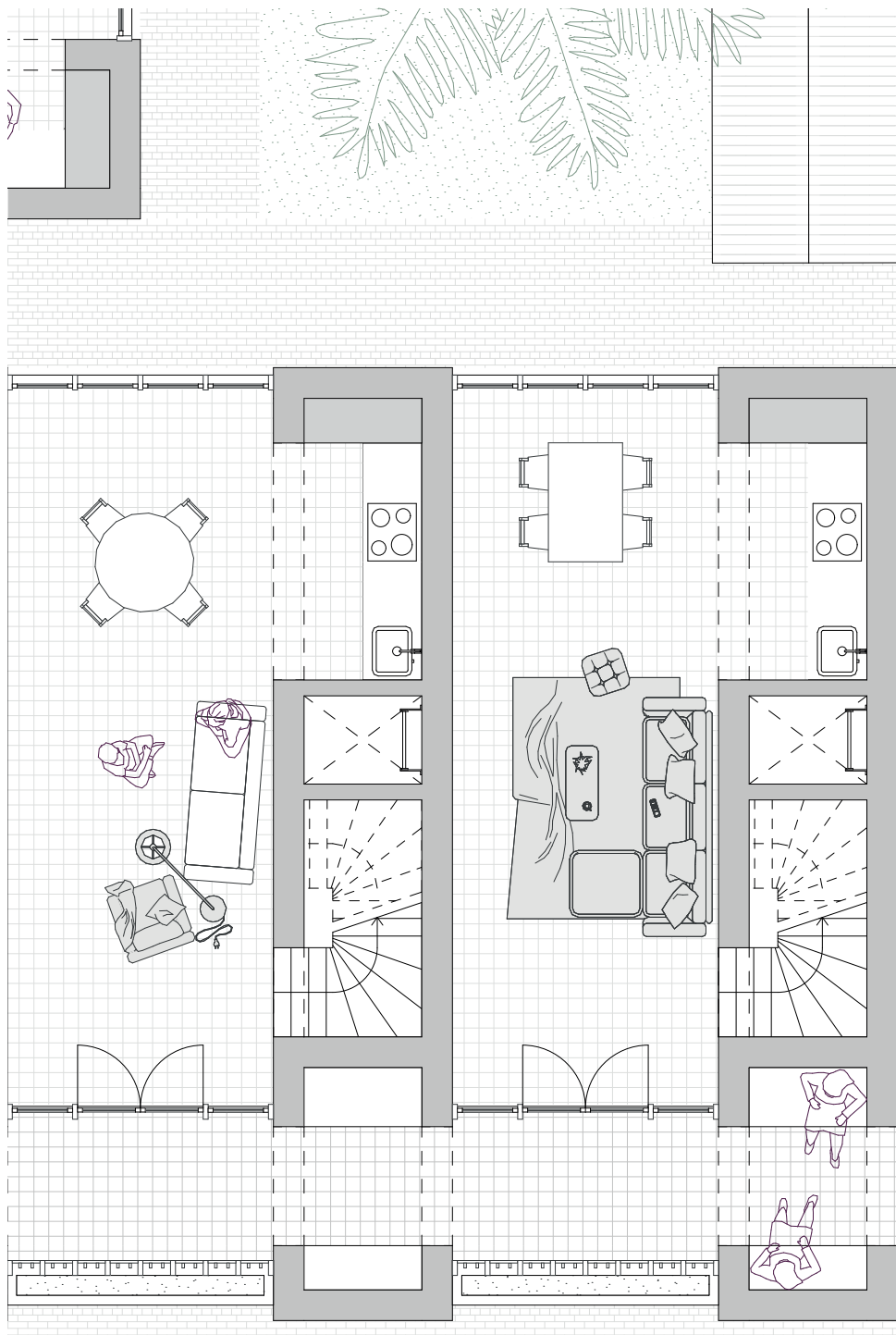




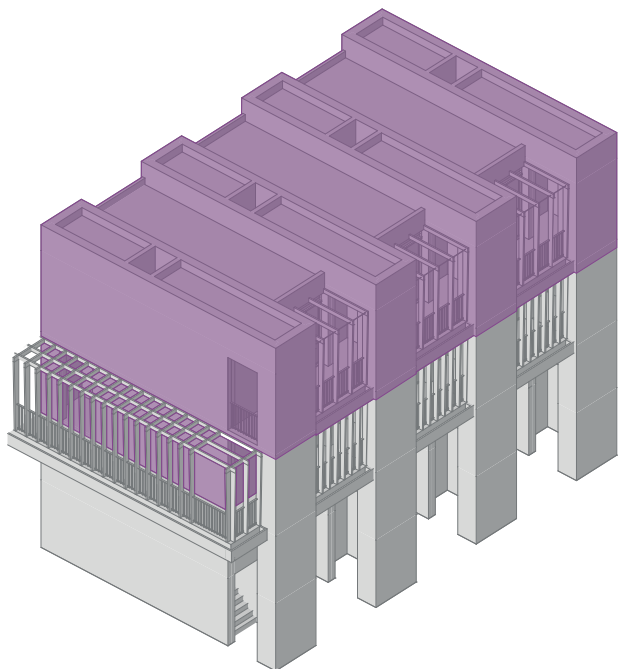


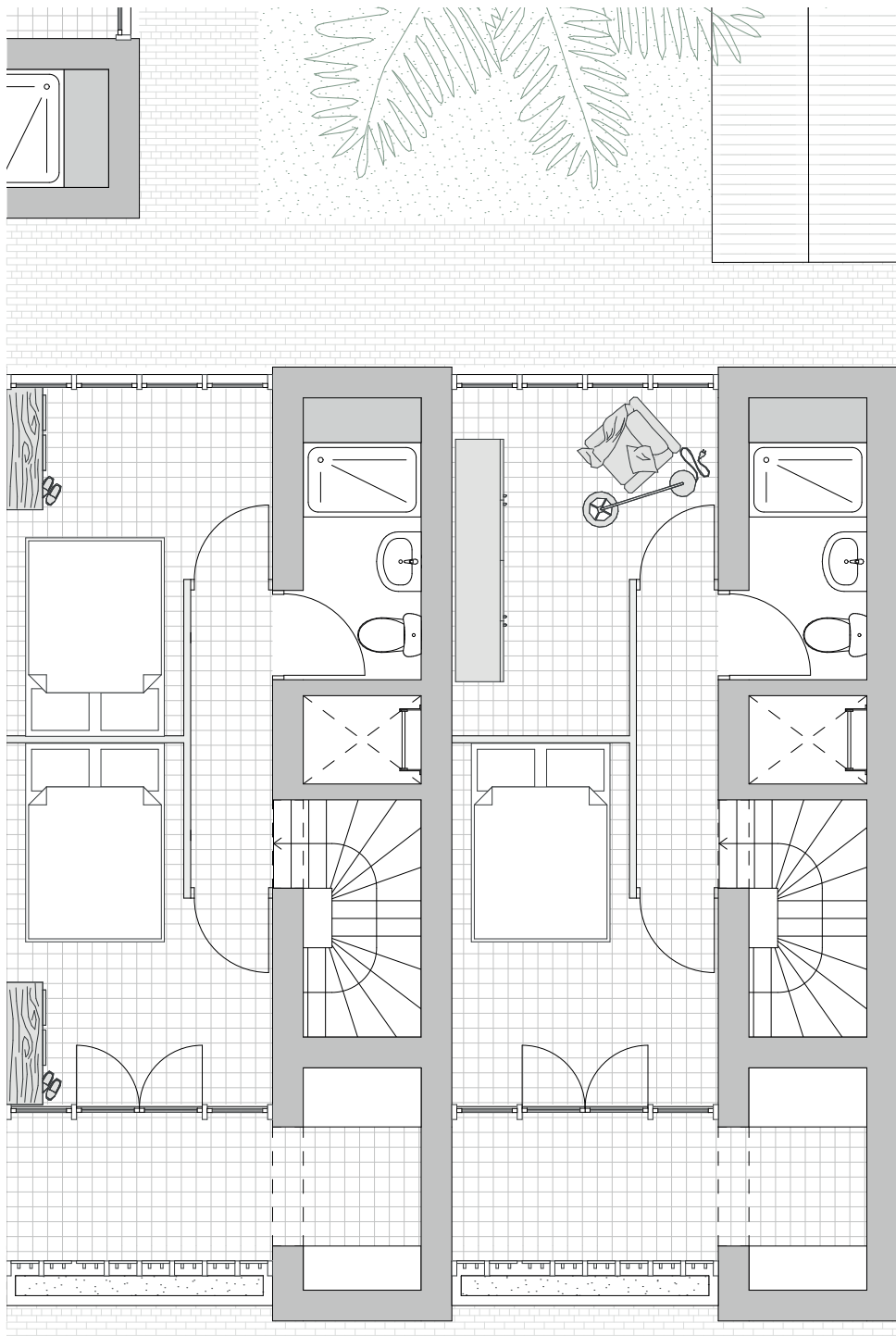
# middle income dwelling





# middle income dwelling







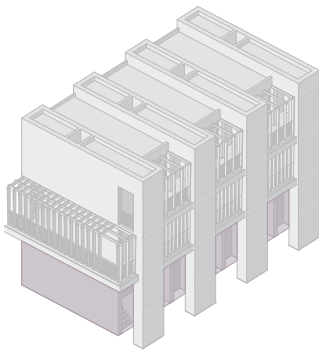




# typologies

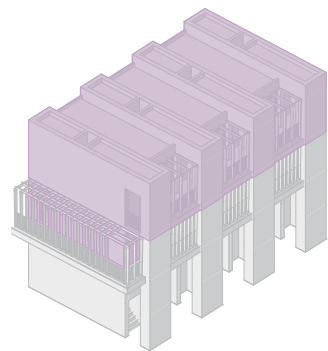
## low-income dwelling

30 - 60 m<sup>2</sup>



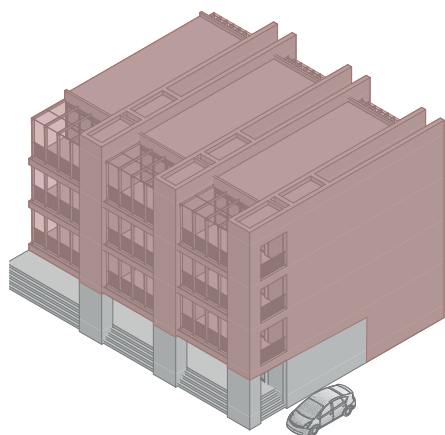
## middle-income dwelling

60 - 90 m<sup>2</sup>



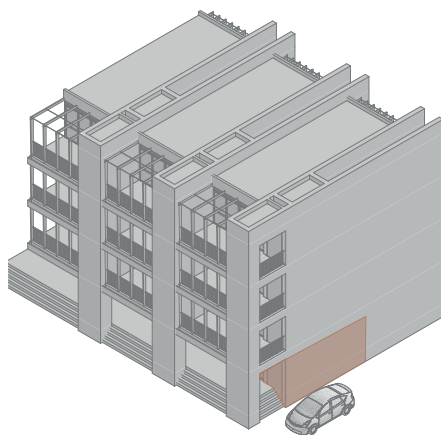
## high-income dwelling

90 m<sup>2</sup>

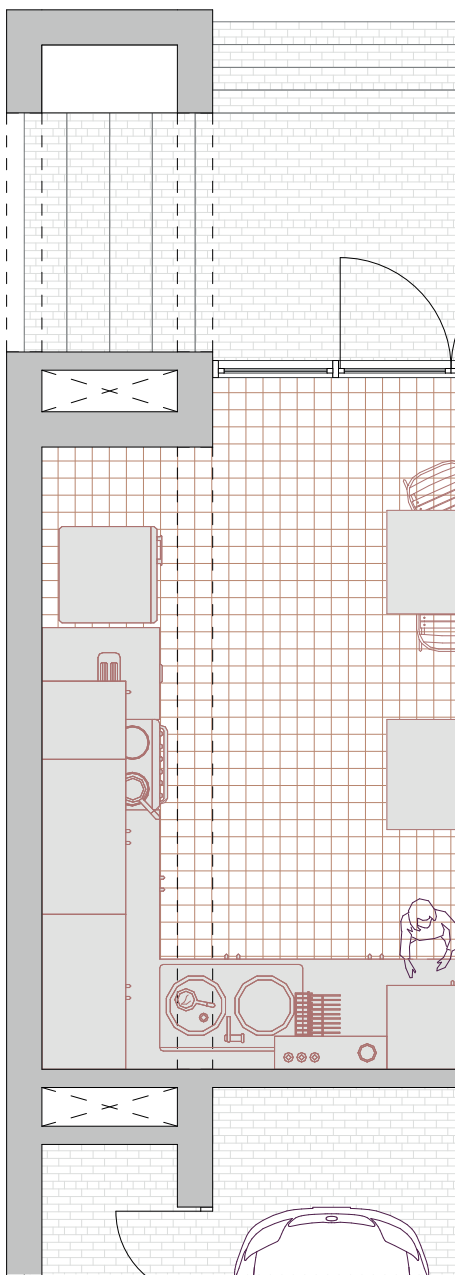
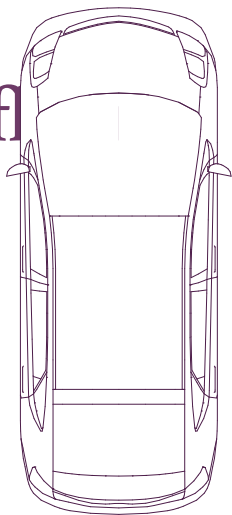


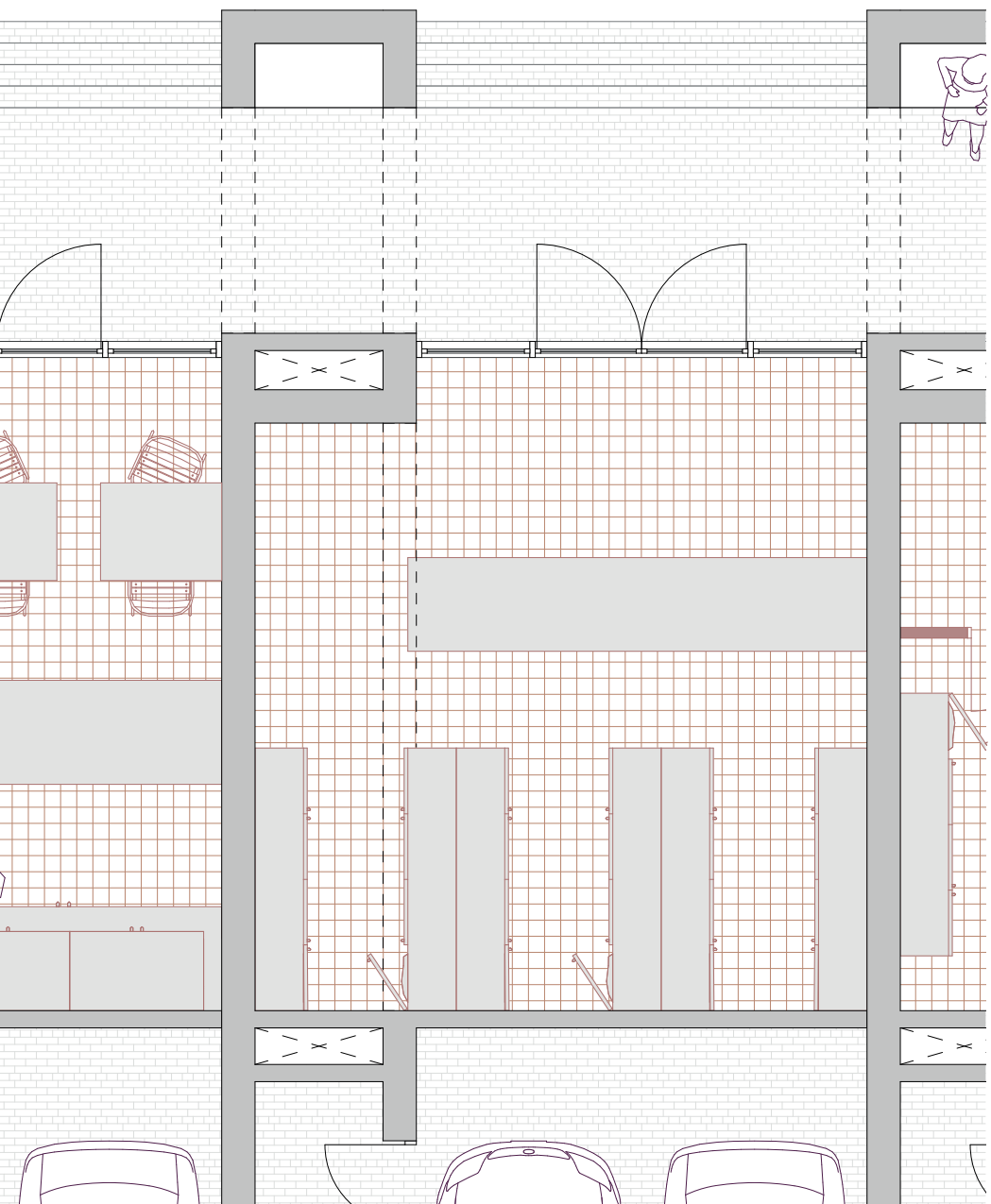
## commercial spaces

30 m<sup>2</sup>



# cluster ground fl

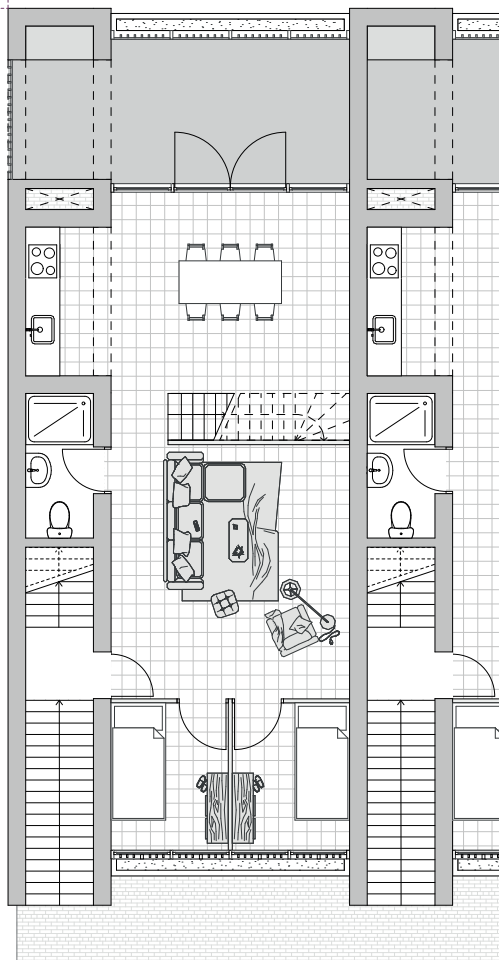
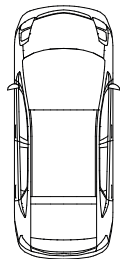
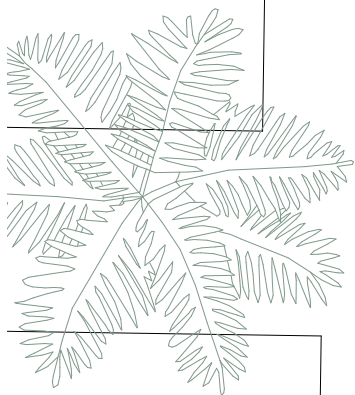


