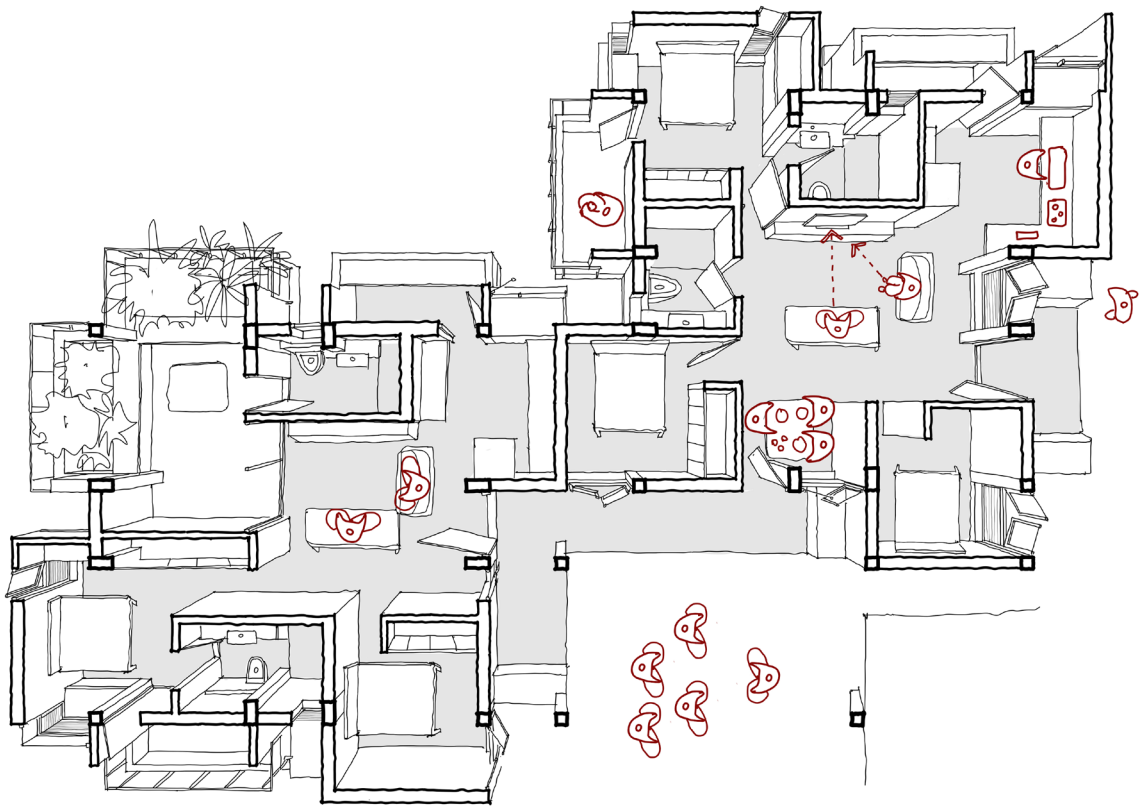

Where the streets climb upwards

A study of tacit negotiations in domestic entities

Graduation project report for M.Sc in Architecture,
Urbanism and Building Sciences

Varun Bapu Sudheendra
6256864

Author details
Varun Bapu Sudheendra
Student number: 6256864

Delft University of Technology Faculty of Architecture and the Built Environment
Department of Architecture | Global Housing
MSc 3/4 Global Housing : Dwelling in Ahmedabad
2025-2026

Teaching team

Design mentor:
Prof. Dick van Gameren

Prof. Marina Tabassum

Research mentor:
Dr. Brook Teklehaimanot Haileselassie

Dr. Nelson Mota

Dr. Rohan Varma

Ir. Frederique van Andel

Collaborating faculty at CEPT
Prof. Vishwanath Kashikar
Shreyank Khemalapure
Rushabh Suchdev

GLOBAL HOUSING

TU Delft | Bouwkunde

Abstract

Traditional housing settlements in India were characterised by spatial elements such as chowks, aangans, otlas, and terraces that supported everyday social interaction and community life. Rapid urbanisation, increasing densities, and the shift towards high-rise housing have reduced the presence and effectiveness of these shared spaces, contributing to social isolation and a diminished public realm.

This thesis investigates how traditional spatial principles can be reinterpreted within contemporary medium-rise, high-density housing in Ahmedabad. Focusing on residual and transitional spaces, particularly terraces (*Agaashiyes*), courtyards (*Aangans*) and *Otlahs* the research examines their potential to support collective life without compromising density or affordability.

The study finds that successful community spaces are accessible, integrated into daily movement patterns, visually connected, and adaptable to multiple uses. It further demonstrates that interconnected terraces and transitional spaces can function as extensions of the ground plane, creating a layered public realm.

These insights inform a housing proposal that reactivates communal spaces, establishes a hierarchy of public and private domains, and accommodates incremental change over time.



Personalising a balcony in the GHB apartment, Ahmedabad
Photograph: Author's own (2025)

Acknowledgement

This thesis is an attempt to bring together my memories of Ahmedabad and the spatial understanding I have developed over the years. It is also an opportunity to refine and redefine my interests in domestic spaces, narratives, landscape, architectural theory, and drawing. The project is as much a reflection on place as it is on my own growth as an architect.

I am deeply grateful to everyone who has guided, supported, and accompanied me along this journey.

First and foremost, I would like to thank my dad, mom, Tinu, and my extended family. Their unwavering support, encouragement, and belief in me have been a constant source of strength, from my formative years to the completion of my master's education.

To Prof. Dick van Gameren, thank you for believing in my abilities throughout this graduation studio. Your guidance challenged me to question my design decisions with greater rigour and clarity. Through your enthusiasm, vision, and remarkable ability to communicate so much with restraint, you helped me develop a deeper understanding of both architecture and the design process.

I could not have navigated this journey without the support of my friends, colleagues, and the communities I became part of along the way. I am grateful to ISA, DISS, and Motiv at TU Delft, organisations I have been honoured to contribute to during my time here. A special mention goes to Ojas, my flatmate Rahul and Pranav - the minions whose moral support and willingness to lend a hand with model making carried me through many demanding moments. My batchmates from the Global Housing Studio have become family, and I will cherish the memories, conversations, and experiences we shared together.

Finally, I would like to thank my friends, mentors, and everyone at the Wadiyar Centre for Architecture, Mysuru, as well as my former workplaces. They planted the seeds of curiosity that first drew me towards architecture and nurtured the questions that continue to guide my work today.

To everyone who, in ways large and small, contributed to this journey: thank you. This thesis stands as a reflection of your generosity, guidance, and faith in me.



Dissappeqring shop fronts in Sola road housing, Ahmedabad
Photograph: Author's own (2025)

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Part **01:**
Introduction

(What and why?)

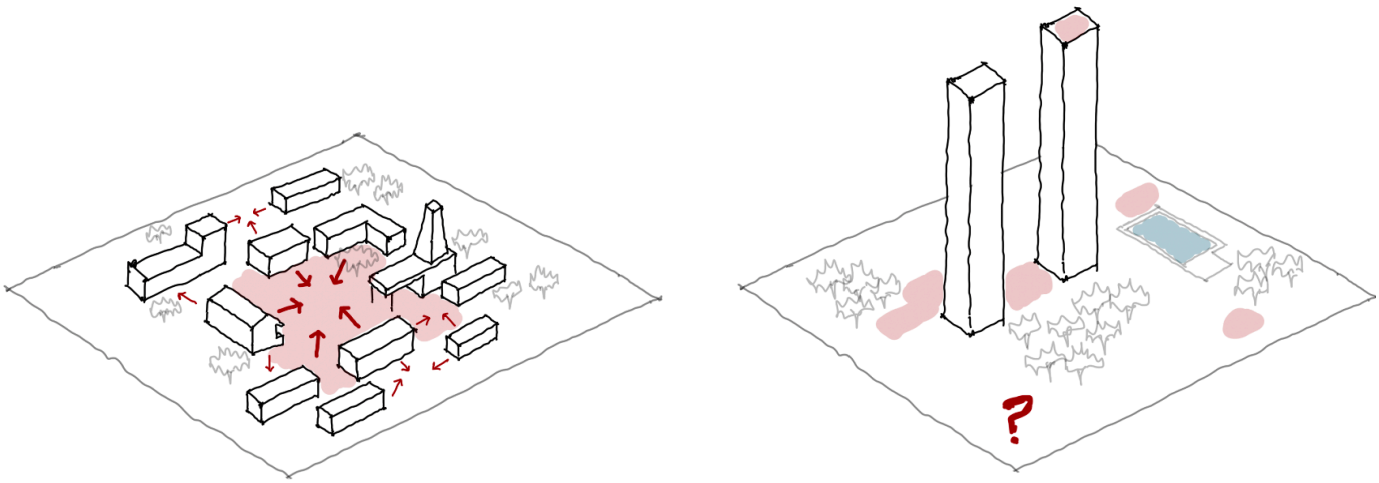


Fig: Idea of community space connected in traditional clusters vs fragmented in high rises

1.1 Problem **statement +** Design **assignment**

In earlier times the community spaces in India like squares, street junctions, the *otlas* (the *verandah*) became the spaces where people came together to discuss, gossip or even celebrate festivals and occasions together. The terraces of homes became a multi usage utility space for most of the families.

With growing times and technology - the usage of these spaces has shrunk, and they have become more obsolete with a transformed usage. The *chowks* or squares and street junctions are filled with parked vehicles, transitional spaces like *otlas* are converted into additional rooms and *agaashiyes* or terraces is mostly an empty space for the services of the buildings or the unused properties of the house.

The people who once lived in traditional housing settlements and societies now aspire to stay in high-rise apartments in hope of a 'modern' or a 'better' living condition. Recent research from Ahmedabad indicates a clear social shift toward vertical living. A study titled Social Acceptability of High-rise Residential Buildings- A Case of Ahmedabad mapped residents' motivations and found that the aspiration to live in high-rise complexes is becoming a defining feature of the city's housing preferences. (Soladhara & Kansagra, 2024) Market data supports this trend. Premium homes, typically located in taller, mixed-use towers- captured a growing share of sales, reflecting lifestyle-oriented demand. At the same time, average Floor Space Index (FSI) utilization has risen significantly, pointing to greater construction of tall residential buildings to meet urban housing needs. (India, 2026)

The question of affording independent houses also comes into the picture. In this process, the families and the residents have also become socially isolated from the community. The high-rises offer rare opportunities for social gatherings in isolated conditions. People's connect to the ground and the happenings on a street have also shrunk. With the population and need for housing increasing, the ground area available for community spaces also has naturally decreased. The concerns mentioned above align with the studio's theme of addressing the rapid urbanisation taking place in Ahmedabad, a tier-1 city in the western part of India while also addressing its spatial challenges.

During European modernism in architecture, one of Le Corbusier's key ideas was to move the garden to the top to compensate the ground cover lost in the footprint of the building. This idea has also been explored pre modernism in various cultures where overhead gardens were formed. The exemplars range from hanging gardens of Babylon to Mughal gardens created with

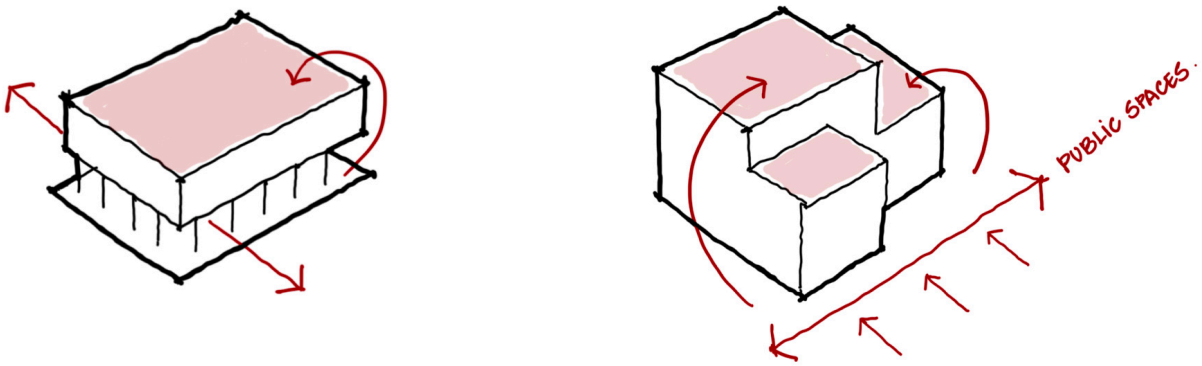


Fig: Inspiration from modernism: Elevated public spaces that could be connected.

various terraces and pavilions beneath them. One also can comment that the adaptation in modernism seems as an isolated idea and may not work as expected primarily because it is only meant for the residents of the house. It also barely connects to the context. Taking inspiration from the modernist idea, can the idea of a raised ground be translated to the Gujarati context by reintroducing or reconnecting the terraces through public activities in the upper levels?

The idea also hopes in presenting itself as a framework to encourage the layer of present activities in the street while the terraces become an added layer of integrating public activities in an otherwise dormant space. Added to this, one aims to also study other tacit spatial entities like the *otlas, aangans* (community or domestic courts) and balconies in the lens of their relations with the domestic spaces of a house. It then does not only become a solution to retain or reintroduce the traditional activities but also in integrating the current activities and necessities to these 'residue spaces' in the medium rise high density housing situation.

The design assignment would begin by identifying a relevant urban housing colony in Ahmedabad that needs attention based on current needs of space and the conditions. After identifying and analysing the various layers of spatial qualities within the colony, there would be a necessity to ascertain the changes in the housing density with possible addition of units and programs depending on various factors like the floor space index and footprint density. The assignment would also involve mapping out some of the public spaces and tacit spatial entities within the society and analysing them based on their usage and relevance in an urban fabric. This could also be the beginning of the design research on the spatial qualities and why they are relevant in modern day housing. The study of these tacit spatial entities like open and the transition spaces would then provide a framework on understanding how the unit and the entities corelate to each other in the present day housing design.

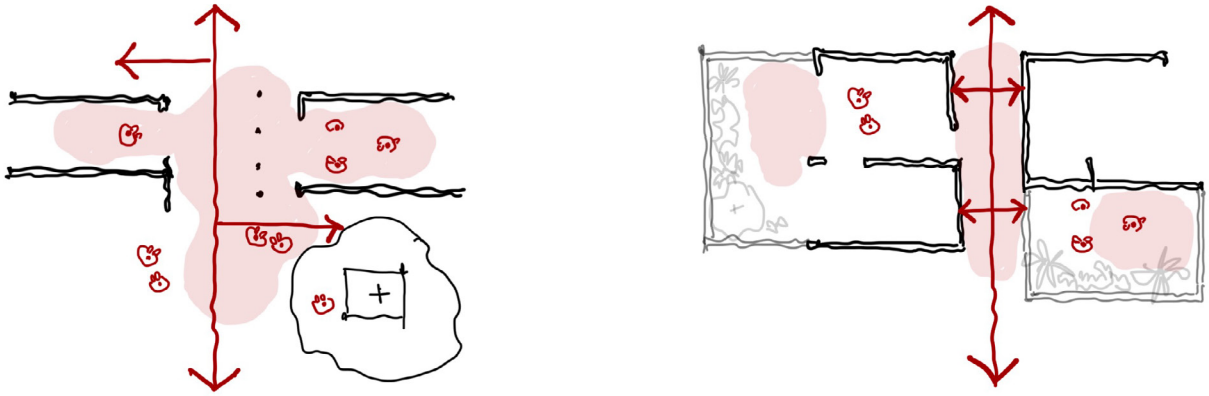


Fig: Idea of blurred and defined boundaries in Indian homes

1.2 **Relevance, Objective and Motivation**

With an increasing demand of space in rapidly urbanizing cities, the space to live is shrinking gradually. The houses where spaces like a verandah, balcony, terraces where spaces of leisure have now turned out to be spaces of luxury. Based out of this context, the study and the project would be necessary in conserving the tradition qualities of leisure and tacit spatial entities while still adapting to the present-day requirements. The design exercise also aims to provide an affordable solution to middle income residents while also aiming to reduce the stress on the need for housing in the city. Added to this, an important objective would also be able to design and foresee ways to keep the open spaces as open in years to come. This would help in understanding its importance for different generations as a community, green and a vibrant space for the colony which are some of the necessities for good livability and slow down in a fast-moving present world.

1.3 **Research question**

How can the tacit spatial entities plug into units as an active community space in medium-rise, high-density housing settlements to enable social interaction and complement the shrinking public realm on the ground?

-What social and spatial qualities made small scale community spaces like open grounds and *Aangans* effective?

-How can transition spaces like *Otlas (verandahs)* and balconies translate towards the modern dwelling add a layer of social interaction?

-How can the idea of elevated public spaces like *Agaashiyes* be reinterpreted for the Ahmedabad context so that terraces form a connected, layered public realm rather than isolated pockets?

1.4 **A photo catalogue of over head terraces in India**



Image: A picture of the author's mother making fryums in the terrace, Mysuru, Karnataka state, India
Source: Author's personal photo archive (2020)



Image: A picture of people sleeping on the terrace in Rajasthan state, India
Source: Website of story pick



Image: A visual showing the evolving love story amongst neighbours in a screen grab of the movie 'Delhi -6'
Source: Website of Upperstall



Image: Visual from a friend's terrace garden in Ahmedabad, Gujarat state, India
Source: Author's personal photo archive



Image: A scene of a potluck dinner organised on a full moon night on the terrace of grandparent's house, Bengaluru, Karnataka state, India
Source: Author's personal photo archive (2002)



Image: A musical evening on the terrace of a home in Maheshwar, Madhya Pradesh state, India
Source: Author's personal photo archive (2002)

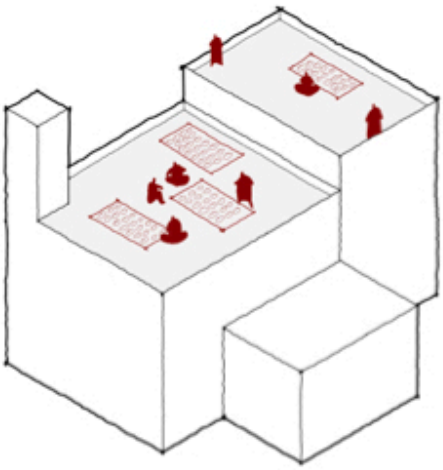


Image: Pre- wedding festivities dinner served on the terrace in Udupi, Karnataka state, India
Source: Author's personal photo archive (2000)

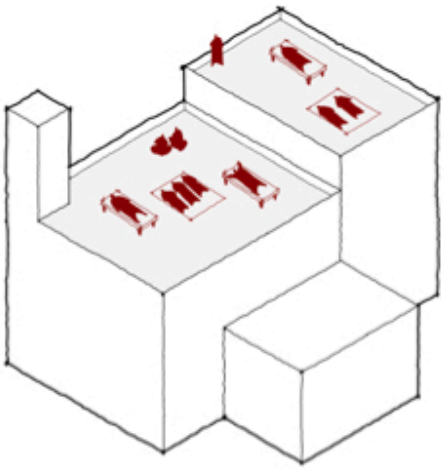


Image: Clothes being dried in the sun on a friend's apartment terrace in Ahmedabad, Gujarat, India
Source: Author's personal photo archive (2021)

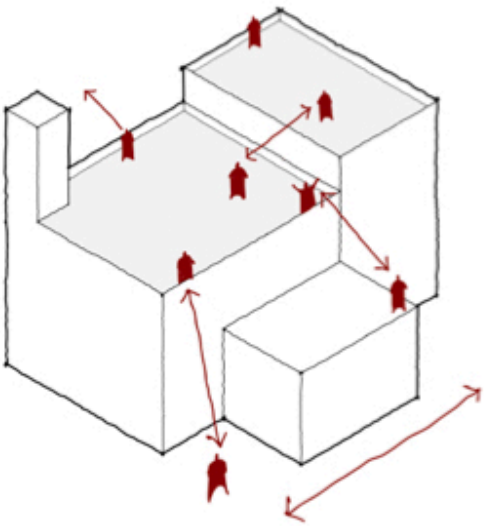
1.5 **A schematic catalogue of over head terraces in India**



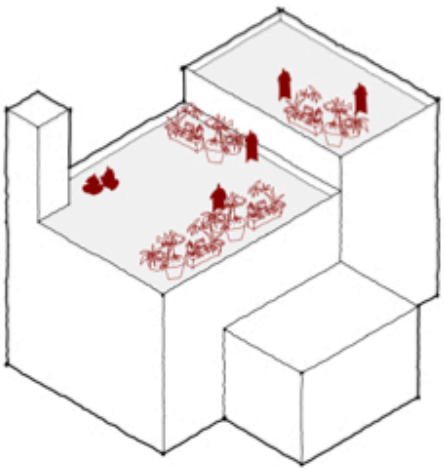
Agaashiye as a space ***to dry chillies and fryums***



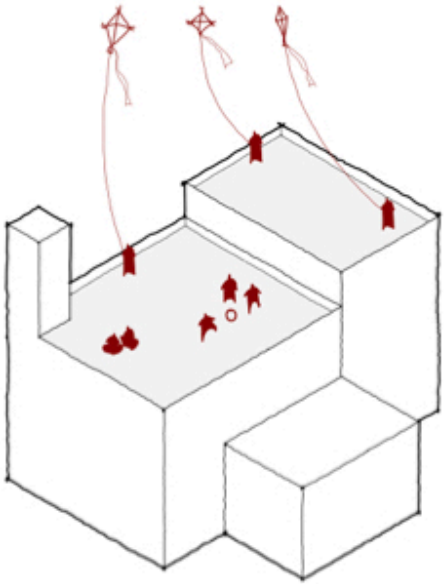
Agaashiye as a space to ***sleep out during summer nights***



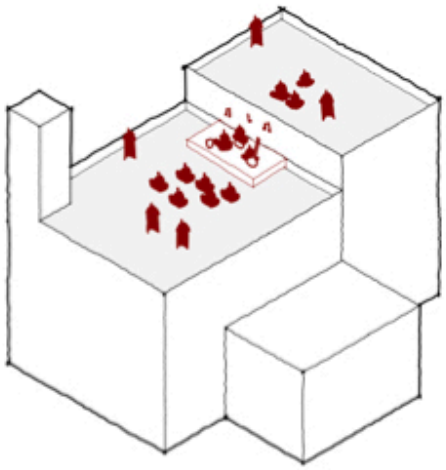
Agaashiye as a space to ***interact with the neighbours and neighbourhood***



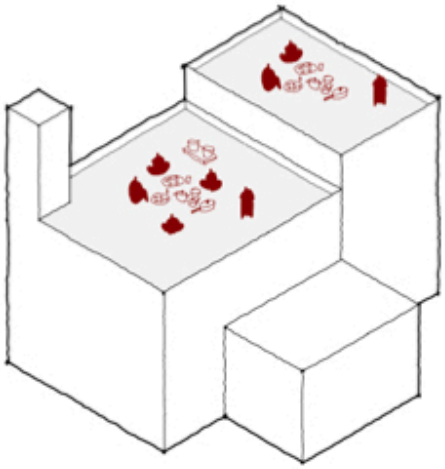
Agaashiye as an organic space to ***maintain potted gardens***



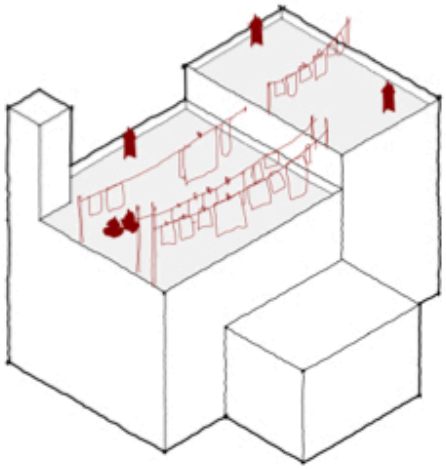
Agaashiye as a space to for ***kids to play and fly kites during Uttarayan festival***



Agaashiye as a space to ***host musical evenings and Baithaks***



Agaashiye as a space to ***host moonlight dinners***



Agaashiye as a utilitarian space to ***dry clothes***

1.6 **Scope of research**

The assignment is set in Ambika society, a vibrant low rise housing society built by the Gujarat Housing Board (GHB) in the early 90s mainly catering to the middle and the lower income groups. The housing society was originally characterised by its green and open community spaces, cluster courtyard, good light and ventilation in each unit while also having a connect to the ground. Overtime, due to the rising demands of space, fast urbanisation and test of time- the buildings and the society are shouting for attention. This becomes the kick off point as an architect to sensitively de-clutter, address the present day demands of space while still hoping to offer and retain the traditional qualities of the spaces that brought people together in the society.

The dilapidated state of the existing apartments and the unison of the neighbourhood for upgraded living conditions call for the scope of a redevelopment project. However, the redevelopment needs to happen over various phases due to the logistical and financial challenges. This gives an opportunity to develop commercial nodes that could generate revenue. The redevelopment also gives the designer an opportunity to sensitively incorporate greener spaces which is the underlying condition for better living conditions and micro climate for the residents and in an urban scale for a heat island like Ahmedabad.



Photograph: Author's own (2025)

Part **02:**
Approach

(How?)

2.1 **Methodology**

The methodology would include site visits to Ambika society in Ahmedabad, India and primary observations through photo documentation and sketches at site. Using the data collected, the project would pace ahead with the following steps.

1. Mapping the traditional spaces like Agaashiyes and its usage in the Indian context.

2. Compiling an atlas of tacit spatial elements like the transition zones and ways in which they add value to the living qualities and usage during various occasions.

3. Informal conversations with native residents and residents of Ambika society about their memories of the leisure spaces and its usage and documenting it in the form of sketches.

4. Understanding and co-relating the idea of leisure and community spaces in other projects that would form a precedent to design through literature reviews and case studies.

5. Designing a medium density housing strategy by densifying the units in certain zones of site while retaining the quality of units and open spaces in a larger portion.

6. The design process also aims to use sketch models and diagrams as a method to understand the spatial qualities of densities, units and the unsaid negotiations amongst leisure or residue spaces.

It can be deduced that by working on the methodologies mentioned above, one would not only be able to create a datum for beginning the densified housing project in Ambika society but also in building a systematic argument for understanding and retaining the idea of tacit spaces in the projects.



A temporary wedding festivity shelter on the street-present Ambika society in Ahmedabad
Photograph: Author's own (2025)

2.2 **Precedent study and its merits**

Precedents in housing design form a good datum not only to understand the building blocks or the units but also to understand the residue spaces or how has it been mitigated overtime either through its usage, incremental growth or transformation.

With housing design in India, there have been multiple examples since the colonial independence where architects have attempted to make the housing accessible to the communities. Overtime, although planned or unplanned, these societies have been taken over by the people to cater to present day needs. Some of the notable examples include the Belapur housing by Charles Correa, Aranya housing by Balakrishna Doshi and Shyamal row housing by Hasmukh C. Patel.

Following these precedents, there have been multiple government housing board projects that came forth which clearly classified open and community spaces alongside the units after studying the pattern of an Indian house usage traditionally. Ambika society in Ahmedabad is an exemplar for a similar strategy.

Thus, a close consideration and analysis of various elements of housing in Ahmedabad would form an important benchmark for the beginning of a wholesome thesis project in the global housing studio where one would focus on the tacit spatial negotiations.



View of the larger courtyard in the Belapur housing
Source: Charles Correa Foundation



Figure: Diagram showing the hierarchy and privacy of courtyards
Source: Traced over drawing by Charles Correa Associates

2.21 **Belapur housing, Navi Mumbai 1983, Charles Correa**

The Belapur housing serves as a datum to understand how open spaces can be incorporated with a hierarchy as part of housing design. In the housing, the larger public space flows to the smallest open yard with the scales and degrees of privacy changing as one transcends from the large open space to the smaller open space. With the housing designed to be incremental, one understands the importance of open space for the quality of living as the people still have retained the open spaces with growing needs of the household.

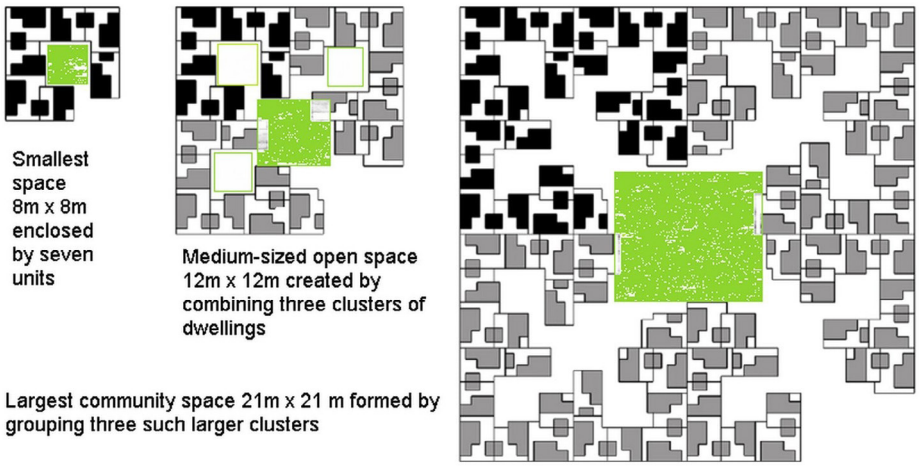


Figure: Diagram showing the clustering of units around the courtyard
Source: Charles Correa Associates



View of the scaled units from the street
Source: Vastushilpa Foundation, Ahmedabad



Figure: Axonometric showing the scaled streets along the axis with nodes at intervals
Source: Traced over drawing by Vastushilpa Foundation

2.22 **Aranya Housing, Indore**
1983, B.V. Doshi

Aranya Housing is one of important examples of incremental housing in India. Having designed to grow over a service core, this project provides the opportunity for the growth of house as and when the socio economic status and the needs of the family grow. A framework for massing of the building was developed along which the units could grow. This makes the process controlled and organic at the same time. Due to this framework provided, the scale of the units from the street also remains humane even to this date.

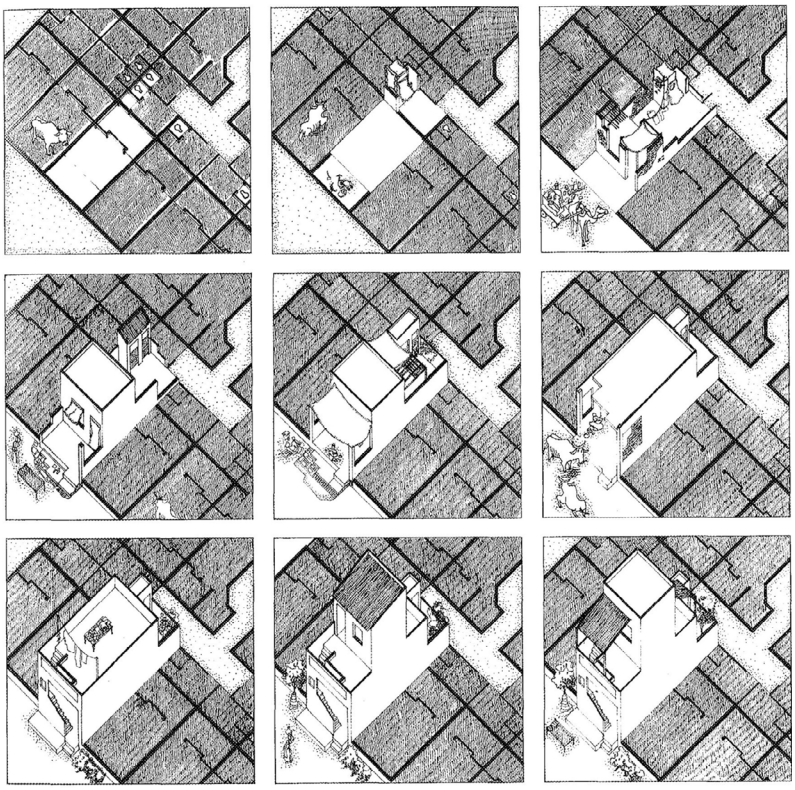


Figure: Diagram showing incremental growth from plinth and service core to a unit
Source: Vastushilpa Foundation



View of the balcony through the double height living area
Source: HCP

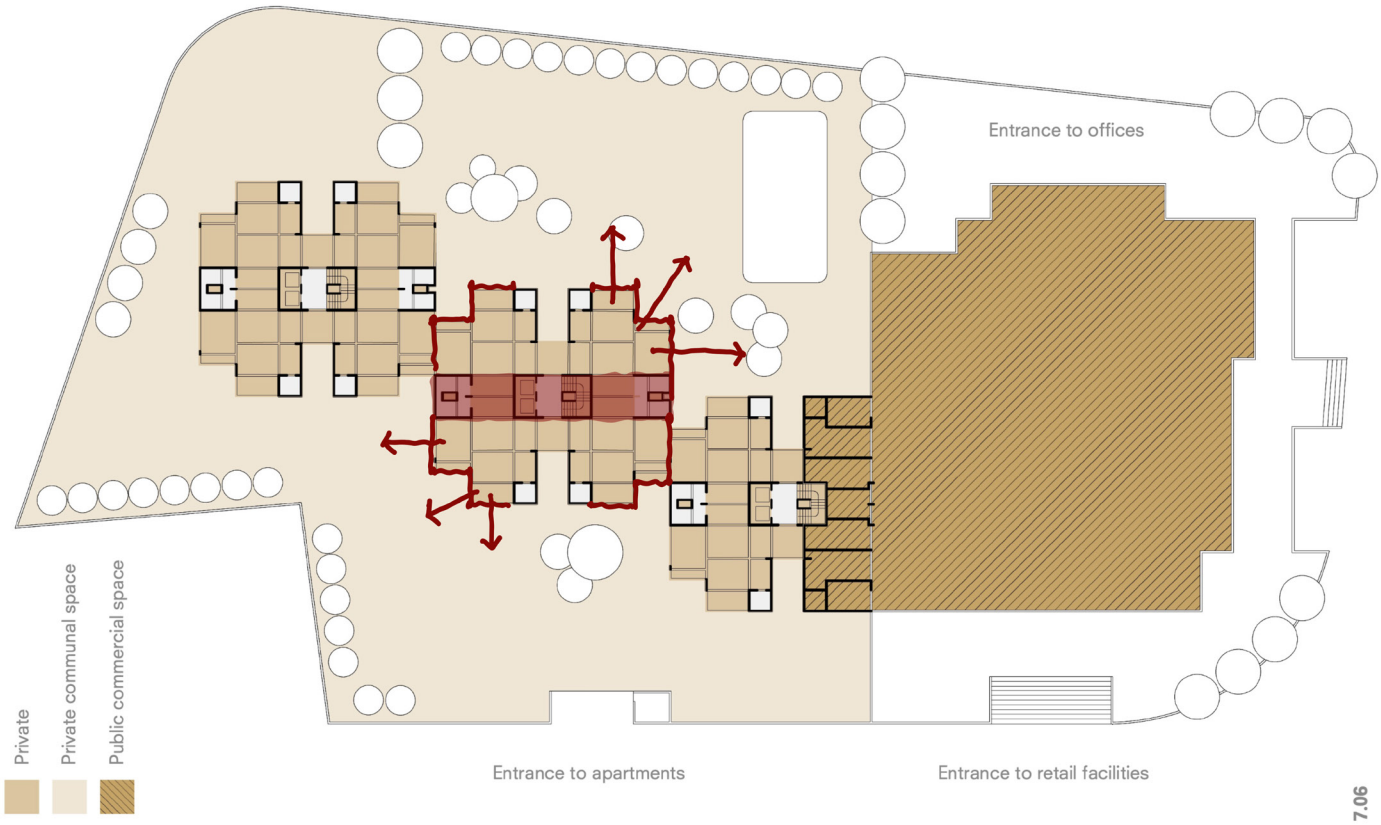


Figure: Diagram showing the folding edge of the units
Source: Drawing redrawn by Global Housing Graduation Studio 2025-26

2.23 **Centre Point Residency, Ahmedabad**
1983, Hasmukh C. Patel

The three residential towers are dotted with double height terraces and scaled balconies. The towers are arranged in a staggered rectilinear grid, each slightly shifted to create interlocking forms that enhance the privacy between units. This configuration allows for natural ventilation and daylight through at least two facades in every apartment. The open corners of the balconies give an unobstructed view towards the outside while also forming an envelope to the façade from the harsh heat of Ahmedabad. The service core is pushed towards the middle in order to have the units on the edges to maximize the views.

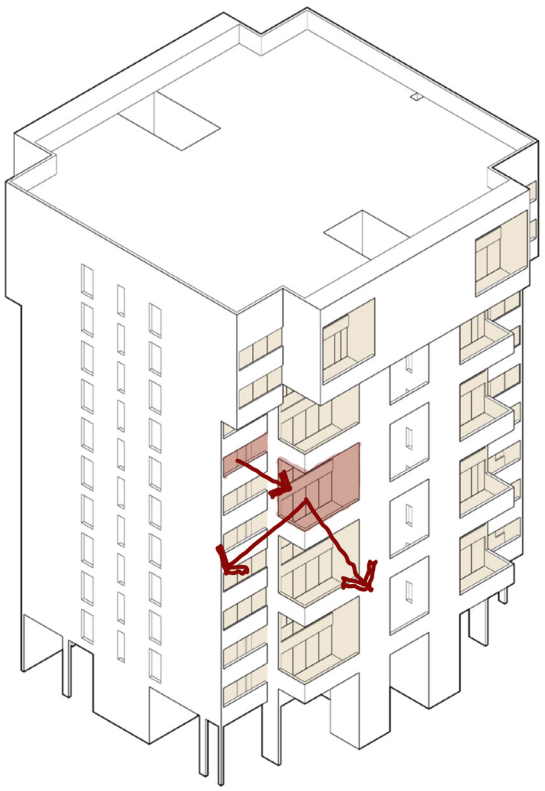


Figure: Diagram showing the balcony with views and open corners
Source: Drawing redrawn by Global Housing Graduation Studio 2025-26

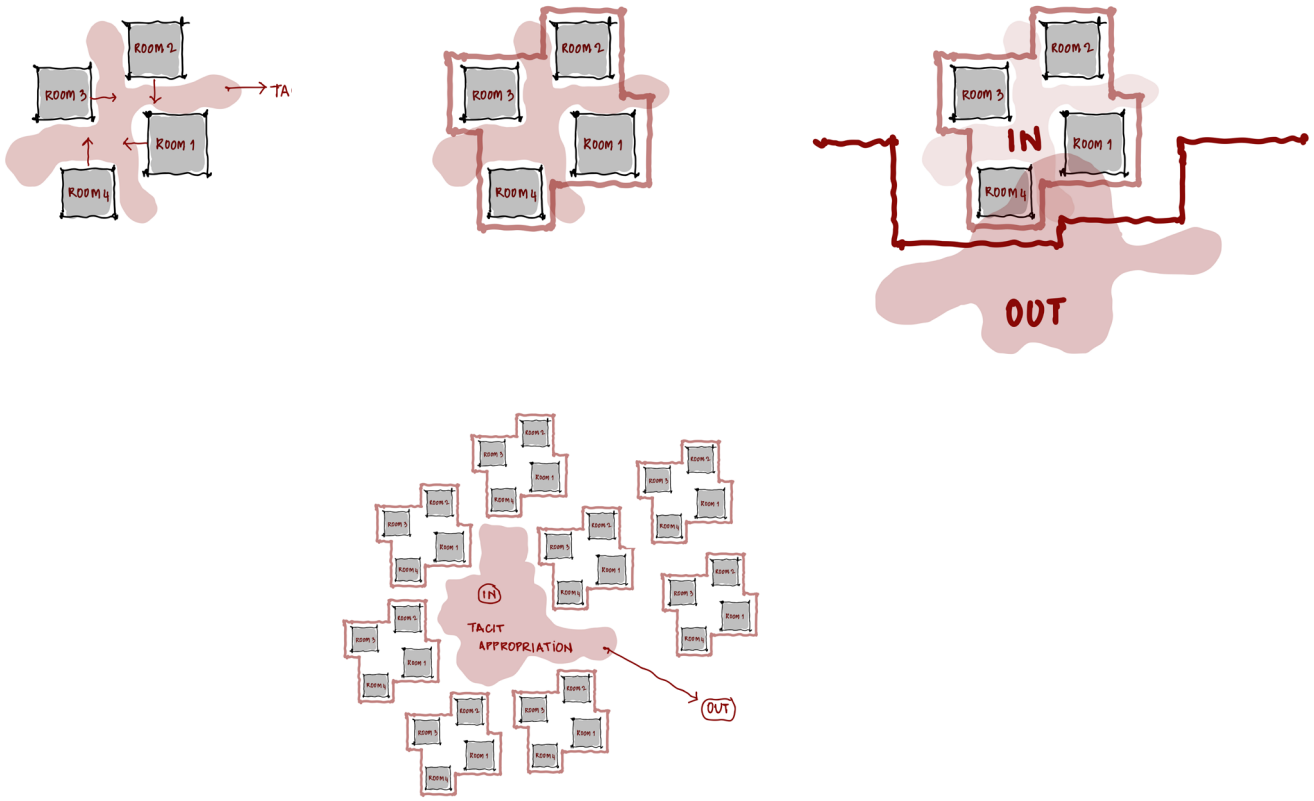


Figure: Idea of tacit negotiation from unit, the interface of unit and outside, and at a cluster level

2.3 **Theoretical framework**

The thesis project aims to use the idea of tacit negotiations of spaces as a key theory to support the housing design. The theory intends to look at elements like *aangans, otlas, balconies, agaashiyes* that are commonly used for function and leisure as elements that could plug into units. It could in turn add a layer of soft boundary between the unit and the spaces outside to form and encourage community living. It is believed that these elements could also be studied in relation to the climate and the ways their usage changes seasonally and functionally through the day and the years.

The thesis project also hopes to design for growth and evolution of time and needs can be accommodated by keeping the usage of tacit elements the same with the growth of the unit. Along with the spaces within the unit, the study also looks at unpacking the usage of the overhead planes of a unit like the *agaashiyes* or the terraces into a public realm by connecting them and enabling activity pockets while the ground planes originally used for these activities could be reinforced functionally.

Compiling the documentation of the existing tacit elements in the form of an atlas would form reference for the usage of spaces amongst Gujarati families rather than hypothetical assumptions of spatial usage. It could then be hoped that the atlas would present itself as an ingredient box needed for the unit and the community design- a solution informed through study of available precedents. This forms the basis for the **grounded theory**. One is also hopeful that such an atlas is also a great reference for the architecture community to conserve the spatial quality of housing design in Ahmedabad and India while also catering to modern needs.

Through different case and precedent studies, the project would aim at prioritising through the masterplan- the open and the street qualities identified in the site. Retracing these patterns would form the basis of organisation, predominantly for the units. It is believed that through precedents like the Belapur housing in Mumbai by Charles Correa, the larger open spaces that are present could be retained the same way when accounted for. One also aims to play with elements like levels and soft boundaries that would deter residents from uncontrolled extension in the event of spatial expansion overtime.

At a unit scale, ideas like the negotiation of public and the private spaces within would also be designed for a while as the next layer; the threshold between the unit and the street or the cluster would also be accounted for in the design phase.

While the above-mentioned qualities are retained, the idea of densifying the blocks would begin through the northeast and south edges of the site

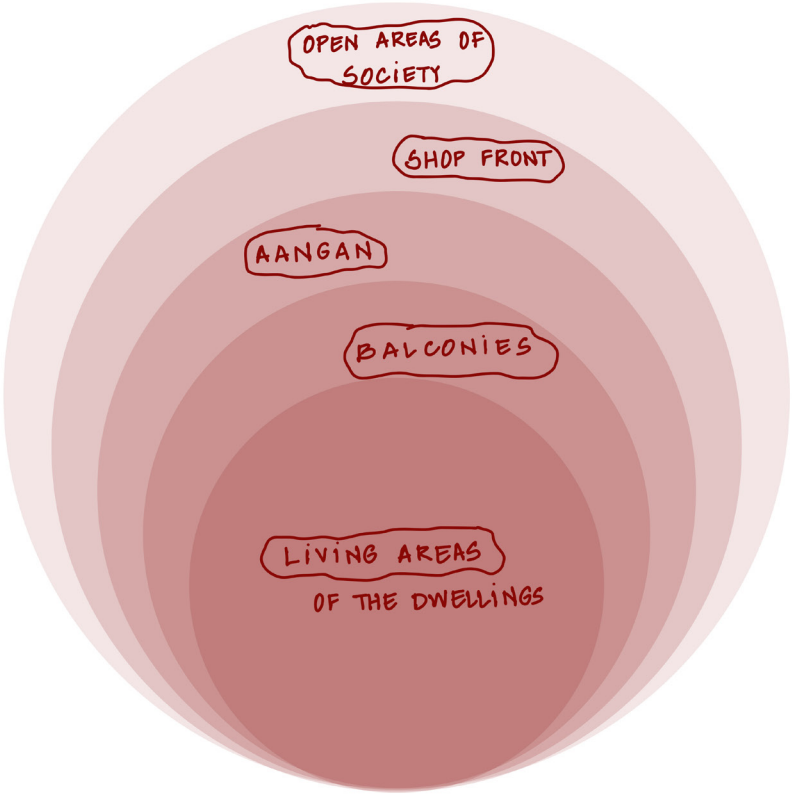


Figure: Diagram illustrating the degrees of privacy in the transition zones of a dwelling

that would form the commercial edge.

Greener patches and public squares would be investigated as a strategy of urban regeneration that could extend to neighbouring boundaries across the main roads. This is intended to build a sense of familiarity amongst the residents and the passersby therefore blurring the boundaries between land use.

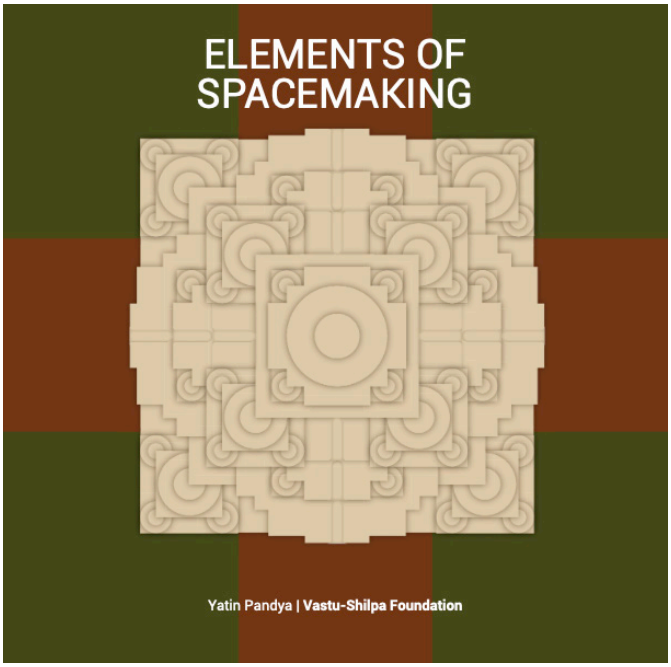
While the quality of space forms the essence of the thesis, details like understanding the materials and designing the details would form the micro level interventions.

The theory framework of the thesis is informed by grounded theory where spatial understanding emerges through observation, documentation, and interpretation of lived practices rather than through predetermined architectural assumptions *(Glaser & Strauss, 1967)*. Instead of drawing from fixed models of housing or community living, the study seeks to derive architectural strategies from the tacit spatial negotiations already embedded within Gujarati domestic environments specially the ones observed in Ahmedabad. Elements such as the *aangans, otlas, balconies, terraces, and agaashiyes* are therefore not approached merely as formal devices, but as socially and climatically responsive spatial conditions shaped through everyday use over time.

These observations form the basis for identifying relationships between spatial thresholds, community behaviour, climate responsiveness, and incremental growth. In this sense, the atlas becomes more than a catalogue of precedents; it operates as an analytical framework grounded in lived spatial realities. The resulting design strategies are therefore not speculative impositions, but architectural responses derived from observed cultural and behavioral patterns that enhances the necessity of grounded theory in this case. *(Deplazes, 2008)*

Grounded theory further supports the thesis ambition of designing for change over time. By understanding how residents negotiate public and private boundaries, seasonal occupation, extensions, and shared spaces, the proposal attempts to accommodate evolving domestic needs without losing the spatial qualities that foster familiarity and community living. The design process thus becomes iterative and adaptive, where theory is continuously informed by the reading of existing spatial practices.

Ultimately, the thesis frames housing not as a static architectural object, but as a living framework capable of evolving through occupation, negotiation, and collective use while remaining rooted in the socio-cultural context of Ahmedabad.



2.4 **Literature review: ideas from Elements of space making, Form follows climate and Building as ideas**

Yatin Pandya in his book dissects the idea of architecture in India into spatial components like floors, walls, openings, thresholds, roofs and voids and analyses how these elements could produce meaning through its usage, memory and cultural familiarity. He roots his argument in the observation that Indian architecture historically prioritises space over objects or 'rooms'. In the book, he also mentions how the domestic spaces function with daily rituals, seasonal adaptation and collective interaction even in the absence of physical segregation of spaces while quoting the example of Pol houses. The elements of a traditional Pol house blur distinctions between the inside and the outside, private and the public, individual and the collective as explained in one of Vishwanath Kashikar's lecture. Pandya's analytical framework enables these overlooked spaces to be read as intentional rather than informal.

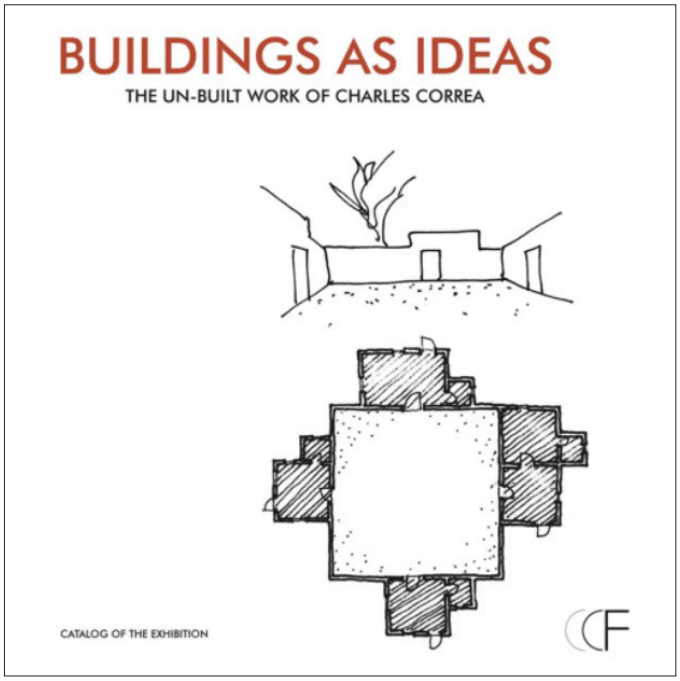
The essay titled *'form follows climate'* was published by Charles Correa at a time when there was a discussion on the changing housing trends in India in the 1980s. Instead of steering away from the idea of modernism, he walks about how the spaces in dwelling design could be adapted to the tropical Indian context to make it more usable and liveable. The climate, economy and social structure also shapes how the buildings are inhabited in India.

The book *'Building as ideas'* is a compilation of Correa's architectural ideas that are tested against lived experiences and real constraints with also focus towards housing in projects. He argues that housing in India cannot be effective with mass repetition of units but an adaptable system with incremental qualities. It can then be related to definition of function that includes climate, social life and long term adaptability as explained in the idea of *'form follows climate.'*

This shift in thinking is directly reflected in his housing projects, such as the Belapur Incremental Housing, Tara Group Housing, and LIC Housing at Borivali. These projects move away from the idea of housing as a finished object and instead propose housing as a framework for growth- which one hopes to do through the lens of tacit spaces.

The readings by Yatin Pandya and Charles Correa together form an important theoretical basis for the thesis by establishing a relationship between climate, social life, spatial thresholds, and adaptability within Indian housing. While both authors approach architecture differently, they collectively argue for an understanding of housing beyond formal enclosure and repetitive unit planning.

In Elements of Spacemaking, Yatin Pandya analyses architecture through spatial components. His reading of



Indian domestic environments shifts the focus away from architecture as an isolated object toward architecture as a sequence of negotiated spatial experiences. This becomes particularly relevant to the thesis, where elements such as the *Aangan, Otlah, balconies, Agaashiyes*, and streets are understood not merely as functional additions but as tacit spatial devices that mediate between the public and private realms. Pandya's emphasis on gradation and continuity further informs the idea that housing in Ahmedabad can be designed through layers of thresholds and shared spatial conditions rather than rigid segregation of functions.

Correa argues that housing in India must emerge from social patterns, climate, economy, and long-term adaptability rather than from standardised modernist repetition. His projects such as Belapur Housing demonstrate how open spaces, terraces, narrow streets, and courtyards can act simultaneously as climatic devices and collective social infrastructure that one talks of in the thesis scope. This directly supports the thesis ambition of designing housing as a flexible framework capable of evolving over time while retaining spatial qualities that encourage community living.

Part **03:**
Results

(What has been achieved?)

3.1 **Winter school as part of precedent research and experimentation**

The winter school at CEPT university in Ahmedabad, India for a period of two weeks helped in gaining an insight and familiarity into the context of the different sites in Ahmedabad. Over the days of the workshop, we were able to translate our readings from the site into a soft atlas for Ambika society where the group's focus was on mapping the spatial qualities of the clusters and open spaces not only through the architectural elements but also breaking it down into everyday elements like objects, animals, precincts that make the space lively, domestic and homely in Ambika society.

The second part of the workshop titled 'Writing the site' looked at the group's intentions and vision for the site through different proposals of low, mid and high rises with varying FSI and GSI. This helped one understand the relation of residue to the built space and how it could affect the urban fabric along with the domestic scale. The soft map formed during this workshop creates an interesting tool kit for the redesign of the Ambika society.

