

A SAFE PATH HOME: RESEARCH

Anthéa Karakoullis

5370604

A SAFE PATH HOME

A gender-sensitive approach to create a symbiotic relationship between domestic life and work life, using public space and the natural environment as the catalysts to bridge the two.

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Global Housing: Mixing Navi Mumbai
AR3AD105

Author:
Anthéa Karakoullis (5370604)

Research & Design Tutors:
Dr. Nelson Mota
Dr. Vanessa Grossman Ir. Harald Mooij

Main mentor (design):
Dr. Nelson Mota

Second mentor (building technology):
Ir. Frank Schnater

Third mentor (design/research):
Dr. Vanessa Grossman

Delegate Examiner:
Hilde Remoy

“Every little girl is brought up to know that she must walk a straight line between home and school, home and office, home and friend or relative’s home, from one ‘sheltered’ space to another.”

- Phadke, Khan & Ranade, 2011

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I. RESEARCH PLAN

BACKGROUND

In the 1960s, Mumbai's population was growing at an uncontrollable rate due to rapid urbanization and the demand for affordable housing exceeded the supply. The absence of a holistic approach to planning led to the lack of housing for the rapidly growing population (Poiesz et al., 2013). In the late 1960s, the plan for Navi Mumbai was established to extend the urbanization of Mumbai (Shaw, 1999). This plan focused on relocating the state government headquarters to Navi Mumbai which could trigger growth in the new city creating new jobs and minimizing migration in the direction of Mumbai (Poiesz et al., 2013). In 1970, the government of Maharashtra accepted the project and set up the City and Industrial Development Corporation (CIDCO) to be in charge of the design and development. Unfortunately, by the 1990s the main ideas behind Navi Mumbai were never employed and therefore the lack of affordable housing continued to be a major issue.

In 1991, India entered into a new period which came with economic liberalization triggering privatization. The built environment experience drastic changes as real estate became the largest source of income for political parties (Poiesz et al., 2013). This caused an even larger influx of migrants and therefore even more informal settlements to be built along with the growth of the informal sector. The Slum Rehabilitation Scheme set up in 1995 allowed developers to rebuild slums on existing plots on the premise that they would be granted building rights to sell in the open market (Patel et al, 2016). This resettlement scheme disrupted those living in the slums' livelihoods, fractured informal networks of survival and added additional stress of transport costs and commuting, therefore this scheme actually heightened the sense of marginalization and segregation of the poorest of the poor (Ramanath, 2019). The most marginalized of all were the women, for example, despite being relocated to a secure home ownership, the woman's name was not included in the title deed of the apartment unit, this meant that in the event of a separation, divorce or widowhood, the woman had to fight a to establish her claim to the dwelling unit (Ramanath, 2019).

PROBLEM

"Every little girl is brought up to know that she must walk a straight line between home and school, home and office, home and friend or relative's home, from one 'sheltered' space to another." (Phadke, Khan & Ranade, 2011)

In Indian cities public space is a male domain, therefore the inequality between genders and the discrimination that women have to face in a patriarchal system limits their movement and access to public space. Social restrictions on women's spatial mobility reduce their job opportunities especially those from the Economically Weaker Section (EWS) and the Low Income Group (LIG) since they rely on the public space of the city for their livelihood. These women deal with poverty, malnutrition, issues with their own safety and the lack of access to basic urban services such as water and sanitation. Most of the work available to them is based on domestic help such as cooking and cleaning or they are self-employed as street vendors which are all unfairly paid jobs (Samanta et al., 2019). Subcontracted home based workers such as jewellery makers are also a distinct category of female workers that are hugely exploited (Ramanath, 2019). The opportunities for women in the informal sector are extremely limited and the restricted access to public space only exacerbates this issue.

Gender inequality remains a major barrier to the development of the city and the stratification is apparent through the statistics. According to the United Nation's (UN) Gender Inequality Index (GII), Indian is ranked 131 out of 162 countries, which falls under the category of low human development (UN, 2021). Women's economic empowerment is closely linked to poverty reduction, but in India economic empowerment is still a distant reality for most women since they only make up 20.5% of the population in the work force in comparison to 76.1% of men (UN, 2020). Women have been subject to frequent transitions in the labour force which suggests the unavailability of regular and steady job opportunities for women (Lewis, 2013).

Stubborn traditions and social norms still have a strong impact on women's lives and it is unlikely that these will change anytime soon along with political action. While design alone cannot solve these issues, it can allow for change and physically reinforce it. Therefore, the role of the designer is vital because sensitively planned infrastructure and welcoming spaces can allow for more inclusivity and create more opportunities.

RESEARCH QUESTION

In order to link the issues of access to affordable housing, access to public space as well as the lack of secure job opportunities for women, the following main question (opposite page) and sub-questions will be the focus of this investigation:

Sub-questions:

Home Life

What are women's main domestic tasks on a day to day basis in Navi Mumbai? (For the EWS & the LIG)

Are dwellings designed to aid women with their daily tasks? If not, how can these spaces be reimagined?

Work Life

What are the most common income generating tasks for women in the EWS and the LIG in Navi Mumbai?

How can the design of a dwelling incorporate income generation in a spatially efficient but resilient way?

Public Life

How can the city's infrastructure and built form enable women to undertake their daily tasks safely and at ease?

How can the income generating tasks from home strengthen/benefit the local community and encourage more growth?

Can these income generating tasks contribute towards a cross-subsidy scheme for the housing which includes cooperative models as well as rental/home-ownership?

How can a gender-sensitive design of affordable housing enable women from the EWS and the LIG to participate more fully in public space, particularly in relation to economic activities?

THEORETICAL FRAMEWORK

The research looks at existing literature on space and gender to gain insight into women's experience in the public and private sphere as well as to understand how the built environment has contributed to their marginalization. As Madhavi Desai stated in her book *Gender and the Built Environment in India* (2007), this type of research is still at its beginning therefore the theoretical framework also touches upon theories from scholars from the Western World.

One of the well-known theories of gender and space was introduced very early on by Leon Battista Alberti who argued that the public and private spheres are both highly gendered spaces (Matchette, 2008). Alberti stated that women and men are often separated in homes, school and workplaces and this only perpetuates a man's power and status over a woman's due to the fact that women have less access to socially valued knowledge. Fundamentally, this means that space is highly linked to knowledge and therefore provides opportunities for growth.

Daphne Spain further emphasizes the point that a spatial perspective is vital in understanding gender inequality (Spain, 1993). She argues that the physical separation of men and women contributes and further exacerbates gender stratification along with the obvious consequences related to culture, religion and socioeconomic factors. Similarly to Alberti, Spain basically states that the public and private spheres should not be separated since they are part of the same sociocultural system, where spatial arrangements are set up to either promote or hinder the exchange of knowledge. Spain goes further to outline that these spatial factors have an effect on the small scale of the dwelling where the patriarchy is the controlling factor but also at a large society wide scale where capitalism is at play (Spain 1993). Essentially, whether gender stratification is happening in the public or private sphere, both will be affected since they are intrinsically related to one another.

Moreover, Martina Löw has coined the term 'genderization' as the process of making gendered spaces which is effected by the organization of perception (Löw, 2006). She explains that genderization basically leads to associating certain practices to specific spaces which then creates structural principals of society related to gender. In simple terms, gender therefore is inscribed through bodily practices in the production of space. According to Löw, spaces are first seen as a possibility of pluralism meaning they are temporal and indefinite in regards to future formation.

In addition, it is vital to touch on Henri Lefebvre's *The Right to the City* (1968) when talking about the relationship between people and the public space of the city. Although he does not discuss the topic of gender and space, Lefebvre's notion is focused on the people who live there as the main element of the city and therefore they essentially have a right to their own city by living in it. Lefebvre argues that urban space is a place where citizens can reclaim their right to the city despite the negative factors that have come hand in hand with its development such as commodification and capitalism causing major inequalities. This concept of the 'right to the city' is constantly used by social movements and grassroots associations to take action for change such as the Society for the Promotion of Area Resource Centres (SPARC) in Mumbai. SPARC is a large NGO in India set up to allow the urban poor to have a voice in the development of the city (SPARC, 2021). SPARC also works alongside Mahila Milan, which is a community-based social movement focused on the empowerment of women.

Furthermore, in their book *Why Loiter? Women and Risk on Mumbai Streets* (2011), Shilpa Phadke, Sameera Khan and Shilpa Ranade question the 'right to the city' by arguing how women do not share equal access to public spaces with men, emphasizing that their access is conditional (Phadke, Khan & Ranade, 2011). Fundamentally from their perspective, there needs to be more focus on redefining our understanding of violence related to public space, not just sexual violence but more on the denial of access to public space which has become the worst outcome for women. They highlight that safety should not be the main focus, but claiming the right to risk is the real way to claim citizenship as a woman (Phadke, Khan & Ranade, 2011).

The theories of gender and space together help to gain an understanding of how gender relations have established roles in the production of public and private spaces. Also how these social spaces have further aggravated certain gender roles. By shedding light on how the public and private realm is spatially arranged, we can find correlations into how these spaces restrict women from contributing equally in society.

METHODOLOGY

Research Methods:

- Literature Review
- Case Studies
- Ethnographic Research
- Research through Design
- Involvement in Social media discussions

In order to approach this investigation and answer the research questions, a mixed methodology will be used.

Literature Review

The importance and the definitions related to gender and the built form will be looked at through various scholars work in order to establish a theoretical framework. This framework will help define the various lenses that this investigation will be looking through to provide a means of understanding by applying the concepts and therefore allow for a design approach to be developed.

Case Studies

There seem to be very few examples of gender-sensitive affordable housing in Navi Mumbai and in India overall, which means that the investigation must look at positive models from abroad (preferably in the context of South Asia) and see how they can be implemented in the specific context of Navi Mumbai. Even though there is no specific project that focuses on gender inclusivity in India (Sundararajan, 2021), there are grassroots movements and initiatives that can be studied which can aid the investigation such as: SPARC and Mahila Milan. These social initiatives will be looked at in terms of the opportunities they offer, as well as a means of understanding the challenges that the people face from the lower income groups.

Ethnographic Research

In the case that the field trip to Navi Mumbai is possible, ethnographic research will be a great help in understanding the current living situations and lifestyles of various women. These primary sources about women's experiences will be insightful in understanding their daily lives and struggles. Participatory research is an important part since including the perspectives of the users contributes to a more

socially responsible and inclusive design. This data would be collected through structured interviews consisting of closed and open-ended questions with the used of the Likert scale since it's an efficient and easily comparable way of collecting information (Borden, 2006).

Research Through Design

This method will be used throughout the project which will of course include constant reiterations of drawing, model making (physical and digital) and material studies.

Involvement in Social media discussions

There are a number of active people and organizations on social media platforms such as Instagram which can provide more present insight into the lives of people living in India and specifically Navi Mumbai. These profiles include: @peopleplaceproject, @otherwarya, @theswaddle and @anarchytect.

RELEVANCE

Why should a gender-sensitive approach be taken when looking at affordable housing in Navi Mumbai?

For far too long women have been side-lined and excluded from important decisions taken for the development of the cities they live in, job opportunities and in general access to safe public spaces. In India, women are the primary users of their homes and yet still only make up 20.5% of the population participating in the work force as opposed to the 76.1% of men (UN, 2020). It is not feasible to develop a sustainable and inclusive city when gender inequality is still so prominent in the work force which brings with it major barriers to human development.

There are various global and local (grassroots) movements trying to tackle this issue mentioned previously, including the Gender Equality (Goal 5) which is one of the 17 goals set up under the United Nations Sustainable Development Goals (SDGs) (UN, 2021). This goal is based on the fact that women are mostly discriminated against in economic activities throughout the world. This discrimination is fuelled by social exclusion found in social and cultural norms. HerCity is another urban initiative contributing to the UN's SDGs which touches upon goal 3: Health and Wellbeing, 5: Gender Equality, 10: Reducing Inequality, 11: Sustainable Cities and Communities, 16: Peace, Justice and Strong Institutions and 17: Partnerships (UN, 2021). There is enough proof that action is desperately needed to tackle the issues raised in this investigation and therefore we can use the knowledge that is already there, expand upon it and apply it to the socio-spatial design of Navi Mumbai.

Women's economic empowerment is intrinsically connected to poverty reduction since women are likely to invest more of their money into children and their communities (Dixon, 2018). Providing the adequate living and working conditions can increase the participation of women in the work force and therefore trigger growth and development for a more sustainable and inclusive Navi Mumbai.

RESEARCH STRUCTURE

The organization of the research will run according to the given schedule seen below along with some proposed deliverables for each stage. The research questions will be answered throughout the design and research process, starting from the large scale and zooming into the finest detail of an individual dwelling.

P1 Progress Review: 2 December 2021

- Graduation Plan Draft
- Individual Research Proposal
- Contextual Analysis
- Preliminary Design Hypothesis

P2 Formal Review: 24 - 28 January 2022

- Graduation Plan
- Urban draft/masterplan
- Programme of requirement
- Draft design (plans, sections, elevations)

P3 Progress Review: 31 March 2022

- Urban draft/masterplan
- Draft design (plans, sections, elevations)
- Draft details

P4 Formal Review: 17 May 2022

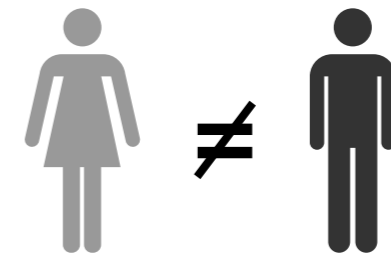
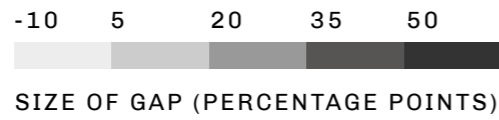
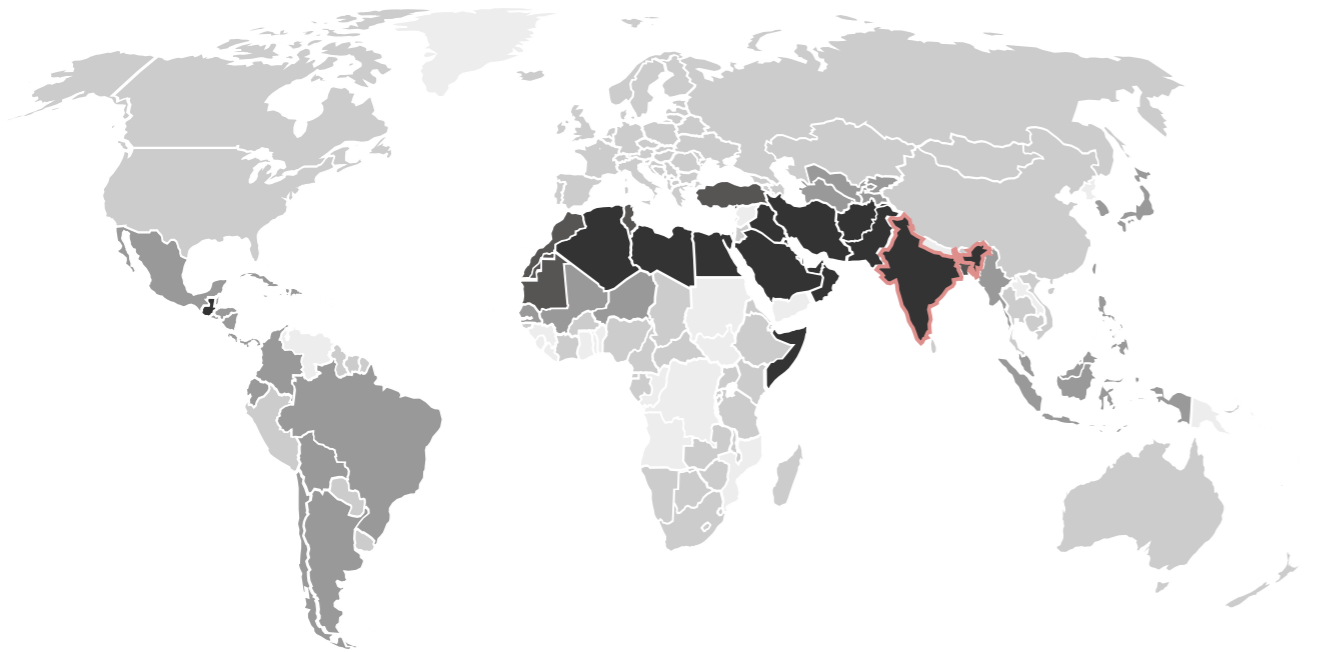
- Site 1:5000 / 1:1000
- Plan ground level 1:500
- Plans elevations, sections 1:200 / 1:100
- Part of the building, plan and drawings 1:50
- Façade fragment with horizontal and vertical cross-section
- Details
- Theoretic and thematic support of research and design
- Final reflection on architectonic and social relevance