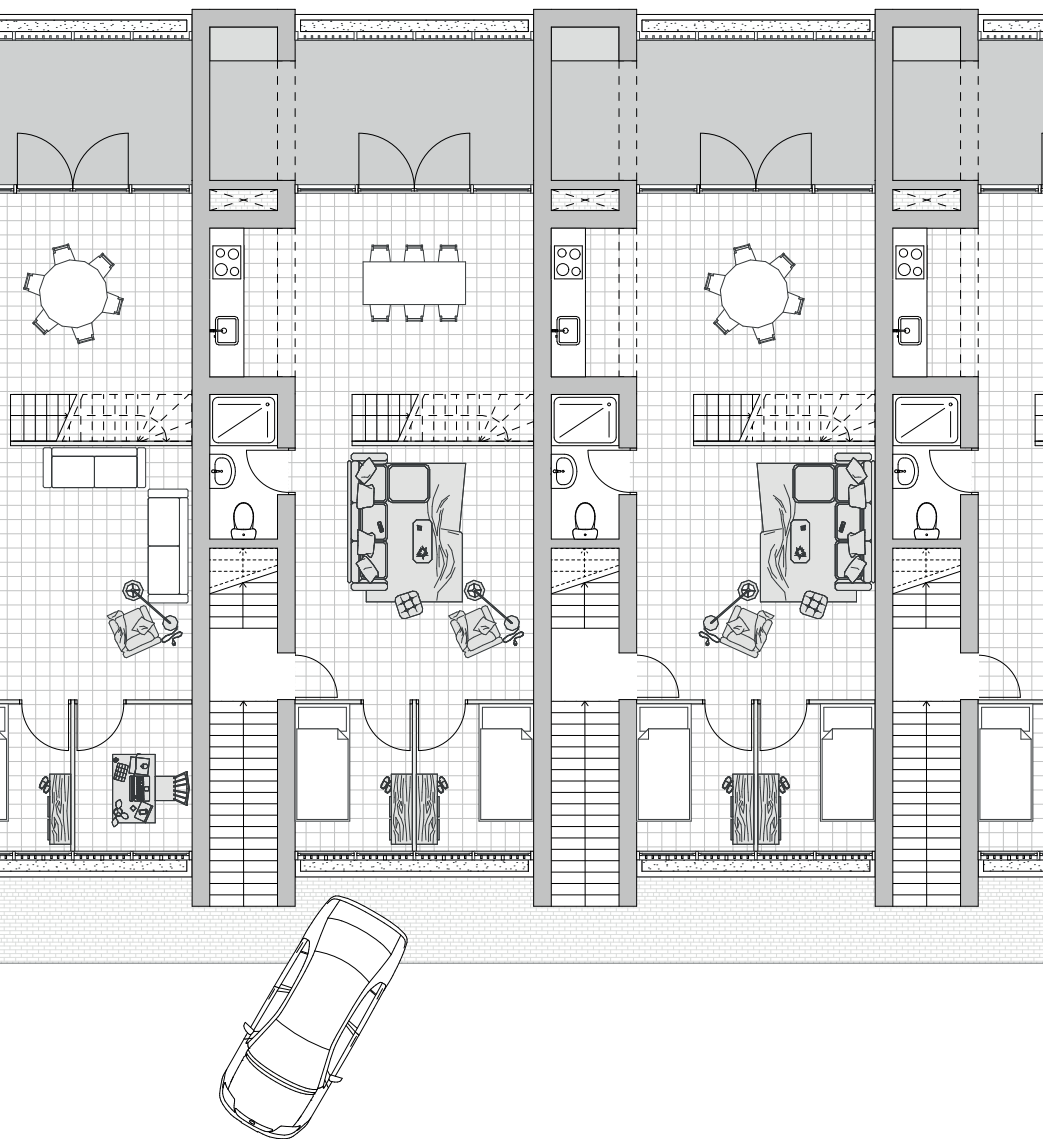




cluster

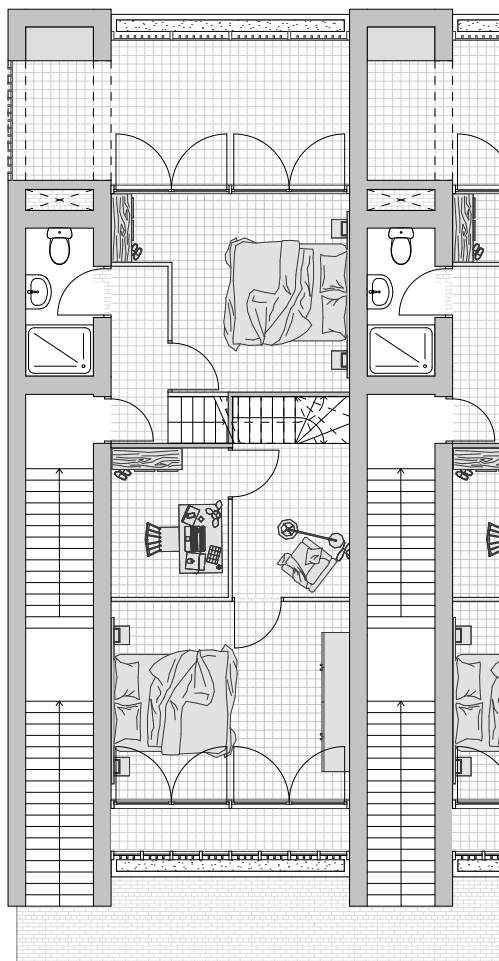
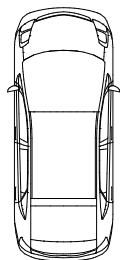
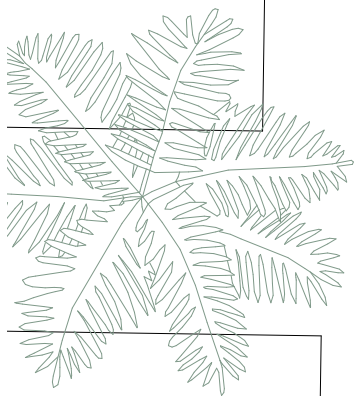
19

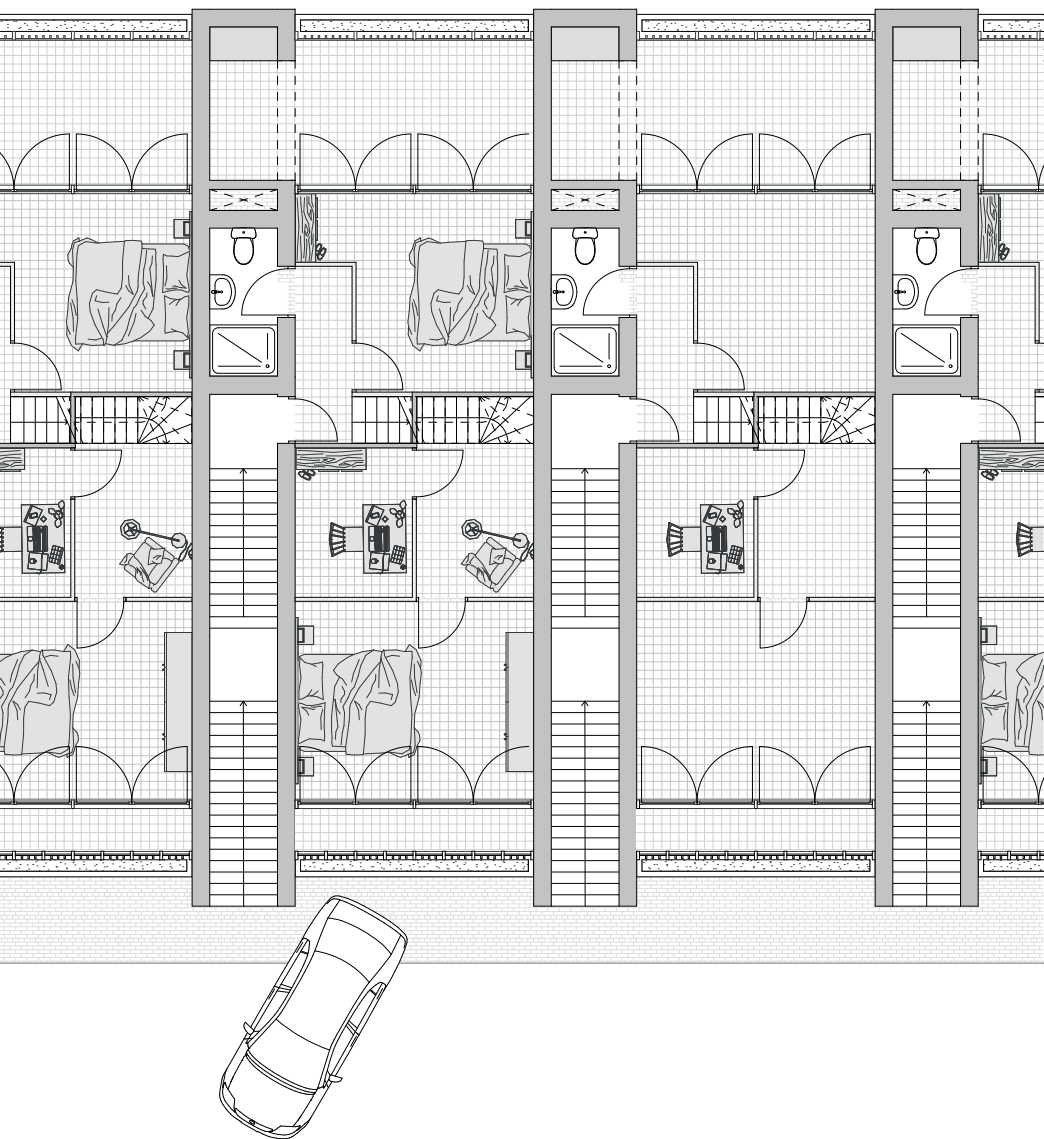


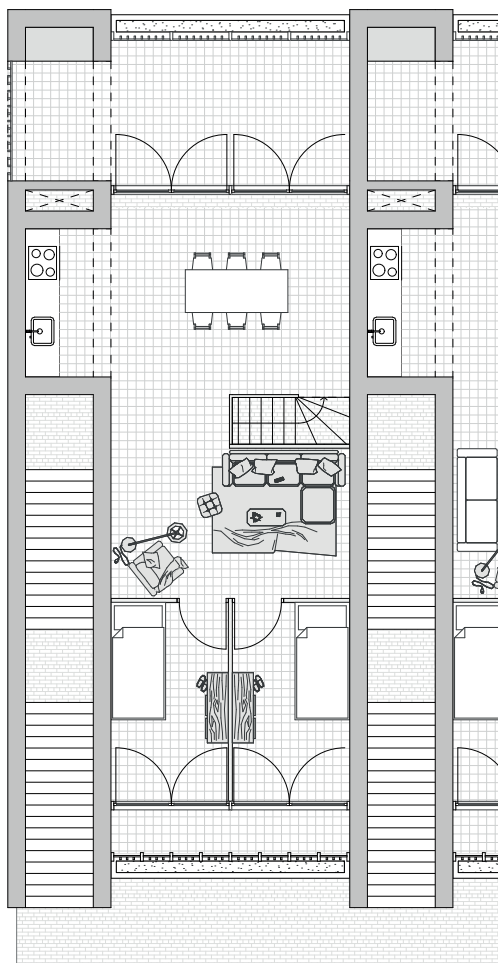
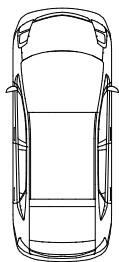
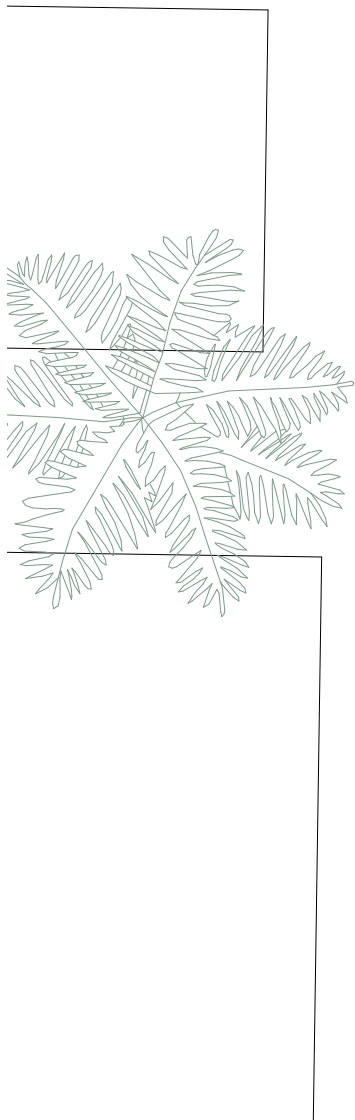


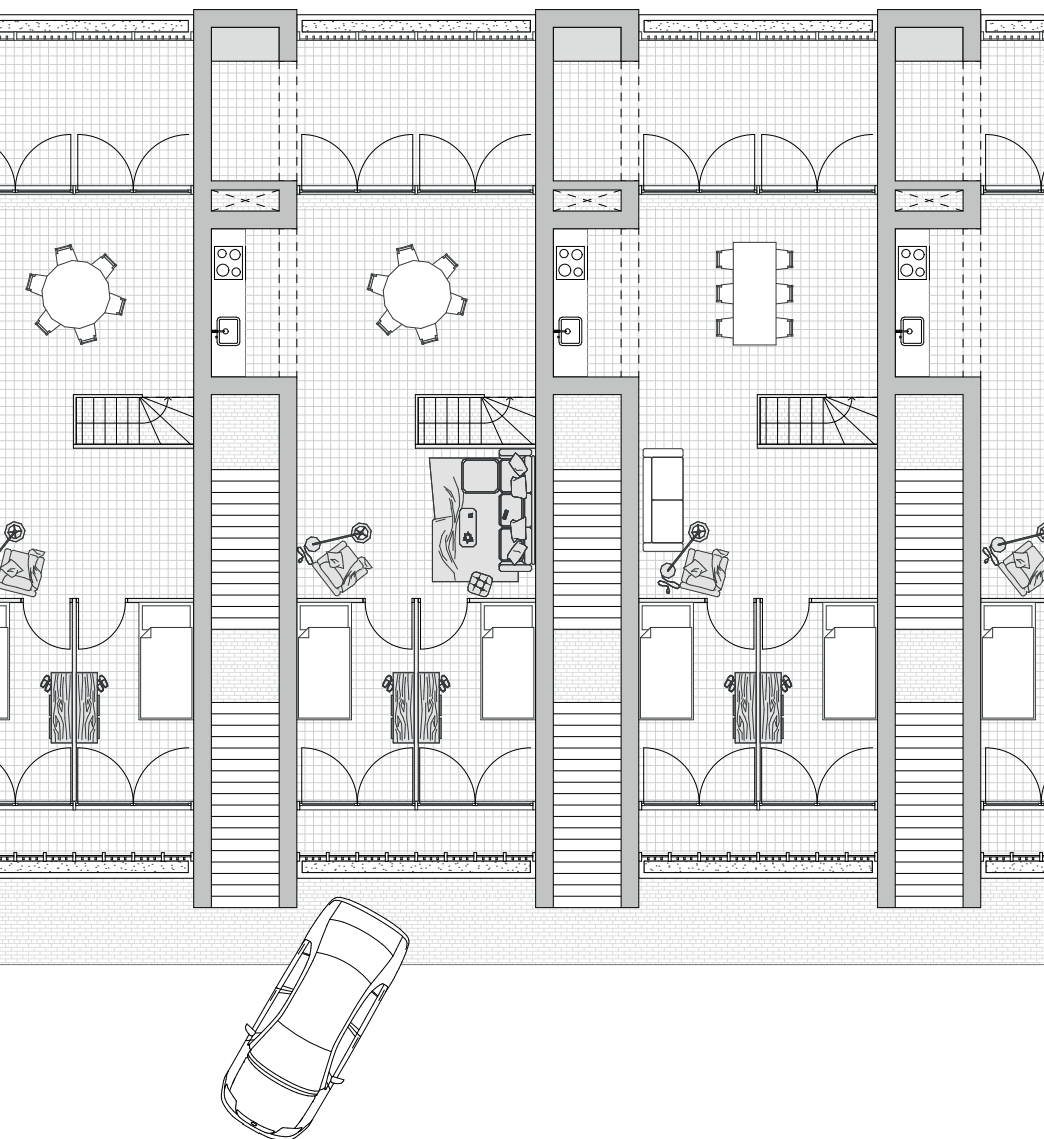
cluster

2:

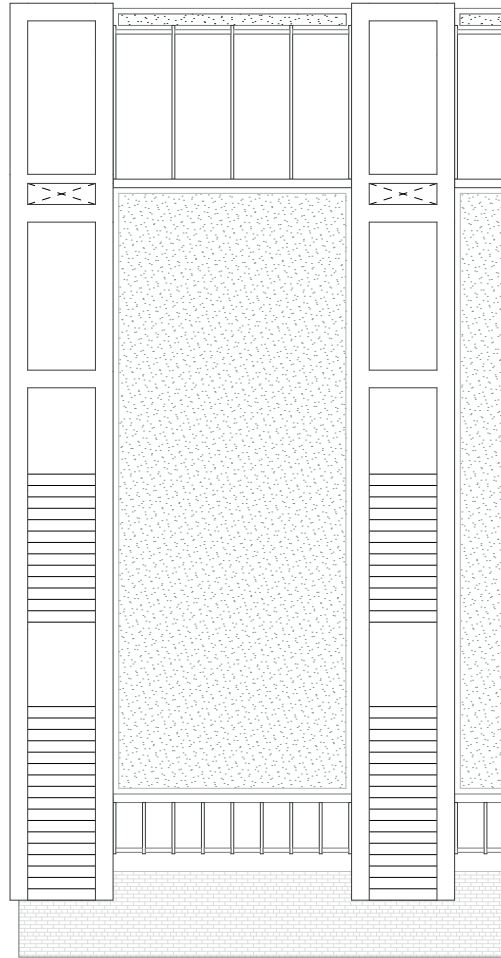
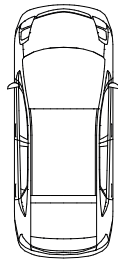