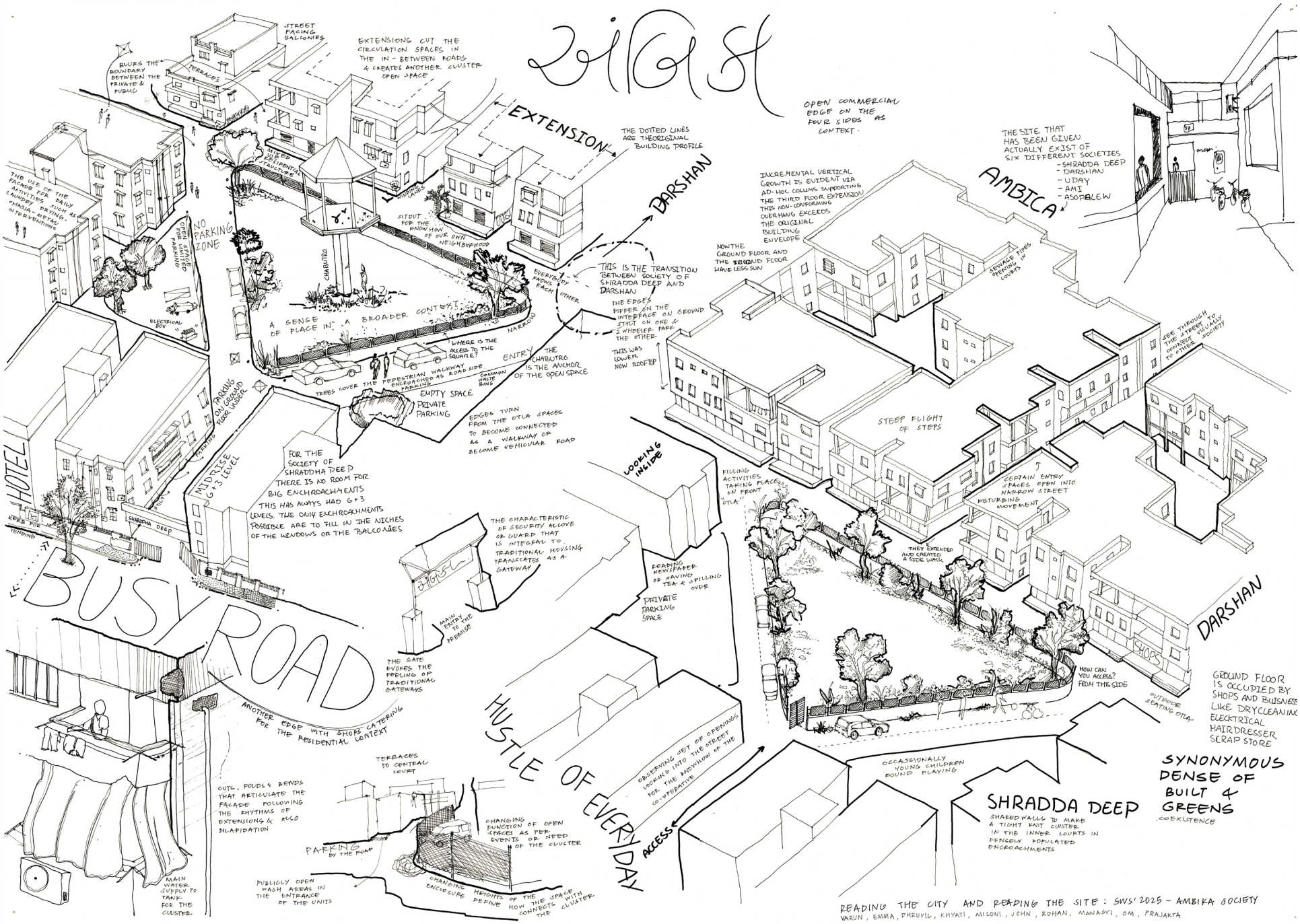


Figure: Soft map recording the nuances of Ambika society made as part of the winter school. Source: TU Delft + CEPT students

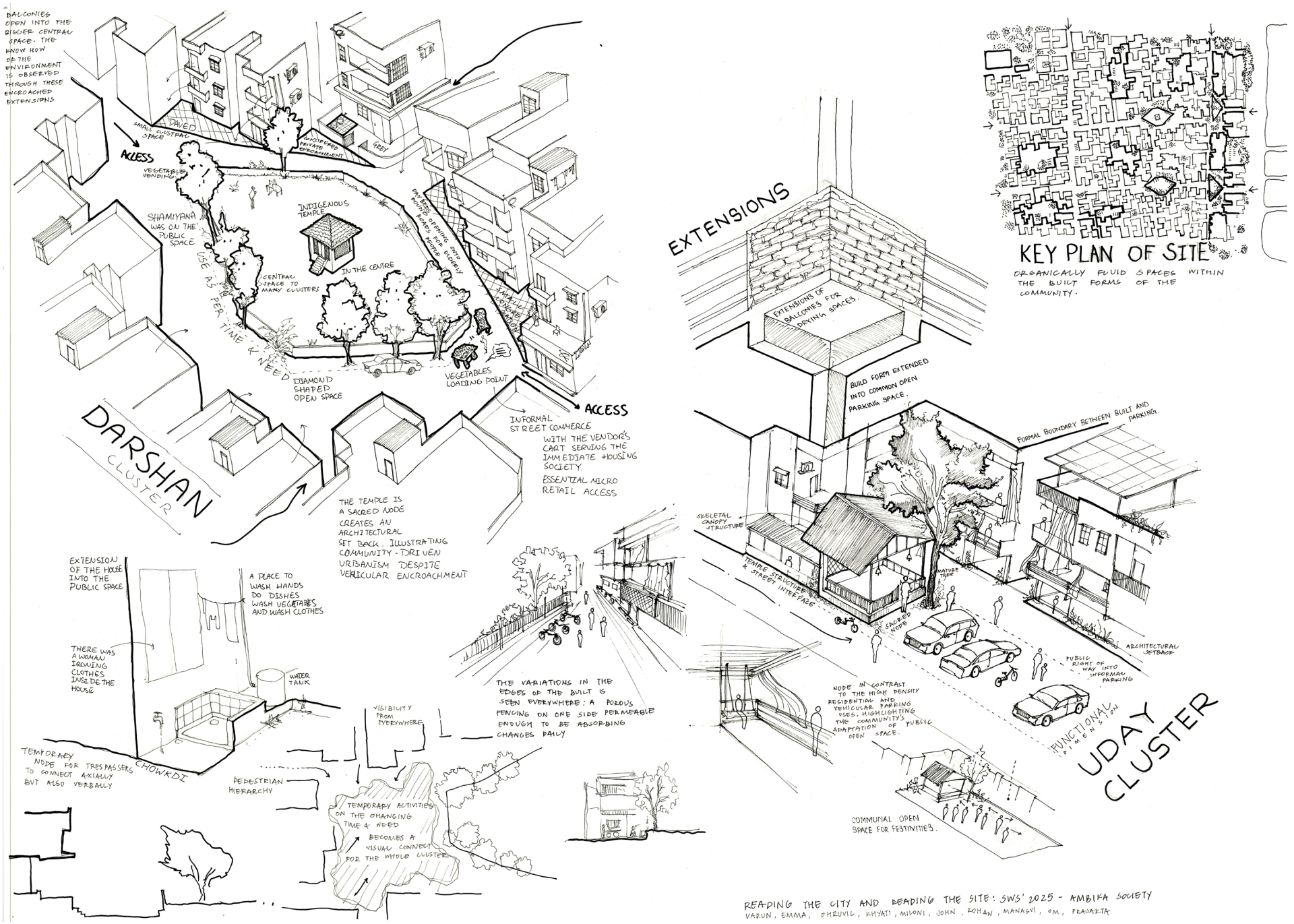


Figure: Soft map recording the nuances of Ambika society made as part of the winter school. Source: TU Delft + CEPT students

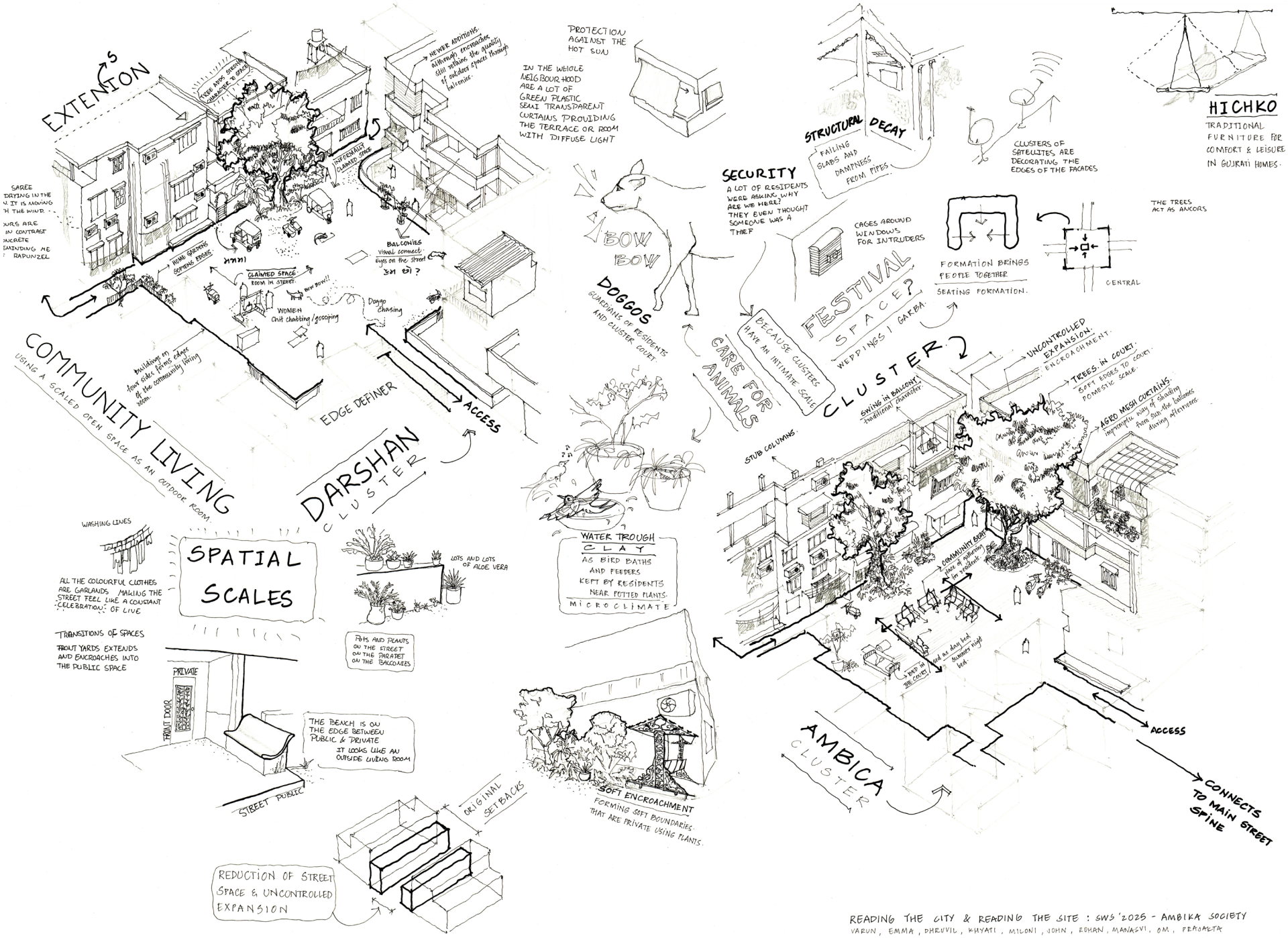


Figure: Soft map recording the nuances of Ambika society made as part of the winter school. Source: TU Delft + CEPT students



A rare view of the remains of the unaltered structure at Ambika society
Photograph: Author's own (2025)

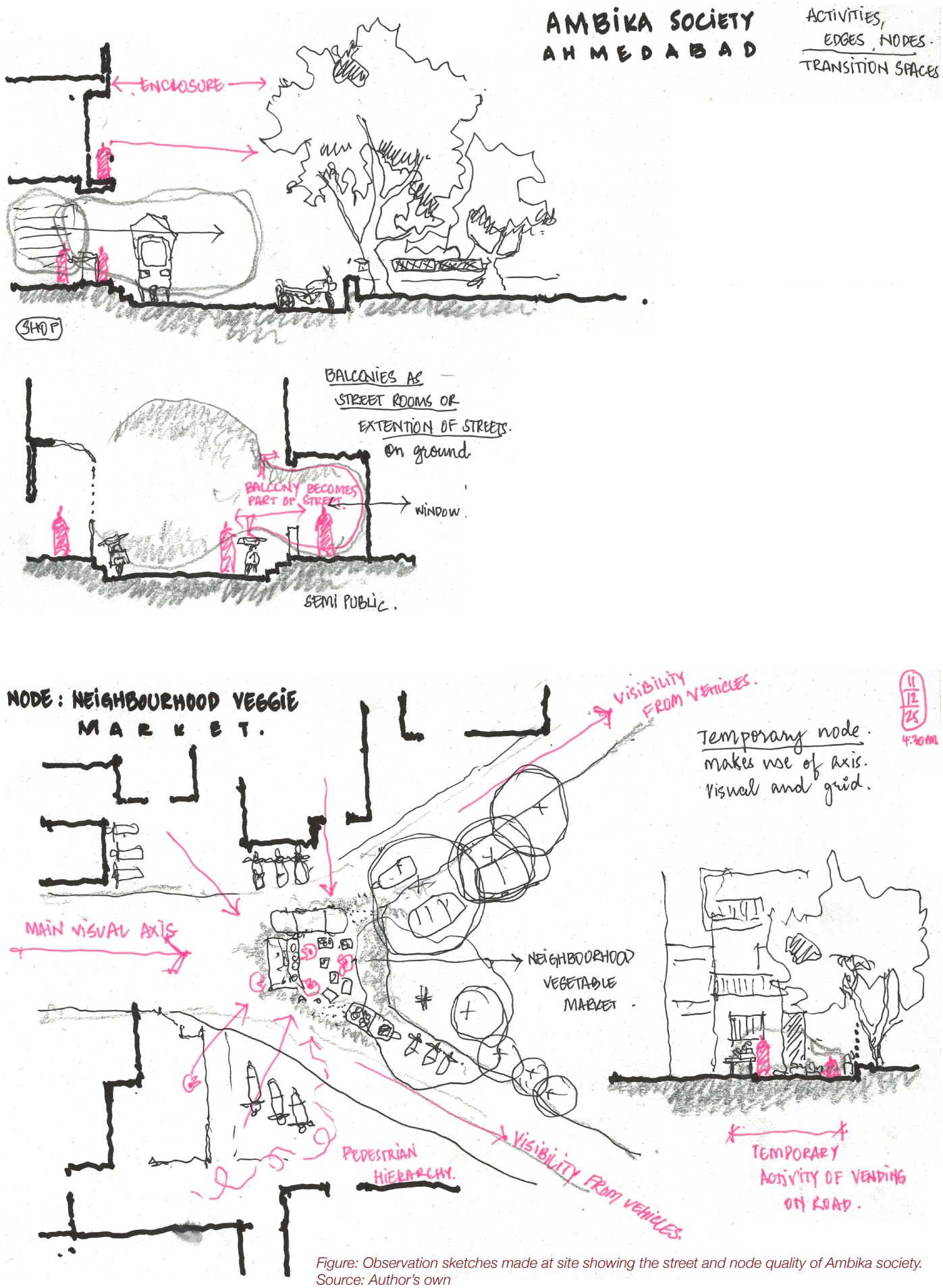


Figure: Observation sketches made at site showing the street and node quality of Ambika society.
Source: Author's own

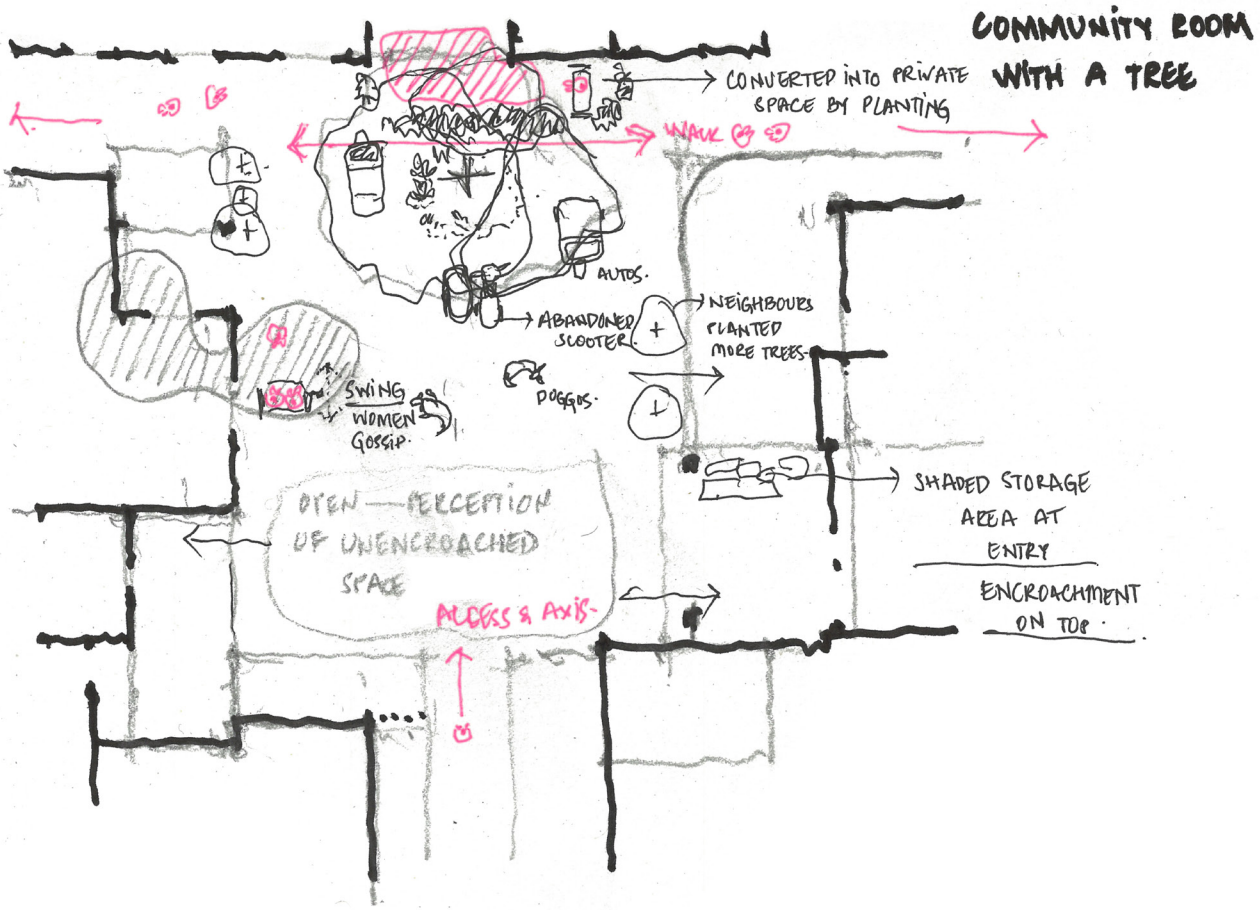
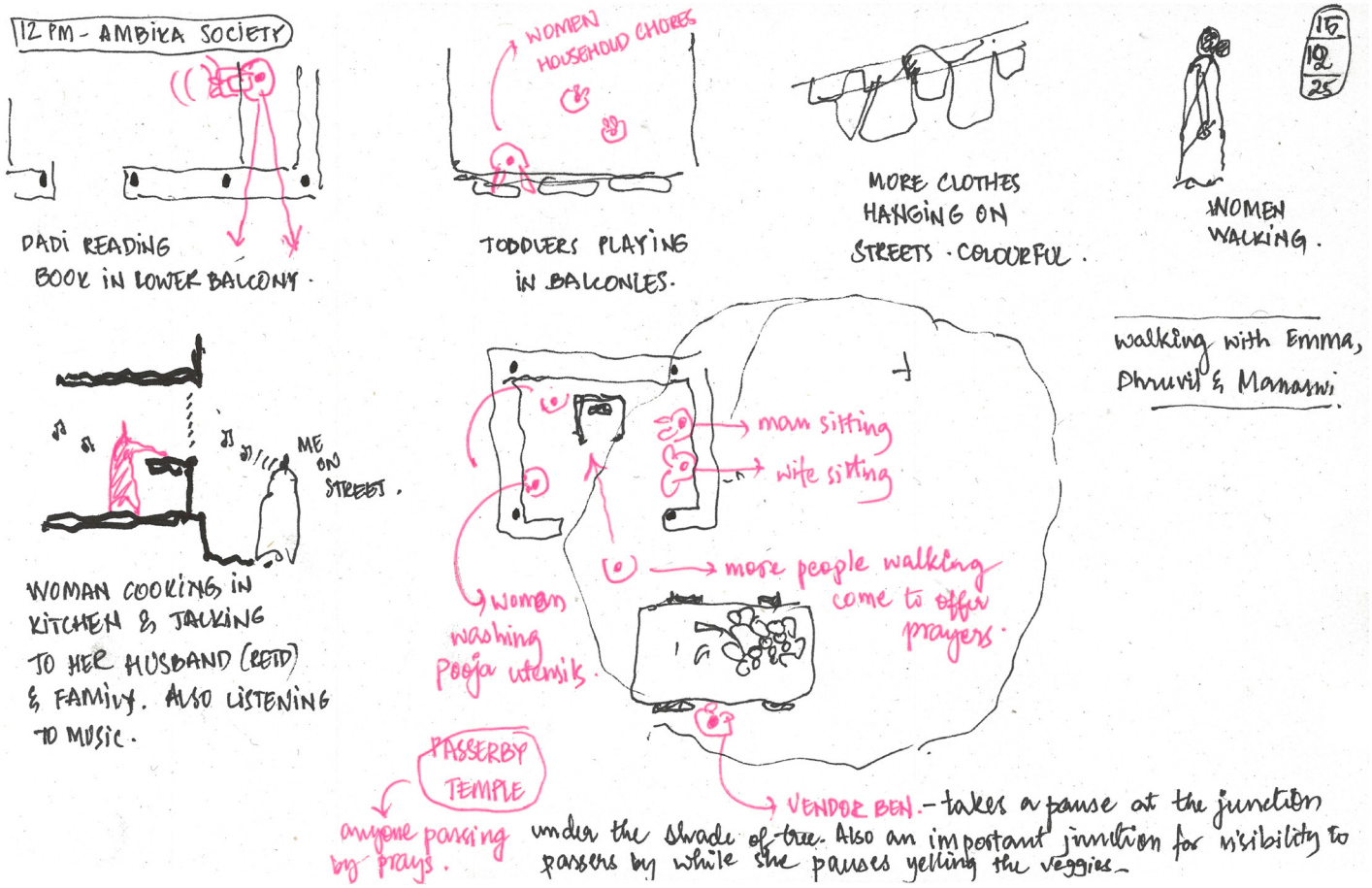
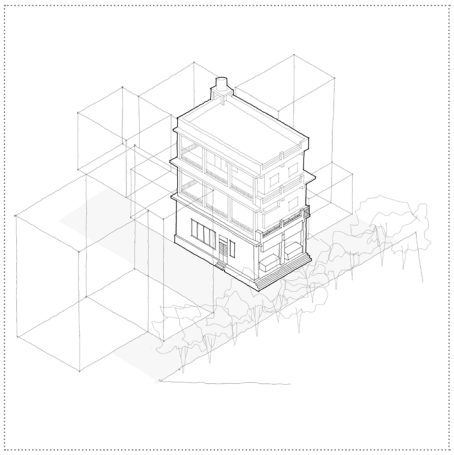


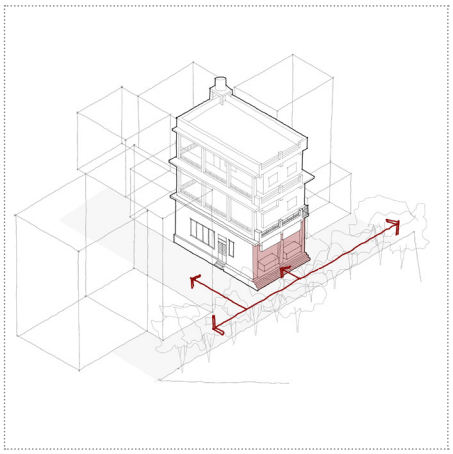
Figure: Observation sketches made at site showing the Aangan and experiential quality of Ambika society.
Source: Author's own



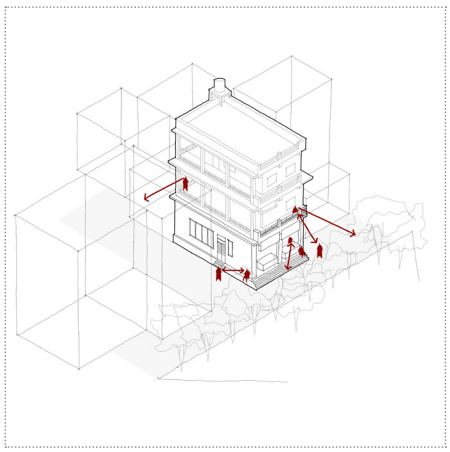




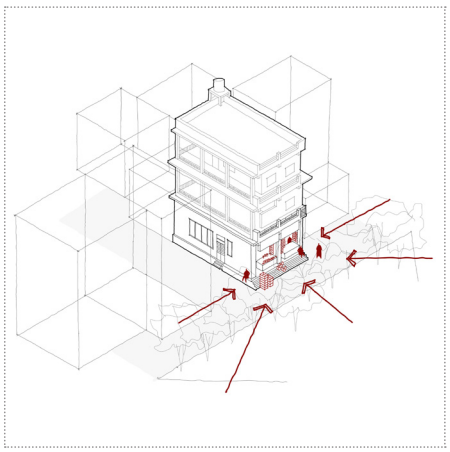
The shophouse located near the Darshan cluster in the Ambika society



The shop house in Ambika society is located in a junction of two roads in the residential zone



The shophouse is a point for neighbours to meet, gossip and pass-time in the pretext of buying groceries



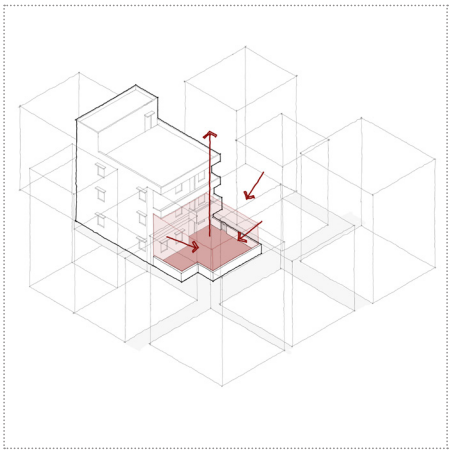
The shop uses the steps and parts of the street to expand its space- an informal way of claiming space and retracting after business hours

3.2 **Research exploration through cataloguing**

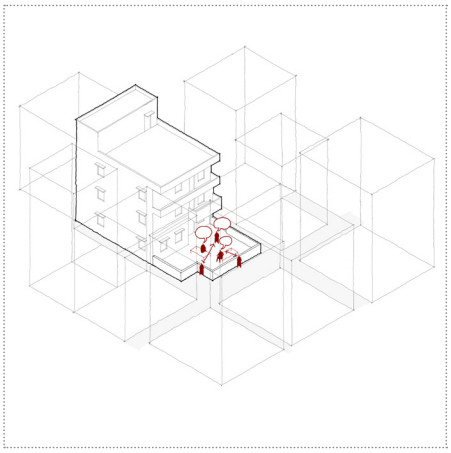
The research exploration includes documenting the existing tacit spatial qualities of Ambika society in Ahmedabad. To organise this better, cataloguing example of a few spatial typologies was taken up. The identified spaces were some of the most active spaces in the neighbourhood including a shop house node, an *Aangan* (frontyard) in a dense street and a balcony looking out to the street. These spaces were selected not only for their architectural quality but also for the way they were being used dynamically by various agencies during different parts of the day. The examples are also spaces that have emerged organically over time without the involvement of a formal designer.

The catalogue is also an attempt to document the memory of a place and the visit in a more tangible form. The tangibility is brought in by representing these spaces as an isometric drawing that shows the spatial qualities of the elements and its surrounding there enabling one to also understand the density of the neighbourhood. Adding analytical layers to the drawing

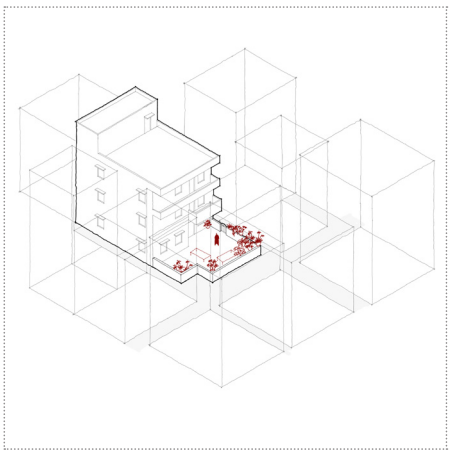




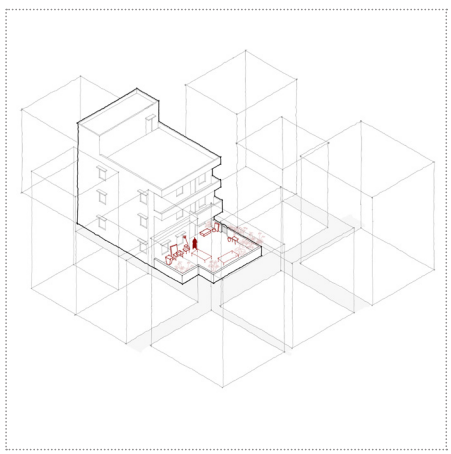
The Aangan house forms a void in a densely packed part of the Ambika society



The void becomes a space for the home makers and passers by to chit chat



The yard adjacent to the house also becomes a space for informal gardening



The yard also becomes a space for storing some of the unused items of the house due to the lack of space.

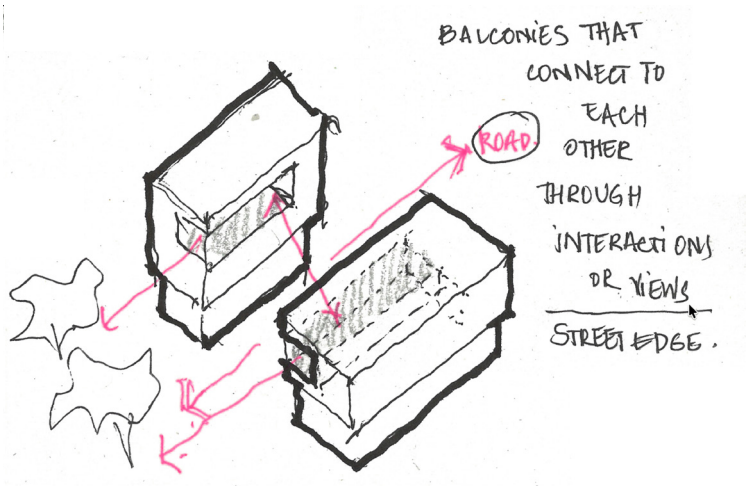
also helps in understanding and extrapolating the quality of space and dynamicity like the skin of an onion.

The process of analytical cataloguing could therefore inform and convey complex ideas as simple diagrams which is then used to incorporate the spatial quality into the proposal. The catalogue of spaces thus informs the way in which the spatial qualities are translated into a renewed form, the place in which it is situated, its dimensions, its usage throughout the day amongst many other merits. The catalogue also unveils an ingredient kit to begin the design of the housing cluster as it could be understood that a large population of the current residents would occupy the redeveloped space. This makes it even more essential to study the existing spaces in Ambika society.

Figures: Top left: Photograph of the shop front in Ambika society (2025)
Top right: Photo of a frontyard in a densely packed street of Ambika society (2025)
Diagram and photograph source: Author's own



Figure: Balcony overlooking another balcony





View of the extended slab and columns from the original structure
Photograph: Isabelle Gin (2025)

3.3 **Research conclusion and the way forward**

The research primarily focuses towards the studying the blurred boundaries of leisure elements in a home. This could be together understood as the tacit elements or spaces that comprises of various entities such as *Aangan* (roughly translates to courtyard), *Otlah* (roughly translates to verandah), *Agaashiye* (roughly translates to terrace/balcony). Post visiting the site, numerous questions arise relating to the decision taken by the residents to undergo redevelopment. Would the character of the open spaces be the same? Would the residents be able to interact with each other as organically? Will the community have a space to call and celebrate as their own? Will the residents be able to enjoy some greenery and shade in the ever growing concrete jungle?

The Ambika society in Ahmedabad has evolved like an organism over the years. Having been designed to have large open green voids in its layout, these spaces have evolved into parking lots and storage yards over the years. The open spaces that were intended to be a buffer for the house also seems to have been continuously shrinking.

During the site visits, one noticed that in an urban scale the housing colony was quite porous to the main infrastructure around. The way one enters or exits the society is quite smooth in a way. The fieldwork also revealed how the urban voids in the society was also a continuously changing space; sometimes a vegetable market, another time, a place for the neighbours to gossip or even a place for the community to do the traditional garba dance form during Navaratri festival celebrations.

At a cluster level, the Darshan cluster sets a fine example of how the community void is used as an external living room throughout the day. This set up also promotes the neighbours to be watchful and interact that aligns with the idea of *'eyes on the street'* that in some ways ensures security of the place. Although the urban voids specially serve as a climatic device in an arid place like Ahmedabad, the scientific purpose get blurred out because of the organic takeover and usage by the community over time. These are also some of the qualities that one hopes to bring back in the proposal for the society.

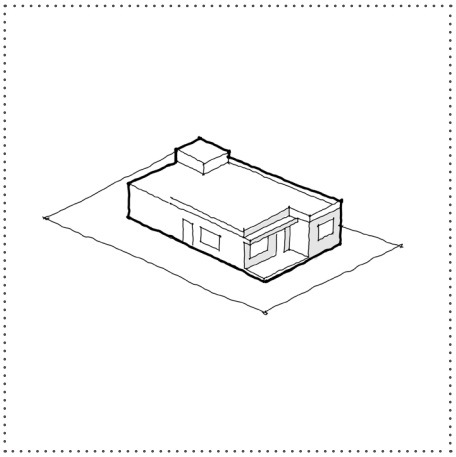
At a unit scale, the units were primarily designed as a residence for a single family rigidly. However overtime, people make it their own with any space. Eventually the residents started encroaching the space to expand their units due to necessity. As a result of this act, everyone wanted to encroach and build which has led to the present state of the Ambika society. One hopes to address this issue during the design phase by designing for incrementality.

At a unit scale, this could mean that internally, the spaces are flexible enough to accommodate various

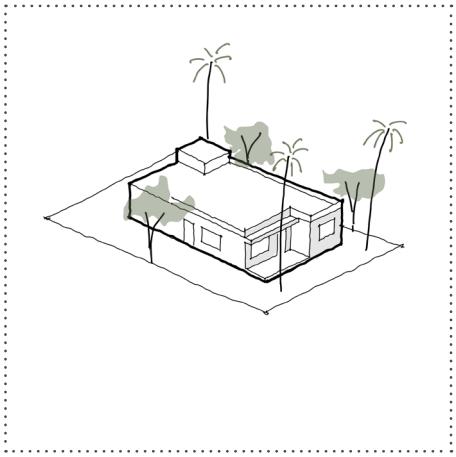
functions from sleeping areas to leisure areas while structurally, the units could also be designed leaving a void to expand when needed.

From the visits, one also realised after observing the context that the newer proposals around the city are calling out to be 'un-densified' and have breathable spaces filled with greenery. Having this as a policy for the upcoming projects also means that the idea of urban lungs can be decentralised while also providing the communities with spaces of leisure and relaxation along with thermal comfort and various other benefits.

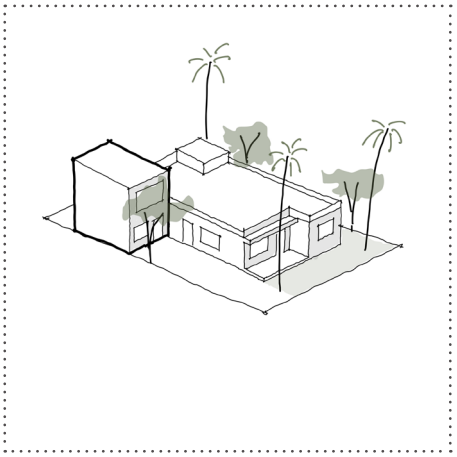
The observations from Ambika Society reveal that the value of housing extends beyond the built unit and lies equally within the shared spaces that caters social interaction, adaptability, and a sense of belonging. As redevelopment becomes inevitable, the challenge is not merely to increase density but to retain and reinterpret these qualities within a contemporary framework. The proposal therefore seeks to reimagine housing as a system that accommodates growth, preserves community life, and restores meaningful open spaces as integral components of everyday living.



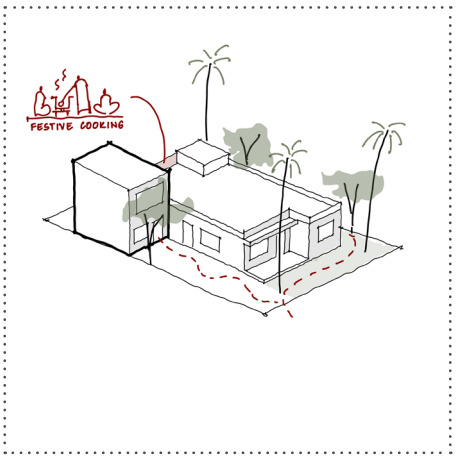
***1970**s : A family house in a new developed residential locality in Banashankari, Bengaluru, India*



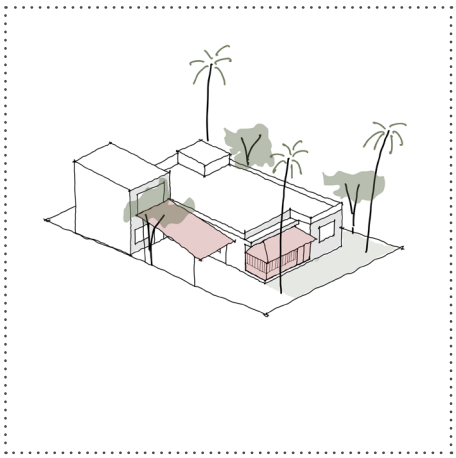
***1980**s : Sense of belonging. Garden nurtured*



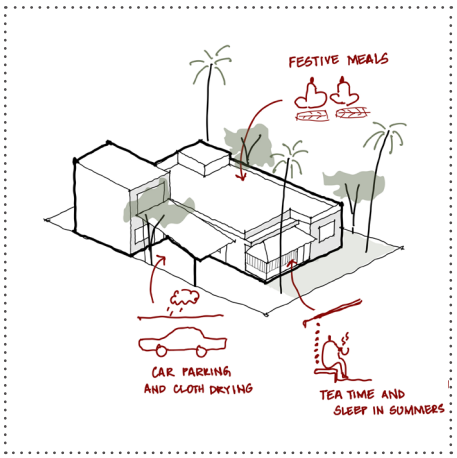
***1990**s : Two storey outhouse added for business and expansion of the living space*



***1990**s : Backyard used as a temporary kitchen during festivals and celebrations*



***2000**s : The verandah is enclosed and a shaded space is added for car parking and laundry drying.*



***Present day** : Shows the multi purposed usage of the space in the grandparents' residence*

Incremental growth of the grandparents' home '*Aashraya*' over the decades in Bengaluru, India: Learning from personal experience

3.4 **Tying the research explorations with the design explorations**

The research explorations began with a trigger from personal memory of spaces like terraces, verandahs and backyards that have transformed during different gatherings in my grandparents' place in Bengaluru, India. Some of these spaces have also transformed into different uses over the decades. Yet, one of the ideas that remain constant is the tacitness of these spaces. Terraces have grown with addition of new roofs and *verandahs* have gotten surrounding walls. However, the idea of these spaces being a vibrant, utilised and for gathering have not changed. One can also infer from this that the idea of incrementality does not necessarily have to change the quality of space but could also refine the existing quality of space.

Tying this to the design strategies, the massing of the cluster in Ambika society, Ahmedabad was looked at in a way that it provides for access to the terraces at different levels. The terraces create a platform for growth into vibrant spaces with a few essential elements in place. This entails the opportunity to landscape, the opportunity for residents to meet, the opportunity to have shaded spaces in hot dry regions like Ahmedabad. The proposed cluster is inspired from the form of the Darshan cluster in the Ambika society where each cluster has a central open space that becomes the gathering space for the residents.

In the existing clusters at Ambika society, the units have expanded uncontrollably and encroached the open spaces with the structural elements to cater to changing times. However, this is an important issue that must be reconsidered during redevelopment since the needs of residents always keep changing over the years. The issue also became a starting point to design the new clusters keeping expansion in mind and how the open spaces would also transform with additional units. The spaces like balconies have also been accounted in a manner that generously allows the residents to have a breathing space with their own families; both with options for enclosed and open qualities in the balconies.

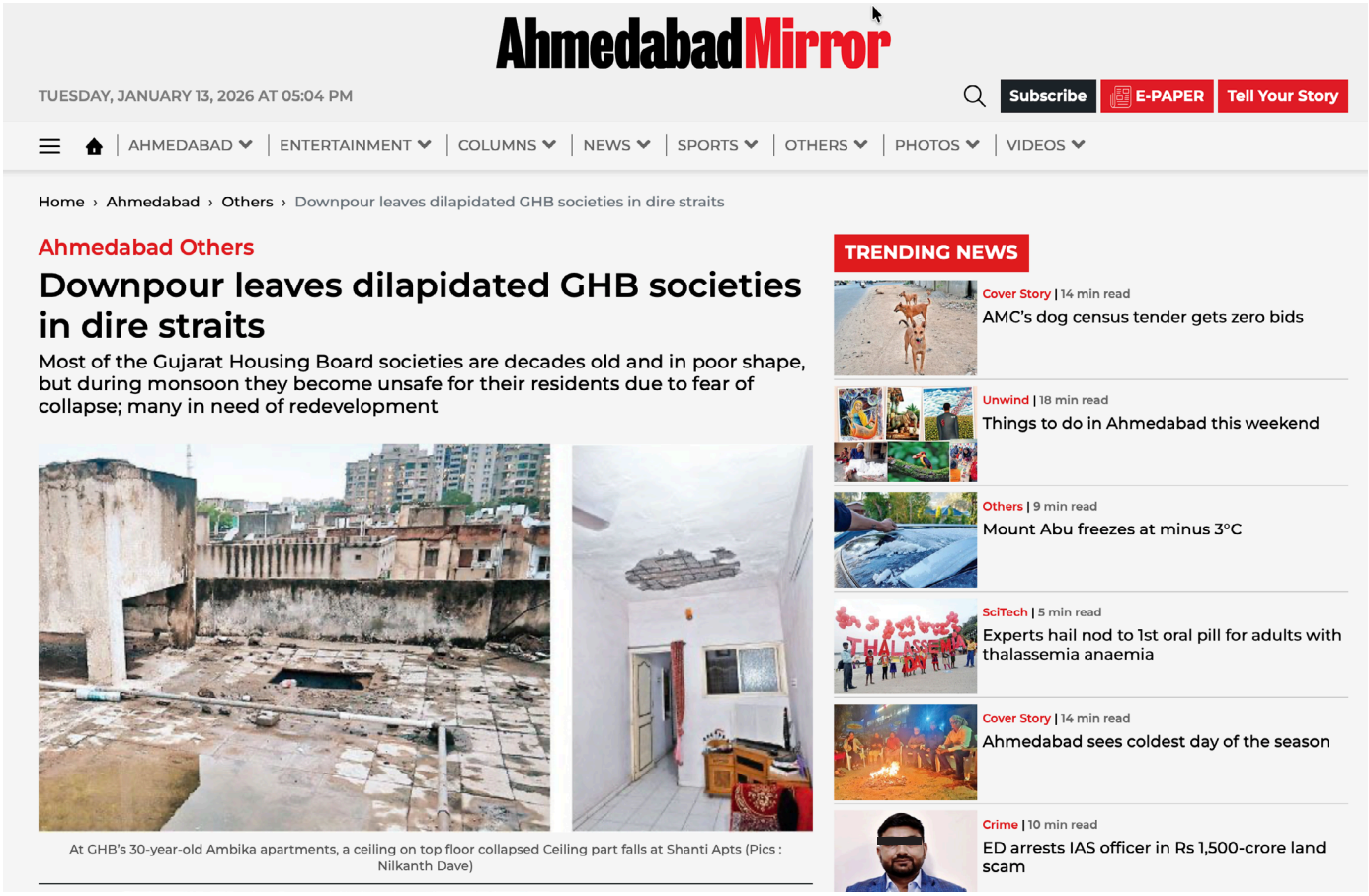


Figure: News article stating the dilapidated state of Ambika society houses. Source: Ahmedabad mirror

An AMC official, requesting anonymity, stated, "We identify old and structurally compromised buildings and issue notices to residents. In many cases, residents are asked to vacate, but they refuse until redevelopment is approved. In severely dangerous cases, buildings are sealed and forcibly vacated. We have also carried out demolitions before this monsoon."

Sources within AMC also highlighted legal and logistical hurdles. "In the old city, frequent collapses have claimed lives. Though strict measures are taken, tenant-owner disputes often delay evacuation. This year, before the Rath Yatra, demolitions were carried out in several areas. In western Ahmedabad, old societies are also deteriorating, and redevelopment efforts are underway. Some Gujarat Housing Board colonies are also in poor condition, with redevelopment approved for a few and under process for others."

Despite multiple tragedies in the past, enforcement of safety regulations remains weak. Following several fatal collapses, the state govt mandated structural stability certificates for all buildings over 15 years old. However, compliance has largely been symbolic, with notices issued but little actual enforcement.

Source: Times of India dated July 29, 2025

Gujarat Housing Board residents protest delays, demand action on stalled redevelopment of housing societies

The residents highlighted how each society has been forced to approach the High Court at its own cost, only to face "indefinite delays and repeated adjournments".

Source: Indian express dated July 24, 2025



*Figure: Images show the **structural decay** of the existing Mid income group (MIG) cluster in the Ambika Society, Ahmedabad*
Source: Author's own photograph (2025)



*Figure: Image shows the **lack of space** forcing household objects to be moved outside at Mid income group (MIG) cluster in the Ambika Society, Ahmedabad | Source: Author's own photograph (2025)*



*Figure: Image shows the **encroachment** of an open yard in the Mid income group (MIG) cluster in the Ambika Society, Ahmedabad*
Source: Author's own photograph (2025)

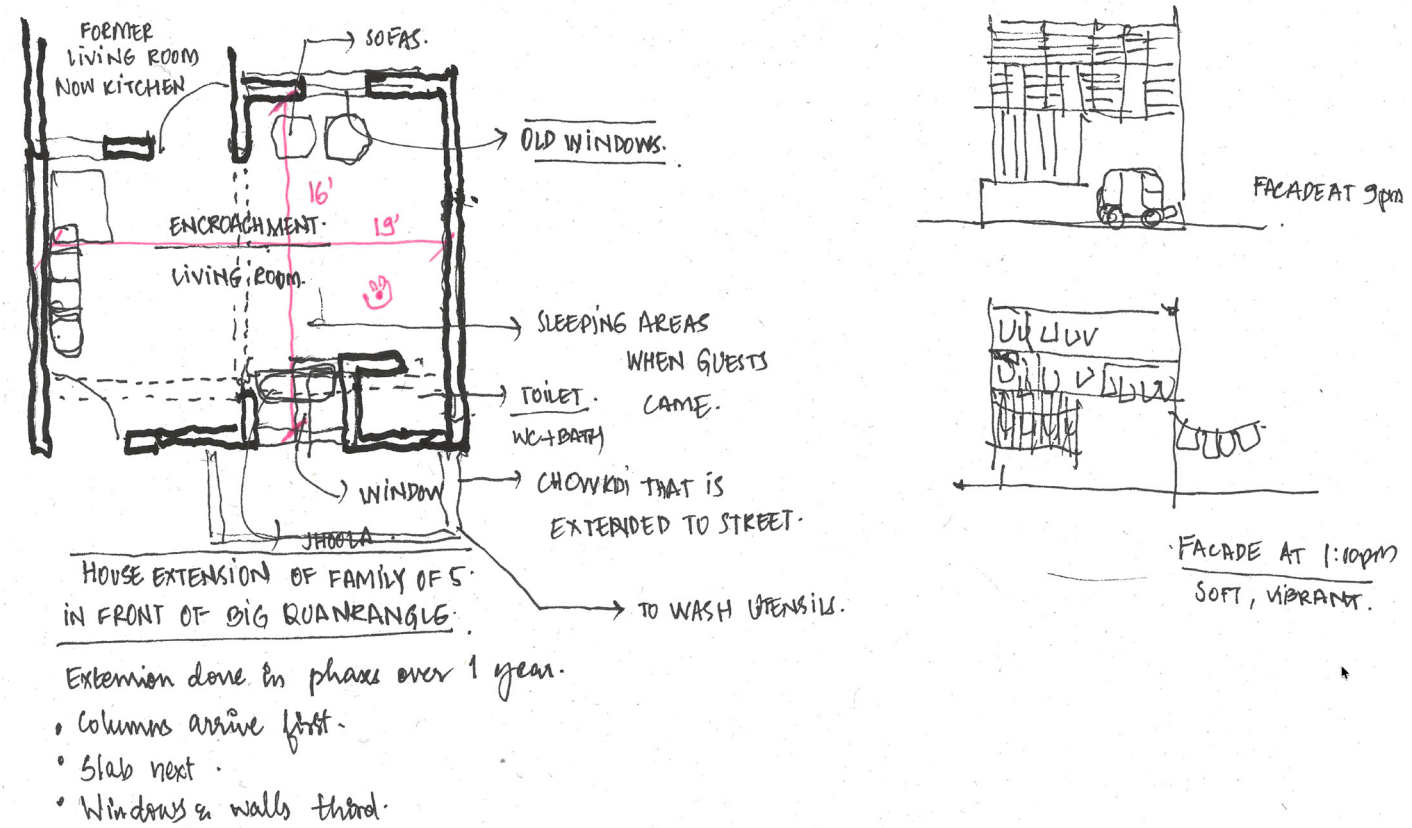


Figure: Scan of field observation sketch showing the encroachment patterns of one of the units as recorded in the sketchbook of the author



*Figure: Image shows the **disappearance of public envelopes like verandah** in Ambika Society, Ahmedabad*
Source: Author's own photograph (2025)



*Figure: Image shows the **disappearance of public nodes** in Ambika Society, Ahmedabad*
Source: Author's own photograph (2025)



*Figure: Image shows the **disappearance of public envelopes like balconies** in Ambika Society, Ahmedabad*
Source: Author's own photograph (2025)



*Figure: Image shows the **disappearance of aangans** in Ambika Society, Ahmedabad*
Source: Author's own photograph (2025)

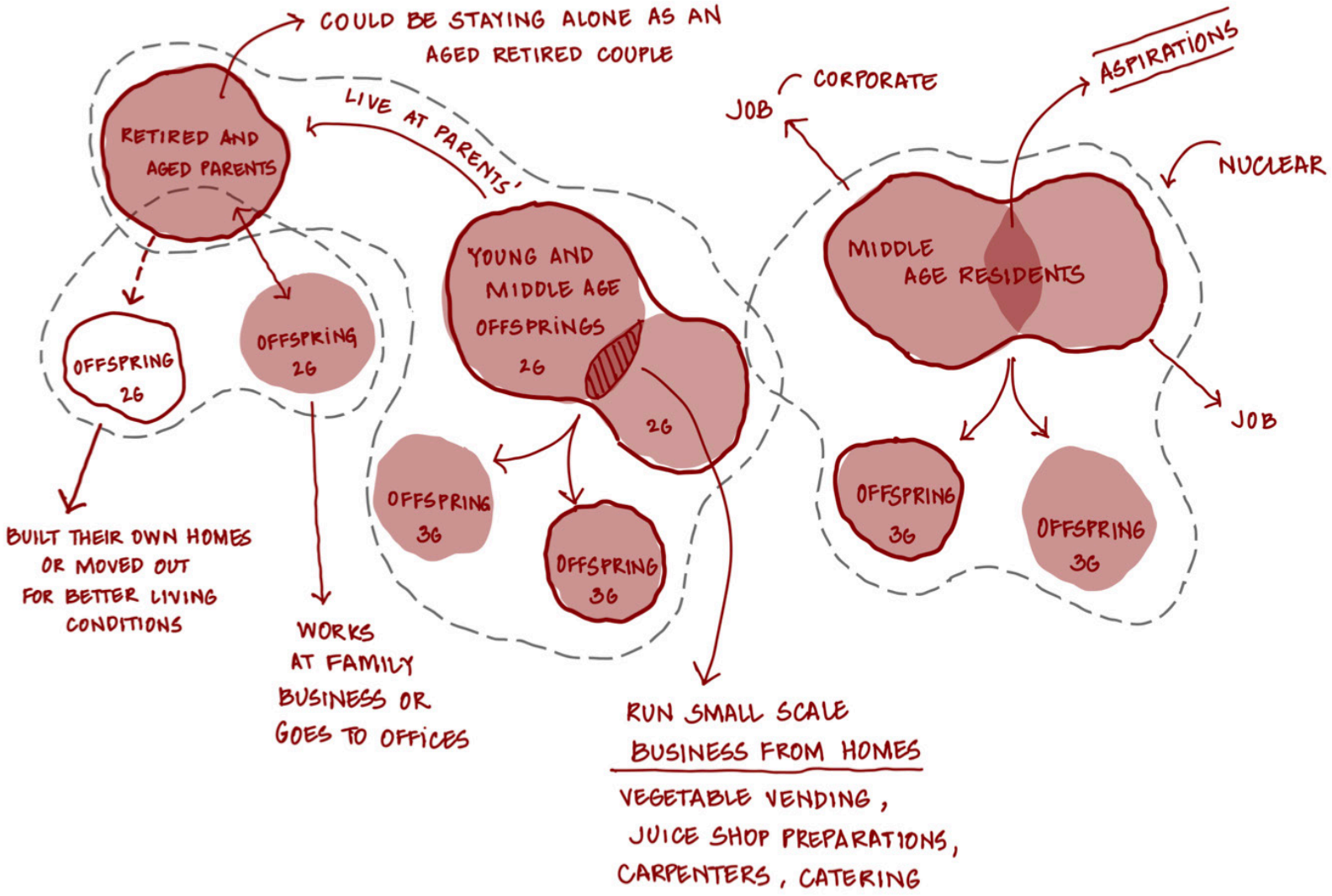


*Figure: Images show the **structural encroachment** of various units in the existing Mid income group (MIG) cluster in Ambika Society, Ahmedabad*
Source: Author's own photographs (2025)



*Figure: Image shows the **disappearance of green areas** in Ambika Society, Ahmedabad*
Source: Author's own photograph (2025)

User group structure in Darshan society:



3.5 **Design explorations**

The proposed project began by understanding the deteriorating conditions of the Ambika society. This argument is also backed by newspaper clippings that have While the neighbourhood has a vibrant character to it, the buildings and the infrastructure demand attention and need better ways to expand the living spaces. This in turn supports the redevelopment that the residents have agreed upon in majority.

The proposal looks at a financial and a managerial strategy in which the redevelopment happens in phases with the LIG units which are the most depleted would first be redeveloped with the clubhouse coming in a segment of its current location. The clubhouse is looked at as a finance generator. Post this the high-income housing would be constructed that would provide more capitol for the redevelopment project.

The existing higher income group would be demolished in the third phase where the high-rise mixed usage tower is proposed. Once completed, this tower complex would house the finance generating commercial establishments through the rents and the lower income housing primarily.

The middle-income group from the Darshan cluster would be the last one to be demolished. In the time duration of the redevelopment, finances would be accumulated by the small-scale industries that these families mainly own. The existing clusters would be then removed systematically making way for the new middle-income towers. The strategy would be worked out in collaboration with the Gujarat housing board. It hence enables the entire project to be mainly co-financed by each other rather than relying on external financial organizations and over reliance on the government capitol. The idea of co financing is also inspired from the CHARCOP housing in Mumbai.

Learning from the precedent study of the existing Ambika society, one realizes the importance of integrating commercial establishments like shops and amenities with the housing. This not only helps generate finances within the clusters but also encourages community interaction in the ground plane.

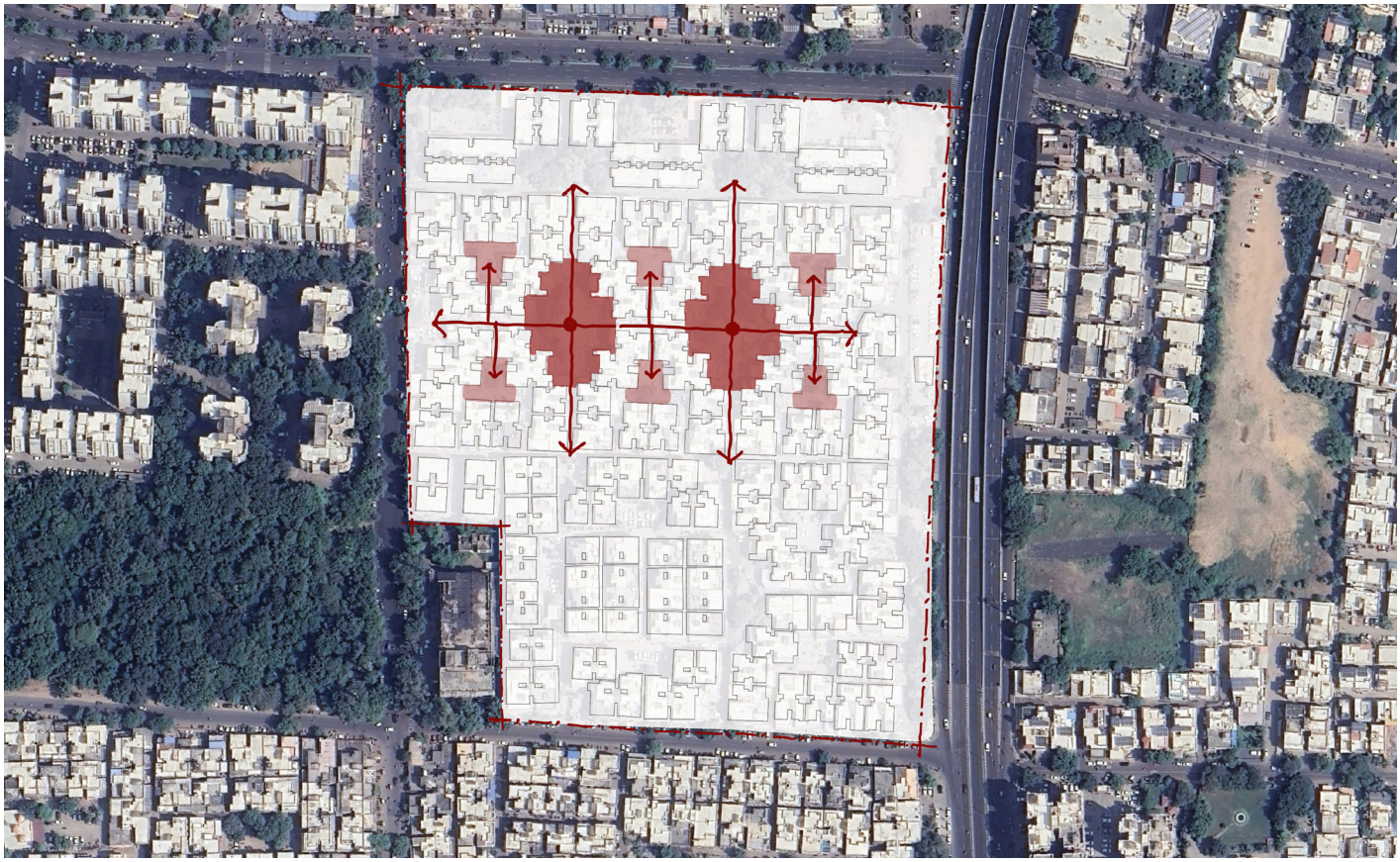


Figure: Tracing the existing voids of Darshan cluster, Ambika society
Source: Author's own

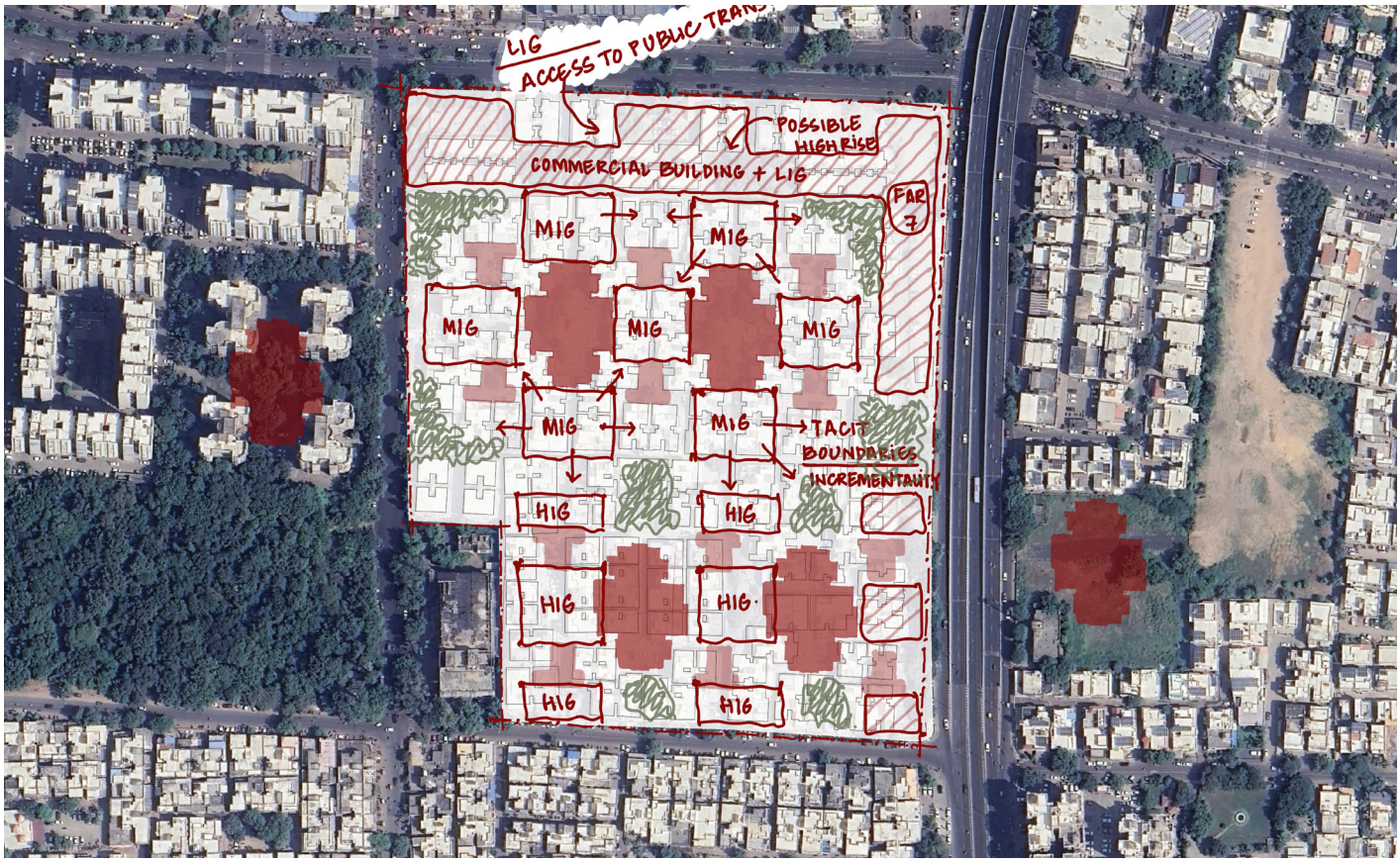


Figure: Initial iteration of the masterplan for the redevelopment project
Source: Author's own

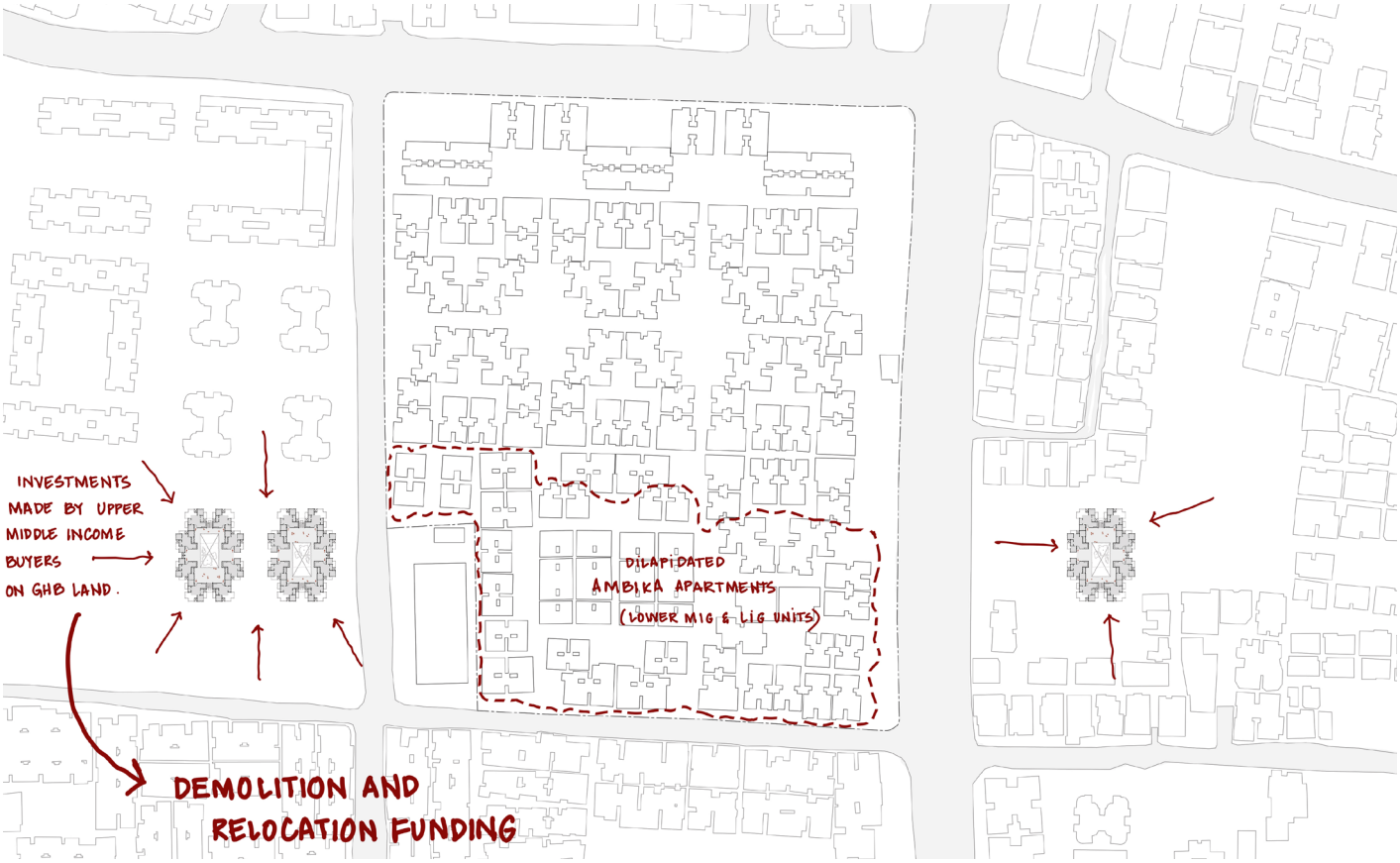


*Figure: **Stage 1**: Managerial and financial strategies for redevelopment of Ambika Society*
Source: Author's own



