

Social-driven redevelopment:
Inclusive community for marginalized people

Msc4 Graduation Design I Global Housing Studio

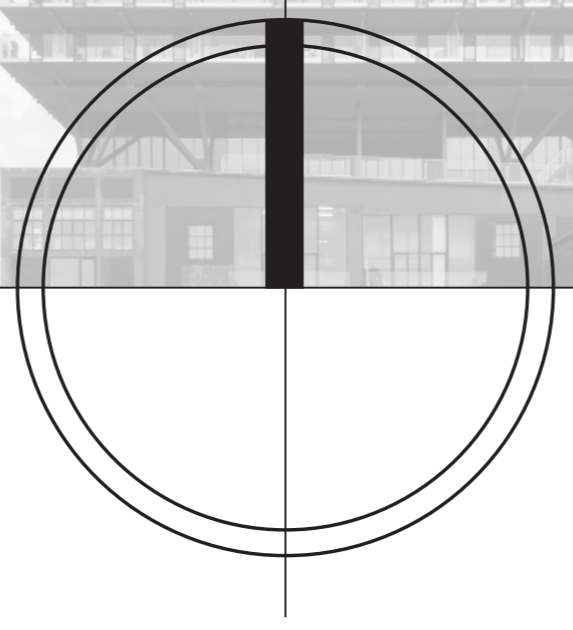
Main Mentor: Nelson Mota

Second Mentor: Stephan Verkuijlen

Third Mentor: Harald Mooij

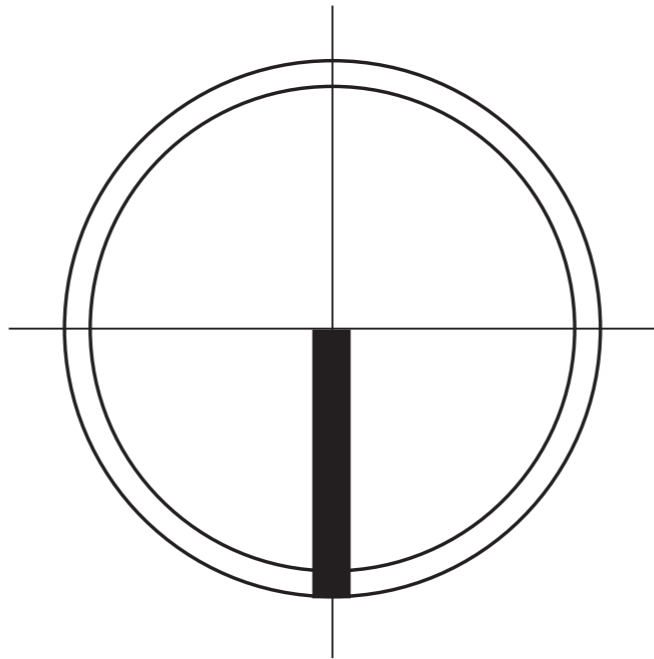
Shi Zeng | 5534739











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Inclusive community for marginalized people

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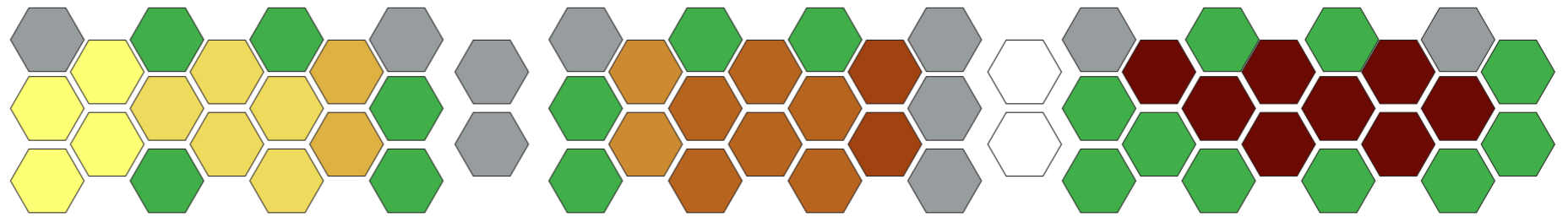
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01 Background



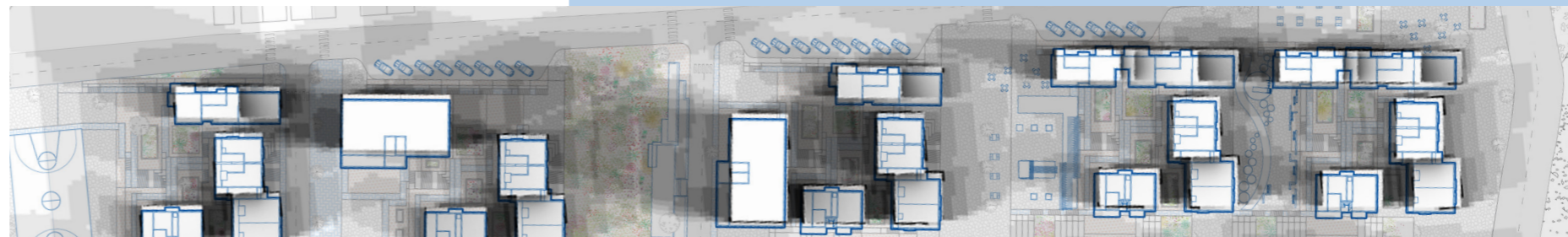
02 Research



03 Design



04 Building Technology



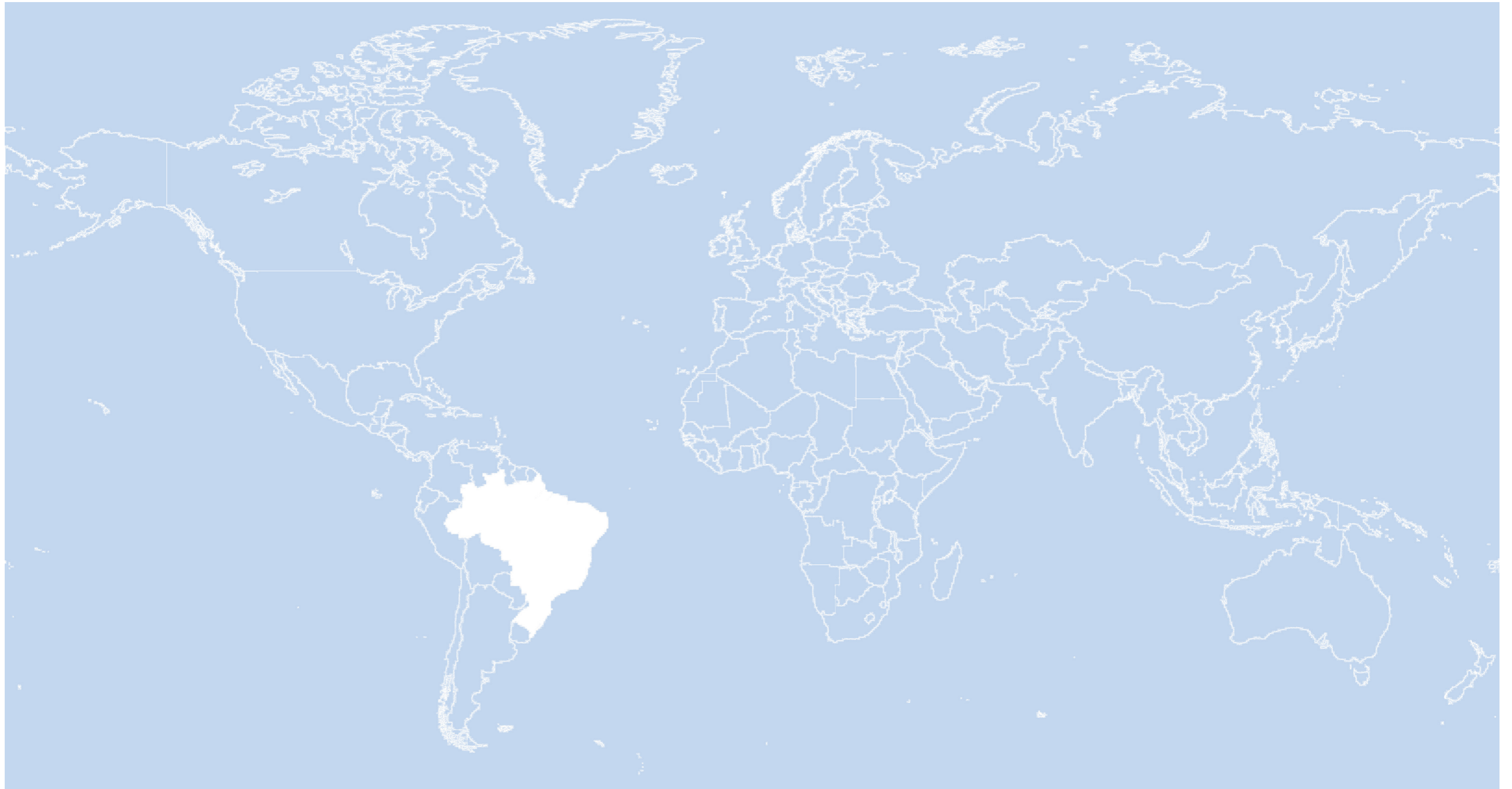
05 Managerial strategies



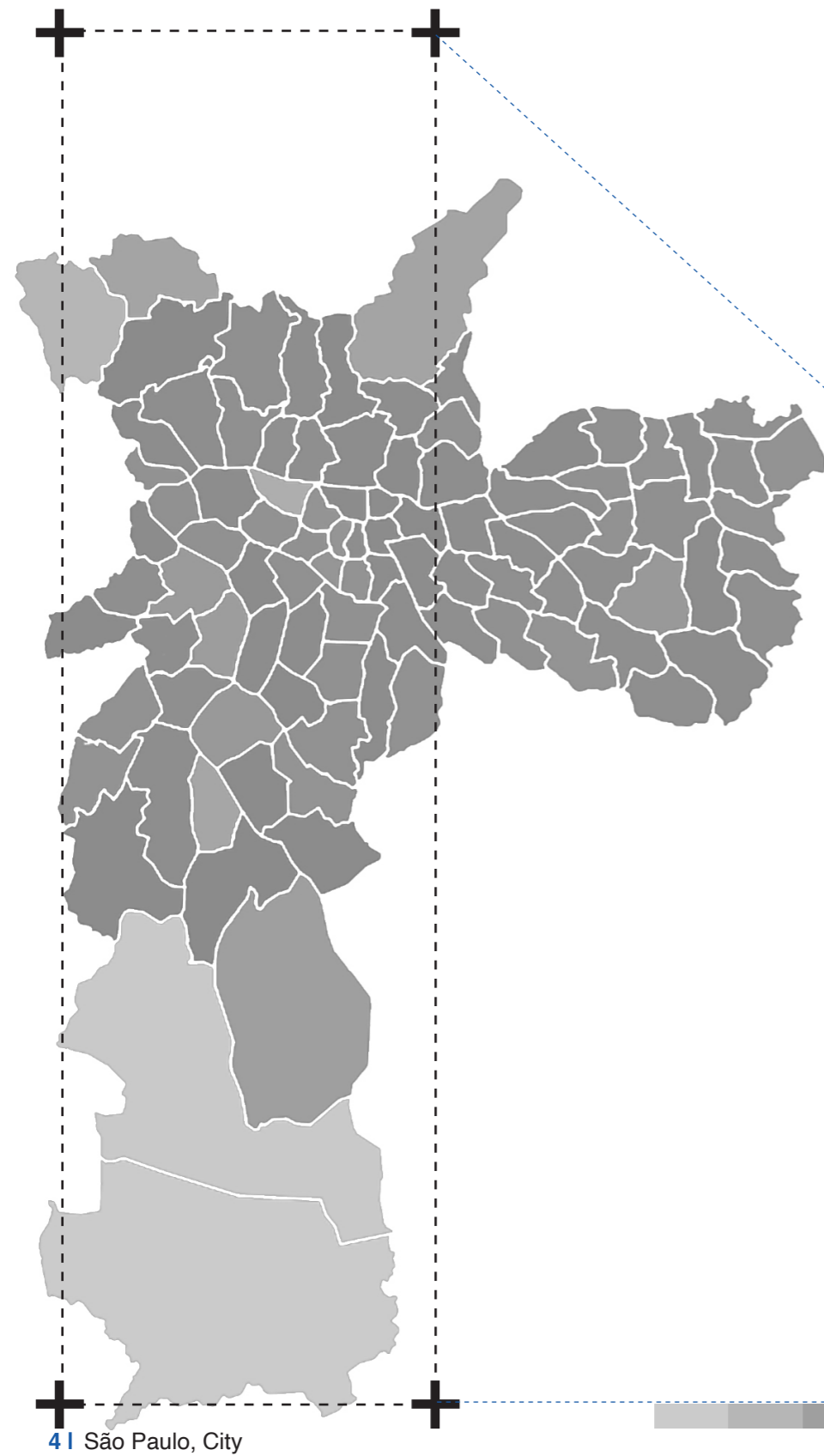
06 Synthesis



01 Background



Blank Map from https://worldmapblank.com/blank-map-of-brazil/?utm_content=cmp-true