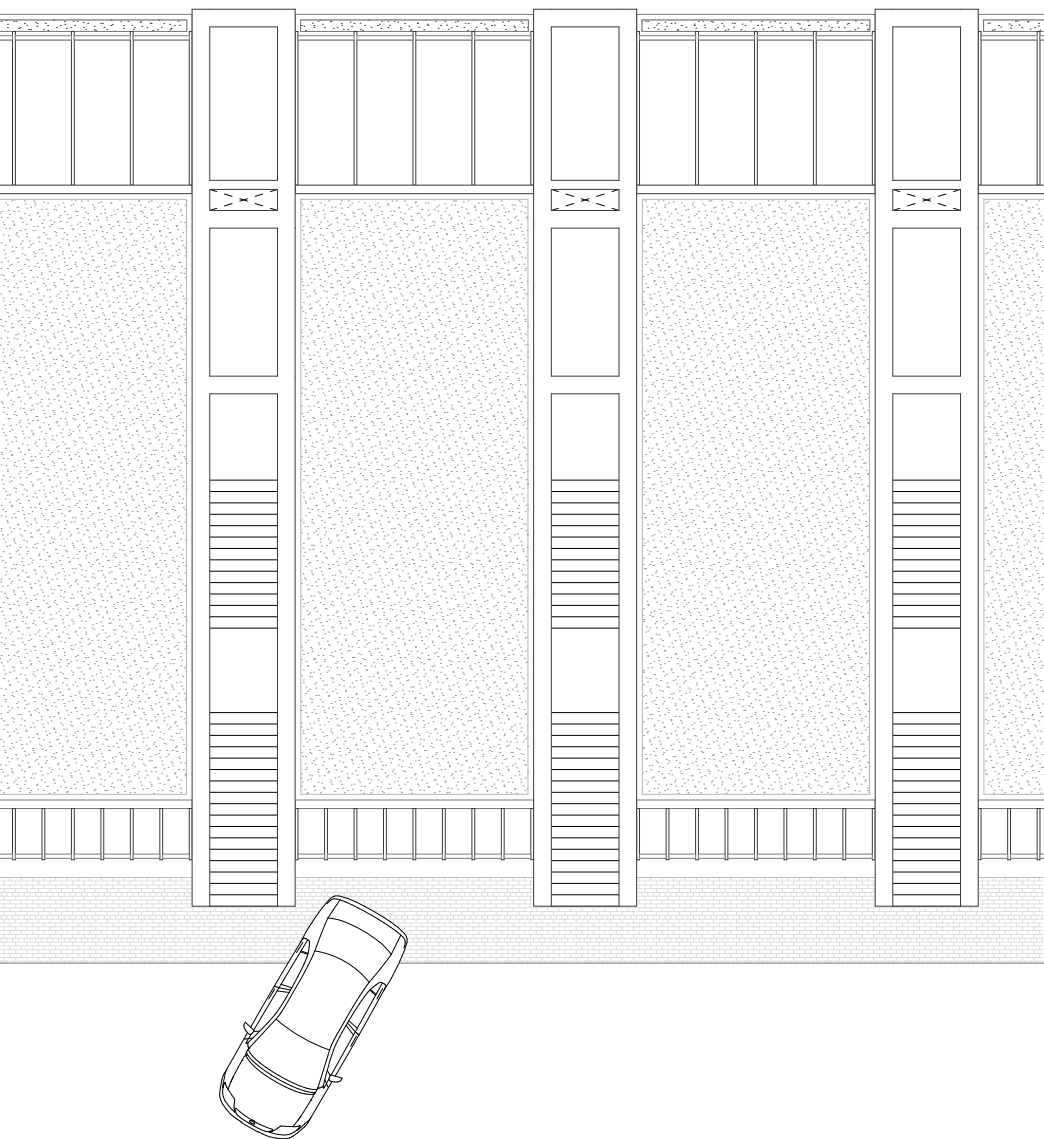






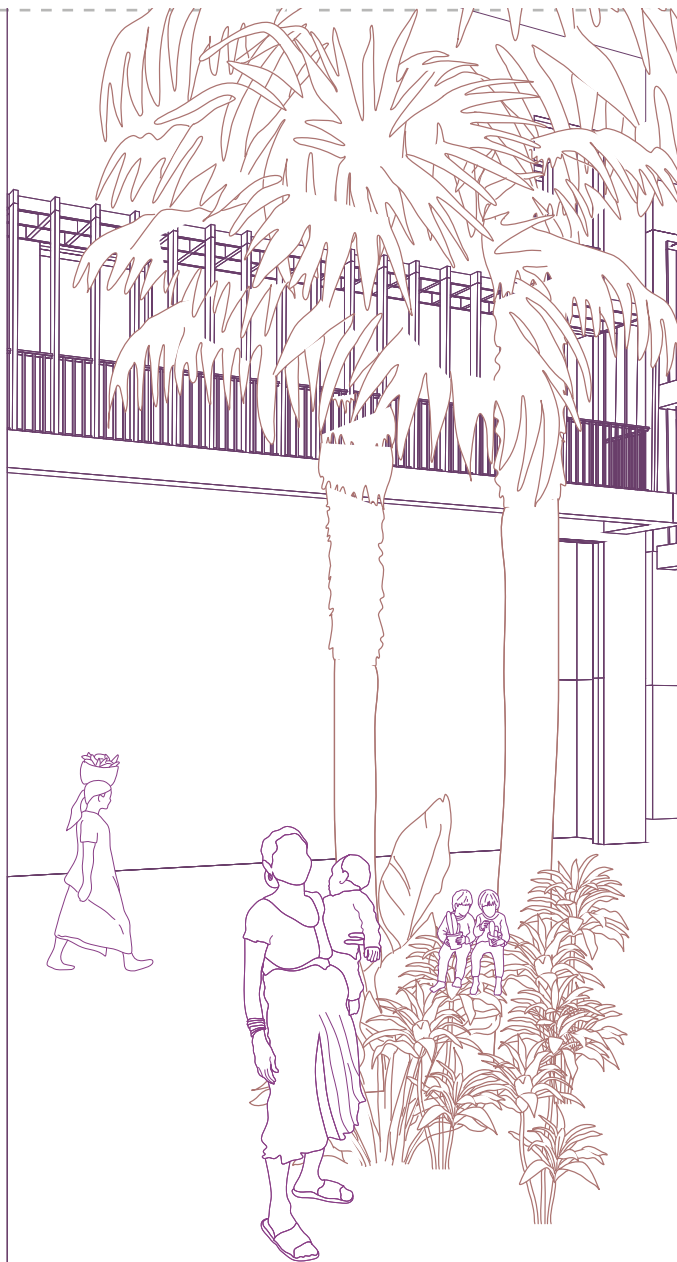






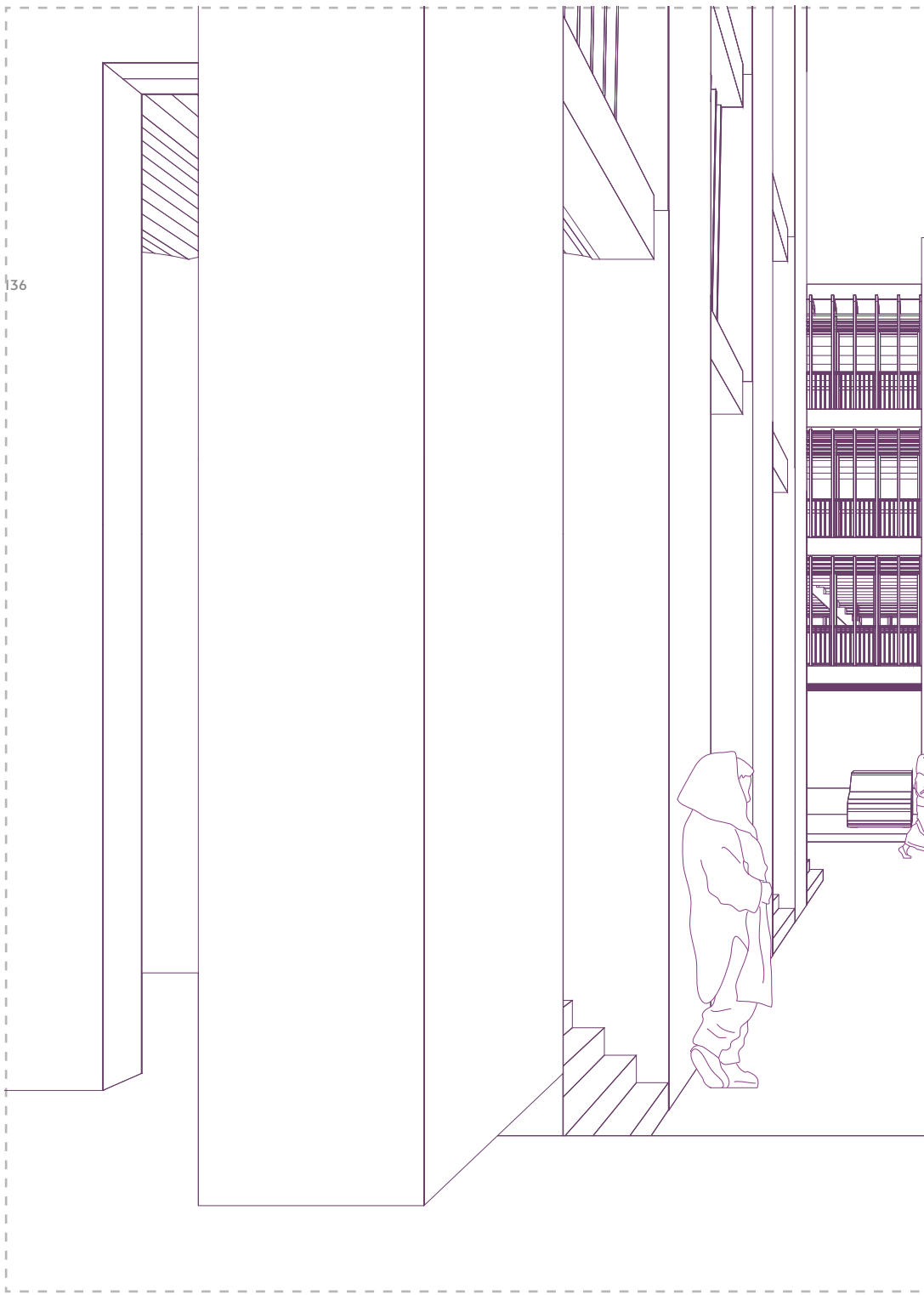


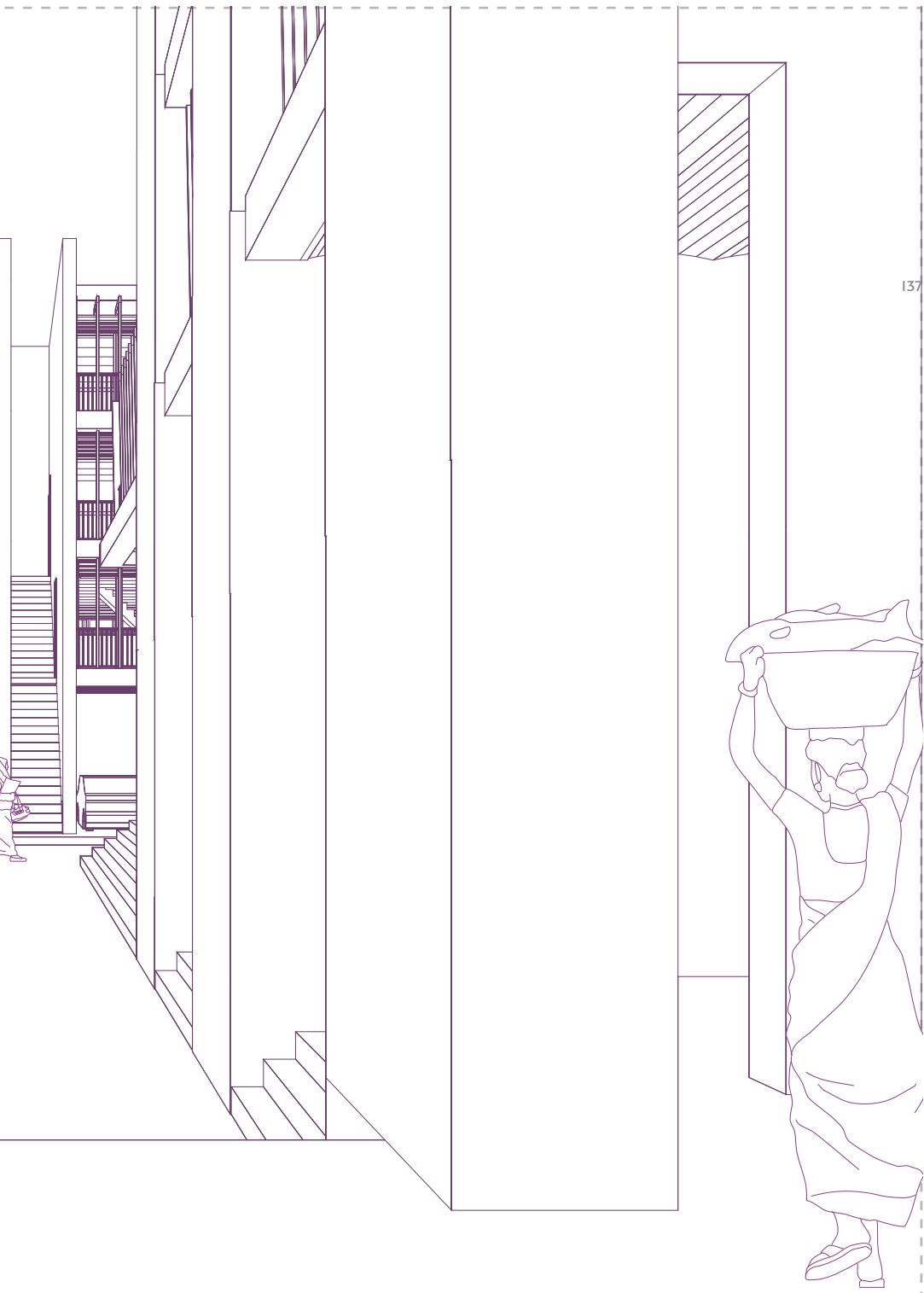








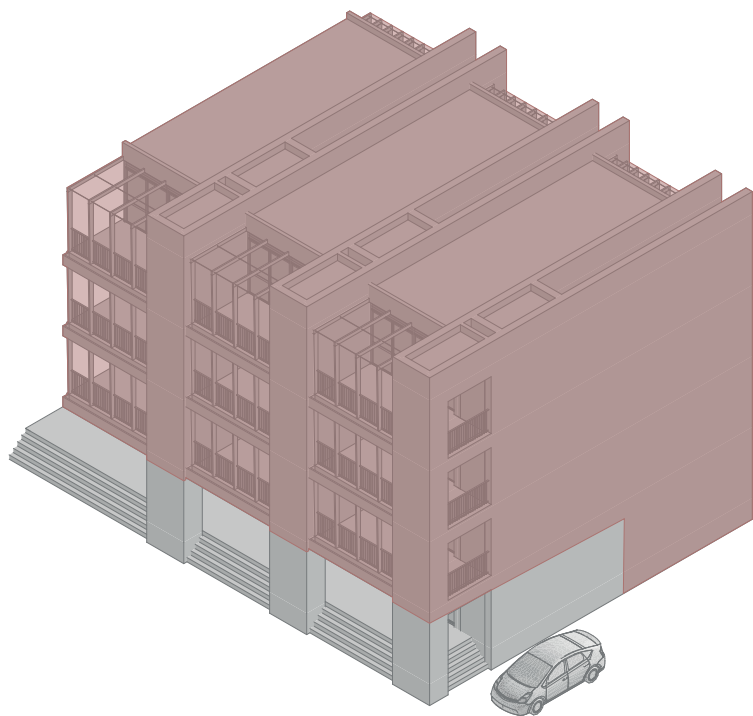


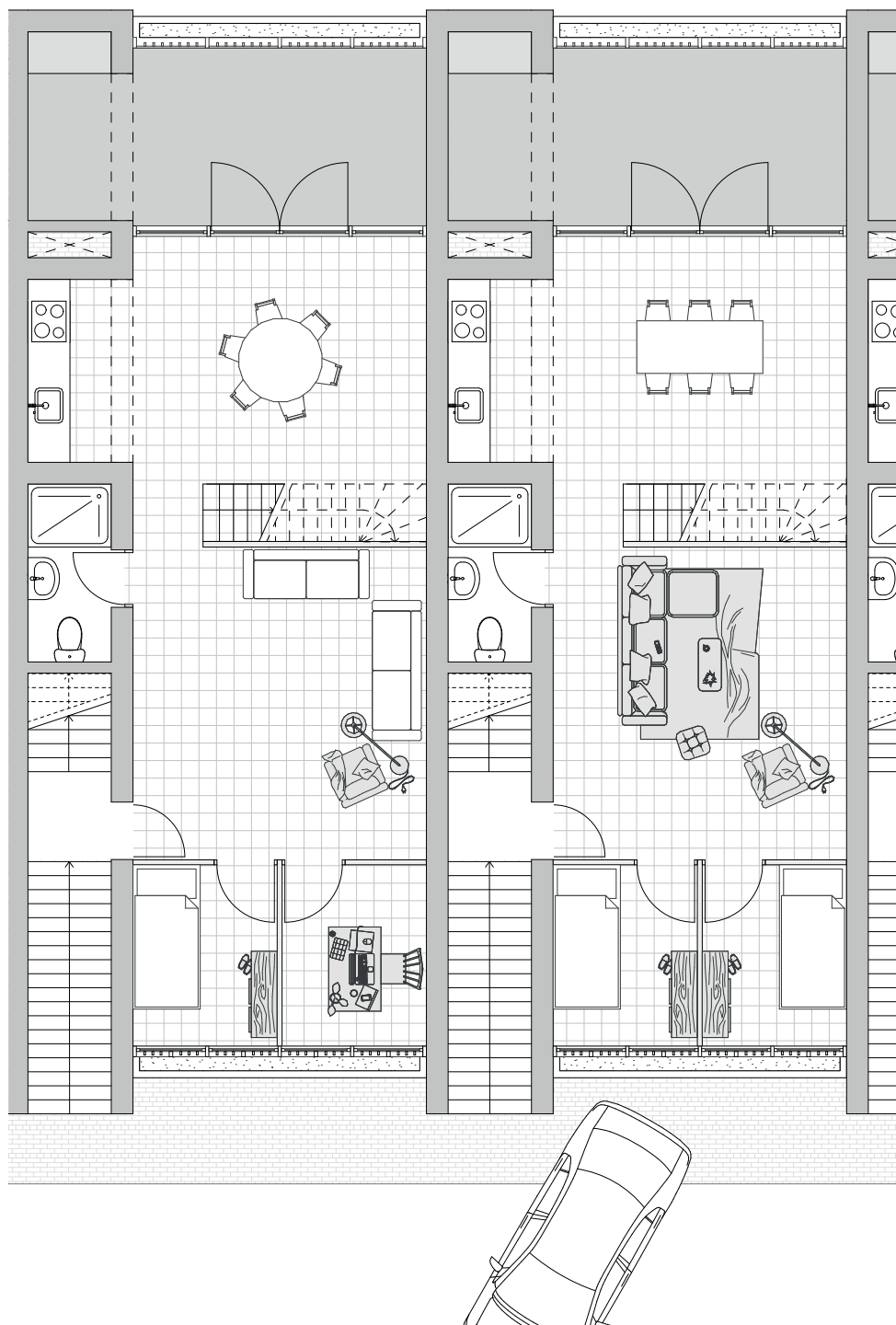




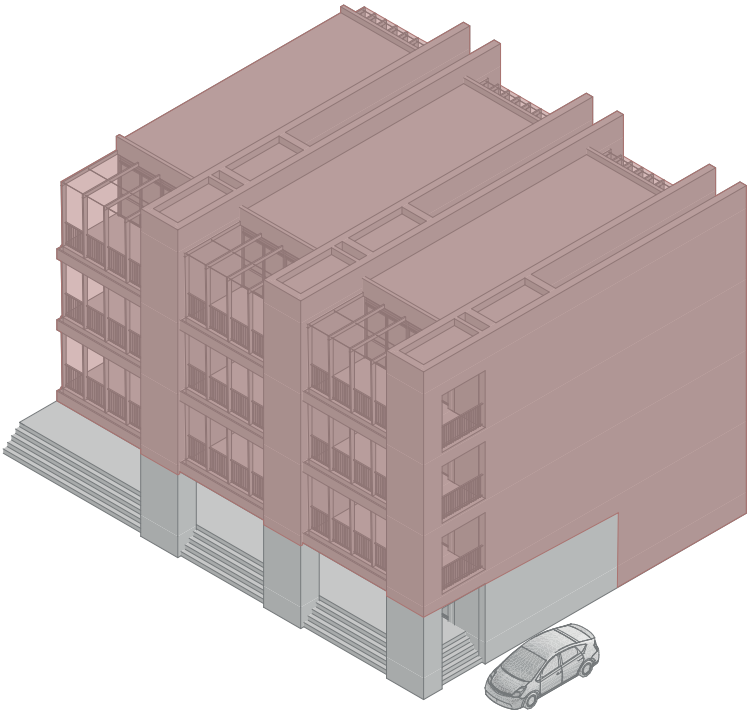


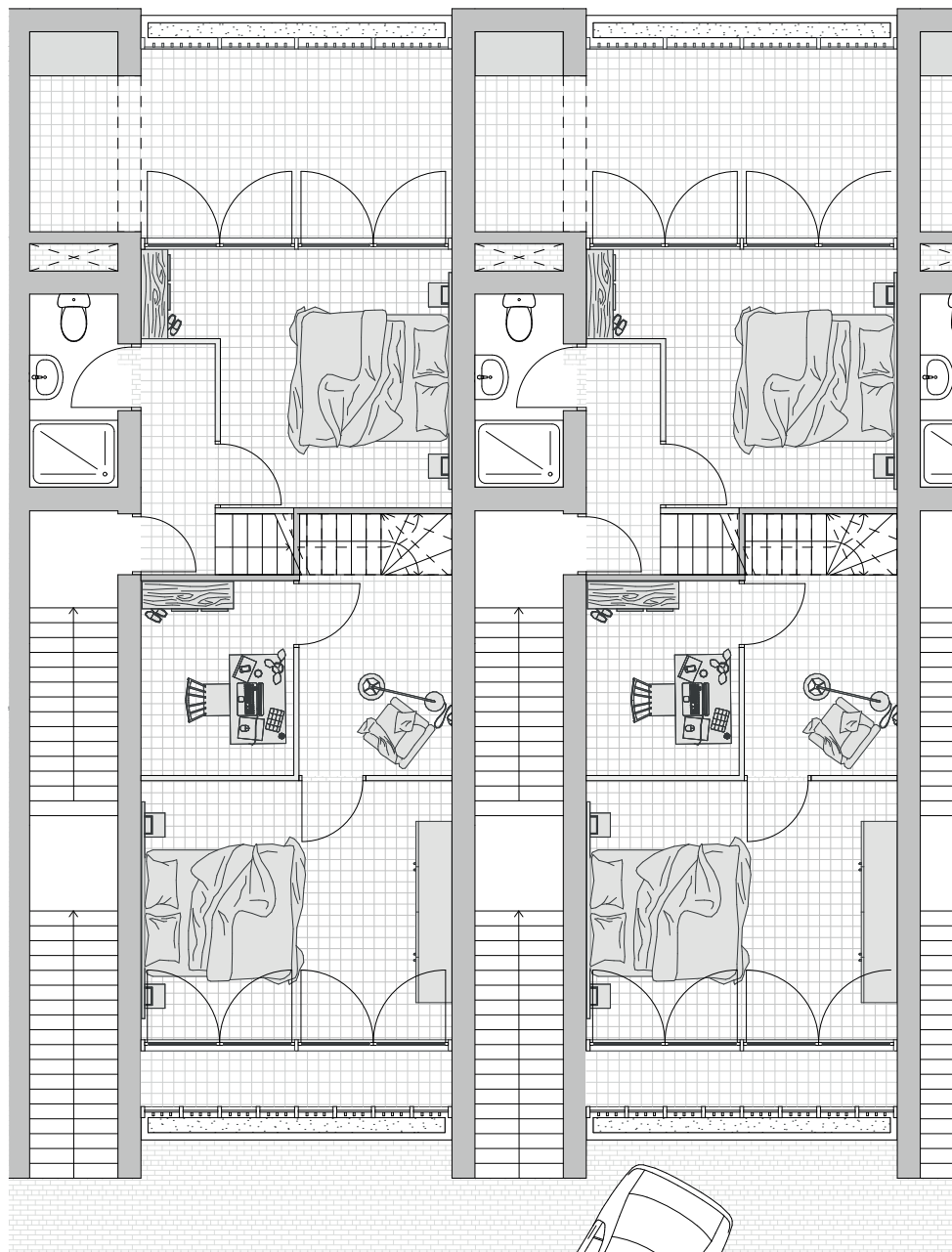
# high income dwelling



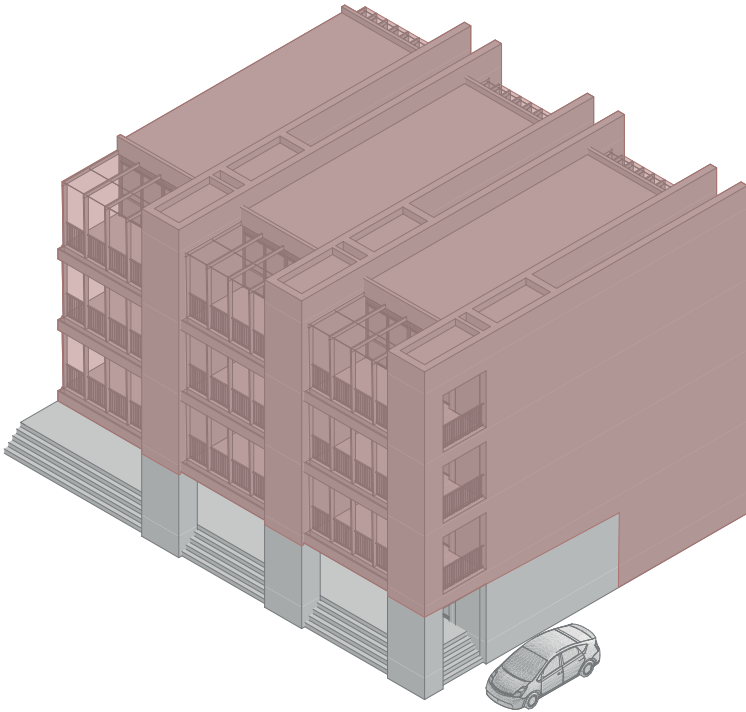


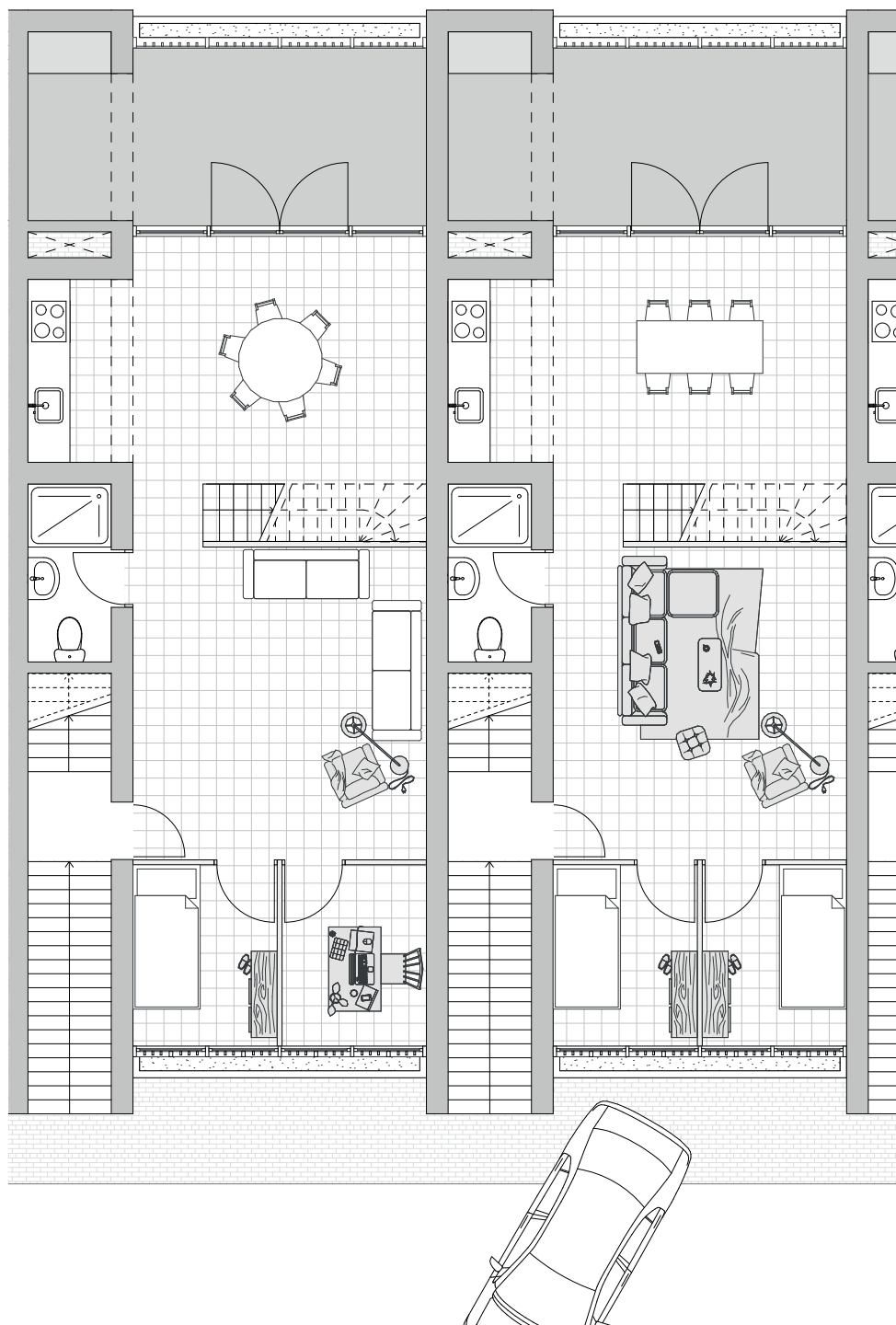


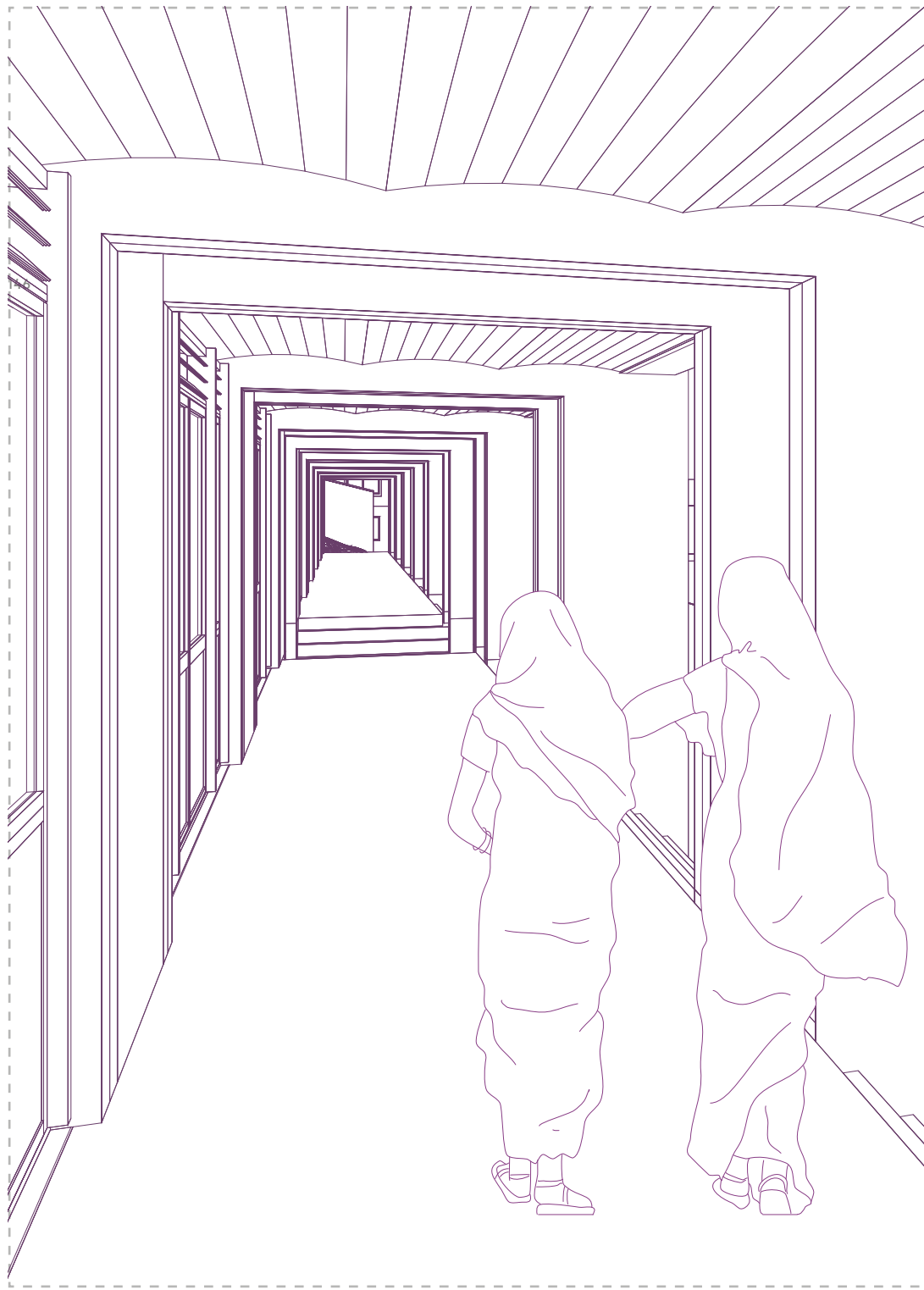


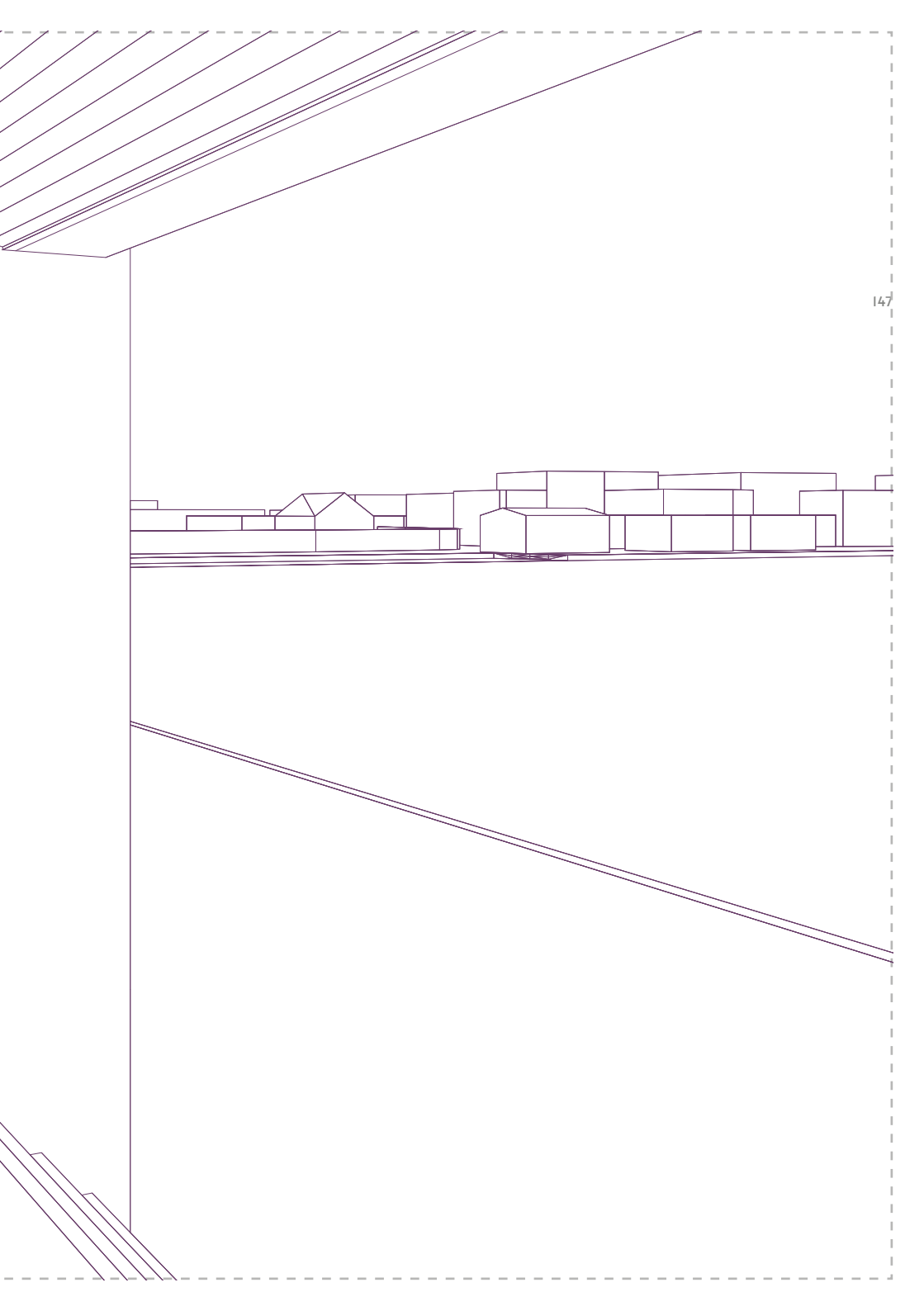


# high income dwelling

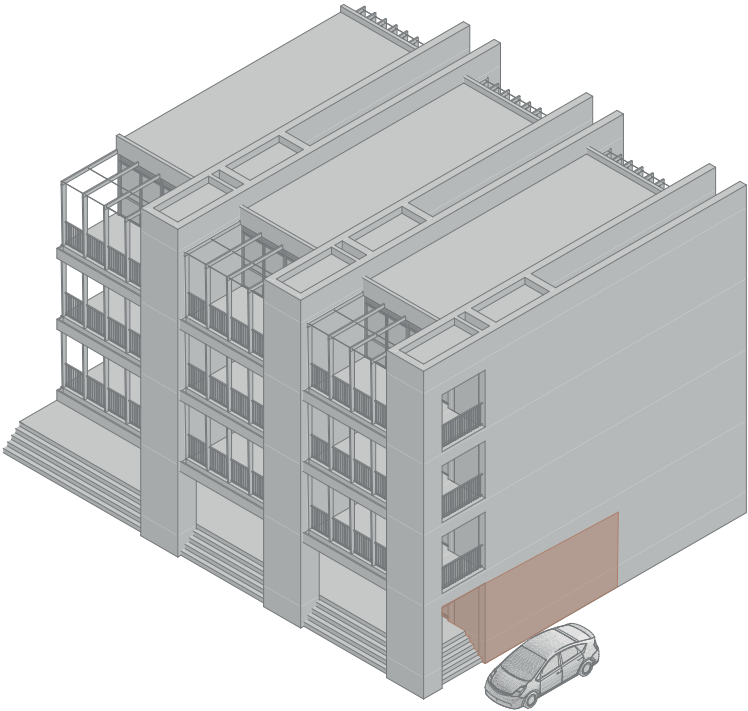




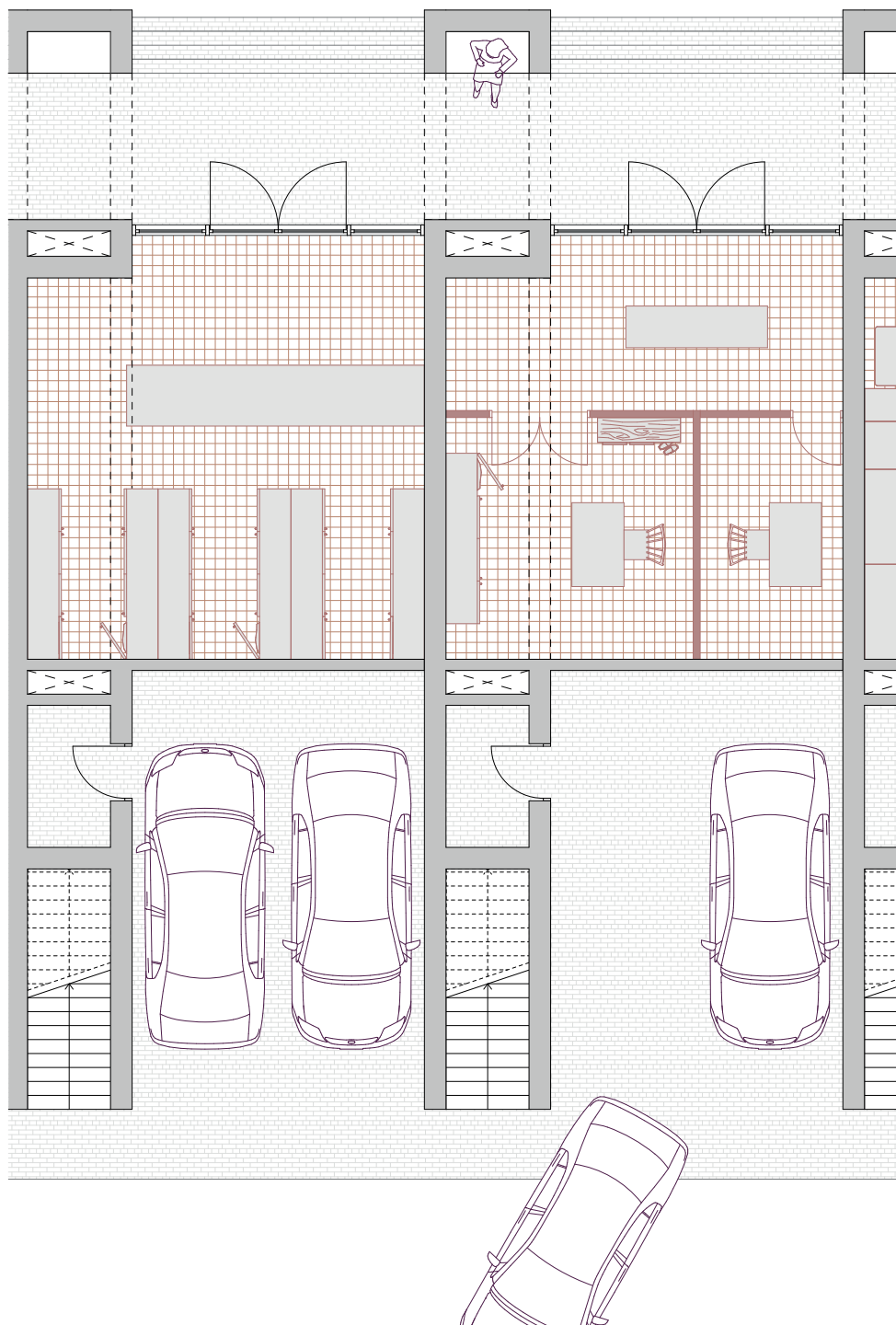




# commercial spaces











## **VII. Building Technology**



# System

The building I designed showcases an innovative and sustainable approach to construction. It features walls constructed from Compressed Stabilized Earth Blocks (CSEB), which are known for their durability and eco-friendliness. To ensure the longevity of these walls, they will be coated with concrete plaster on the exterior, rendered in a warm terracotta hue. This not only protects the structure but also adds an earthy aesthetic appeal. Inside, the walls will be finished with compressed earth plaster, maintaining a natural and comfortable living environment.