*Figure: **Stage 2**: Managerial and financial strategies for redevelopment of Ambika Society*
Source: Author's own



*Figure: **Stage 3**: Managerial and financial strategies for redevelopment of Ambika Society*
Source: Author's own



*Figure: **Stage 4**: Managerial and financial strategies for redevelopment of Ambika Society*
Source: Author's own

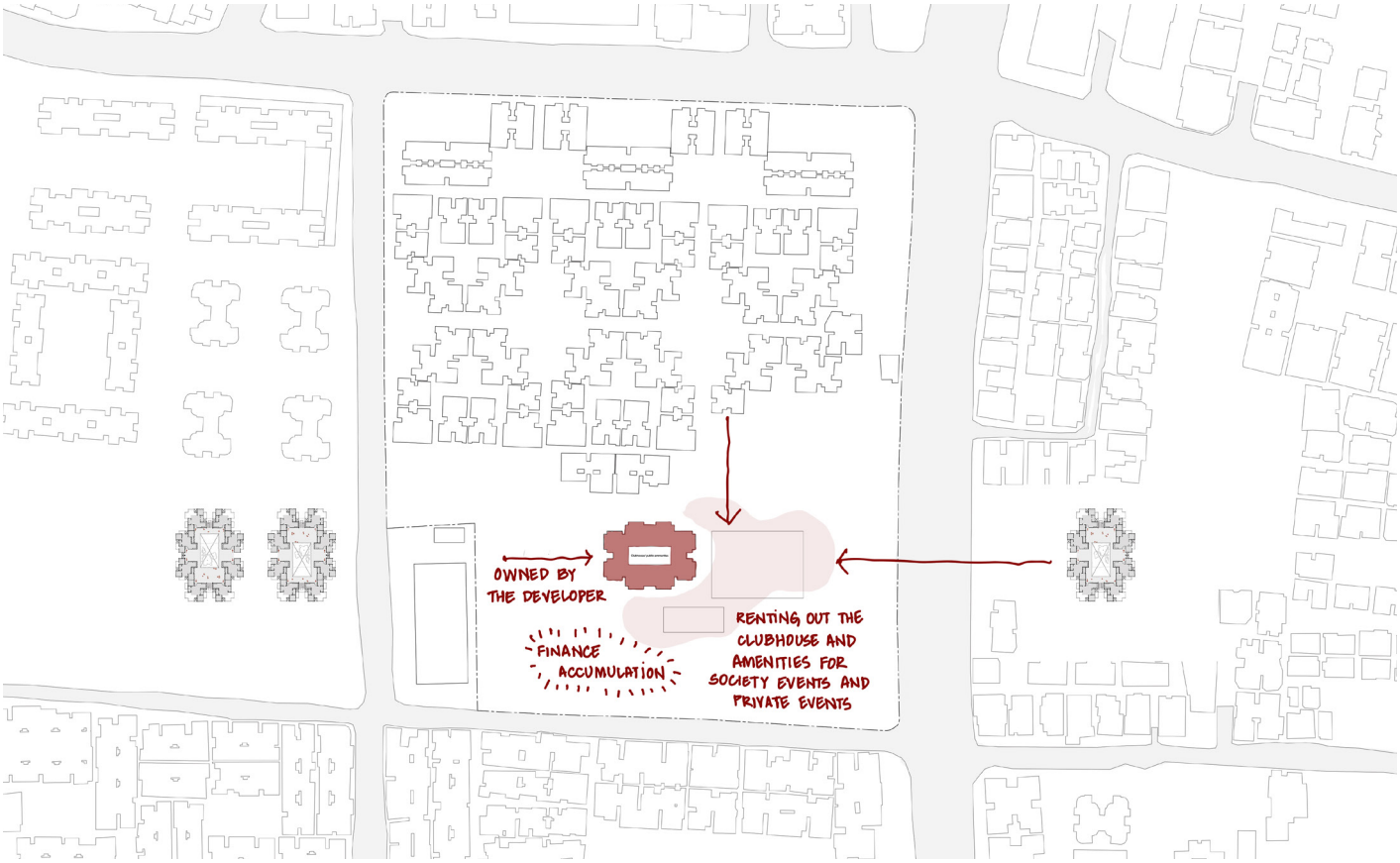


*Figure: **Stage 5**: Managerial and financial strategies for redevelopment of Ambika Society*
Source: Author's own



*Figure: **Stage 6**: Managerial and financial strategies for redevelopment of Ambika Society*
Source: Author's own

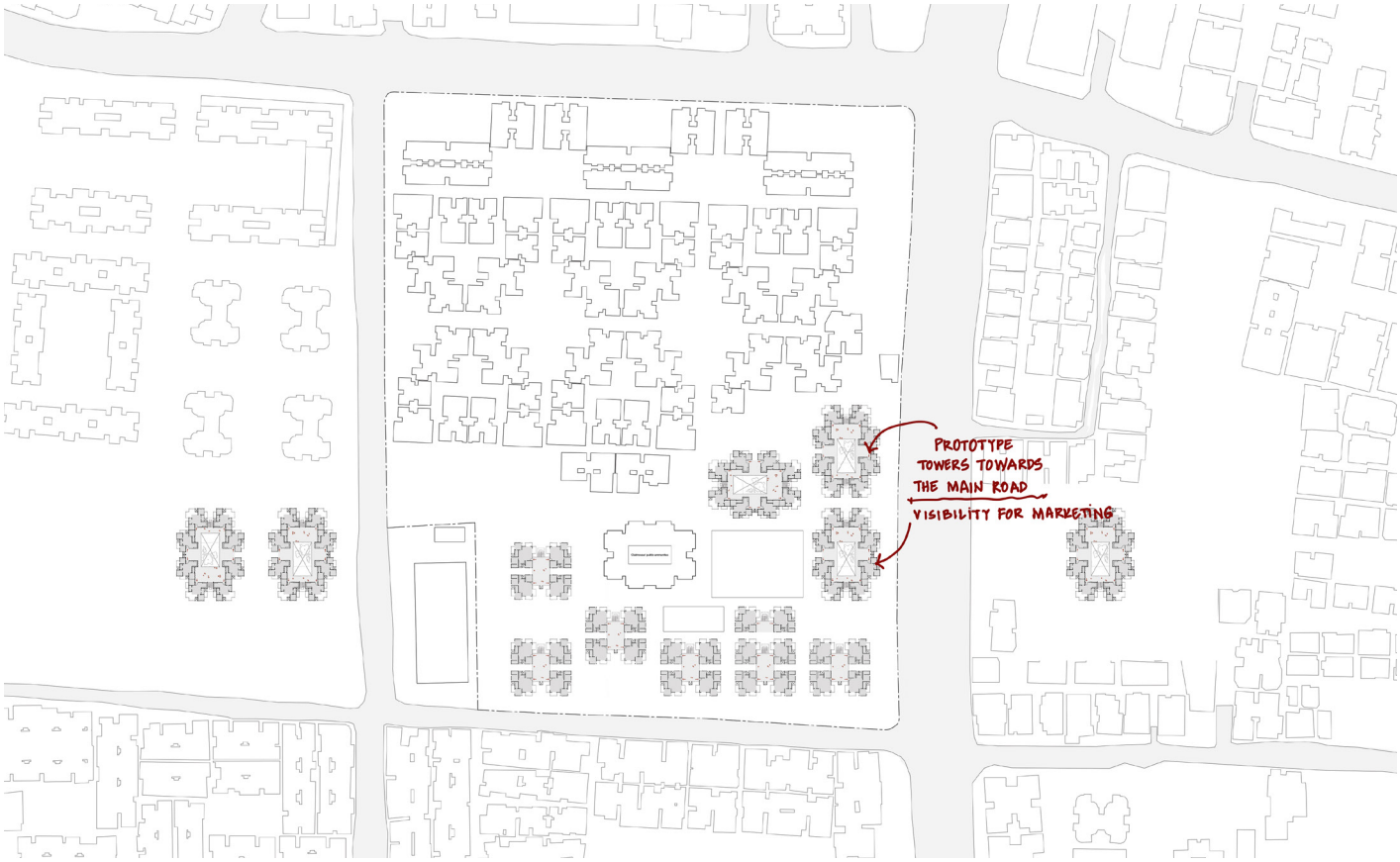


*Figure: **Stage 7**: Managerial and financial strategies for redevelopment of Ambika Society*
Source: Author's own

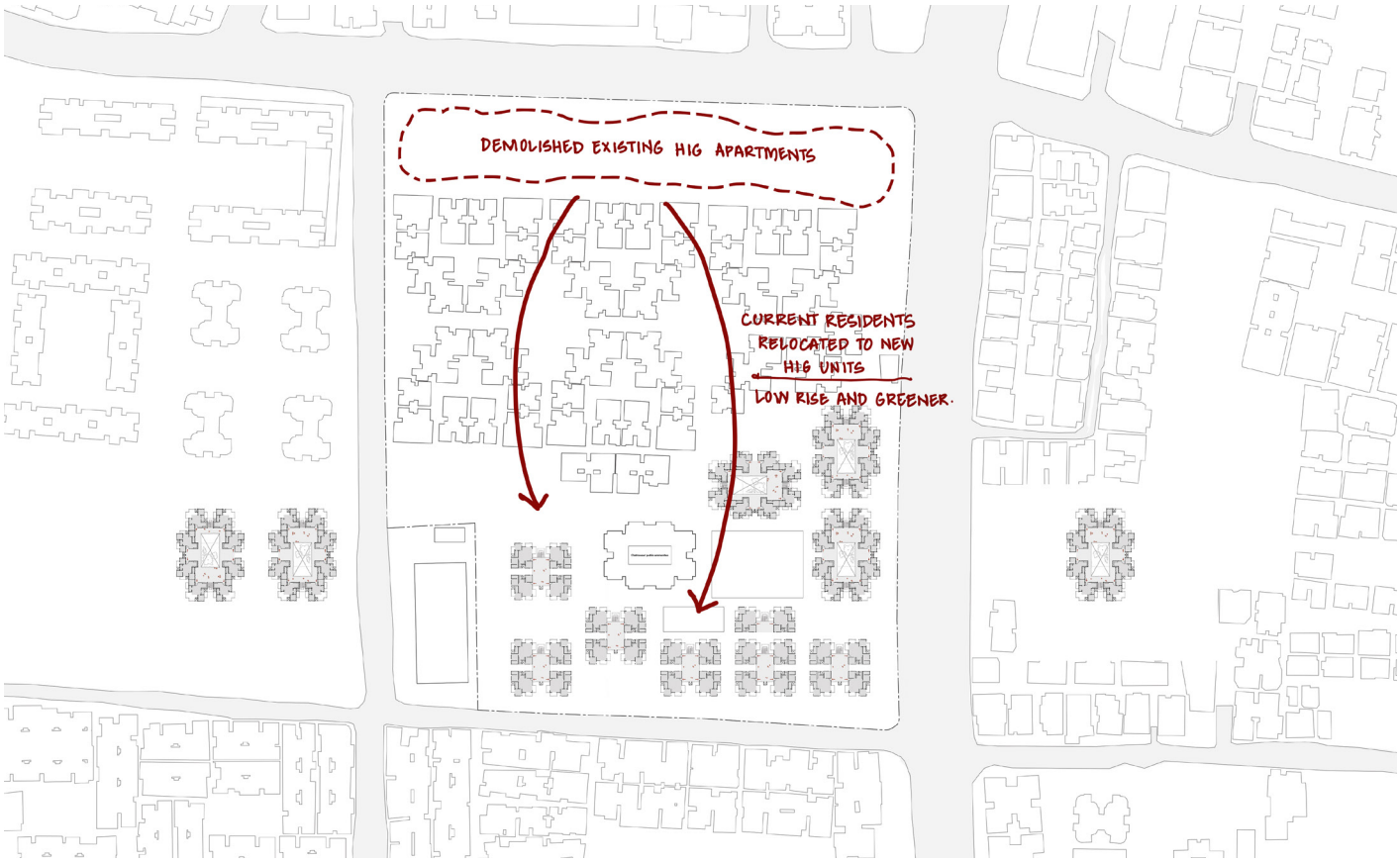


*Figure: **Stage 8**: Managerial and financial strategies for redevelopment of Ambika Society*
Source: Author's own

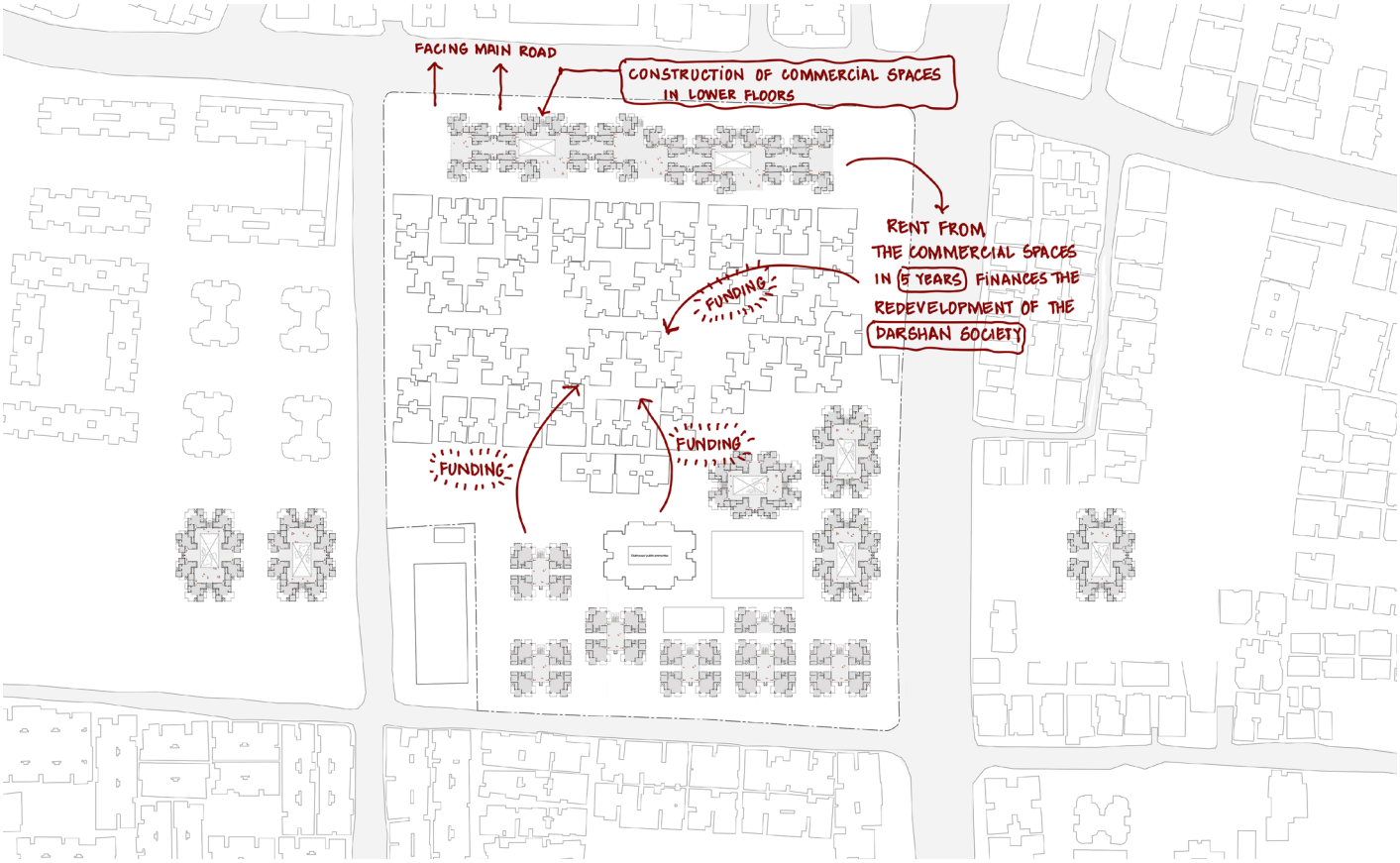


*Figure: **Stage 9**: Managerial and financial strategies for redevelopment of Ambika Society*
Source: Author's own

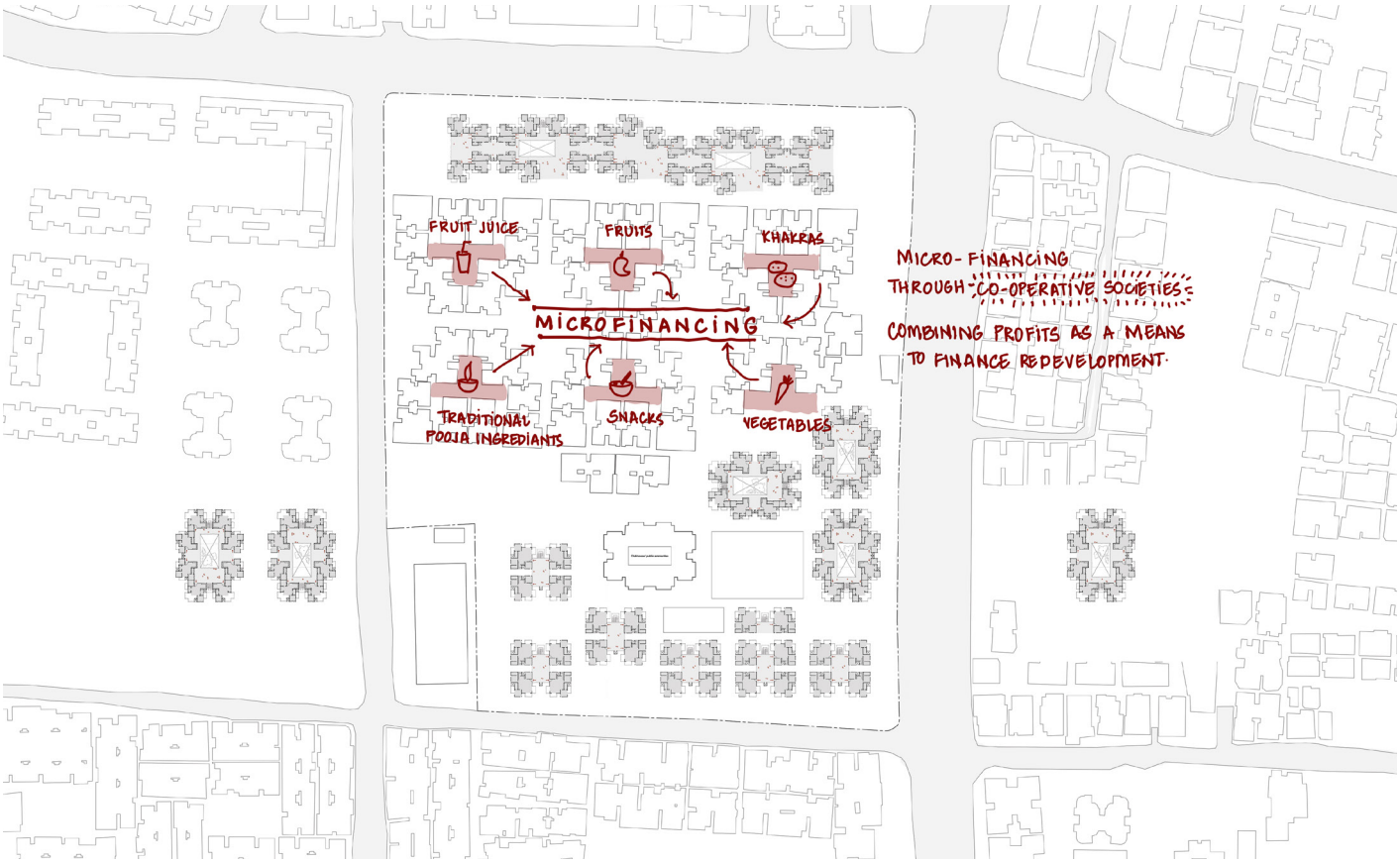


*Figure: **Stage 10**: Managerial and financial strategies for redevelopment of Ambika Society*
Source: Author's own

3.6 **Master plan**

The FSI in the existing Ambika housing clusters is about 1.31. The low FSI is primarily contributed by the three to four floors in each housing block that keeps the density constant. However, over the years due to the unplanned expansion and encroachment, the open spaces have started to shrink in the Ambika society. As a response to that, the proposed master plan looks at reducing the ground coverage while going vertical with a terraced section. Through this, not only is the FSI is increasing to 2.13 but also un-densifying the housing blocks with a lower GSI. This provides for more opportunities of breather and greener spaces like voids in the urban structure that results in better livability for the residents in their new living spaces. This is also inspired from the Dutch post war housing ideas of having a *'Kijktuin'* (look garden) around the buildings which provides a viewing green space for all the apartment units.

The master plan for the new cluster stems from the idea of creating a standard cluster and creating variations in the cluster typology through repetition. The towers on the Northeast of the site bordering the main road is high-rise development due to the permitted laws. The blocks there consist of the commercial spaces in the lower floors while the low-income housing forms the upper floor thereby providing closer access to the public transport and other services for the low-income housing.

The primary chunk of the site towards the central zone is populated by the mid income housing. Although not entirely a high-rise, the massing of these clusters are designed to have stepped sections that could help perceive it as a mid or even low rise for someone walking in the internal street. This is also a conscious move to instigate the memories of the former low rise Ambika society.

The southwest of the site is present with the high-income high-rise tower. Although having a similar footprint of the Middle-income clusters, the higher income towers feature duplex units with a more independent open spaces within the units compared to the middle-income block's shared terraces.

Although the master plan could be perceived regimental, the 'organic-ness' is brought in by the green and the paved spaces of various scales that is formed between them like the existing Ambika cluster. The open spaces are characterized by open voids in the urban strategy for community activities, while the streets are characterised with pedestrian, green spine and the vehicular access thereby overlaying the circulation that adds to the character of the pedestrian spaces. The green axes connecting from the North to south is characterised by two different terminal points- both that are high rise towers but of different usage patterns and user groups.

The voids were also explored to be present with different scales taking cues from Charles Correa's ideas of the Belapur housing cluster. The larger void is intended to flow into a mid-scaled open space that then transitions into the courtyard of the mid-income housing clusters to gradually humanize the open spaces. The idea of the cluster is inspired from the existing Darshan cluster that features a smaller court with the units on the edge of the courtyard. This form not only helps in forming a gathering space within the cluster but also helps climatically in many ways.



Figure: View of the physical model (1:1000) shows the existing dense fabric of Ambika society, Ahmedabad



Figure: View of the physical model (1:1000) shows the proposed massing for a redeveloped Ambika society, Ahmedabad


1
7
5
6
8
4
9
3



Existing FSI
1.31

Proposed FSI
2.18

Proposed GSI
0.56

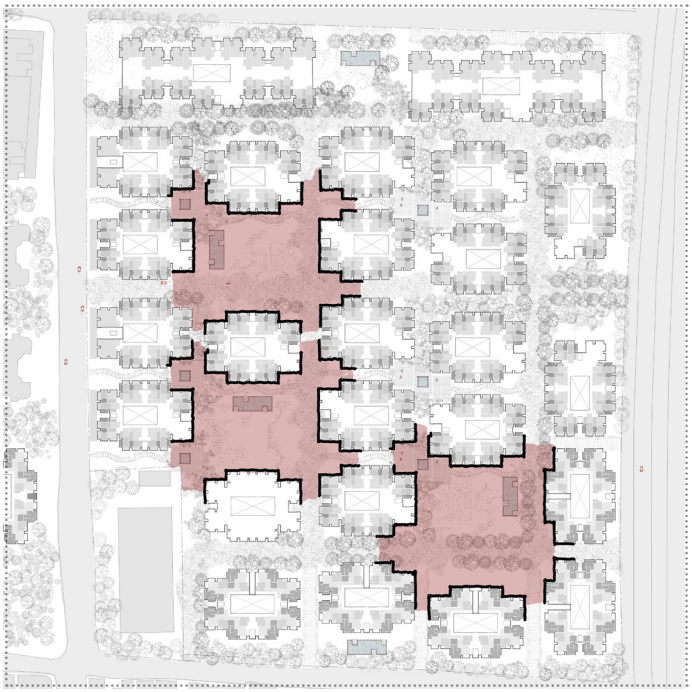
Total number of units on site
1325 units

Legend

1. Gaurav Path
2. Ring road- 132 feet
3. Amee apartments
4. Naranpura telephone exchange
5. Telephone exchange road
6. Proposed high income housing model mother block
7. Existing Gujarat Housing Board- redeveloped towers
8. Proposed clubhouse
9. Smitha Apartments
10. Residential bungalows

N

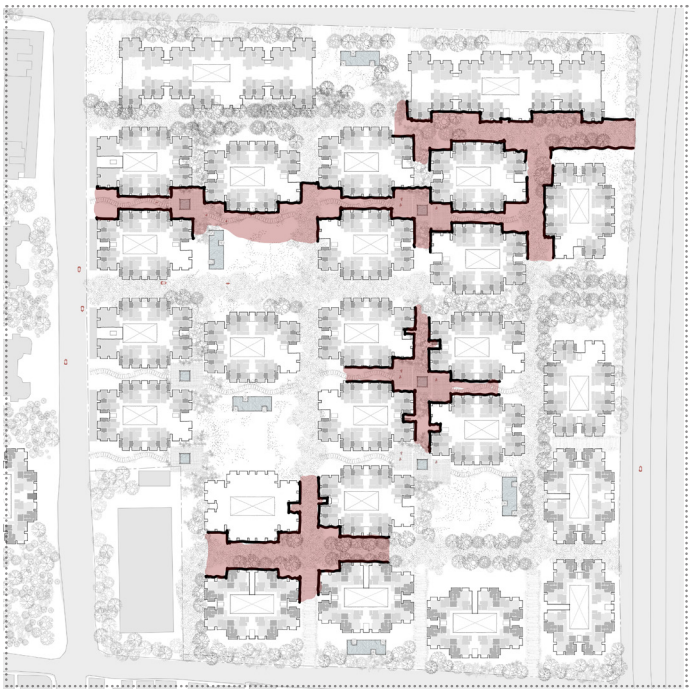
0m 50m



Open voids in the masterplan proposal: Opportunity for various scales of interaction and activities to take place during gatherings



Hierarchy of open spaces inspired from the Darshan society and Correa's works - The large void transitions into a smaller pockets before flowing into the courtyard of the cluster.



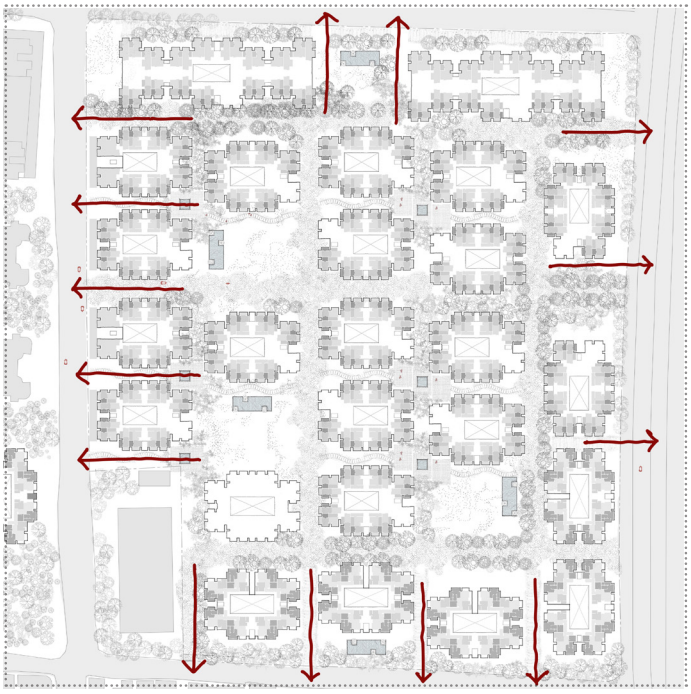
The Indian streets have a meandering quality and approximation that could provide opportunity for different kinds of interaction and negotiations of the edges



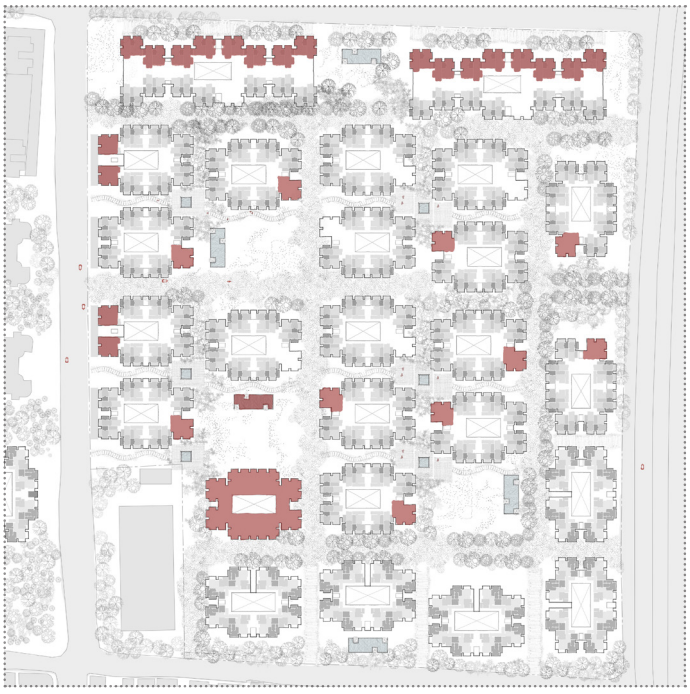
Nodes
The nodes formed at the crossover of pedestrian paths with the green spine is inspired from the present fabric of the Ambika society



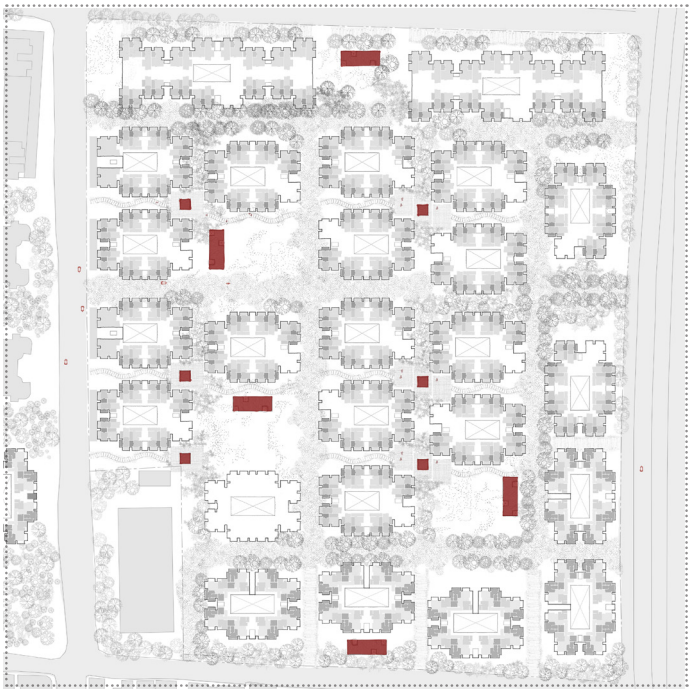
Diagonal connections
The ground floor opens out to the nodes diagonally creating interesting opportunities for interaction and point of entry at the node



Porosity towards the existing fabric
Inspired from the present Ambika society, the pathways flow out towards the existing city fabric thereby blurring the boundary at an urban scale.



Amenities and shops
The master plan is dotted with shops and amenities at regular intervals at the nodes making it a hub for gathering and convenience of the residents

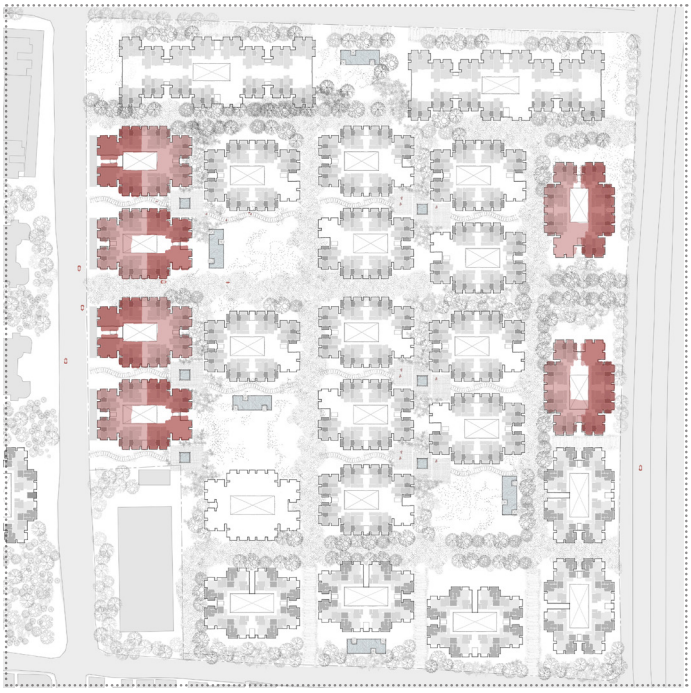


Water bodies
Presence of water bodies help in being an effective climatic strategy in the harsh weather of Ahmedabad thereby providing thermal comfort to passers by.

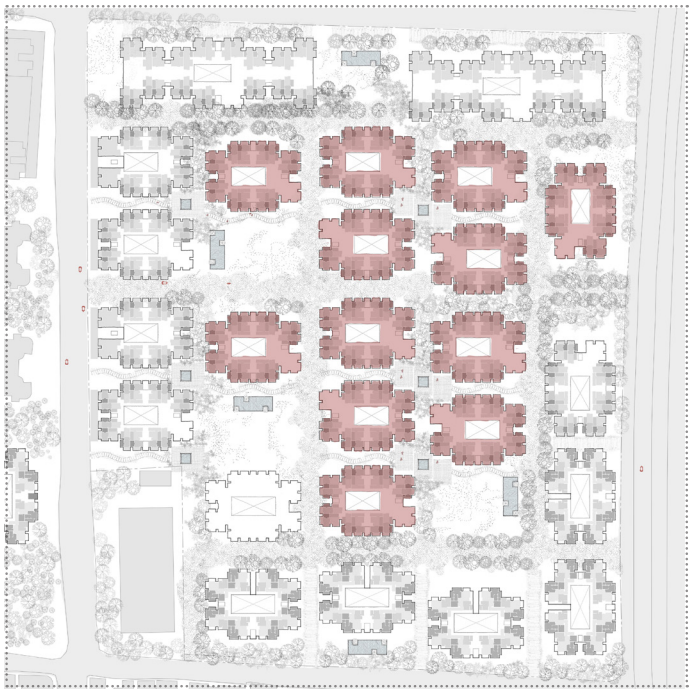
3.62 **Master plan analysis:** Types of housing blocks



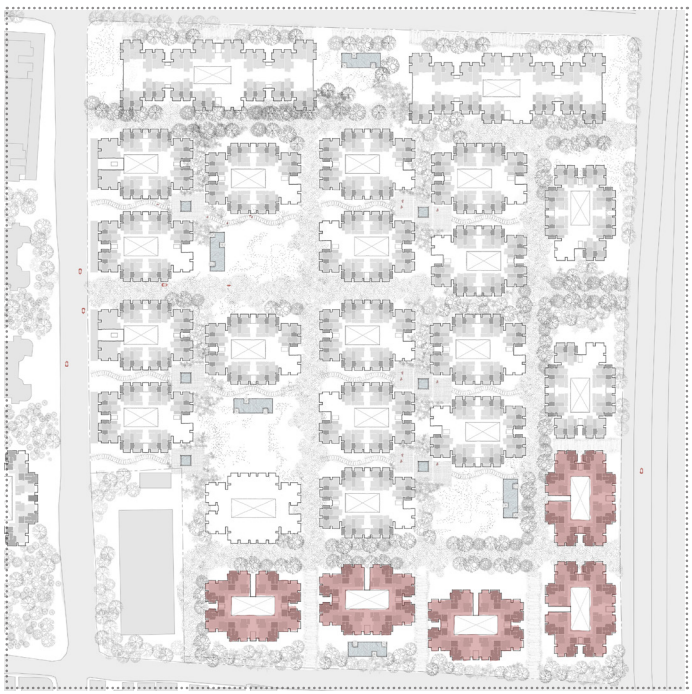
Highrise + Commercial block
MIG + LIG/ studio units + commercial space in Lower floors



Partially highrise blocks on the edges (G+10)
75 units in each cluster



Medium rise clusters (G+8)
50 units in each cluster



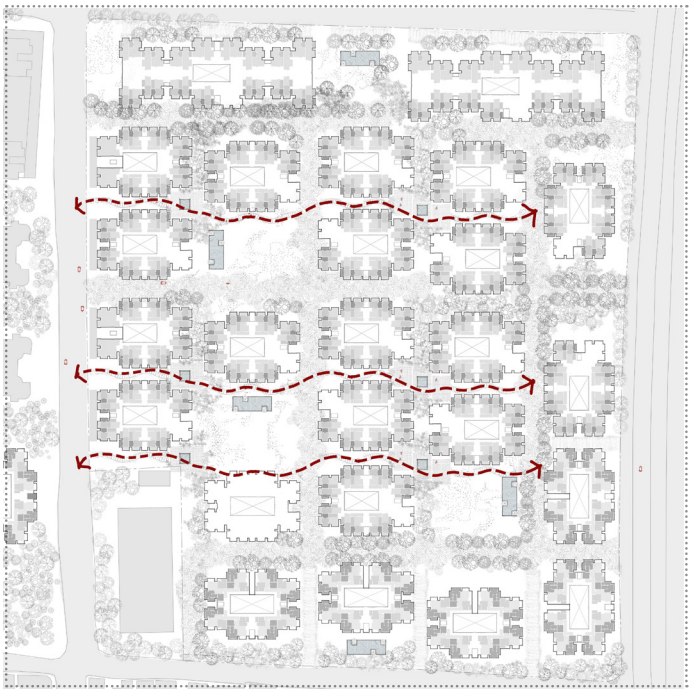
HIG High rise towers (G+10)
40 units in each tower



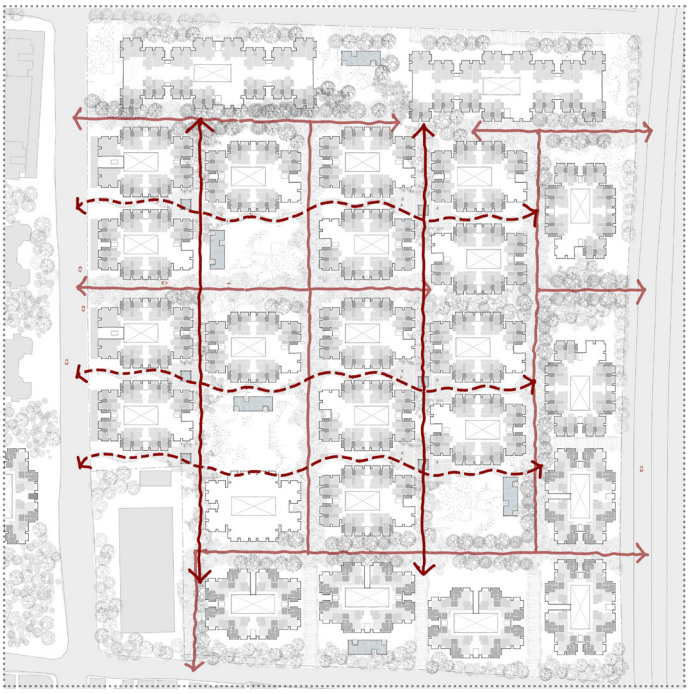
Firetruck and vehicular access on a grass paved and landscaped street



Green spine running in the longitudinal directions



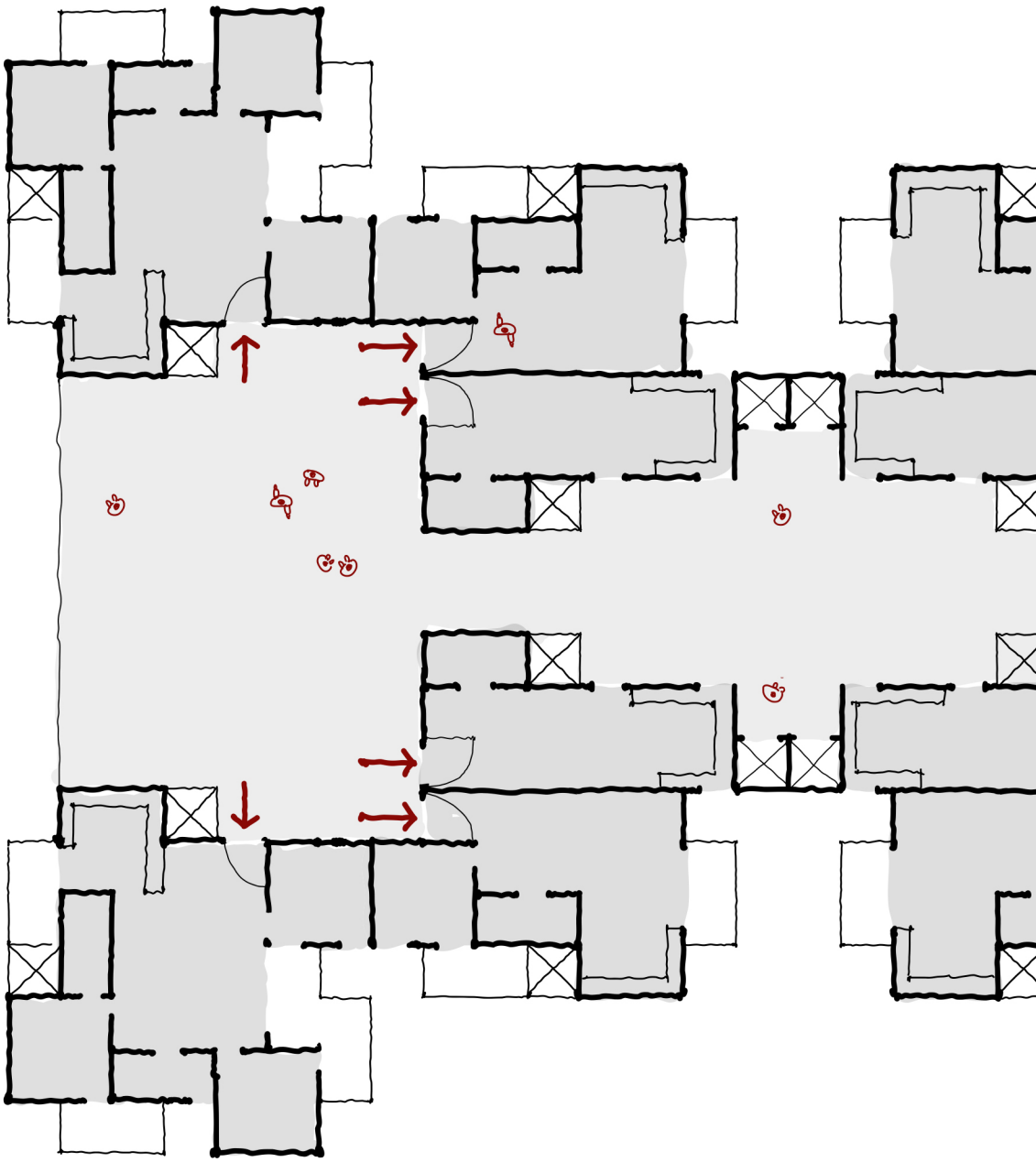
Pedestrian circulation cutting across the building blocks

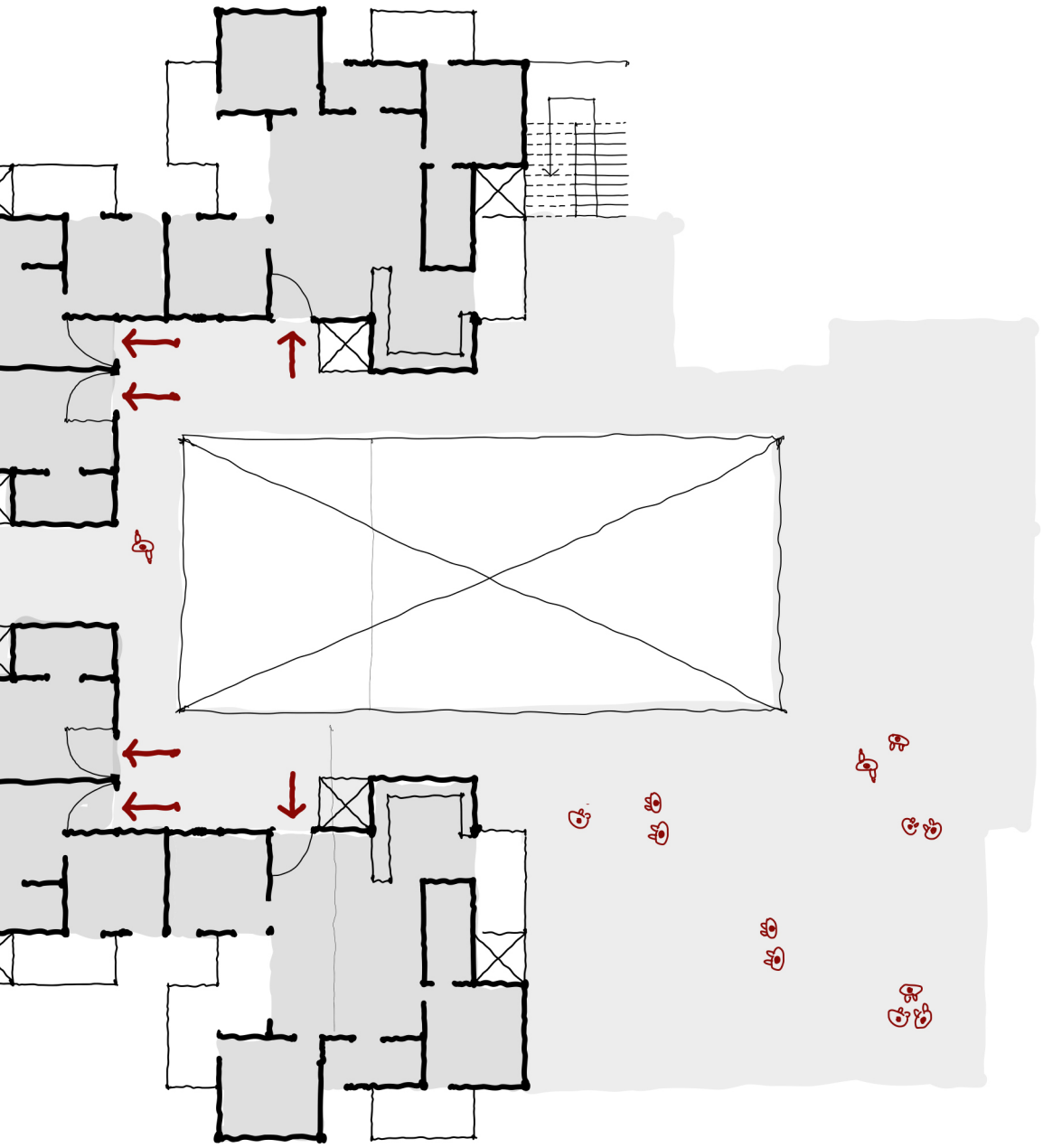


Layering the various circulatory elements to create a hierarchy

Schematic drawing showing the fragment of the **Highrise block in the North (residential + commercial)**

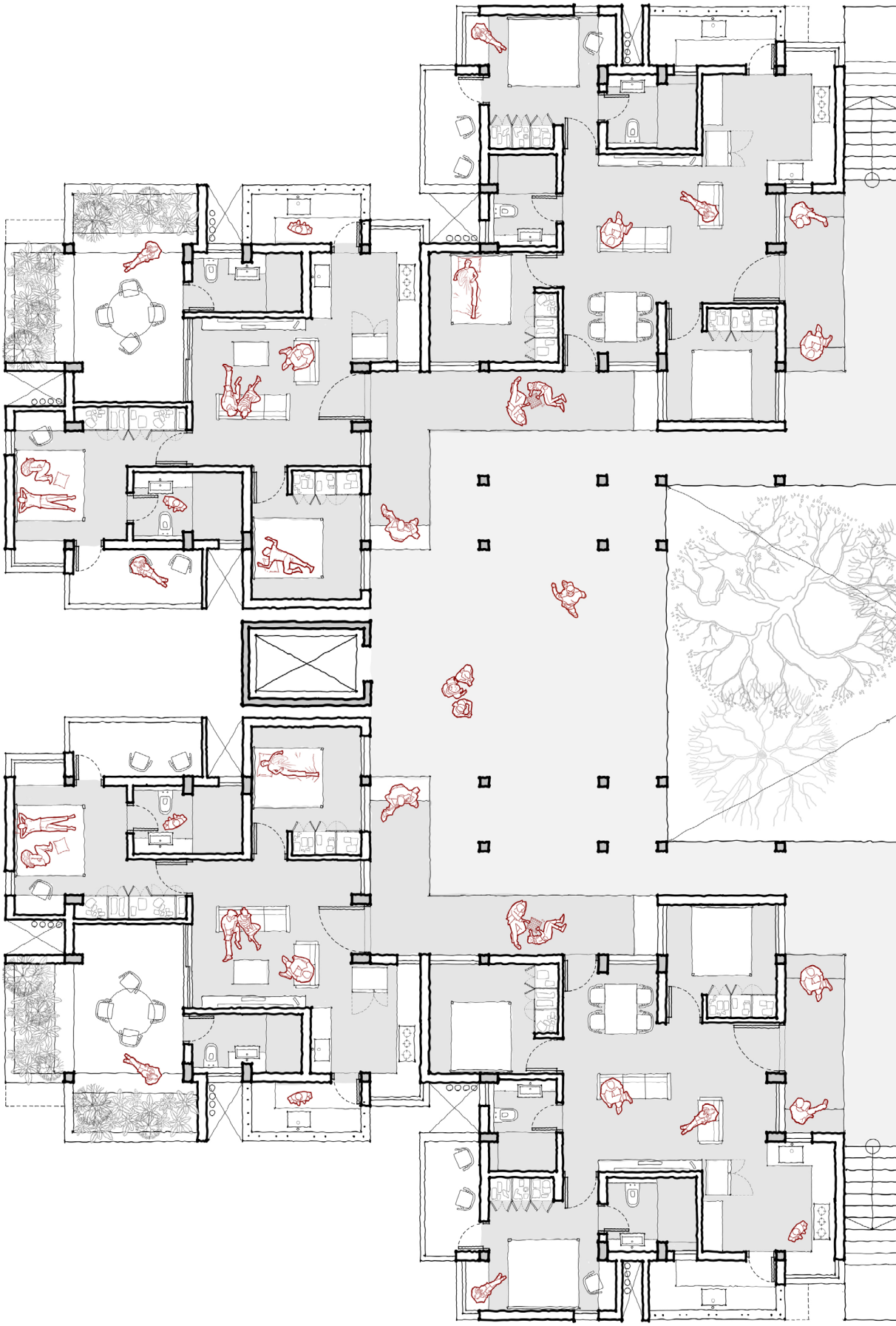
Scale 1:200

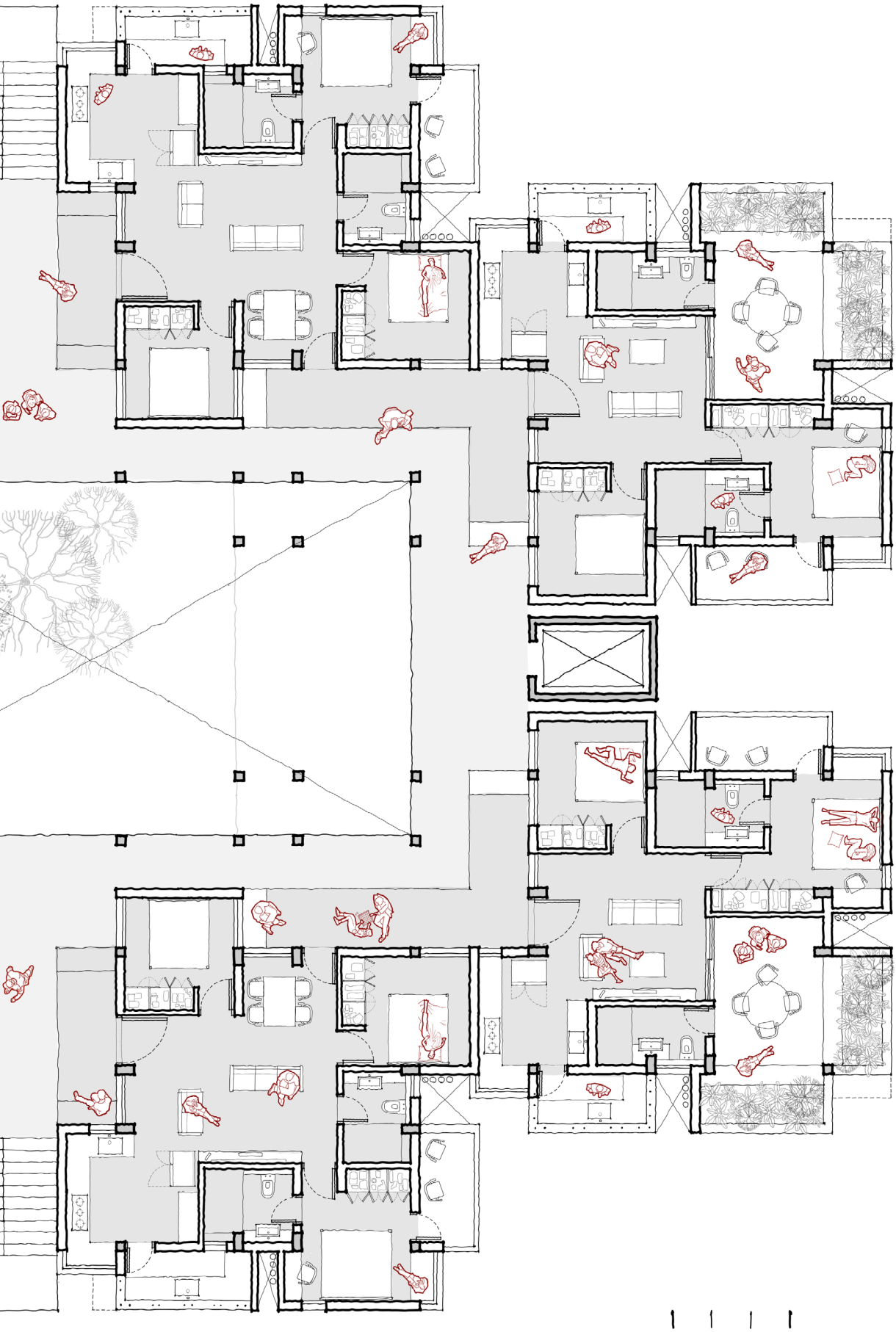



0
5
10m

Medium rise cluster: Floor plan **variation A** for **Medium income group (MIG)**

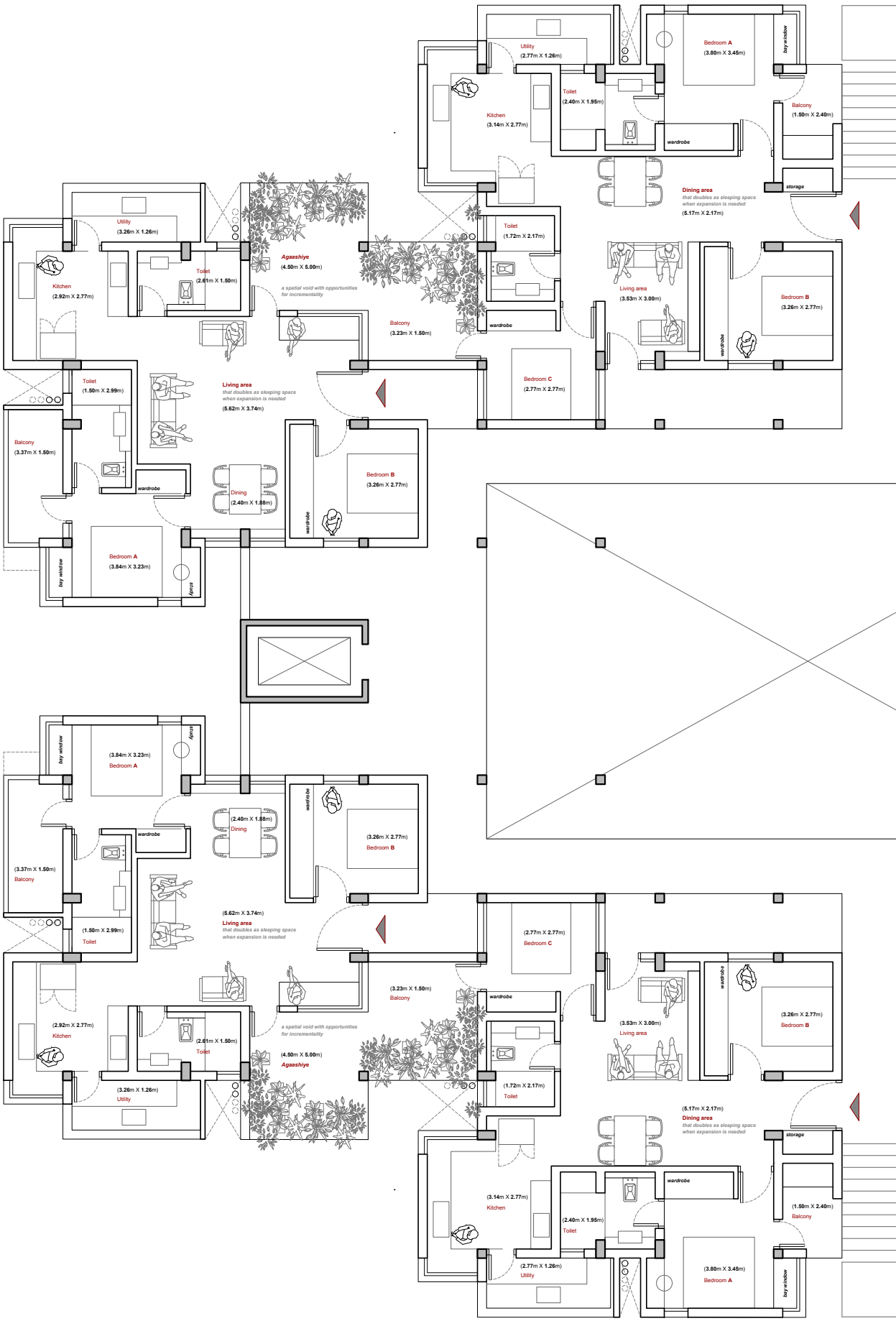
Scale **1:100**

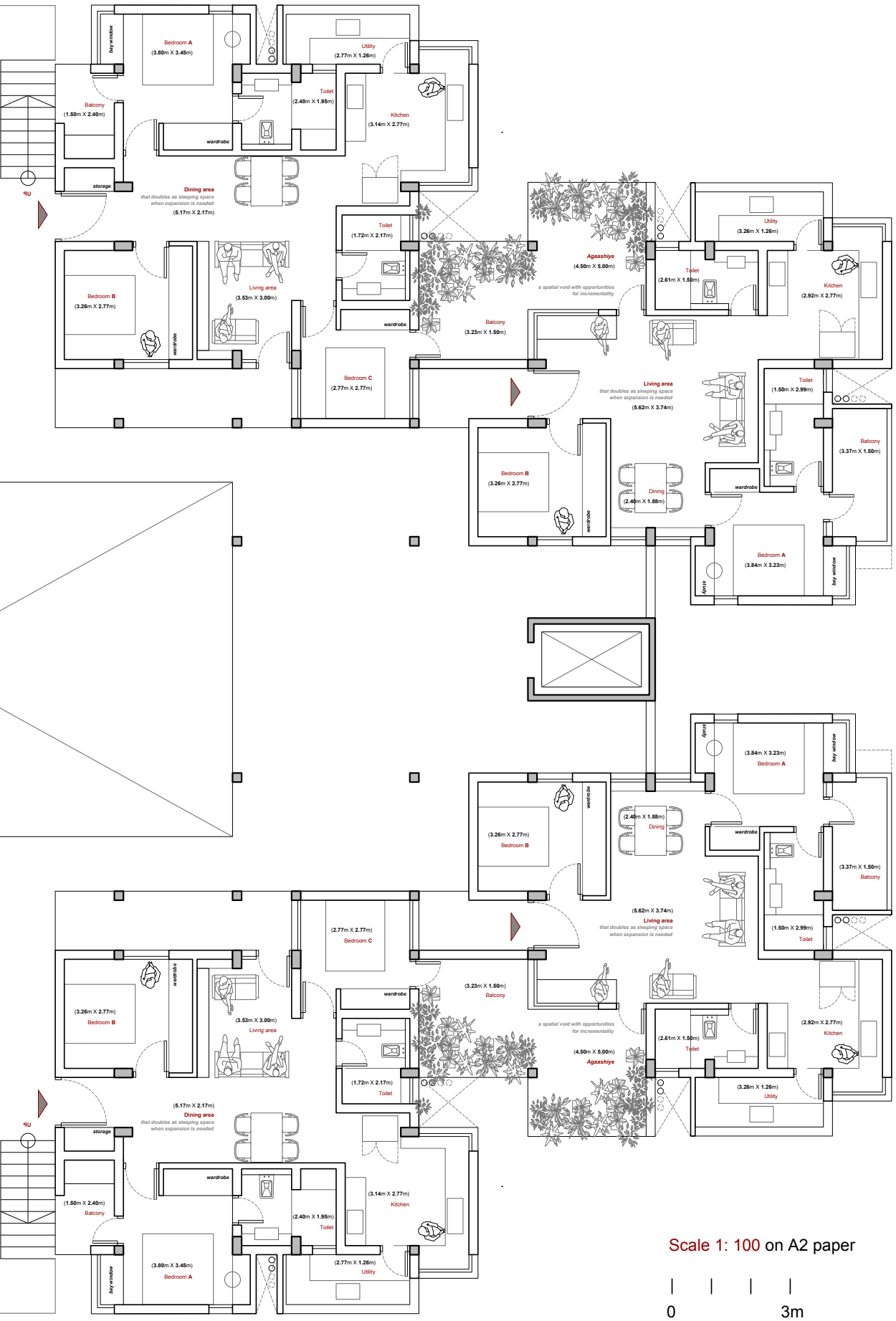



N
0
3
10 m

Medium rise cluster: Floor plan **variation B** for **Medium income group (MIG)**