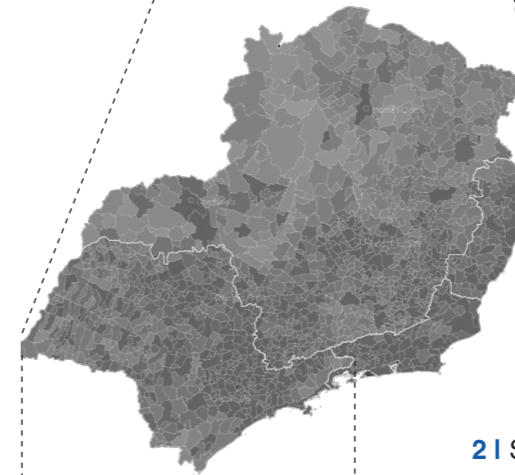
203,062,512 Population
8,510,418 km² Area
23.86/km² Population Density
0.52% Annual Population Change

89,012,240 Population
924,511km² Area
96.0/km² Population Density
0.59% Annual Population Change

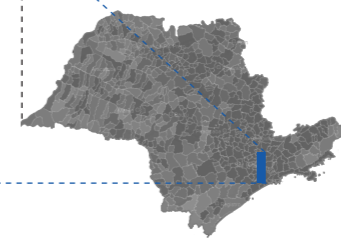
44,420,459 Population
248,219 km² Area
179.0/km² Population Density
0.62% Annual Population Change



1 | Federative Republic of Brazil

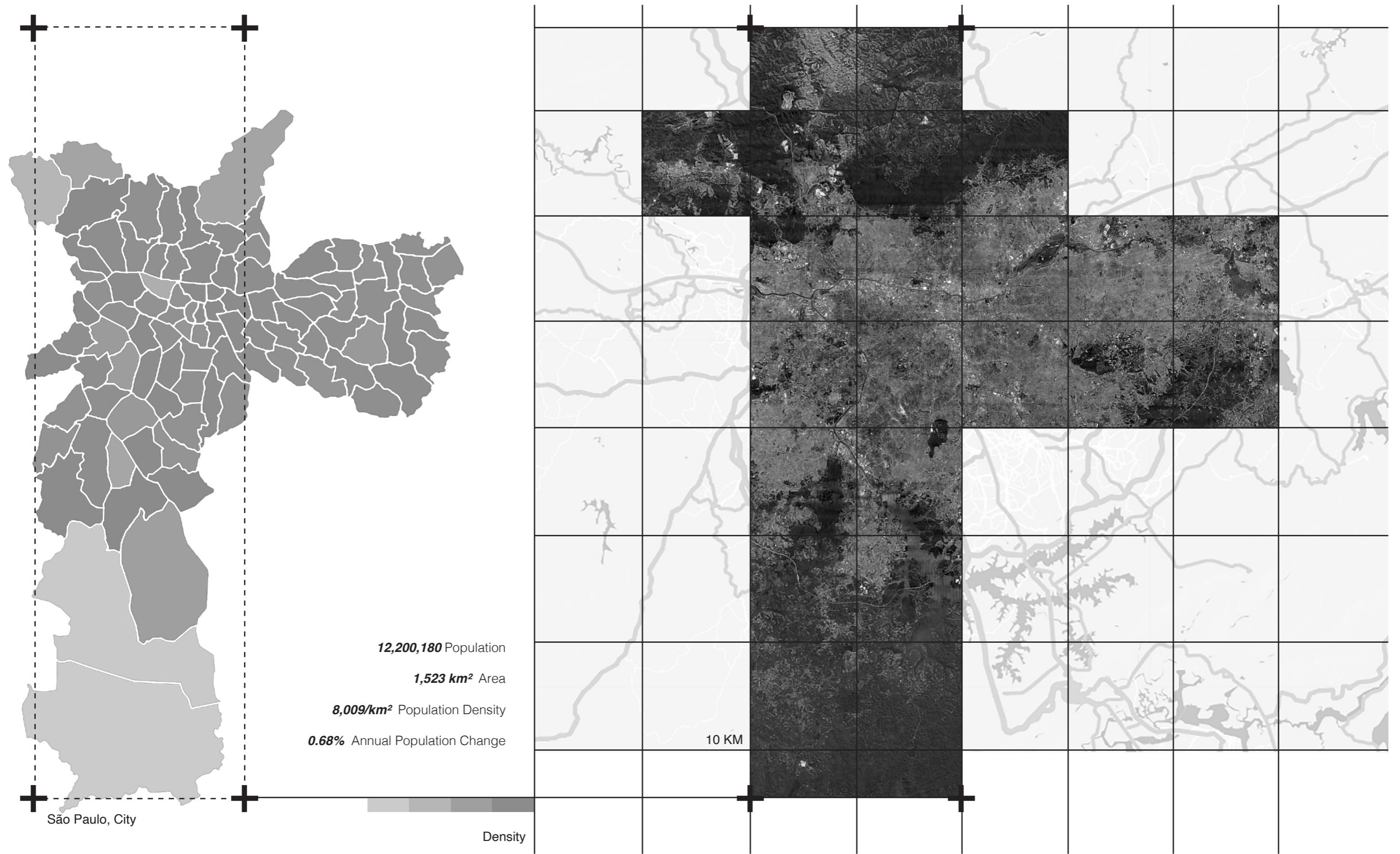


2 | Southeast Region



3 | São Paulo State

Data from https://www.citypopulation.de/en/brazil/regiaosudeste/admin/s%C3%A3o_paulo/3550308__s%C3%A3o_paulo/
 Blank Map from https://worldmapblank.com/blank-map-of-brazil/?utm_content=cmp-true



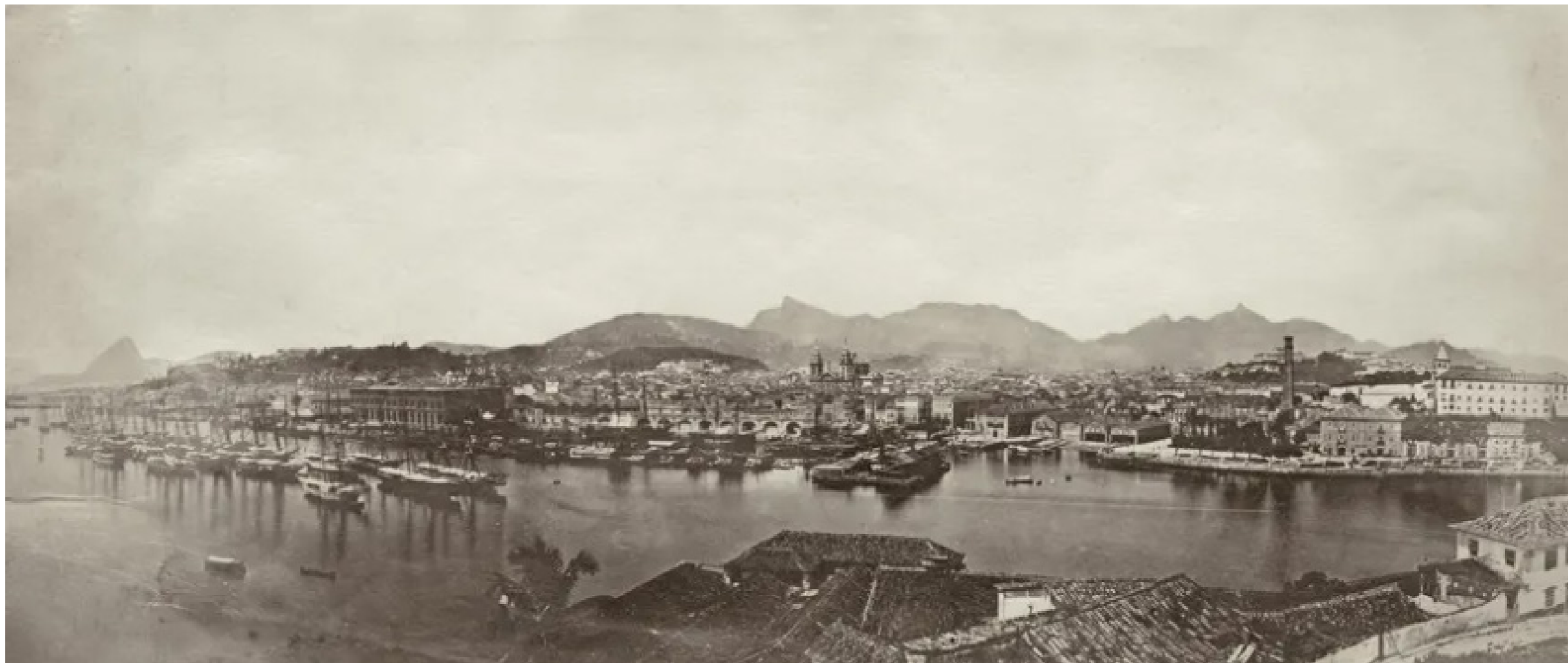
Data from https://www.citypopulation.de/en/brazil/regiao-sudeste/admin/s%C3%A3o_paulo/3550308__s%C3%A3o_paulo/

1888

Rise of the first favela

Following the abolition of slavery in Brazil in May 1888, numerous slaves came into major cities like Rio de Janeiro.

When the government and the market could not provide enough housing, large numbers of jobless migrants began to build their own **self-built** houses, known as “favelas”, on vacant suburban land.



Brazilian public health pioneer Oswaldo Cruz is removing slum dwellers out of Rio's 'ugly head'.



1913

Rise of the first favela

The poor were forced to move in more disease-prone and unsanitary areas because of the forced demolition of informal housing, and their persistent requests for sidewalks and main roads went unmet.

Relocation



Brazilian public health pioneer Oswaldo Cruz is removing slum dwellers out of Rio's 'ugly head'.