P5 Final Formal Review: 28 June 2022

Same as P4

GENDER INEQUALITY

GENDER GAP IN LABOUR FORCE PARTICIPATION RATE



IND: 123

NL: 4

UN GENDER INEQUALITY INDEX 2020
INDIA

GENDER INEQUALITY

SEX RATIO IN INDIA + NAVI MUMBAI



48%

52%

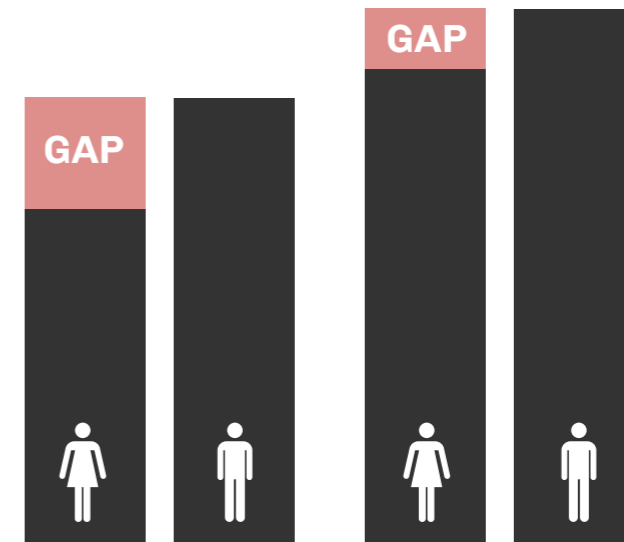
SEX RATIO 2011
INDIA



46%

54%

SEX RATIO 2011
NAVI MUMBAI



GAP

GAP

65%

82%

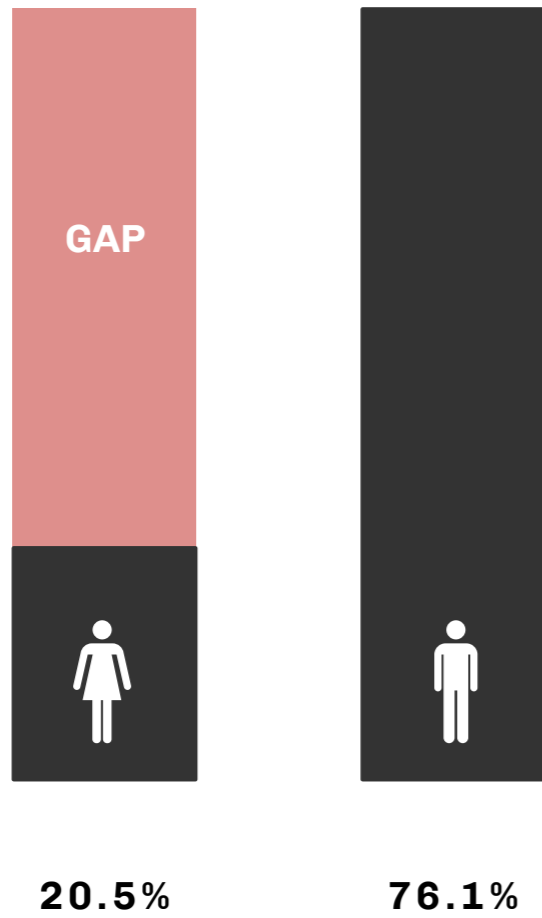
86%

93%

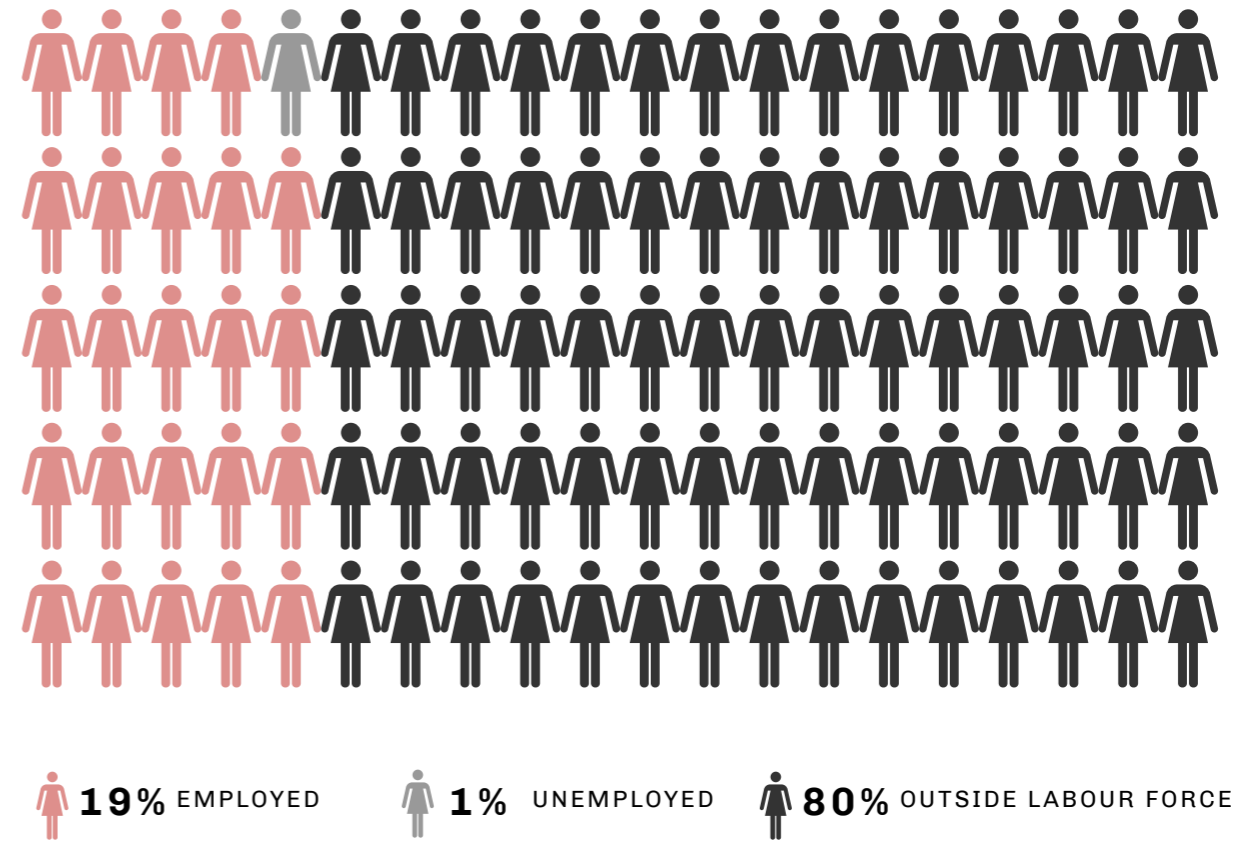
LITERACY RATE 2011
INDIA | NAVI MUMBAI

GENDER INEQUALITY

LABOUR FORCE PARTICIPATION



LABOUR FORCE PARTICIPATION RATE INDIA



PROPORTION OF WORKING-AGE WOMEN WHO ARE PARTICIPATING IN THE LABOUR FORCE INDIA

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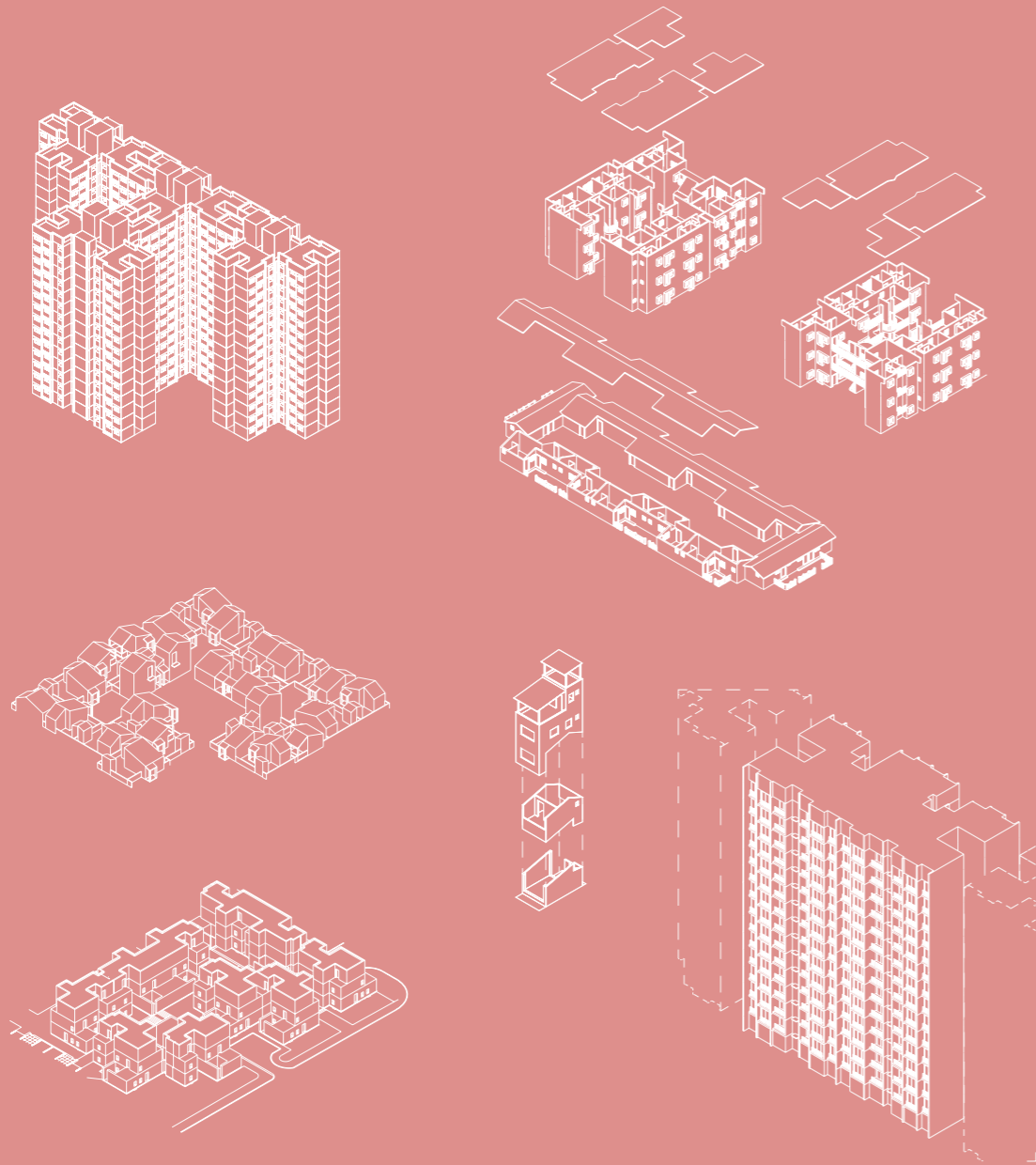
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II. RESEARCH



NAVI MUMBAI CASE STUDIES COMPARATIVE SYNTHESIS



Charles Correa's Artist's Village

The aim was to engage a variety of income groups in community living. The project provides an individual plot for each dwelling to allow future expansion.



Raj Rewal CIDCO Housing

This project aimed to create a simple but high-quality home environment for low-income groups, drawing inspiration from Indian vernacular architecture.



Airoli Sites & Services

The scheme was intended to house the lower-income groups in Navi Mumbai by a system of cross-subsidization setup by CIDCO.



HUDCO & CIDCO Housing

The master plan is clustered in low, middle and high income dwellings with their own typologies, thus managing to house diversity.



CIDCO's "Housing for All"

The design concept of the housing scheme consists of the repetition of one unit, an EWS or LIG single person unit. All together creating a mass housing scheme.

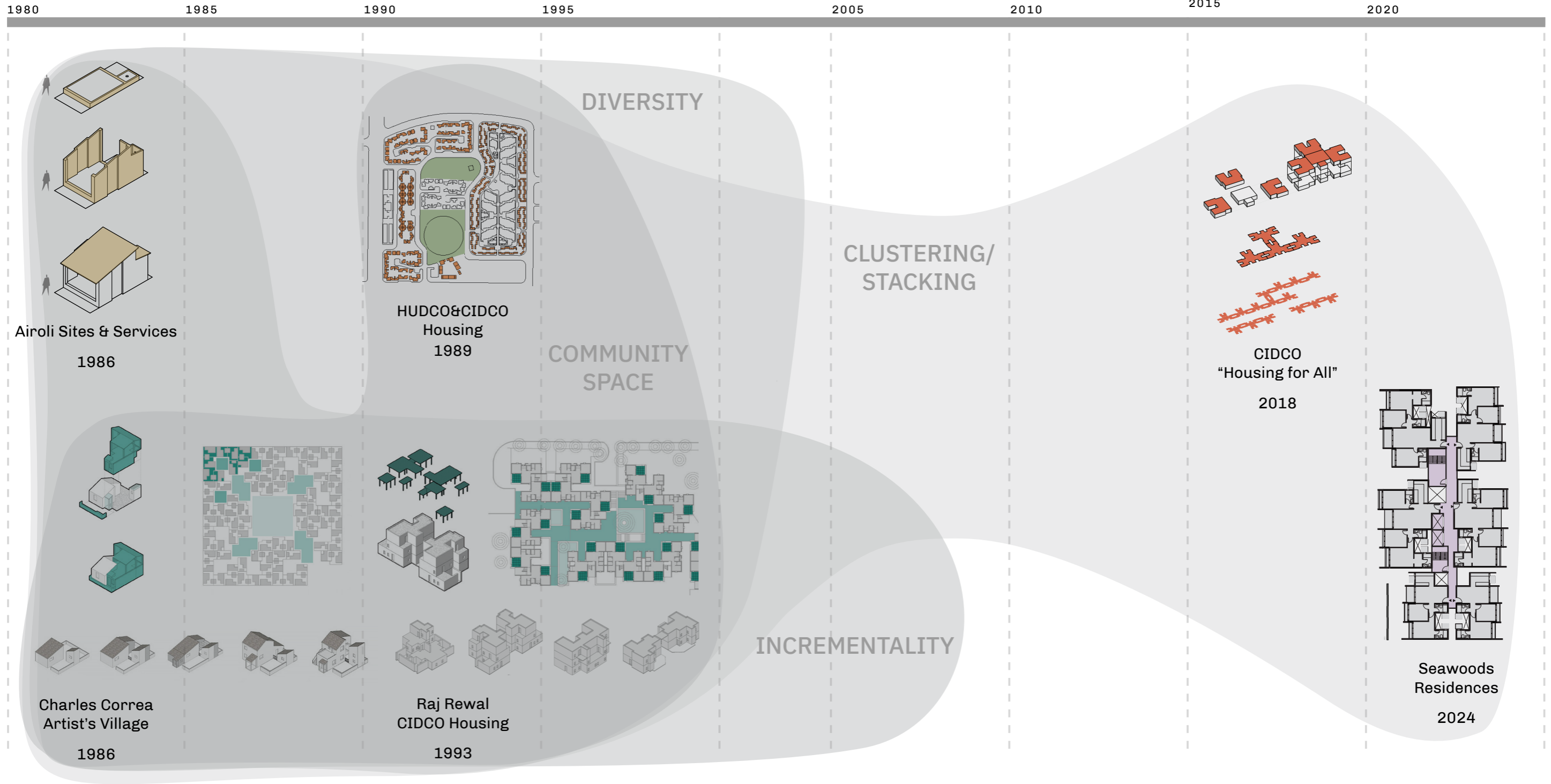


Seawoods Residences

Located in a highly speculative investment area. This whole complex is being developed by L&T Construction, a Mumbai based company.

TIME LINE

OVERLAPPING THEMES OF THE CASE STUDIES THROUGH TIME



A SAFE PATH HOME

AR3AD105

TIME LINE

OVERLAPPING THEMES OF THE CASE STUDIES THROUGH TIME

The case studies reflect different themes that can be seen to be repeated in some form over the time period that these housing projects were completed in. These themes include: clustering and stacking, incrementality, community space and diversity.

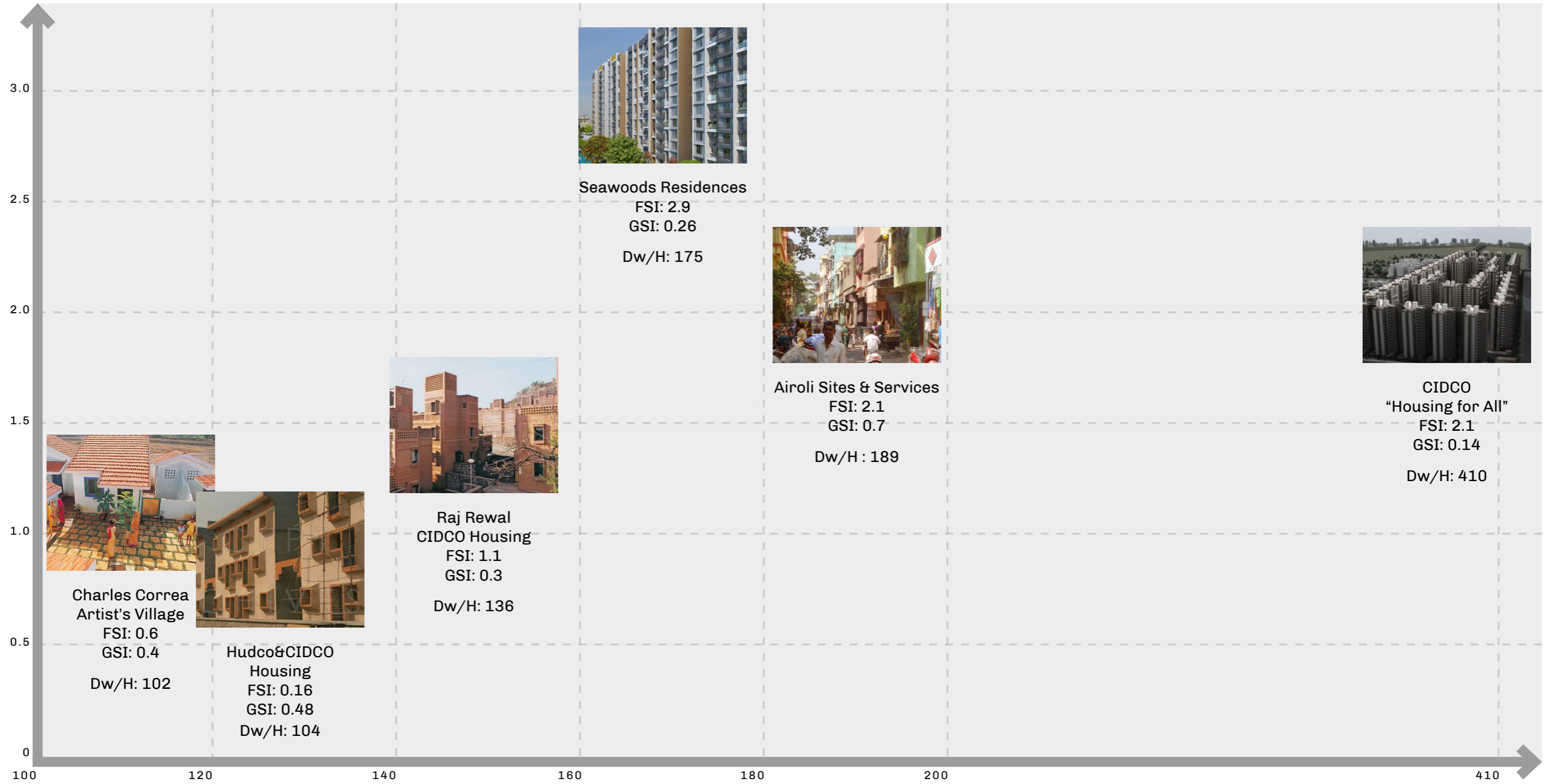
It is clear that the newest housing developments do not share any traits with the previous housing schemes apart from clustering/stacking. This speaks of the current approach to housing in Navi Mumbai and how ideas of inclusivity and diversity have been sidelined and instead new developments are ruled by the market which shows in the physical manifestation of the two most recent projects.

Charles Correa's scheme (1986) as well as Raj Rewal's scheme (1993) appear to be projects which cover all four themes. The main difference with these schemes in comparison to the others seems to be the clear spatial hierarchy used in the plans which defines the public and private, generating a sense of community. The success of these schemes in contrast with the others is the fact that the architects seem to have addressed all scales from the micro (a single unit) to the macro (a large cluster). These two exemplary projects also provide for mixed-income groups with different dwelling sizes and configurations. This idea of creating a diverse community is also applied by Hema Sankalia in her housing scheme (1989) with various typologies and shared open spaces creating a strong sense of community. These three projects have one significant similarity which is possibly why they can be seen as relatively good examples in comparison to the other chosen case studies and that is the fact that they are all reminiscent of the Indian vernacular. In the case of Charles Correa's scheme (1986) as well as Raj Rewal's scheme (1993) this was clear since the architects took inspiration from the Indian vernacular, specifically seen by the organic cluster formations. In Hema Sankalia's housing scheme (1989), the actual architecture was praised due to the use of various architectural elements yet not conforming to any specific style which was common in ancient Indian towns. Even though the scheme in Airoli (1986) falls under the theme of diversity, this project is not exactly the most inclusive since the EWS and LIG were not offered the help for improving their houses over time and the average monthly income required for one of the dwellings was much higher than the actual income of someone from the EWS.

These four themes seemed to have been mostly implemented before India's economic liberalization in 1991, when the real estate sector became the largest source of income for political parties. By opening up the market, foreign investment increased and housing became privatized hence the change in its physical manifestation.

DENSITY

FSI/ DWELLINGS PER HECTARE



A SAFE PATH HOME

AR3AD105

DENSITY

FSI/ DWELLINGS PER HECTARE

Understanding what the numbers mean can answer questions of how to design and cater for patterns of healthy everyday life and still be able to reach the required densities needed in a city like Navi Mumbai. Charles Correa's Artist Village has a low FSI and density due to the fact that the project aimed to come across as a small village with a lot of open-to-sky space or "the blessings of the sky" as he liked to call it. The GSI and FSI are roughly similar due to the fact that these dwellings are low-rise, therefore the connection to the ground is an important factor strengthening the community feeling. This scheme along with Hema Sankalia's scheme is the least dense of all the case studies and therefore they both come across as the most village-like and human-scale projects since Correa mainly focused on the horizontal clustering of the dwellings similar to how an organic Indian village would grow and Sankalia's scheme has generous open space between the buildings.

Raj Rewal's scheme has a slightly higher FSI than these schemes due to the fact that the design focused on clustering and stacking vertically to achieve a higher density similar to a traditional Indian village. The GSI appears quite low still since there is plenty of outdoor community space between the dwellings, as well as a connecting footpath.

It is no surprise that the scheme in Airoli appears to have a large FSI and density when compared to its GSI. This is due to the incrementality of the project which has allowed the small single room dwellings with a minimal footprint to grow vertically over time. The Seawoods Residences has a slightly higher FSI than Airoli although the difference between the FSI and GSI is much greater given that it is a high rise block with larger units and therefore the ratio between the footprint and the amount of floor area is much larger.

The case study that cannot be related to the others is clearly CIDCO's "Housing for All" with a relatively low GSI since this also is a high rise block typology with 14-15 floors. The density of 410 dwellings/hectare is even double that of Airoli showing how this scheme is really led by spatial efficiency. The disregard for other important spatial qualities that should be provided by a housing scheme can be clearly seen from the image of the overall project showing how the exact same tower block is replicated right next to the other which raises questions about the quality of life it provides.