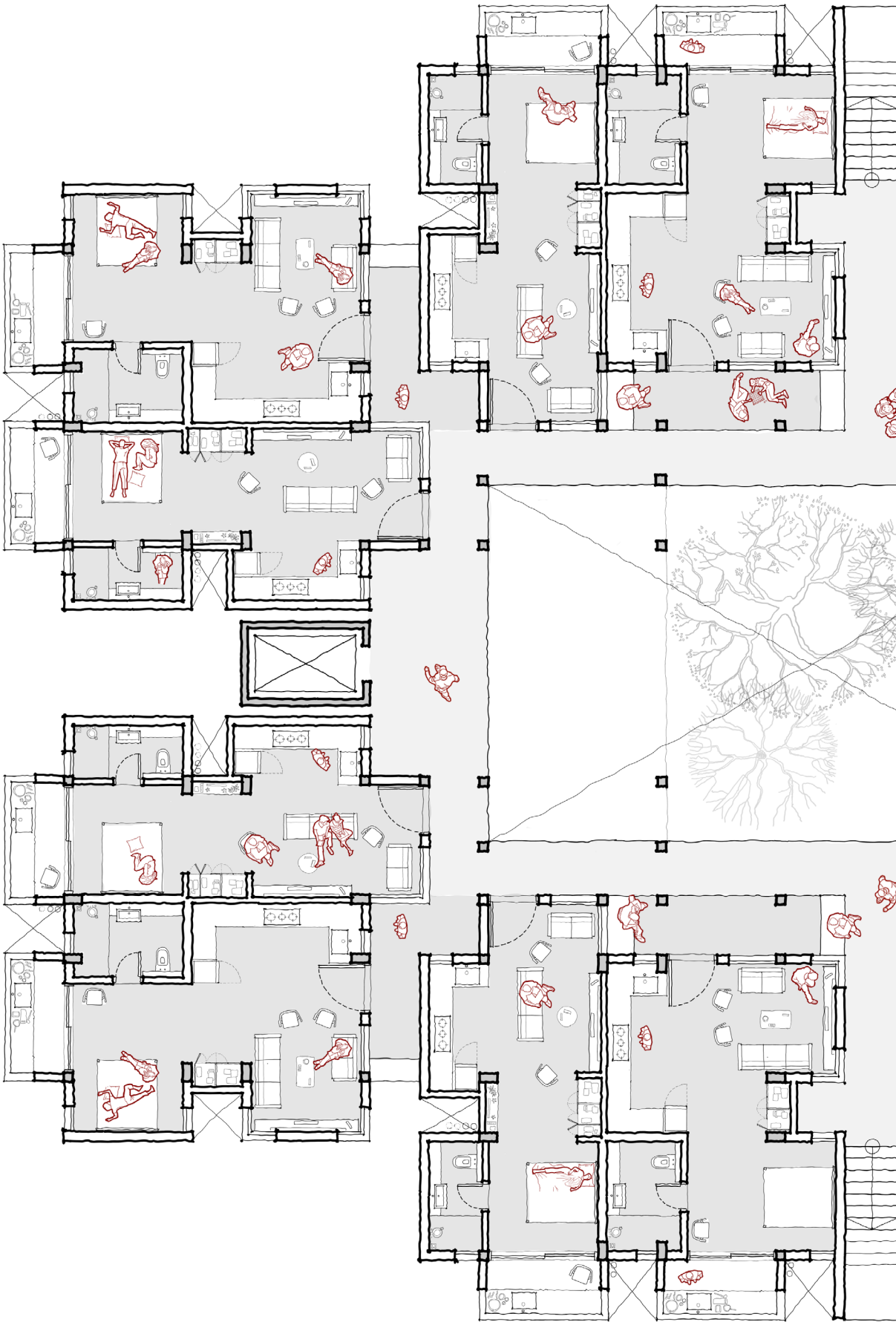
Scale **1:100**

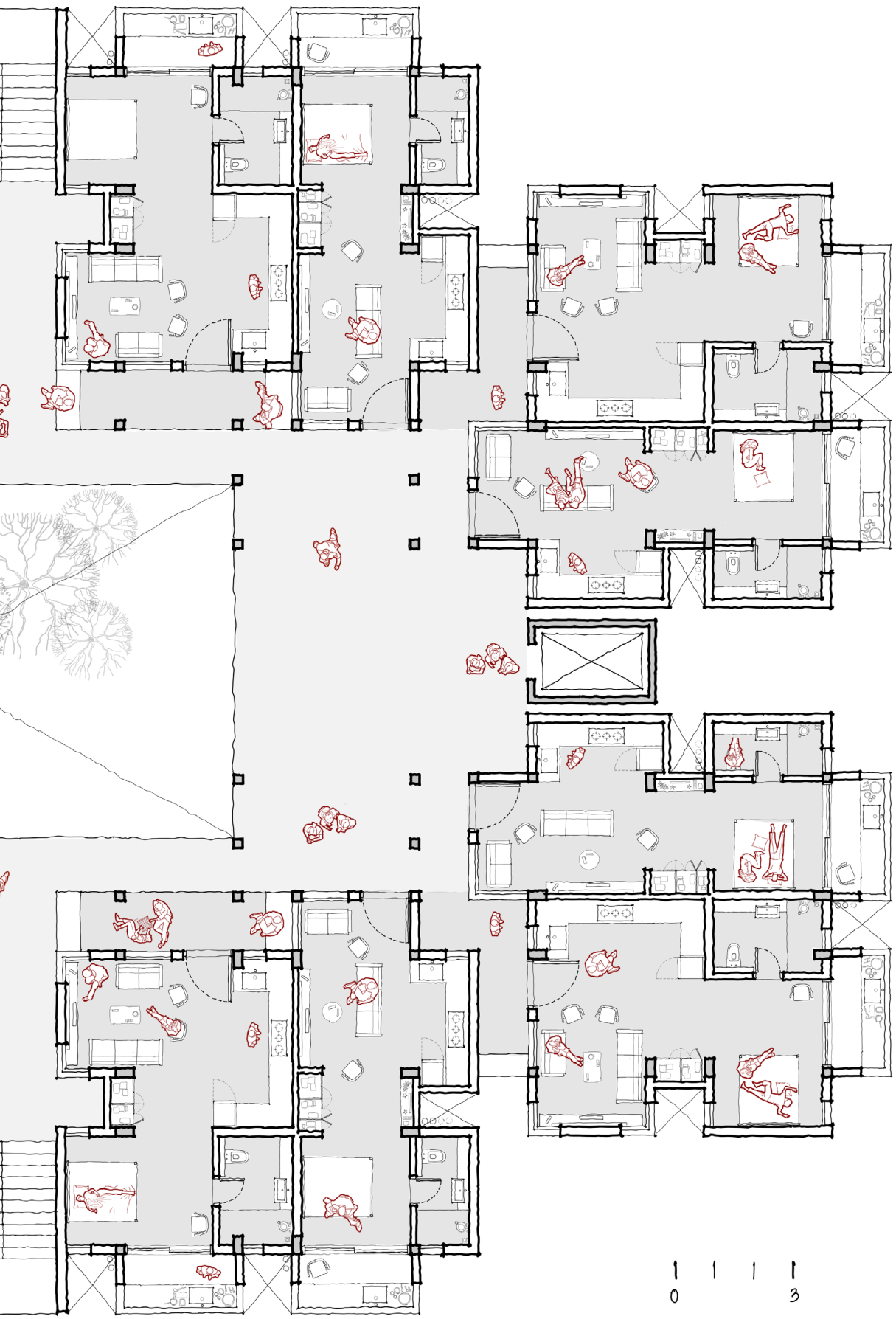



Bedroom A
(3.80m X 3.45m)
bay window
Utility
(2.77m X 1.26m)
Toilet
(2.40m X 1.95m)
Kitchen
(3.14m X 2.77m)
Balcony
(1.50m X 2.40m)
wardrobe
storage
Dining area
that doubles as sleeping space when expansion is needed
(5.17m X 2.17m)
Toilet
(1.72m X 2.17m)
Bedroom B
(3.26m X 2.77m)
Living area
(3.53m X 3.00m)
Bedroom C
(2.77m X 2.77m)
Balcony
(3.23m X 1.50m)
Agaashiye
(4.50m X 5.00m)
a spatial void with opportunities for incrementality
Utility
(3.26m X 1.26m)
Toilet
(2.61m X 1.50m)
Kitchen
(2.92m X 2.77m)
Living area
that doubles as sleeping space when expansion is needed
(5.62m X 3.74m)
Toilet
(1.50m X 2.99m)
Balcony
(3.37m X 1.50m)
Dining
(2.40m X 1.88m)
Bedroom A
(3.84m X 3.23m)
Apron
N
Scale 1: 100 on A2 paper
0
3m
10m

Medium rise cluster: Floor plan for **Low income group (LIG)**

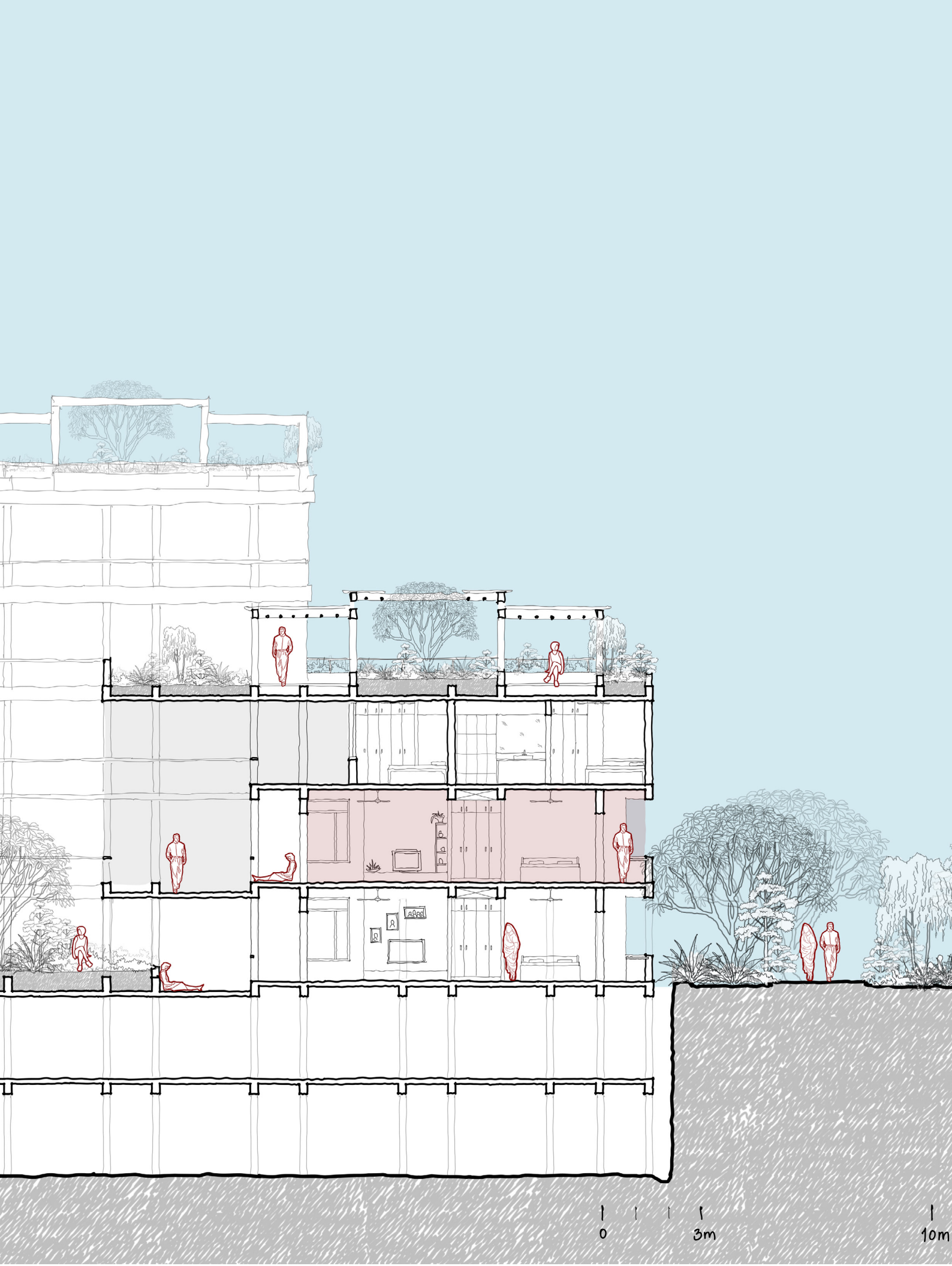
Scale **1:100**




N
0
3
10 m

Section AA




0
3m
10m

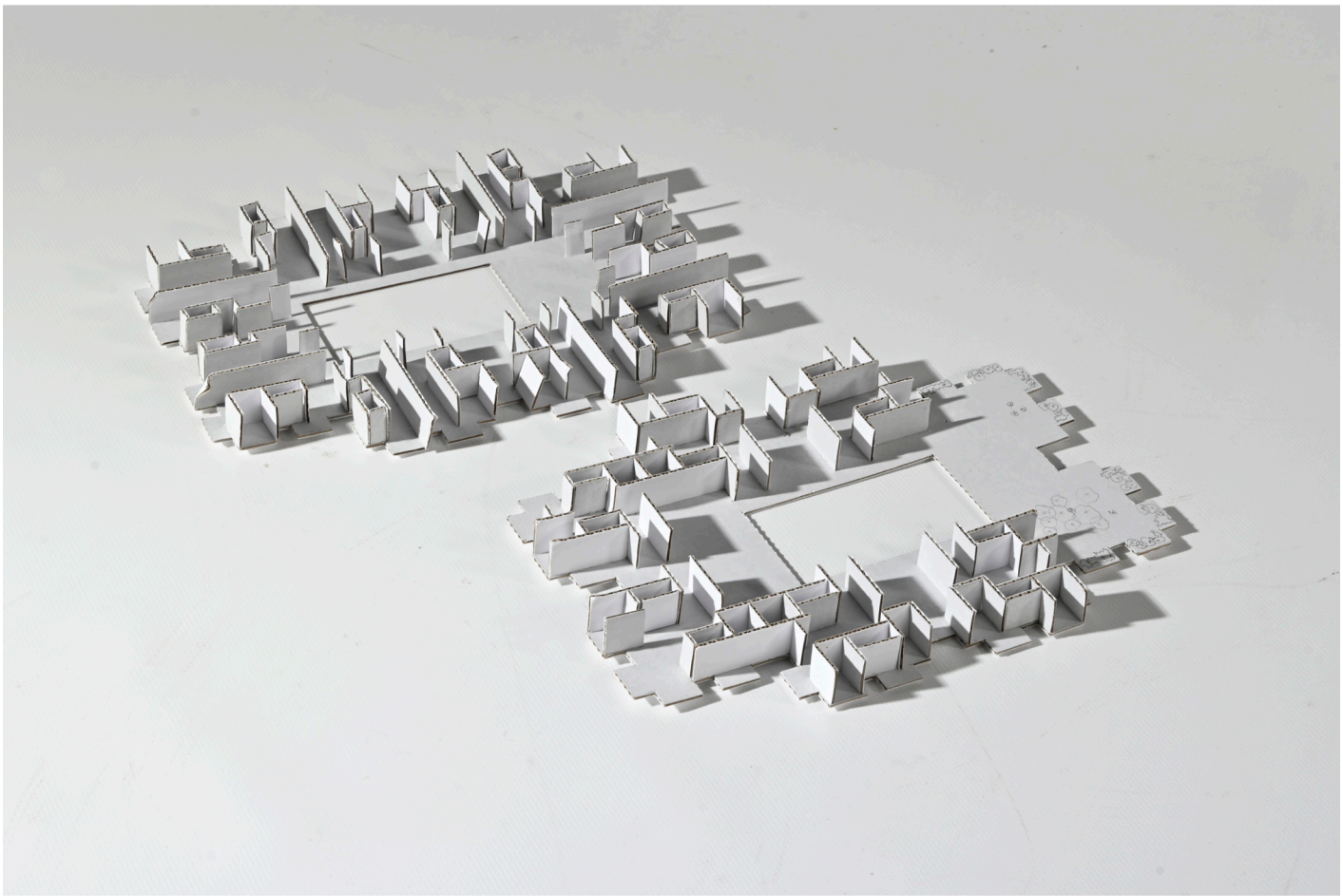


Figure: View of the physical model (1:200) showing the partition walls in the middle and the low income housing cluster

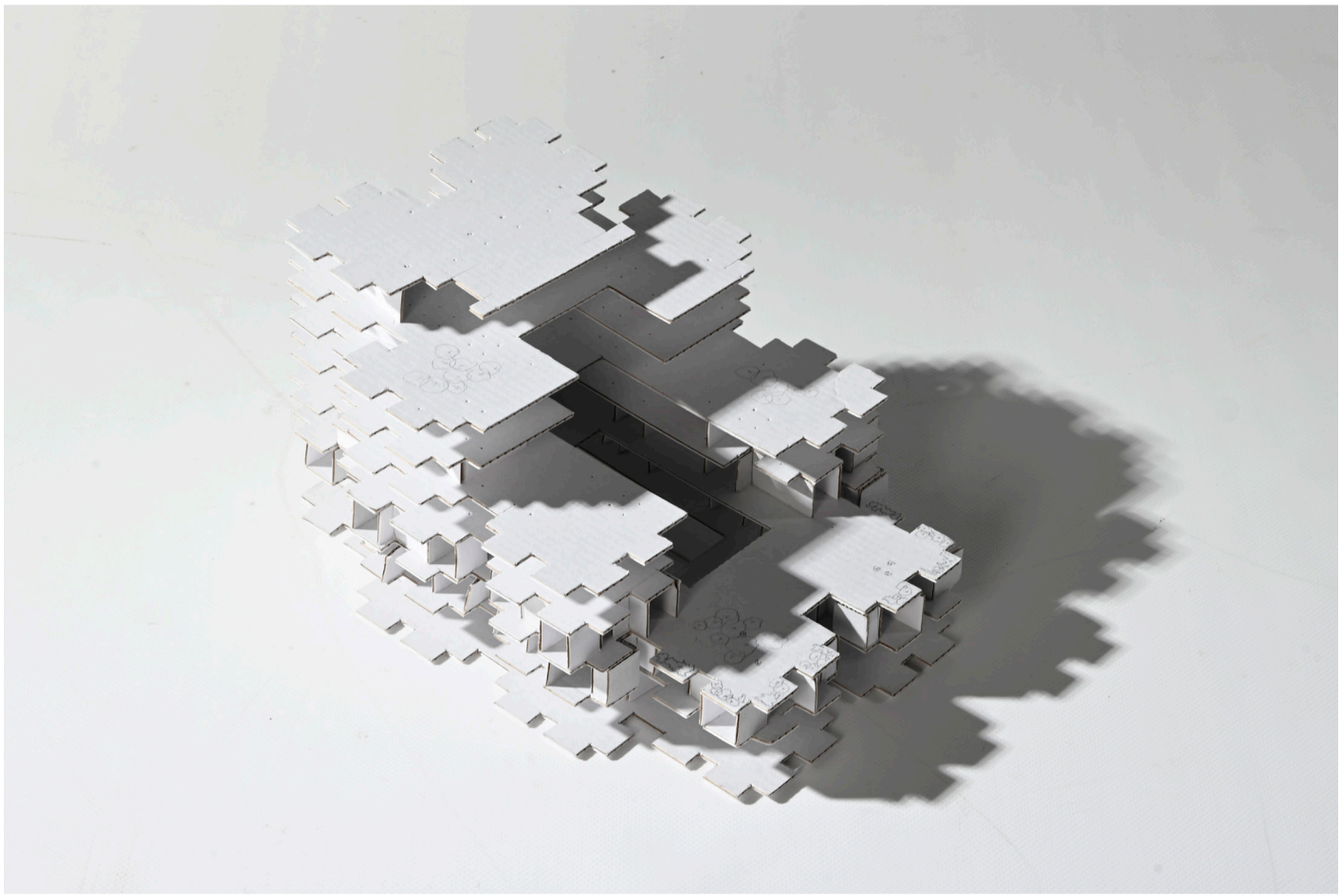
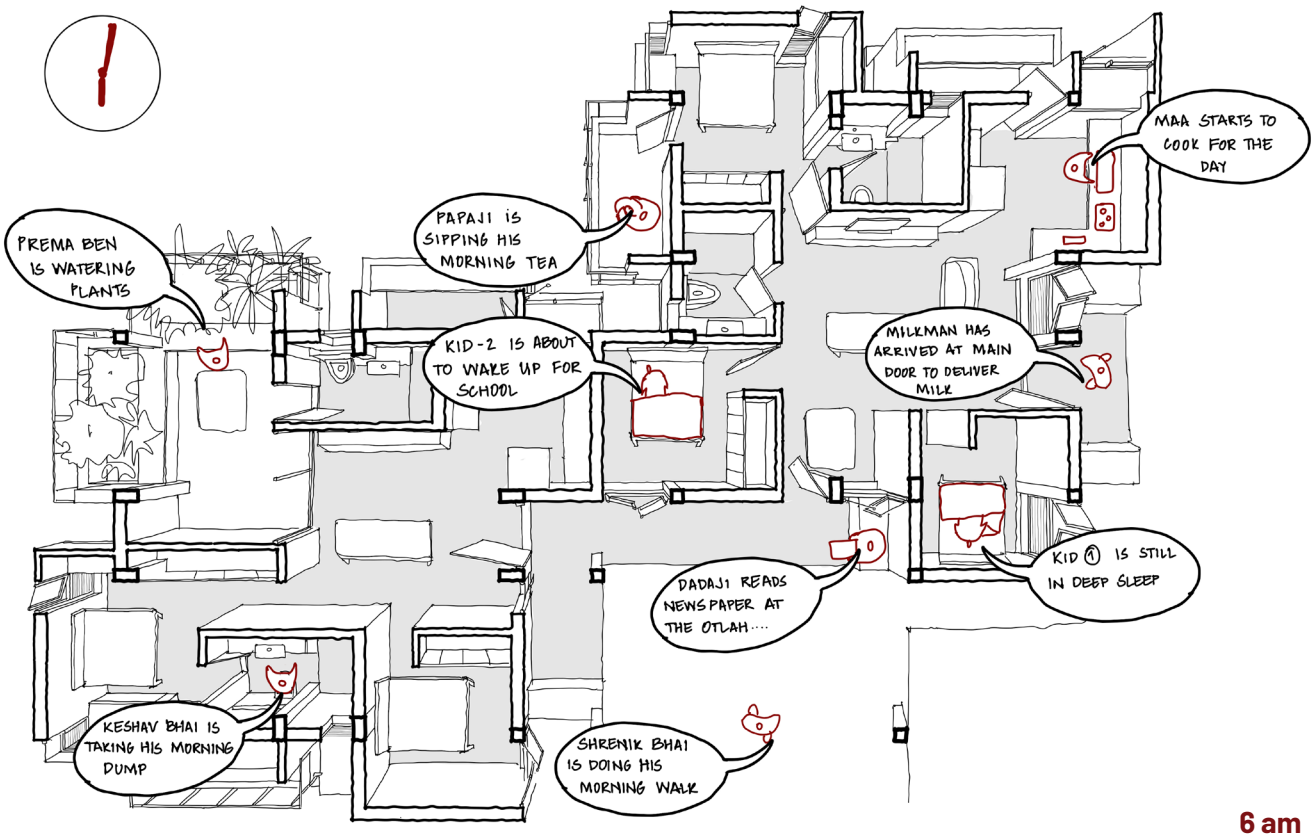


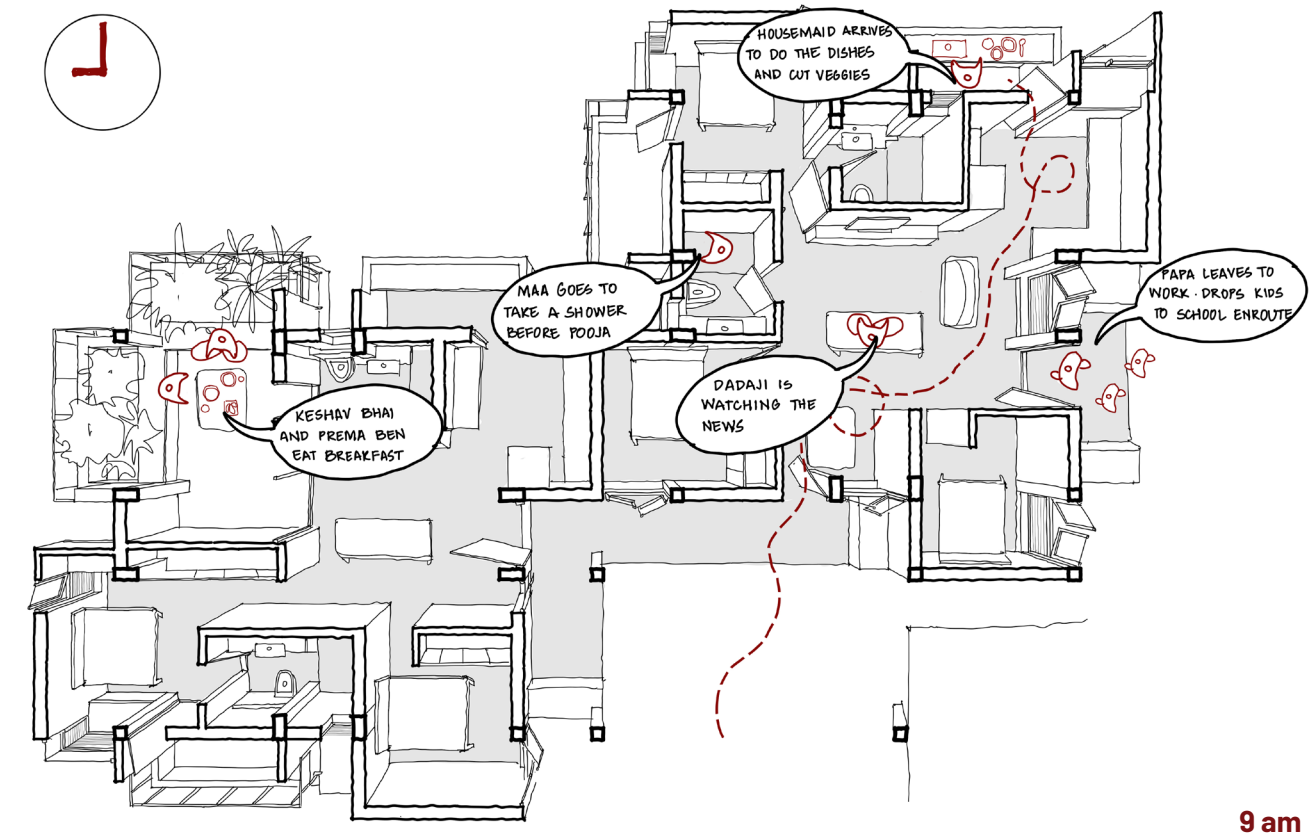
Figure: View of the massing model (1:200) showing the stepped volume and the terraces of the medium rise block

Scenarios through daily activities in the medium income housing units from morning to night

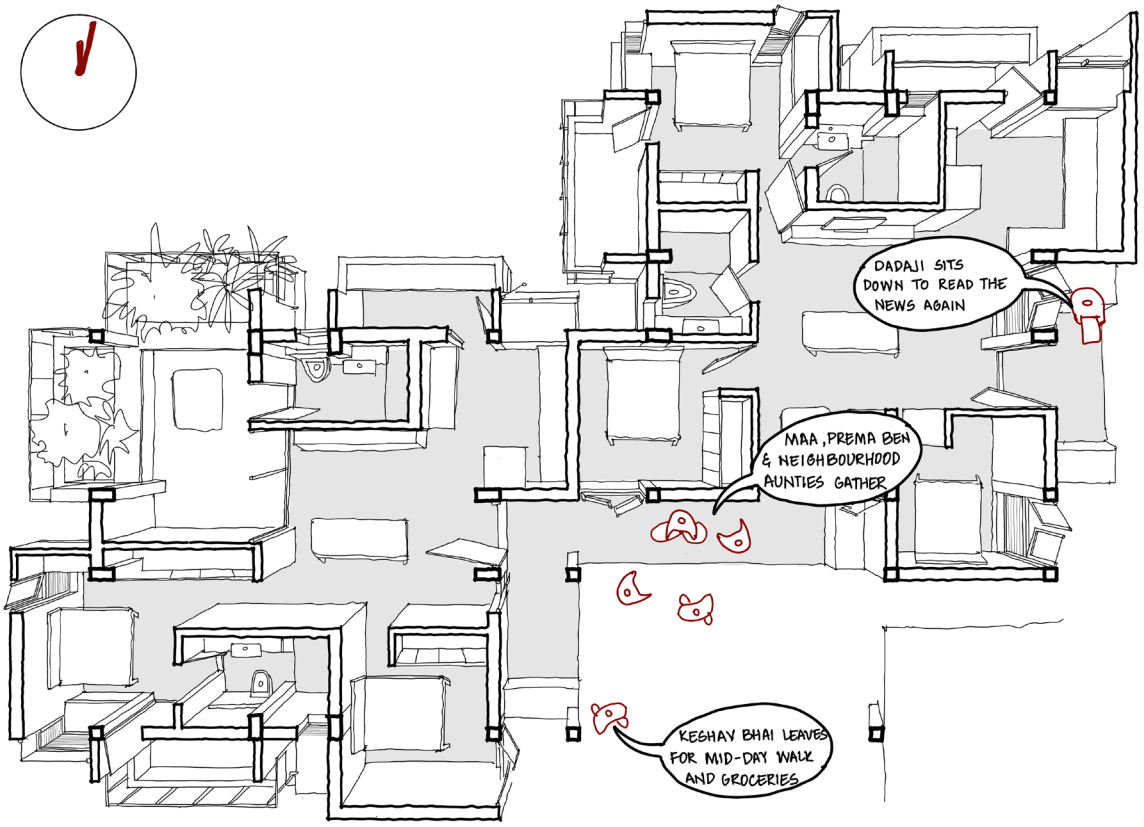
Disclaimer : All character names in the impressions are fictious



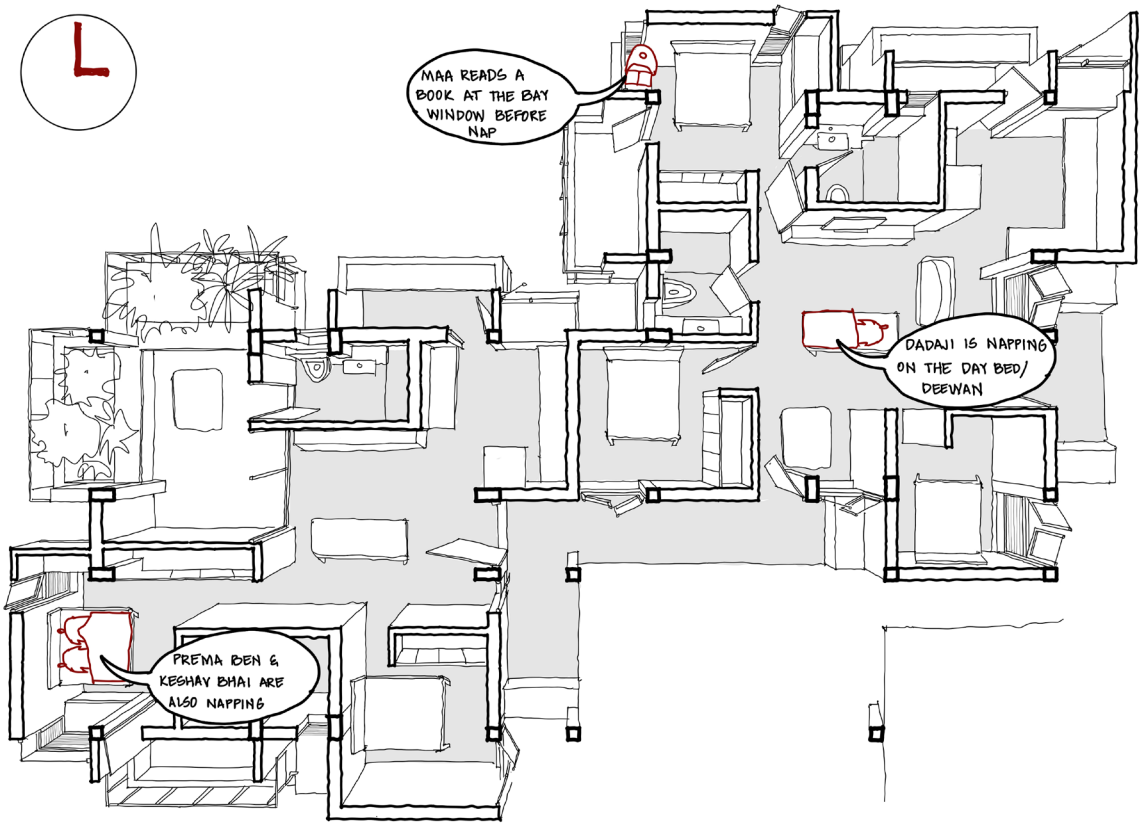
6 am



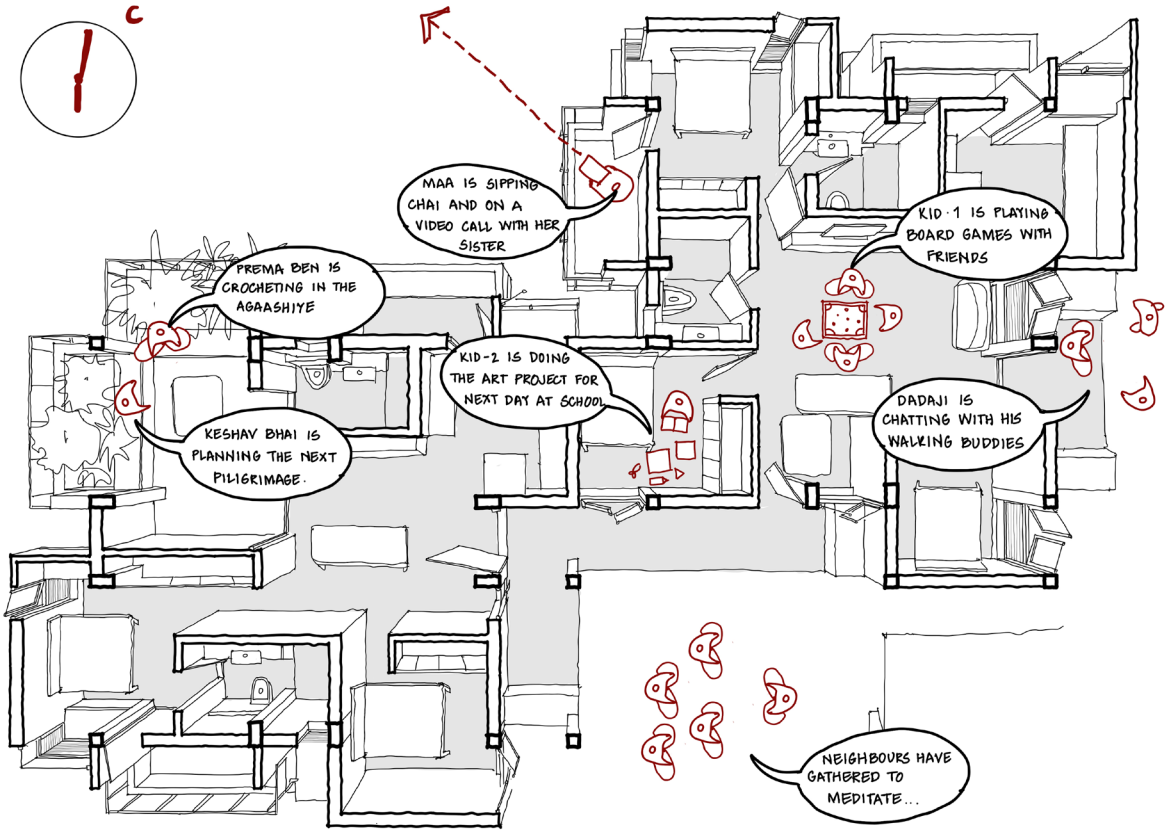
9 am


DADAJI SITS DOWN TO READ THE NEWS AGAIN
MAA, PREMA BEN & NEIGHBOURHOOD AUNTIES GATHER
KESHAV BHAI LEAVES FOR MID-DAY WALK AND GROCERIES

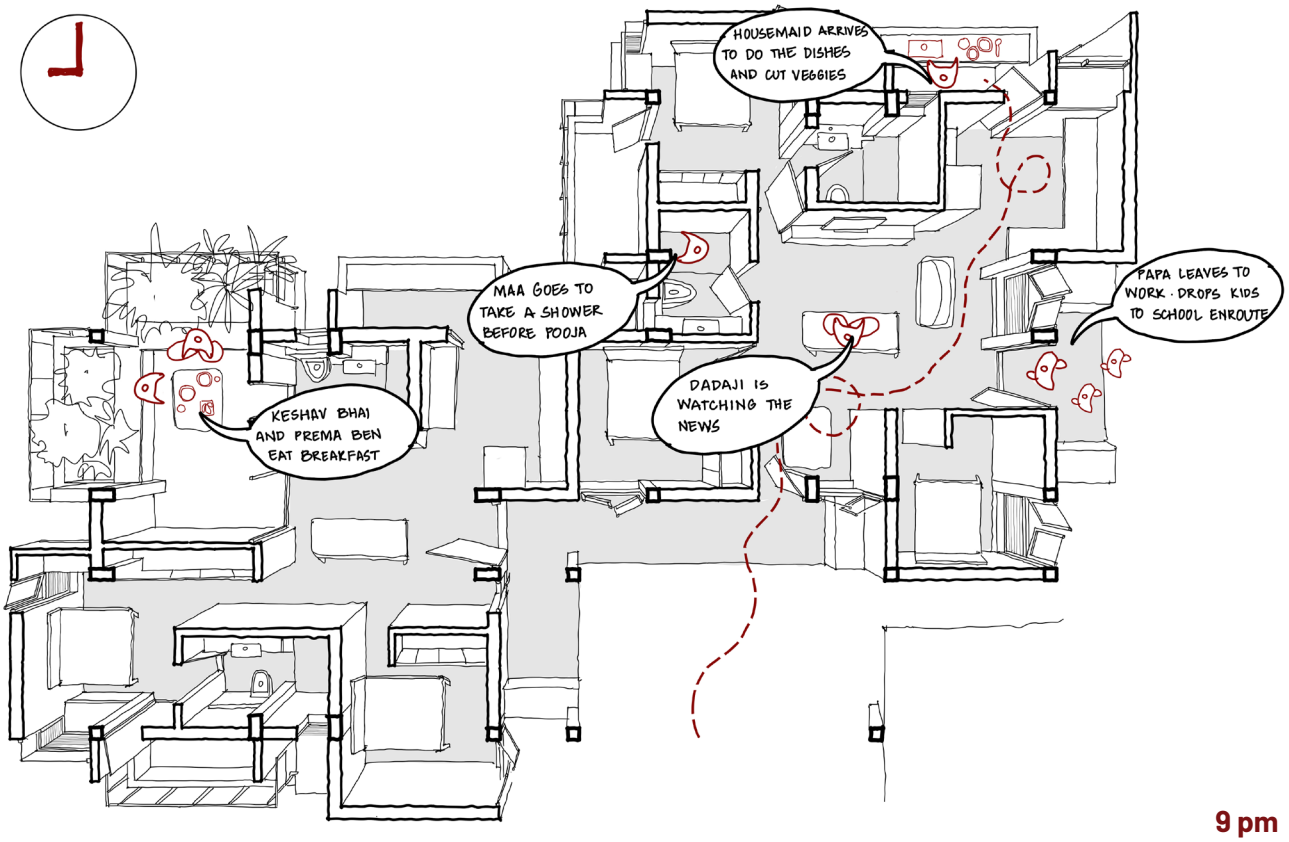
12 pm


MAA READS A BOOK AT THE BAY WINDOW BEFORE NAP
DADAJI IS NAPPING ON THE DAY BED/ DEEWAN
PREMA BEN & KESHAV BHAI ARE ALSO NAPPING

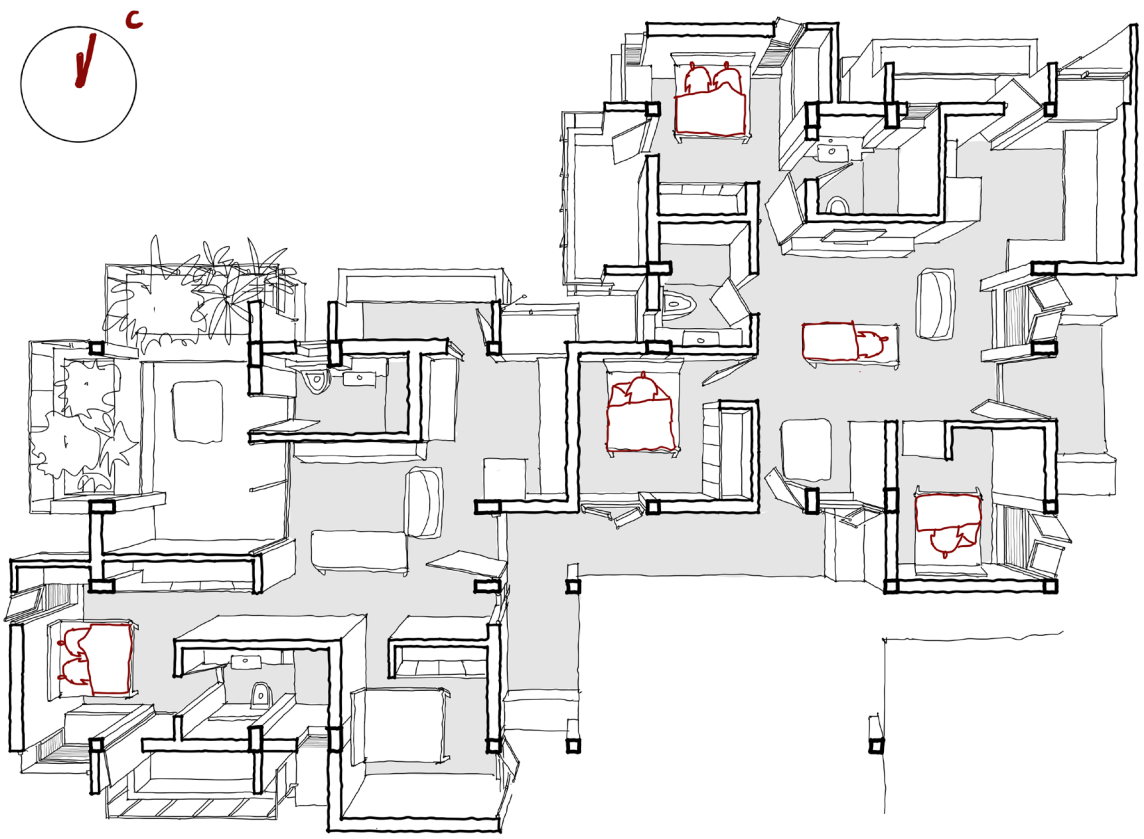
3 pm


MAA IS SIPPING CHAI AND ON A VIDEO CALL WITH HER SISTER
KID-1 IS PLAYING BOARD GAMES WITH FRIENDS
PREMA BEN IS CROCHETING IN THE AGAASHIYE
KID-2 IS DOING THE ART PROJECT FOR NEXT DAY AT SCHOOL
DADAJI IS CHATTING WITH HIS WALKING BUDDIES
KESHAV BHAI IS PLANNING THE NEXT PILIGRIMAGE.
NEIGHBOURS HAVE GATHERED TO MEDITATE...

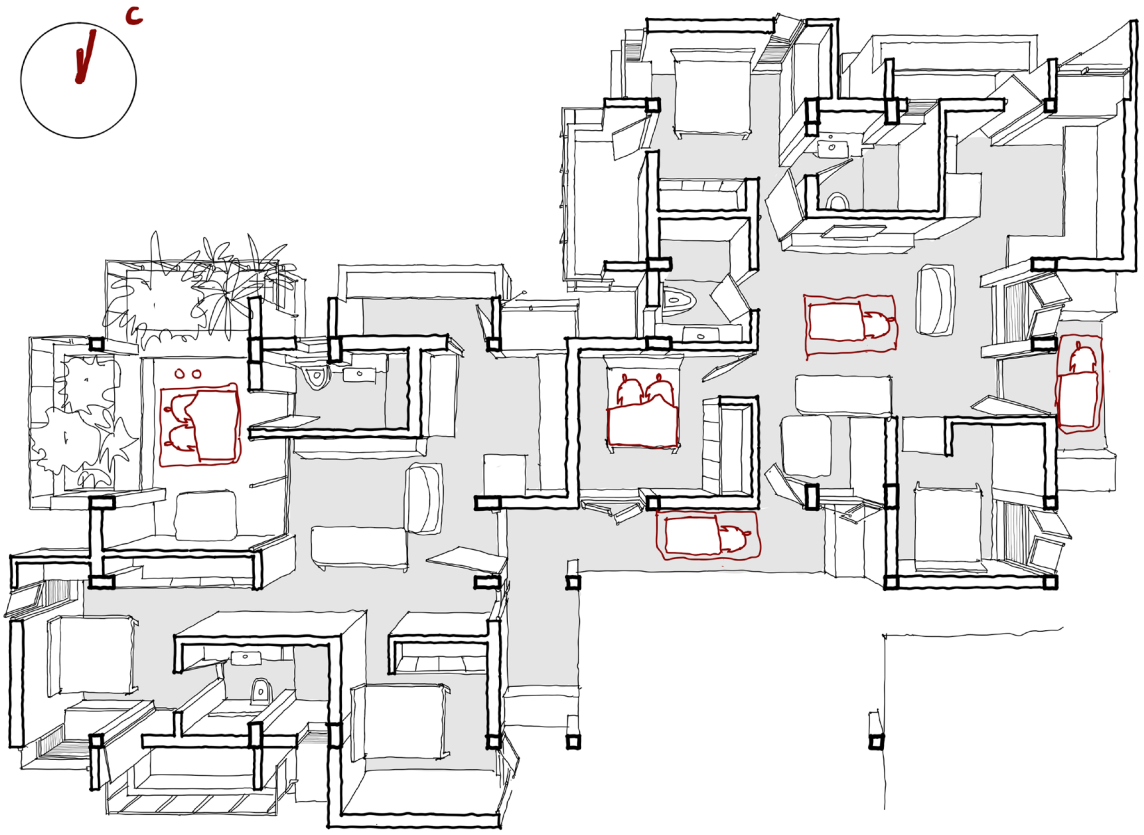
6 pm


HOUSEMAID ARRIVES TO DO THE DISHES AND CUT VEGGIES
MAA GOES TO TAKE A SHOWER BEFORE POOJA
PAPA LEAVES TO WORK · DROPS KIDS TO SCHOOL ENROUTE
DADAJI IS WATCHING THE NEWS
KESHAV BHAI AND PREMA BEN EAT BREAKFAST

9 pm

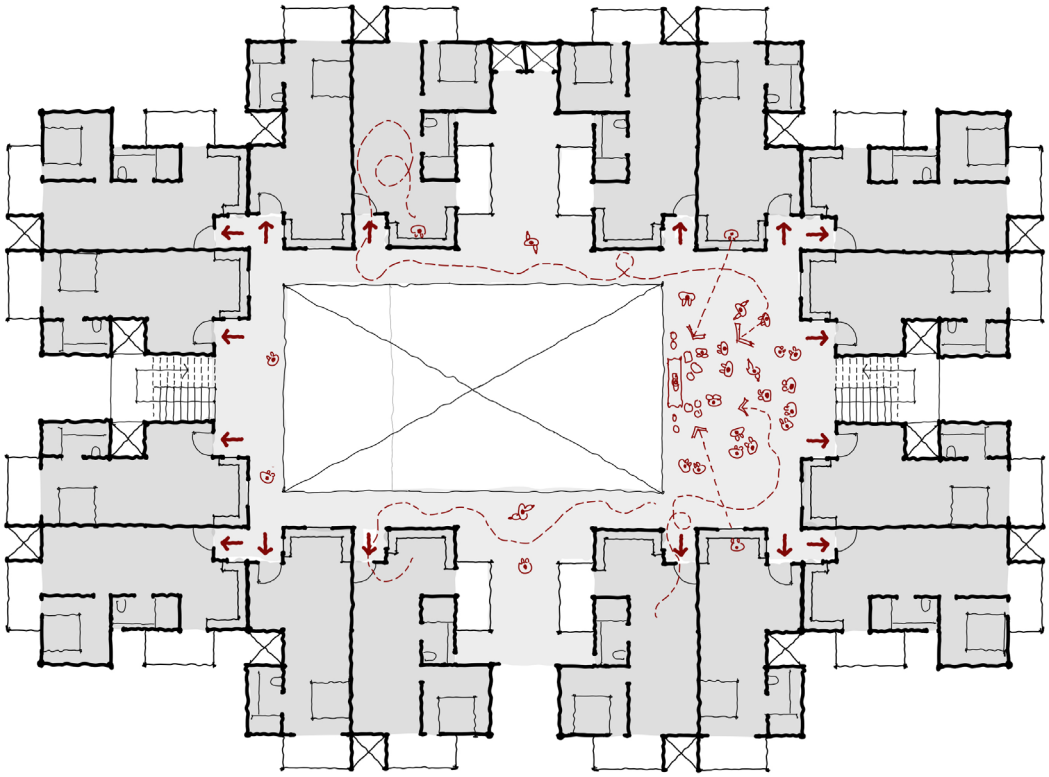


12 am
rest of the year

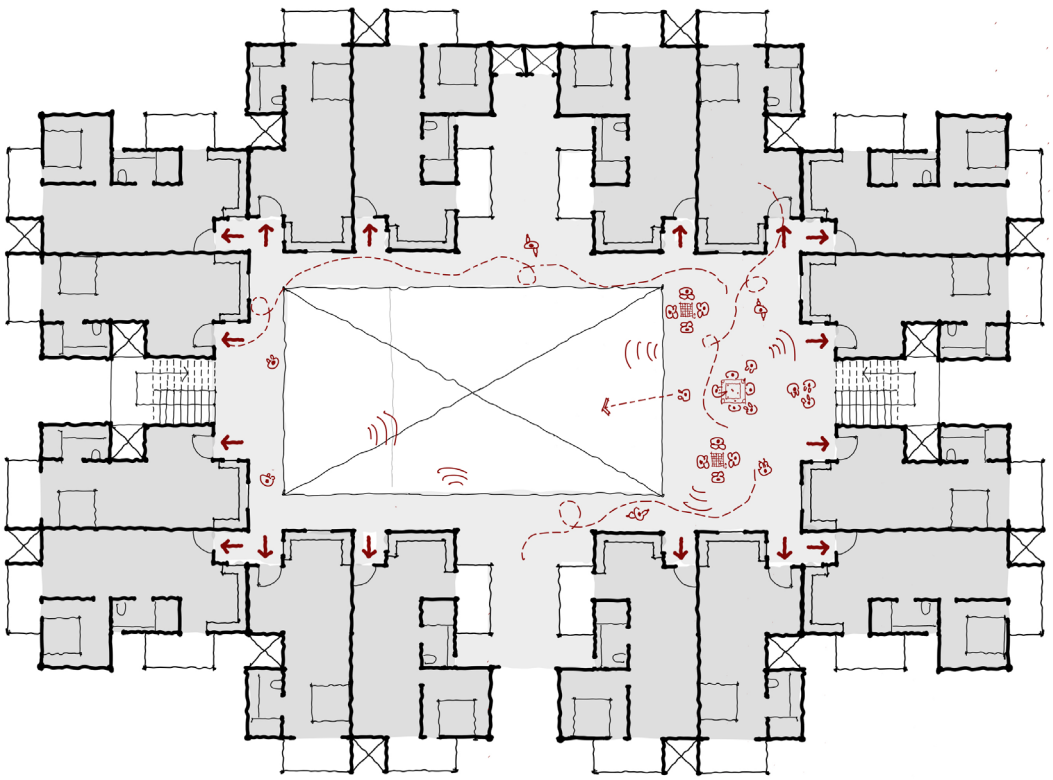


12 am
in summers

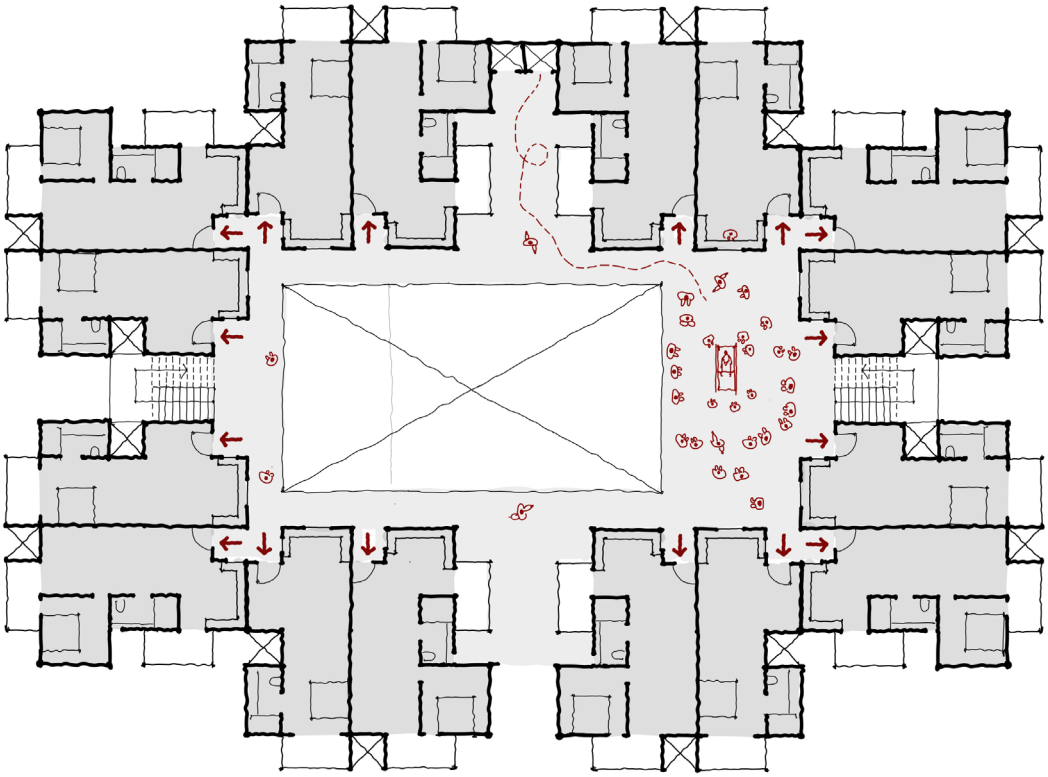
Scenarios through daily activities in a medium income housing cluster



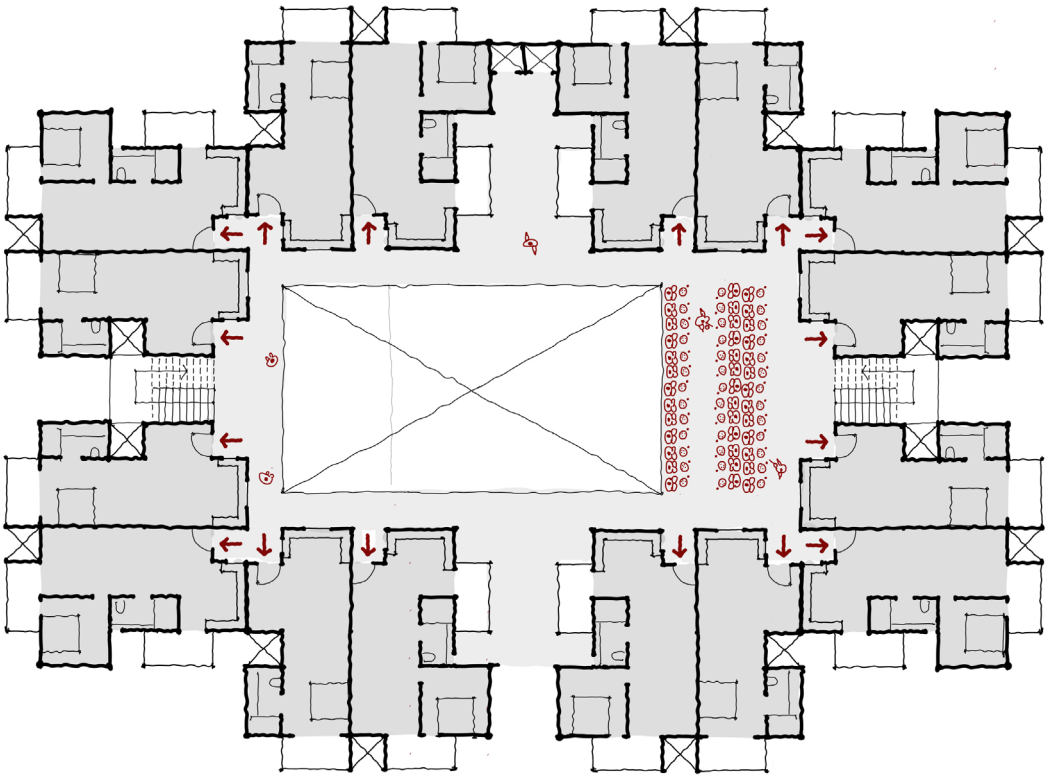
During traditional festivals like *Janmashtami*