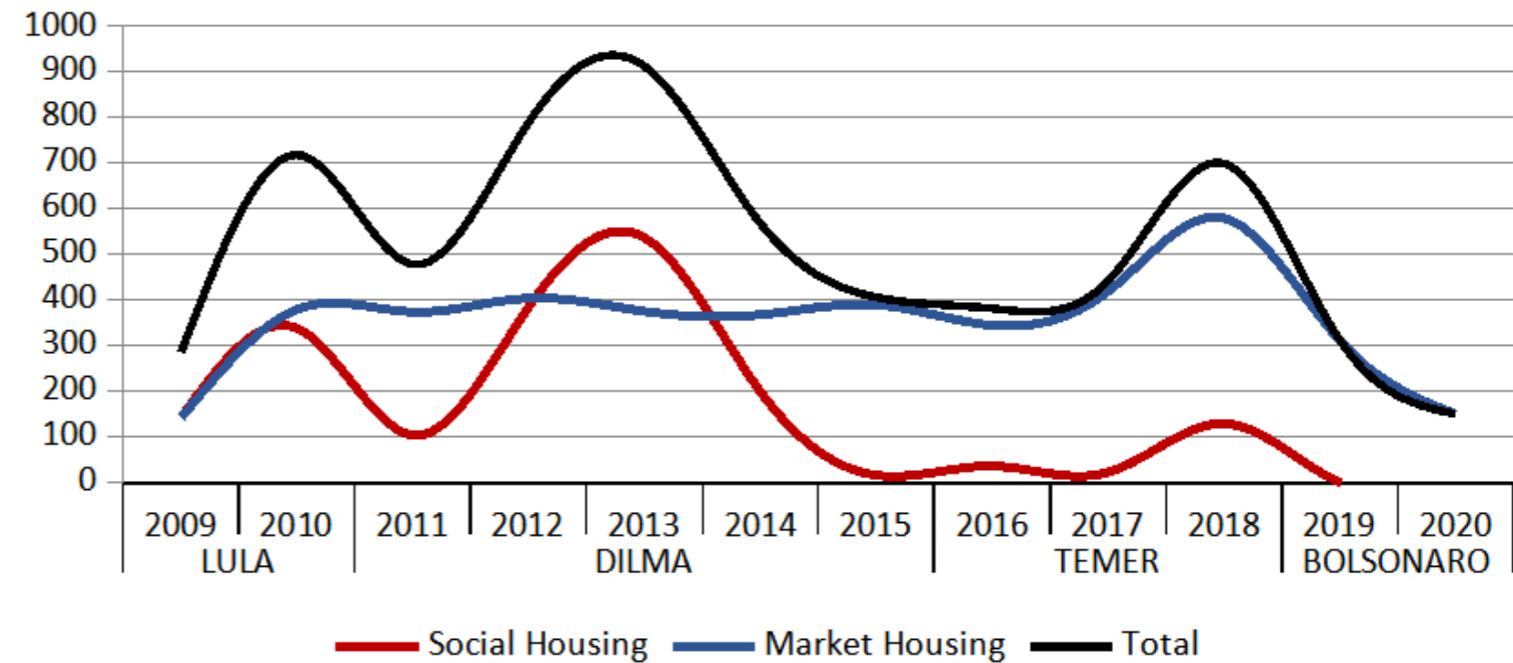


2009

Programa Minha Casa, Minha Vida (PMCMV)

In 2009, Luis Inácio Lula da Silva⁵, the 35th president of Brazil, initiated the My House My Life Program, which has since exerted a profound influence on urban land development across numerous Brazilian cities. This program has ushered in a novel paradigm for urban development in the country.

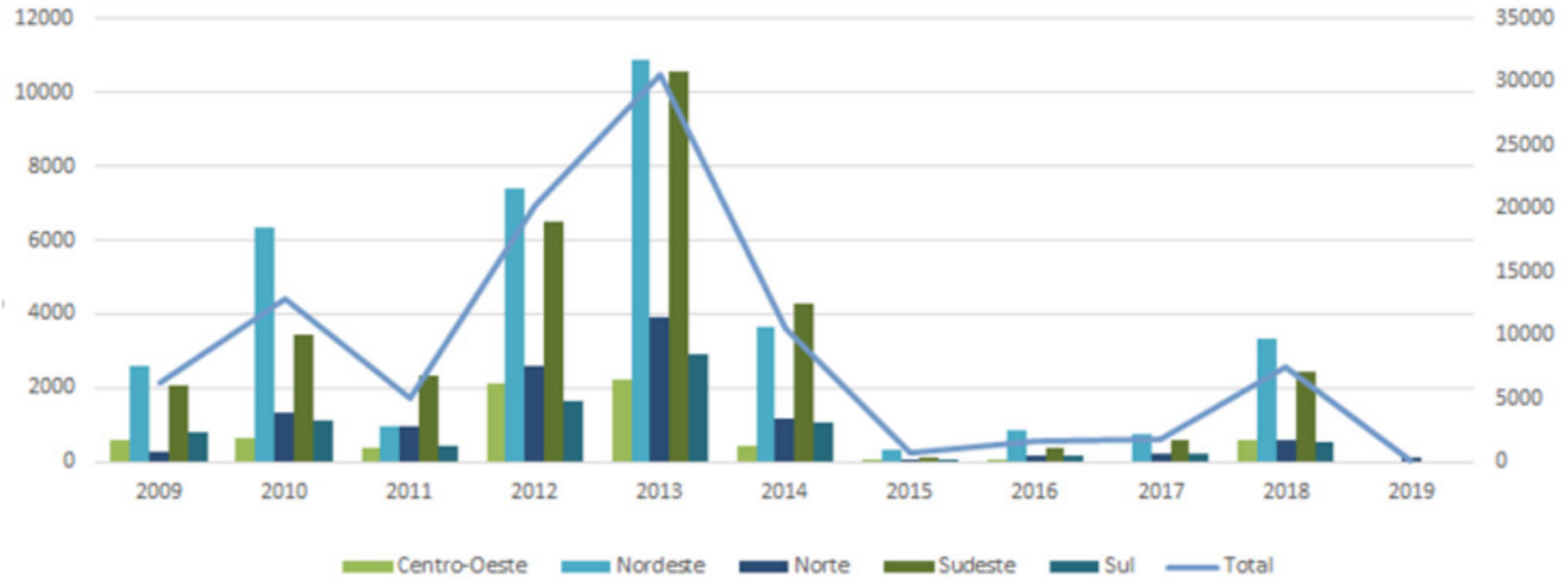
In 2018, Social housing initiatives represented only about **30%** of the total new housing constructions during this period. This is particularly striking given that the housing shortage primarily impacts low-income individuals, with approximately **91%** of those in need requiring access to affordable social housing.



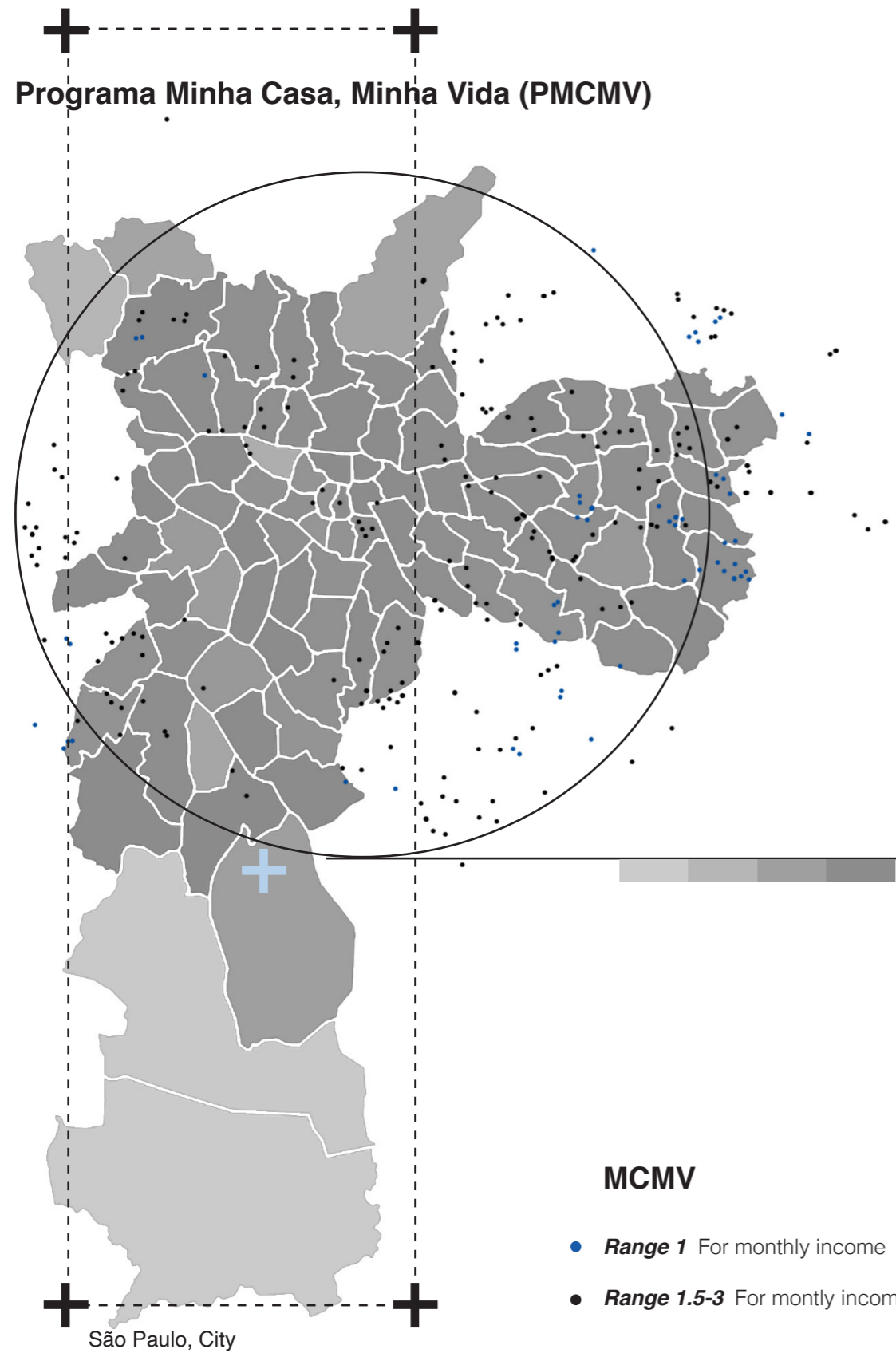
Housing contracts by category, PMCMV, 2009–2020 (in thousands)
 Image download from <https://metropolitics.org/Changes-in-Contemporary-Brazilian-Housing-Policy-The-Dismantling-of-Social.html>

21th *Future of social housing*

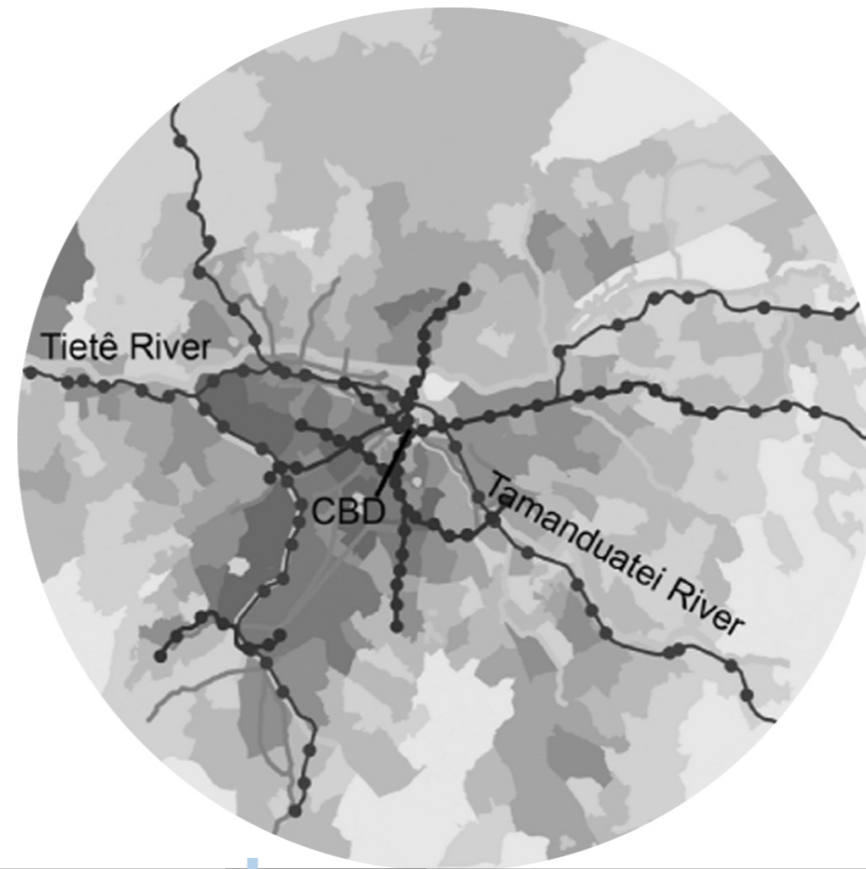
Nowadays, Brazil has a more than **6 million**-unit housing shortfall. **90%** of this gap is composed of people making less than **\$1,000** per month.