The structural design of the building is inspired by John Habraken's "Dragers" concept, where only the essential living spaces are incorporated, such as sanitary areas and the kitchen. This minimalist approach enhances functionality and efficiency. The floors between these structural walls will feature Jack arches, a robust and traditional flooring system.

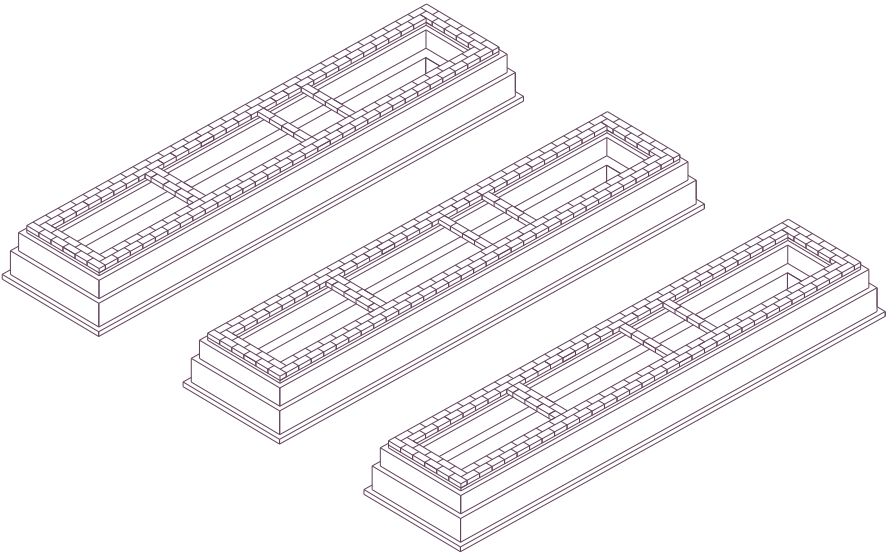
The facades of the building are crafted from mango wood, a material commonly used in Bangladesh. This

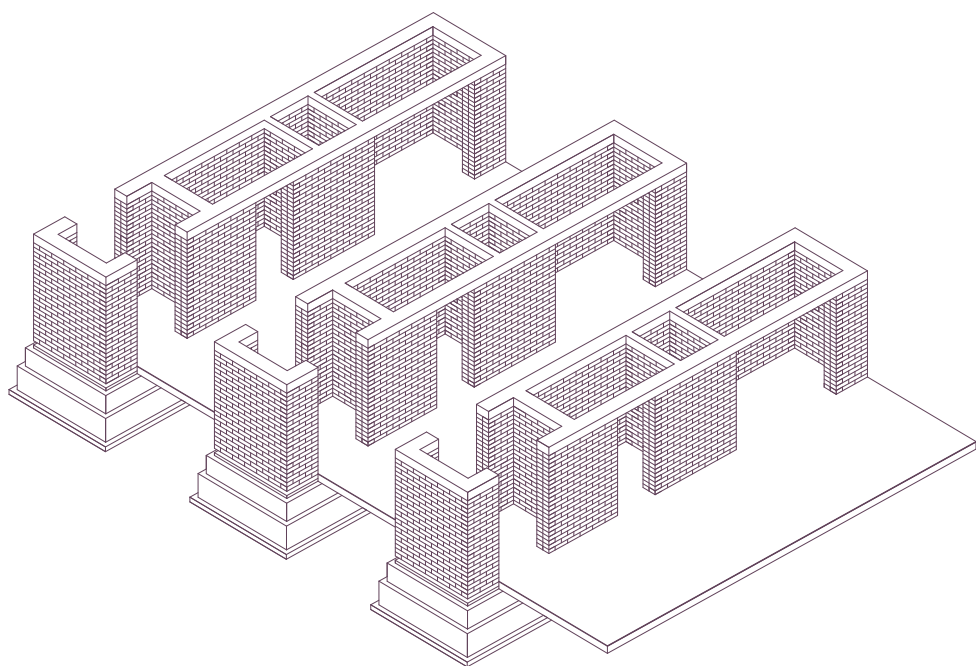
choice pays homage to the historical Bangla Baton house that previously occupied the site. The facade design incorporates a rhythmic pattern that varies on each side of the building, effectively regulating sunlight penetration and promoting energy efficiency. Additionally, the design facilitates cross ventilation, ensuring a comfortable indoor climate throughout the year.

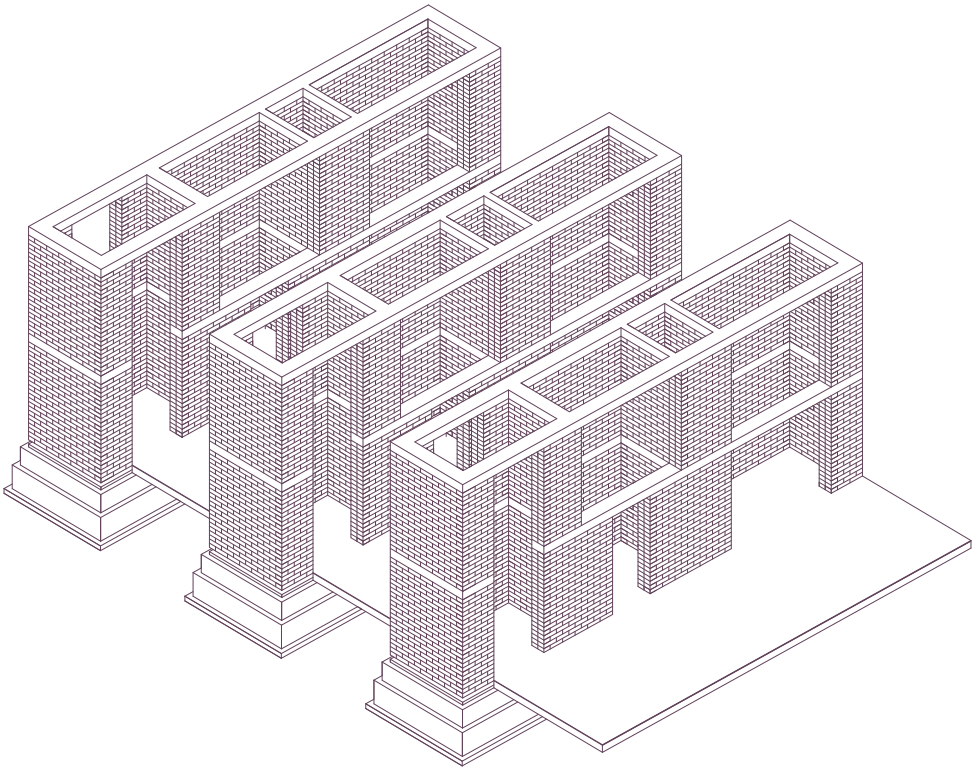
This thoughtful combination of materials and design principles not only respects the site's historical context but also embraces sustainable and efficient building practices.