During board game evenings by kids and families

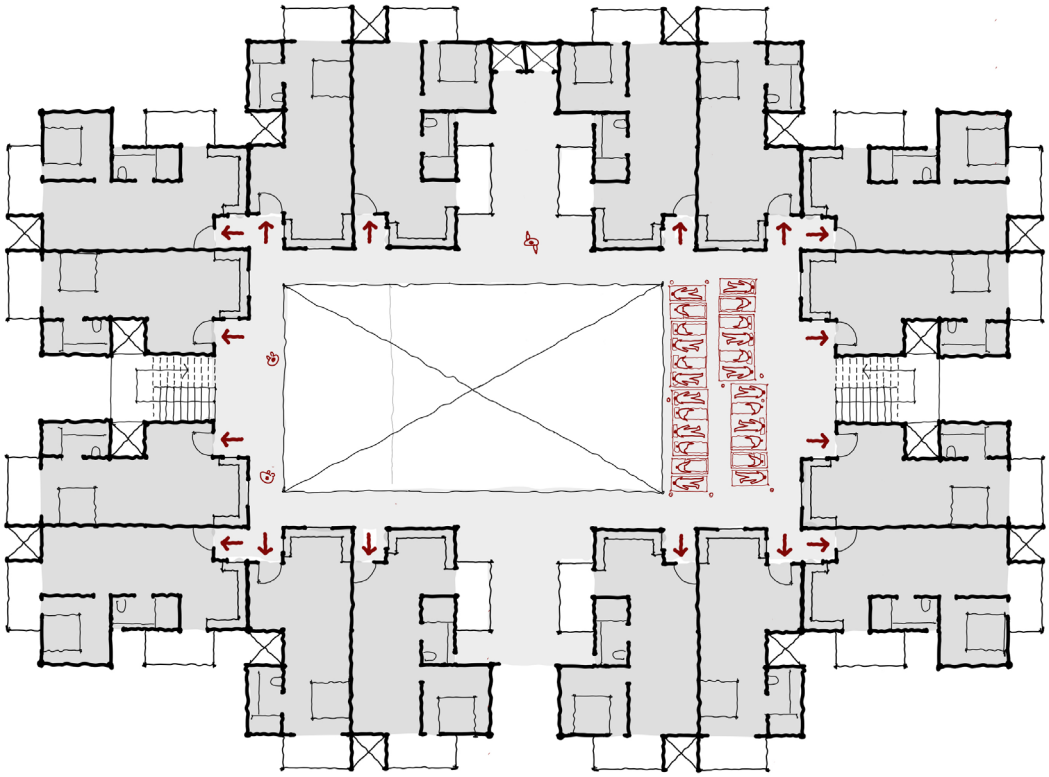


During funeral rituals

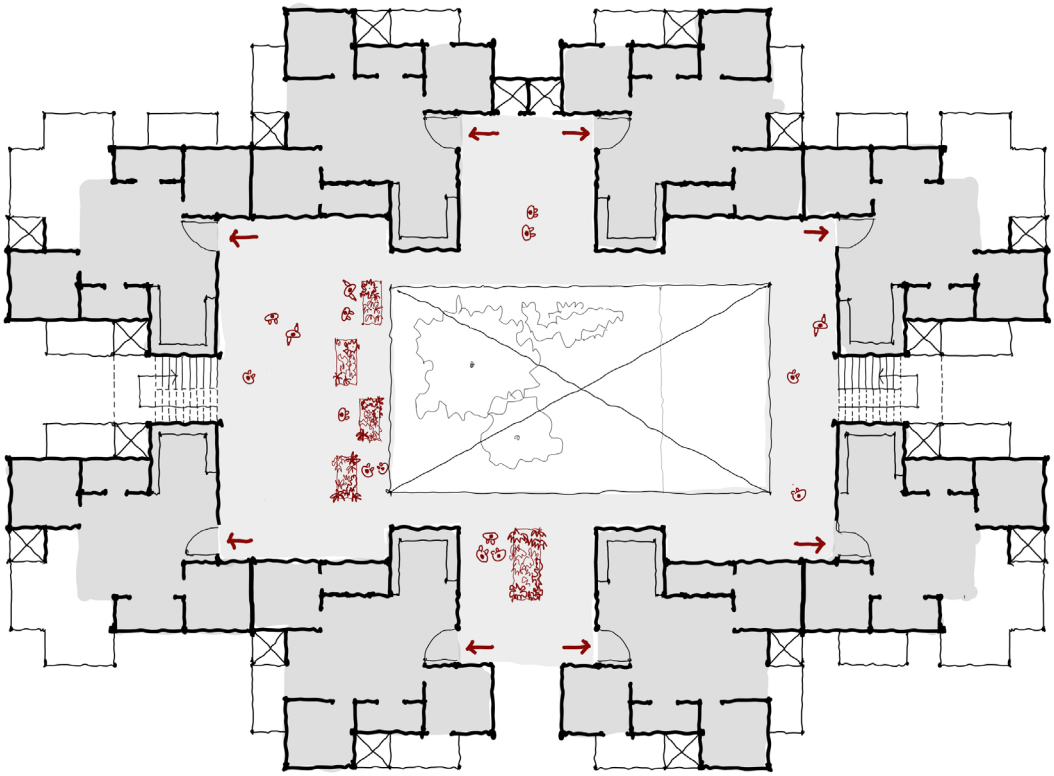


During celebratory, remembrance day *(Shraaddha)* meals

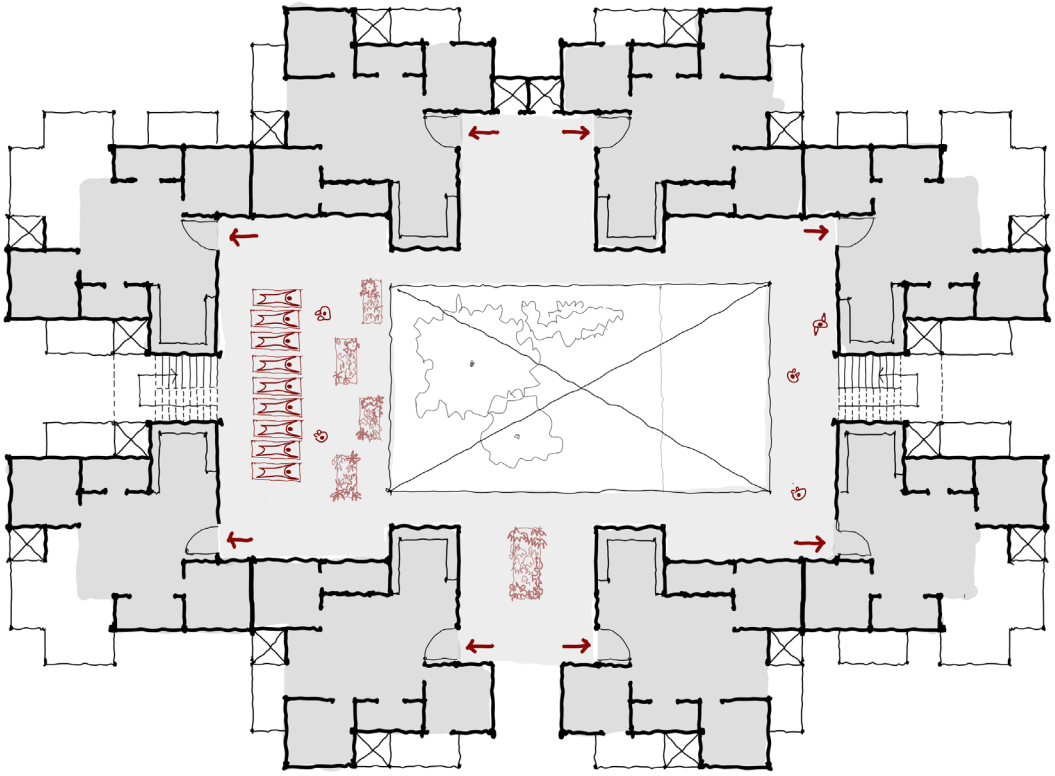
Scenarios through daily activities in a medium income housing cluster



During temporary arrangements during wedding festivities



Cultivating a kitchen garden in the deck



A space for yoga classes

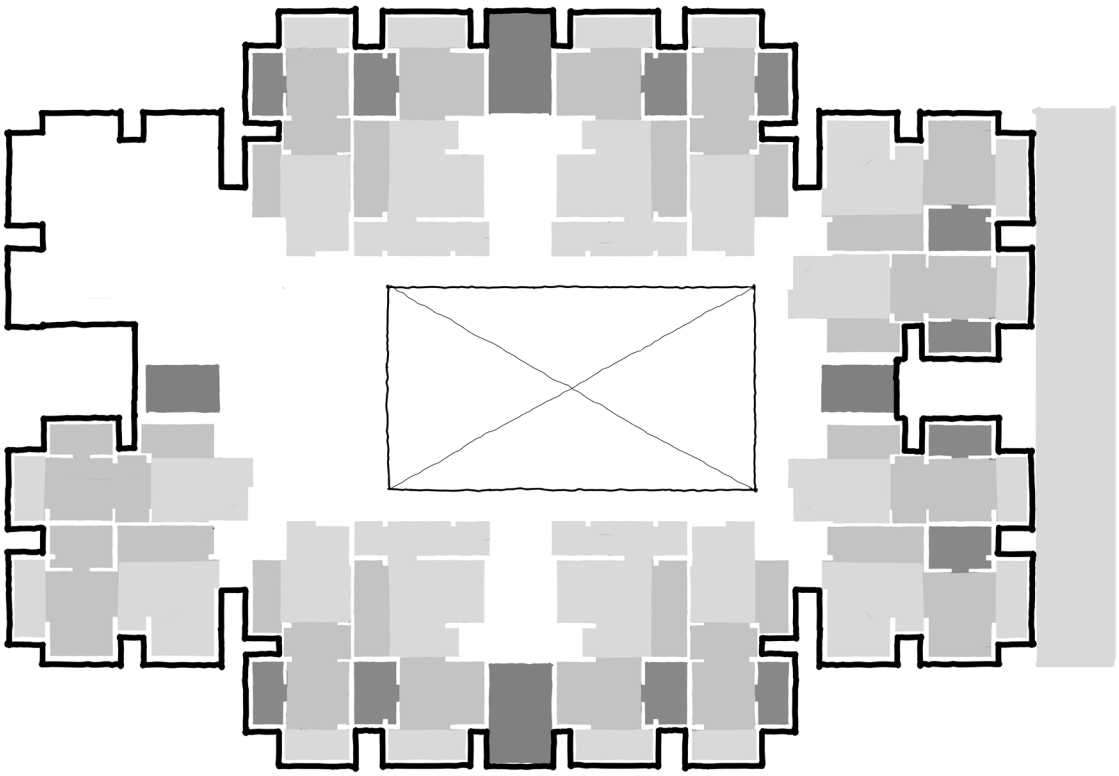


Diagram showing the degrees of privacy in the low income cluster at the ground floor. White being the most public and the darker shades more private



An existing node in the Vasna re-settlement housing, Ahmedabad
Photograph: Author's own (2025)

Comic strip made as a vision for the tacit spaces proposed for Ambika society

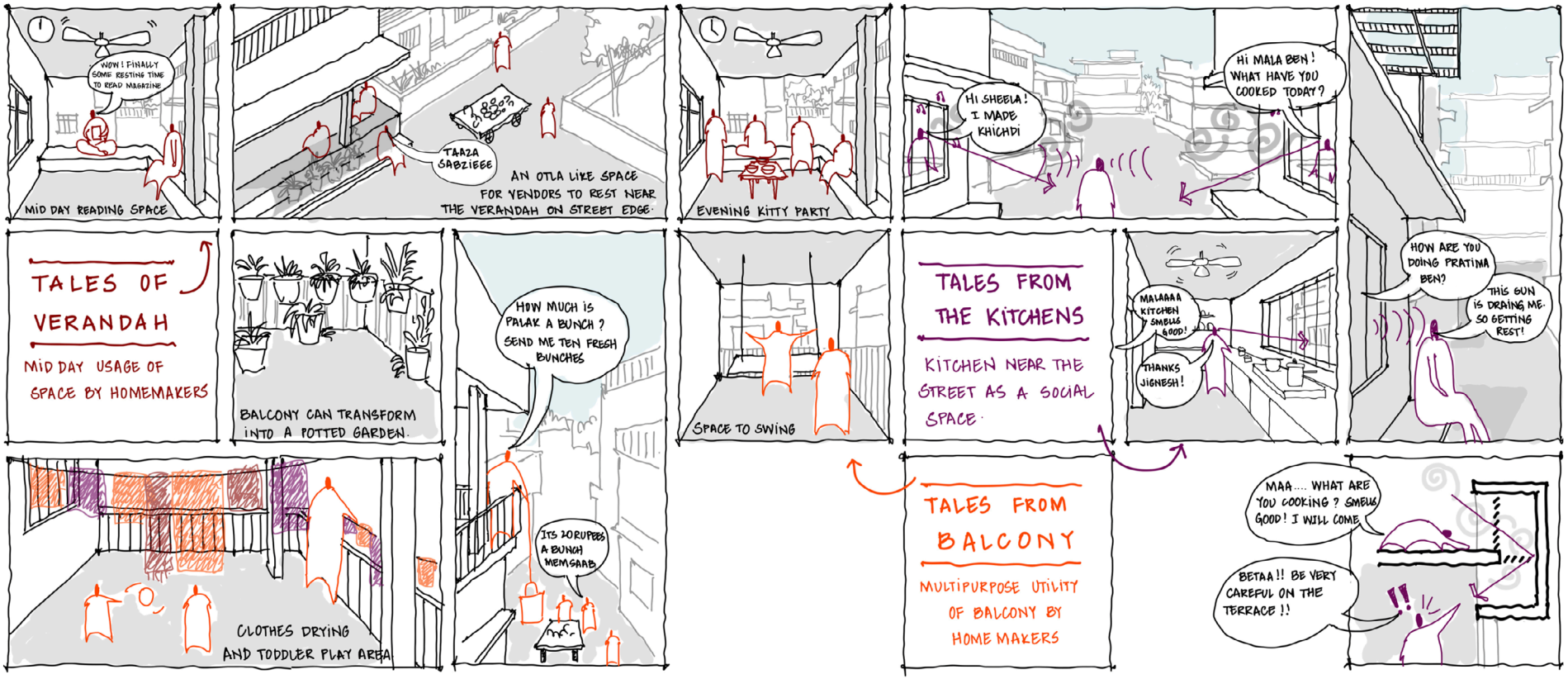
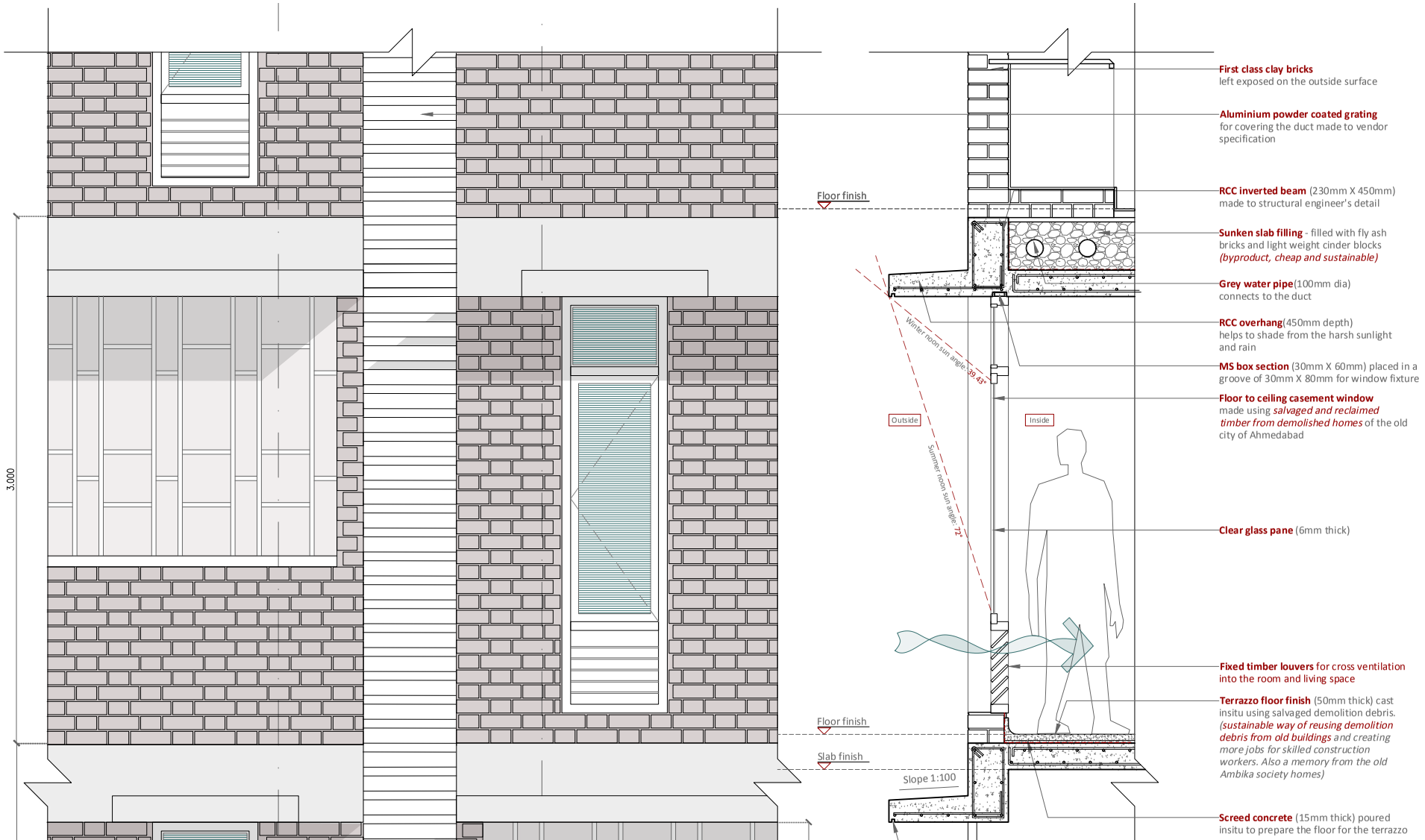
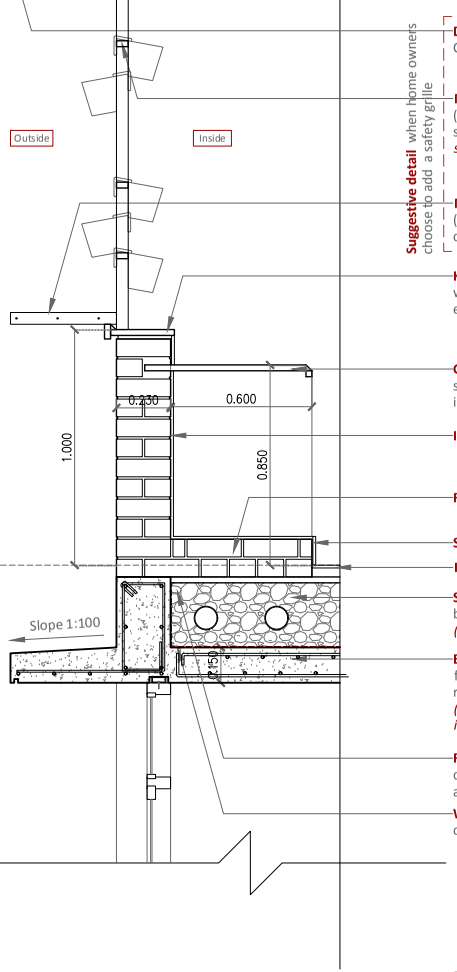


Figure: Comic strip made by the author during the CEPT winter school 'Writing the site' workshop

Wall section showing the construction details and materials







Drip mould (12 mm X 12 mm)
Cast into the exposed RCC overhang

Mild steel (MS) flat sections
(25mm X 30mm thick) used as the security grilles. Can also be used as *support for vertical planters*

Suggestive detail when home owners choose to add a safety grille

Mild steel (MS) flat sections
(25mm X 30mm thick) embedded to the co[ing stone tp form the *cloth drying line*

Kota stone coping stone (25mm thick with facia stone of 25mm at the outer edge)

Granite stone slab (25mm thick with facia stone of 25mm at the edge) embedded into the brick ledge used as the utility slab

Internal plaster (12 mm thick)

Raised brick ledge (150 mm thick)

Skirting (120 mm wide)

Kota stone - *flamed finish* (12 mm thick)

Sunken slab filling - filled with fly ash bricks and light weight cinder blocks *(byproduct, cheap and sustainable)*

Exposed RCC slab (150 mm thick) form finished and left exposed for a raw finish.
(cost reduction by cutting down on internal plaster)

RCC slab reinforcement
double mat of 10mm dia reinforcement at a distance of 150mm C/C

Water proofing layer
on the internal lining of the slab

Scale 1:20 on A2 paper

All dimensions in meters

0 0.5 1 meter



South elevation of the Medium Income Housing block



West elevation of the Medium Income Housing block

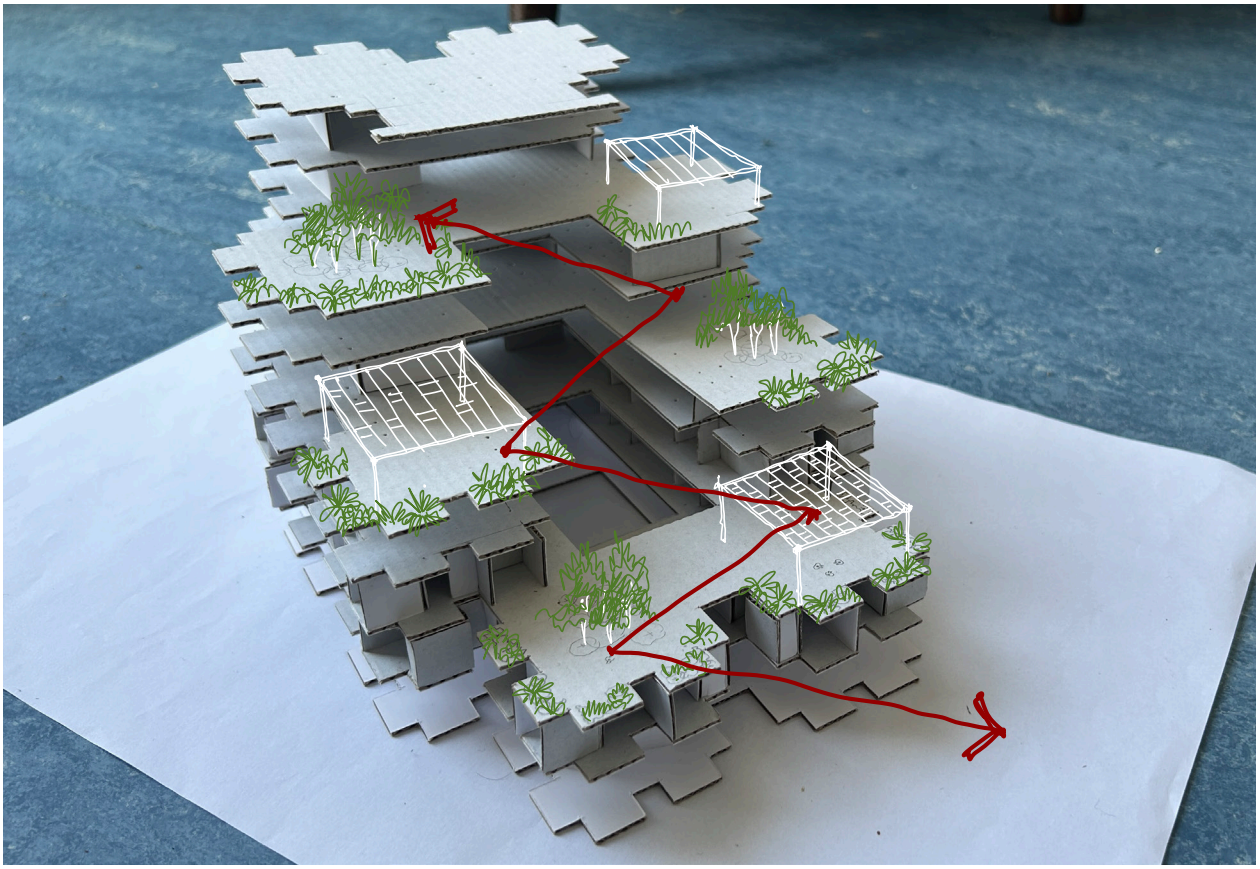
*Isometric view**



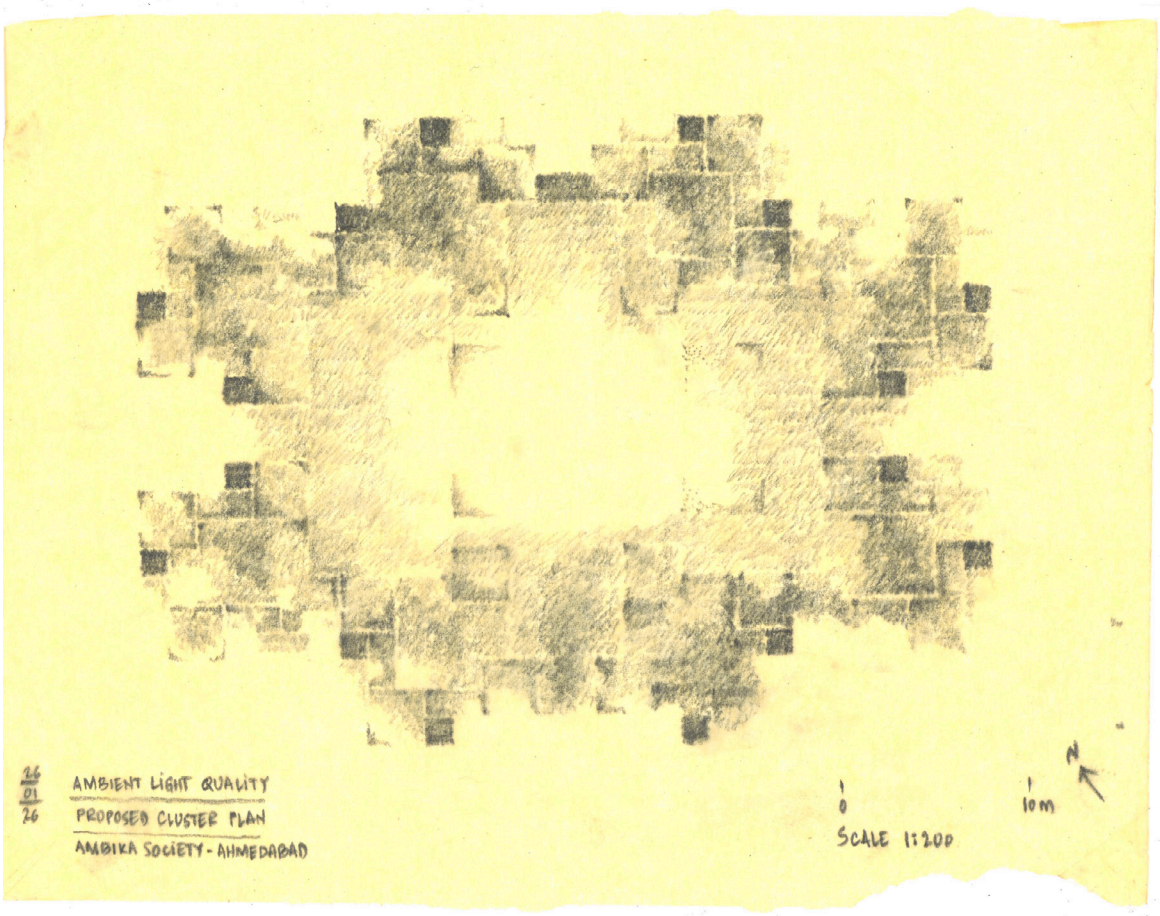
**This visualisation is originally designed and modelled by the author on Sketchup. The resulting image is rendered and enhanced using AI assisted tools such as Gemini and ChatGPT*



Figure: View of the unit models (1:100)(from left to right) low income unit, medium income unit, high income lower floor, high income upper floor

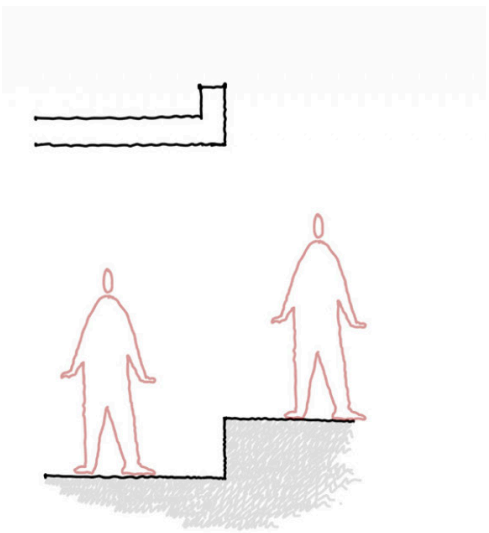


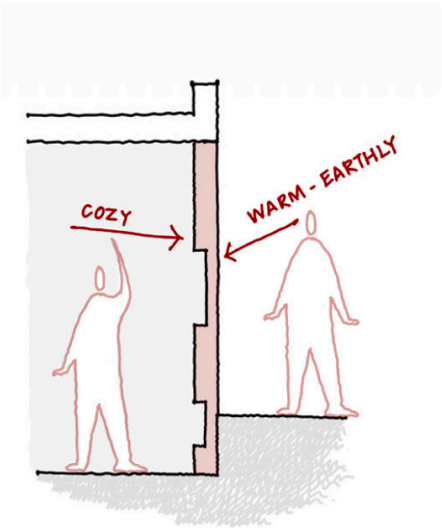
Massing model showing the idea of cascading terraces

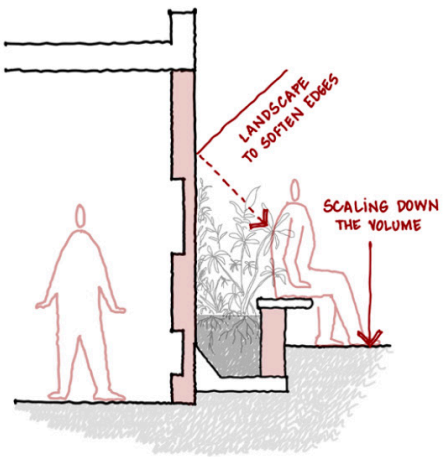


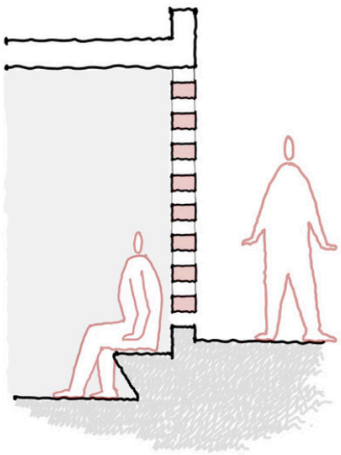
Drawing made to understand the natural lighting quality in the medium income units

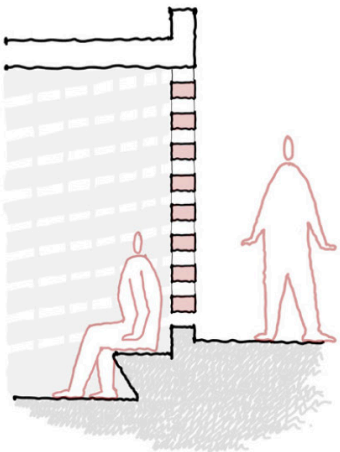
Material studies: Climatic and aesthetic merits of exposed brick

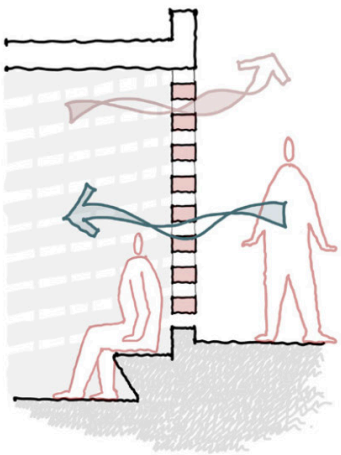








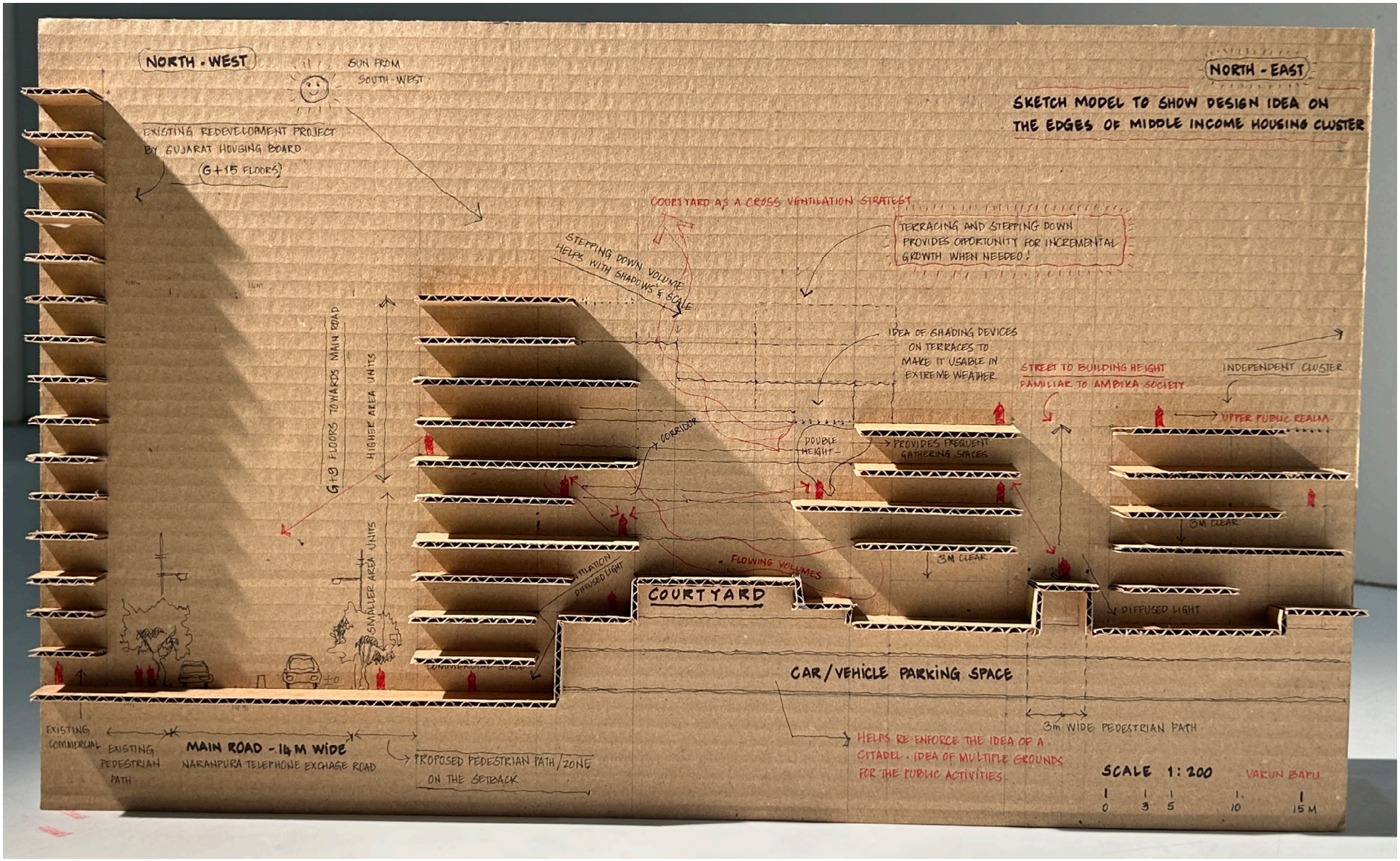




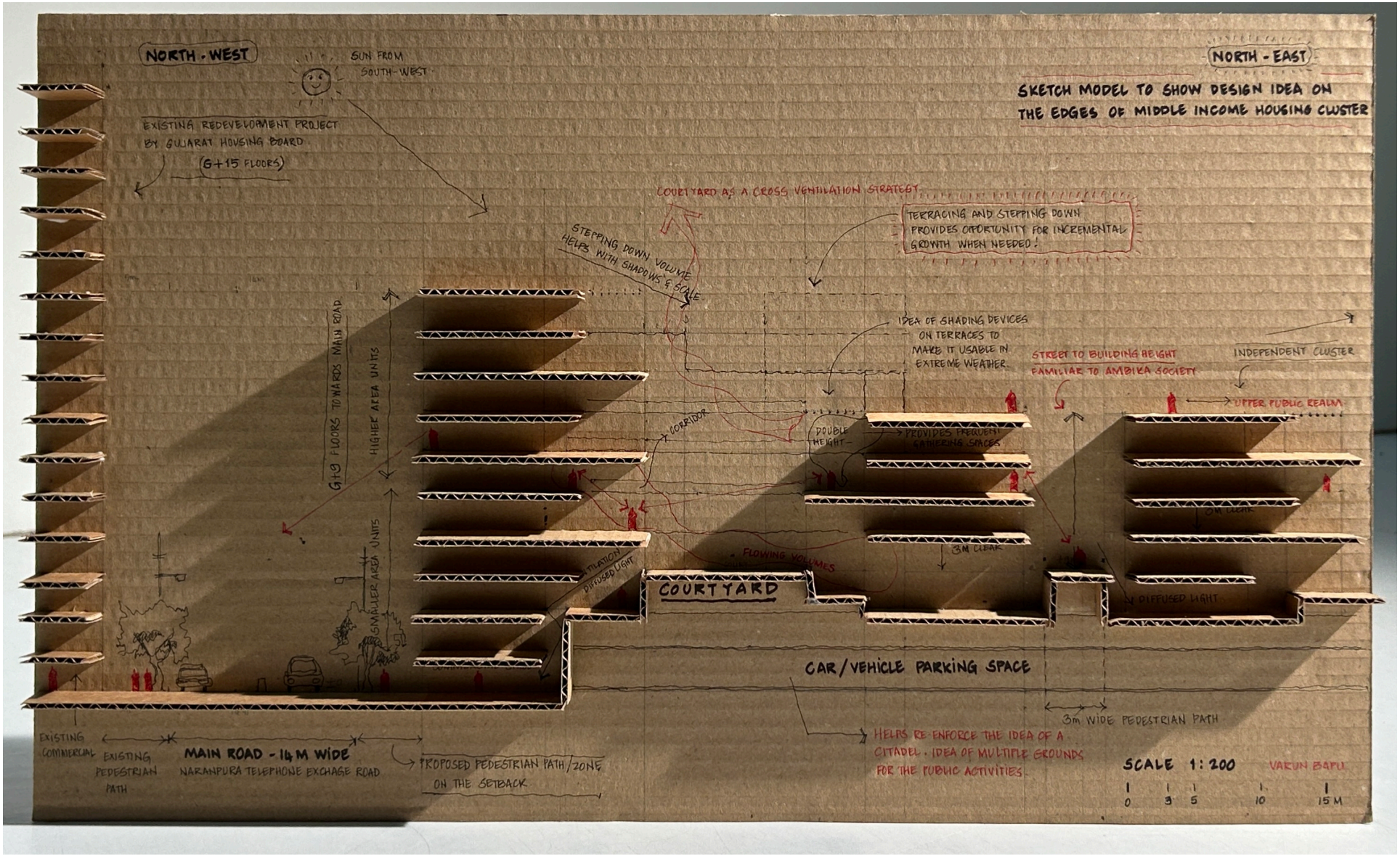
Diagrams made to illustrate the merits of using exposed bricks in the building language
Source: Author's own as part of material studies 'Common materials in Ahmedabad' by Global housing graduation studio 2025-26



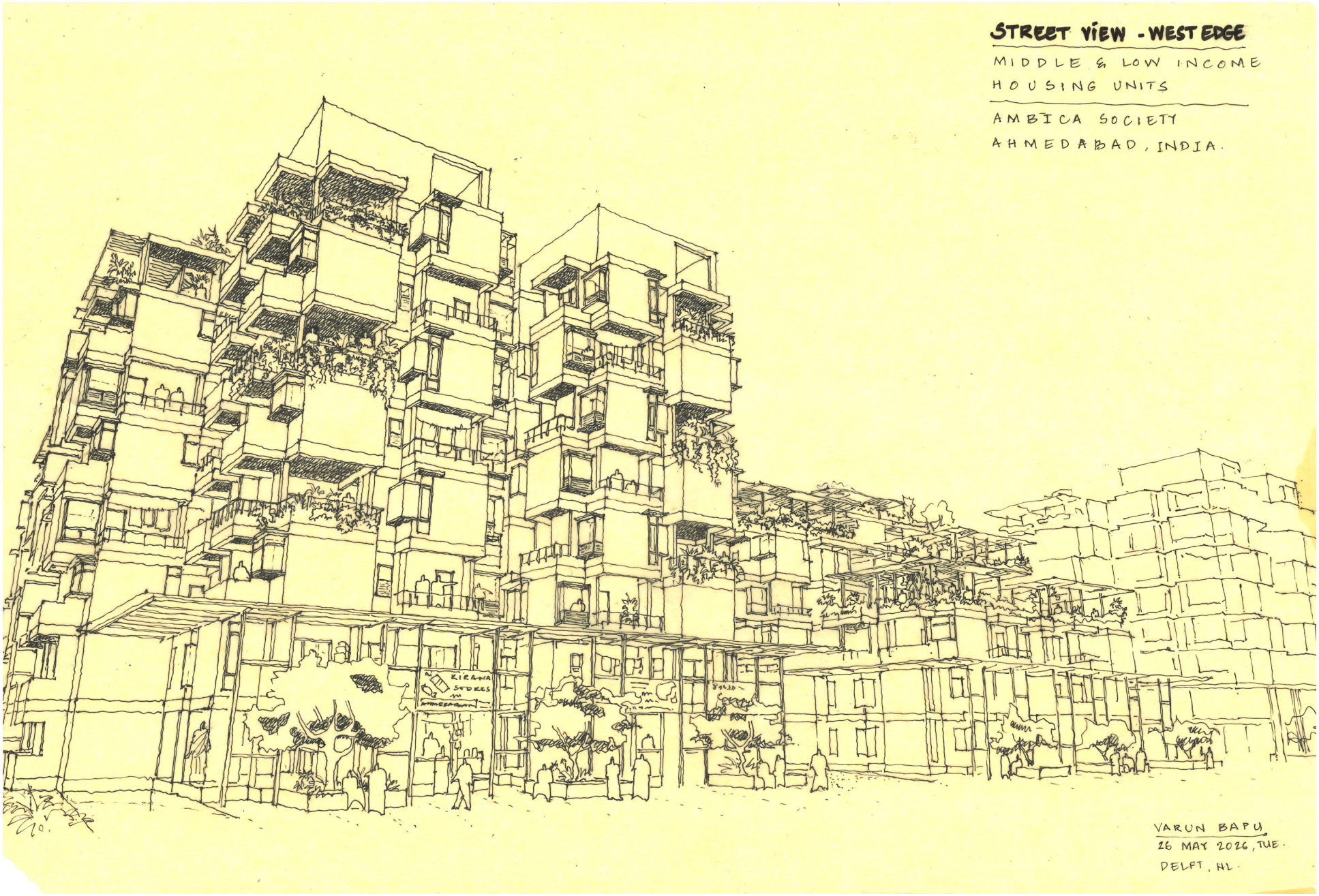
*The resulting collage is composed using AI assisted tools such as Gemini using the photographs provided by the author



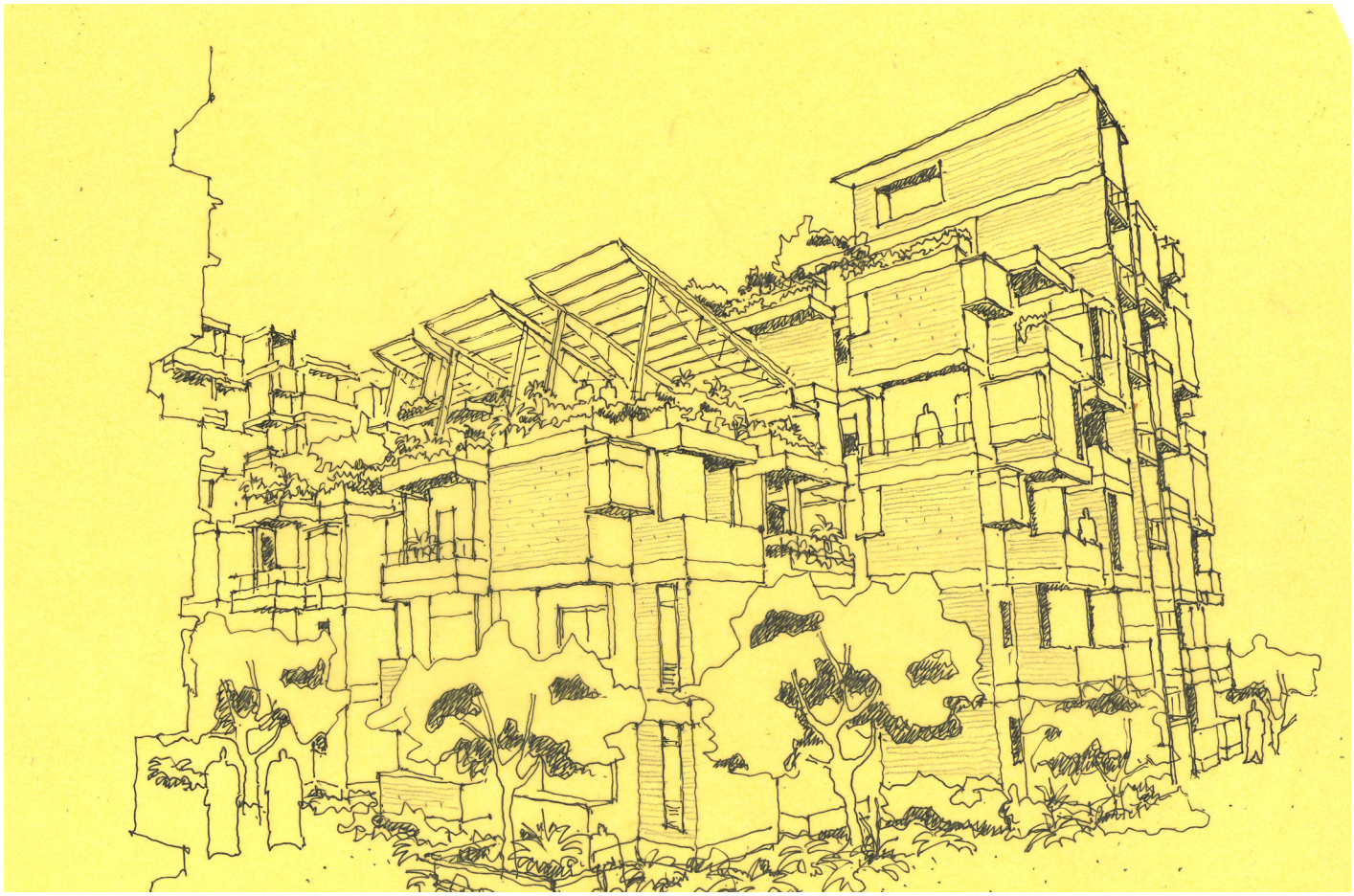
Exploratory sectional model of the MIG block in the **evening** light



Exploratory sectional model of the MIG block in the **morning** light



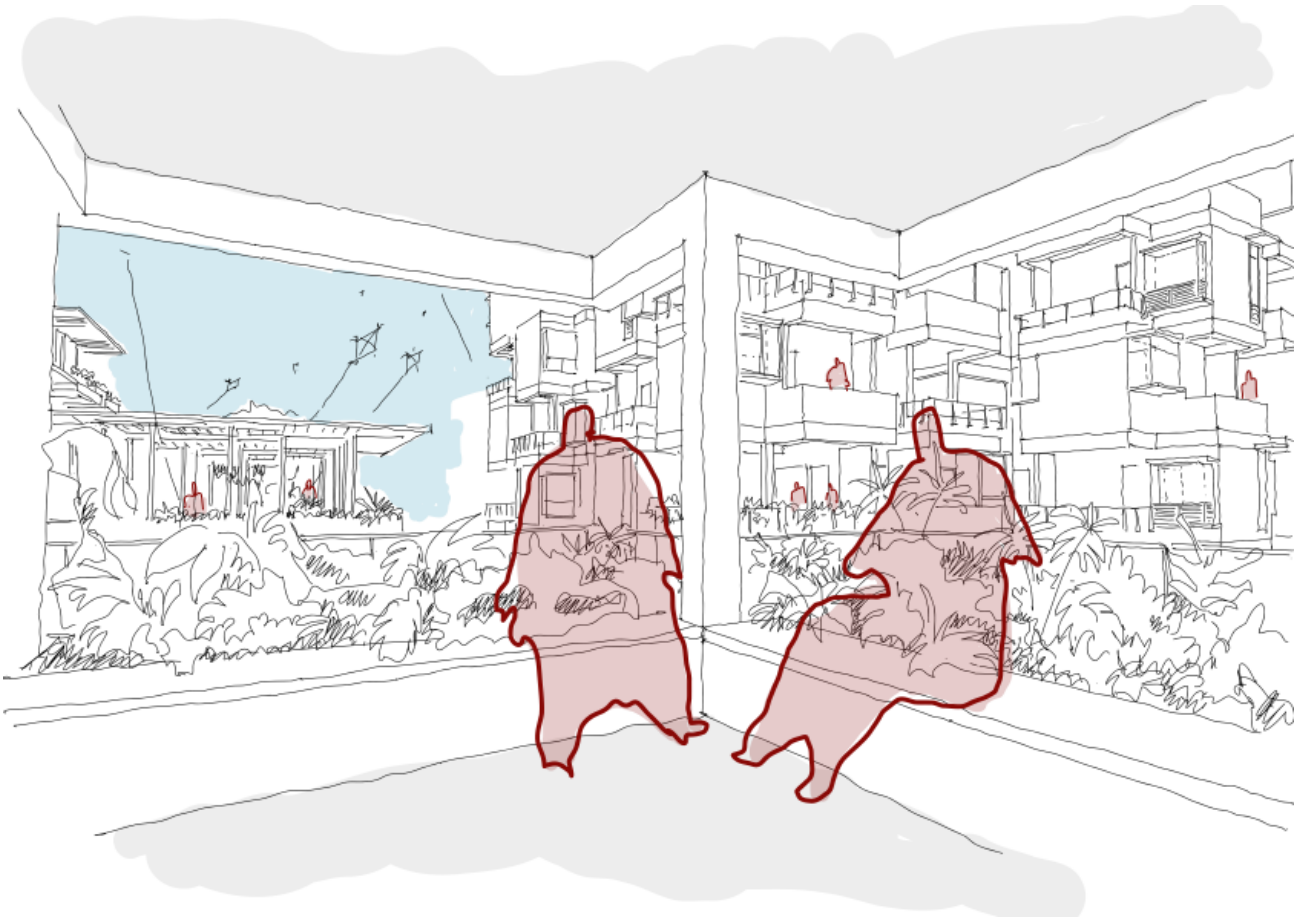
Impression showing the west edge of the site with the shops. Source: Author's own drawing



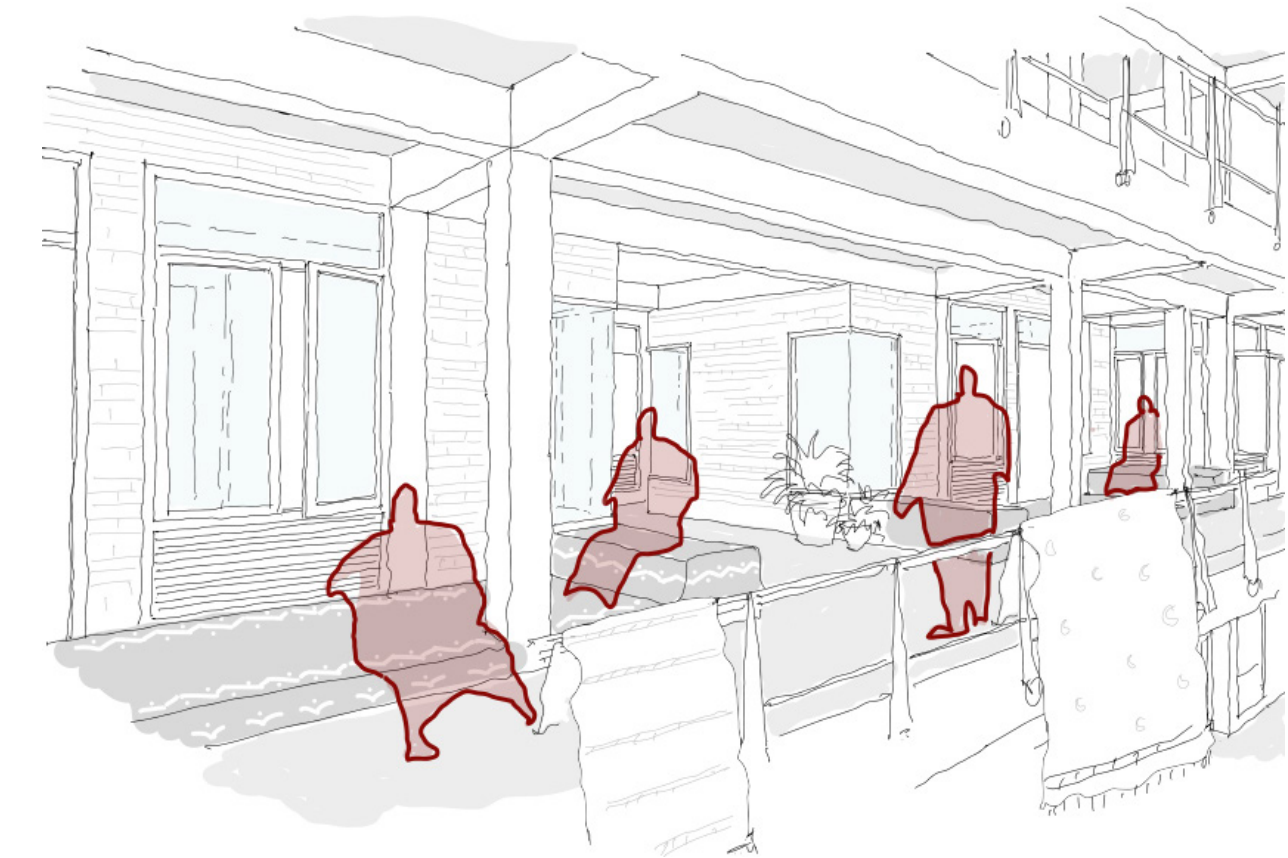
Atmospheric Impression showing the green spine and the medium income housing block. A new roof form was explored in this process
Source: Author's own drawing



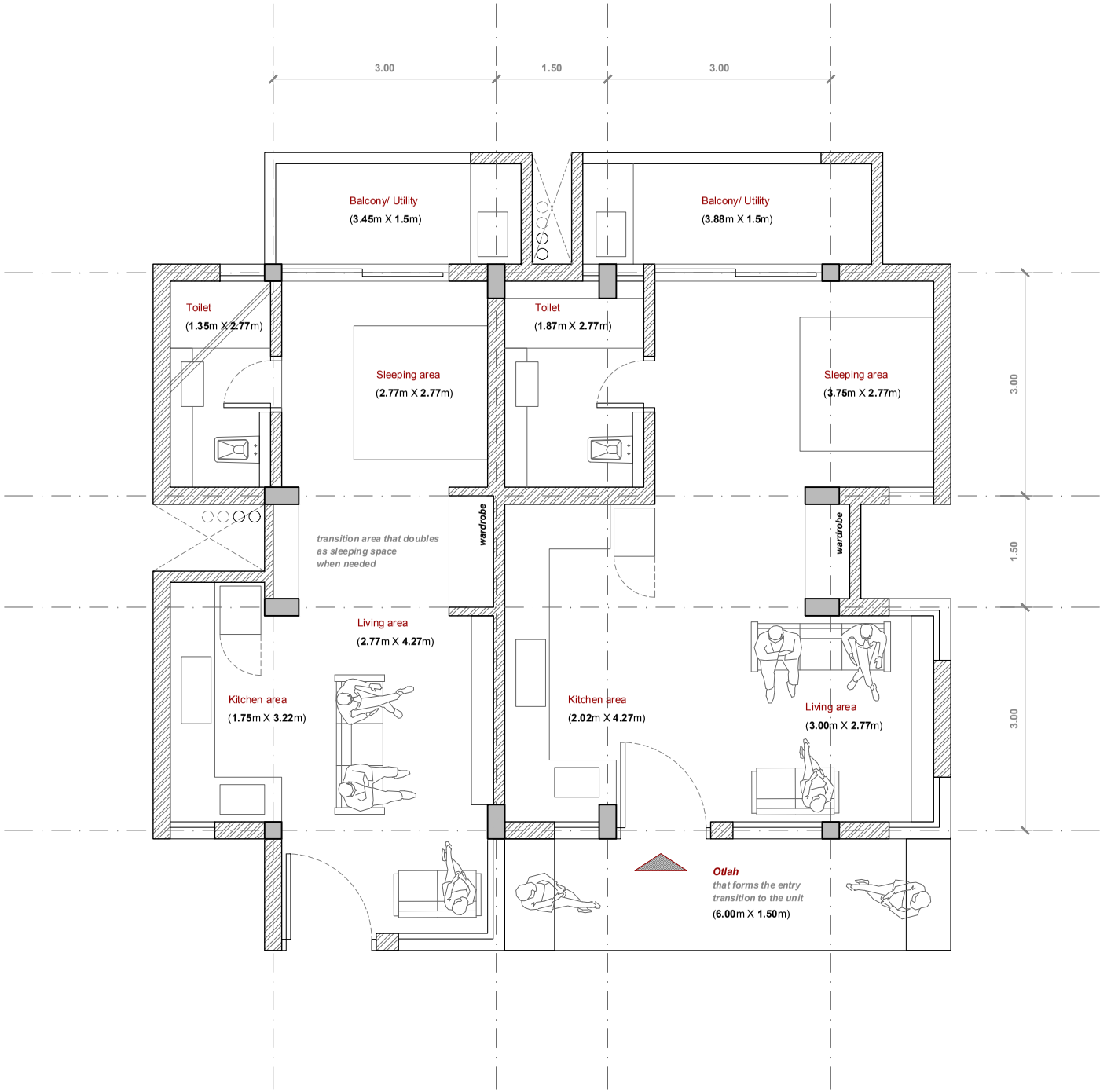
Atmospheric impression showing the *Aangan* (the courtyard) with the greenery and corridors opening out to it.