DOMESTIC LIFE

PLAN LAYOUTS



Charles Correa's Artist's Village



Raj Rewal CIDCO Housing



Airoli Sites & Services



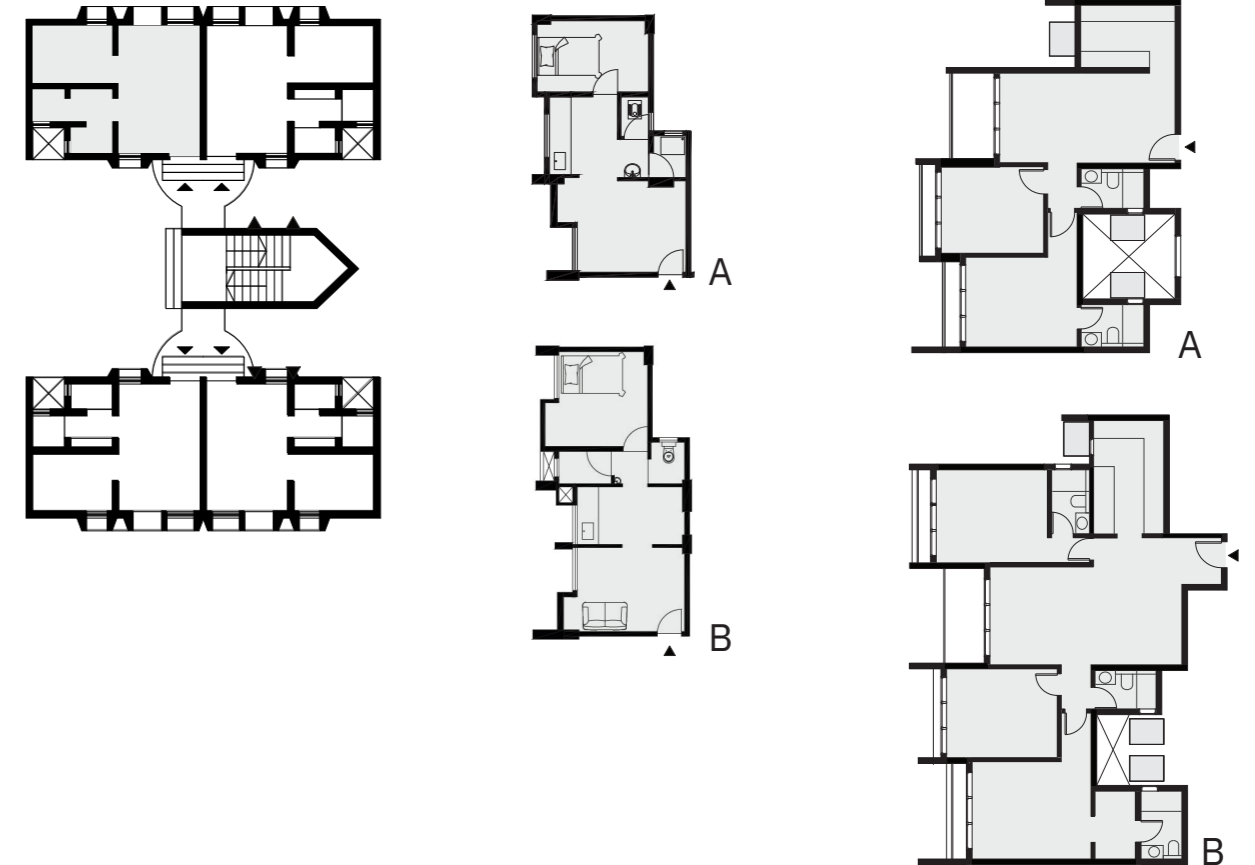
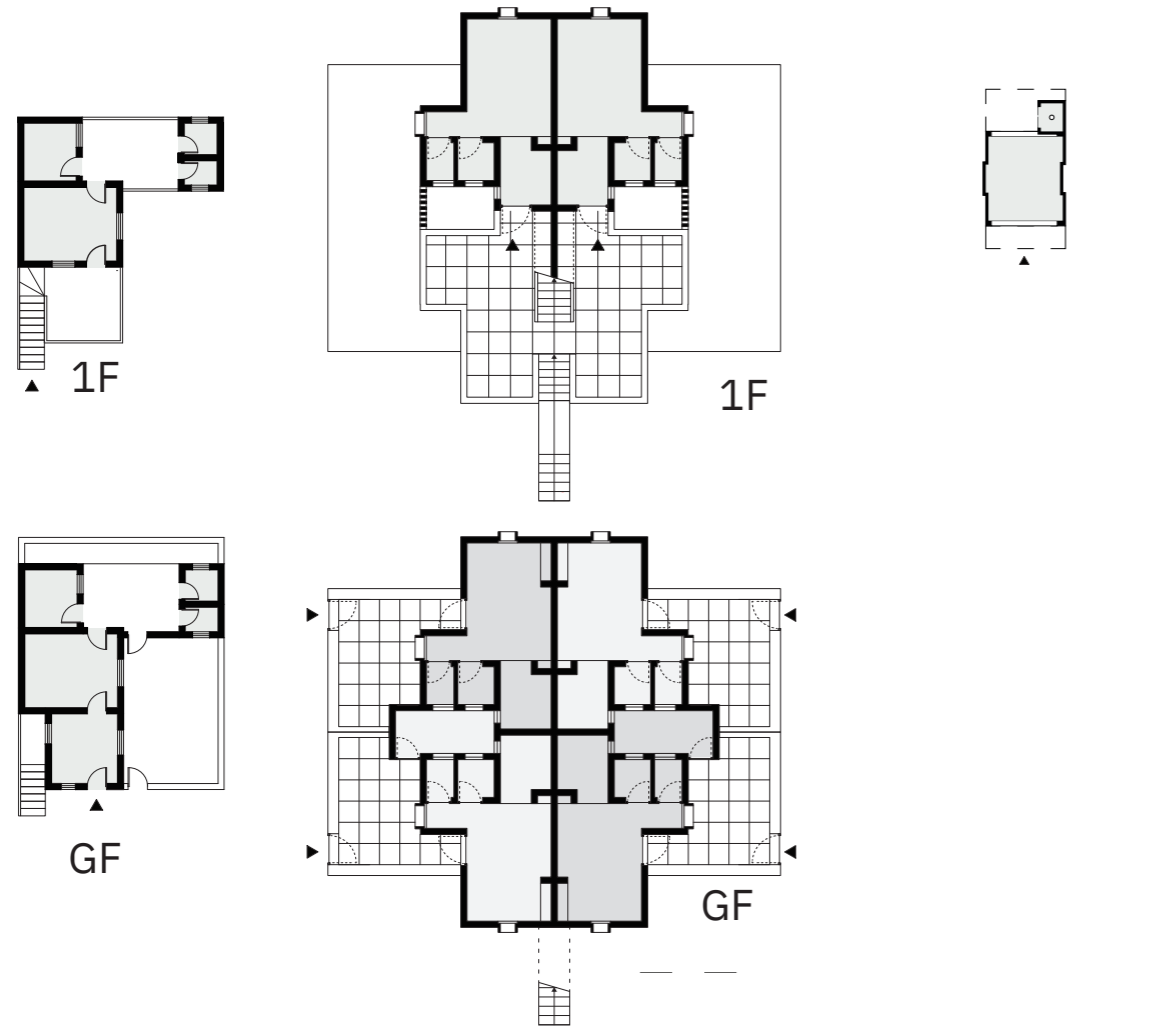
HUDCO & CIDCO Housing Sanpada, Hema Sankalia



CIDCO's 'Housing for All'



Seawoods Residences



A SAFE PATH HOME

AR3AD105

DOMESTIC LIFE

PLAN LAYOUTS

By looking at the floor plans of each project, we can compare the type of domestic life that each of these cases caters for, giving us an insight into how people live, their culture and the importance of certain spaces. Not all of the floor plans are featured here for each project, but can be seen in the previous parts of the booklet (Part 2 - Part 6).

Starting with the Artist's Village, we can see one of the unit types of 75m² consisting of 2 floors. The walls aren't shared with neighbouring units to allow for expansion which is intrinsically tied to personalization and therefore ownership and belonging within the community. There is plenty of outside space; a courtyard on the ground floor and a terrace on the first floor. The total area of the outside and inside space is quite similar which really shows how outside space is a very important aspect and commonly used for different purposes. The importance of outside space is also found in Raj Rewal's project seeing as the outside spaces also take up a large area of the plot of an individual unit, appearing to be approximately the same size as the indoor space on the first floor. This generous space also provides the possibility of expansion. The bedrooms appear to be much smaller than the shared spaces such as the kitchen and living rooms which suggests that these areas are more important and would be used more frequently hence the large size difference. The difference between these 2 schemes is clearly the density since in the Artist's Village is based on individual plots and Rewal's scheme is based on a system of blocks of different sized units therefore a higher density is more feasible.

Airoli has the most basic plan of all of the projects, offering one room and a separate bathroom with a rural pan toilet without much variety apart from having 3 different types of structures for the LIG according to their income which can be seen in Part 2. Since incrementality here is the key concept, there is not much that can be suggested in this floor plan apart from the fact that the inhabitants will have to take matters into their own hands and make adjustments within the designated plot boundaries.

Hema Sankalia's project provides for a variety of income groups, and the dwellings are quite similar in terms of their spatial qualities. Here we can see a block for the MIG with the main entrance being accessed by a shared staircase encouraging social interaction between the community. Similar to the first 2 schemes, the shared spaces in the dwelling are much larger than the bedrooms and there are plenty more openings in the façade that the other projects which shows how natural

ventilation was really important in this scheme, proving that Sankalia took the inhabitants well-being into consideration.

The 2 most recent floor plans only have proper openings on one of their façades which highlights how spatial efficiency has led the design. In the case of CIDCO's "Housing for All", there are only 2 floor plans (A&B) with basically the same set up apart from one being 26m² and 30m² for the EWS and LIG respectively. The only thing that can be understood from the floor plan is that spatial efficiency and replicability is the leading factor, otherwise there is no suggestion about how people live in these spaces since there is no clear spatial hierarchy or special care taken for the comfort of the inhabitant.

Seawoods Residences caters for the HIG although the plan does not suggest a luxury lifestyle since there are no special rooms such as walk-in closets or services rooms. It comes across as a generic western model since there seems to be no cultural influence. Even the outside balcony spaces are not that large given the importance of outside space in such a climate as we saw in the earlier projects. The most prominent difference between this plan and the other projects is that the space assigned for bedrooms is somewhat equivalent to the living room space which could mean that the private spaces seem to be of more importance for this income group. The 2 last projects relate more to the notion of efficiency than resilience since they do not reflect any specific human patterns but rather how to fit the required spaces and square meters into one unit, further emphasizing the focus on profit.

ENVIRONMENT

SECTIONS



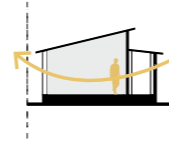
Charles Correa's Artist's Village



Raj Rewal CIDCO Housing



Airoli Sites & Services



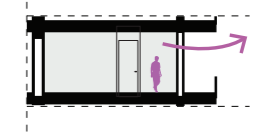
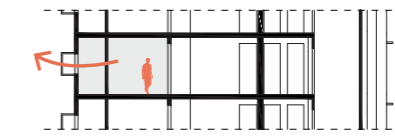
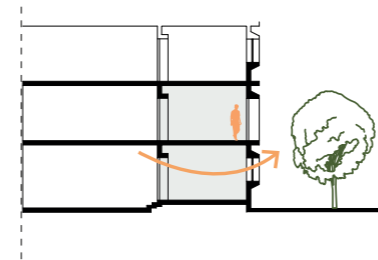
HUDCO & CIDCO Housing Sanpada, Hema Sankalia



CIDCO's 'Housing for All'



Seawoods Residences



A SAFE PATH HOME

AR3AD105

ENVIRONMENT

SECTIONS

The sections of each project can give an insight into the type of environments that the inhabitants live in and the connection with their direct surroundings. There is a prominent similarity with Charles Correa's Artists Village, Raj Rewal's CIDCO Housing and Hema Sankalia's scheme. These architects really thought about the connection with the ground and the natural environment as well as maximizing cross ventilation for the comfort of the user. Correa implemented the sloped roof for natural water drainage while also sheltering the outside spaces from the sun. Both Correa and Rewal's schemes are simple structures in order for the inhabitants to easily understand and build their future extensions.

The same concept goes for Airoli being a very simple structure with cross ventilation since there would be no other way to ventilate the small unit, although the future expansion compromises the natural ventilation since the stairs would have to be placed on one end of the unit which would block up one of the openings. In such a warm climate, the openings and open space becomes a resource to cool down the inhabitants and their dwellings, therefore only the schemes of Correa, Rewal and Sankalia really take this into consideration. Sankalia takes the internal comfort a step further and introduces recessed windows to limit solar gain inside the dwelling.

The 2 most recent projects again differ to the others as we saw in the previous spread since they are single aspect therefore they need to be mechanically ventilated. There is no connection with the ground since these are high rise typologies. Seawoods Residences has a balcony area but the outside space is quite limited, whereas the "Housing for All" scheme does not have any connection with the outside apart from the small windows providing visual connection. These 2 schemes do not benefit from simple design choices such as the ones that were implemented in the earlier projects in order to be suitable for India's climate, but rely on mechanical systems. The connection with the outside is non-existent, but rather it shows that currently the high rise typology seems to be more in demand in terms of densifying the city as well as being perceived as a more luxurious type of living in Indian cities than a low-rise individual house would be.

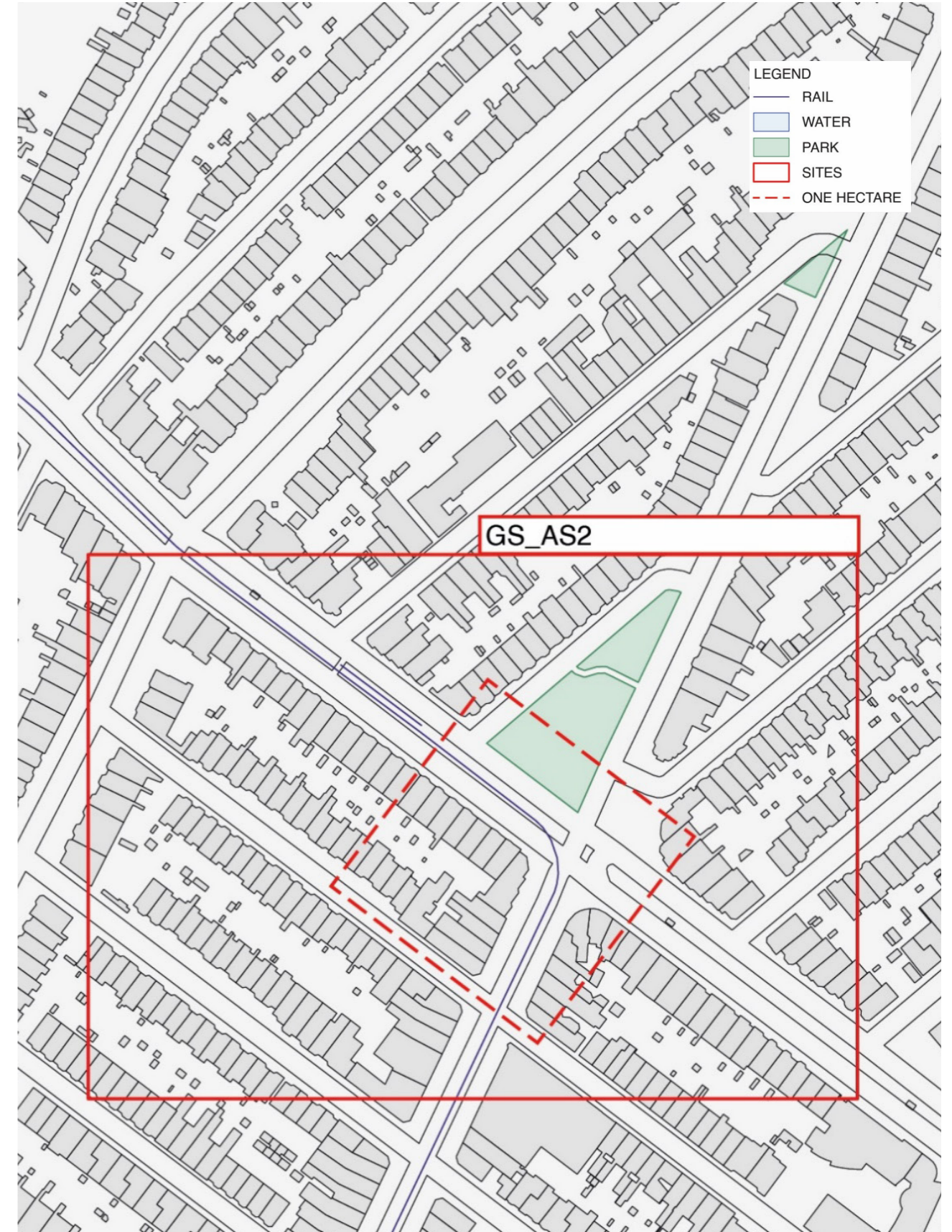
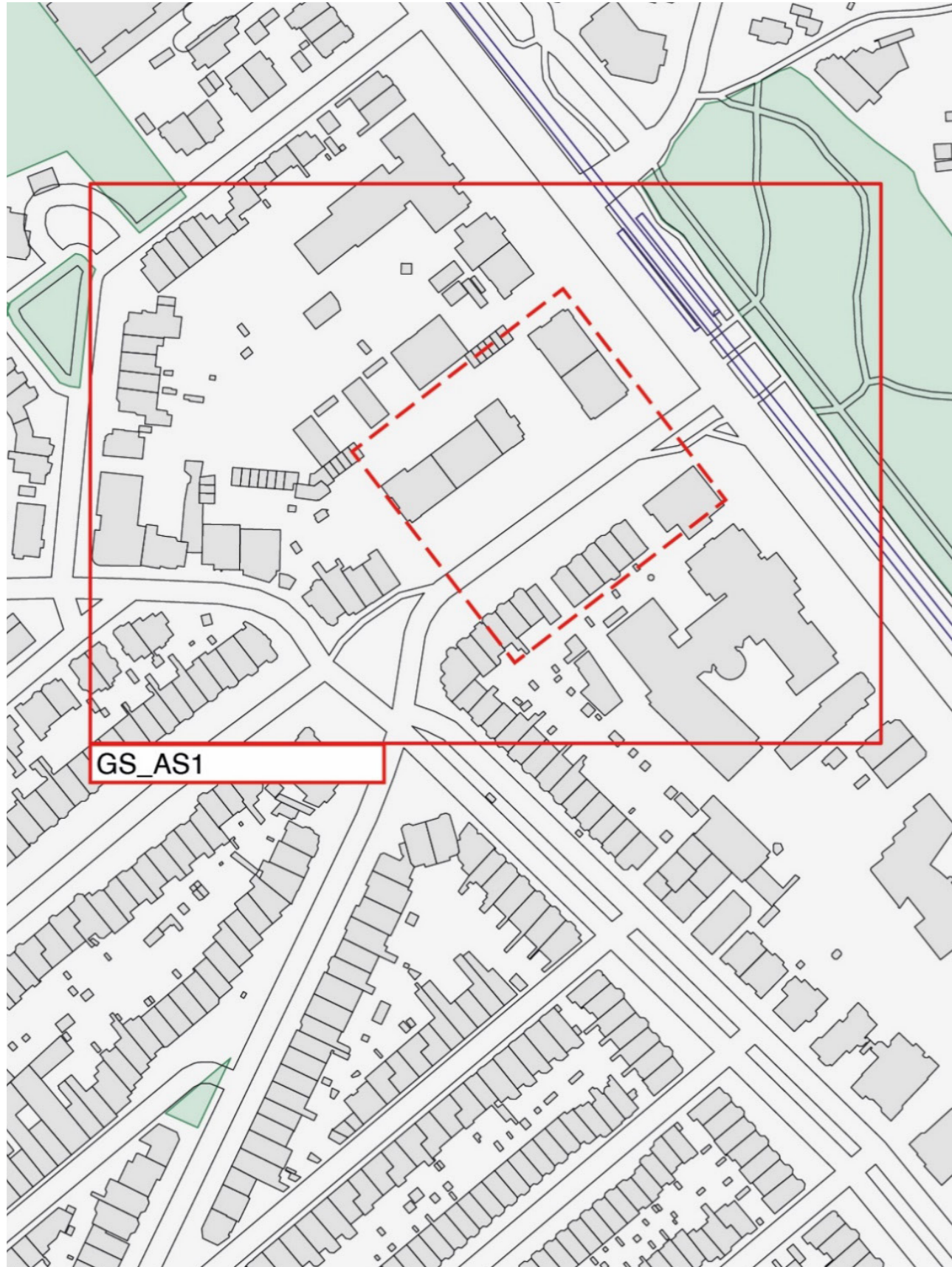
HOUSING & HEALTH RESEARCH IN THE HAGUE

In a group with architecture students and medicine students, we studied the relationship between spatial design and health. We focused on 2 dwellings in the Hague and studied its spatial qualities which was aided by interviews held with the residents.

The out come of the study showed that the first case scored well in terms of biodiversity in comparison to the other cases studies in the group since it has the highest number of outdoor bacterial species as well as unidentified bacterial species. This could be due to the large amount of greenery in the area - every house in the plot has a garden space and there are a lot of trees on the pavements breaking up the hard surfaces. The indoor biodiversity of this case was one of the lowest in comparison to the rest of the cases which means we cannot conclude if there is any relationship between the indoor and outdoor biodiversity.

The second case we studied had the lowest outdoor bacterial species in comparison to the other cases as well as a low biodiversity. Overall we were quite optimistic with finding some correlations between the environmental factors and spatial factors, but we were unable to conclude with concrete findings apart from the obvious observations.