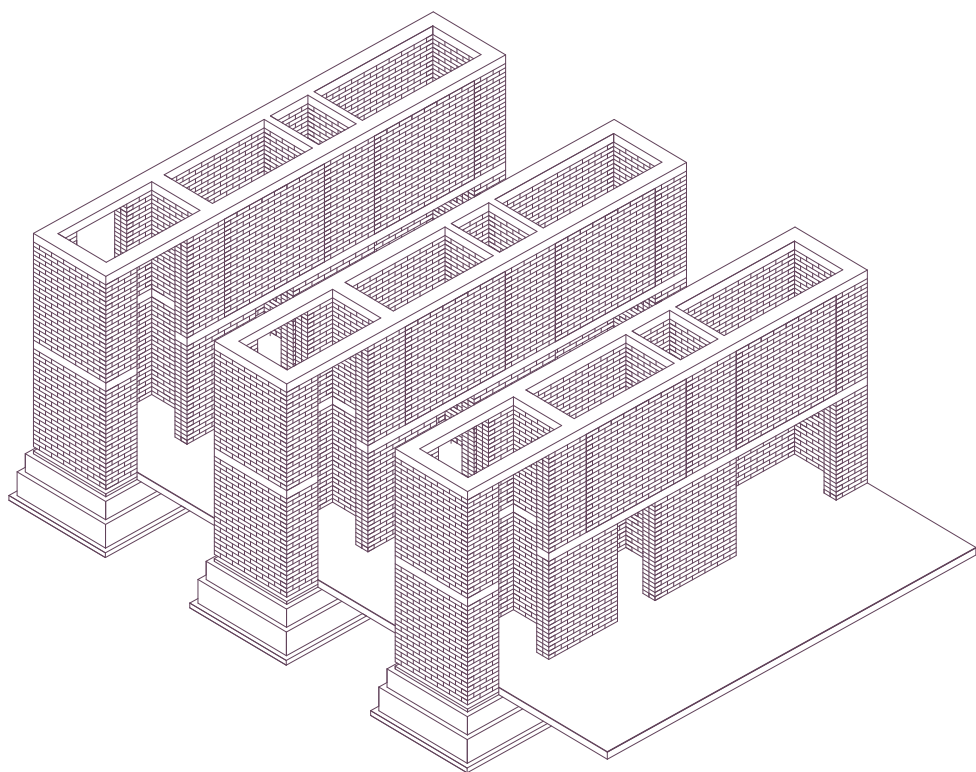


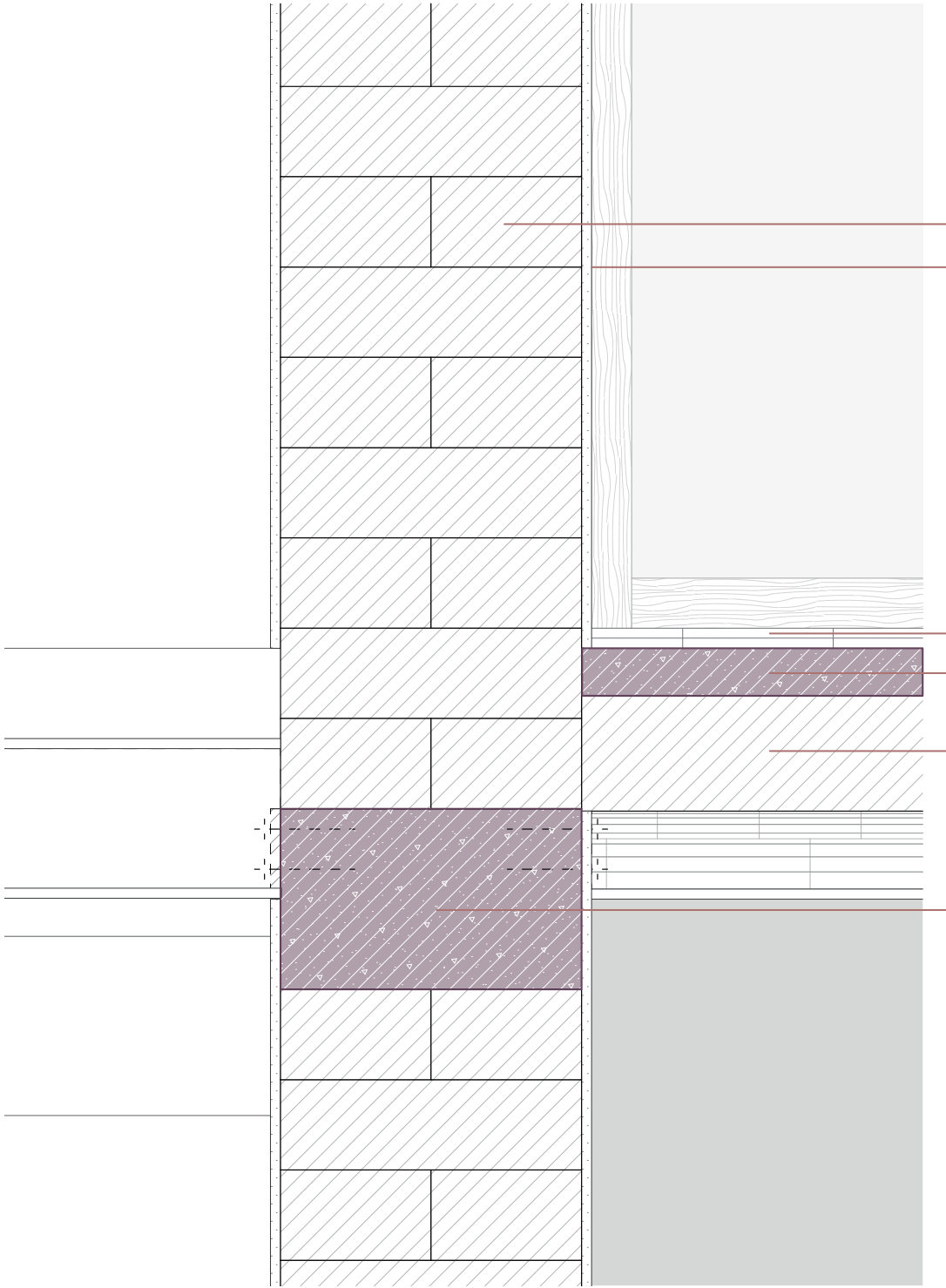


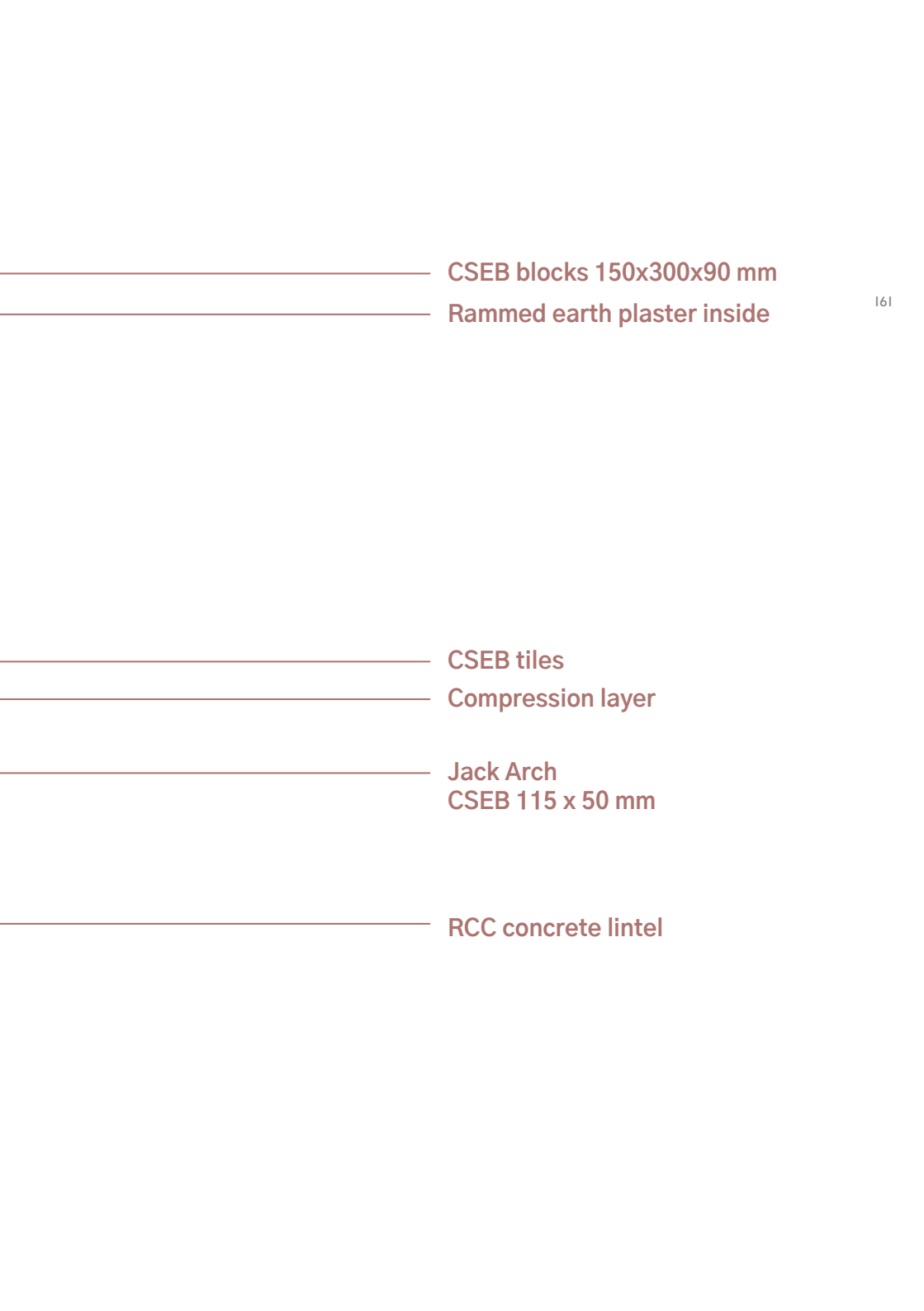












CSEB blocks 150x300x90 mm

Rammed earth plaster inside

161

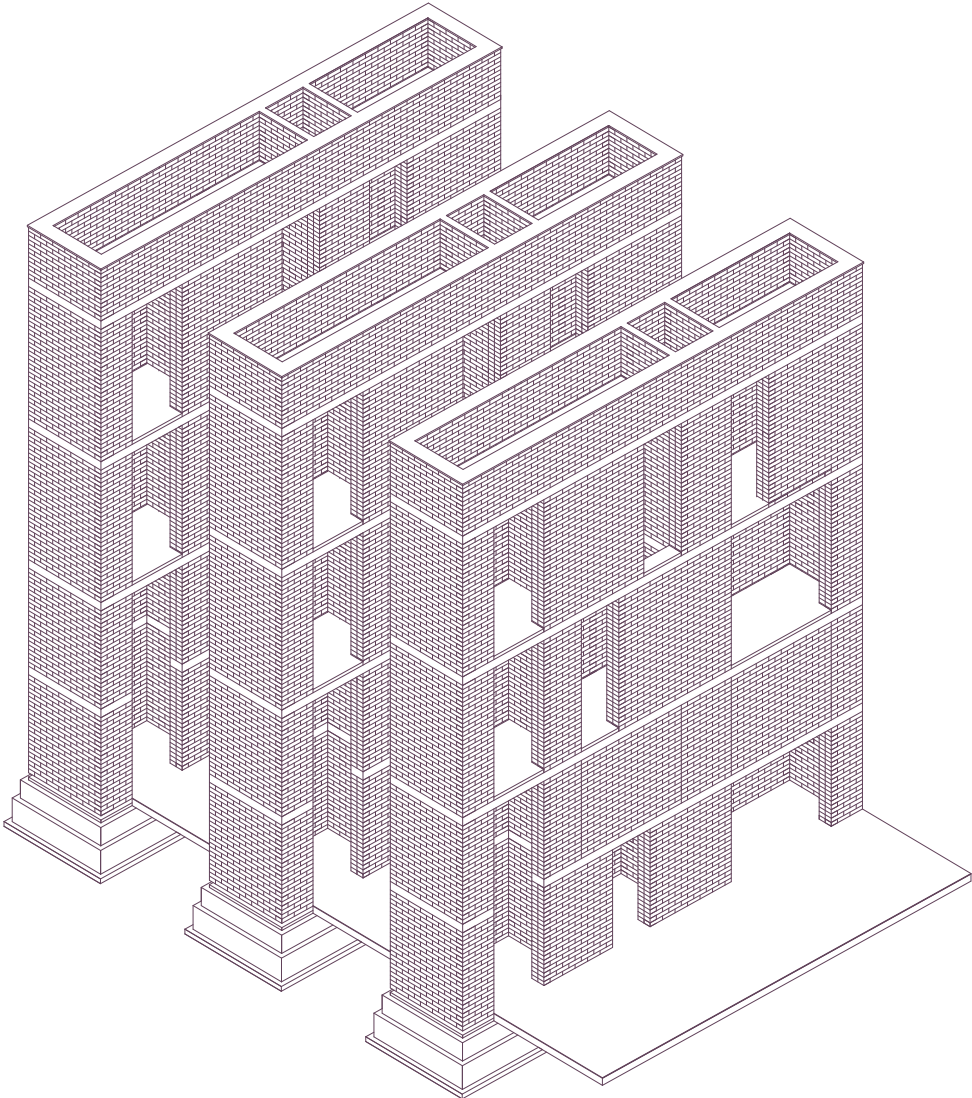
CSEB tiles

Compression layer

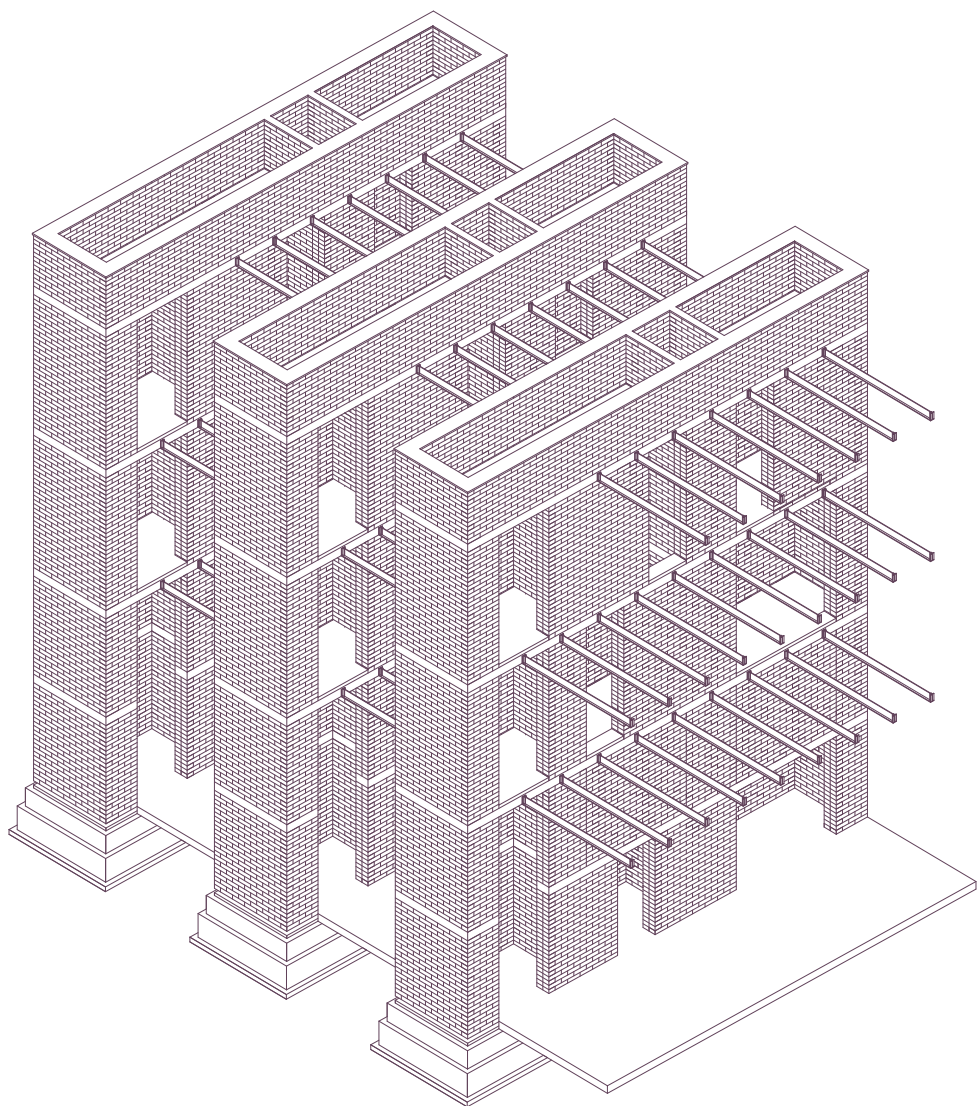
Jack Arch

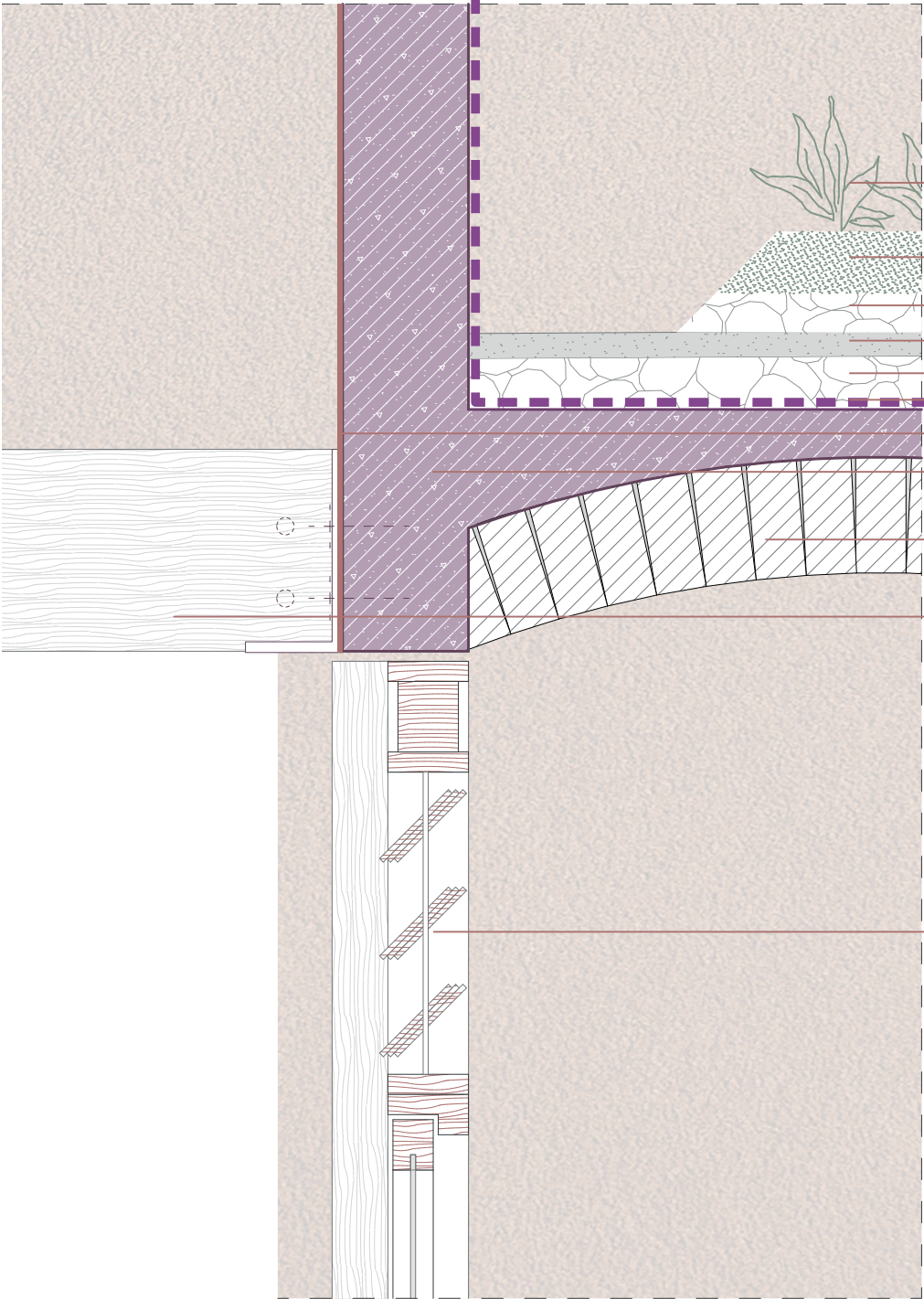
CSEB 115 x 50 mm

RCC concrete lintel









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Green roof

---

Soil

---

Drainage

---

THK screeding 25 mm with slope

---

50 mm deep light weight brick filling

---

Waterproofing

---

Cement plaster red – brown

---

RCC Concrete

---

Jack Arch CSEB

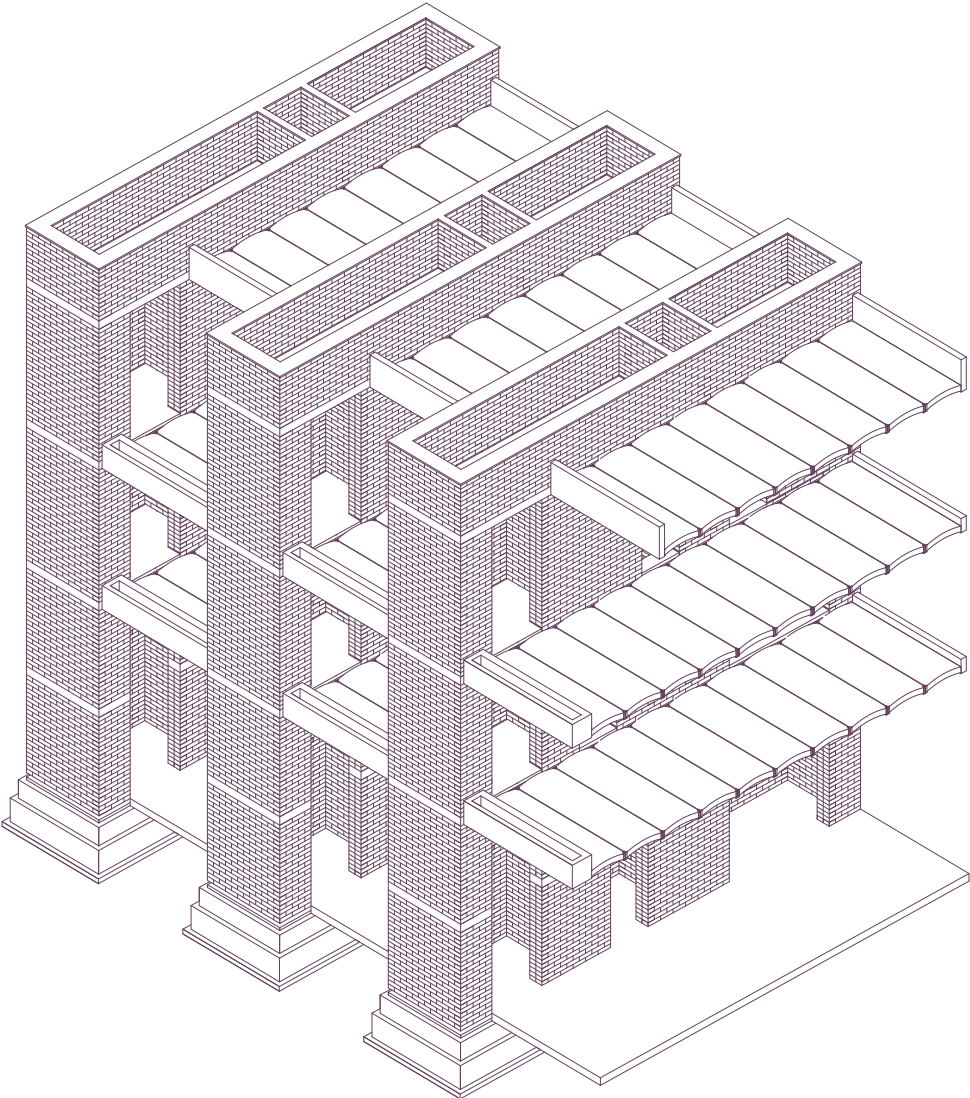
---

Mango wood beam

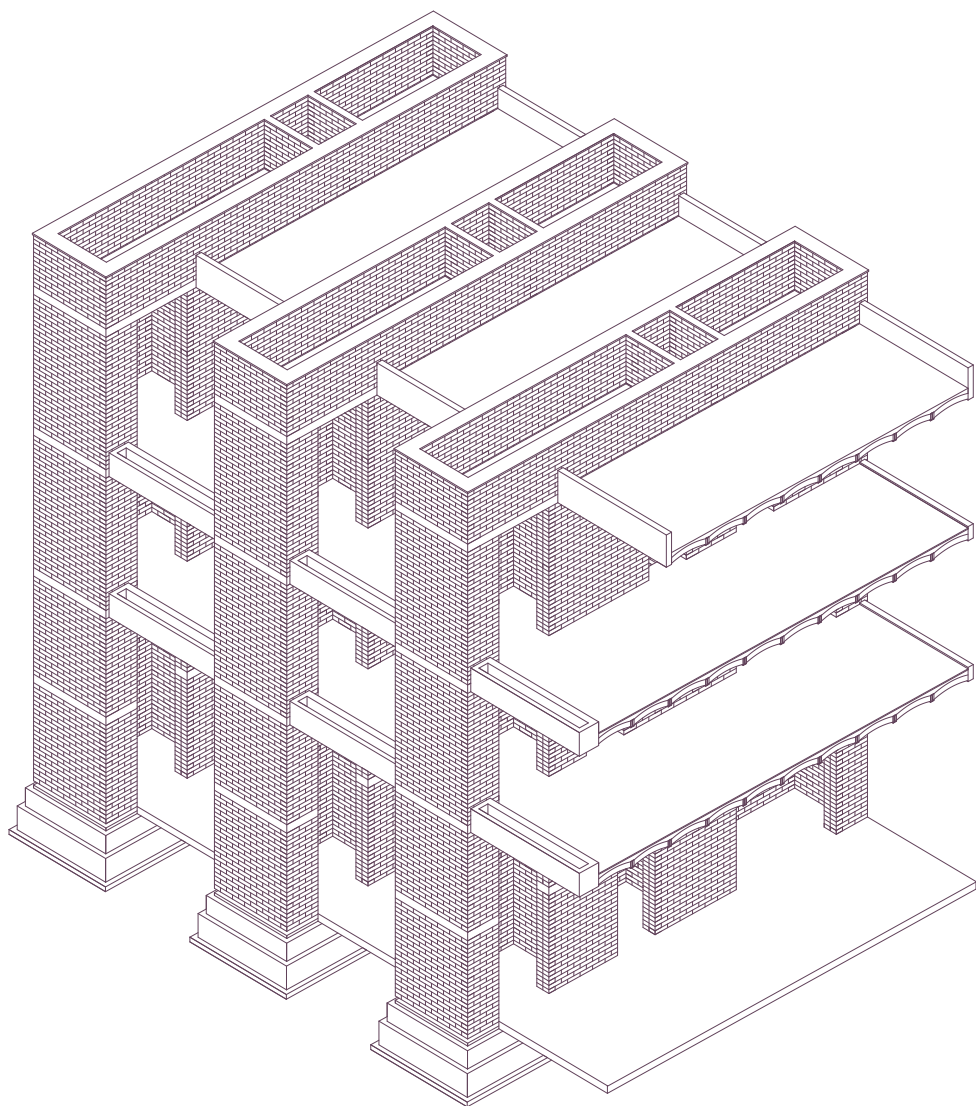
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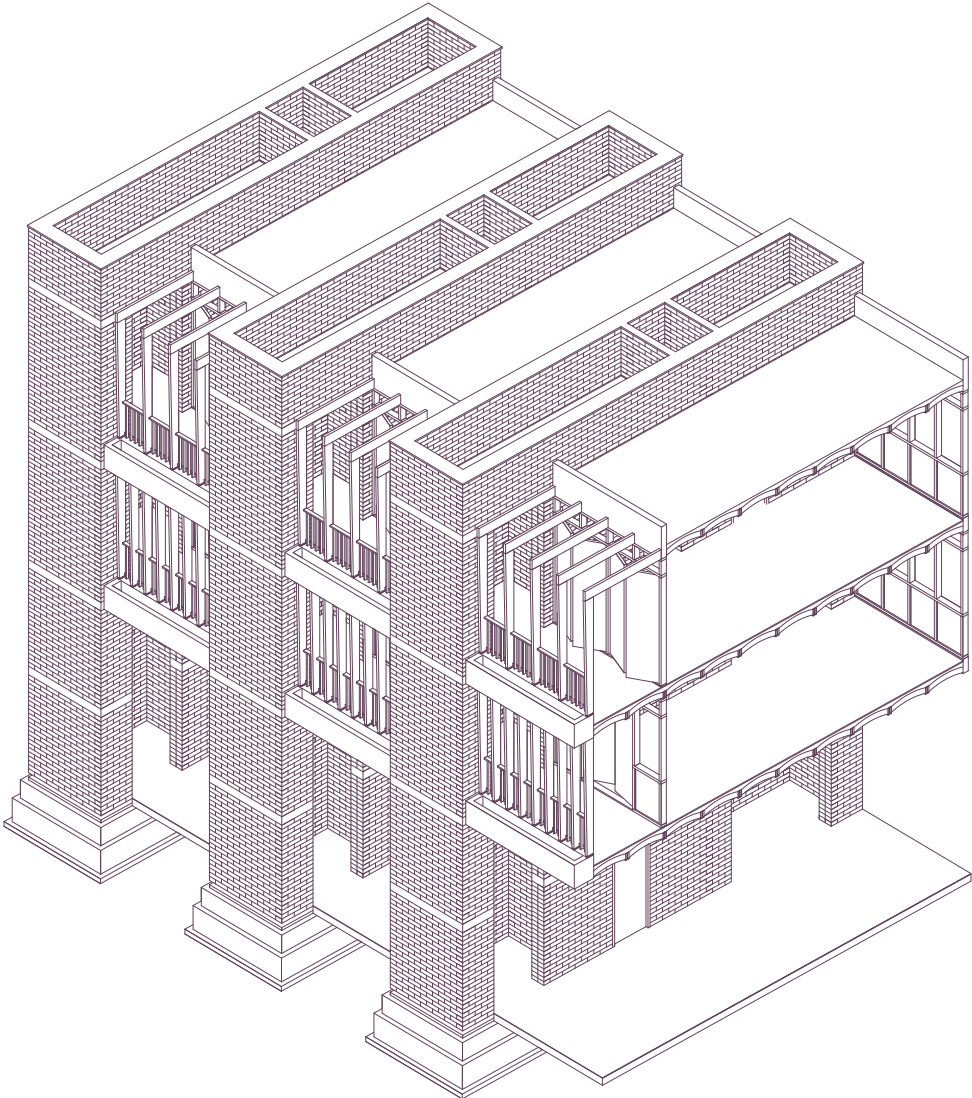
Mango wood facade