Atmospheric impression showing the *Agaashiye* in the corner unit of the MIG housing overlooking the terraces and the other blocks



Atmospheric impression showing the *otlahs* along the corridor bringing in the street like quality in the corridors of the low income housing



Low Income Cluster

Studio unit **LA**

35 sq.m carpet area

45 sq.m built up area

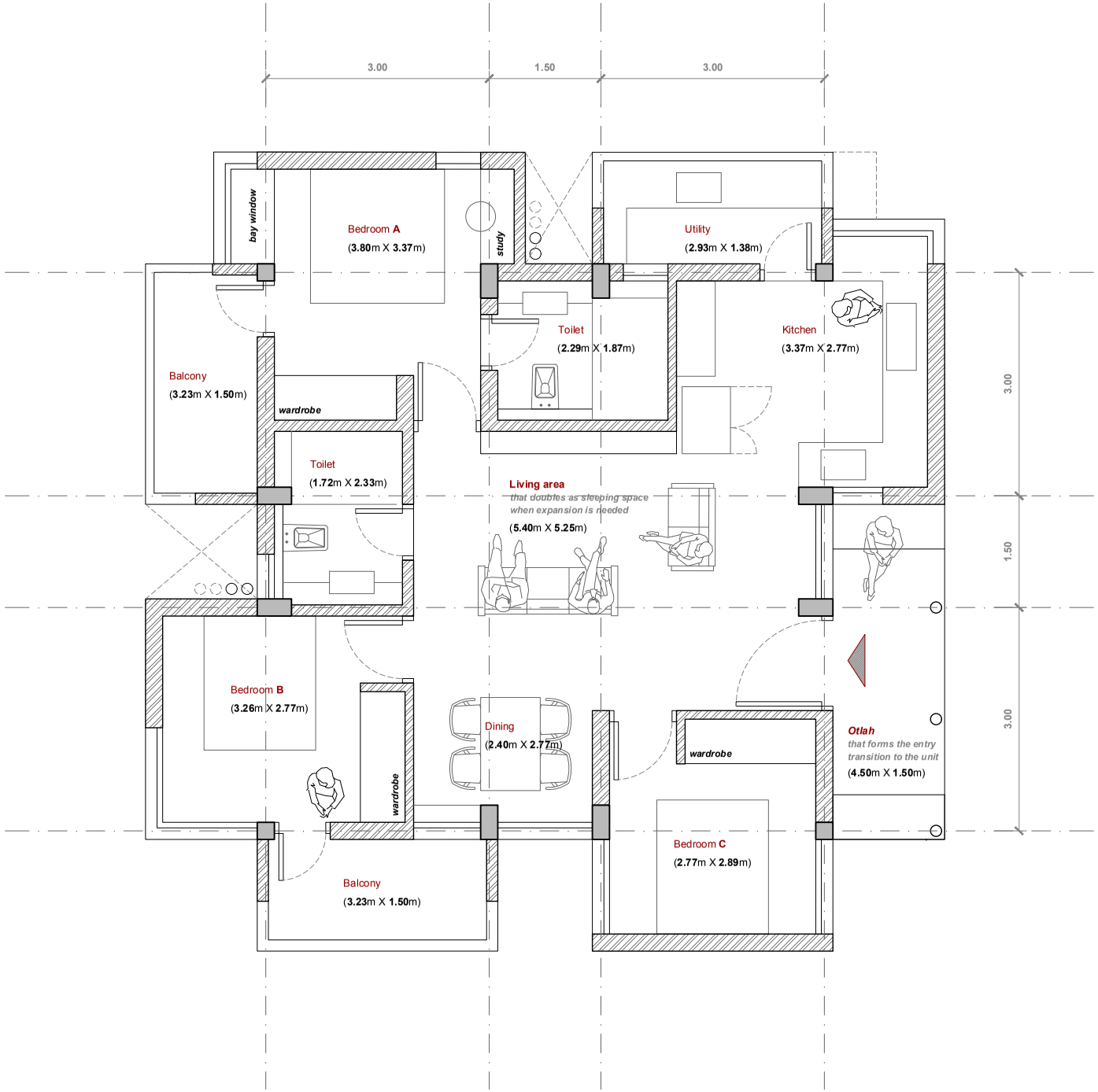
Studio unit **LB**

50 sq.m carpet area

60 sq.m built up area

0 3m

Scale 1: 50 on A3 paper



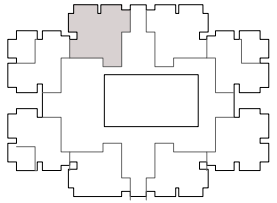
Medium Income Cluster

Unit type **MA**- 3BHK

72 sq.m carpet area

102 sq.m built up area

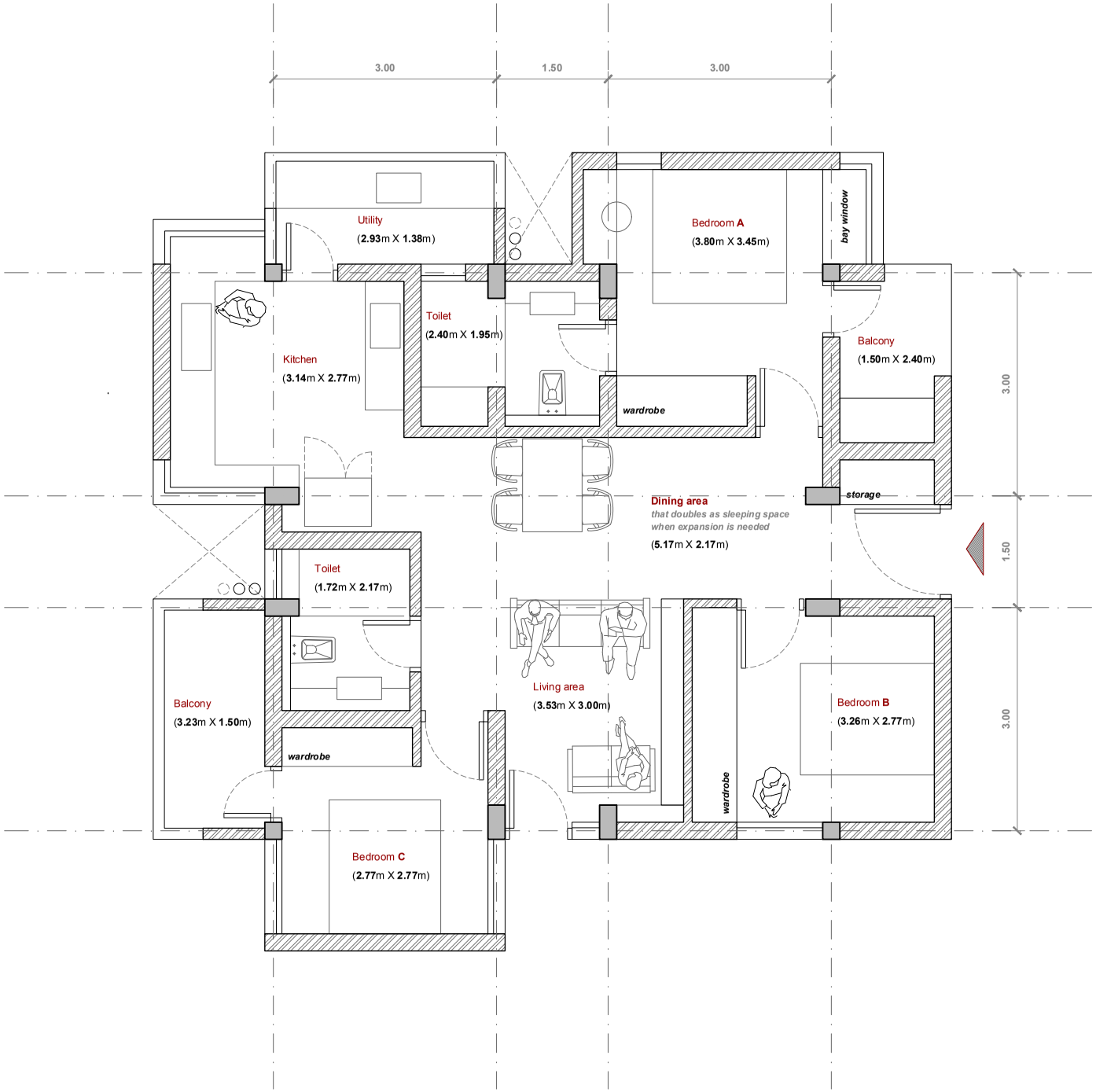
70 % built unit
30 % scope for incrementality



Key plan- unit location in MIG block

0 3m

Scale **1: 50** on A3 paper



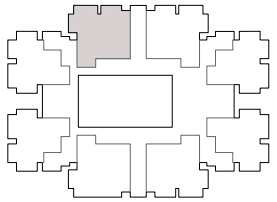
Medium Income Cluster

Unit type **MB**- 3BHK

72 sq.m carpet area

102 sq.m built up area

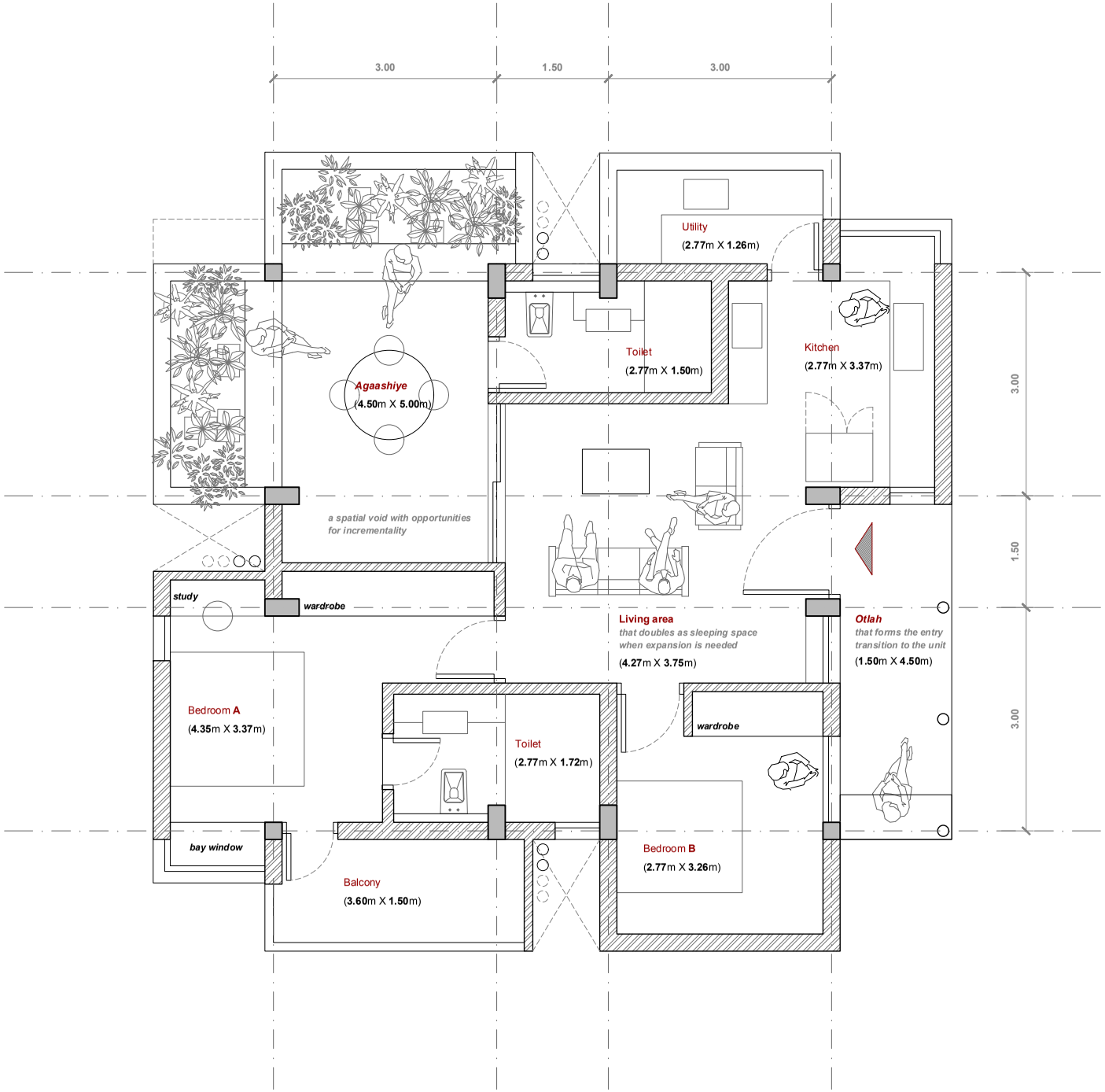
70 % built unit
30 % scope for incrementality



Key plan- unit location in MIG block

0 3m

Scale **1: 50** on A3 paper



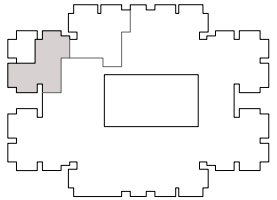
Medium Income Cluster

Unit type **MC**- 2BHK

60 sq.m carpet area

102 sq.m built up area

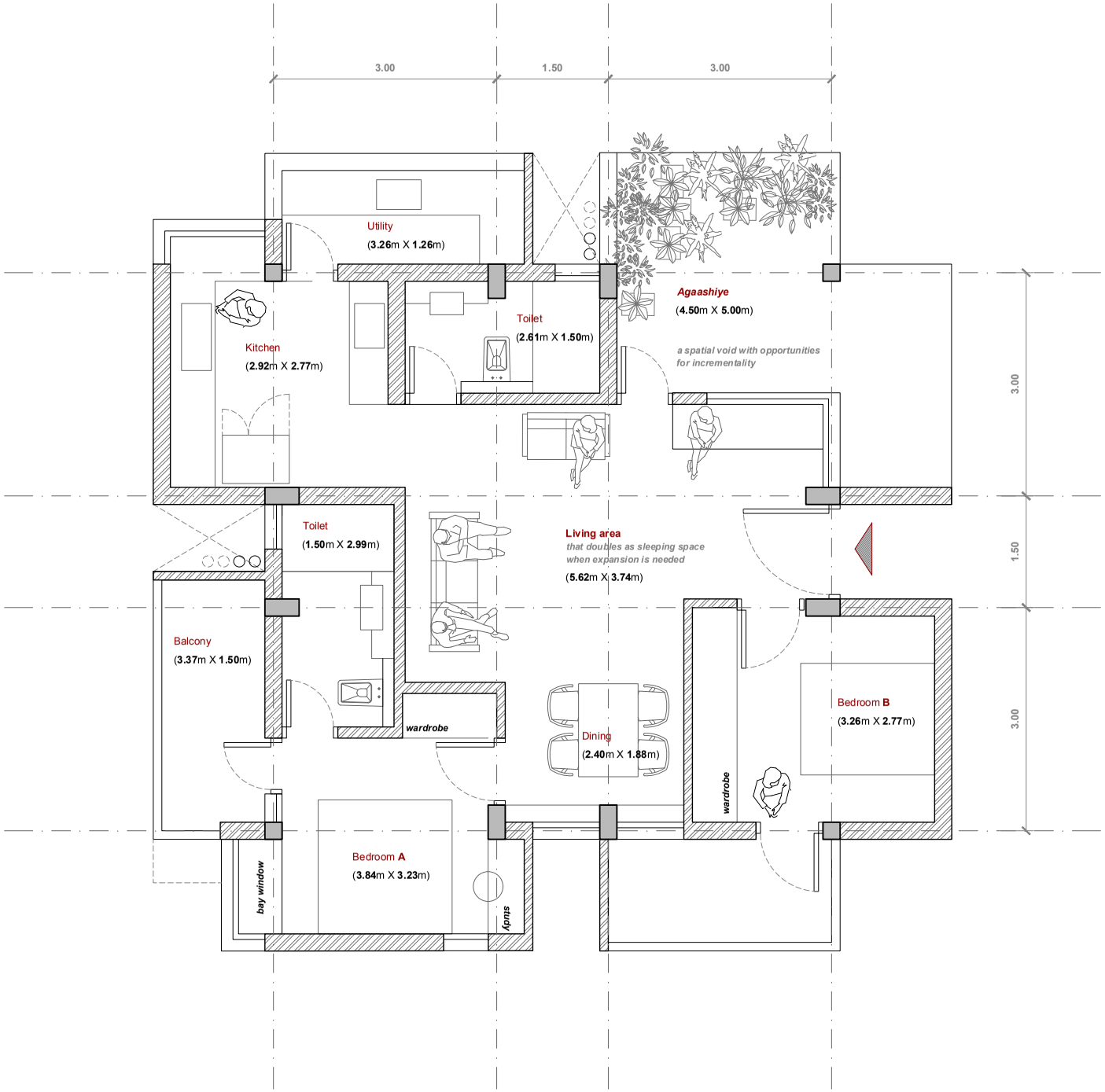
60 % built unit
40 % scope for incrementality



Key plan- unit location in MIG block

0 3m

Scale 1: 50 on A3 paper



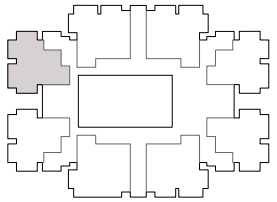
Medium Income Cluster

Unit type **MD**- 2BHK

60 sq.m carpet area

102 sq.m built up area

60 % built unit
40 % scope for incrementality



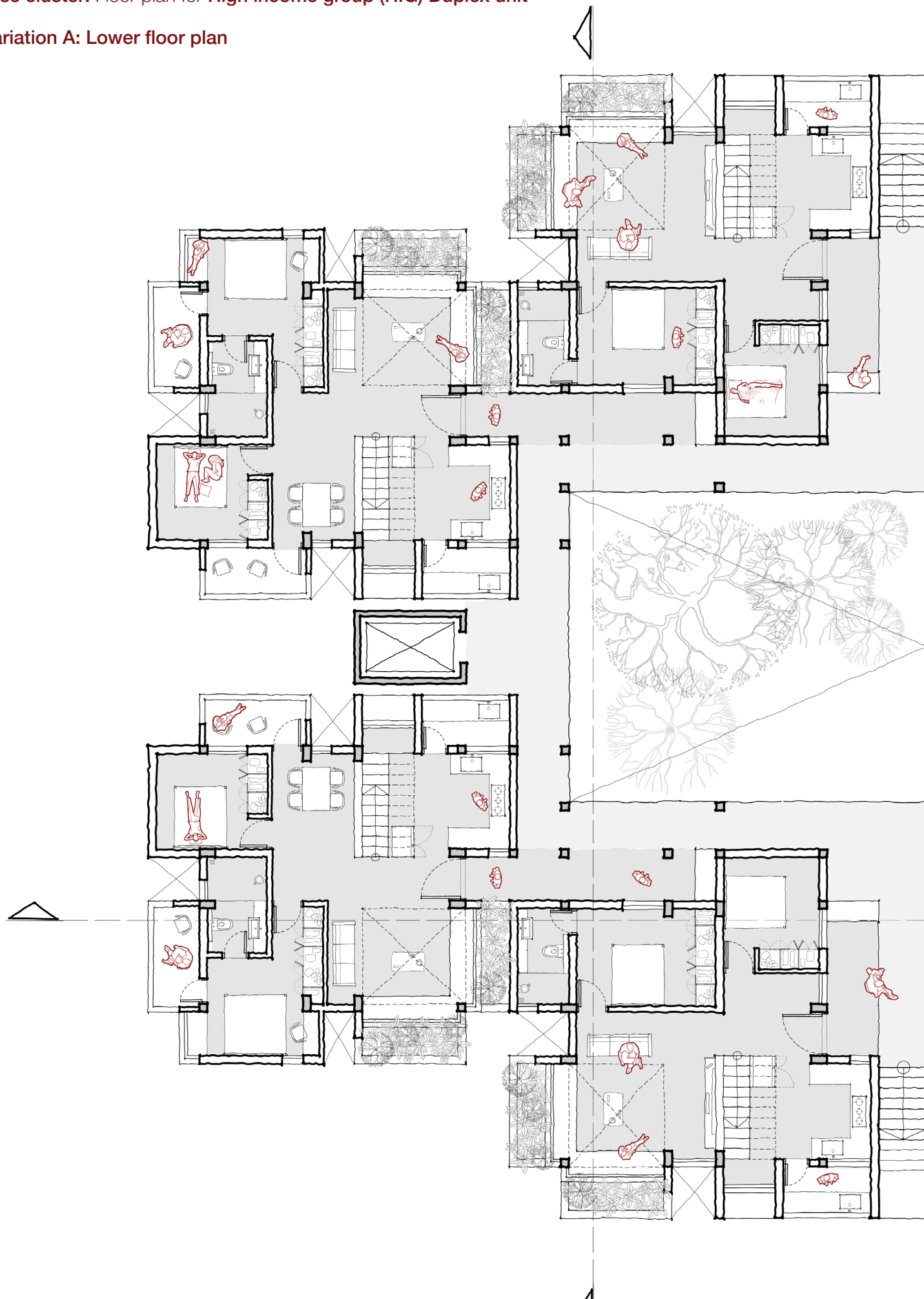
Key plan- unit location in MIG block

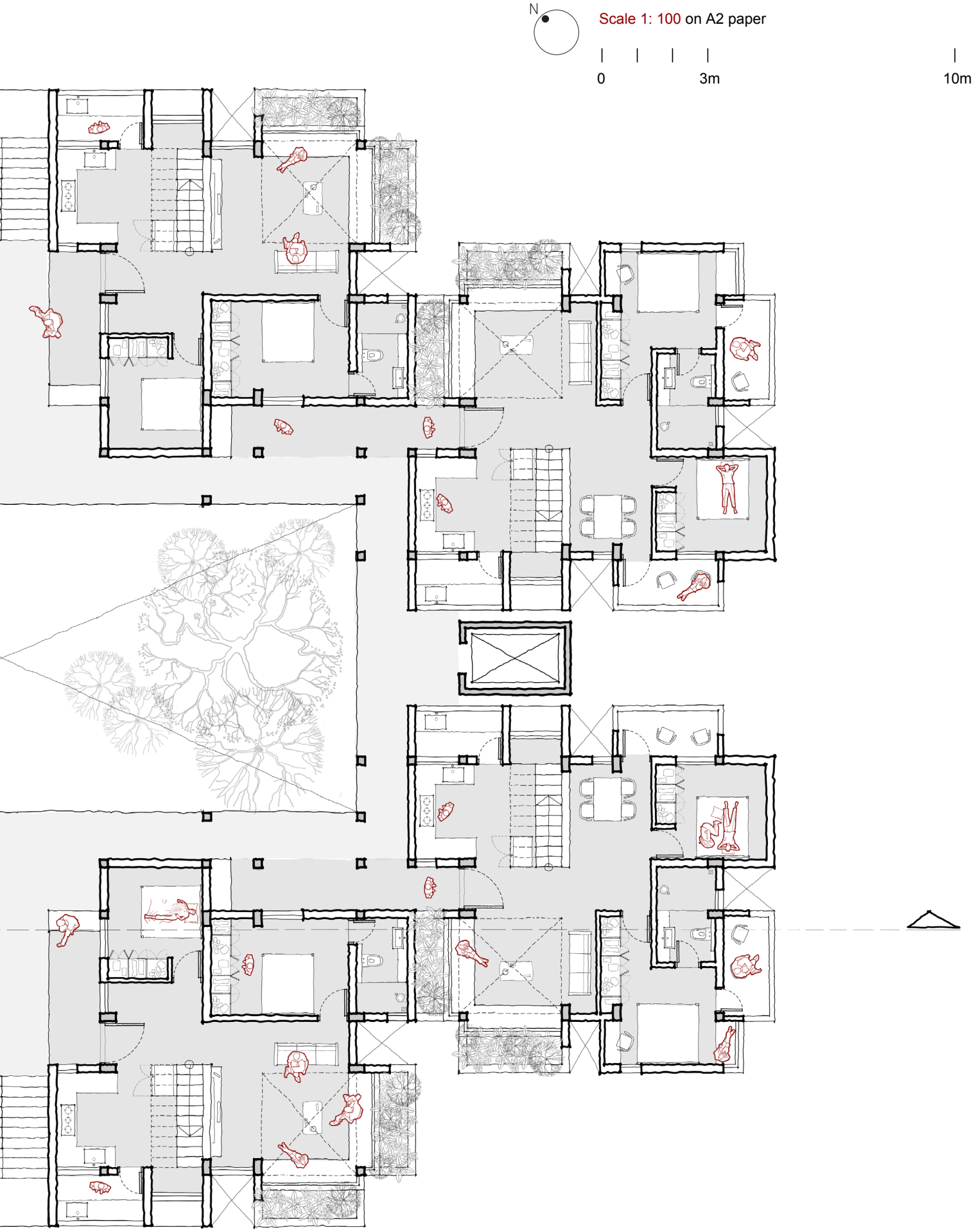
0 3m

Scale 1: 50 on A3 paper

High rise cluster: Floor plan for **High income group (HIG) Duplex unit**

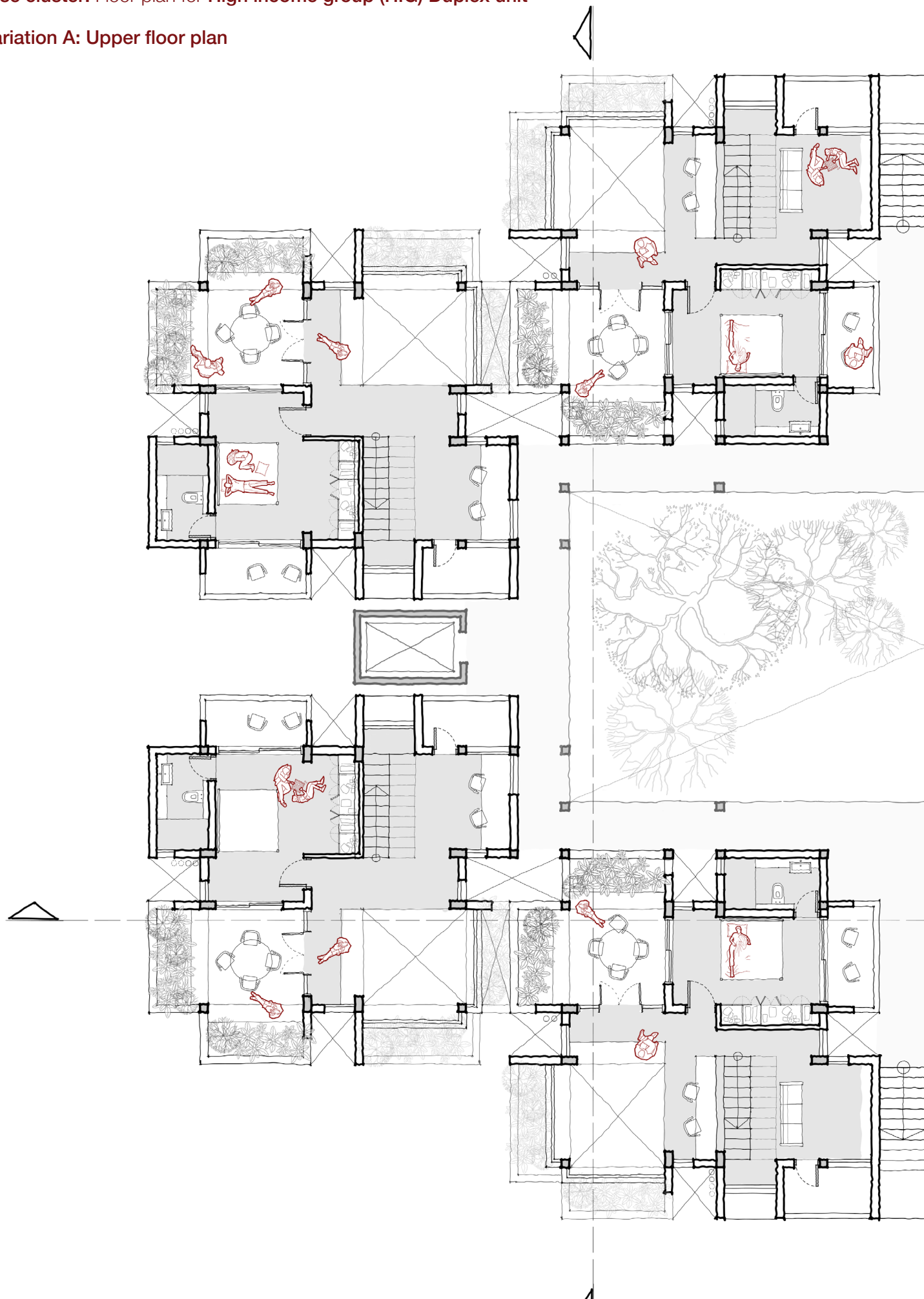
HIG Variation A: Lower floor plan

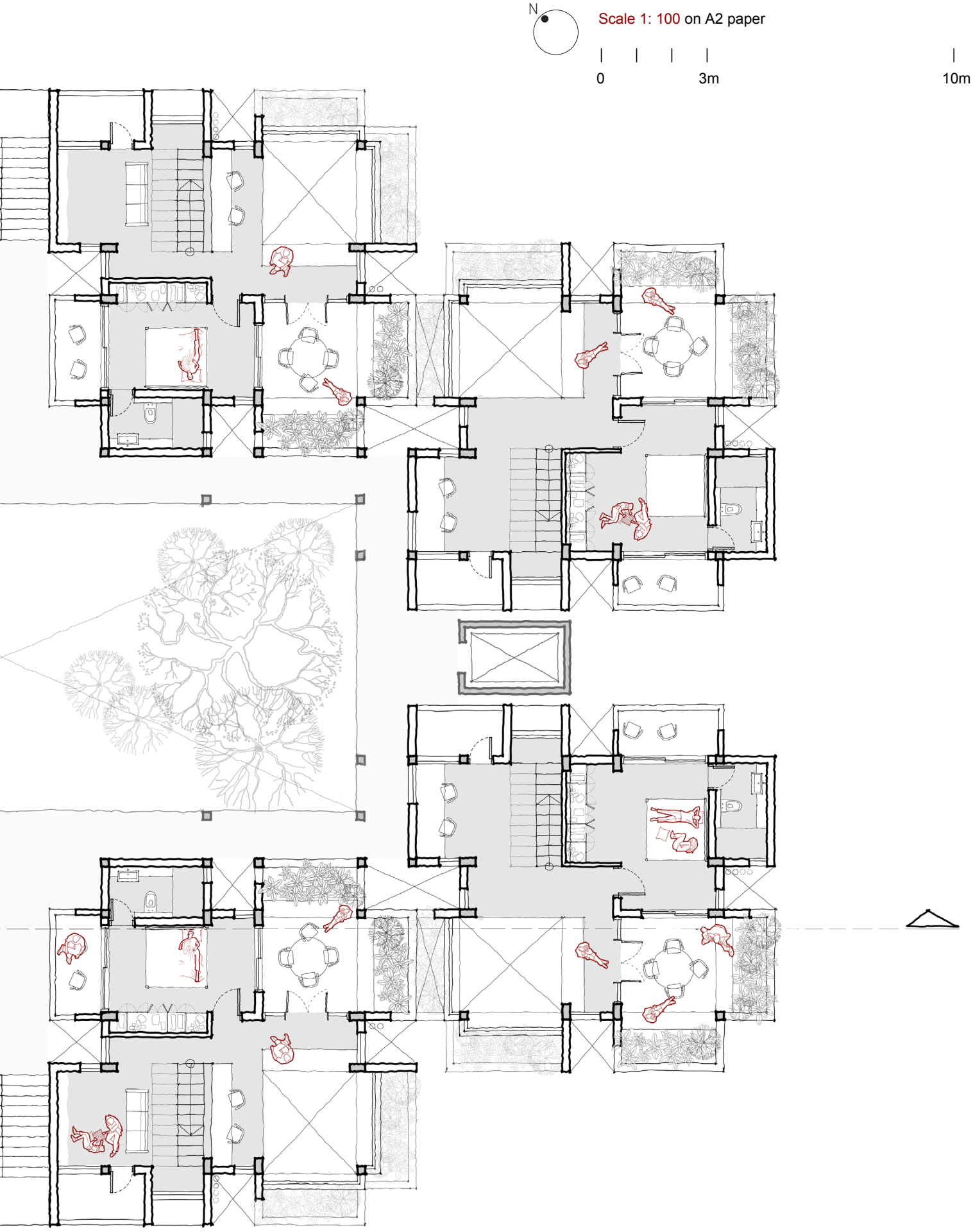



N
Scale 1: 100 on A2 paper
0
3m
10m

High rise cluster: Floor plan for **High income group (HIG) Duplex unit**

HIG Variation A: Upper floor plan




N
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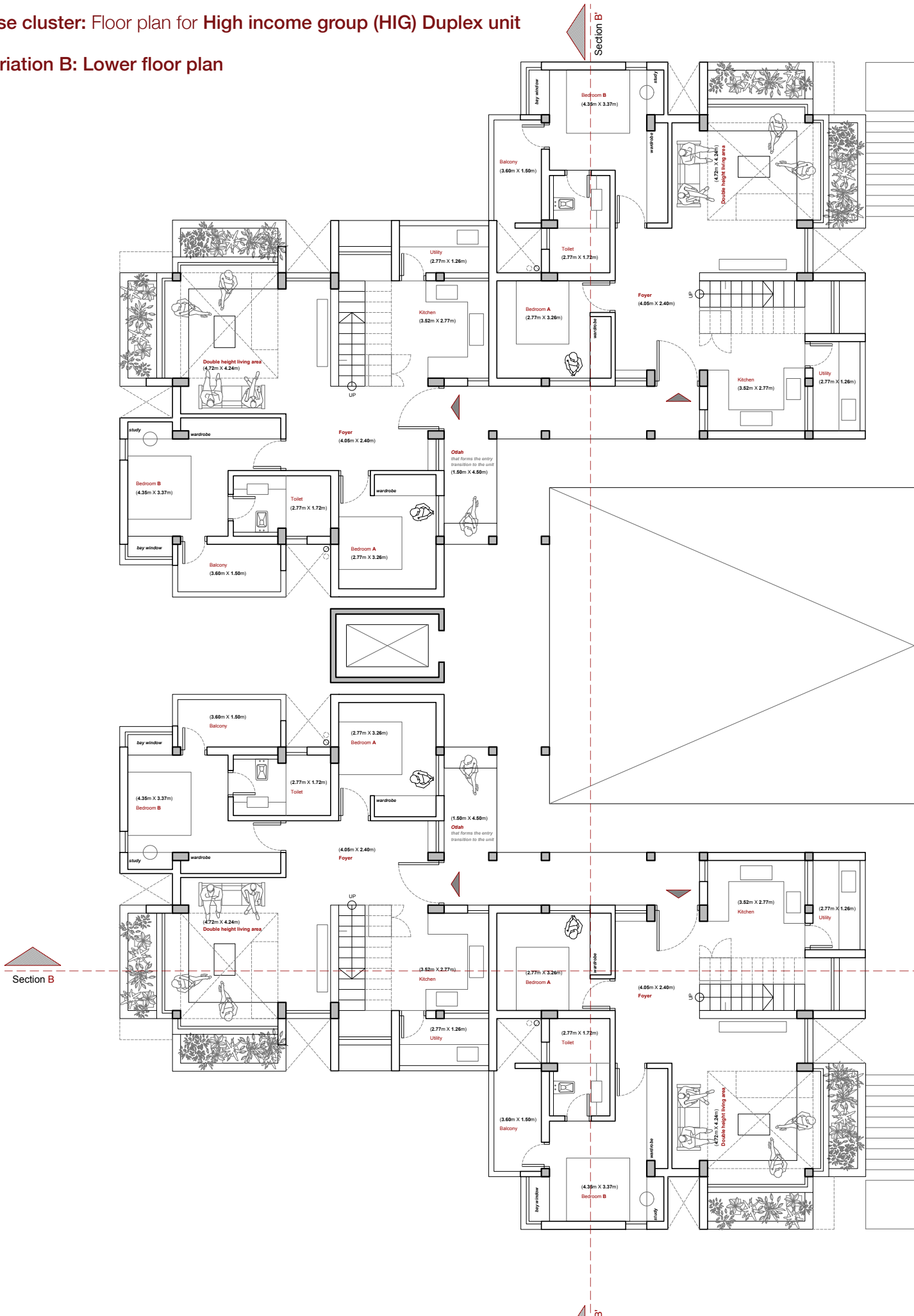
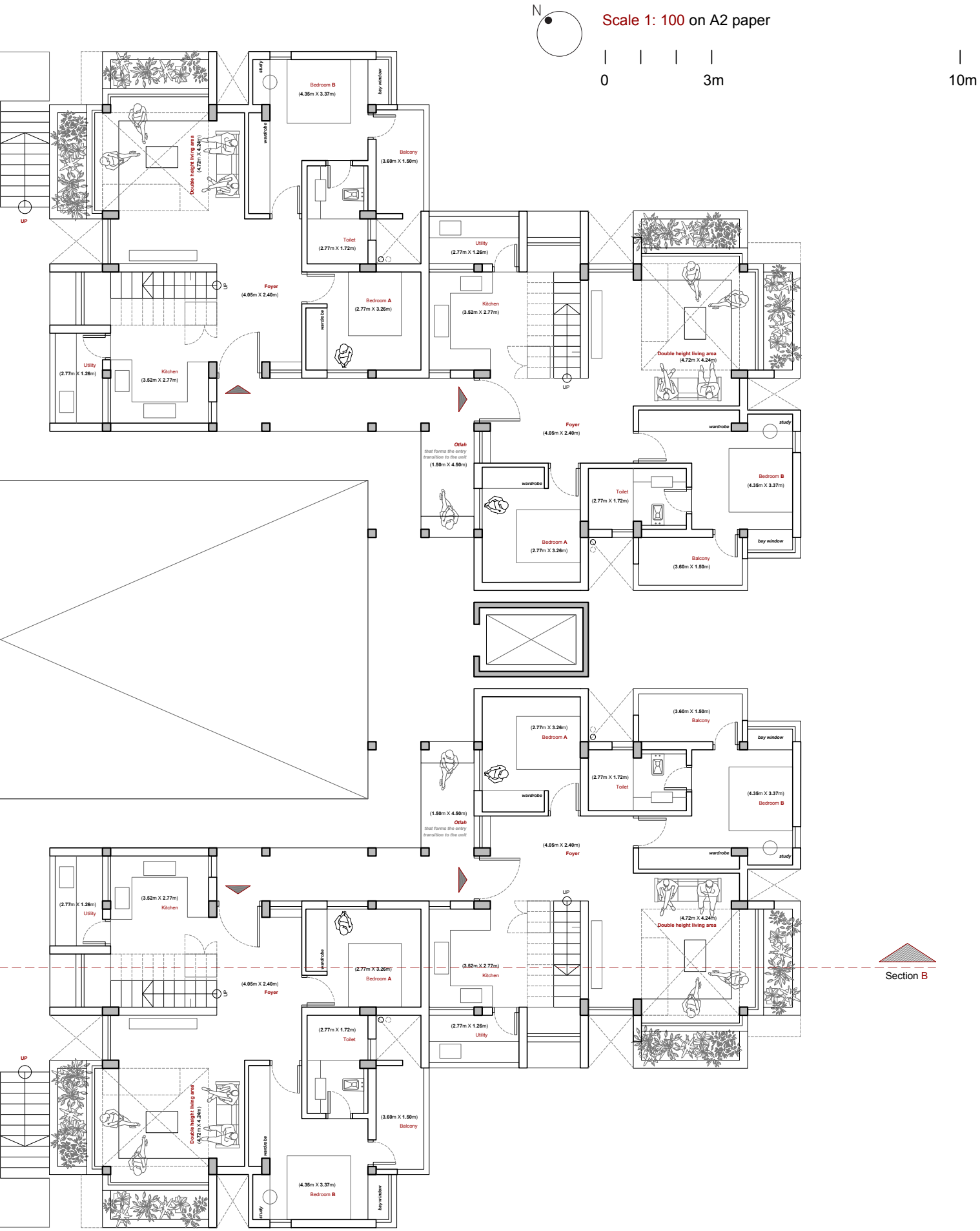
0
3m
10m

High rise cluster: Floor plan for **High income group (HIG) Duplex unit**

HIG Variation B: Lower floor plan



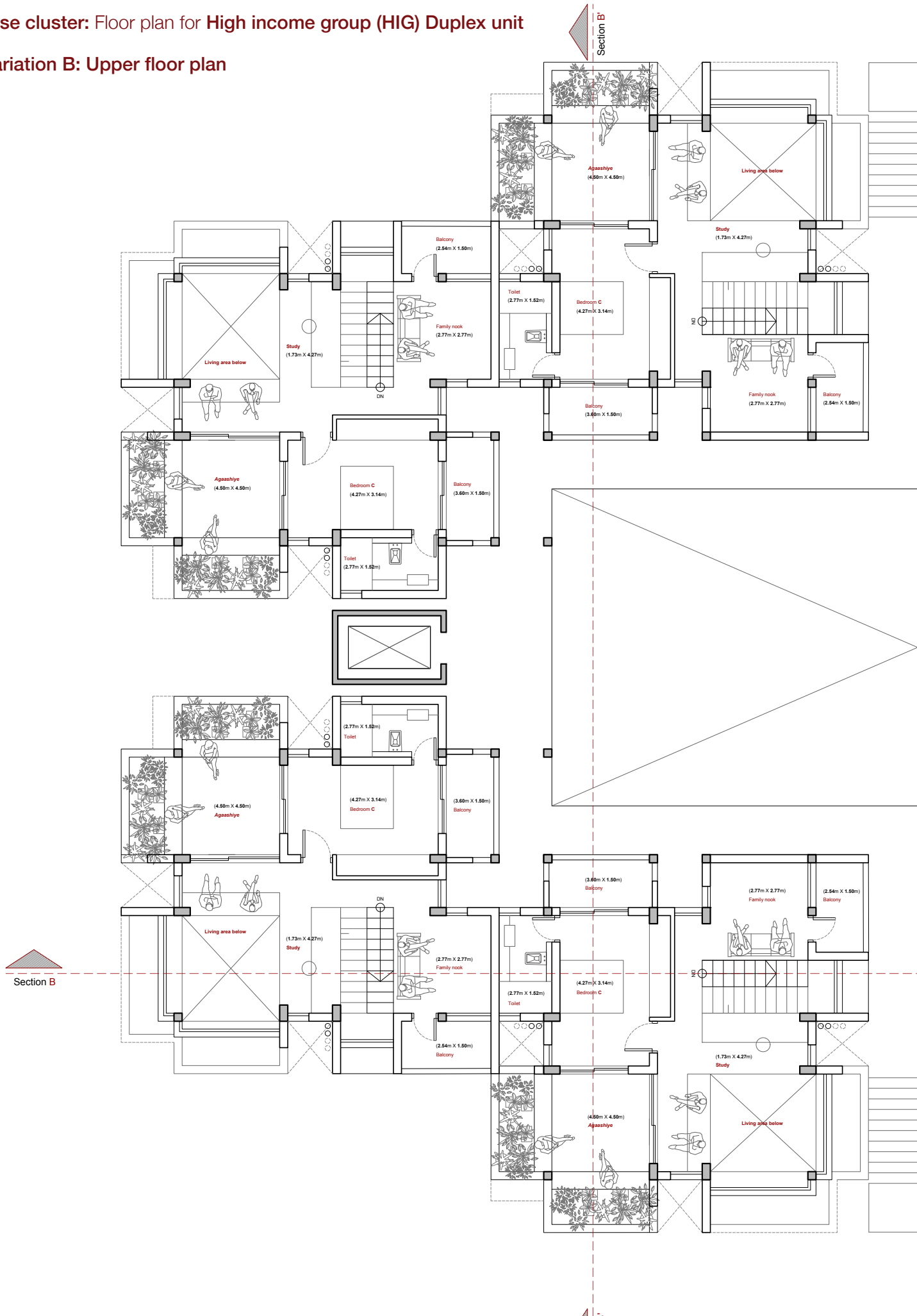


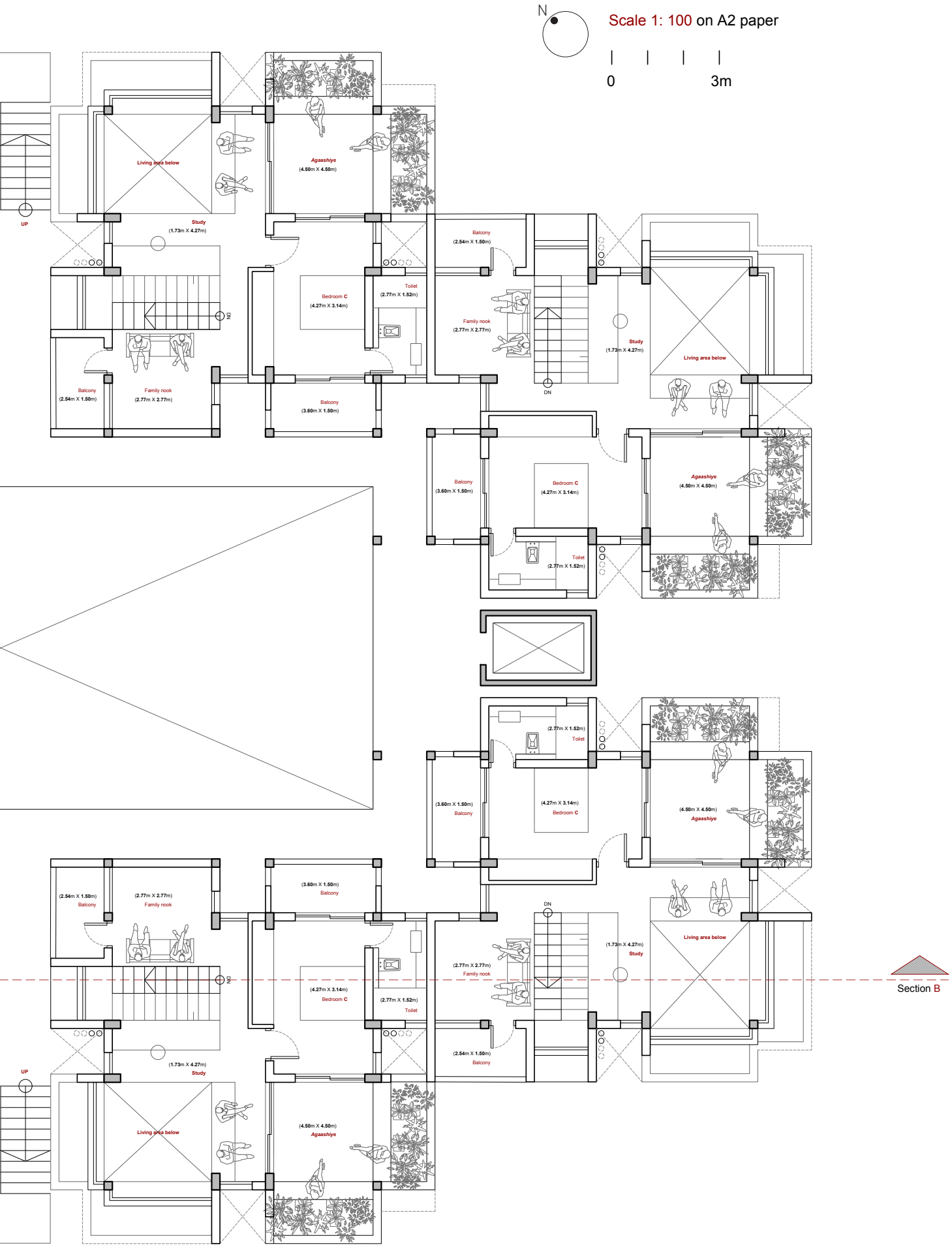
High Income Tower
Duplex unit variation **A**
Lower floor plan

A

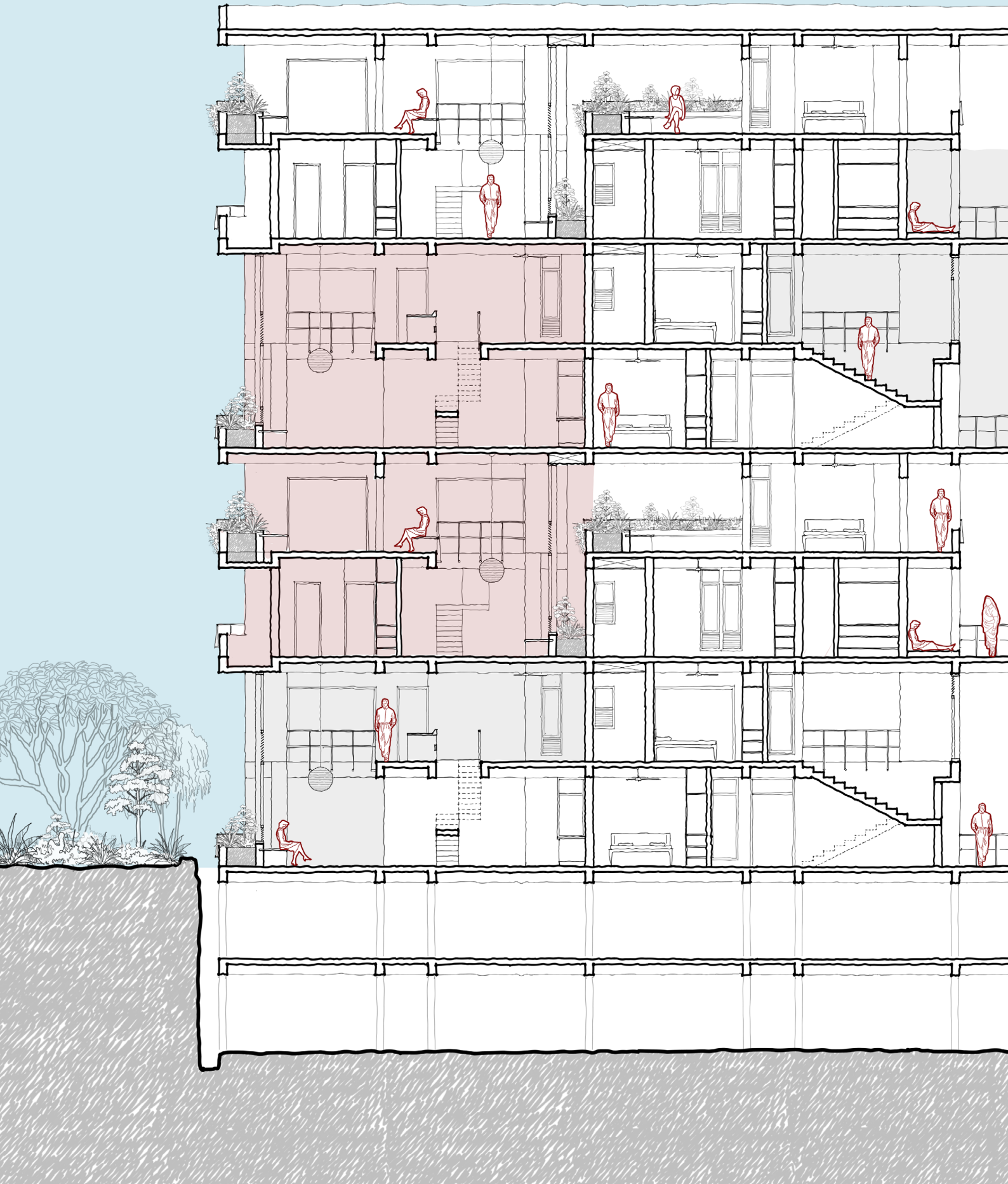
High rise cluster: Floor plan for **High income group (HIG) Duplex unit**

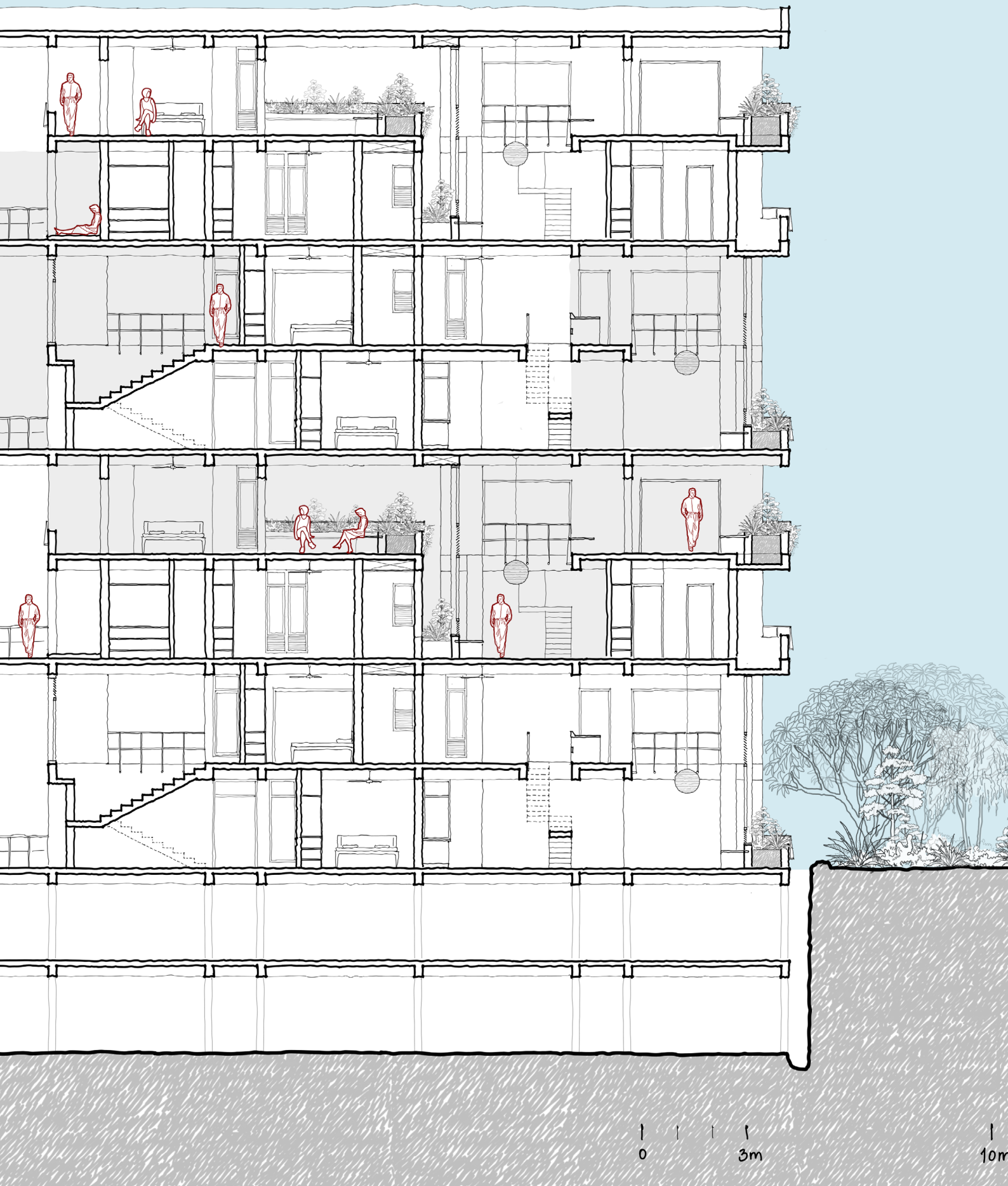
HIG Variation B: Upper floor plan



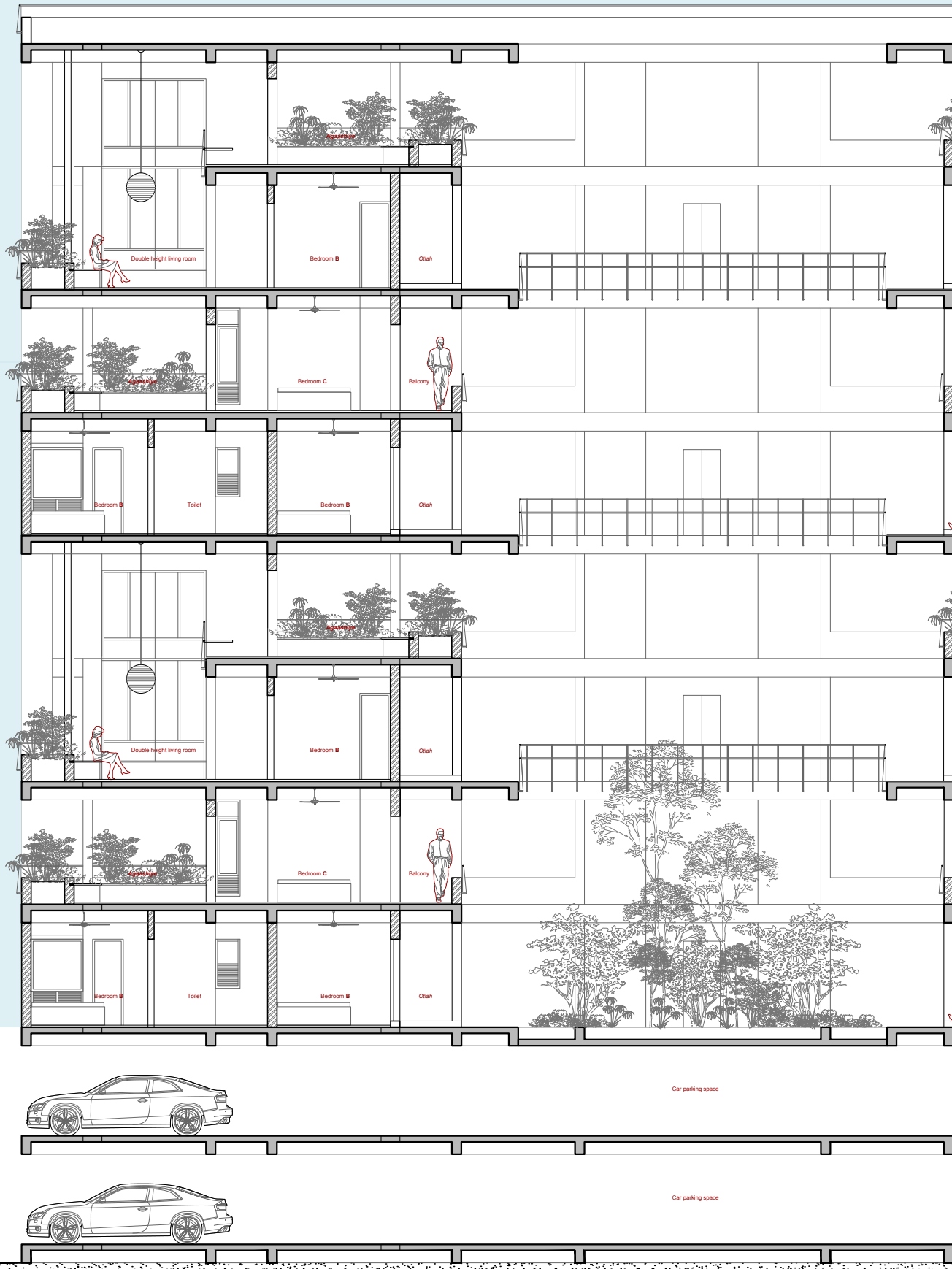

N
Scale 1: 100 on A2 paper
0
3m
10m
Living area below
Agaashiye
(4.50m X 4.50m)
Study
(1.73m X 4.27m)
UP
Balcony
(2.54m X 1.50m)
Family nook
(2.77m X 2.77m)
Bedroom C
(4.27m X 3.14m)
Toilet
(2.77m X 1.52m)
(3.60m X 1.50m)
DN
Section B

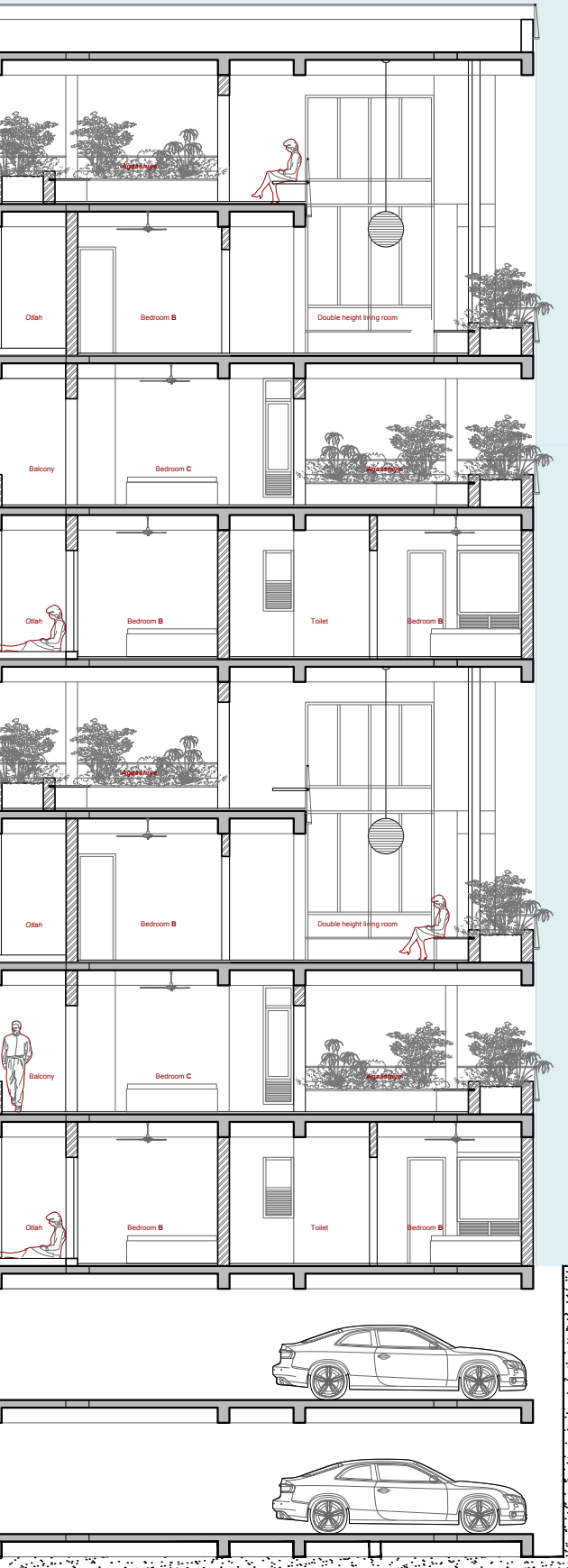
Section BB




0
3m
10m

Section B’B’

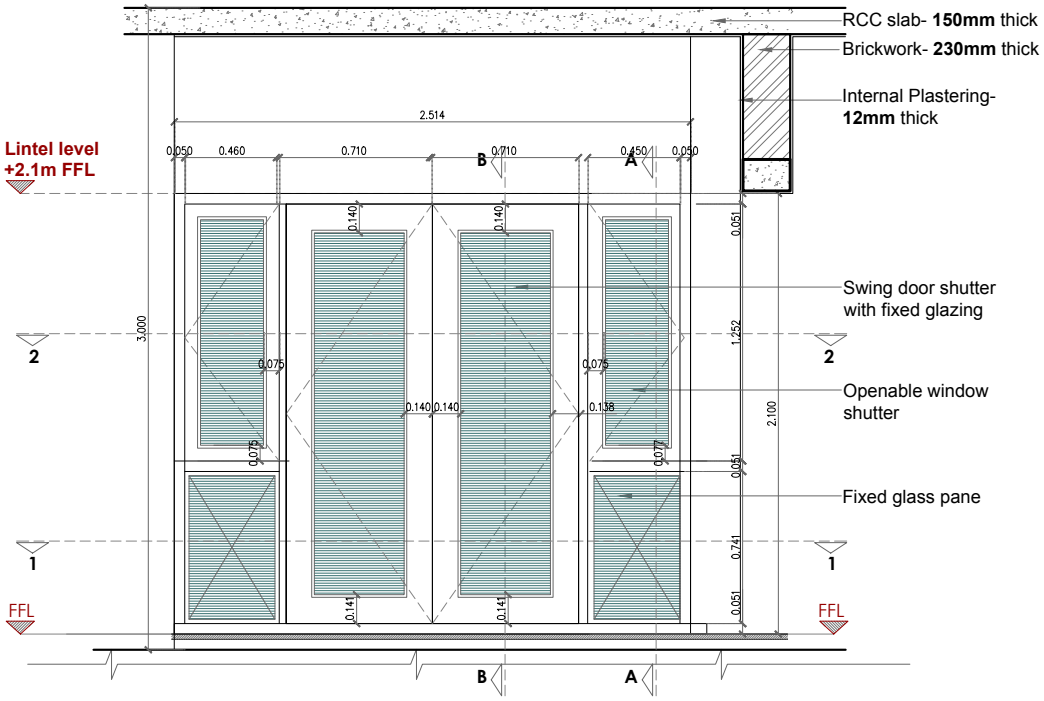

Double height living room
Bedroom B
Otlah
Bedroom C
Balcony
Bedroom B
Toilet
Bedroom B
Otlah
Double height living room
Bedroom B
Otlah
Bedroom C
Balcony
Bedroom B
Toilet
Bedroom B
Otlah
Car parking space
Car parking space



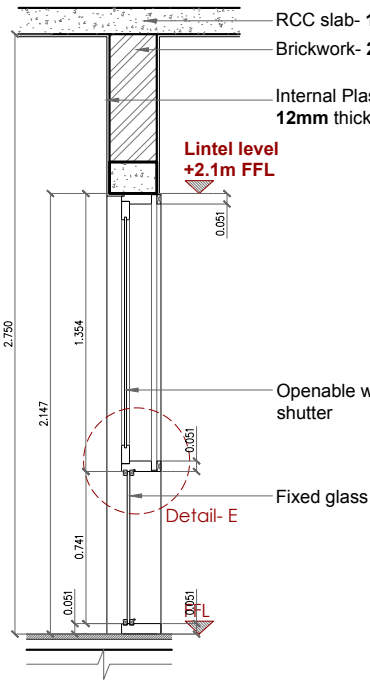


Scale 1: 100 on A2 paper

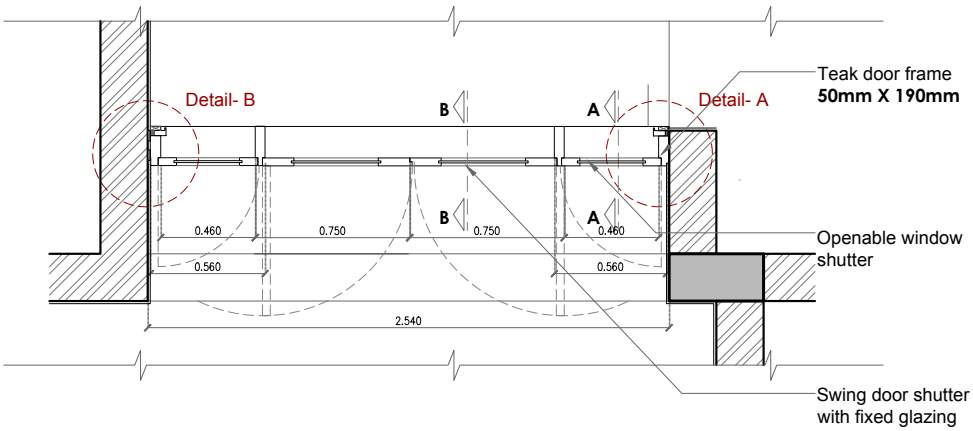
Door window detail of a balcony in the High income housing unit



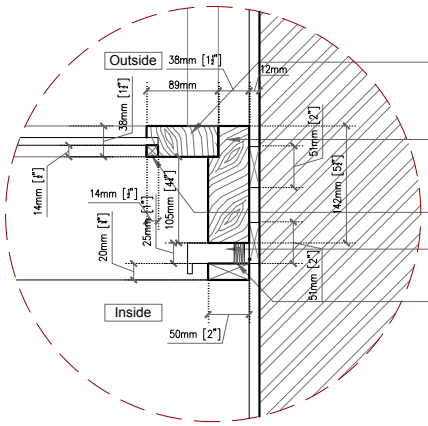
Internal elevation of HIG balcony door



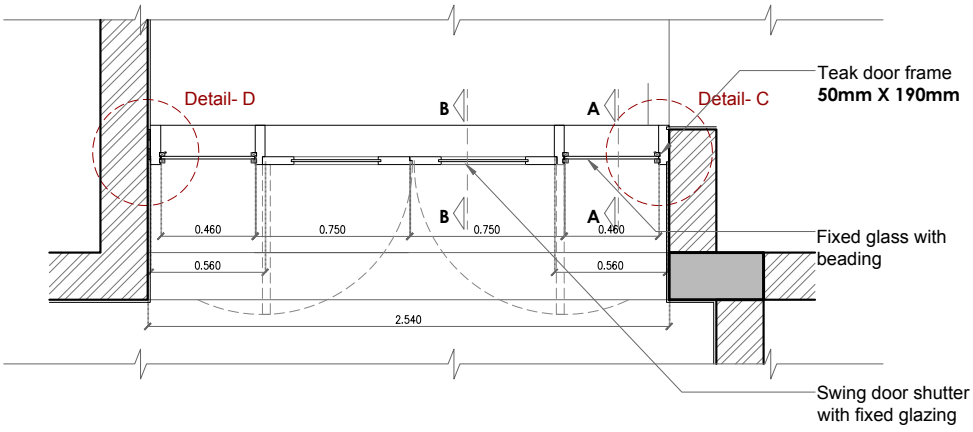
Section AA



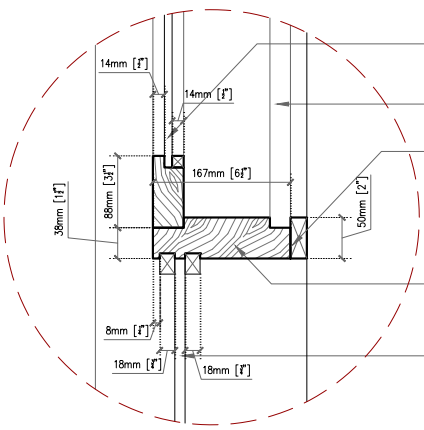
Plan of HIG balcony door at level 2-2



Detail B showing frame detail type- 2 with mosquito mesh

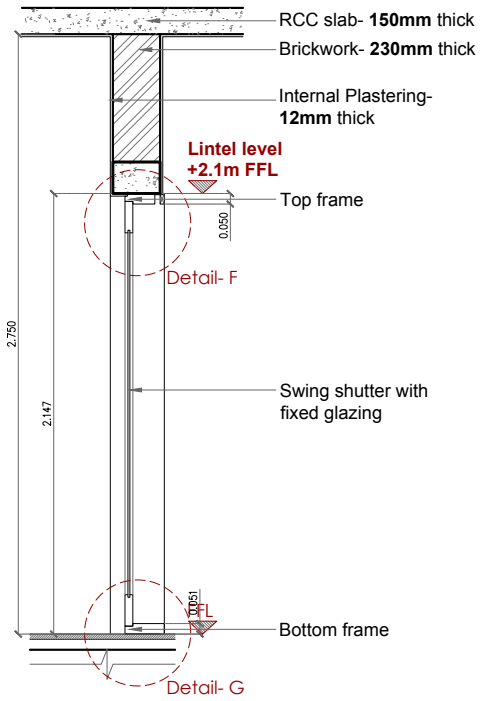


Plan of HIG balcony door at level 1-1

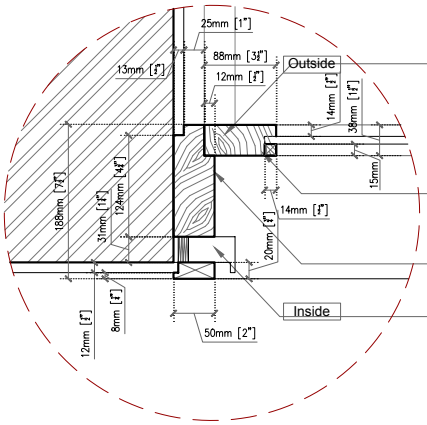


Detail E showing window shutter and fixed glass mullion junction

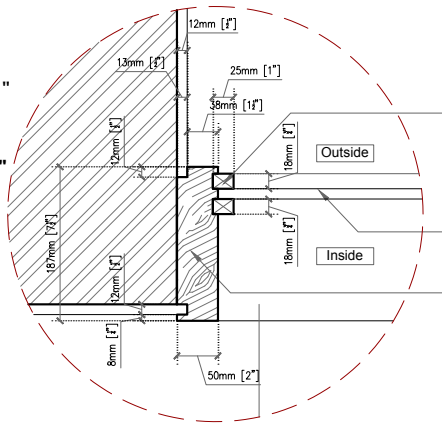
Notes to read the drawing:
-Dimensions of the main plans and sections are in meters as units.
-Dimensions of the teak frame details are in millimeters and also inches as the alternate units. This aligns with the widely followed practice by carpenters in India of using imperial units for construction.