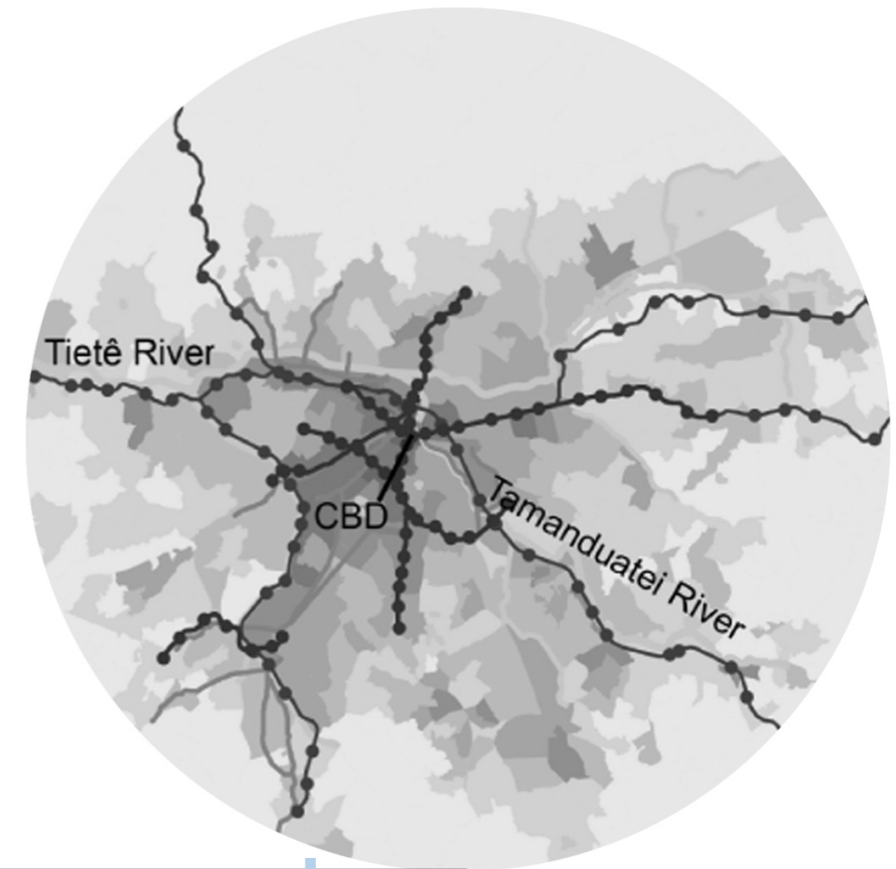
Distribution of resources (contracted value) Track 1 by region and year (R\$ million)
 Image download from <https://www.gov.br/economia/pt-br/aceso-a-informacao/participacao-social/conselhos-e-orgaos-colegiados/cmap/politicas/area/habitacao-e-saneamento/subsidios/pmcmy>



PMCMV (Programa Minha Casa Minha Vida) social housing initiatives exhibit distinct inadequacy, which include the **peripheral** placement of housing units, a tendency towards **uniform** architectural designs, and a notable absence of public and private facilities intended for collective use.

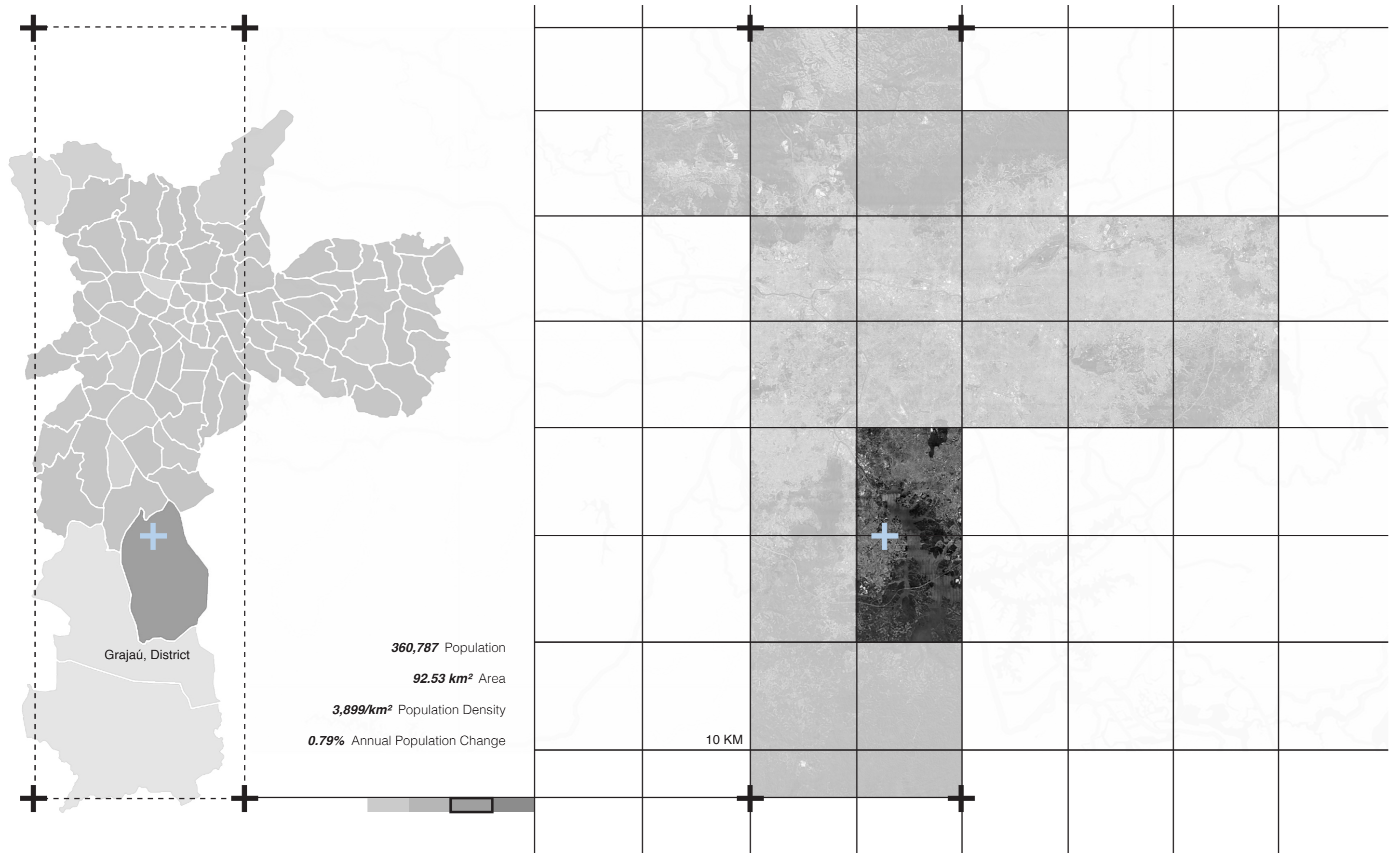


Average income

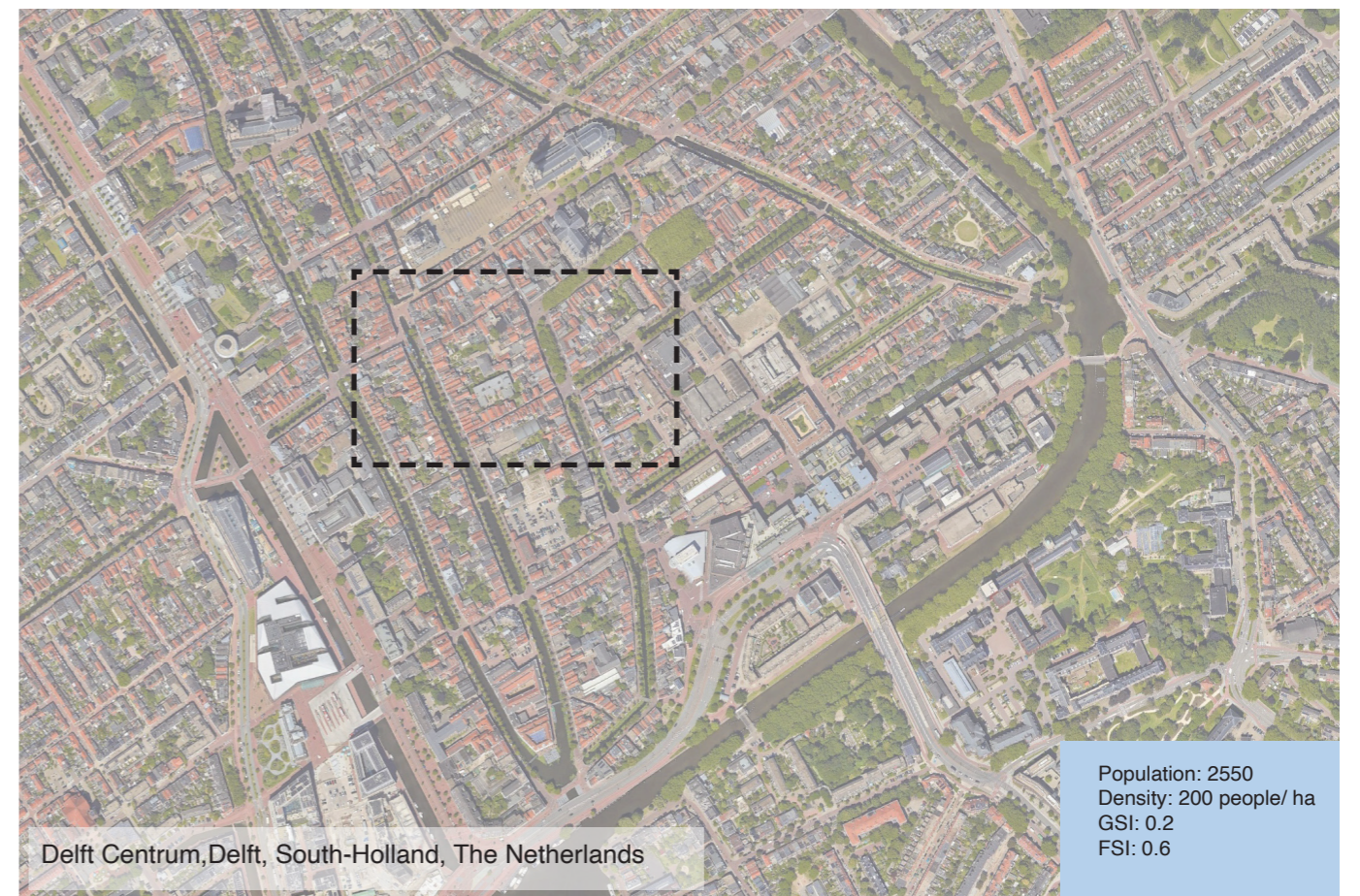
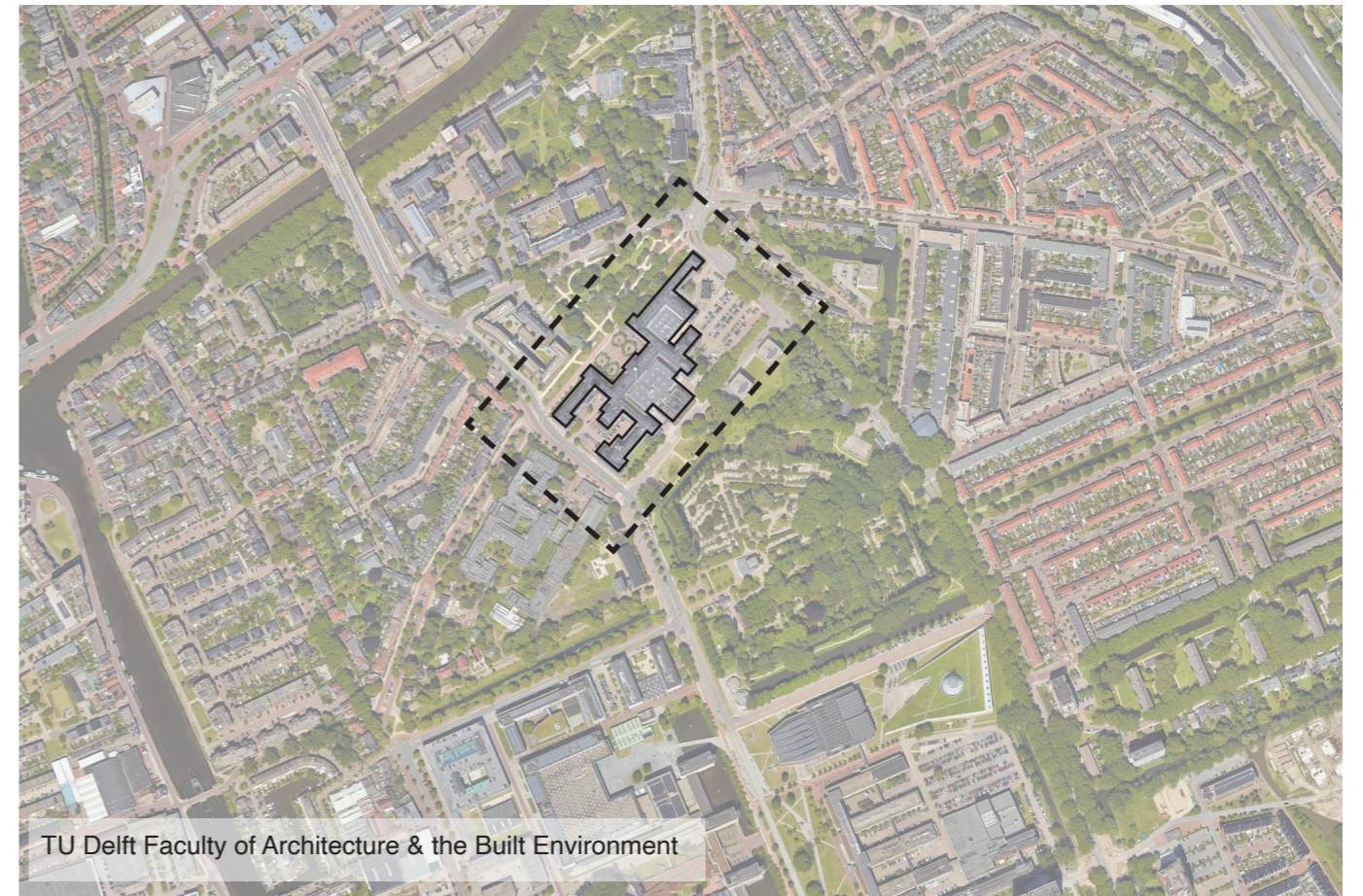