LOCATION



FACTS SHEET: URBAN

GS_AS1

48

DENSITY
Dwellings / Hectare

0.40

TOTAL SCORE
Leefbarometer *

0.25

SERVICES
Leefbarometer

1.23

FSI
Floor Space Index

0.08

HOUSES
Leefbarometer

0.01

SAFETY
Leefbarometer

0.29

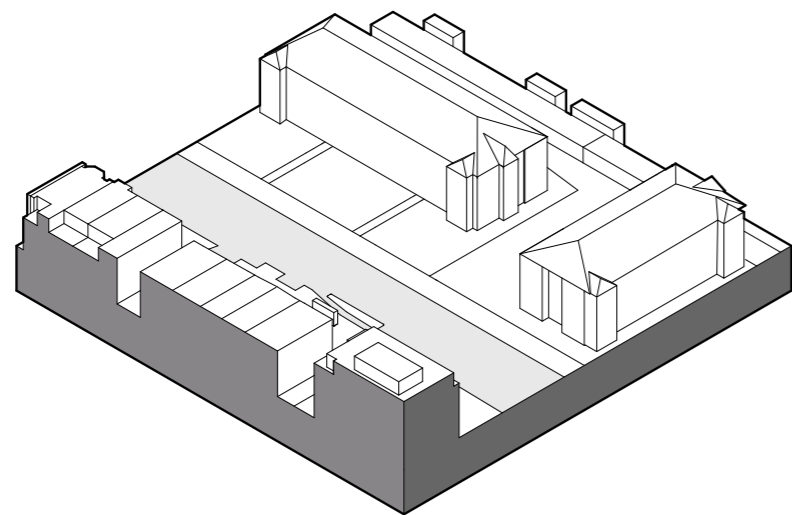
GSI
Ground Space Index

0.00

RESIDENTS
Leefbarometer

0.07

ENVIRONMENT
Leefbarometer



FACTS SHEET: DWELLING

GS_AS1

135 | 10

HOUSE AREA
Interior | Exterior m²

155

FACADE AREA
m²

385

HOUSE VOLUME
m³

18 | 14

WINDOW AREA
Fixed | Openable m²

2

RESIDENTS
Number of Residents

68

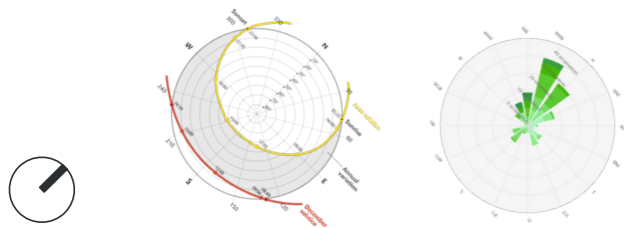
RESIDENTS
Area per resident m²

SITE PLAN

GS_AS1

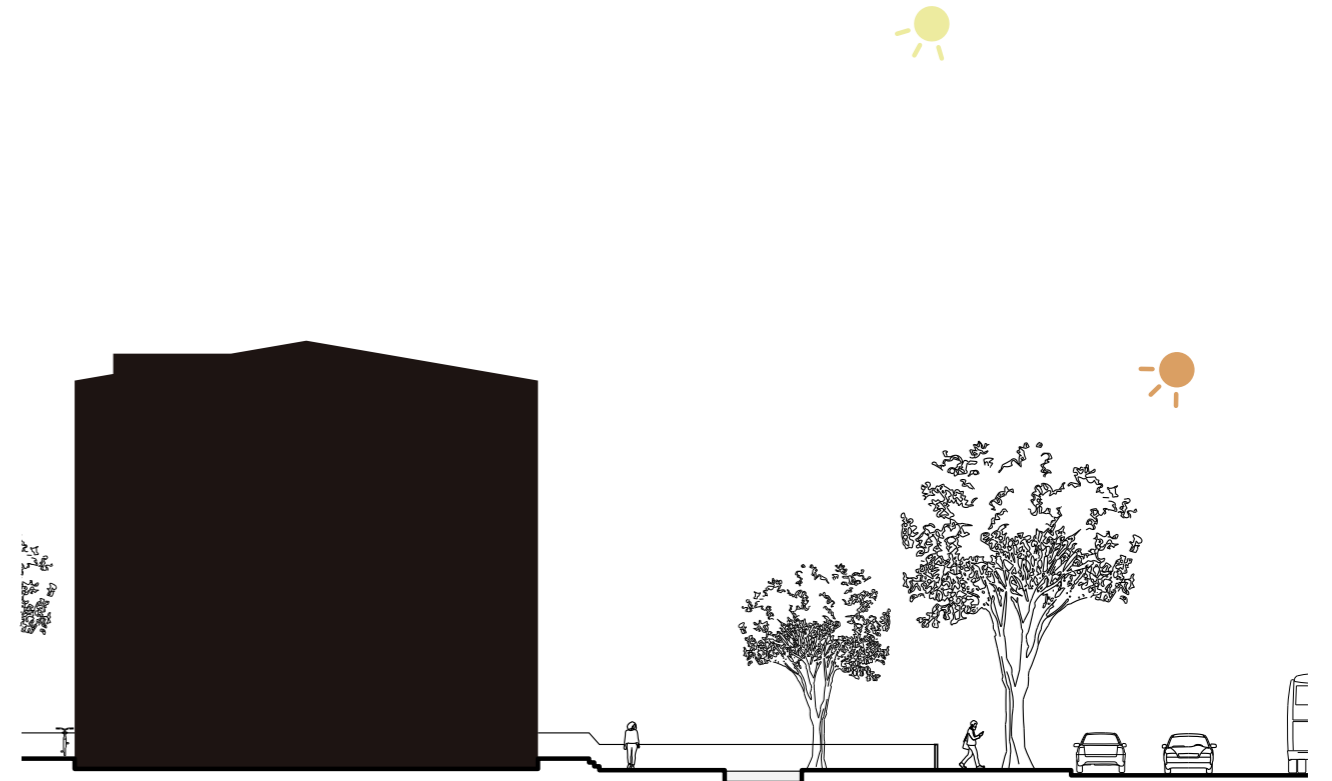


A SAFE PATH HOME



STREET PROFILE

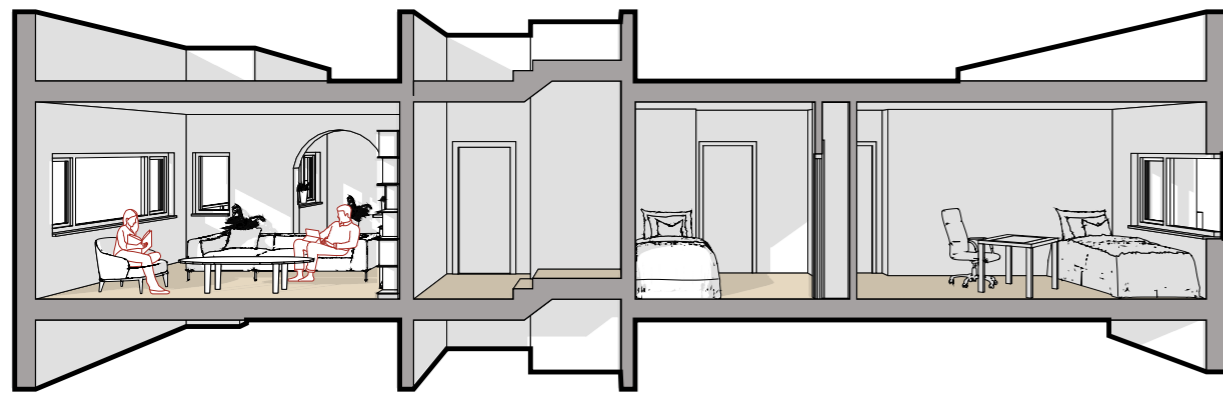
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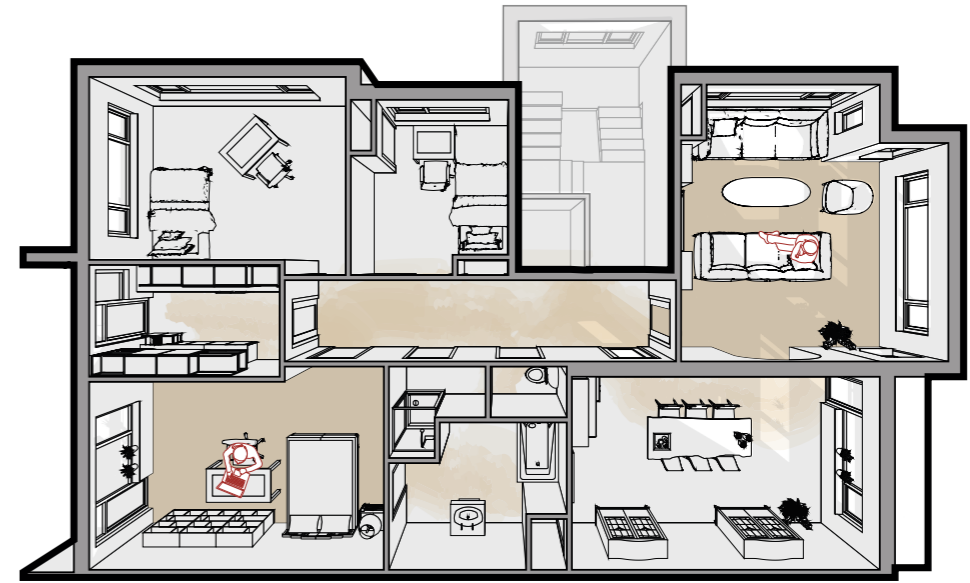
DWELLING SECTION