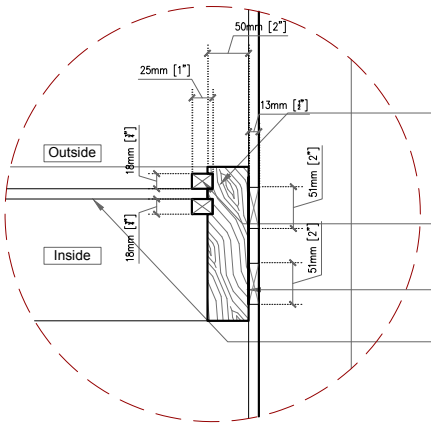
Section BB



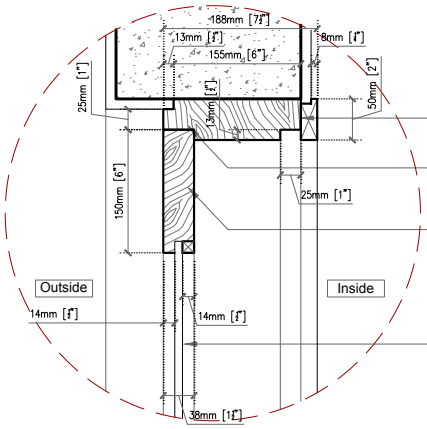
Detail A showing frame detail type-1 with mosquito mesh



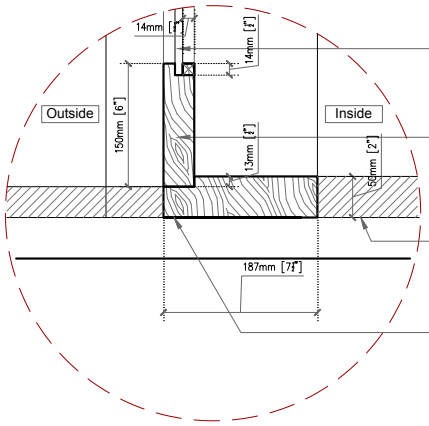
Detail C showing frame detail type-1 with fixed glass



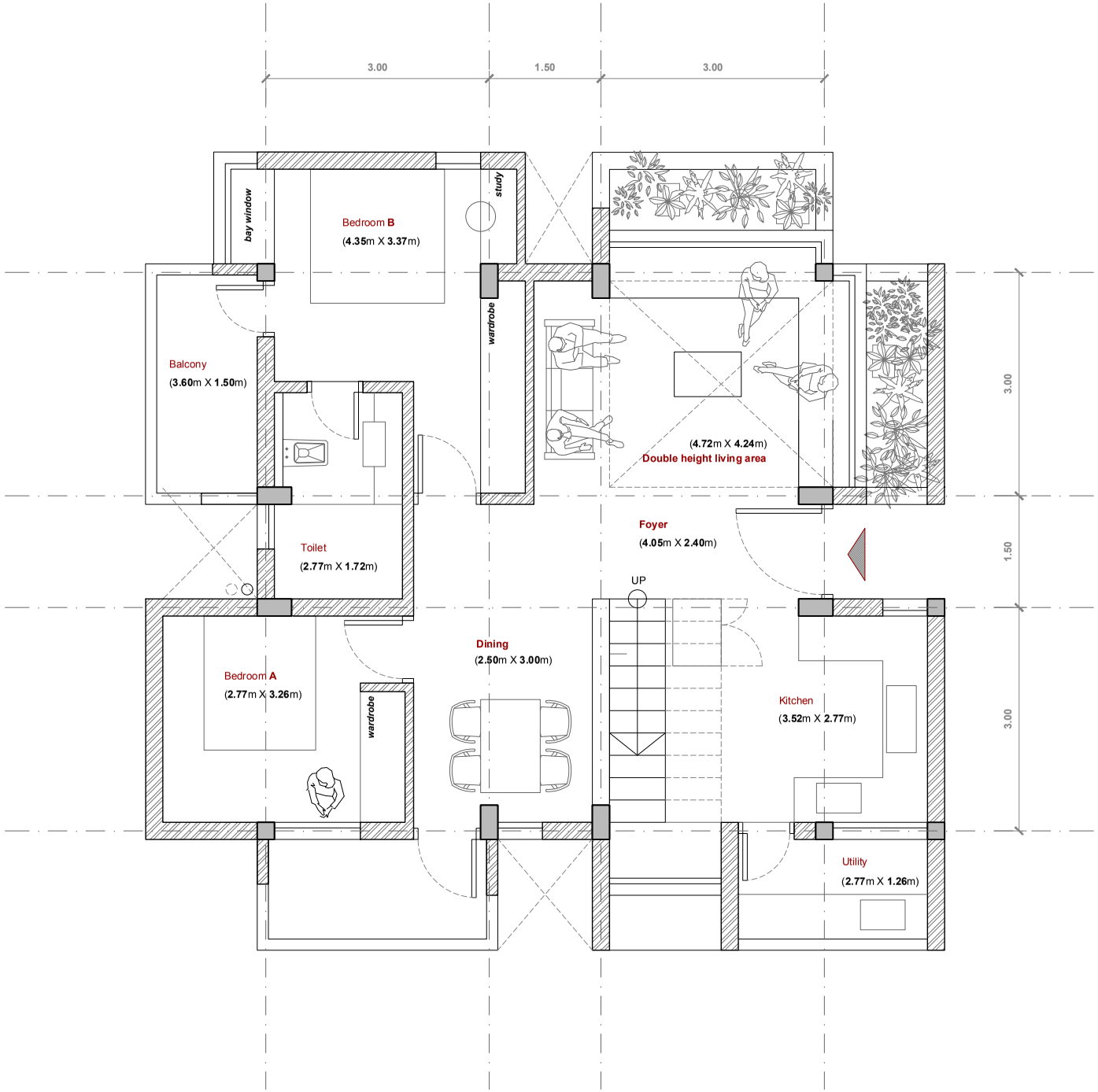
Detail D showing frame detail type-2 with fixed glass



Detail F showing top frame detail with openable shutter



Detail G showing bottom frame with openable shutter



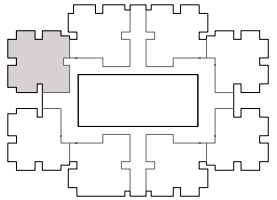
High Income Cluster

Unit type HA - 3BHK

144 sq.m carpet area

204 sq.m built up area

60 % built unit
40 % scope for incrementality

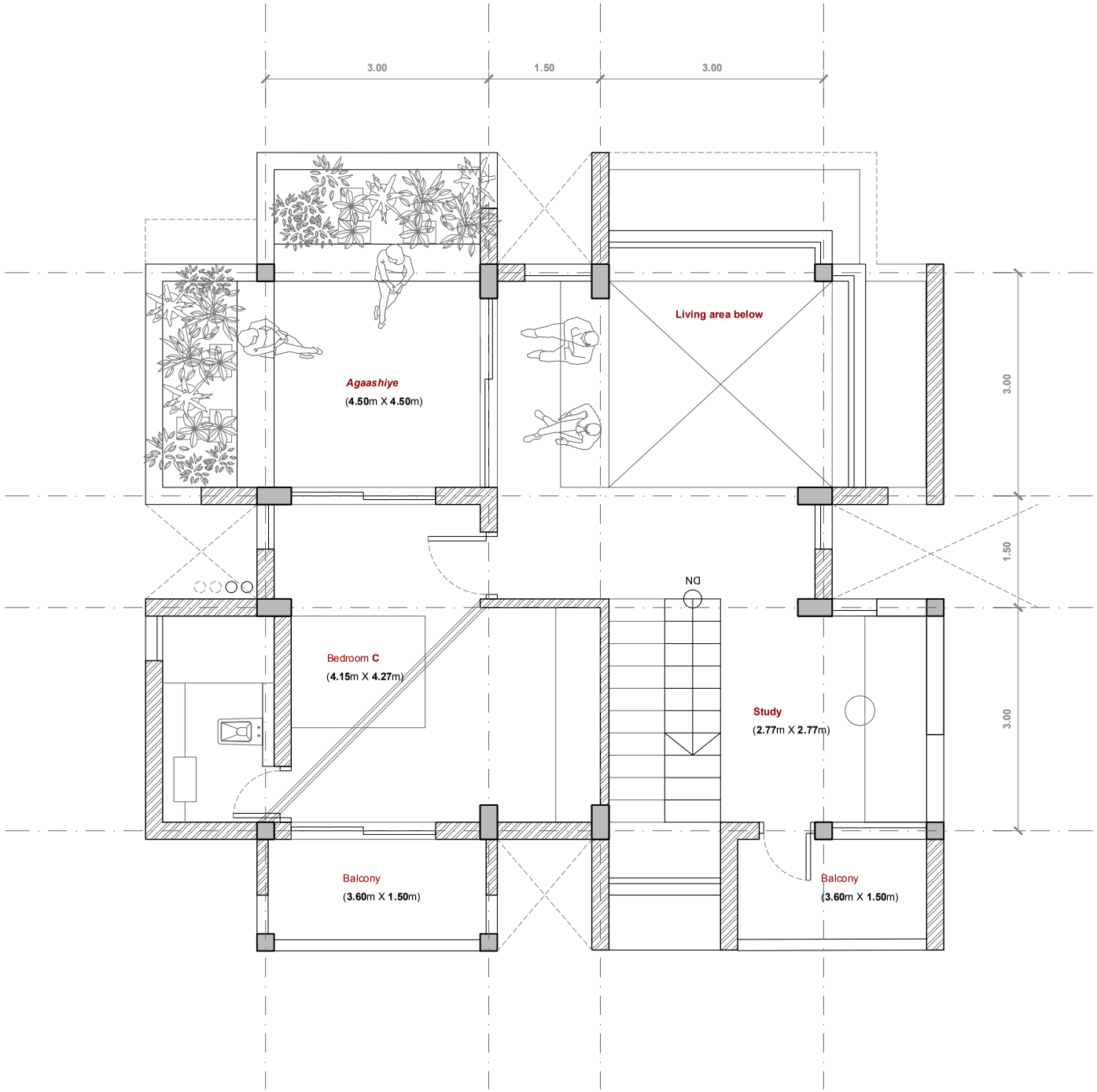


Key plan- unit location in HIG tower

Lower floor plan

0 — 3m

Scale 1: 50 on A3 paper



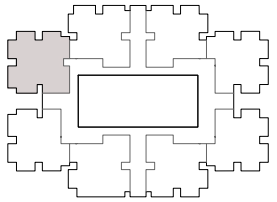
High Income Cluster

Unit type **HA** - 3BHK

144 sq.m carpet area

204 sq.m built up area

60 % built unit
40 % scope for incrementality

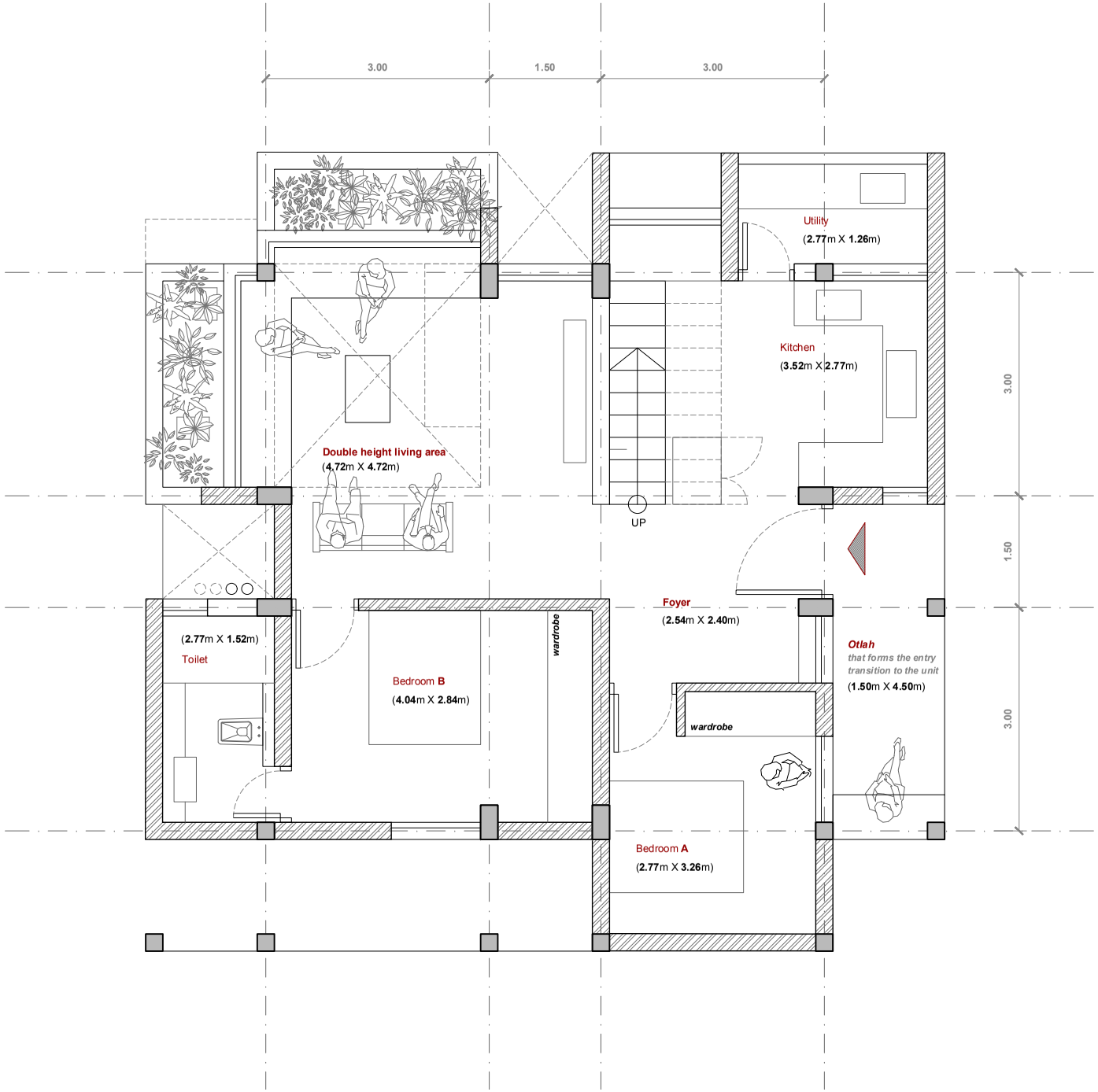


Key plan- unit location in HIG tower

Upper floor plan

0 — 3m

Scale **1: 50** on A3 paper



High Income Cluster

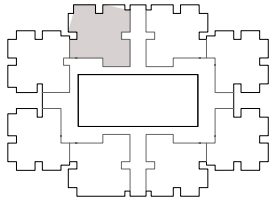
Unit type **HB** - 3BHK

144 sq.m carpet area

204 sq.m built up area

60 % built unit

40 % scope for incrementality

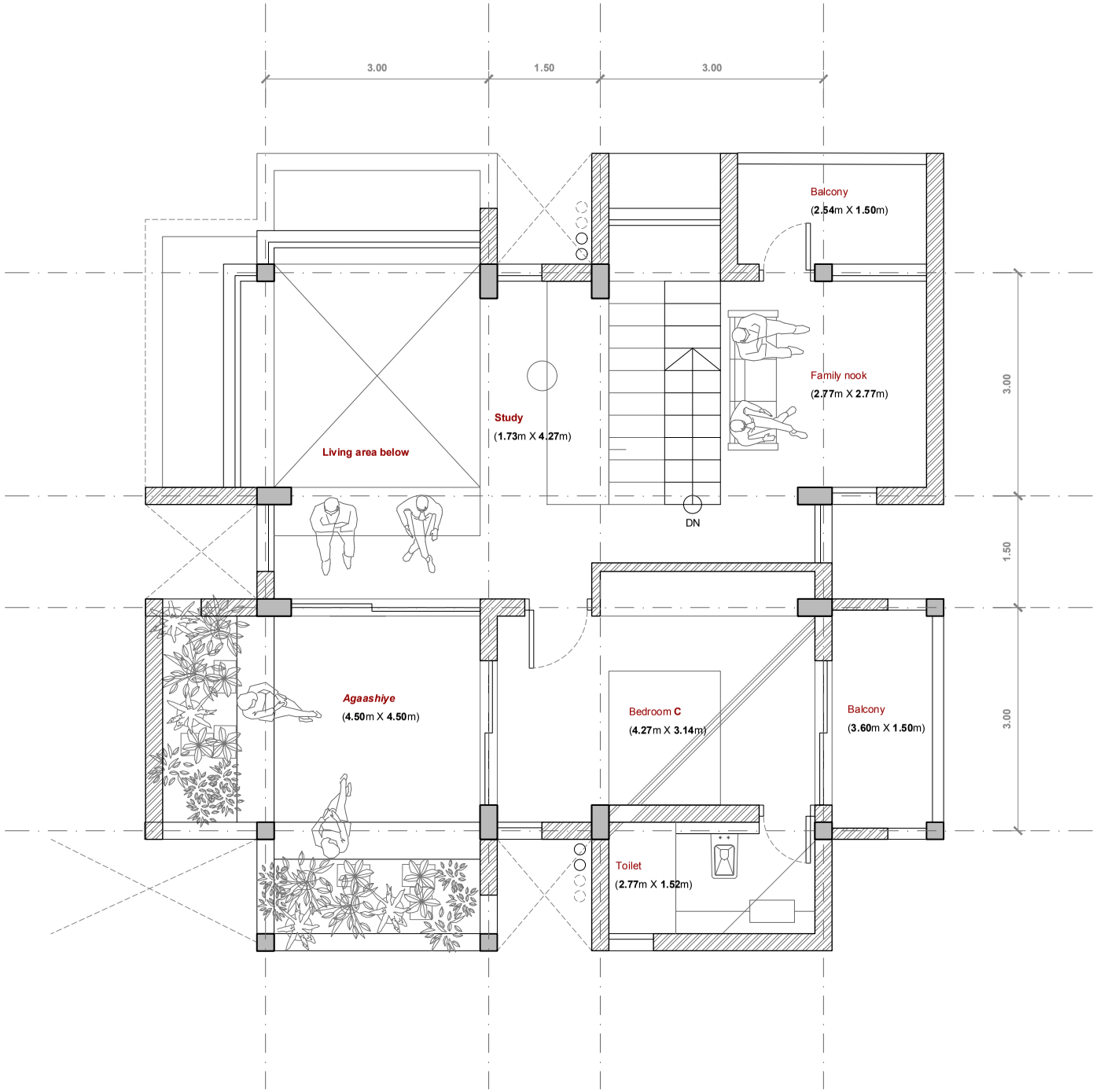


Key plan- unit location in HIG tower

Lower floor plan

0 — 3m

Scale **1: 50** on A3 paper



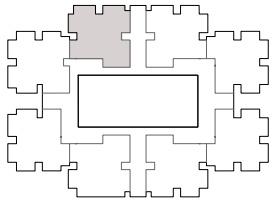
High Income Cluster

Unit type HB - 3BHK

144 sq.m carpet area

204 sq.m built up area

60 % built unit
40 % scope for incrementality

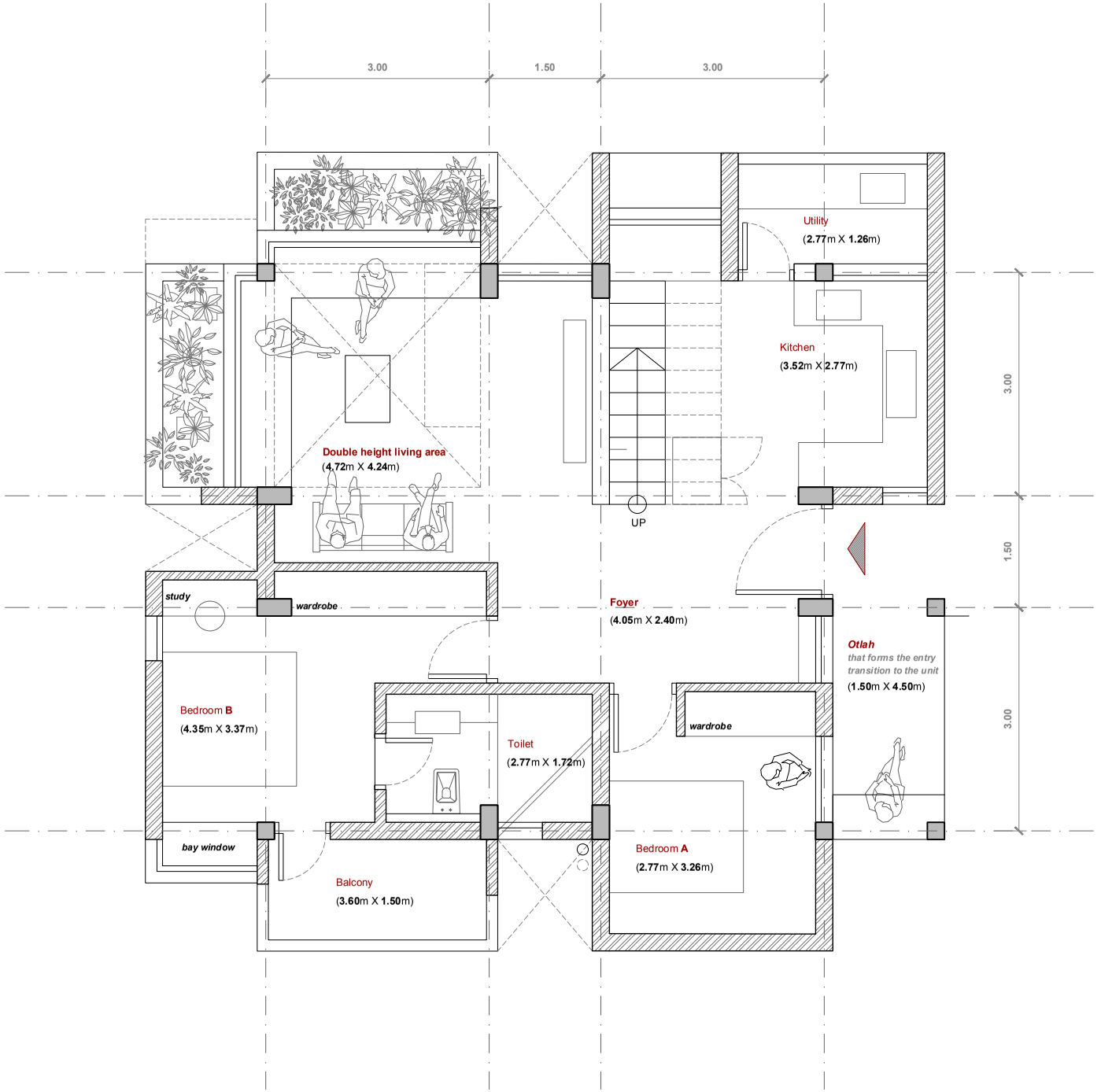


Key plan- unit location in HIG tower

Upper floor plan

0 — 3m

Scale **1: 50** on A3 paper



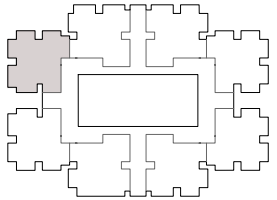
High Income Cluster

Unit type HC - 3BHK

144 sq.m carpet area

204 sq.m built up area

60 % built unit
40 % scope for incrementality

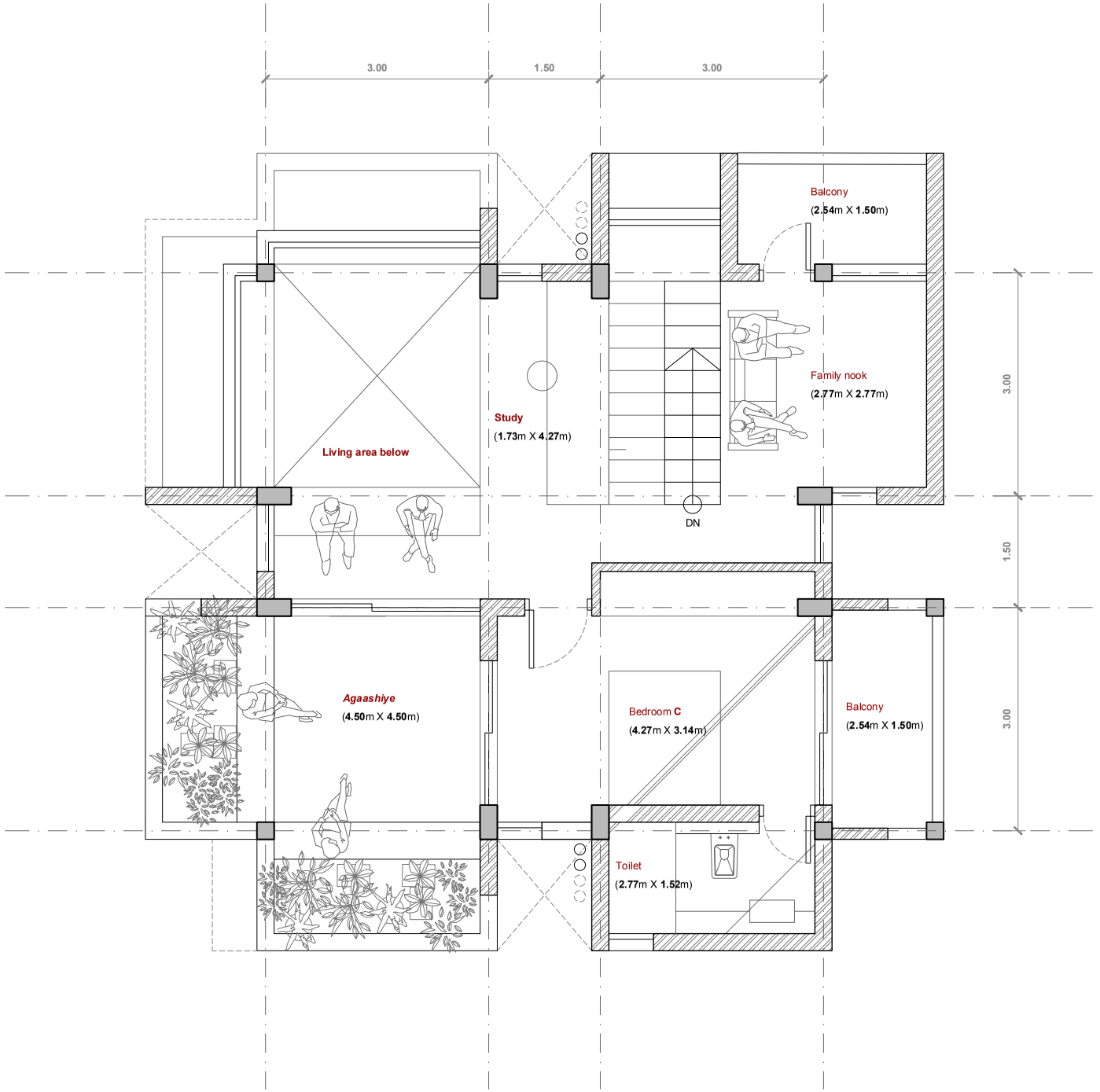


Key plan- unit location in HIG tower

Lower floor plan

0 — 3m

Scale 1: 50 on A3 paper



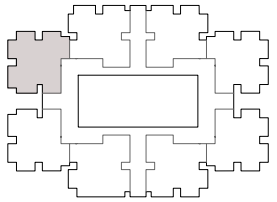
High Income Cluster

Unit type HC - 3BHK

144 sq.m carpet area

204 sq.m built up area

60 % built unit
40 % scope for incrementality

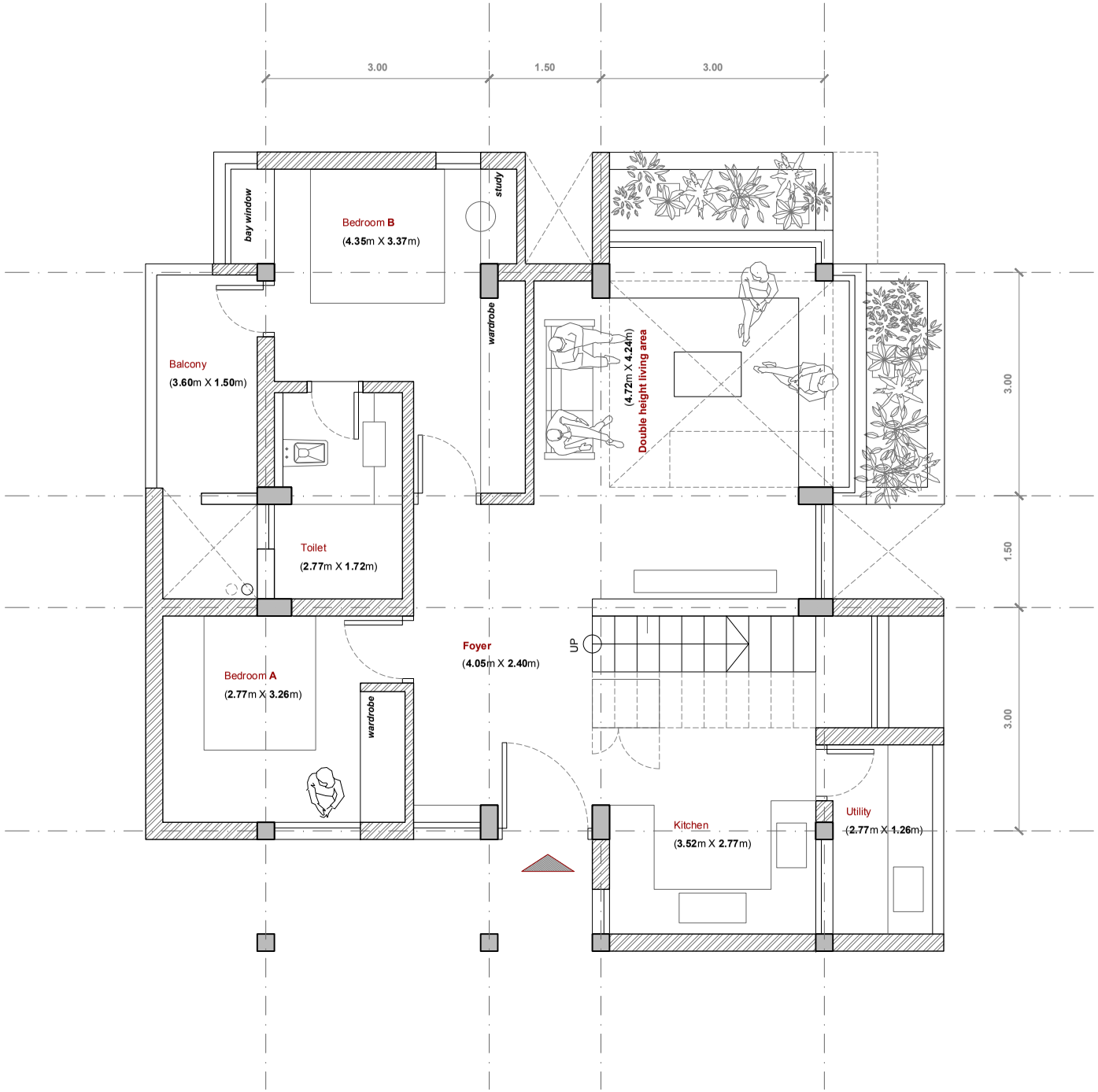


Key plan- unit location in HIG tower

Upper floor plan

0 — 3m

Scale **1: 50** on A3 paper



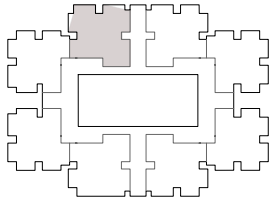
High Income Cluster

Unit type HD - 3BHK

144 sq.m carpet area

204 sq.m built up area

60 % built unit
40 % scope for incrementality

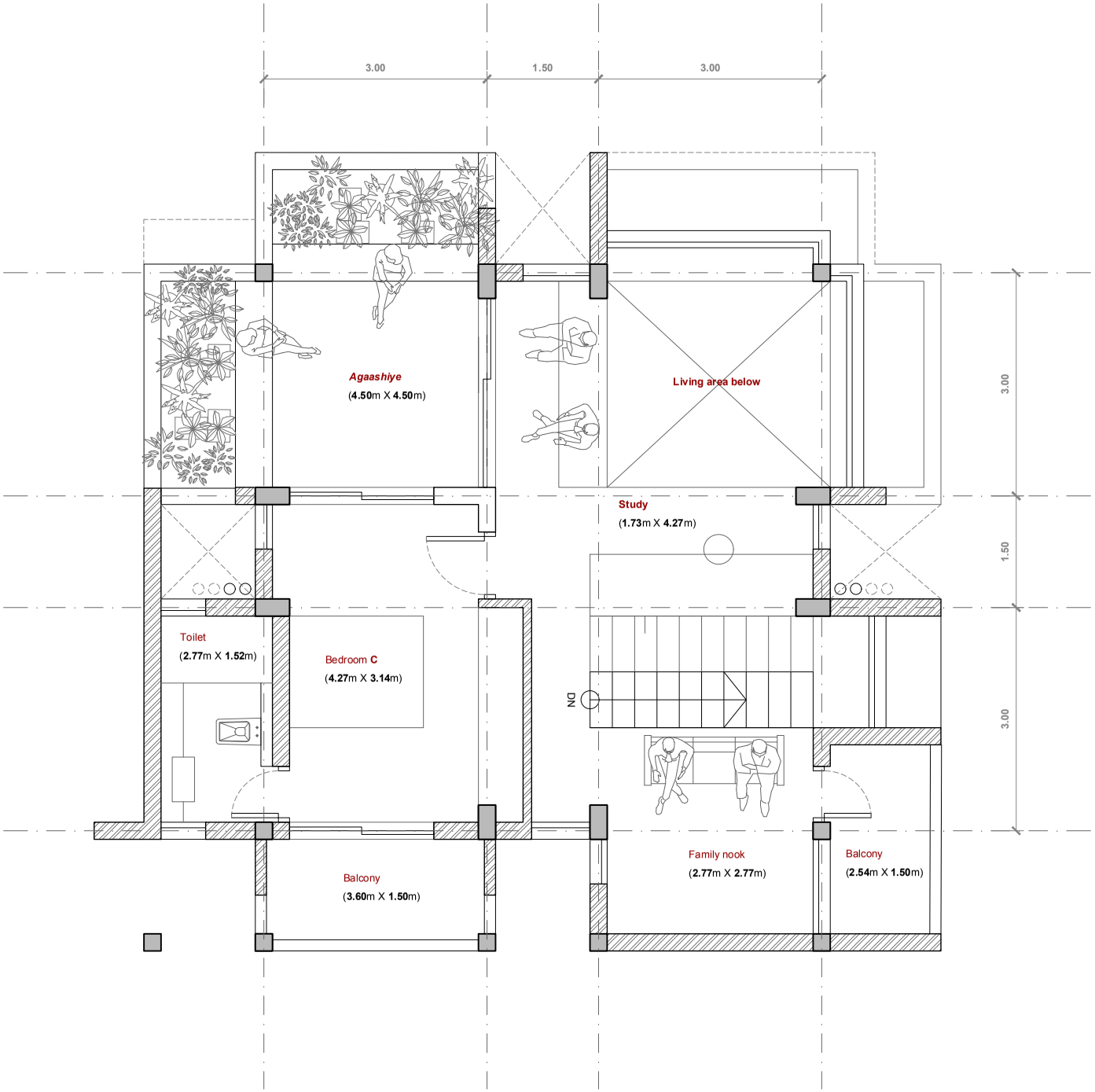


Key plan- unit location in HIG tower

Lower floor plan

0 — 3m

Scale **1: 50** on A3 paper



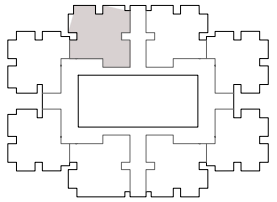
High Income Cluster

Unit type **HD** - 3BHK

144 sq.m carpet area

204 sq.m built up area

60 % built unit
40 % scope for incrementality

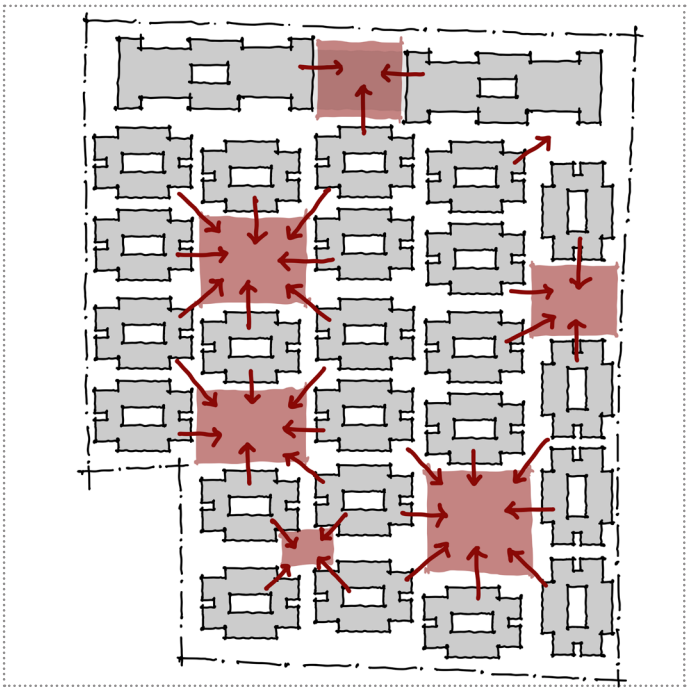


Key plan- unit location in HIG tower

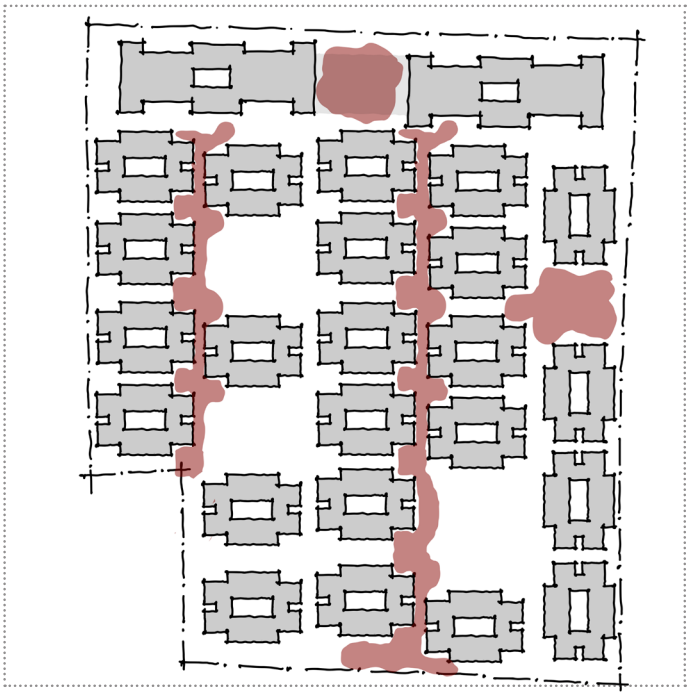
Upper floor plan

0 — 3m

Scale **1: 50** on A3 paper



Climatic device: Urban scale voids
The voids that have been accounted for in the master plan help in creating a negative pressure ; dissipating the warm air collected from the housing blocks into the open areas thereby creating wind currents locally.



Climatic device: Green spine
The green spine planned longitudinally helps in adding to the micro climate of the housing project thereby functioning as an attempt to reduce the temperature in the harsh climate of Ahmedabad and providing shaded walkway for pedestrians.

3.7 **Unit Design**

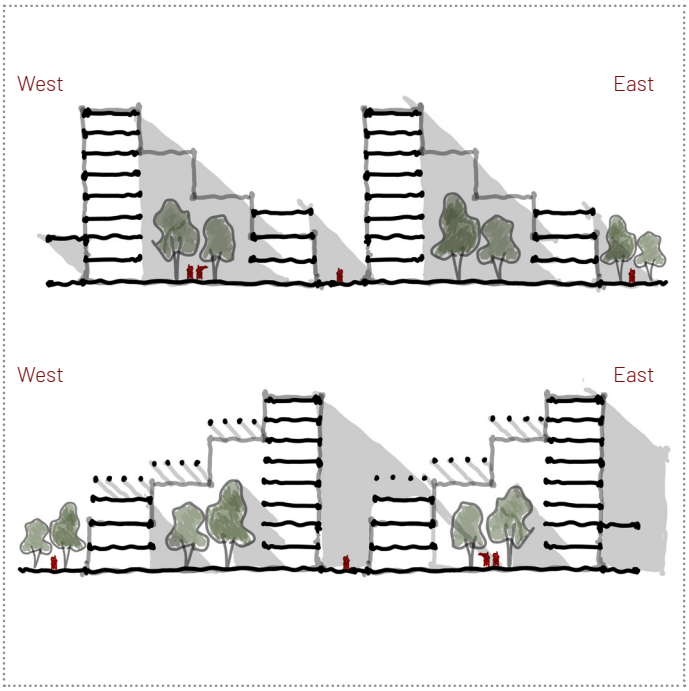
The units inspired from the pinwheel pattern that was accentuated by Correa's design proposals in India form the backbone of the unit design of the middle and the high-income housing in the thesis proposal. The pinwheel unit configuration has the advantage of having views towards three sides making independent from any redundant edges. This form also helps with cross ventilation of the space and allows for the buffer spaces to neatly fit in with the main configuration.

3.8 **Climatic strategies**

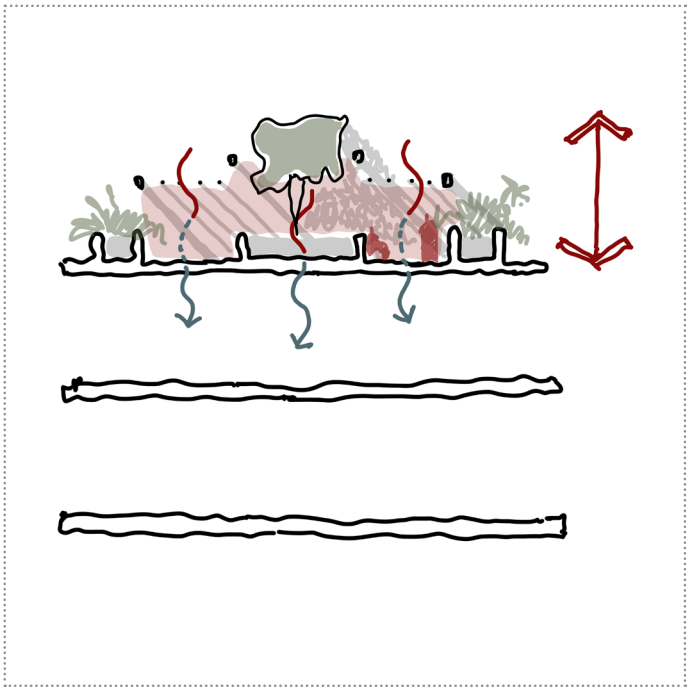
The project is looked at from the lens of creating microclimate at different scales. At the urban strategy scale, the voids help in being the green areas with the potential to be developed with landscape features like avenues, farming and water bodies. The green spine running North south also add to climatic strategy of passive cooling.

At the scale of the cluster, the section of each of the cluster was also explored to account for Ahmedabad's harsh climate. The stepped terrace section helps block out harsh sunlight when oriented west. The terraces are also landscaped to reduce the thermal heat gain from the roof and scale down the open-ness of the terrace. The courtyard could be dotted with greenery creating a microclimate within each cluster. The court also helps in creating a cross ventilation and in the movement of warm air from the units.

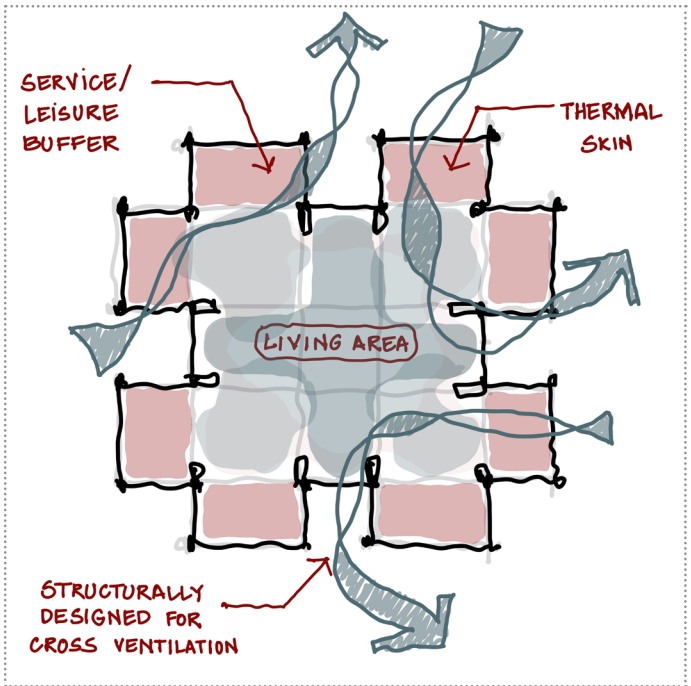
At the unit scale, the external walls of the units are characterised by the exposed brick rat trap bond to trap the heat and create a thermal lag. Thus, a thermal skin is created around the unit. Due to the tacit spaces like balconies, utilities forming the exteriors of the unit, the living spaces of the unit remain cooler.



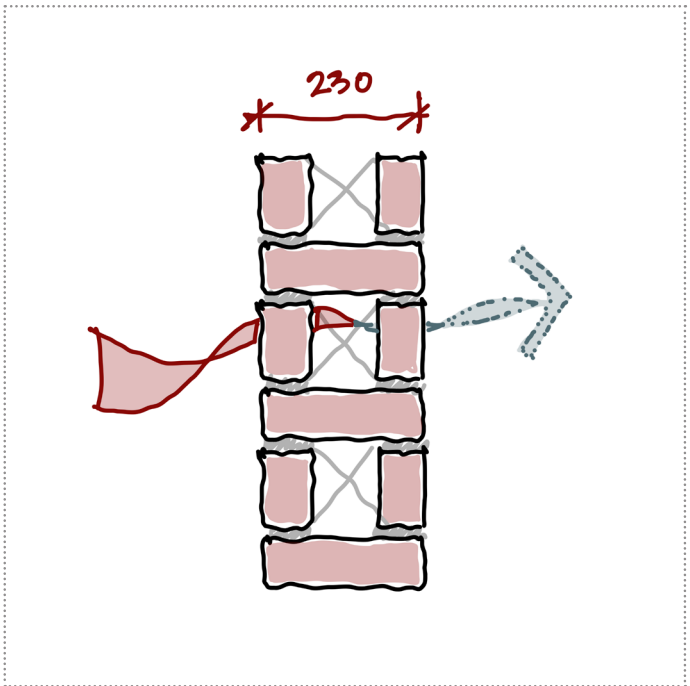
Climatic device: Shading strategy through massing
The stepped section is effective in creating shading on the surfaces of the building when the taller volumes are oriented towards the west. When the massing is flipped, the cluster courtyards are still shaded while super roof structures like pergola provide passive shading on the terraces



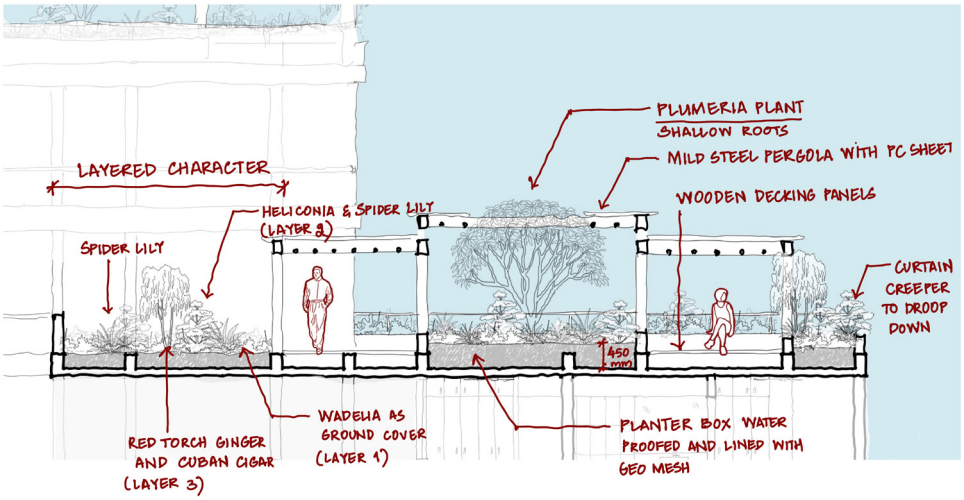
Climatic device: Passive cooling through through thermal mass
Open surface area tend to get heated up in summers. By adding a thermal buffer on the roof, not only does the roof area become habitable but also provides thermal comfort to the floor below.



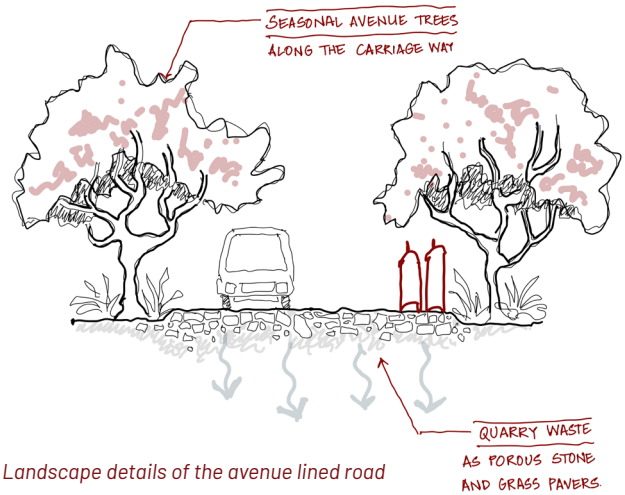
Climatic device: Structural form of the unit
The unit is designed to provided thermal comfort to the living areas with extensions behaving as the thermal skin. The structure also encourages for good breeze movement thereby ensuring well ventilated and a cooler habitat



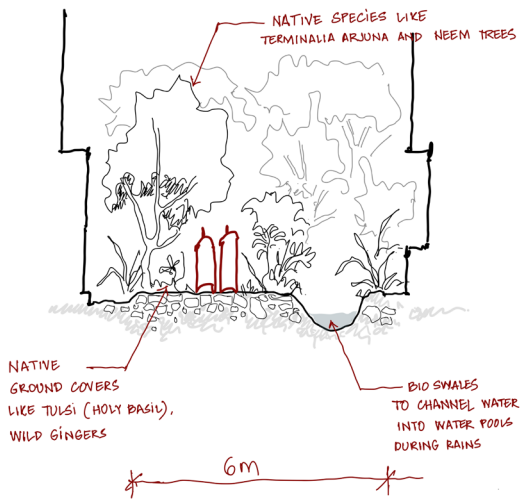
Climatic device: Rat trap bond
The outer walls of the unit is layered with exposed brick walls built using rat trap bond. The cavity in the wall helps in creating a thermal barrier at the outer surface.