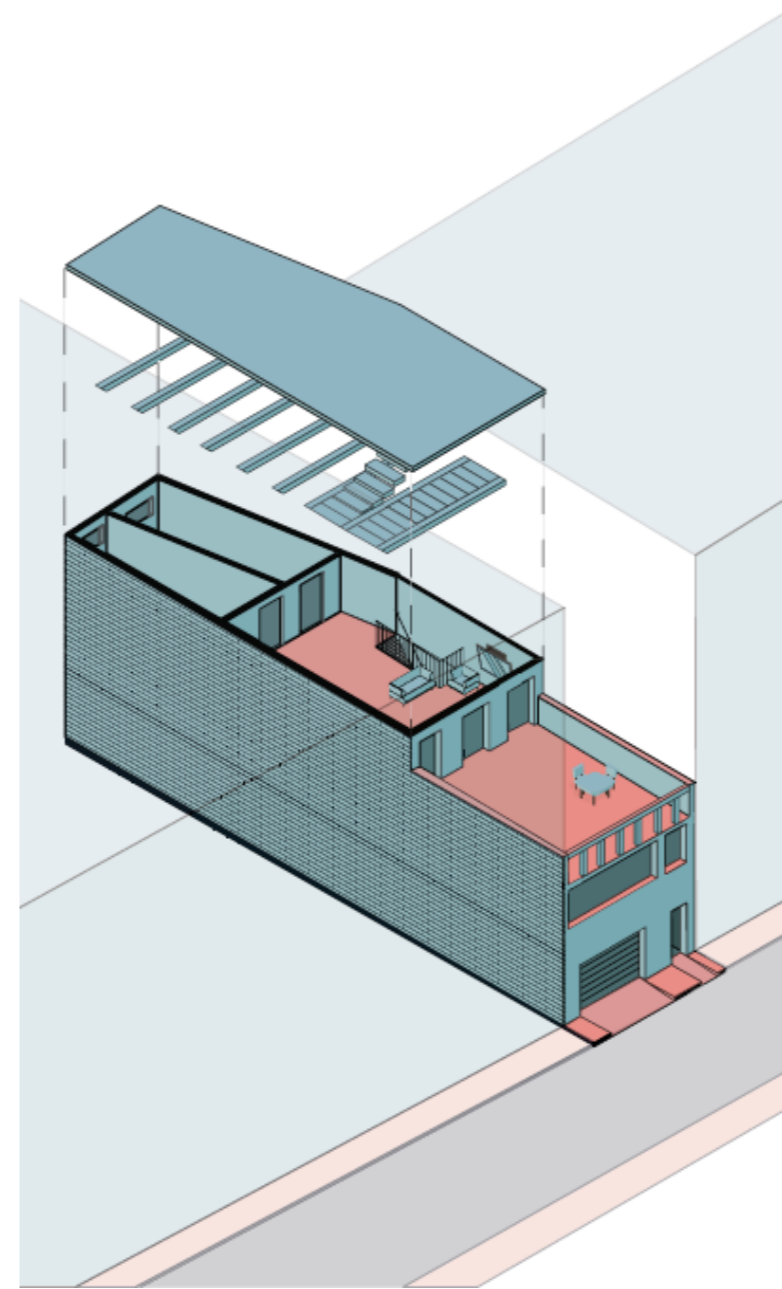
Job density



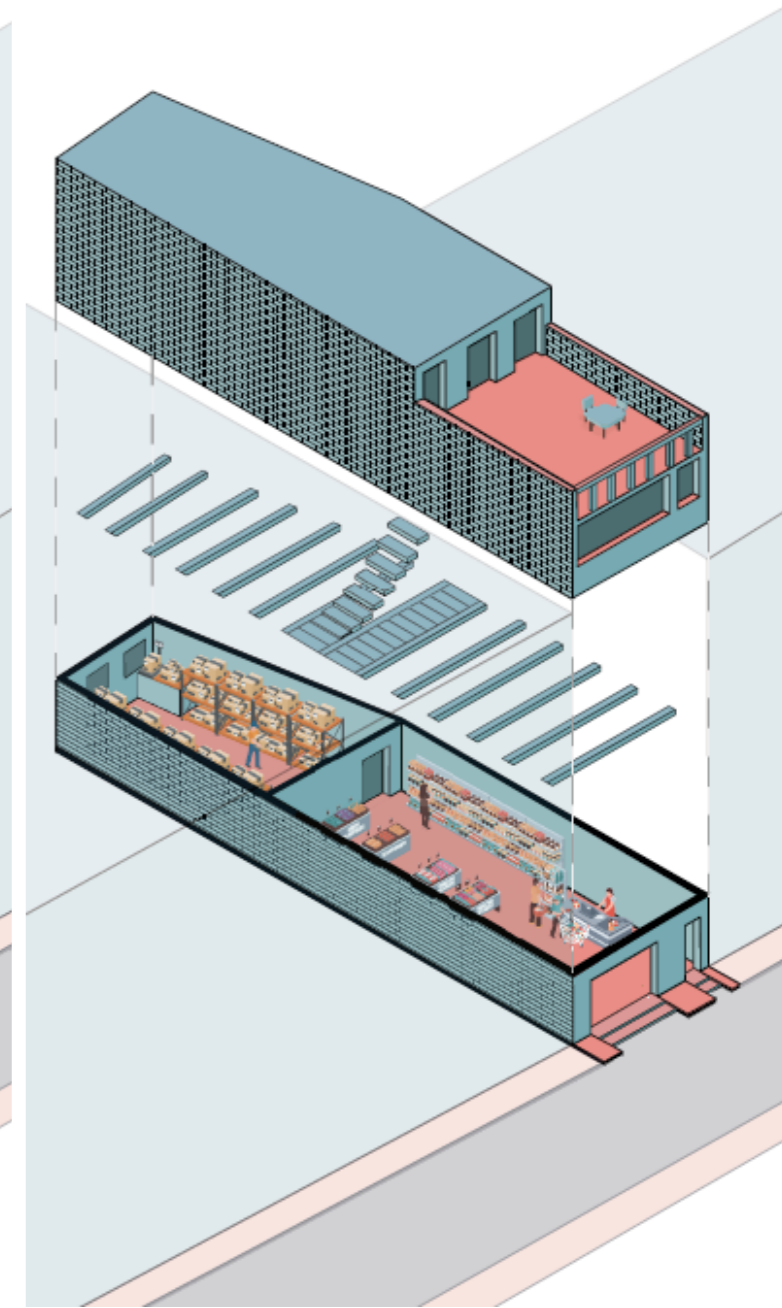


Data from https://www.citypopulation.de/en/brazil/regiao_sudeste/admin/s%C3%A3o_paulo/3550308__s%C3%A3o_paulo/