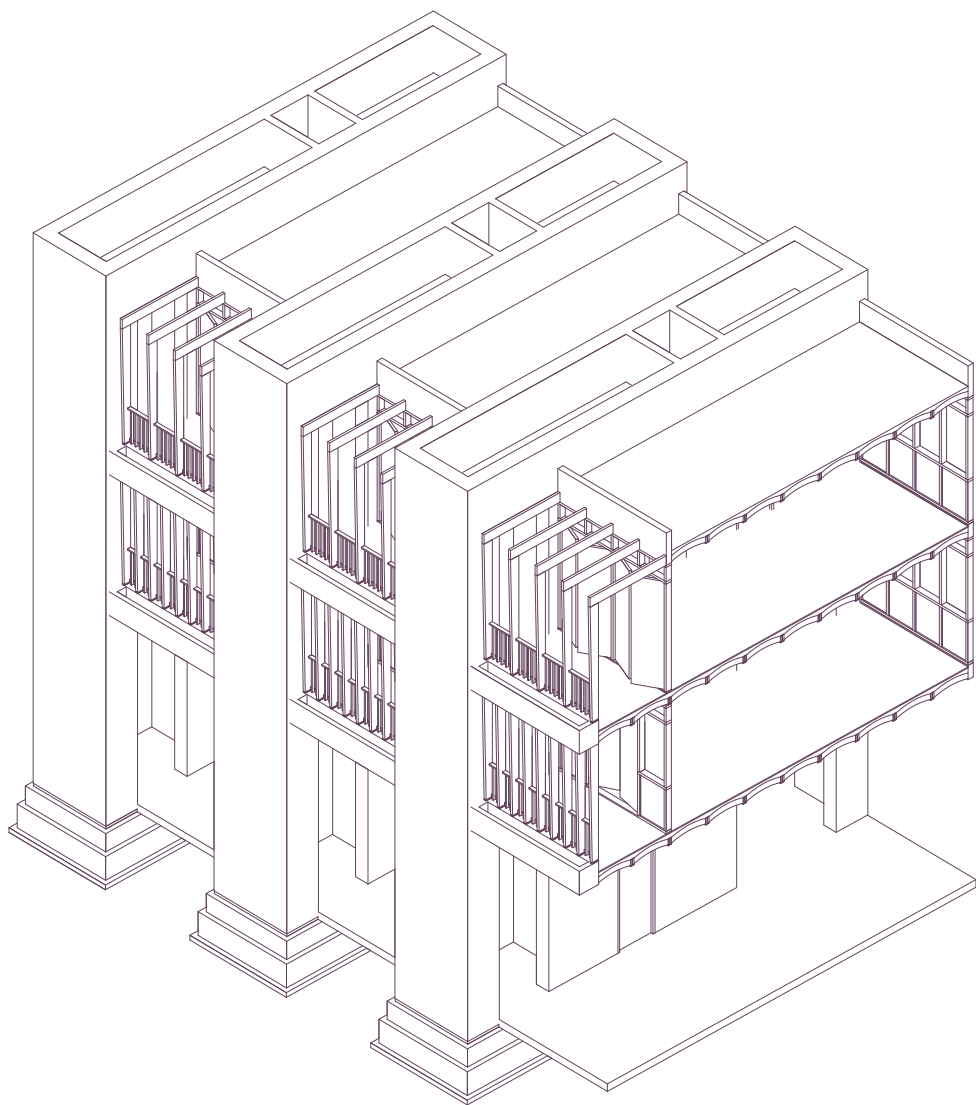
Shutters for ventilation



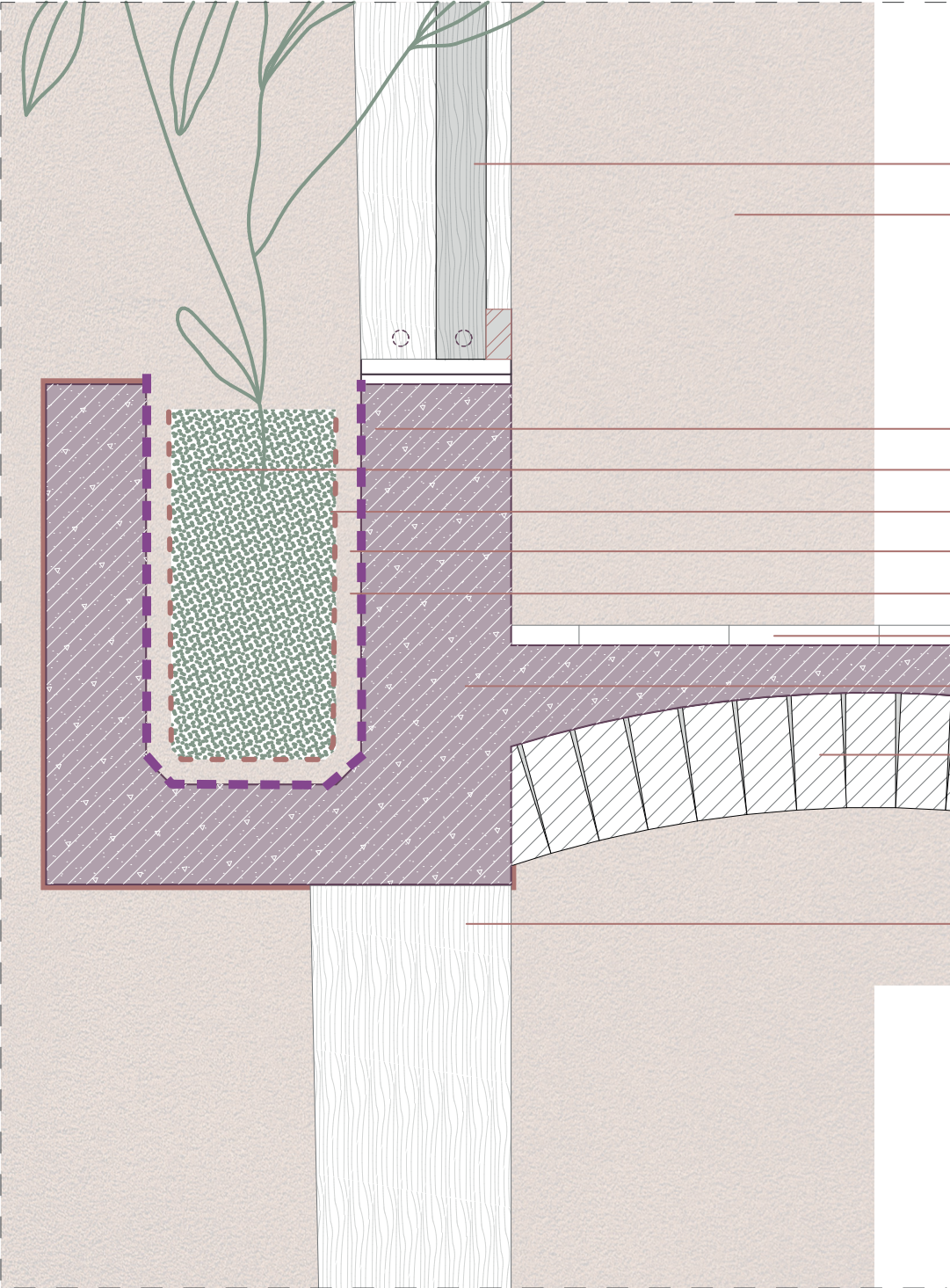














Mango wood railing

Cement plaster red – brown

171

Cement plaster red – brown

Soil

Geotextile filter

Drainage layer

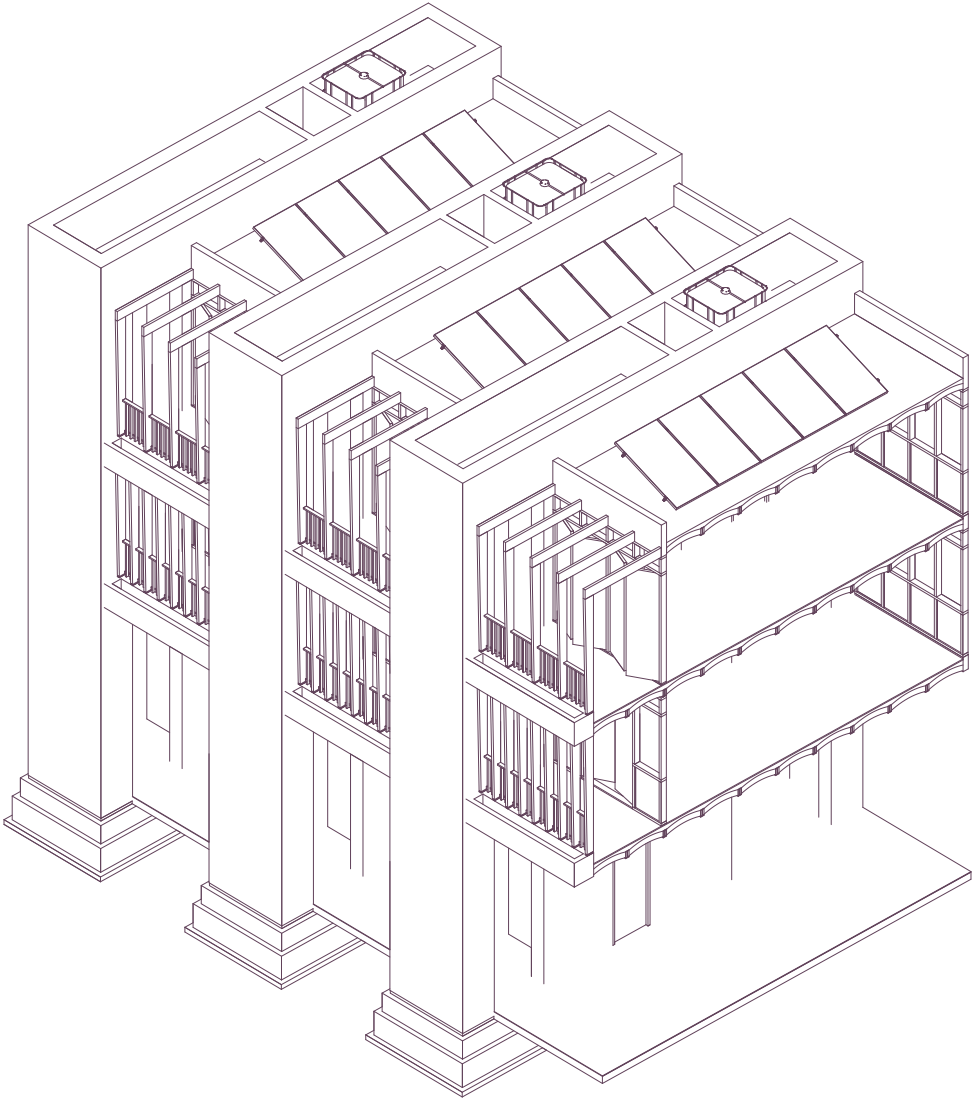
Waterproofing

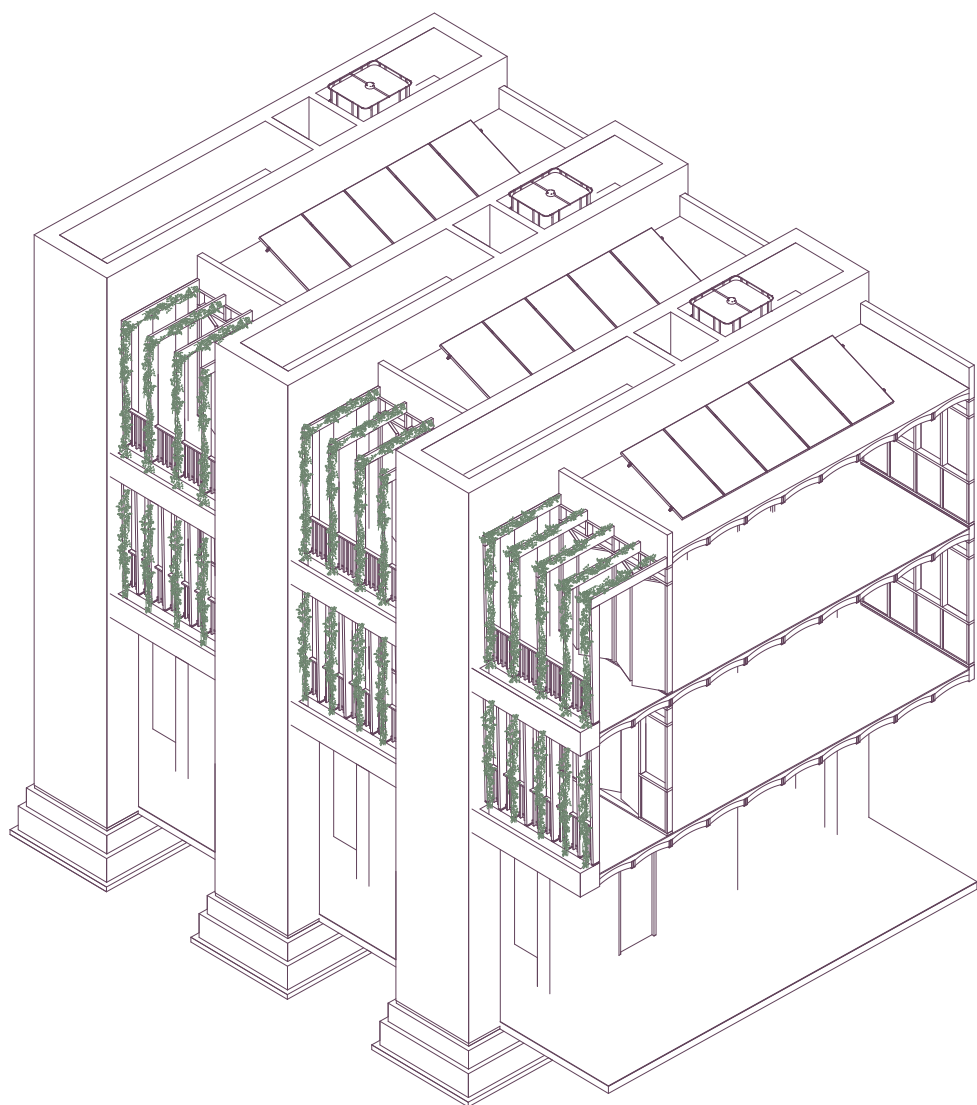
CSEB tiles

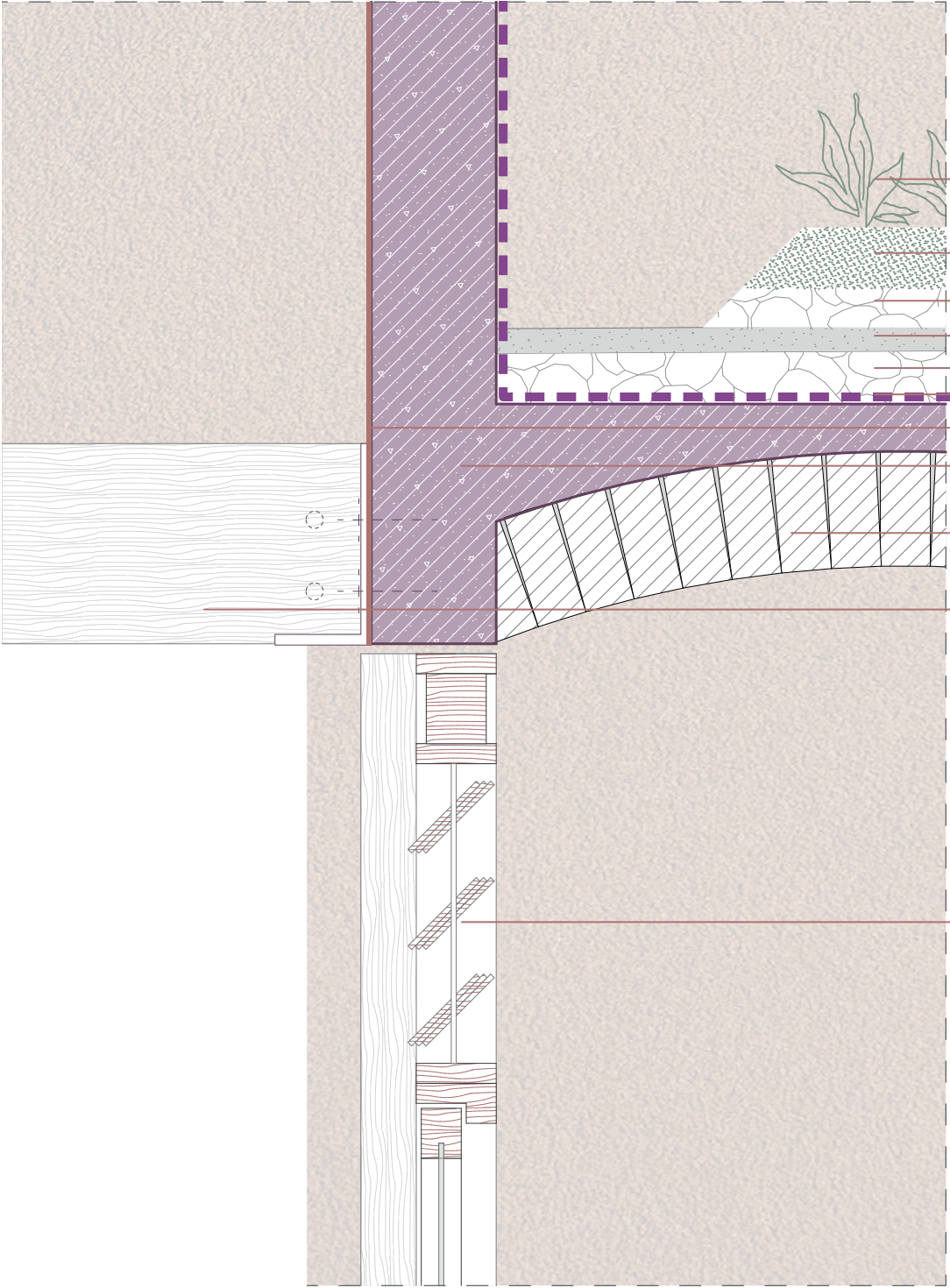
RCC Concrete

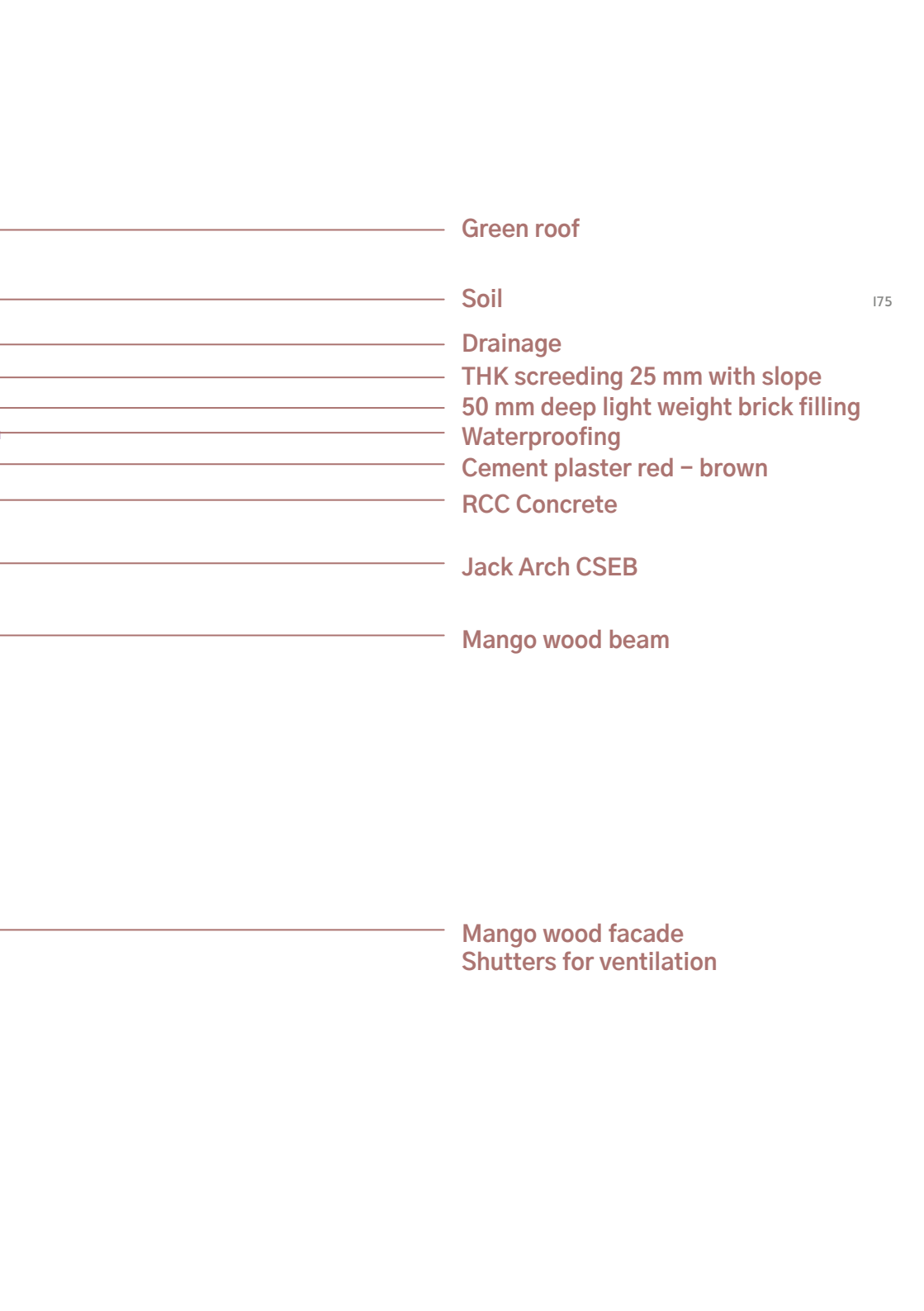
Jack Arch CSEB

Mango wood facade









Green roof

Soil

175

Drainage

THK screeding 25 mm with slope