Landscape character of the roof garden in the middle income housing block



Landscape details of the avenue lined road



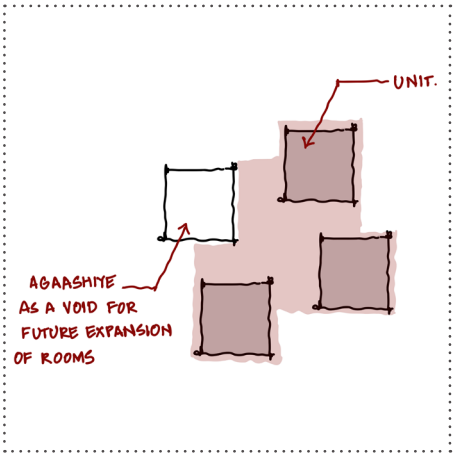
Landscape character of the green spine with native species



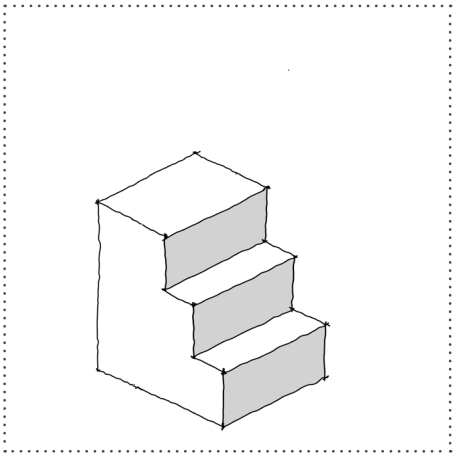
Images of plant species proposed for the the terrace garden

3.9 **Landscape strategies**

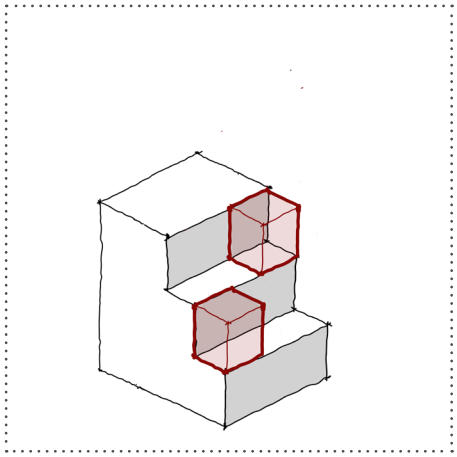
The proposal looks at primarily reducing the heat gain that could increase the temperature in the open spaces and cause discomfort for users making them redundant. The pedestrian and the vehicular streets are lined with avenue trees that flower during different seasons that help in creating an interesting pathway for pedestrians throughout the year. The spaces designated for the green spines are dotted with native species that thrive in the climate thereby having an increased chance of supporting the native biodiversity like the birds and the bees. Waterbodies in the voids help in storage of rain water and also becomes a great visual feature in the gathering space. The landscaping on the terraces of mid rise housing units help create a scaled down gathering space for the residents. This area mainly consists of trees that are short height, flowering and fruiting and also species of climbers and creepers.



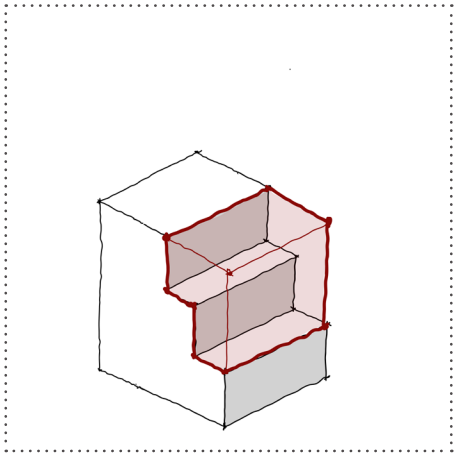
Incremental growth degree 1



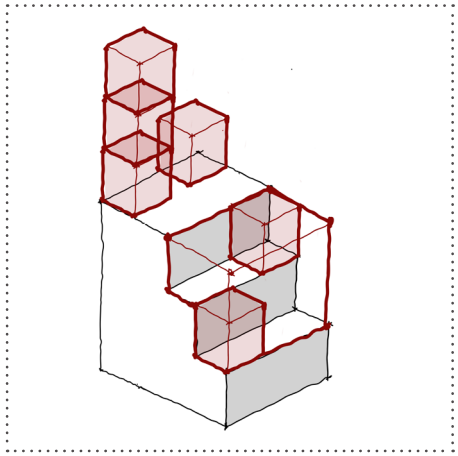
Stepped terrace of the housing block



Incremental growth degree 2



Incremental growth degree 2



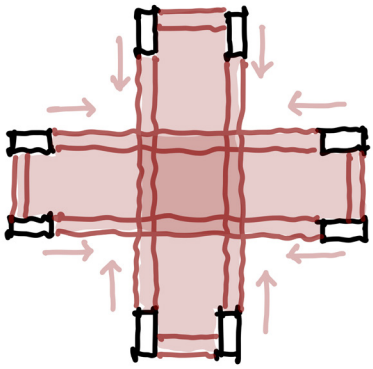
Incremental growth degree 3

3.10 **Idea of incrementality**

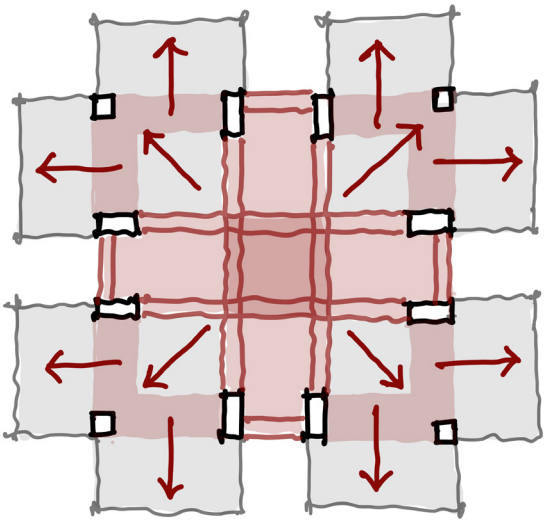
The idea of incrementality is important for the redevelopment plan because of the changing needs of the occupants. What may seem like extra space today might seem too little in a couple of years. Therefore, it is important to make the proposal incremental at various scales to account for the expansion in years to come. The proposal for Ambika society looks at incrementality in three different scales of the unit, cluster and the density.

The balconies in the units are designed to be prepared for expansion through an addition of rooms and toilets when needed. These spaces also provide accessibility to the service cores. At the cluster scale, the stepped section provides for expansion of the units when needed while still giving access to the roofs at a different floor. The third degree of incrementality can be understood in the way that the building grows vertically when the demand increases. This is however a long shot to the future.

Through the planning of these degrees of incrementality, one can avoid uncontrolled expansion into the open areas while keeping intact the greener areas and the various ideas of tacitness within the units.



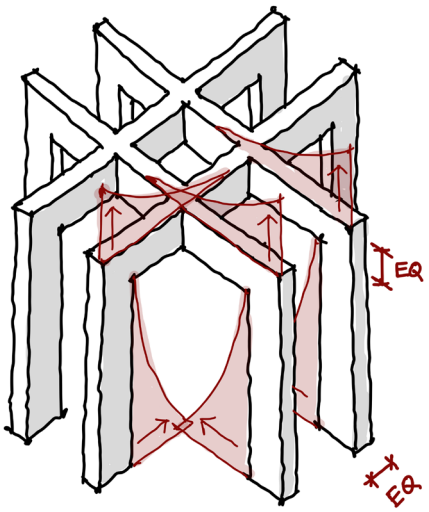
Plus form of the RCC columns to achieve stiffness and stability



Load distribution pattern with the corner columns and cantilevers

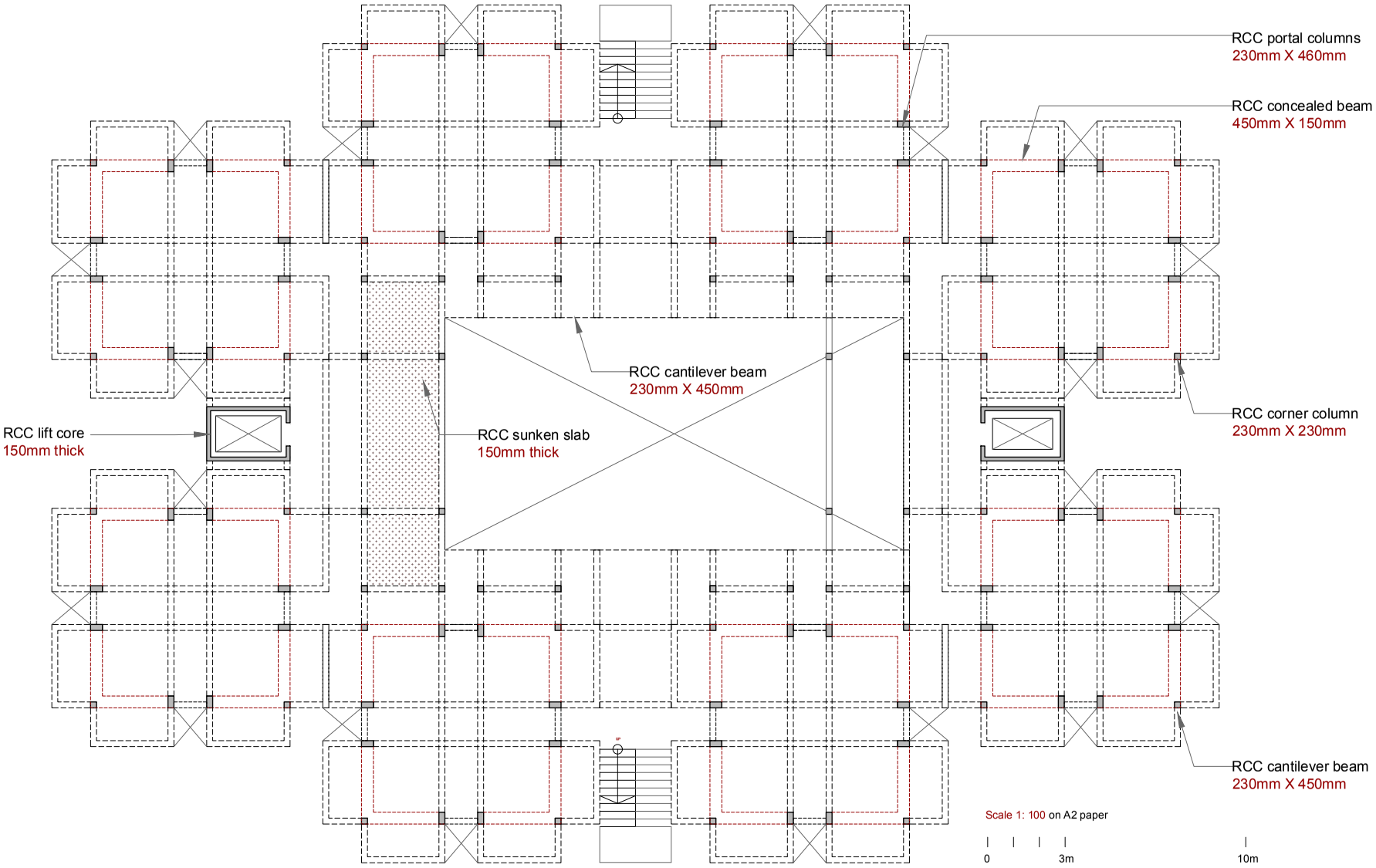
3.11 **Structural strategies**

The structure of the building cluster is comprised of RCC column and beam with slab structure. The stability to any structure is either given by the shear walls, by tying the structure to increase the stiffness or/and by the concept of portal frames. The columns are placed in a plus formed orientation that brings the strength. The combination of a equal sized column and beams creates a portal frame structure that brings in stability to the cluster thereby reducing the bending moments in the corner. The entire structure is also tied by the elevator cores on either side of the structure. The smaller RCC columns in the corners helps carry the load of the cantilevers that project out and the internal corridors. The concealed RCC beams on the edges of the structure and within the units help provide a visually clear space within areas like the bedrooms.



Schematic representation of the bending moment diagram that brings stability to the structural form

Typical structural plan: MIG housing block



Part **04:**
Conclusion and discussion

(What is the impact?)

4.1 **Recommendations/ Impact of the project**

This research and project prioritise the aspect of liveability and takes a bold step in proposing an 'un-densification of the site' with a low GSI. This is done by catering to the aspirations of the current residents with freedom to move out of the locality to the neighbouring high rises if desired. The project challenges the conventional recreation of spaces in redevelopment projects by studying the intangible spatial qualities rather than tangible dimensions and area of the unit. The project has been developed to adapt to different living conditions, income groups, scale and growth.

Collecting these thoughts, a few recommendations could be proposed in a way the society could thrive. At a unit scale, Indian households have always been adaptable to various functions rather than specific silo like function. It is also an aspect that has been considered while redesigning houses for various income groups. Centring the activities around the common areas of the house ensures connect and bonding with the families. Semi-private spaces like balconies and otlahs have also been designed for added privacy. These are also intended to form the essence of the units and shared living.

The terrace spaces are also a space where the residents are encouraged to gather and use it for varied leisurely activities from their former usage patterns. These spaces are intended to form interactions, communications, provide a good view and primarily serve as secondary ground on an elevated plane. When the need arises for expansion of the units, these spaces could also systemically fill up while still having various other opportunities for the existence of a secondary ground.

At an urban scale, it us also important for the clusters to come together and form housing unions to ensure caring for the infrastructure and well-being of the community. This self-sustained system is also believed to reduce the load and looking at municipalities as the primary dependant for improvements. The self-driven resident groups could also help in caring for the gathering spaces, the vegetation, organising events and festivities at a community level. This is believed to in turn balance and take ahead the frameworks of self-financing.

Eventually, these ideas would help the community to thrive rather than forming a community where the residents are forced to live in the process of redevelopment and relocation.

4.2 **Reflections**

The studio and the project were a great opportunity to understand housing through various lenses of observing existing conditions, interacting with the present community and also understanding the place through a deeper sense of research and design at different scales. The challenge that was faced was not through the process of design or redesigning infrastructure but mostly the effort to retain and reintroduce tacit elements while still hoping that the users would find different means to expand without having to eat into the open greener spaces.

The research unpacked a couple of other challenges which included imagining the spaces the way it was intended or used originally through resident narratives. The fieldwork had to take a form of soft mapping rather than conventional methods of site analysis to try and capture the experience rather than just the physicality of the site. The challenge also was in understanding the present day needs and requirement not through formal surveys but also by having informal conversations with the residents and understanding the trend ; while also observing their needs translating into various anomalies in the site. All these challenges created a stronger case to arrive at a grounded theory rather than conventional methods of research.

Cataloging the spaces in the form of drawings and diagrams proved to be an efficient way of understanding various soft elements as tangible layers through repetitive diagrams. The process also made one realise that the process of cataloging through diagrams can be endless as various layers present themselves. The challenge was then also to find the restraint to highlight only the important observations. Through this process, it could also be realised strongly that architecture was not only about spatial design but also about how people eventually mitigate the spaces and everything in between.

Through the course of the studio, as one went about the analysis stage, it also became a roadblock to understand one's role, scope and where to holdback while designing the redevelopment project due to the enormous scale and the complexities of the site. Nevertheless, the scope to redesign brings in a touch of newness and fulfilment as a designer. Although one would have hoped this to ideally be a renovation or a retro fitting project, the state of the existing structures and the affirmative decision of the residents called for a total redevelopment project. As a designer, one was able to come up with strategies of redevelopment and a self-financing strategy for a phased out redevelopment of the project.

The challenge while re-designing the clusters also was to understand ways in which a sense of familiarity could be brought in without having to recreate

the existing cluster. The challenge was also present in arriving ways in which the structural system could be standardised to cater to various income groups, thermal comfort and incrementality.

To round it up, the studio was a great learning to look at a familiar context with a fresh pair of lenses that gathers sustainability, community level understanding and the groundedness of the project which is what one hoped to culminate their masters journey at TU Delft rather than radical open ended ideas.

4.3 **Bibliography**

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Appendices

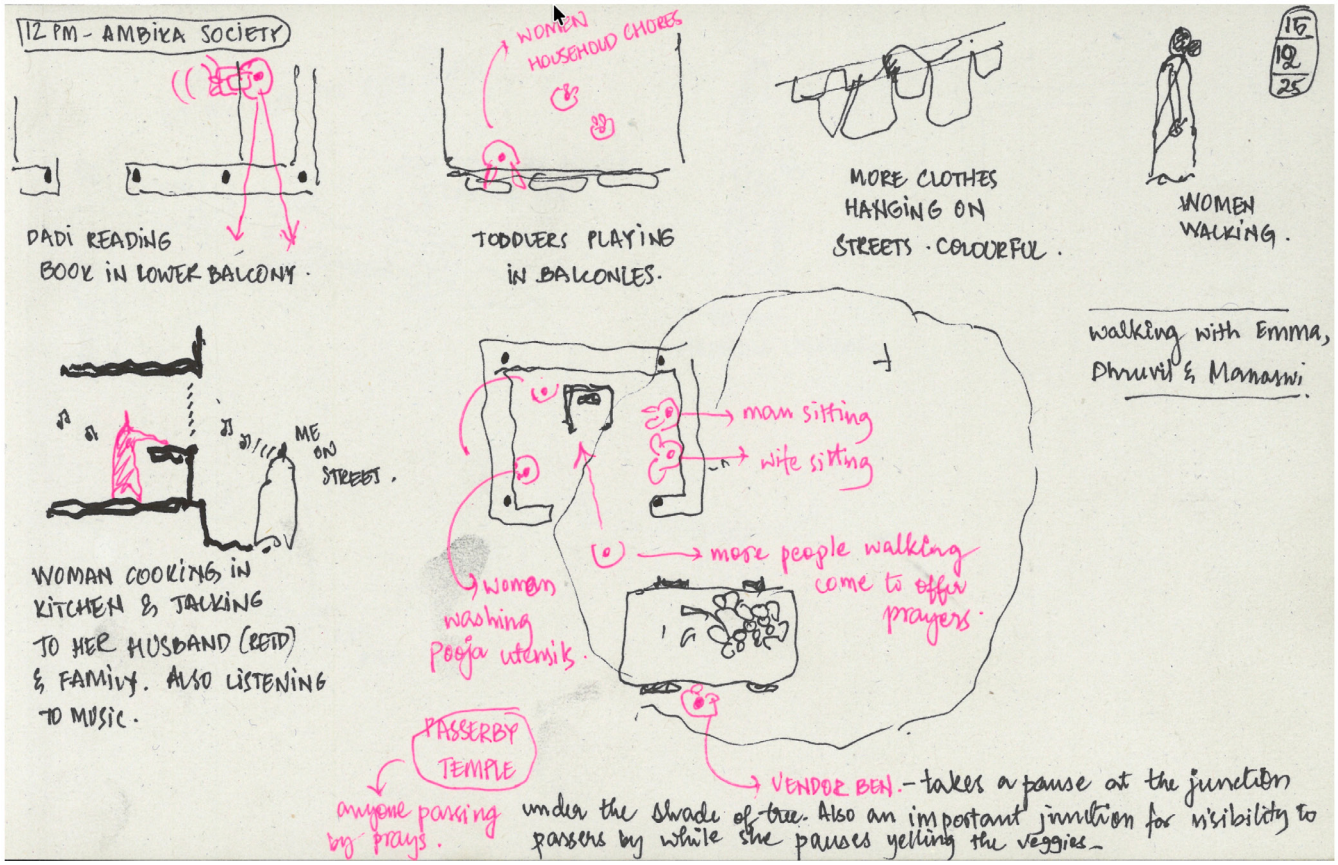


Figure: Soft observations of the afternoon qualities at Ambika society as part of fieldwork
Source: Author's own

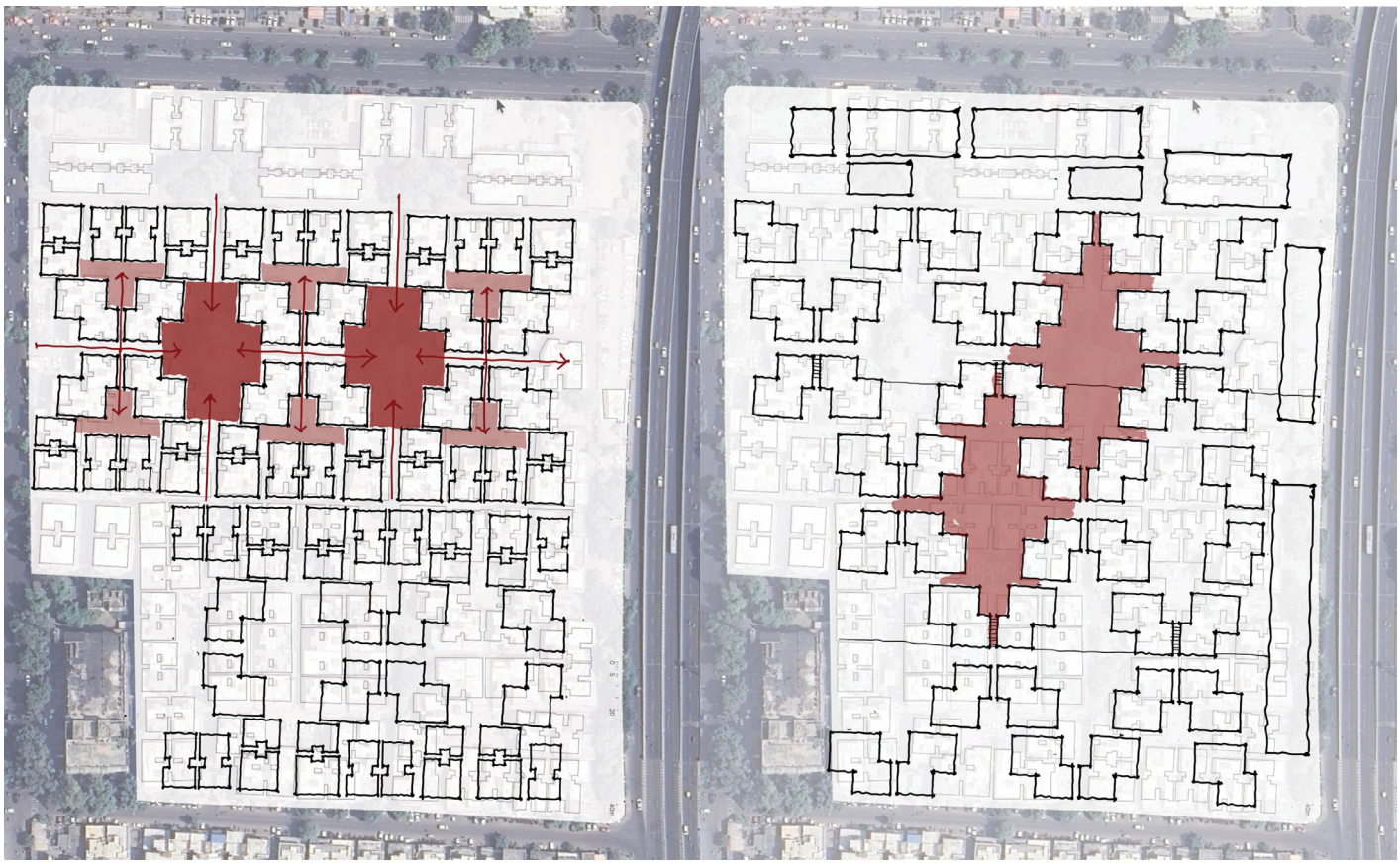


Figure: Diagram tracing the existing Darshan cluster and repeating it across the site
Source: Author's own

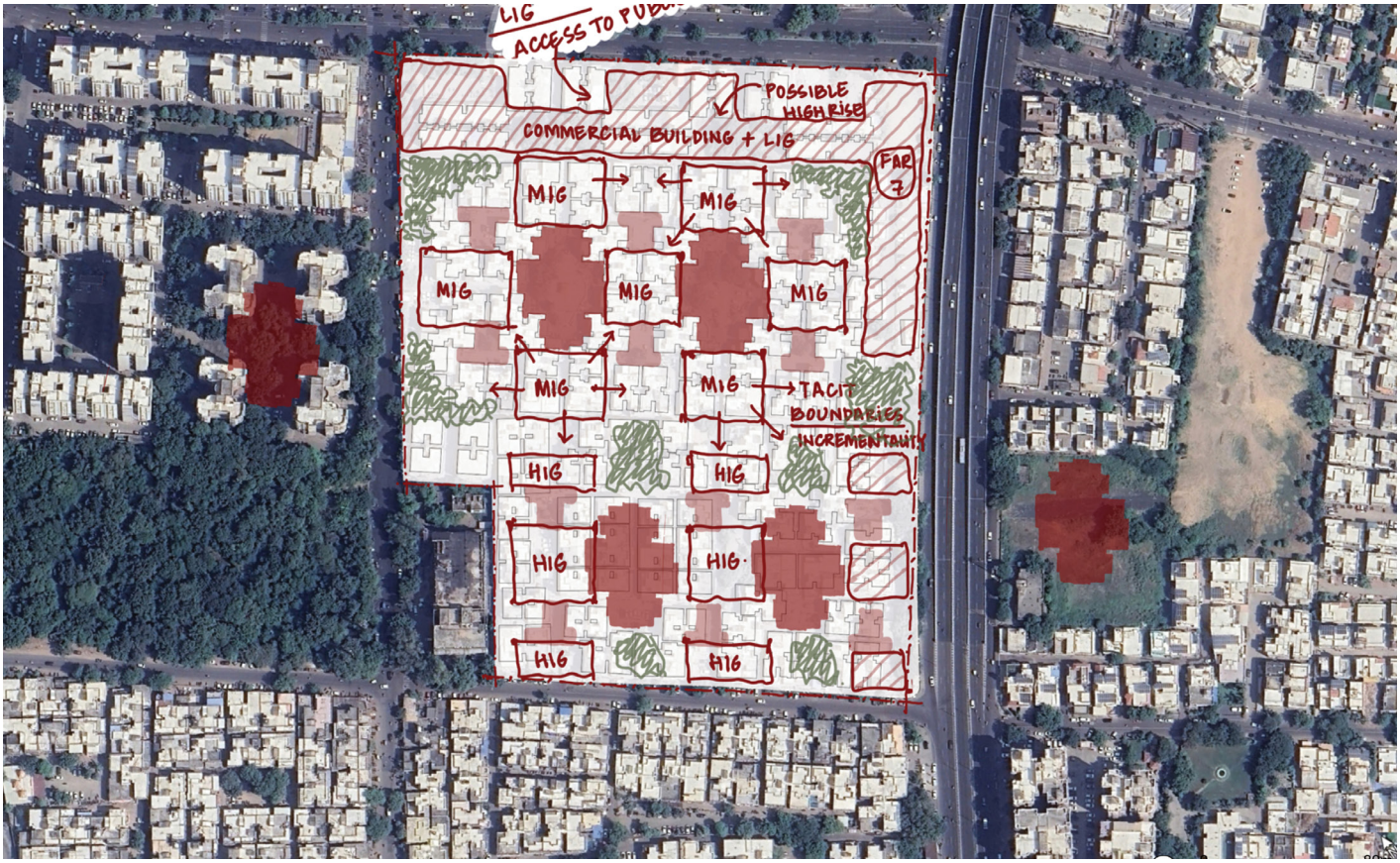


Figure: Initial sketch for the masterplan
Source: Author's own

Idea of tacitness: **Cluster section at the beginning**

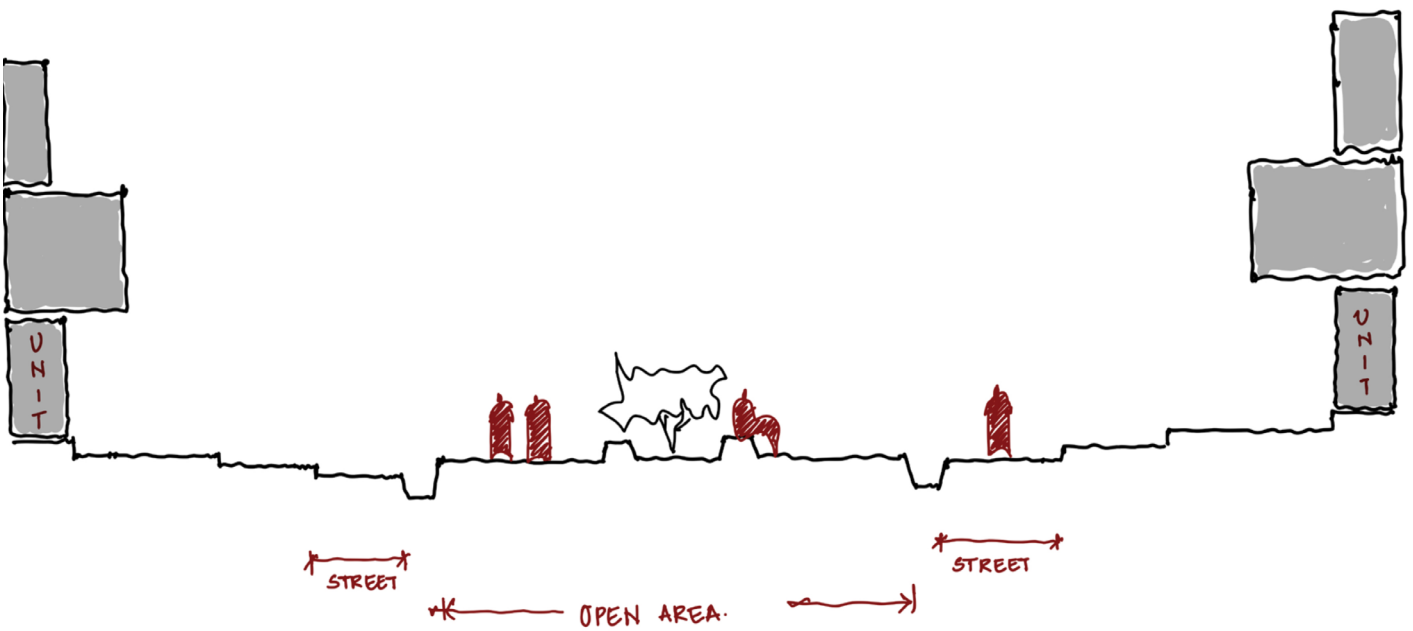


Figure: Diagram showing the appropriation of the common spaces over time.
Source: Author's own

Idea of tacitness: **Cluster section in 10 years**

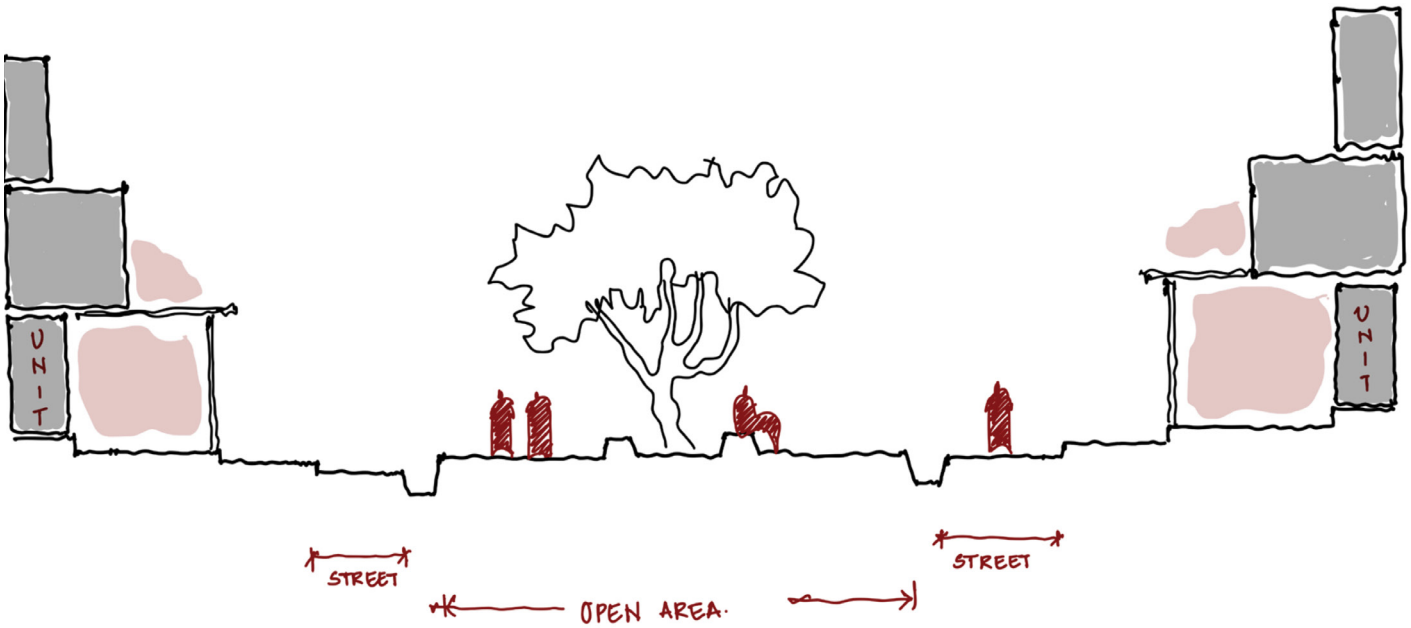


Figure: Diagram showing the appropriation of the common spaces over time.
Source: Author's own

Idea of tacitness: **Cluster section in 20 years**

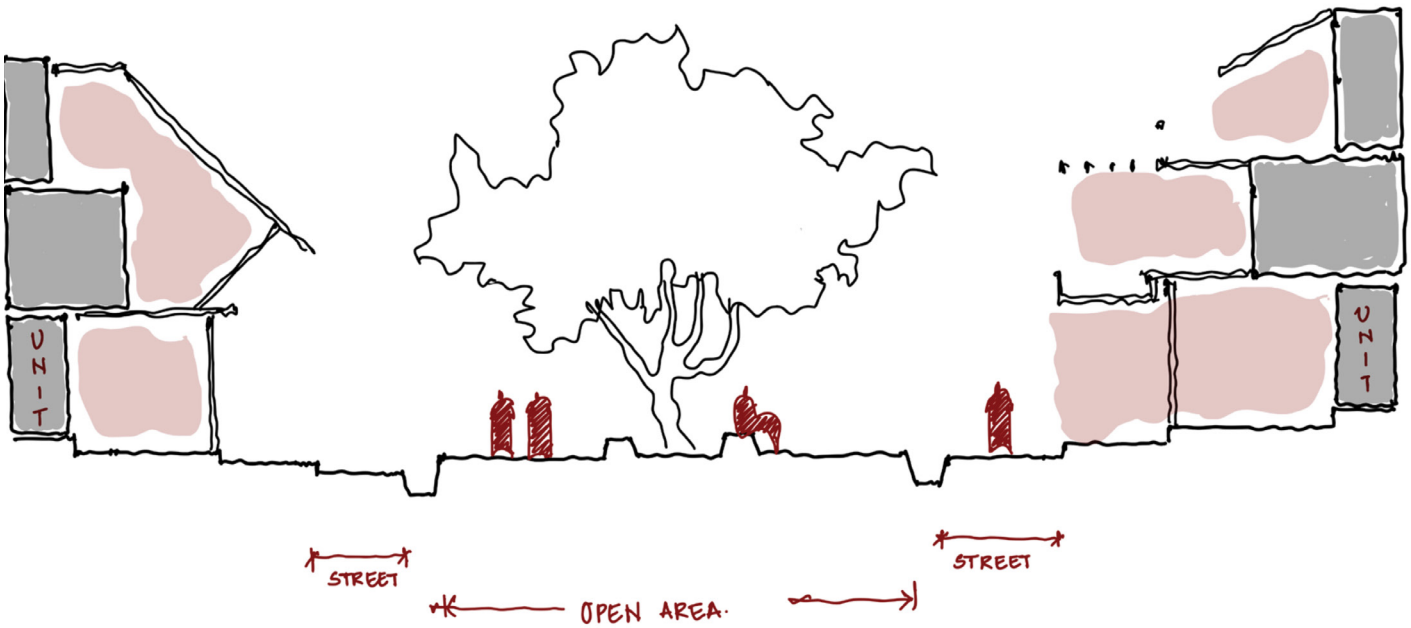


Figure: Diagram showing the appropriation of the common spaces over time.
Source: Author's own

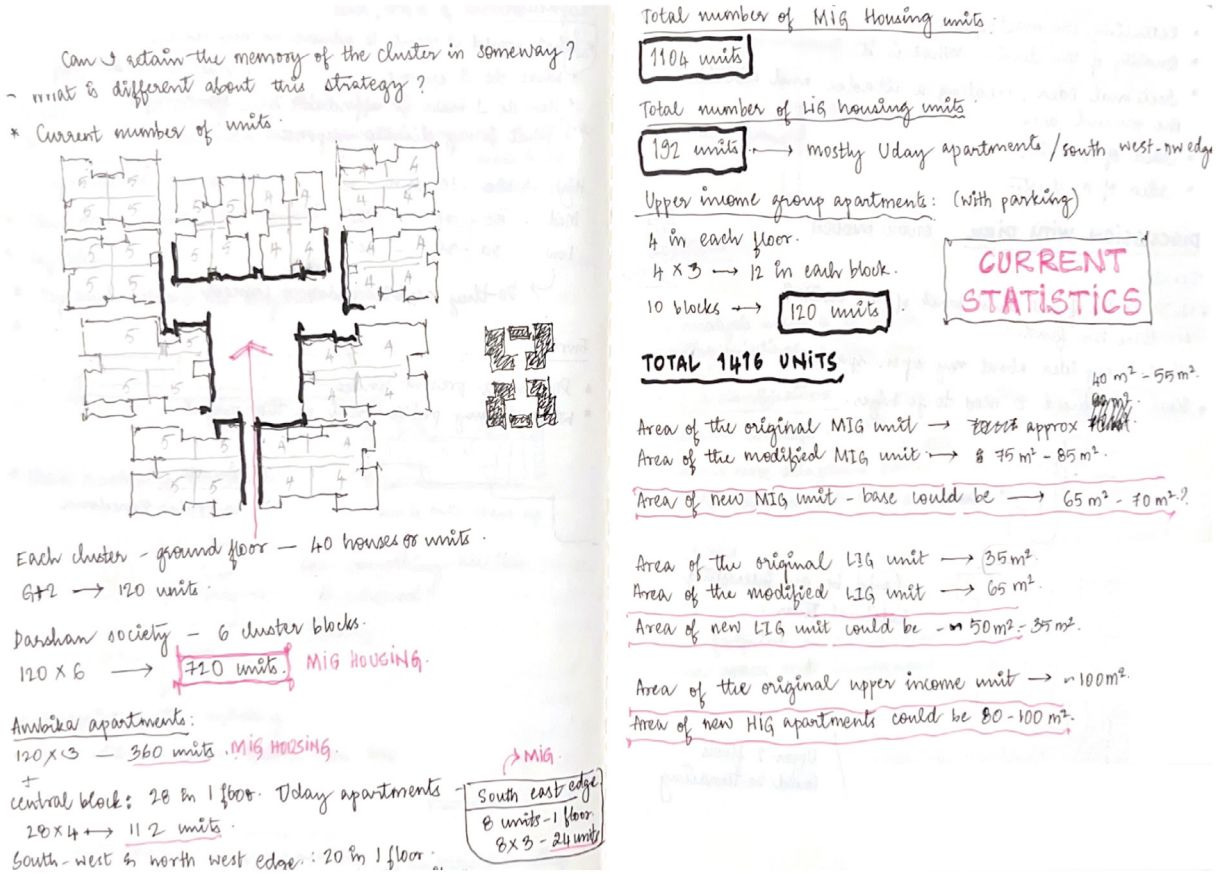


Figure: Current statistics from the site
Source: Author's own observations

Case study visit: **La Borda by Lacol**

Observations from the site and relating it to design hypothesis of proposed cluster

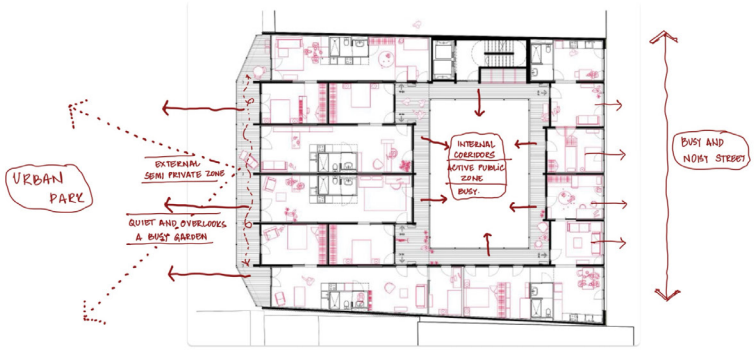


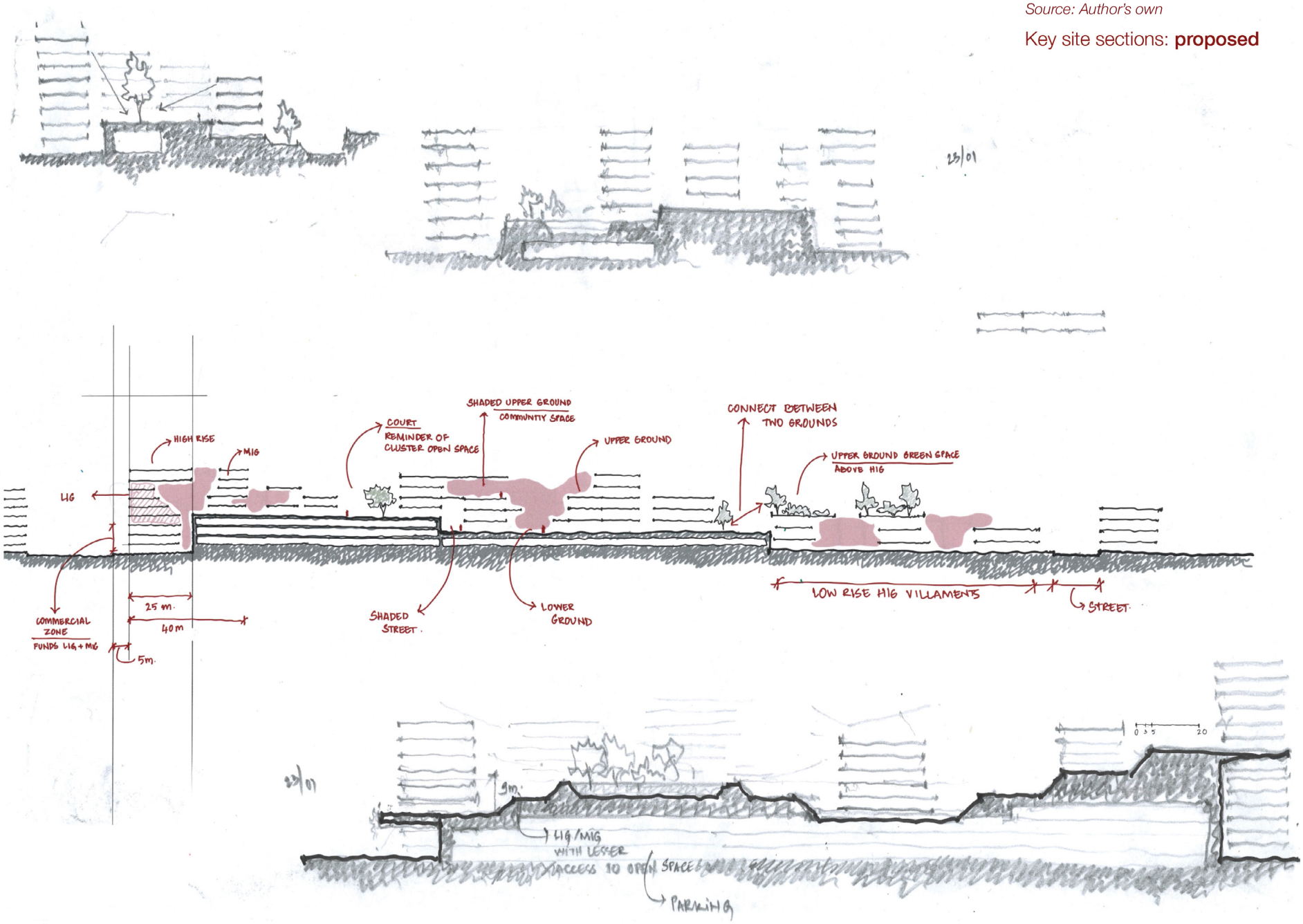




Figure: Observations from La Borda, Barcelona
Source: Author's own

Figure: Initial ideas for the site sections
Source: Author's own

Key site sections: **proposed**



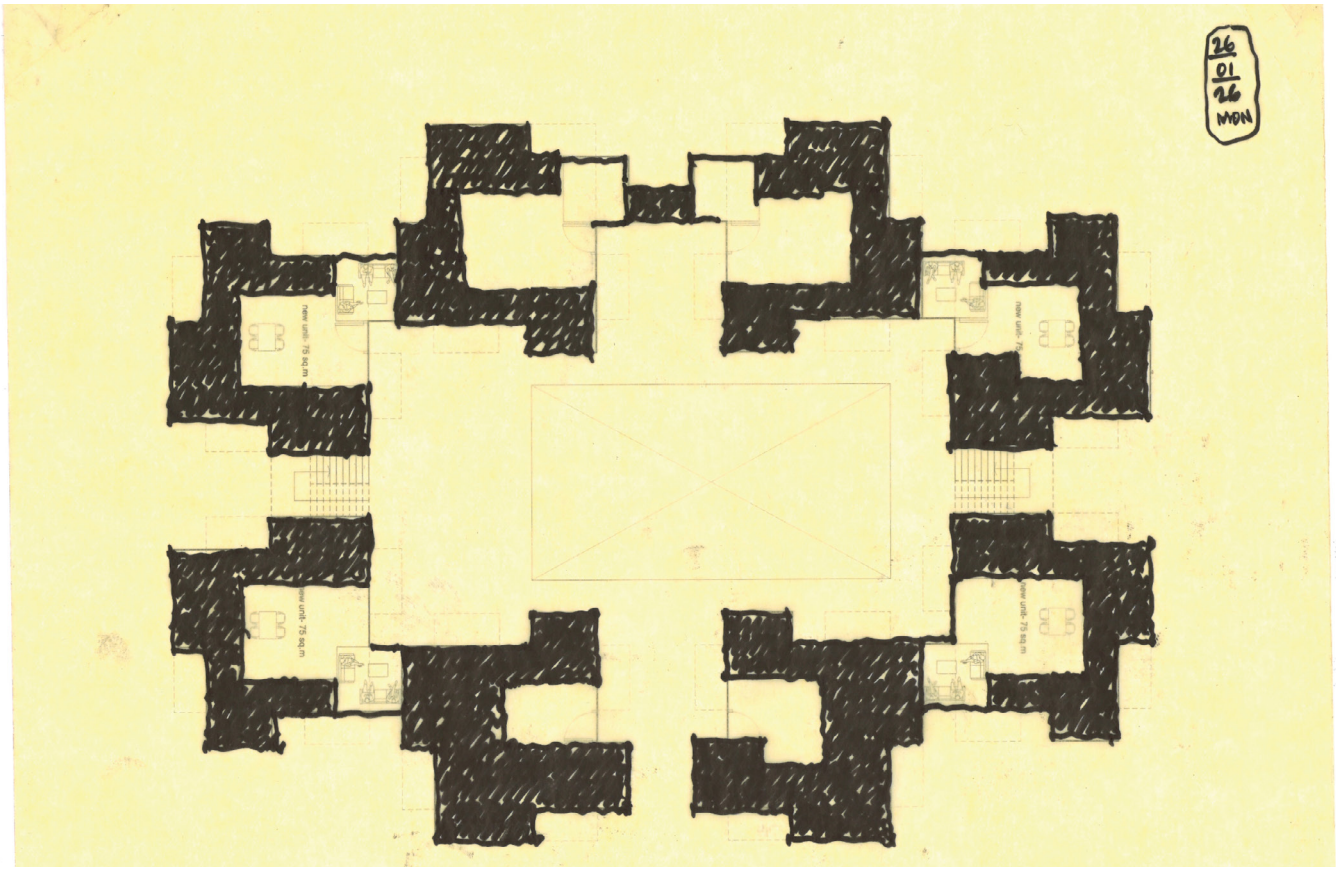


Figure: Diagram showing the nolli map for the proposed mid income housing units
Source: Author's own

Cluster plan: **HIG units**

Villaments: 150 sq.m

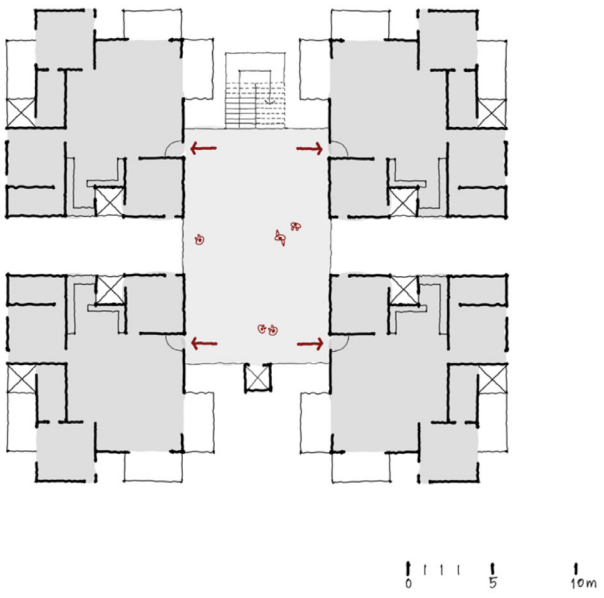


Figure: Diagram showing an iteration for the high income unit tower
Source: Author's own

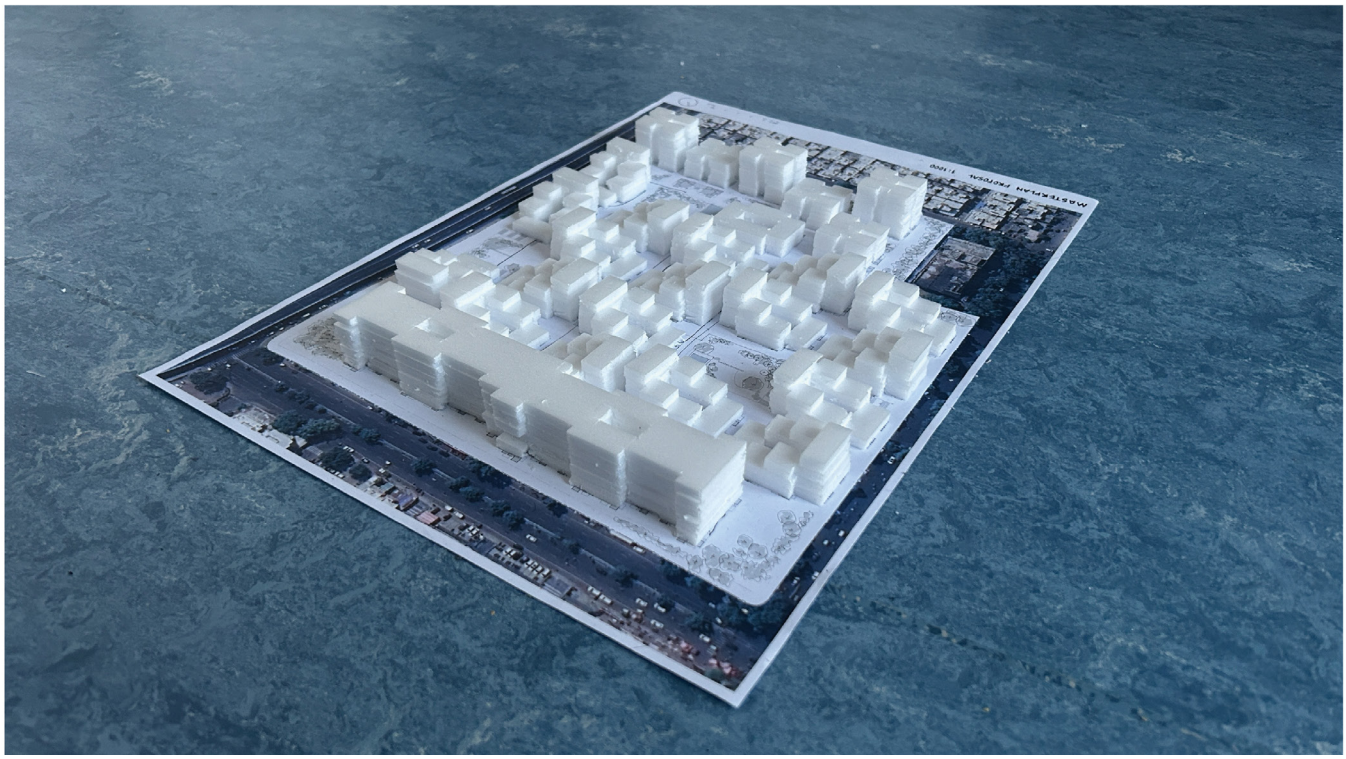
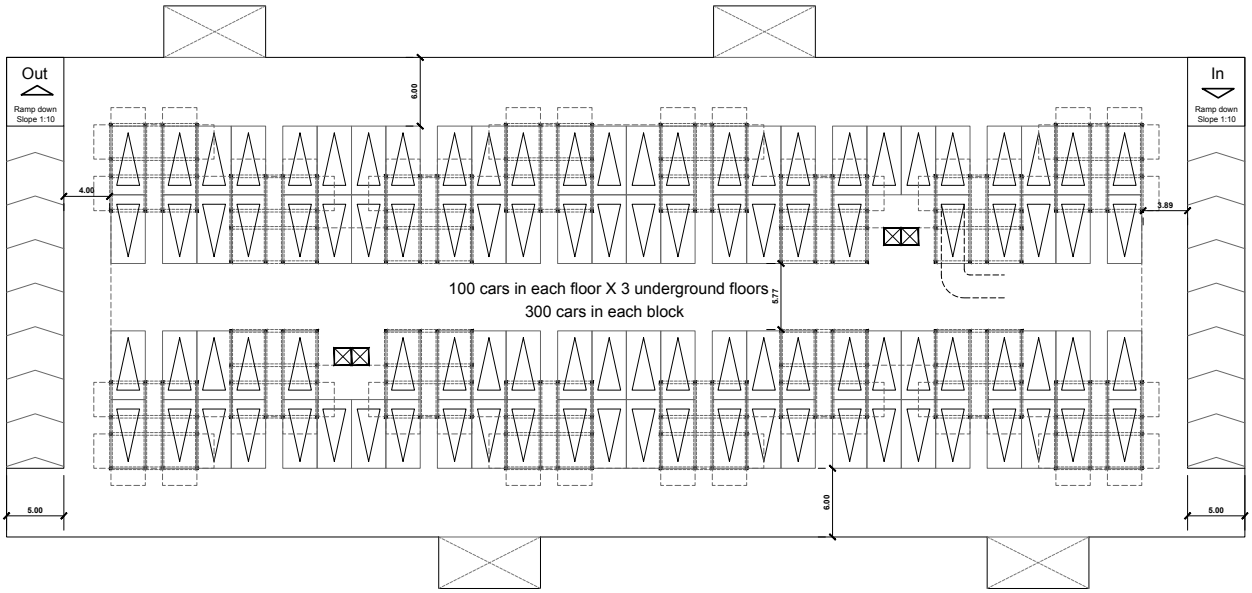
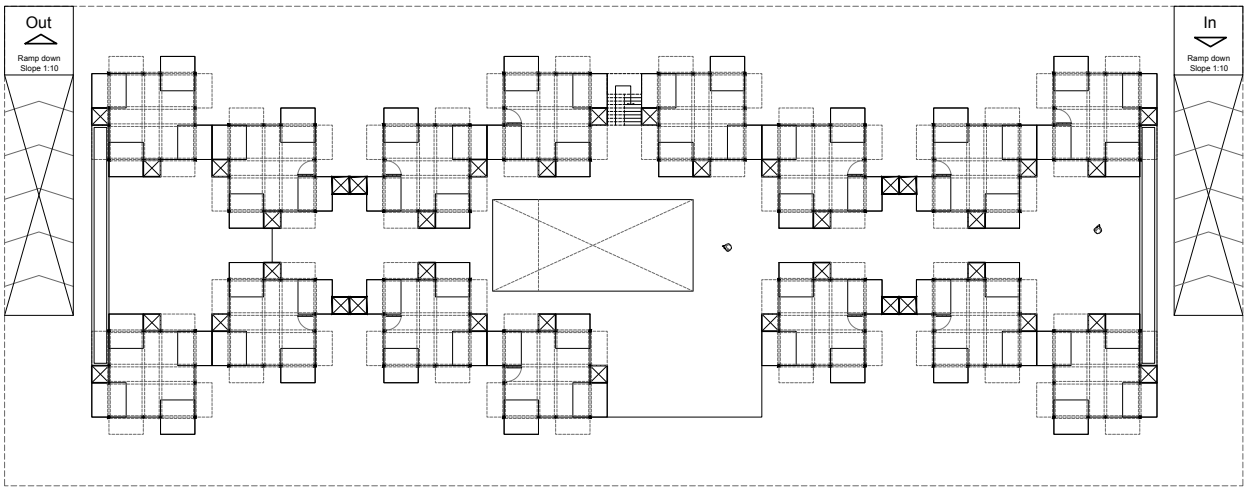


Figure: Model showing one of the initial iterations of the masterplan



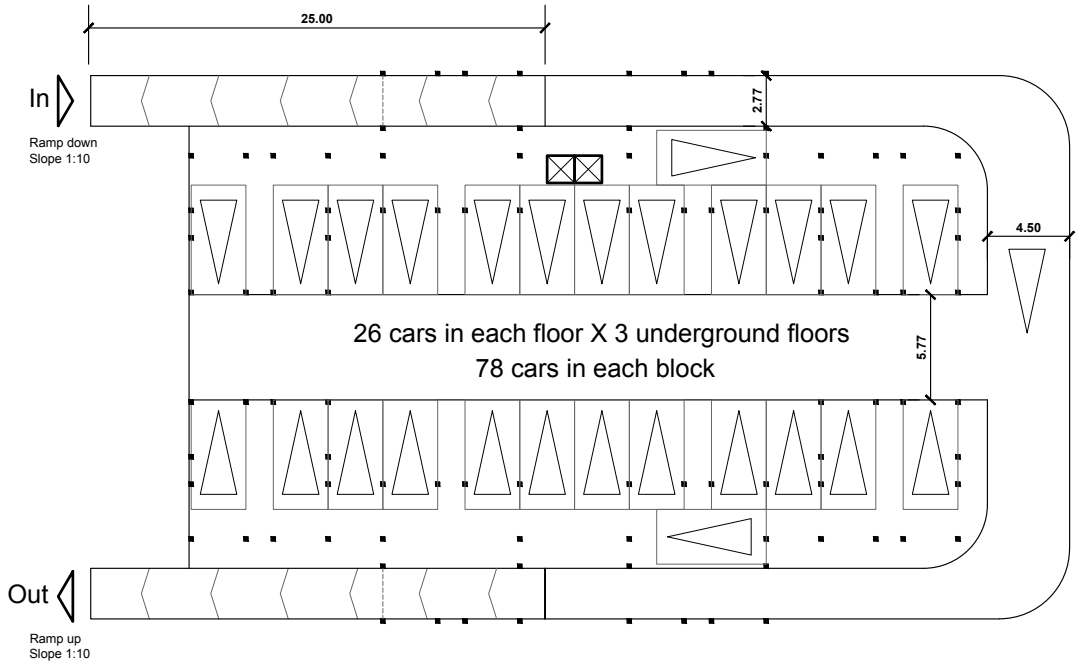
Figure: Map showing the hierarchy of circulation
Source: Author's own





0 5 10 20 m

Figure: Parking layout for the commercial block in the north of site



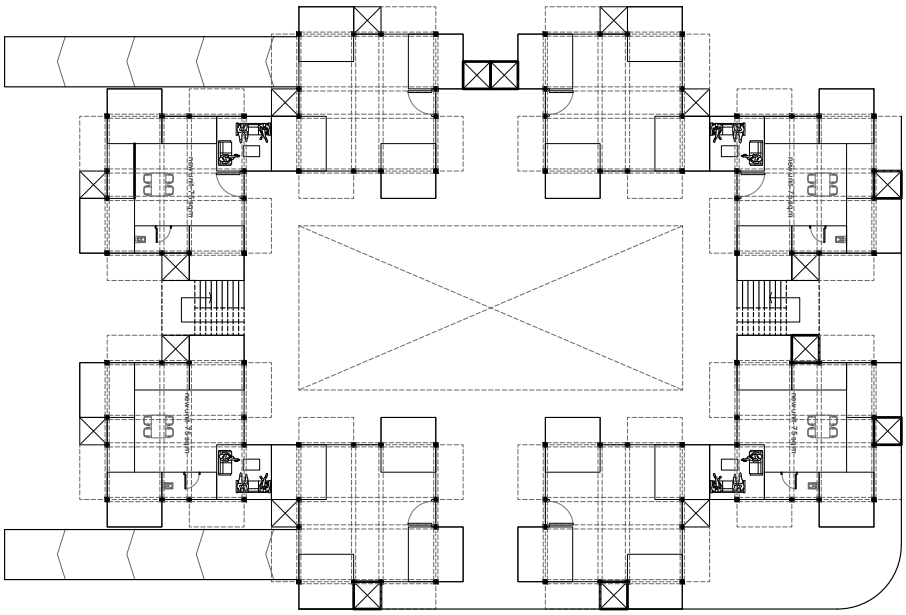


Figure: Parking layout for the peripheral housing layout

0 5 10 20 m