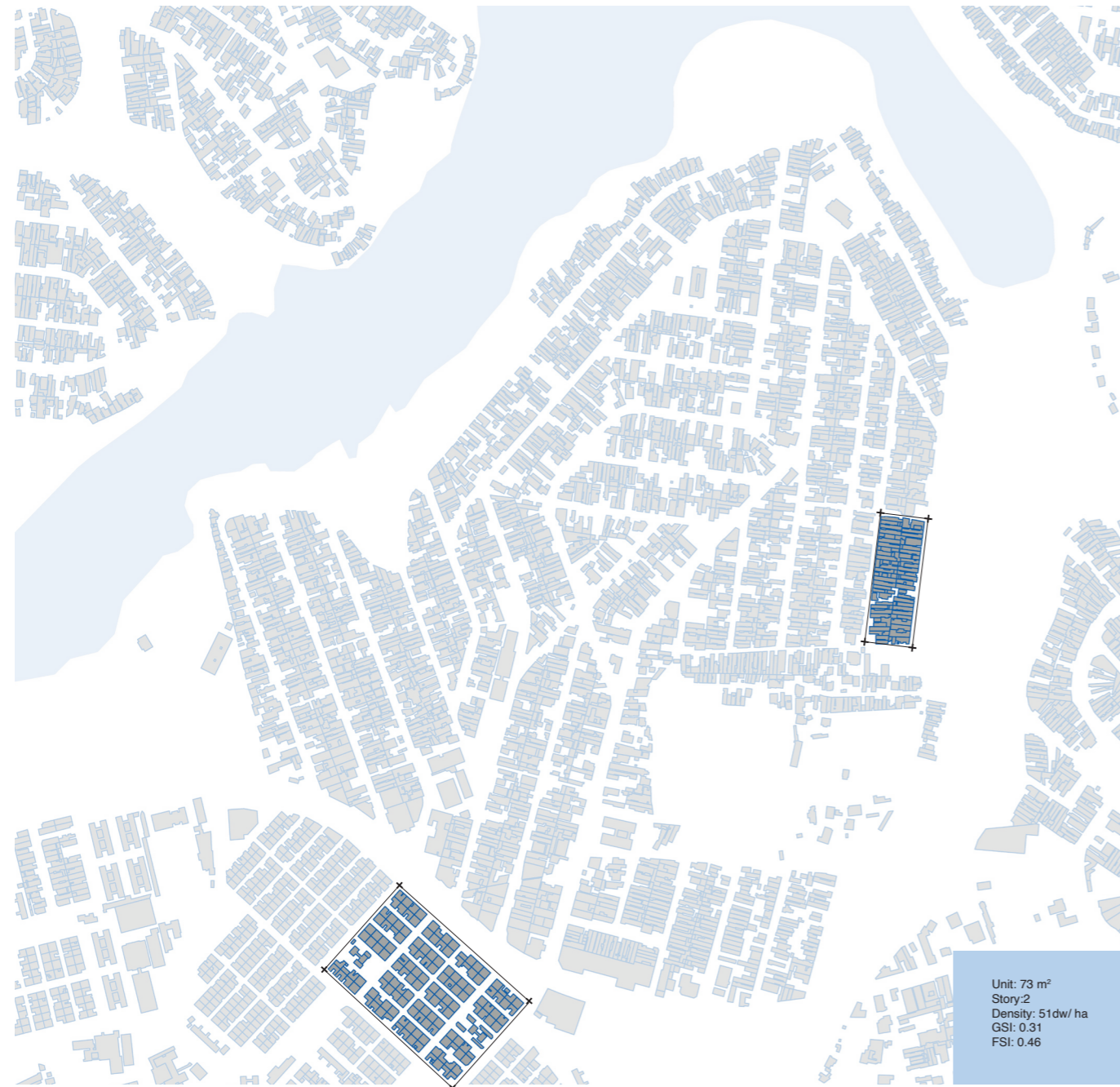




1 | Typical House



2 | House + Shop

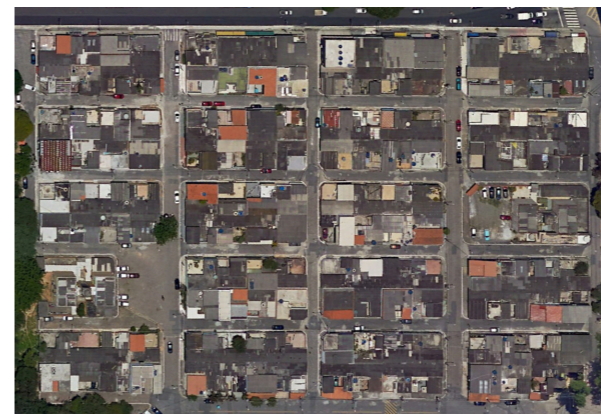


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29	61	93	125	157	189	221	253	285	317	349	381	413	445	477	509	541	573	605	637	669	701	733	765	797	829	861	893	925	957	989	1021
28	60	92	124	156	188	220	252	284	316	348	380	412	444	476	508	540	572	604	636	668	700	732	764	796	828	860	892	924	956	988	1020
27	59	91	123	155	187	219	251	283	315	347	379	411	443	475	507	539	571	603	635	667	699	731	763	795	827	859	891	923	955	987	1019
26	58	90	122	154	186	218	250	282	314	346	378	410	442	474	506	538	570	602	634	666	698	730	762	794	826	858	890	922	954	986	1018
25	57	89	121	153	185	217	249	281	313	345	377	409	441	473	505	537	569	601	633	665	697	729	761	793	825	857	889	921	953	985	1017
24	56	88	120	152	184	216	248	280	312	344	376	408	440	472	504	536	568	600	632	664	696	728	760	792	824	856	888	920	952	984	1016
23	55	87	119	151	183	215	247	279	311	343	375	407	439	471	503	535	567	599	631	663	695	727	759	791	823	855	887	919	951	983	1015
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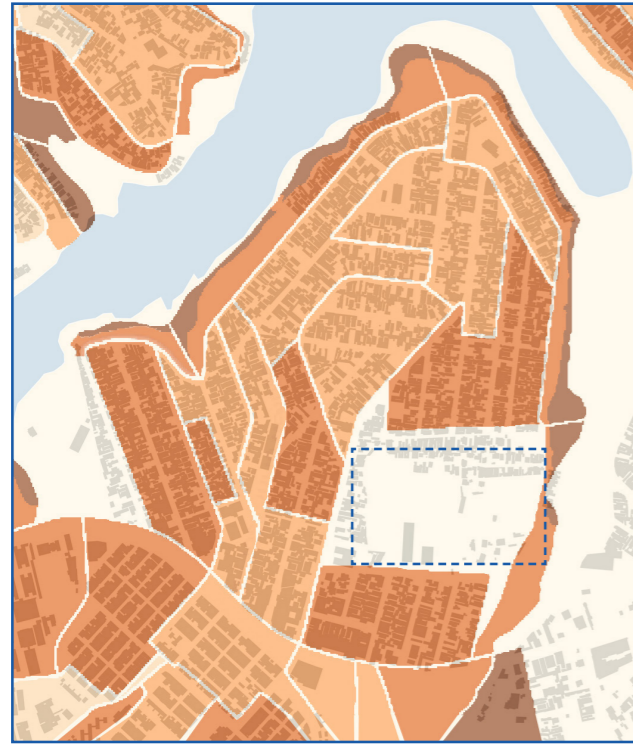
1 | Row houses



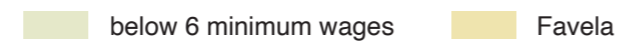
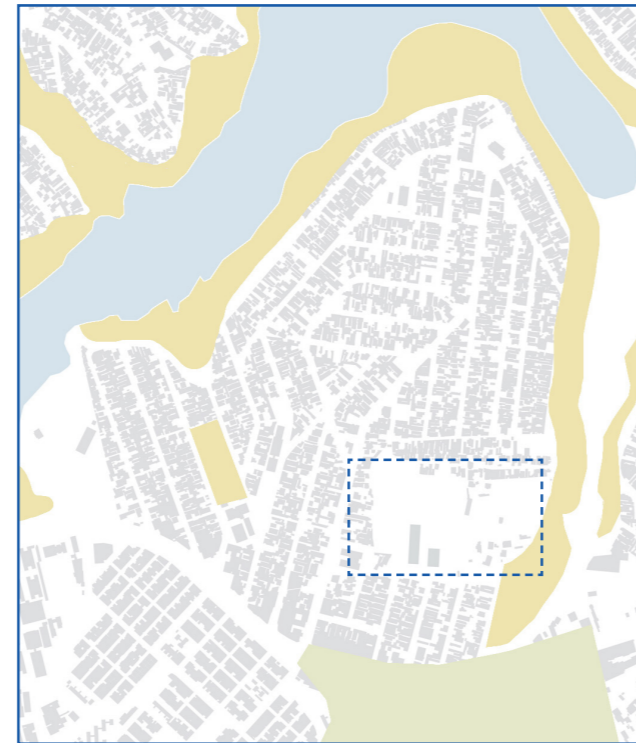
2 | Cluster houses



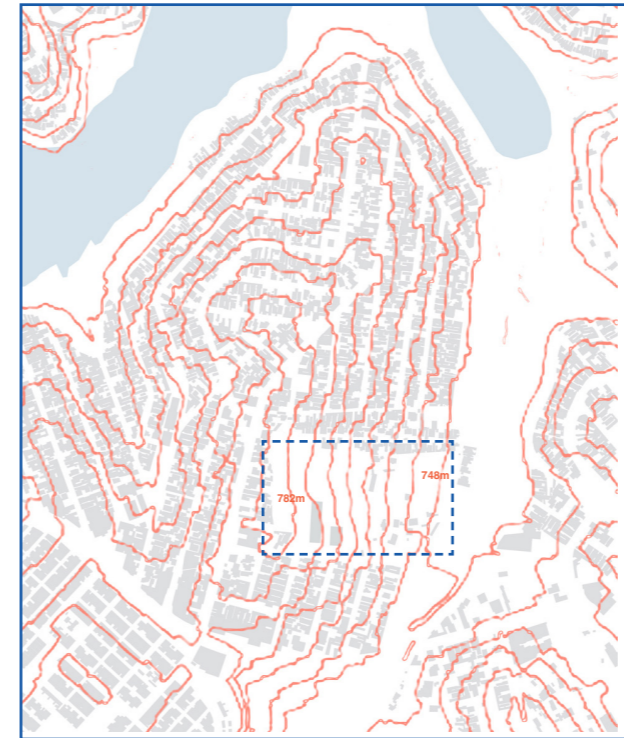
Population density



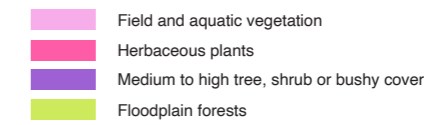
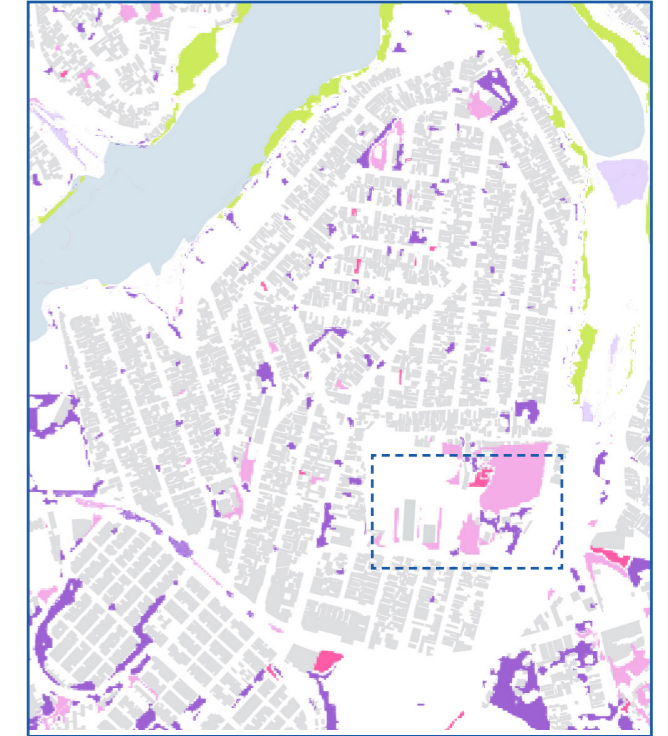
Family income



Contour plot



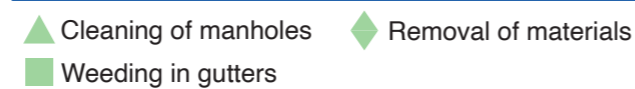
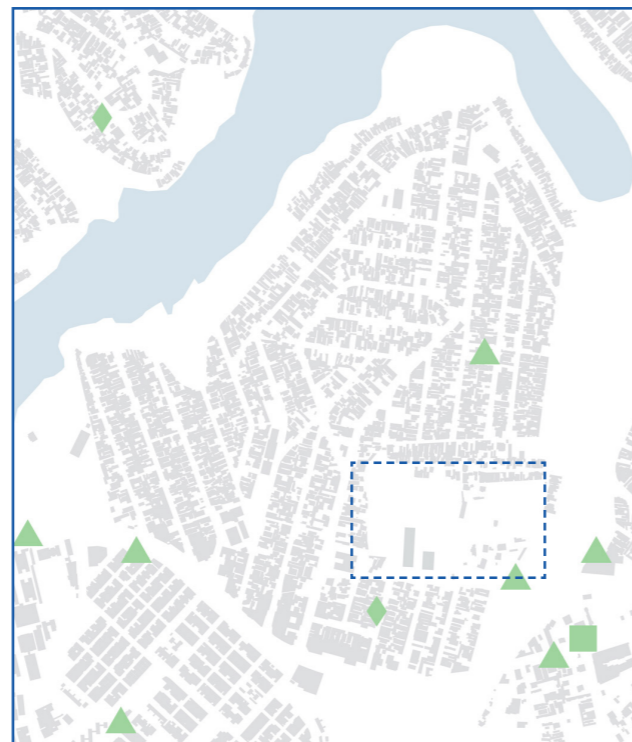
Plant distribution