GS_AS1

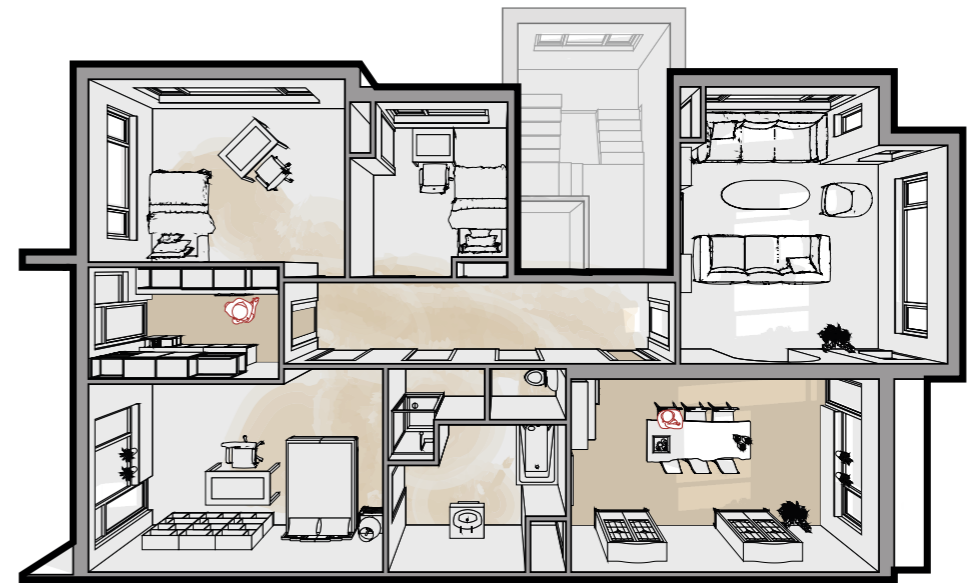


24 HOUR CYCLE FLOOR PLANS

GS_AS1



MORNING



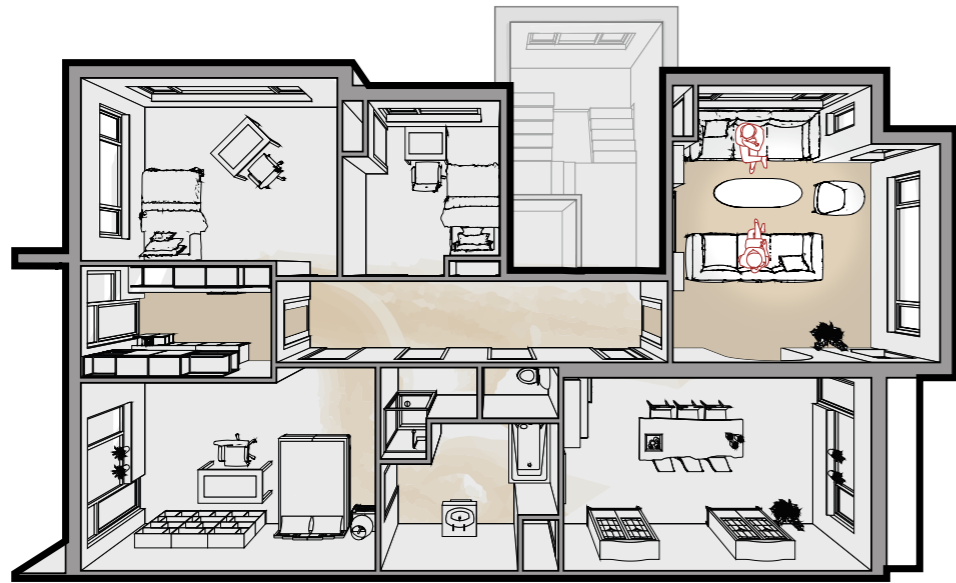
NOON

A SAFE PATH HOME

AR3AD105

24 HOUR CYCLE FLOOR PLANS

GS_AS1



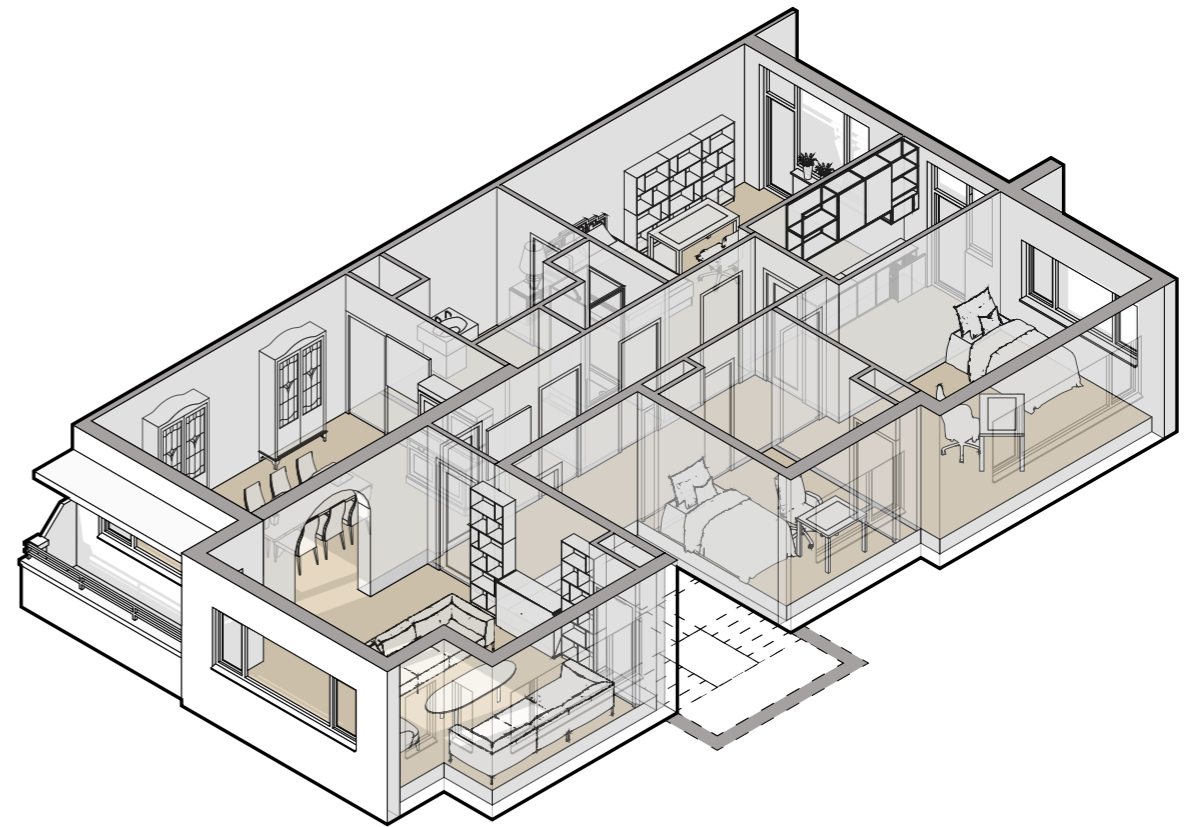
AFTERNOON



EVENING

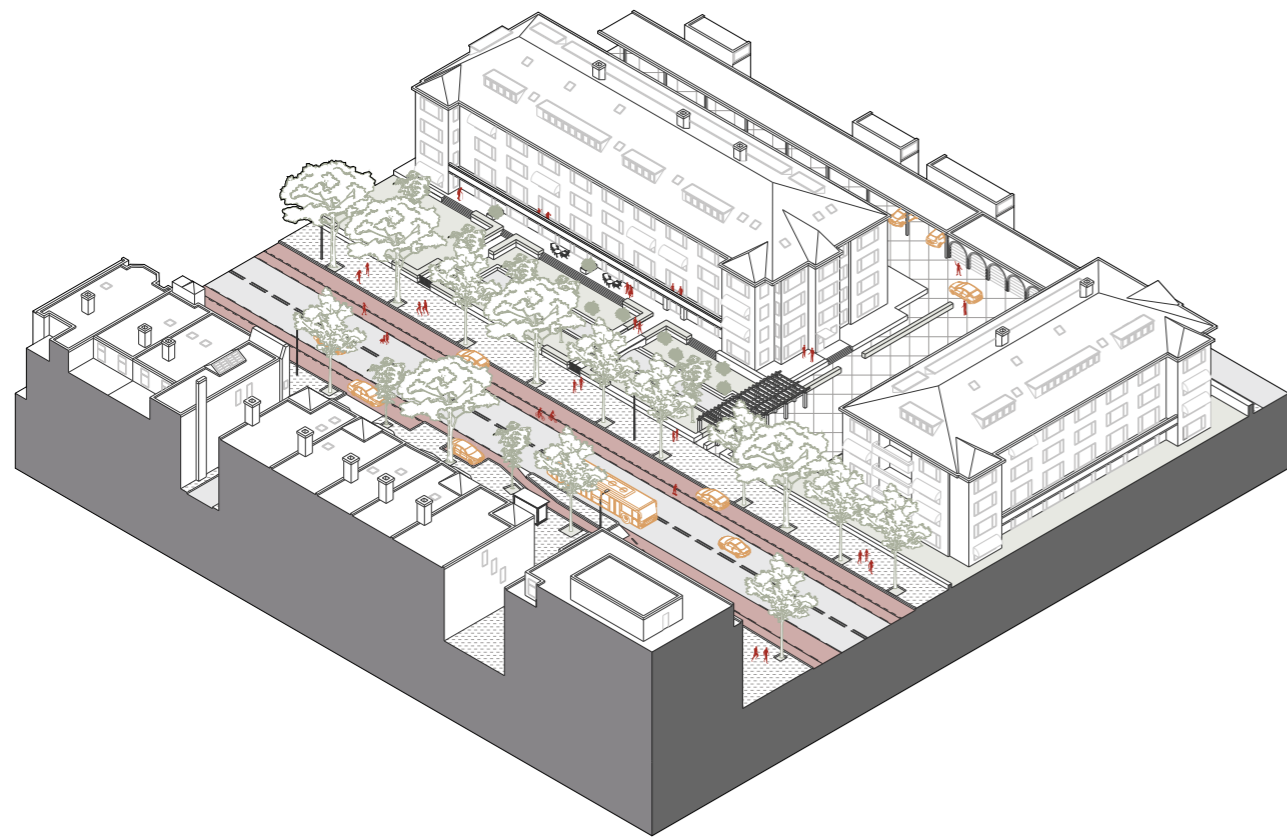
DWELLING AXONOMETRIC

GS_AS1



URBAN HECTARE

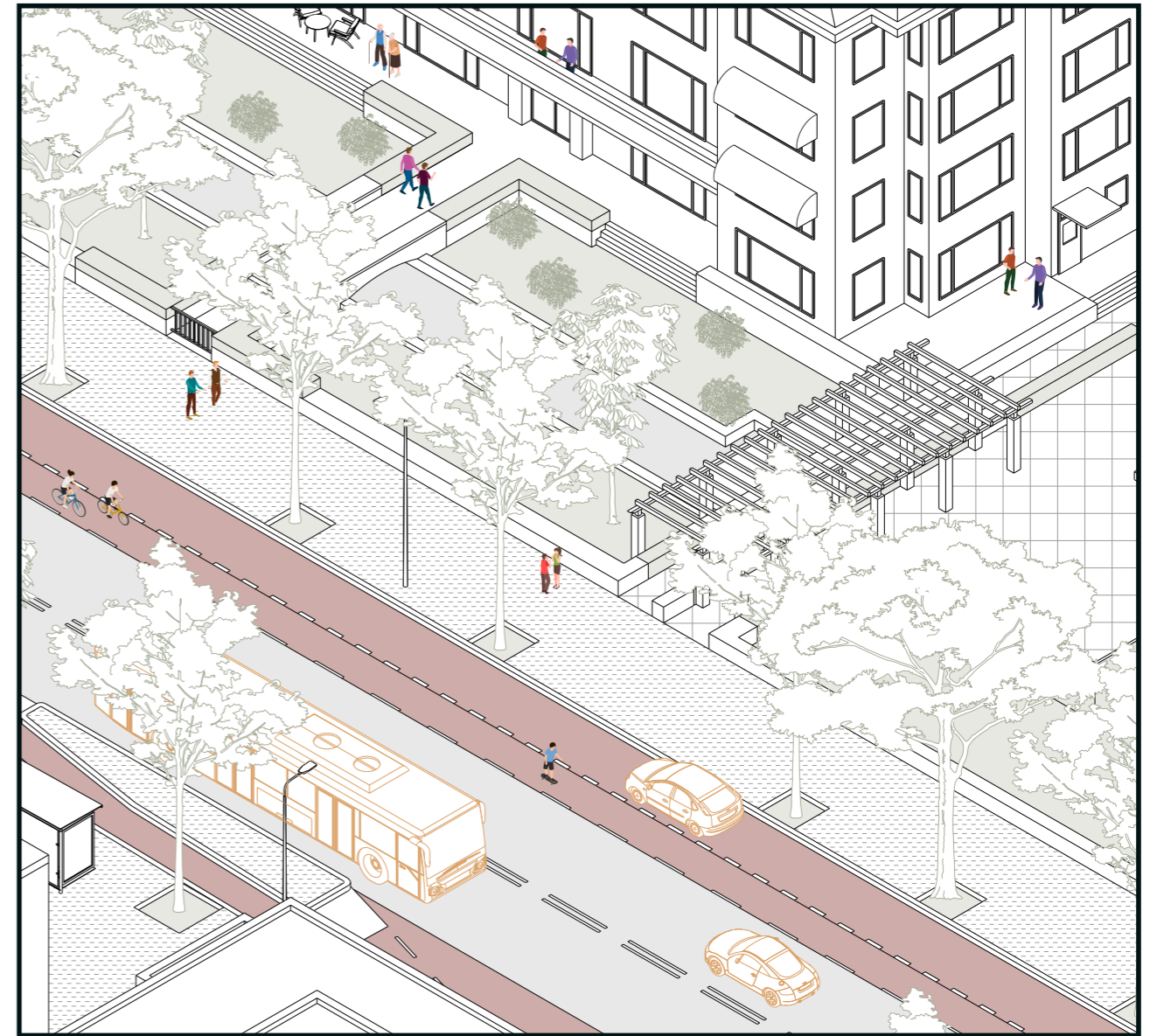
GS_AS1



A SAFE PATH HOME

URBAN HECTARE ZOOM IN

GS_AS1



AR3AD105

FACTS SHEET: URBAN

GS_AS2

48

DENSITY
Dwellings / Hectare

0.38

TOTAL SCORE
Leefbarometer *

0.25

SERVICES
Leefbarometer

1.25

FSI
Floor Space Index

0.15

HOUSES
Leefbarometer

0

SAFETY
Leefbarometer

0.32

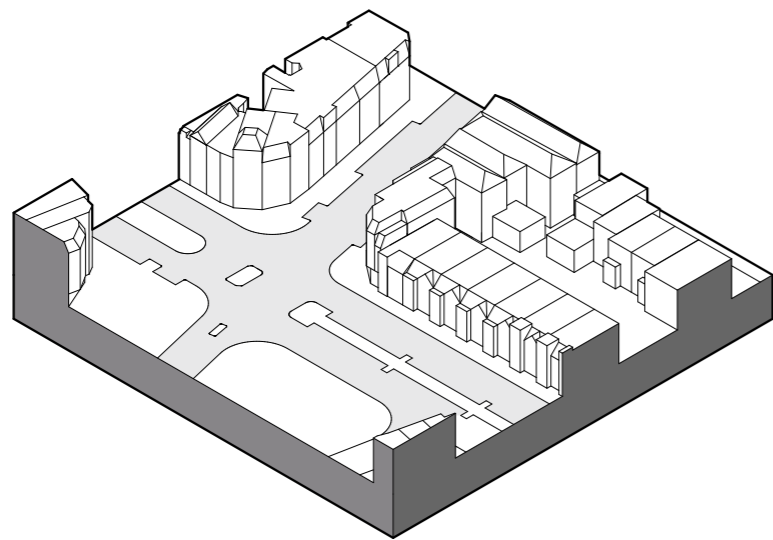
GSI
Ground Space Index

0.05

RESIDENTS
Leefbarometer

-0.07

ENVIRONMENT
Leefbarometer



FACTS SHEET: DWELLING

GS_AS2

278 | 63

HOUSE AREA
Interior | Exterior m²

331

FACADE AREA
m²

856

HOUSE VOLUME
m³

39 | 26

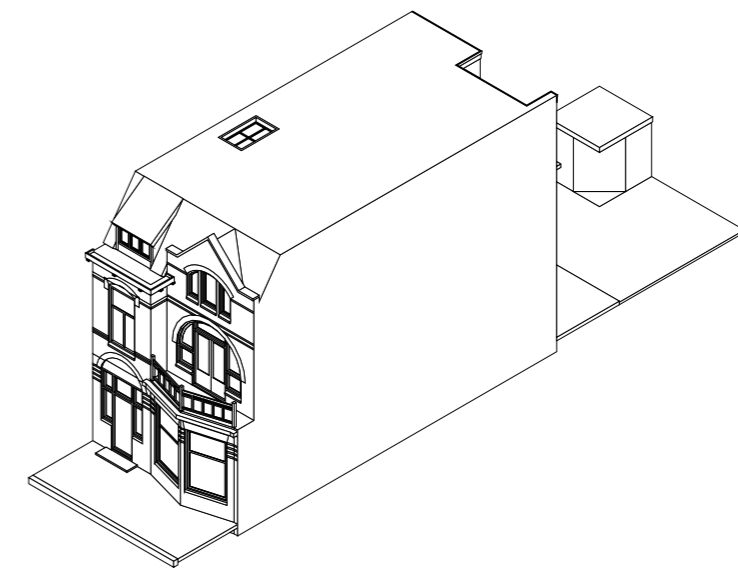
WINDOW AREA
Fixed | Openable m²

3

RESIDENTS
Number of Residents

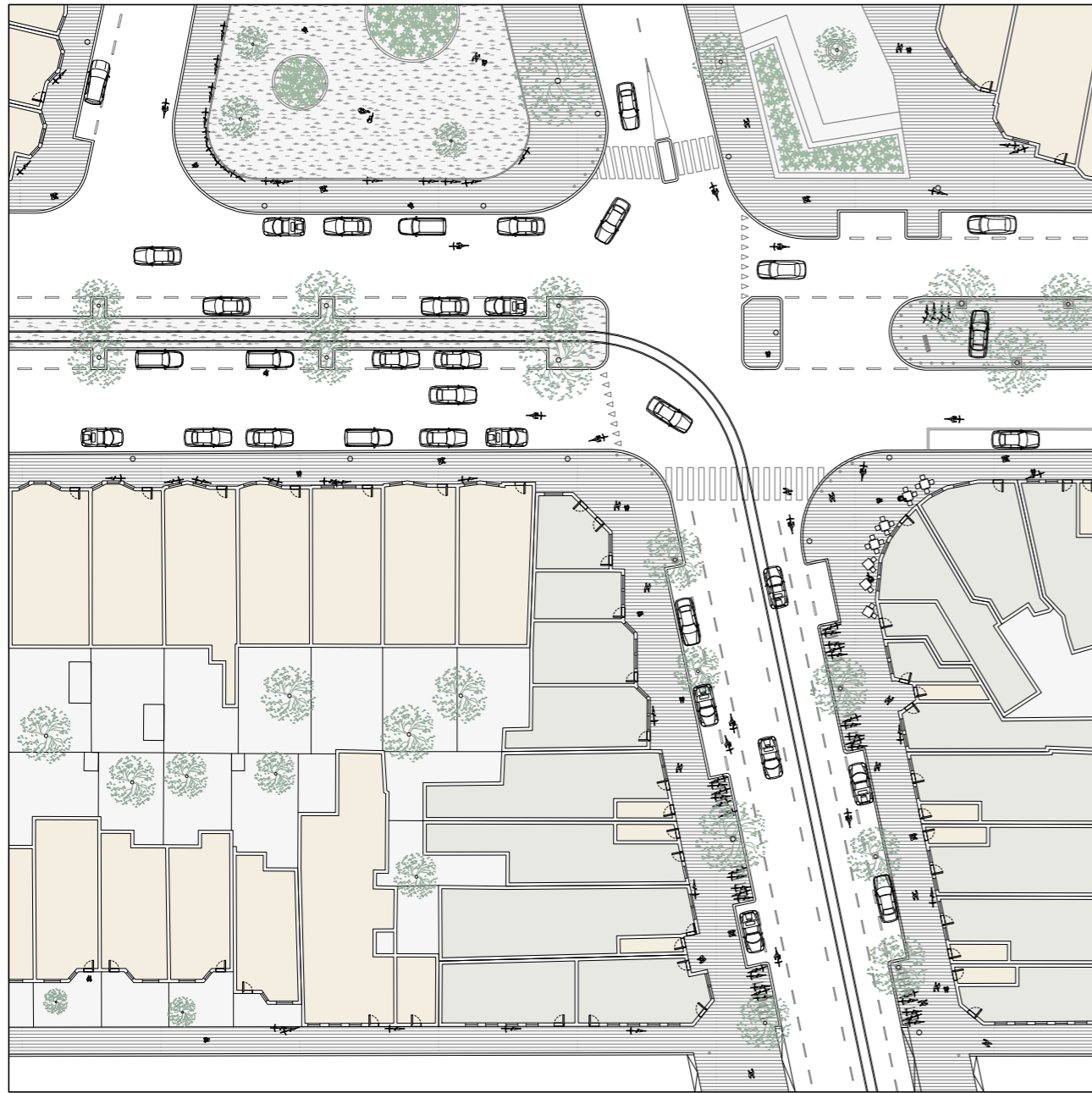
93

RESIDENTS
Area per resident m²

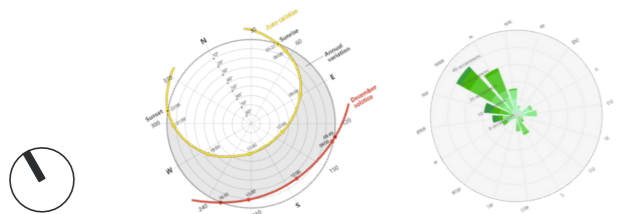


SITE PLAN

GS_AS2



A SAFE PATH HOME



STREET PROFILE

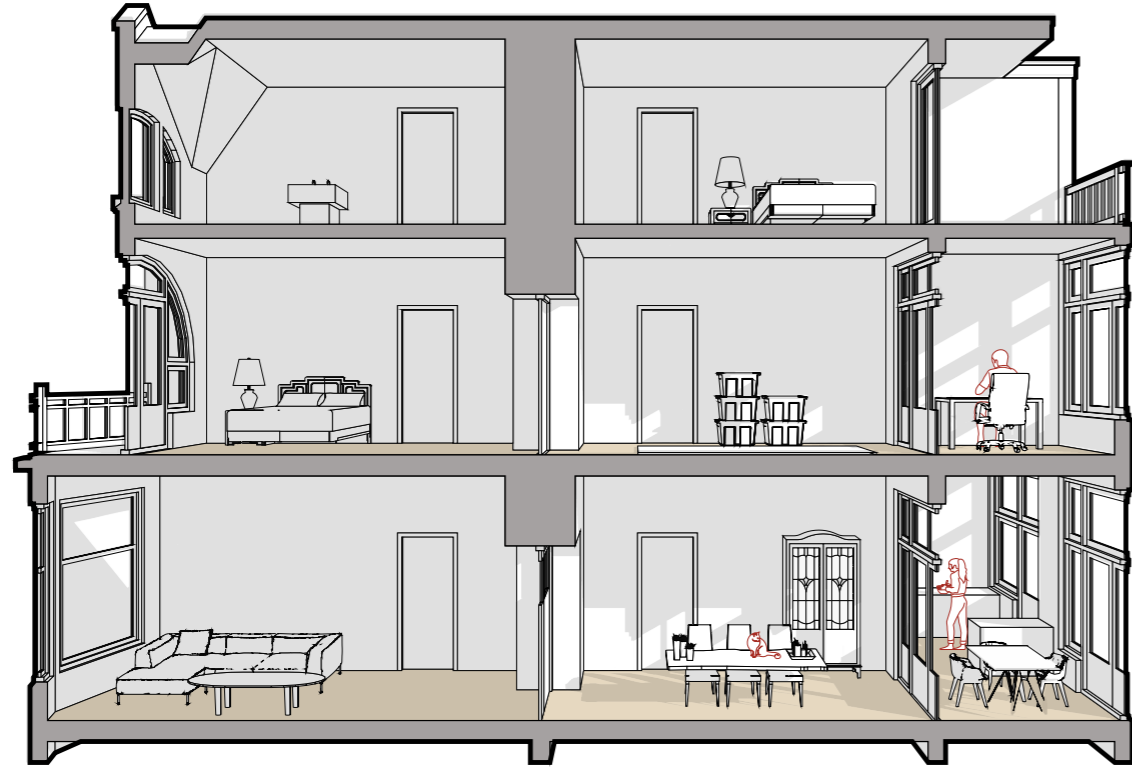
GS_AS2



AR3AD105

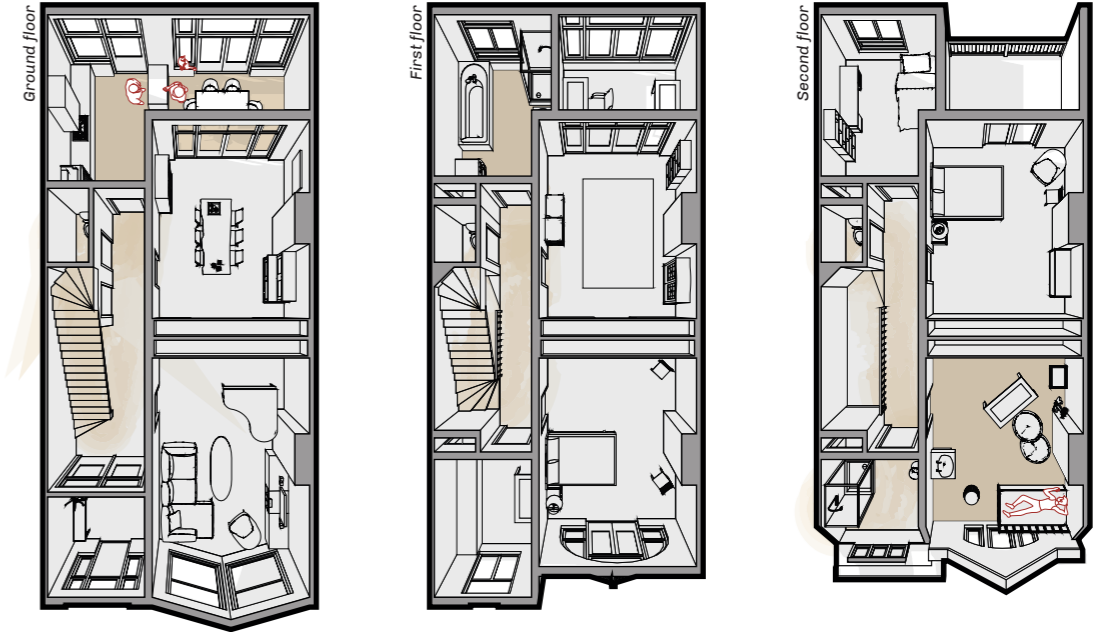
DWELLING SECTION

GS_AS2

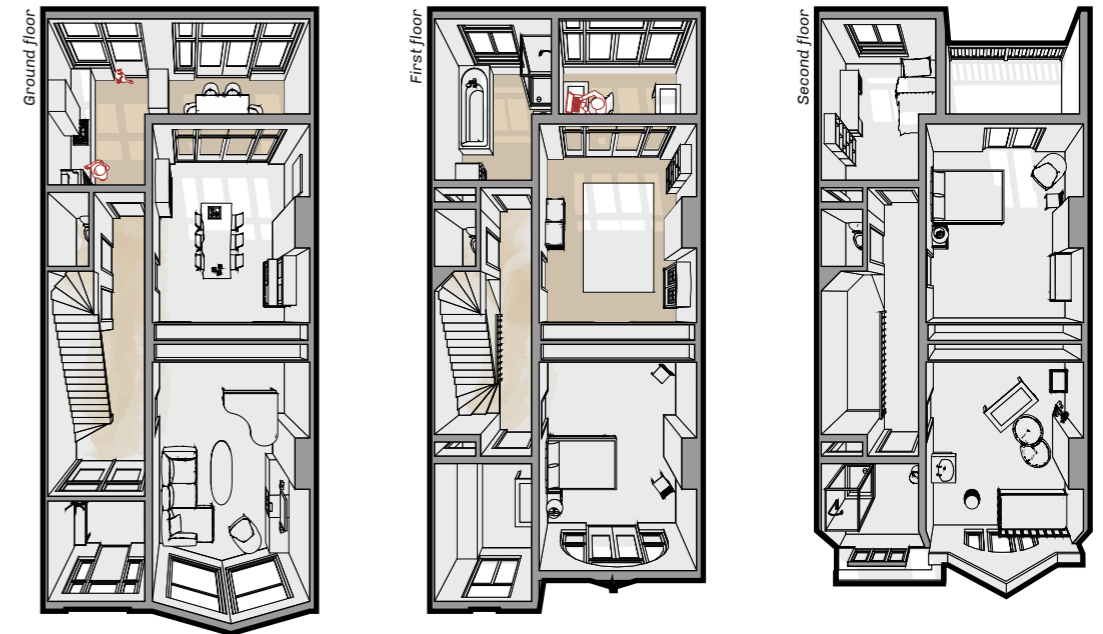


24 HOUR CYCLE FLOOR PLANS

GS_AS2



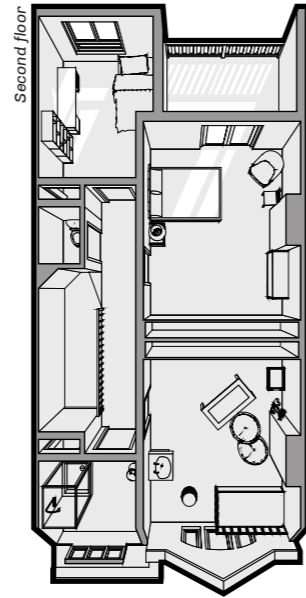
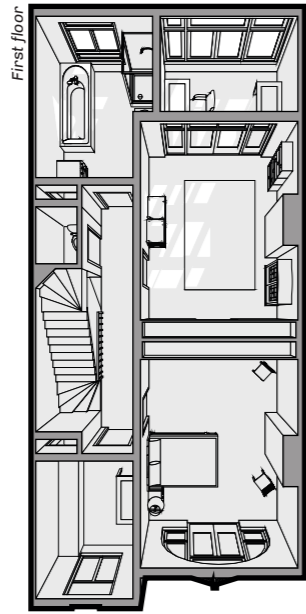
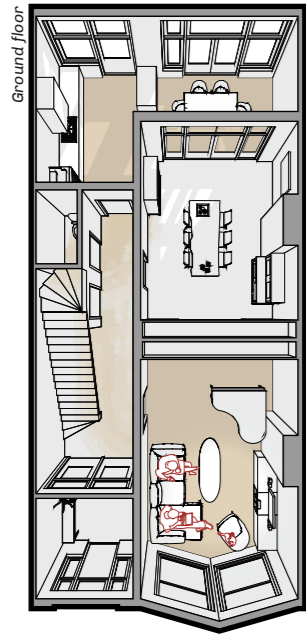
MORNING



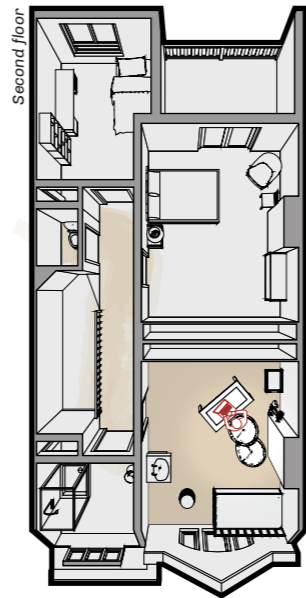
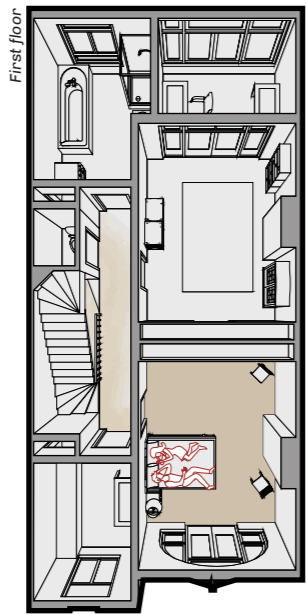
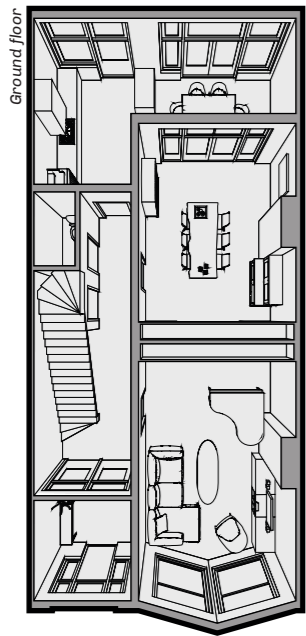
NOON