50 mm deep light weight brick filling

Waterproofing

Cement plaster red - brown

RCC Concrete

Jack Arch CSEB

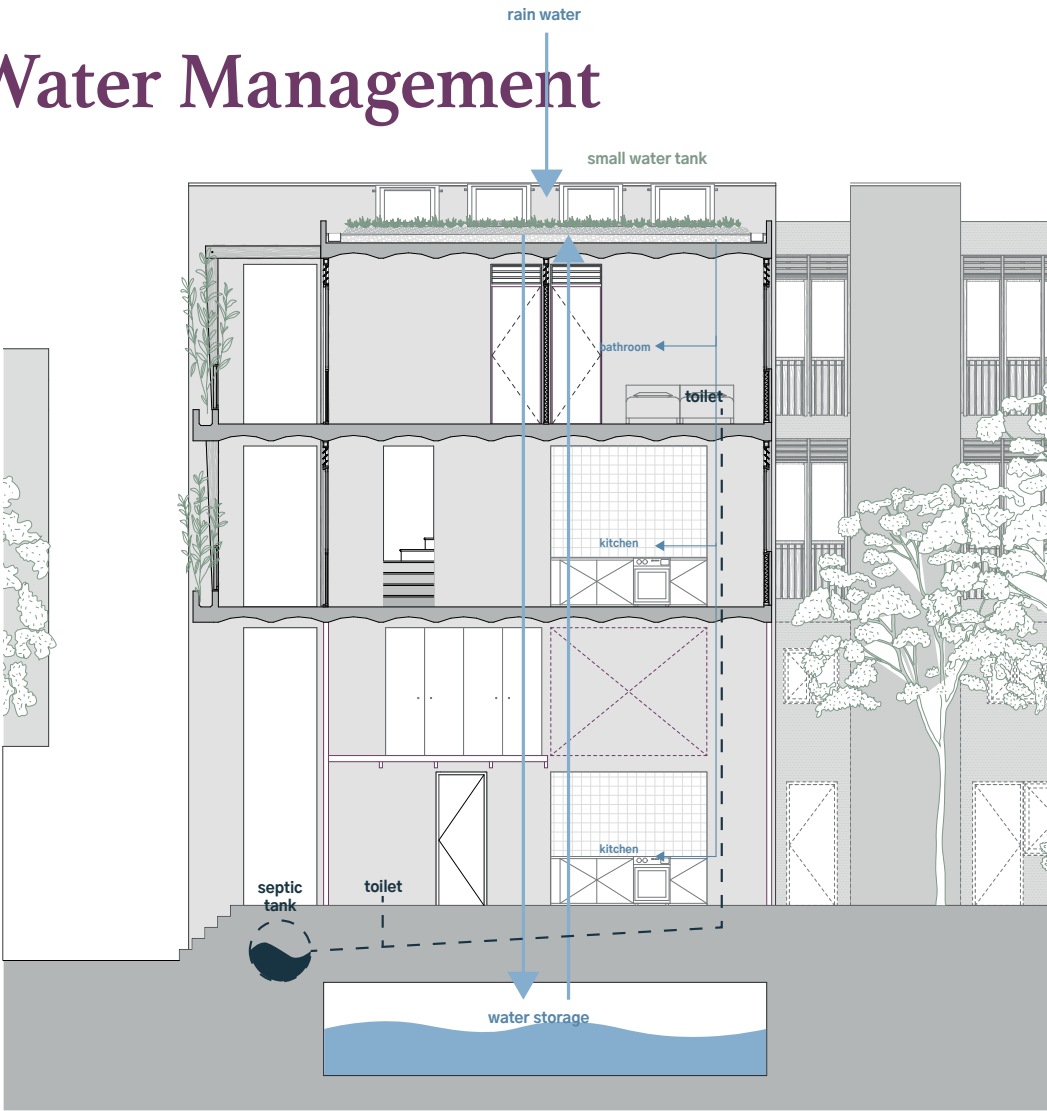
Mango wood beam

Mango wood facade

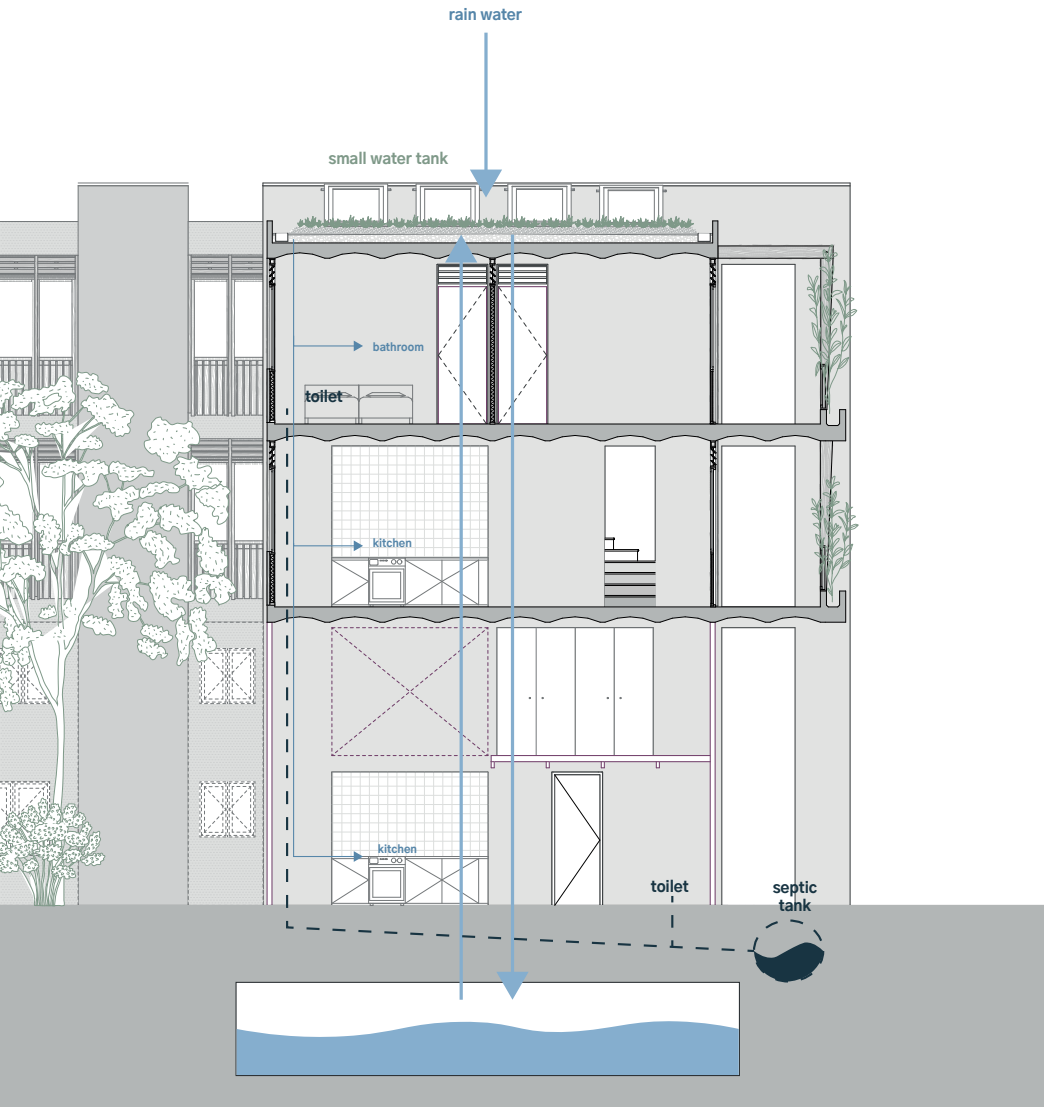
Shutters for ventilation



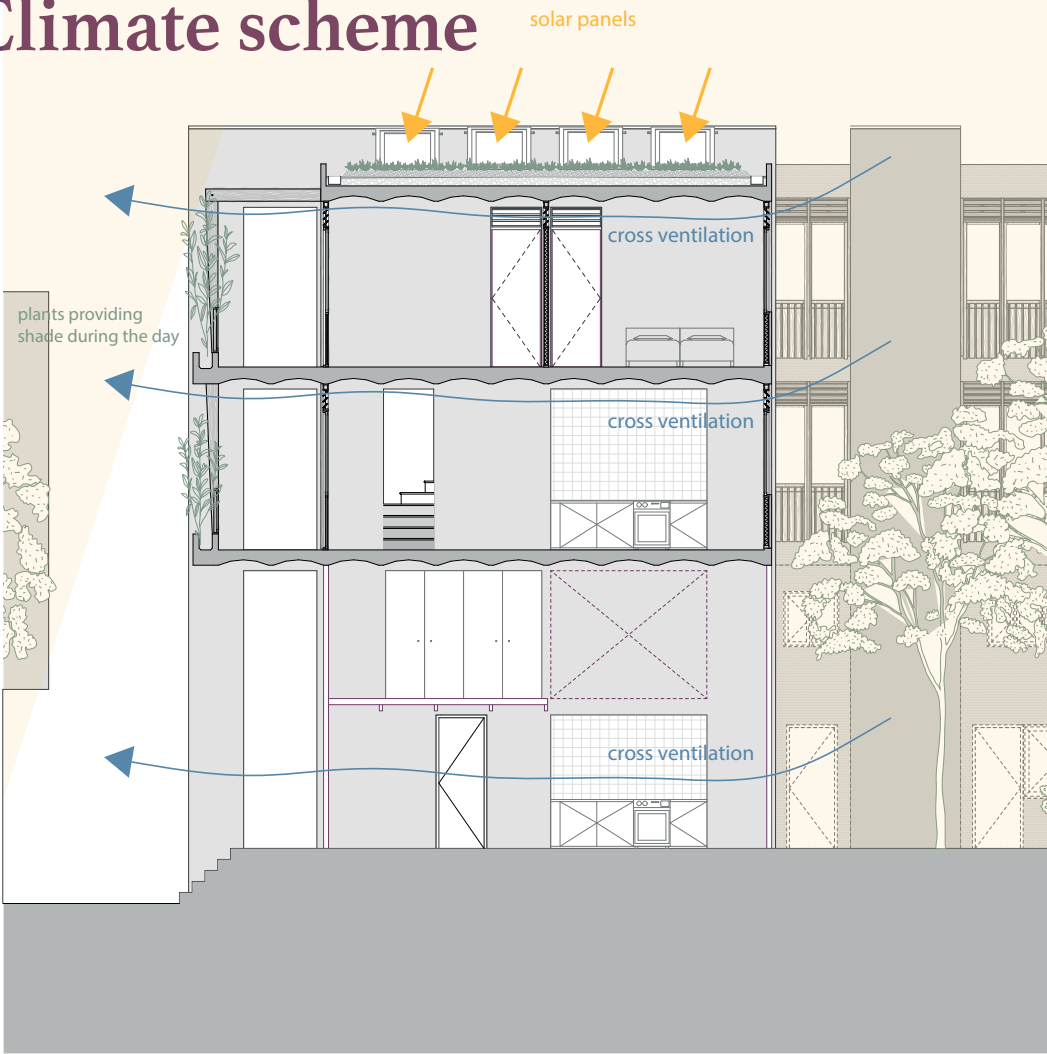
# Water Management

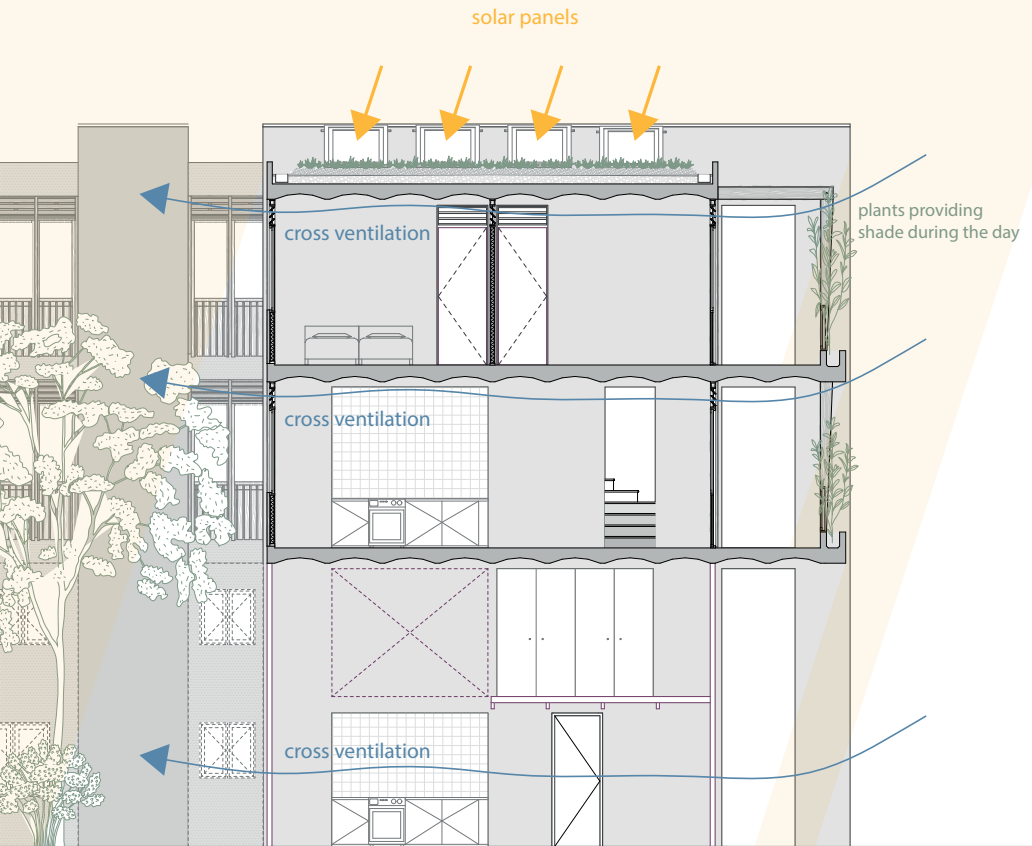






# Climate scheme





## VIII. Visual







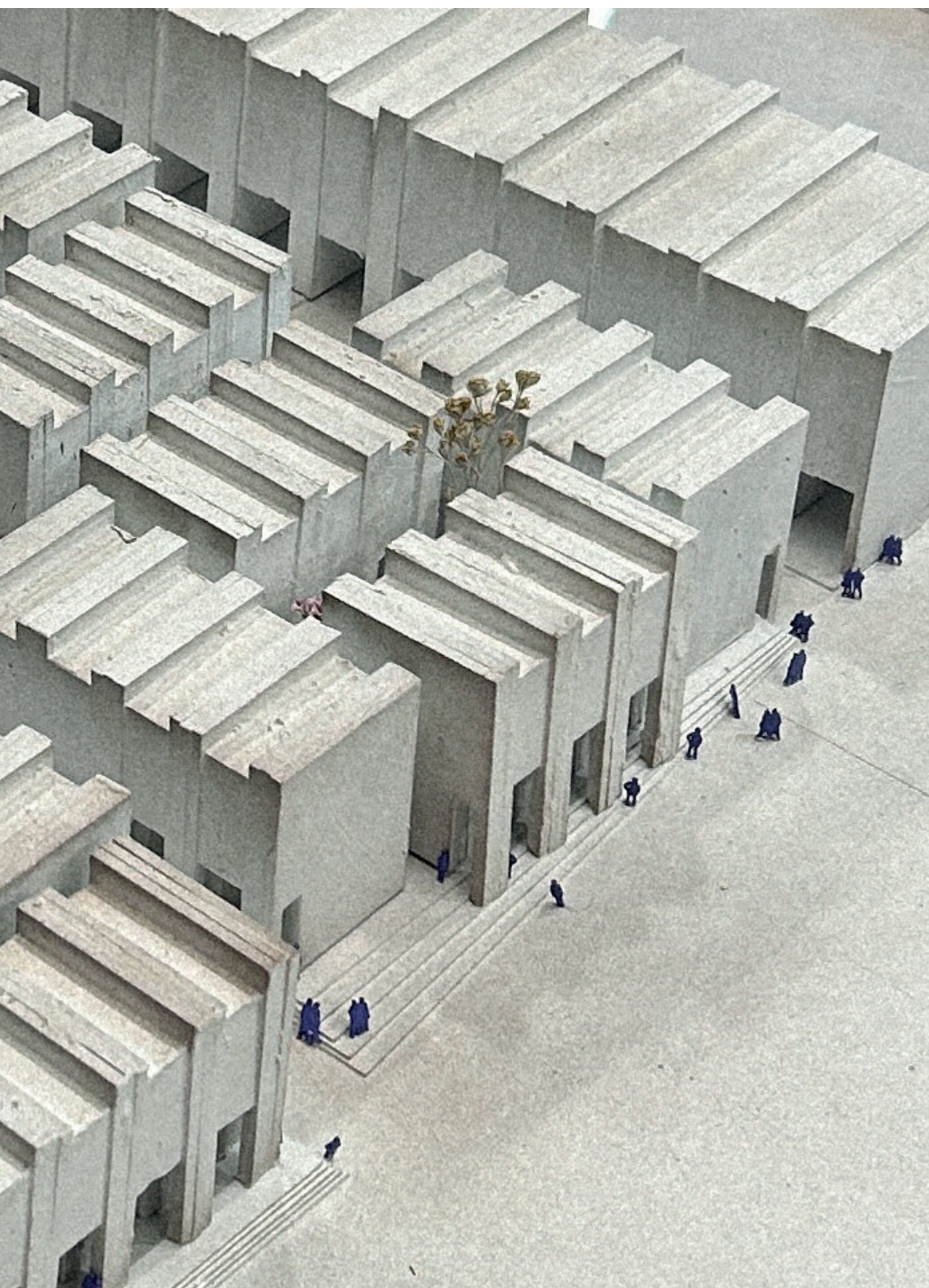


## **IX. Models**

















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