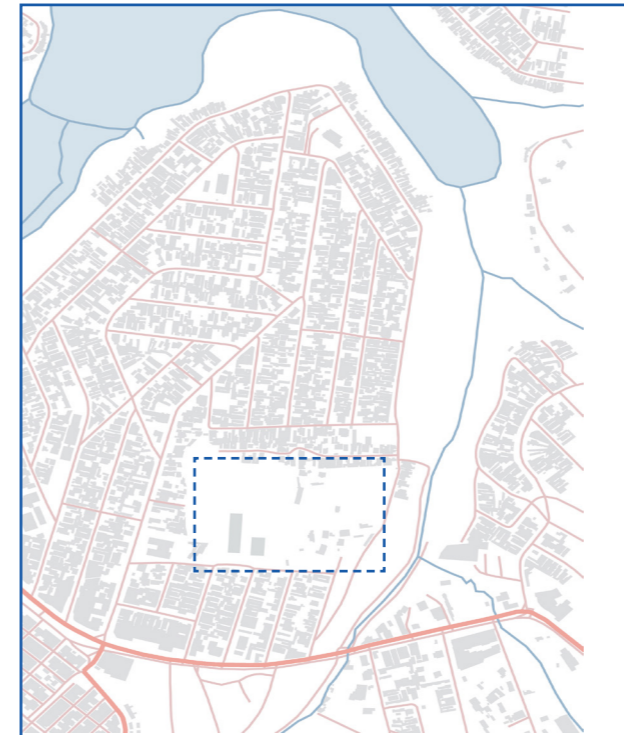
Basic functions



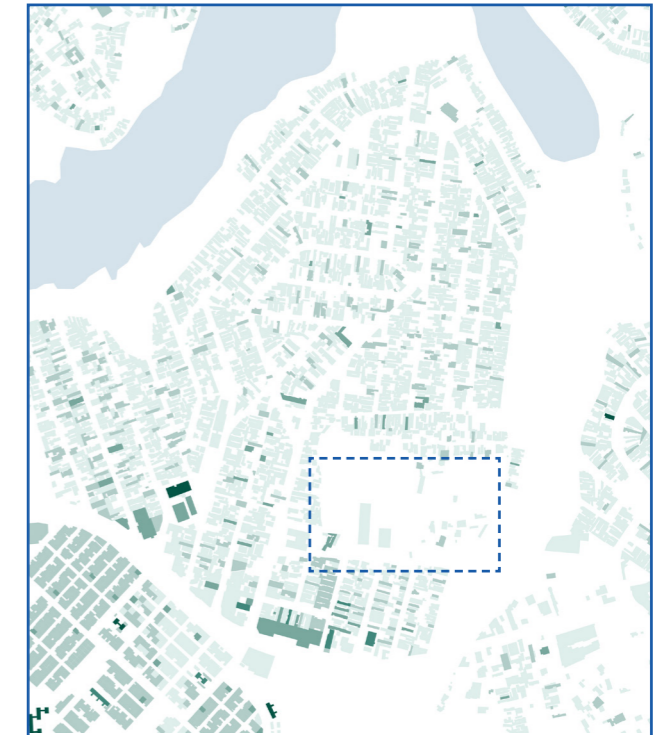
Public service



Transportation



Building height



Data from https://geosampa.prefeitura.sp.gov.br/PaginasPublicas/_SBC.aspx

Favelas are not always a problem.

Favelas can sometimes really be a solution.

Eduardo Paes⁷

⁷ The mayor of the city of Rio de Janeiro from 2009 to 2012

⁸ A photographer and community leader born in the favelas of Rio de Janeiro, he is also an activist in defense of the rights of communities



Low-rise

Informal economy

Public transportation

Incremental development

Pedestrian oriented

Adaptive design

Human-centered

Innovative construction techniques

Sustainable practise

Mixed-use environments

Social cohesion

Community empowerment

High density

Collective neighbourhood

Vibrant culture background

Human scale





 Inclusivity



 Quality



 Opportunity

Research question

How can architecture design foster an **inclusive community**, while enhance living conditions, and explore opportunities for marginalized individuals?

Design

1.1 What is an effective solution to mitigate the neglect of marginalized individuals within social housing projects?

1.2 What specific considerations should be taken into account to enhance the quality of life for diverse income groups?

1.3 What are the potential challenges and barriers that may arise during the development of mixed-income housing, and what effective strategies can be employed to address them?

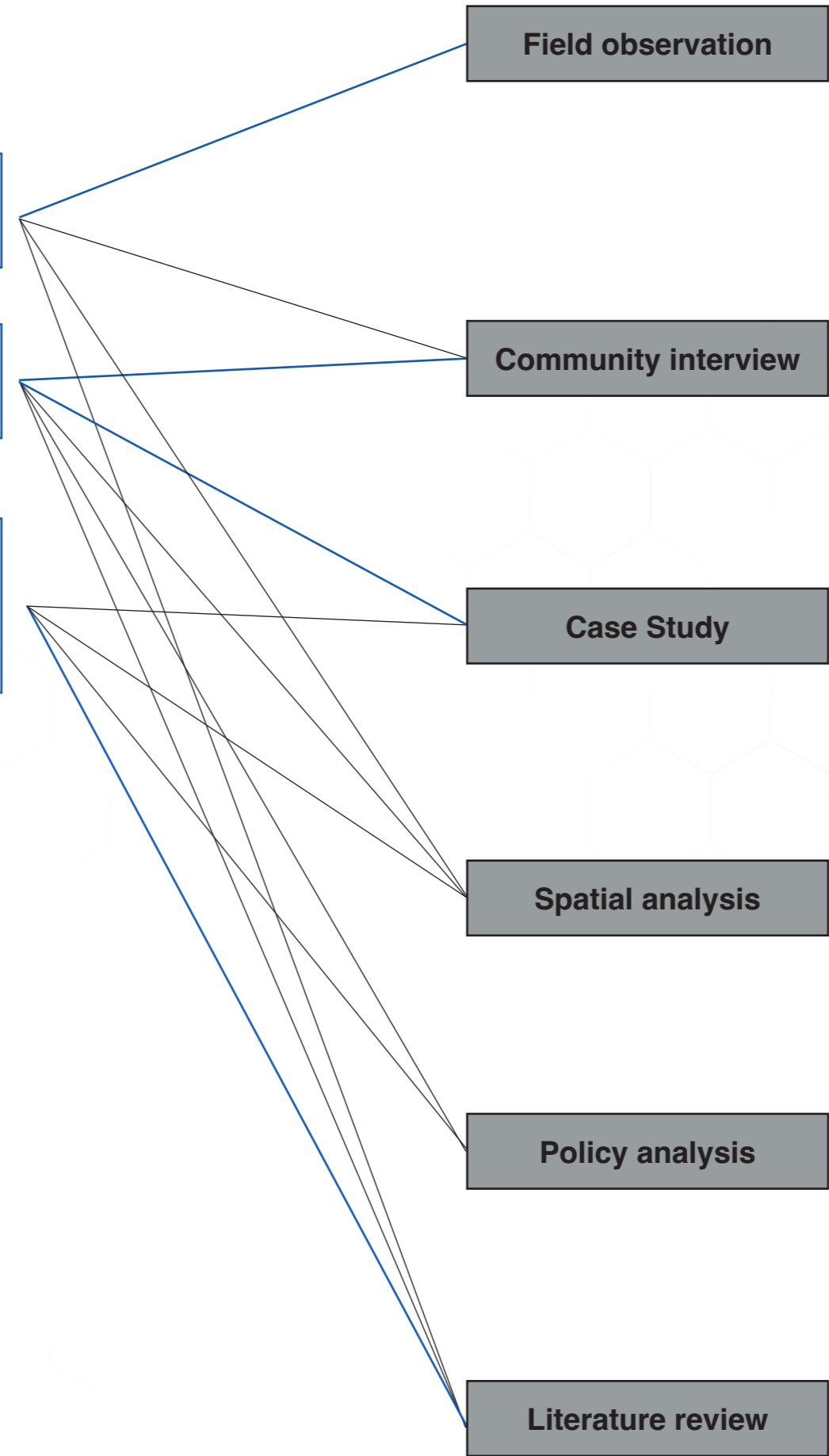
02 Research

Design

1.1 What is an effective solution to mitigate the neglect of marginalized individuals within social housing projects?

1.2 What specific considerations should be taken into account to enhance the quality of life for diverse income groups?

1.3 What are the potential challenges and barriers that may arise during the development of mixed-income housing, and what effective strategies can be employed to address them?



Design

1. What is an effective solution to mitigate the neglect of **marginalized** individuals within social housing projects?



1 | Social Justice



Via Verde, New York City

2 | Urban resilience



Casa Paulista, Sao Paulo

3 | Civic engagement



The lift from the asphalt to Cantagalo Favela

4 | Economic Diversity



Jardim Edite Social Housing



<https://www.archdaily.com/468660/via-verde-dattner-architects-grimshaw-architects>
<https://www.archdaily.com/416573/jardim-edite-social-housing-mmbb-arquitetos-h-f-arquitetos>
<https://www.urbem.org.br/housing-ppp-sao-paulo-brazil>

https://www.researchgate.net/publication/366814673_Rio_de_Janeiro%27s_attempt_at_Favela_urban_upgrading_Analysis_of_the_Favela-Bairro_programme_three_decades

Design

2. What specific **considerations** should be taken into account to enhance the quality of life for diverse income groups?