24 HOUR CYCLE FLOOR PLANS

GS_AS2



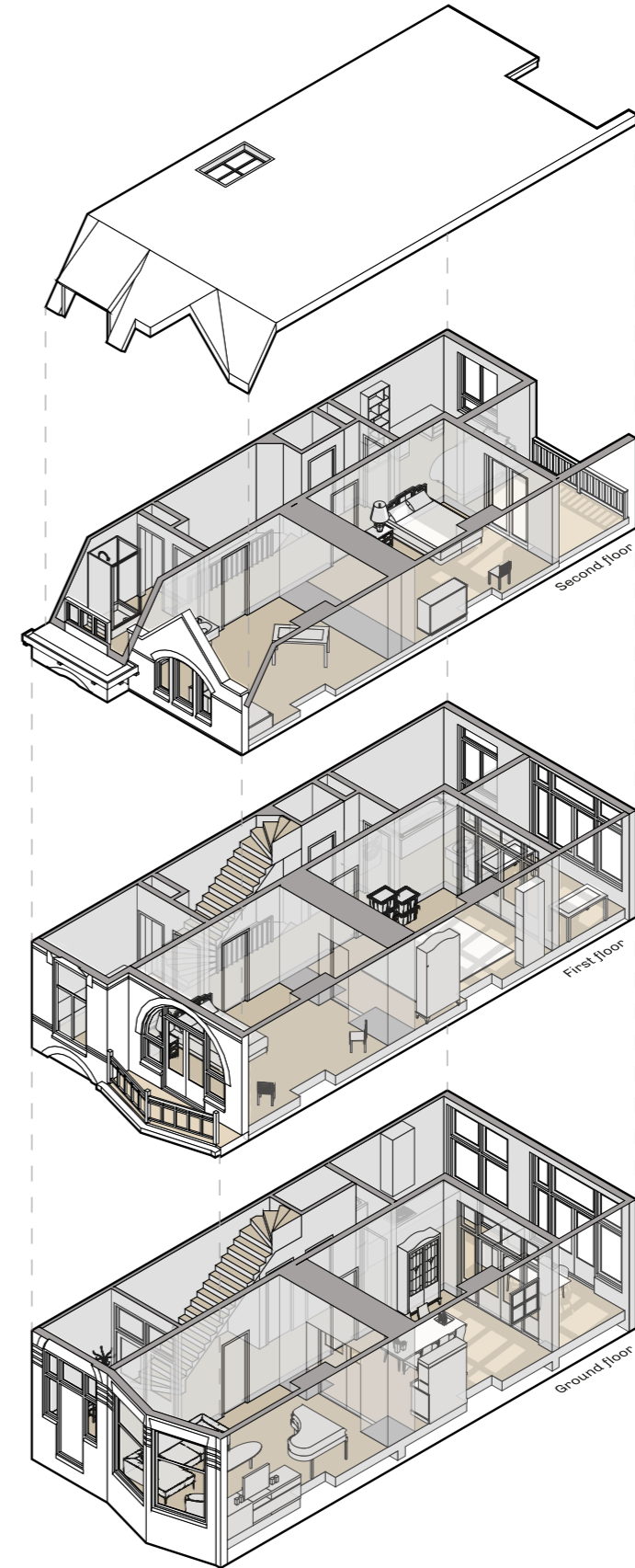
AFTERNOON



EVENING

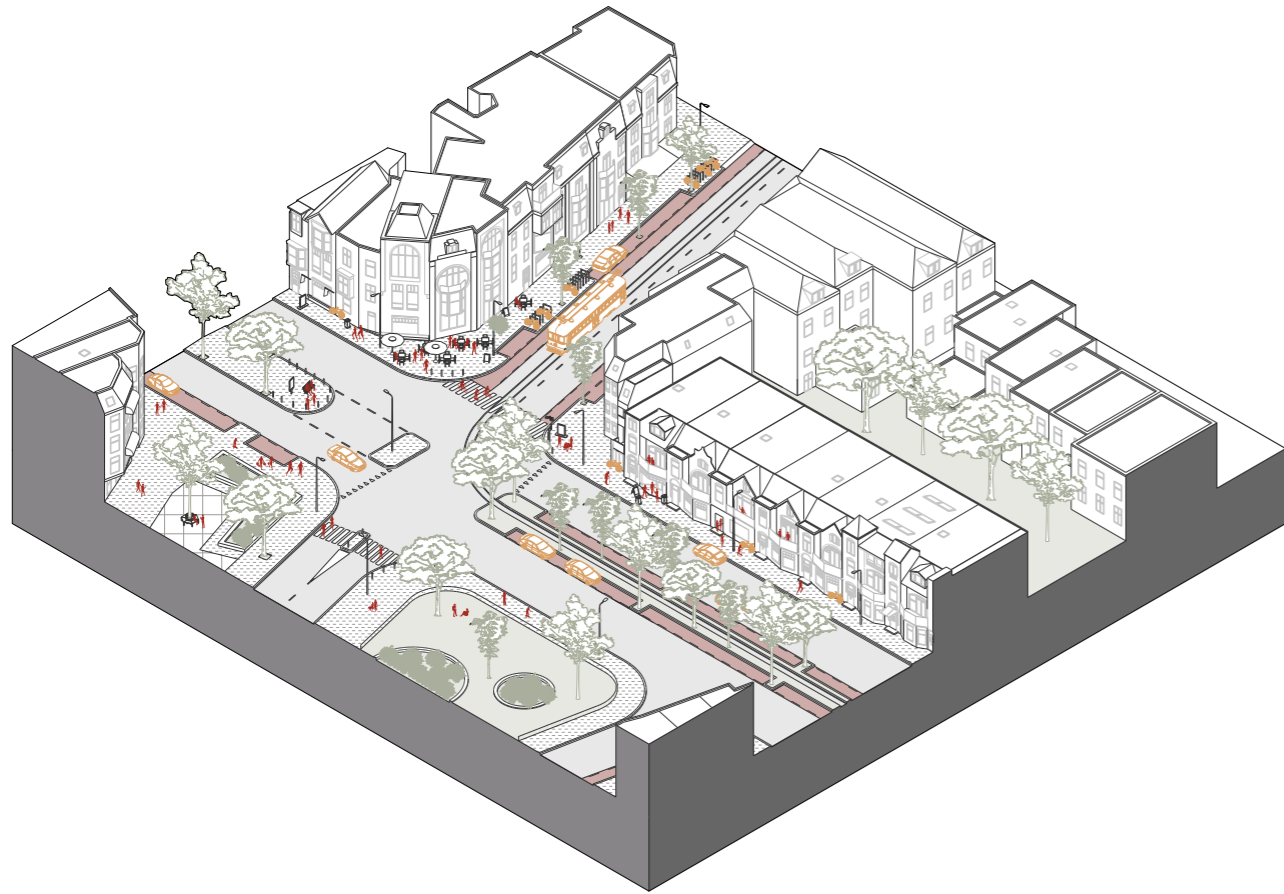
DWELLING AXONOMETRIC

GS_AS2



URBAN HECTARE

GS_AS2



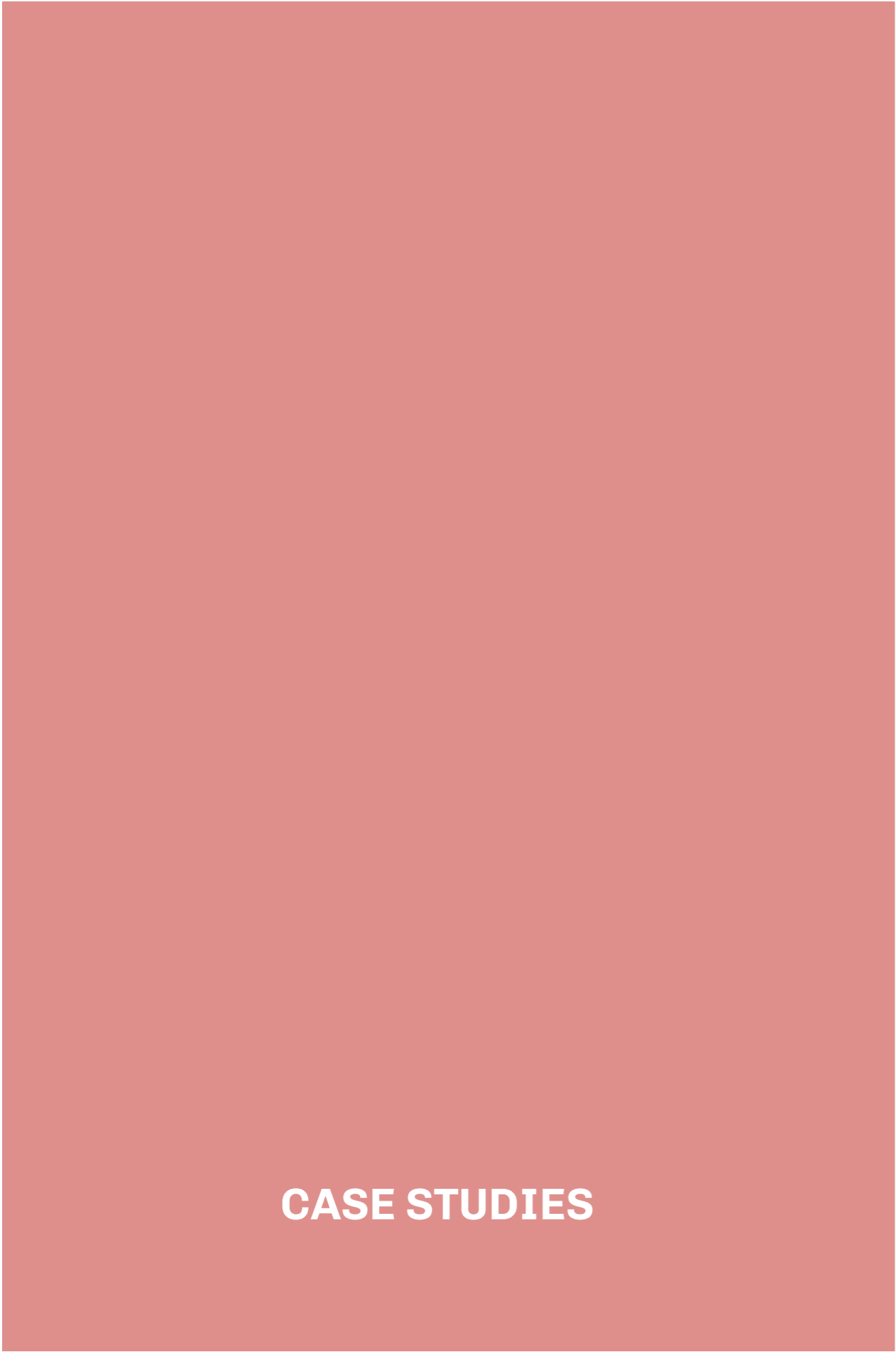
A SAFE PATH HOME

URBAN HECTARE ZOOM IN

GS_AS2



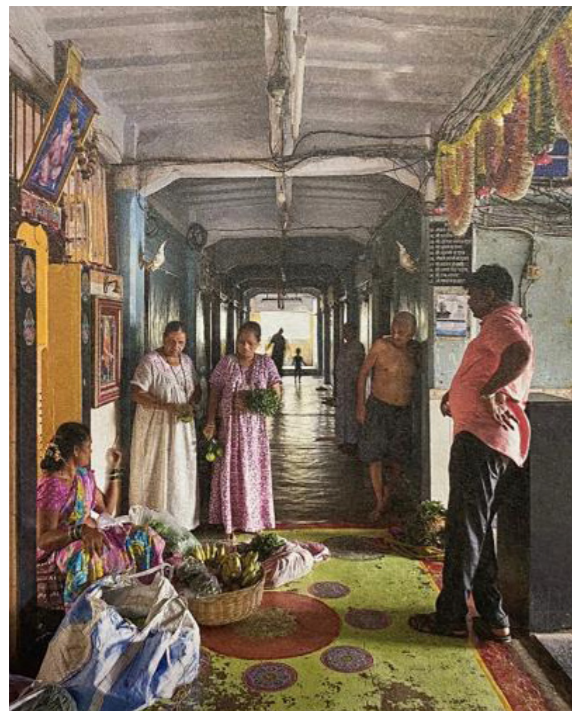
AR3AD105



CASE STUDIES

UDAAN

SAMEEP PADORA & ASSOCIATES, MUMBAI, INDIA



BDD Chauwls, Worli



What helped me greatly in understanding how to design an affordable housing scheme in Navi Mumbai was the book *How to build an Indian House* by Sameep Padora. This book has thorough documentation and analysis of different projects specifically the chawls in India.

A chawl is often a 3 storey with distinctive verandas along the façade at each story where utilities are shared and each one-room unit measures less than 20m² first built to accommodate textile-mill workers during the early 1900s.

The chosen chawls in this book show a variety of organization of spaces and urban structures yet are mostly characterized by the connection of quite simple living units and are examples of early collective housing.

By researching into the various examples in the book, I approached my design in a way that could learn from the core concept of the chawl typology and come up with a housing cluster that can provide healthy and safe living spaces specifically with women in mind.

The main reference that inspired my cluster strategy is Sameep Padora's project UDAAN which is a low cost mass housing project that the company developed based on the research in the book.

FRAUEN-WERK-STADT 1

8 FEMALE ARCHITECTS COMMISSION BY THE FRAUENBURO, VIENNA, AUSTRIA



This project was the first gender sensitive housing project built in Vienna. The city's Women's office appointed 8 female architects to collaborate on a housing project. The aim was to increase the number of female architects in city planning as well as show how a gender sensitive approach could be manifested in built space.

Vienna has its own Gender Mainstreaming guidance including: Mobility, Land Use, Housing design, Streetscape design and Safety.

The project's main principle was to put the pedestrian first. As the 'female' journey throughout the day was found to be more complex such as coming from home to school to drop kids off, to work, to school and back home...As oppose to the typical 'male' journey from work to home. Therefore the site for the project was chosen nearby necessary amenities to reduce transport time.

The floor plans were designed in order to adapt to the changing needs of families over time. These different layouts allowed for interaction with the outside on different levels. The communal laundry facility was strategically placed on the top floor next to a shared roof terrace in order to make the task more enjoyable and interactive with adequate natural light.

The main outcome of the project was how it led to changes in how publicly funded projects are completed. These projects now have to take into account the gender sensitive and user friendly planning guidelines .



HOUSING BLOCK FOR SANJAYNAGAR

COMMUNITY DESIGN AGENCY (CAD), AHMEDNAGAR, INDIA



Community Design Agency (CAD), an architecture studio, worked with local people from Sanjaynagar to create housing blocks for people living in informal housing in the area. The outcome was 8 blocks consisting of 3 floors made of brick. 298 families will be able to live there together once the project is complete. 33 families have already moved in at this time to test the housing block.

The blocks are positioned around a series of courtyards. This decision was taken because of the input from the slum dwellers of the area. They voiced their opinion about how the outside areas were important as social meeting spaces, as well as spaces where women would cook, clean and sit with others while children play. Animals would also share these spaces. These outdoor spaces are a major part of the design.

The building is made out of locally-made bricks partially constructed by the residents. Screens made of split bamboo were made as sun shading on the balconies with steel frames and colour was added to the window frames and balconies. Planters and outdoor seating were also added along the balconies.

The aim of the project is to provide a safe and healthy neighbourhood creating opportunities for social and economic sustainability. After the completion of the project, the amount of female ownership is supposed to rise by 45%.

DAY IN THE LIFE OF AN INDIAN WOMAN

ONLINE FIRST HAND EXPERIENCES

1. I was a girl in my late teens, living in Mumbai, my hometown, with my parents. This happened shortly after the well-known Nirbhaya rape case in 2012. I had just finished my final examinations, and, to celebrate the end of a gruelling semester, we had ordered dinner from a restaurant. After we were well-fed, my father suggested we have some ice cream. It was not too late, just about 9 PM. I offered to go to the ice cream parlour (which was literally a stone's throw away from our flat) and get some ice cream for us all. He flatly refused to let me go. I could have brought the ice cream home in 5 minutes max. But he groaned and grumbled and finally sent out our night watchman to bring it after over an hour of arguments. This is just once out of the several

I got down at my station, and again it's task 2, to accomplish. I should walk around 4-5 minutes to reach my home from the station. "**Man, why doesn't these street lights even work properly**", I cussed the leaders again. I walked (read it as almost ran), though I was dead tired, I fastened my steps and looking out for any dog to accompany me. Lucky me, I found one street dog. This dog, joined my walk and I lowered my marathon speed and walked with ease. I waved a bye, and said thank you to this dog, as I reached my home.



Muskan, studied at Gargi College, University Of Delhi (2020)

Answered Jan 31, 2019

I'm a college going student. For me the day starts with getting ready to go to college, with mother's instructions in the background for what is right to wear and what is not. Next is travelling in metro- preferably in ladies only coach because it's said to be safer. The time in the metro involved a few corner eye looks from some aunties because they don't approve of the way you dress, or how loud you are laughing with your friends or standing next to a guy. Next in college (mine is a girl's college) I'm taught that being a woman I'm a fierce force that could make or break anything, a feminist is inspired inside me who wants to change things for all the girls. Then I come back home, sometimes being cat called on the way by some morons, spend time with my family, voicing my opinions which are mostly welcomed by my parents but somewhere they hesitate to differ from what society consider right. And then I sleep wishing the world to be more easy on girls, wishing girls were not being blamed for everything they go through, wishing my parents didn't have to be this scared when I go out alone, wishing the society held boys accountable and have freedom to girls as freely as humanly possible.

That's how a event less, typical day goes for me.

653 views · View 1 upvote · Answer requested by Ban Dannah

SOURCE:
<https://www.quora.com/Whats-a-typical-day-like-in-India-for-a-woman>

conservatives. The ever-so-popular patriarchal culture imbibes certain pseudo values in the more traditional Indian households, and no matter how driven, talented, and independent their daughters are, their ultimate life goals are to learn household-y skills, get married, move in with their husbands and in-laws, do their in-laws' bidding, give birth to a couple of kids (preferably boys, of course), and sacrifice their careers to live a life of mediocrity and always being financially dependent on their husbands.



Answered Apr 25, 2018

What's the worst part of being a woman in India?

The rape culture, of course. But not all Indian women are raped or physically abused. I wish to answer from the perspective of a common Indian woman, living in a so-called urban community. My answer would be the **normalization of the ridiculous "codes of conduct" we are expected to follow in the name of patriarchy**. Some examples:

3) My brother has been to Delhi, Goa, America—all on his own, but I am not allowed to the mall without my dad dropping me off there. Public Transport on my own is a big No. I once got asked by a drunken stranger if I was willing to sleep with him. I was wearing a salwaar with an apron over it (for those who are wondering if I somehow tipped him off!) So can you blame my parents?

4. Street harassment. Even if you were lucky enough to be born in a decent, women-loving family, the rest of the world won't spare you. Cat calling, eve-teasing, ogling - men raping you in their minds. You have to put up with them everywhere. You learn to laugh it off - like when a random fellow asks you to "make fraanship" with him. You laugh. But it's hard to keep up a sense of humour all the time. When in a crowd, a stranger feels your breasts, tries to put his hand between your thighs, spansks your behind. It makes you want to run away to a place where men don't exist.

I feel insecure to walk into any dark, empty roads, cuz these empty roads give me chills, not scaring any demons but I get scared to these morons trapped within human body. I feel happy, whenever I find any stray dog within those empty, dark roads, cuz "These stray animals can be my protectors".



Shravya Gudimella, I heart Biology

Answered Feb 22, 2015

What is it like to be a woman living in India?

Originally Answered: What is it like to be a girl in India?

I am a 22 year old, born and brought up in a middle class conservative family in Hyderabad. Like everything in life, the extra X chromosome comes in with a set of advantages and disadvantages in India.

THE INHABITANTS PROFILES

LOW INCOME GROUP



NAME:	SAANVI
AGE:	23
RELATIONSHIP STATUS:	MARRIED
OCCUPATION:	HOME-BASED WORKER
CHILDREN:	0
HOUSEHOLD EARNINGS:	Rs 30,000

Saanvi was living in an informal settlement nearby with her husband. Saanvi was working from her cramped 1 room home. She was mostly doing embroidery jobs for a middleman which brought very little pay since they would take a substantial cut of the proceeds. Her friend told her about SEWA so she went to the community centre where NMIA is also based and decided to move to the area as they would provide her with better paid home-based work, healthcare benefits and training for more garment making as well as some marketing skills to even sell her own products from her home. The Live-Work unit provides her and her husband a comfortable space, avoiding long travel times since they can sell directly from their home.

ASPIRATIONS:

- Affordable and inclusive housing
- Access to safe selling points
- Separate space for working + living
- Access to School + Daycare
- Access to food shops + stalls

THE INHABITANTS PROFILES

MIDDLE INCOME GROUP



NAME:	PRISHA
AGE:	25
RELATIONSHIP STATUS:	SINGLE
OCCUPATION:	RECENT GRADUATE
CHILDREN:	0
HOUSEHOLD EARNINGS:	Rs 50,000

Prisha recently graduated from the University of Mumbai. She wanted to move somewhere with a couple of other friends from her university that would be more affordable in order to set up a start-up together. Their plan is to rent out a co-working space near where they live so they don't need to travel for a long period during the day. The Starter Home unit allows Prisha to have a comfortable space for relaxing as well as working if necessary. She can also rent out a co-working space with her friends on the ground floor of the building.

ASPIRATIONS:

- Apartments to rent or buy
- Space for working from home
- Place to rent out (co-working space)
- Access to food shops + stalls
- Places for leisure + meeting others

THE INHABITANTS PROFILES

HIGH INCOME GROUP



NAME:	MAHIRA
AGE:	35
RELATIONSHIP STATUS:	MARRIED
OCCUPATION:	HOME-BASED WORKER
CHILDREN:	2
HOUSEHOLD EARNINGS:	Rs 100,000

Mahira, her husband and 2 children moved out of Mumbai to have a more peaceful life. Her husband and her both work for a tech company that has now changed to remote working since the pandemic (COVID-19). Travelling to Mumbai is not necessary anymore therefore they wanted a large home where they can spend more time together with their children. The 4 bed duplex family home provides them with the luxury of space inside and outside as well as access to the gym, outdoor sports facilities, a nearby daycare and safe places of leisure as well as local shops and business.

ASPIRATIONS:

- Luxurious apartments to buy
- Access to gym + sports facilities
- Access to School + Daycare
- Access to food shops + stalls
- Places for leisure + meeting others

III. CURRENT SITUATION

SITE SELECTION

CIDCO MASS HOUSING SCHEME



City and Industrial Development Corporation (CIDCO) is a city planning agency in India. It is the richest government authority in the country controlled by the Government of Maharashtra.

CIDCO Mass Housing Scheme aims to create 65,000 houses in the year 2022 including areas of Navi Mumbai: Taloja, Dronagiri, Kalamboli, Ghansoli and Kharghar.

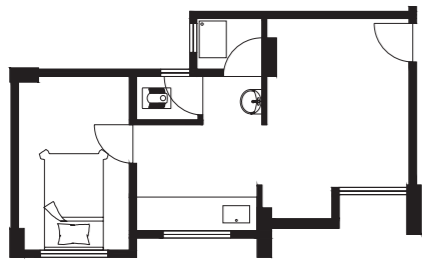
The concept of the Mass Housing Scheme is based on providing 2 units which only provide space for a family of 2 and only vary slightly in terms of the area. These units vary considerably in terms of price, meaning that someone from the lower income class of the EWS will not be able to afford it. These units are then pieced together and repeated 6 times on every floor which creates space for only one façade of the individual units to have windows.

Considering CIDCO's mission, I decided to focus on one of the areas and find solutions to activate the existing schemes by means of a gender sensitive approach which could then trigger the future plans of CIDCO.

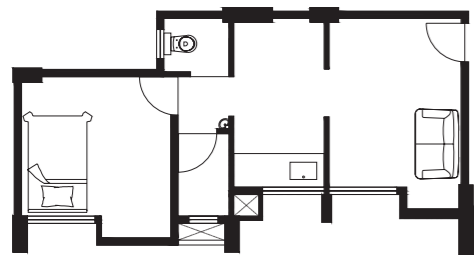
The monotonous stacking of units creates a disconnect between the different floors. The floor slabs become invisible barriers separating daily lives, which do not have any point of interaction apart from the circulation areas.

MASS HOUSING SCHEME

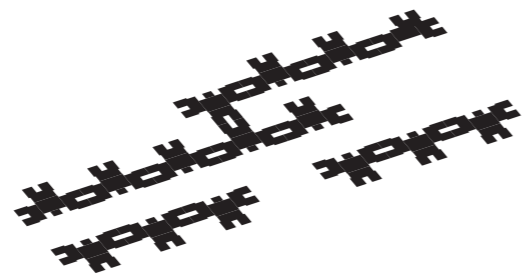
CIDCO COMPONENTS



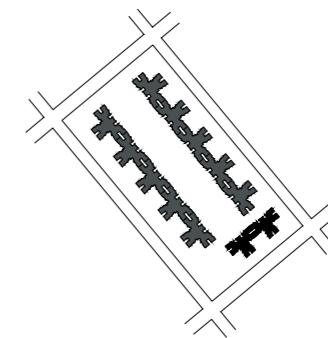
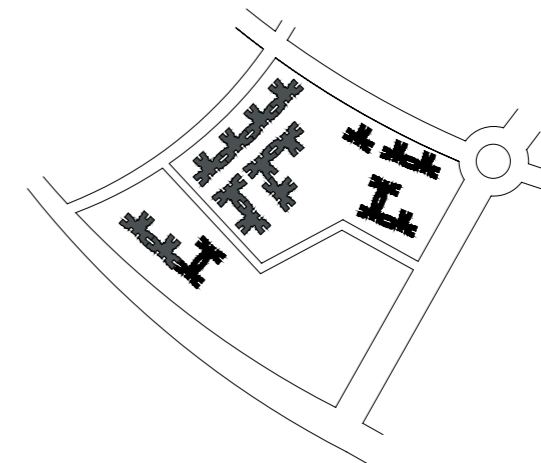
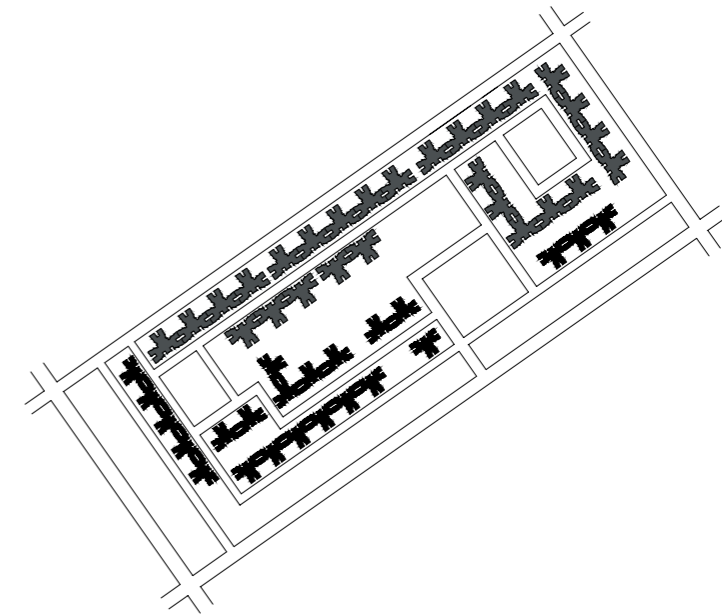
EWS Unit = 26m²



LIG Unit = 30m²



Combined Units = Repeated Stamp



Repeated Stamp in Different Locations

MASS HOUSING SCHEME

CIDCO PHOTOGRAPH



Total 4,488 TENEMENTS

A Special Housing Scheme for COVID Warriors and Uniformed Personnel

Honour of COVID Warriors, Pride of the Nation

[CLICK HERE TO APPLY >>](#)

CIDCO
WE MAKE CITIES

Navi Mumbai Marches Ahead
With **'HOUSING FOR ALL'**
89,771 HOUSES AT SEVERAL NODES
OF THE CITY BASED ON TRANSIT ORIENTED DEVELOPMENT

Ground Breaking Ceremony of
CIDCO's MASS HOUSING SCHEME-2018
by
NARENDRA MODI
Prime Minister

ON TUESDAY, 18TH DECEMBER, 2018 AT 01:30 PM
AT: VASUDEV BALWANT PHADKE GROUND, LAL CHOWKI, ADHARWADI ROAD, KALYAN (W)- 421 301.

PROJECT HIGHLIGHTS

89,771 Houses 53,483 for Economically Weaker Section (EWS) and 36,288 for Lower Income Group (LIG) categories.	Houses in vicinity of Bus Depots, Truck Terminals and Railway Stations enabling Transit Oriented Development.
Bus Depots and Truck Terminals covered: Vashi, Kharghar, Kalambooli and New Panvel in addition to a Project at Taloja Node	Railway Stations Forecourt Areas covered: Sanpada, Juinagar, Kharghar, Bamandongri, Kharkopar, Mansarovar and Khandeshwar

Eligibility for Subsidy
for EWS under PMAY- Rs. 2.5 Lakh
for LIG under CLSS- upto Rs. 2.67 Lakh

DEVENDRA FADNIS
Chief Minister, Maharashtra

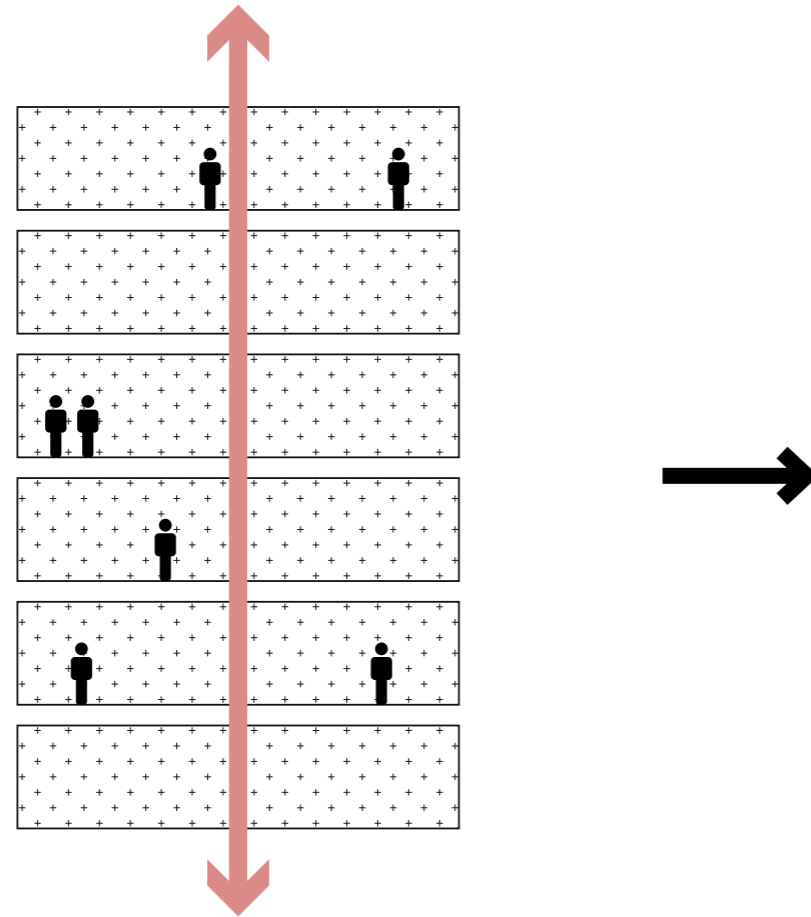
CITY AND INDUSTRIAL DEVELOPMENT CORPORATION OF MAHARASHTRA LIMITED.

REGD. OFFICE: Nirma, 2nd Floor, Nariman Point, Mumbai- 400 021 | Phone: +91-22-6650-0900 | Fax: +91-22-2202-2509.
HEAD OFFICE: CIDCO Bhavan, CBD Belapur, Navi Mumbai- 400 614 | Phone: +91-22-6791-8100 | Fax : +91-22-6791-8166.

www.cidco.maharashtra.gov.in | CIN - U99999 MH 1970 SGC-014574 | CIDCO/PR/390/2018-19

MASS HOUSING SCHEME

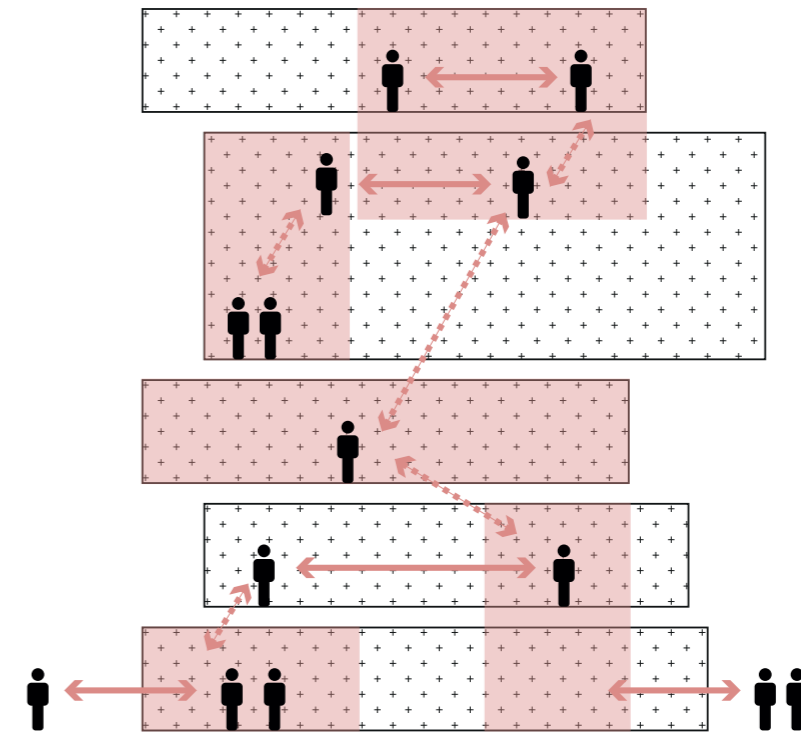
CIDCO HIGH RISE ISSUES VS. POSSIBILITIES



STACKING = DETACHMENT

The monotonous stacking of units creates a disconnect between the different floors.

The floor slabs are therefore invisible barriers separating daily lives, which do not have any point of interaction apart from the circulation areas.



INTERSECTION + CONNECTION

A building block that demarcates spaces for social interaction and provides attractive and necessary shared amenities dispersed throughout the building.

Residents would pass by social spaces often, therefore they would be maintained.

SITE SELECTION

CIDCO MASS HOUSING SCHEME - GHANSOLI



SITE SELECTION

GHANSOLI, NAVI MUMBAI, MAHARASHTRA



SITE OVERVIEW

GHANSOLI SECTOR 9+10



SITE ZOOM IN

GHANSOLI, SECTOR 9+10



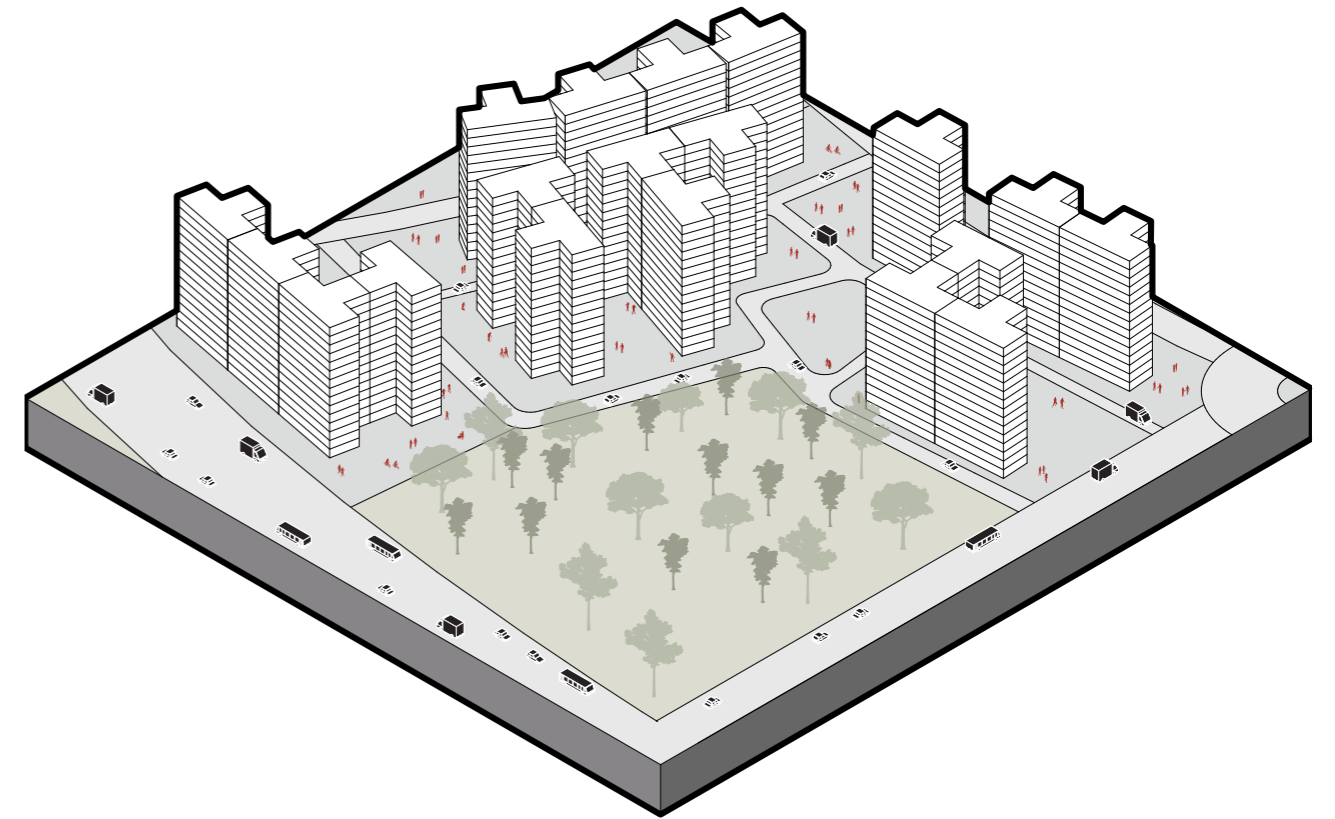
CURRENT SITUATION

GHANSOLI, NAVI MUMBAI, MAHARASHTRA



CURRENT SITUATION

GHANSOLI, NAVI MUMBAI, MAHARASHTRA



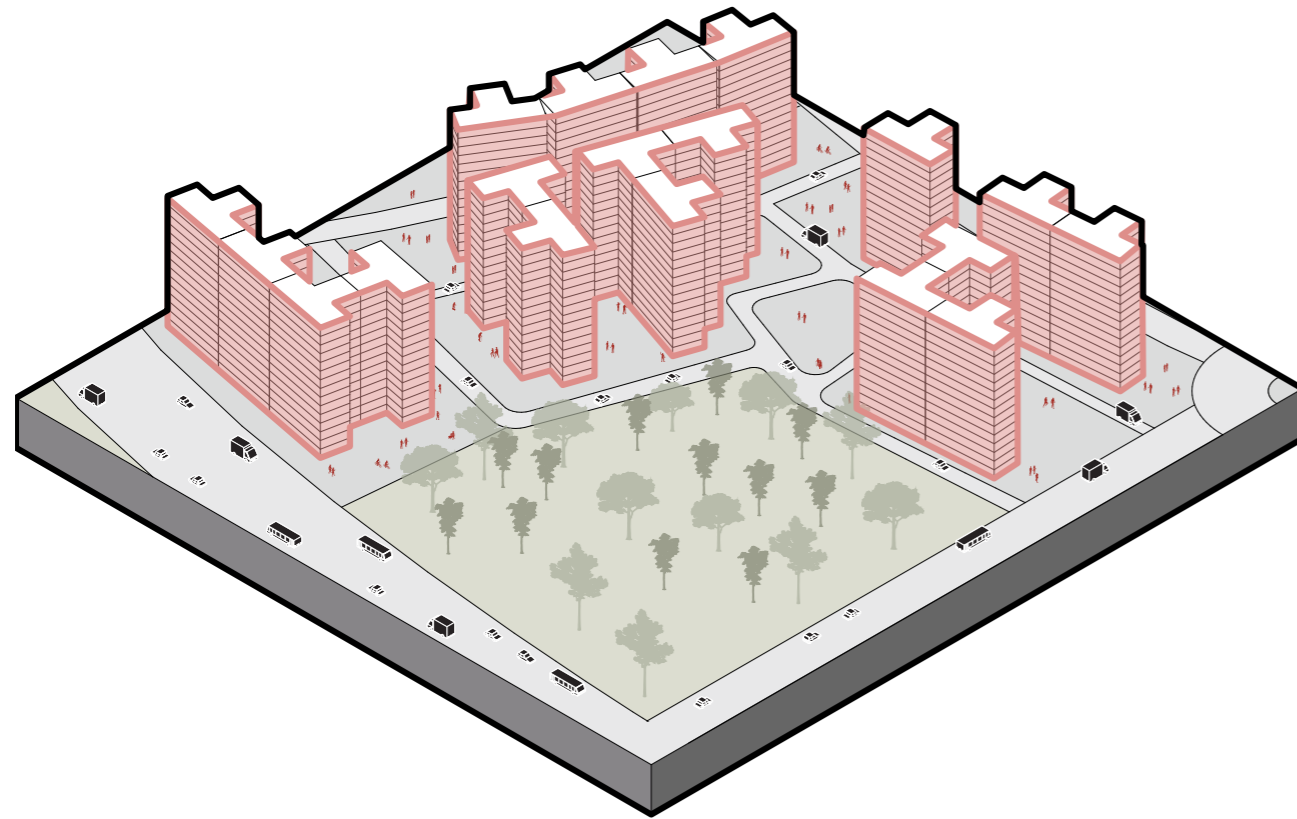
The current situation is quite critical since it does not offer what CIDCO is saying and it also causes unpleasant environments especially for women.

A SAFE PATH HOME

AR3AD105

SPATIAL ANALYSIS

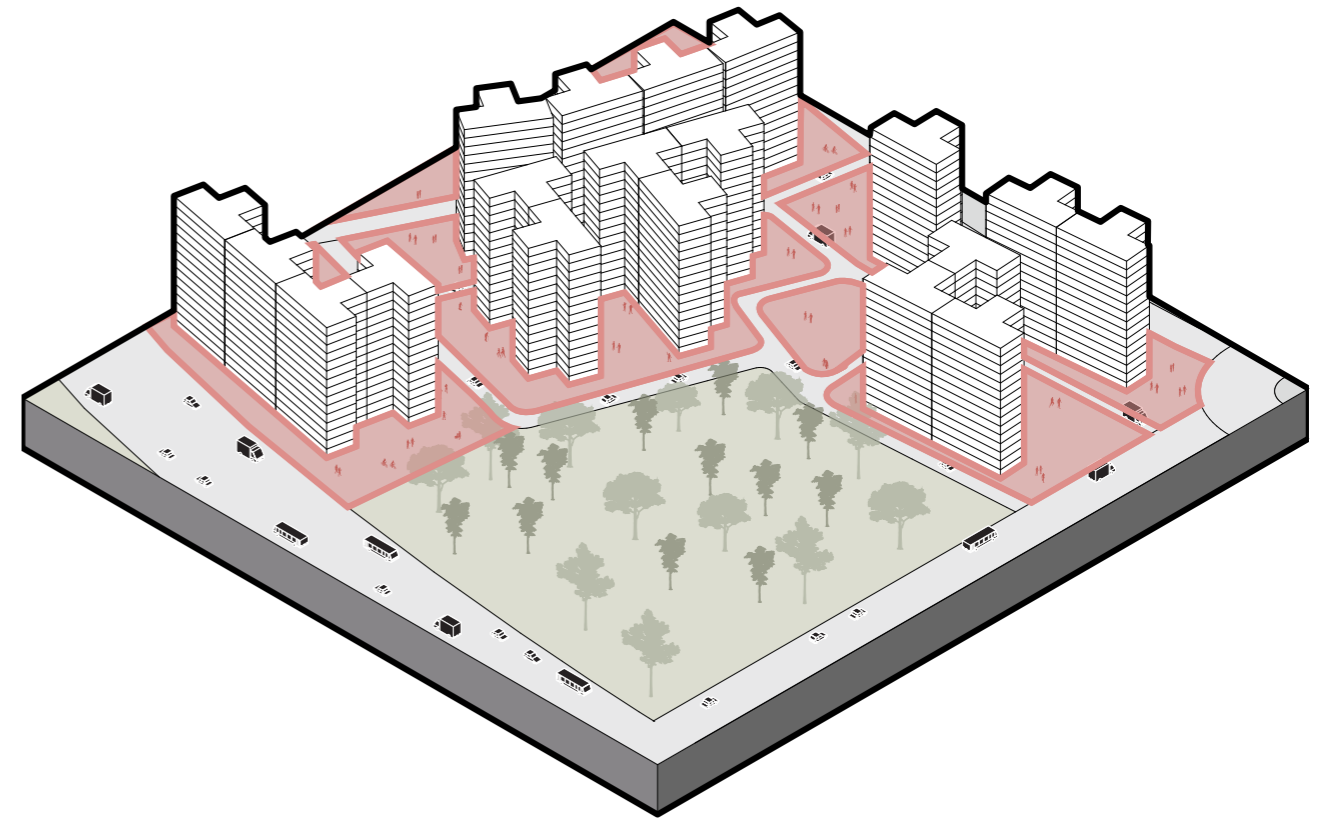
UNPLEASANT EDGE CONDITIONS



Tower blocks create harsh borders which have no connection with the ground and hinder visibility while walking.

SPATIAL ANALYSIS

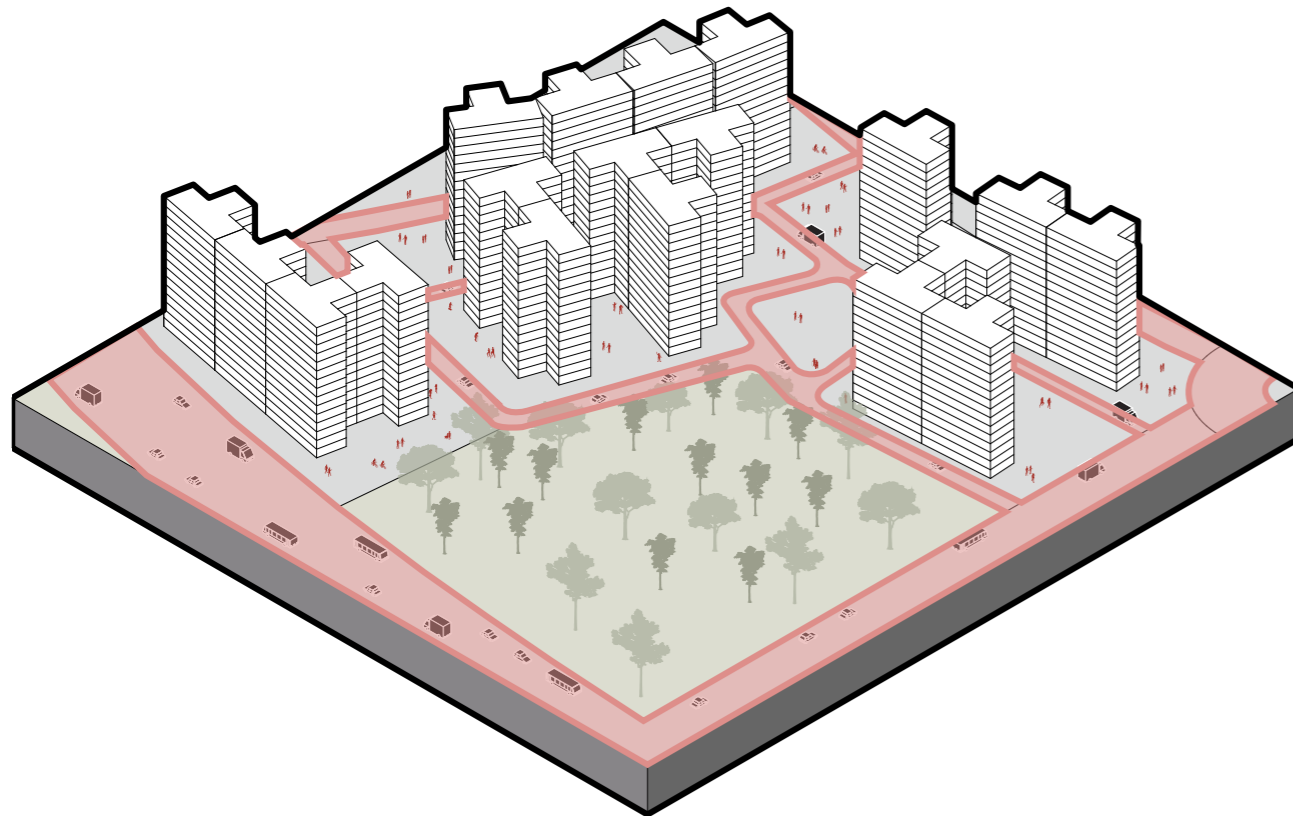
UNPLEASANT EDGE CONDITIONS



Large unwelcome spaces between buildings deter people especially women from wanting to walk through or spend time there since they are unlit and do not offer any necessary function.

SPATIAL ANALYSIS

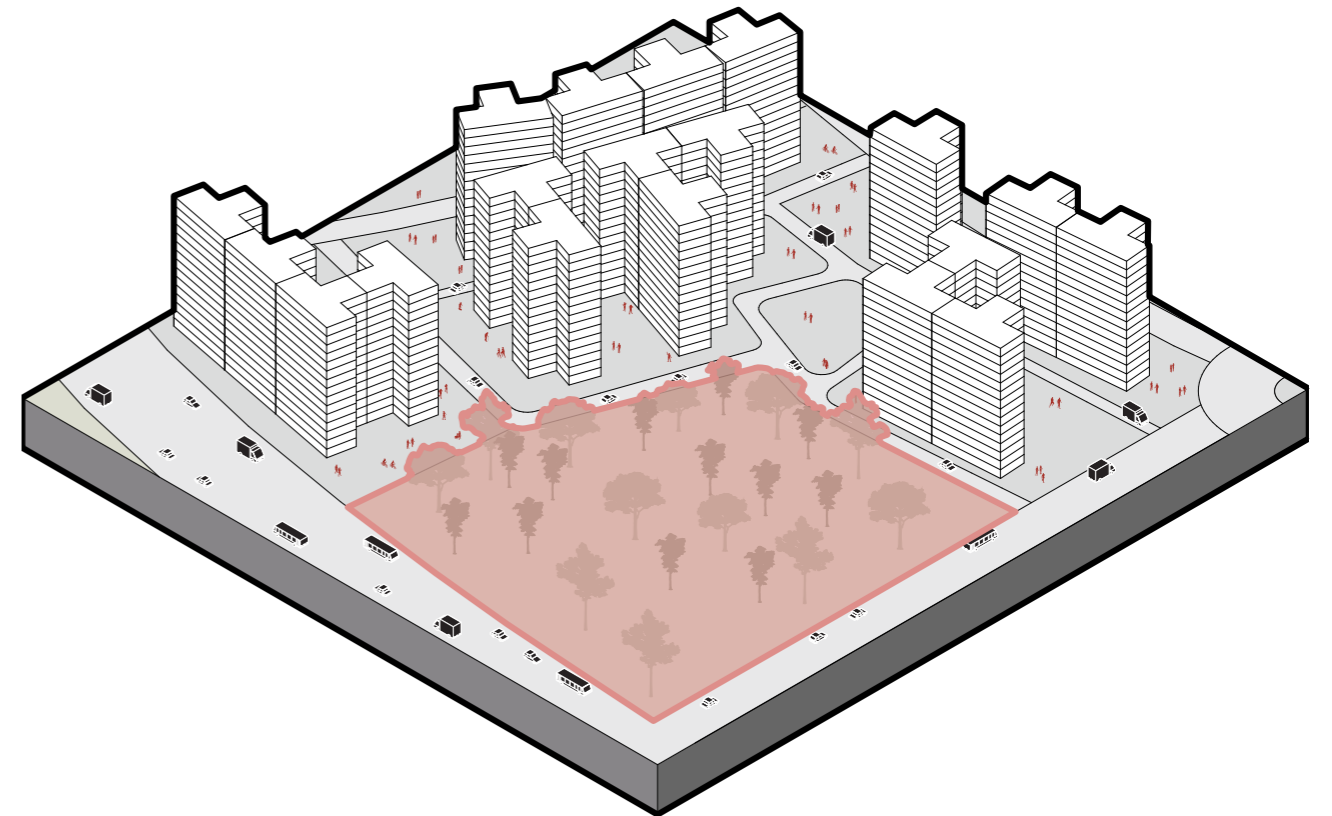
UNPLEASANT EDGE CONDITIONS



The whole area is designed with a car-centric approach which is unpleasant for pedestrians to circulate with no proper pathways, especially at night as they have to rely on the surrounding buildings light.

SPATIAL ANALYSIS

UNPLEASANT EDGE CONDITIONS



The vacant land that is not properly demarcated becomes overgrown with vegetation and not maintained - yet another reason of feeling uneasy and deterred from wanting to spend time outside.

SITE FRAGMENTATION

GHANSOLI, NAVI MUMBAI, MAHARASHTRA

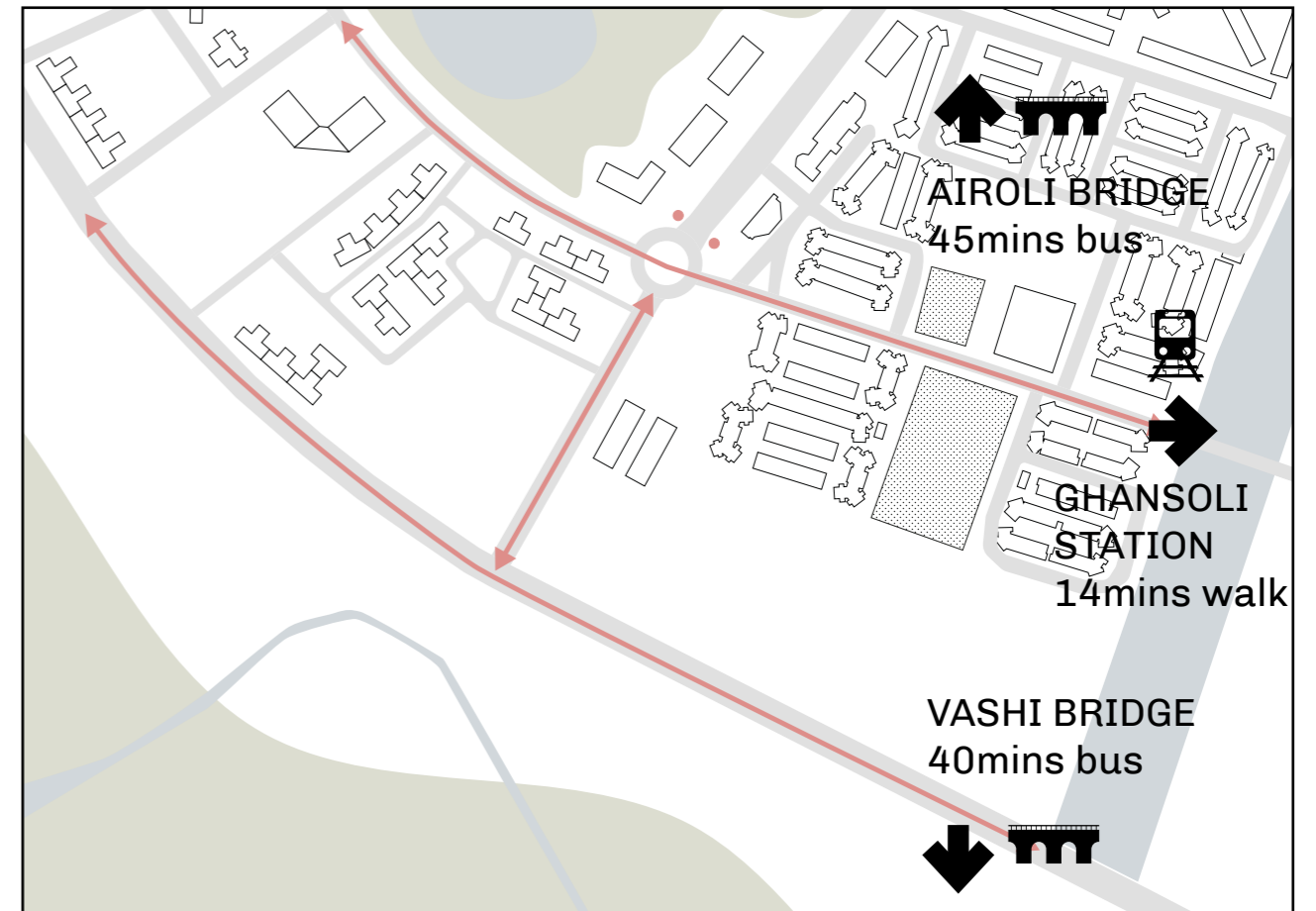


The scheme is fragmented creating a disconnected neighbourhood and the roads and high towers act as boundaries separating people and deterring social interaction.



SITE ACCESSIBILITY

GHANSOLI, NAVI MUMBAI, MAHARASHTRA



The site is accessible to other parts of the city via the railway station towards the East and the main road bound to the site which connects Ghansoli to the Vashi Bridge.

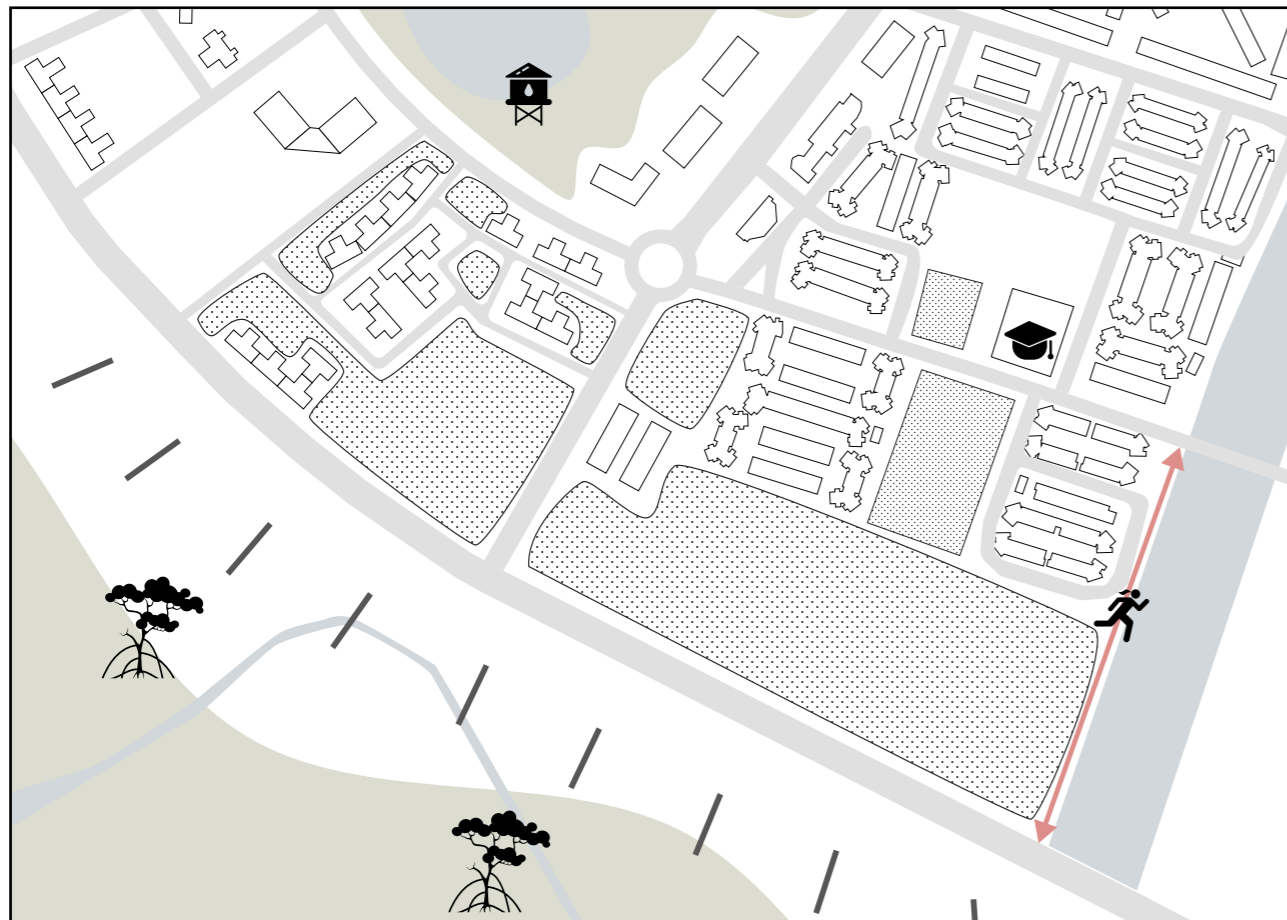
The site is also just south of Airoli so in close vicinity to Airoli Bridge connecting to Mumbai.

- Main roads
- Bus stop







SITE CHARACTERISTICS

GHANSOLI, NAVI MUMBAI, MAHARASHTRA



Dense mangroves cover the entirety of the western side, with a river running along it on the east side. There are some existing public spaces but appear unkempt and lack amenities. The area consist of high-rise and mid-rise residential buildings. There is a clear lack of pedestrian access and public amenities, therefore people would need to travel outside their neighbourhood for the necessities.

-  Underused/Void
-  Public space
-  Water
-  Dense Mangroves