01 | Affordability

02 | Service

03 | Privacy

04 | Quality of life

HIS 1



HIS 2



HMP



01 | Space efficiency

02 | Materiality

03 | Privacy

04 | Amenities

HIS 1



HIS 2



HMP

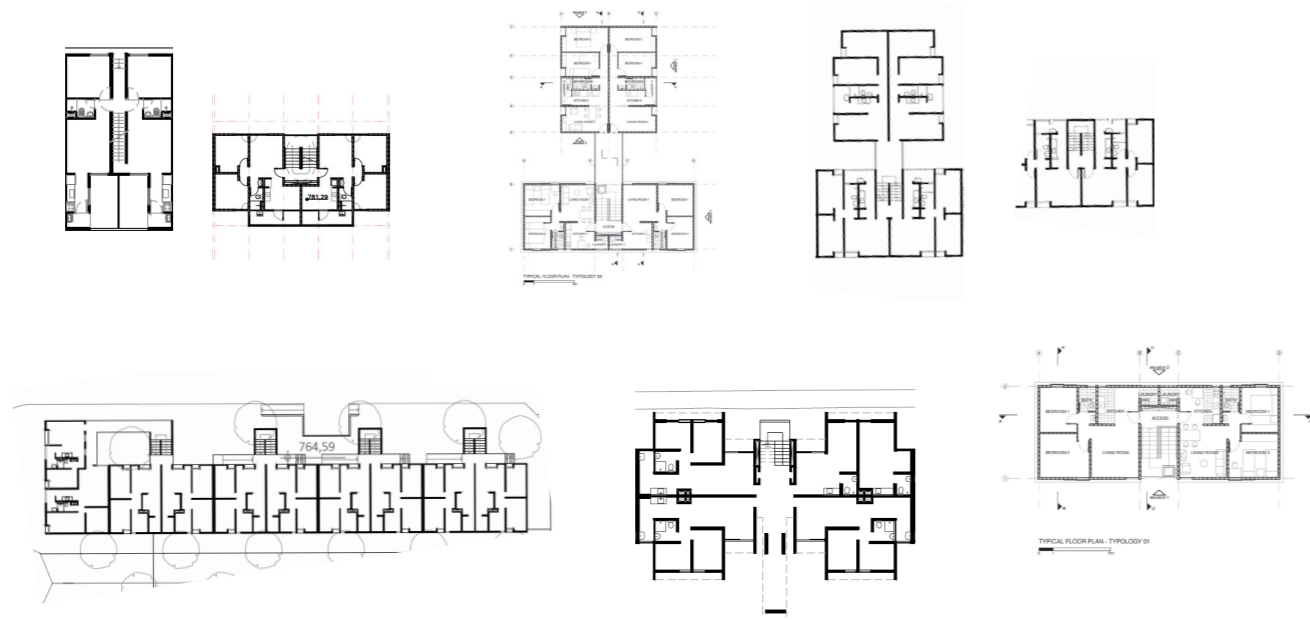


Design

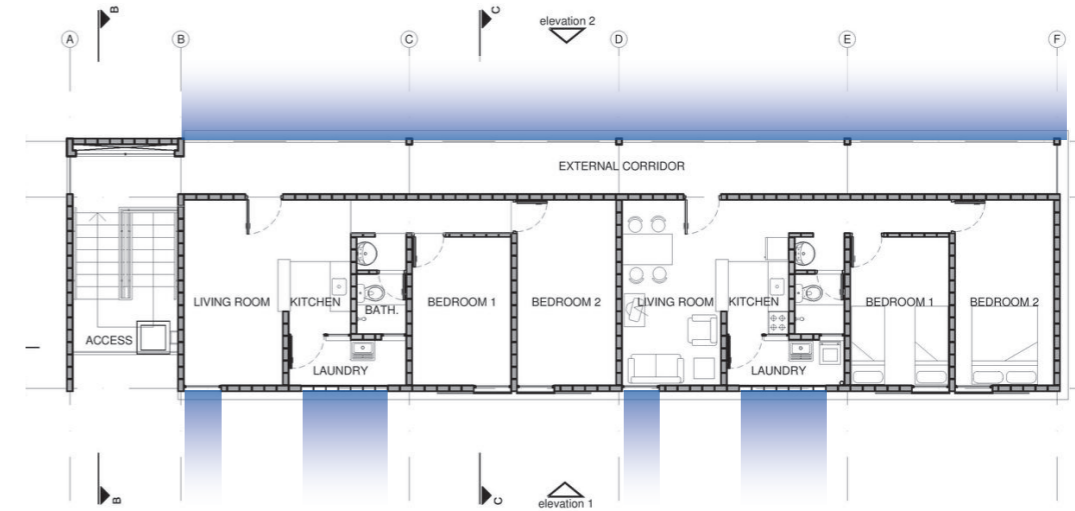
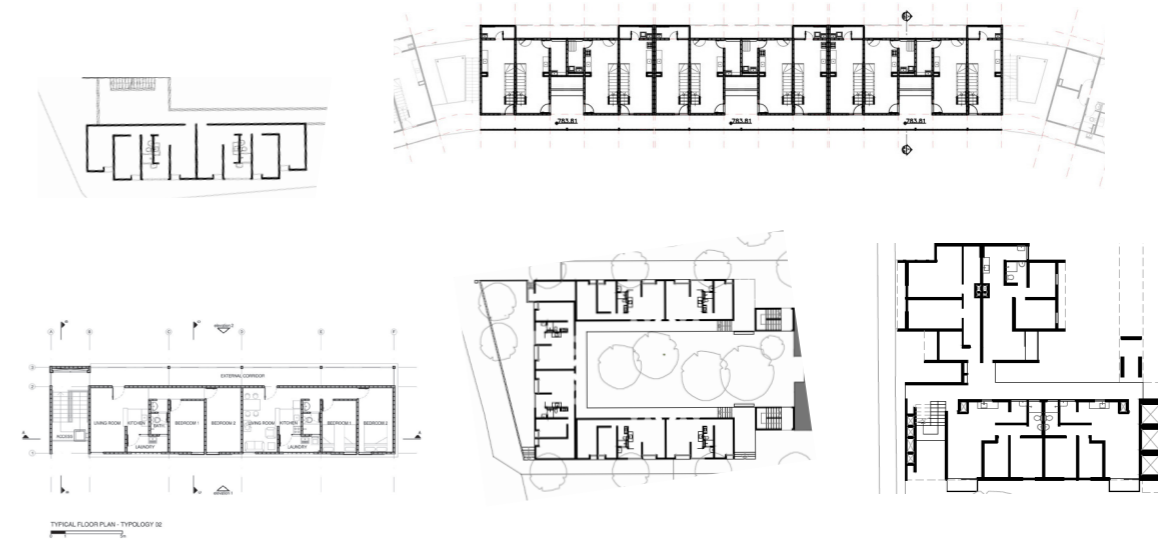
3. What are the potential challenges and barriers that may arise during the development of **mixed-income housing**, and what effective strategies can be employed to address them?



Slab house

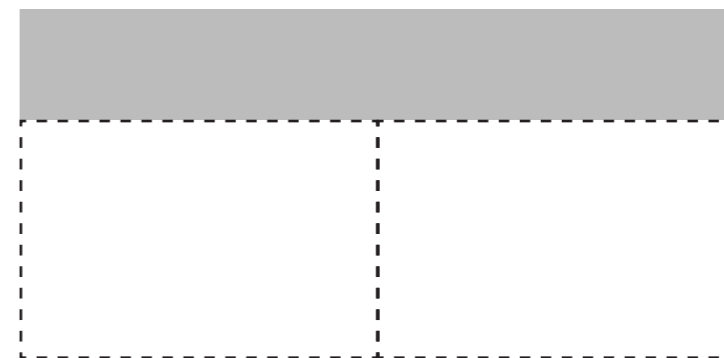
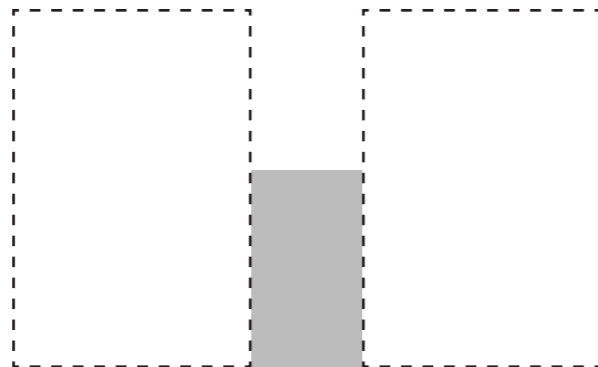


Row house



Privacy
Efficiency
Flexibility

Security
Amenity
Connectivity



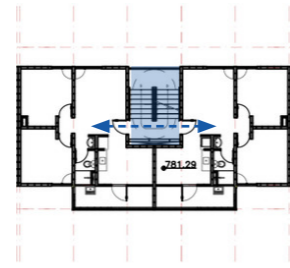
Project name

Units/ Stairwell

Parque Novo Santo Amaro V



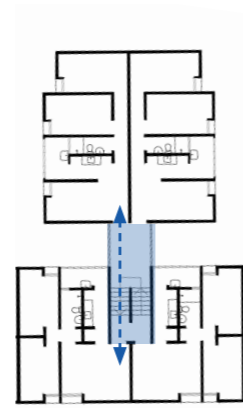
2/1



Gleba A



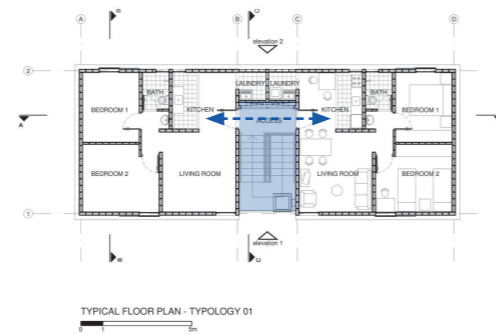
4/1



Jardim Vicentina Urbanization



2/1



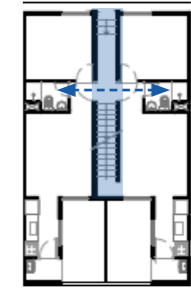
Project name

Units/ Stairwell

Residencial Almirante Delamare (Heliopolis I)



2/1



Heliópolis Urbanization Gleba H



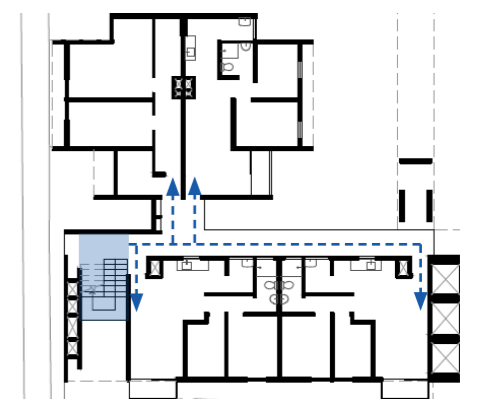
3/1



Conjunto Heliópolis Gleba G

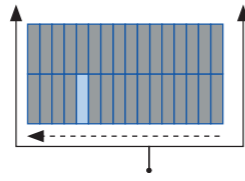


4/1





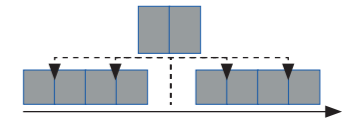
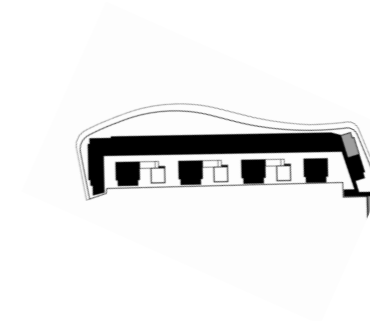
Parque Cocaia
São Paulo, Brazil



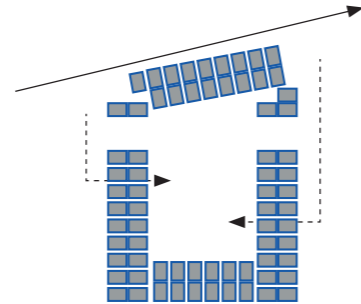
Pedestrian
Street



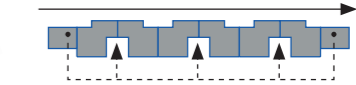
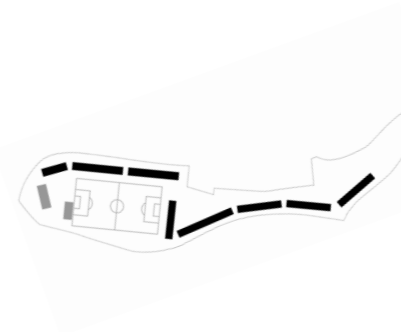
Gleba A
São Paulo, Brazil



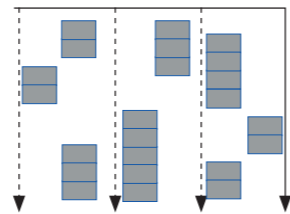
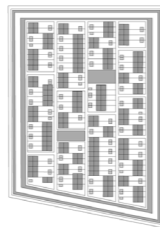
Doedijnstraat
Den Haag, Netherlands



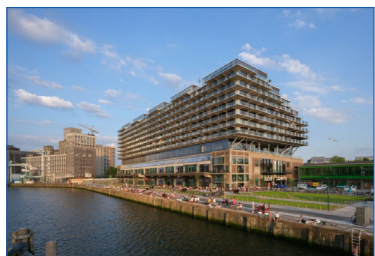
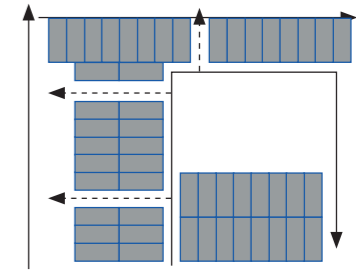
Parque Novo Santo Amaro
São Paulo, Brazil



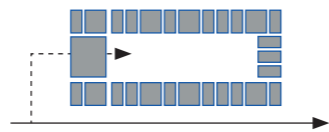
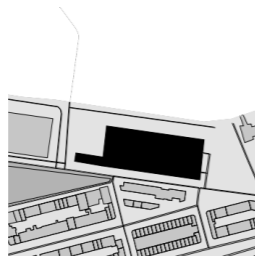
Waterdijk
Den Haag, Netherlands



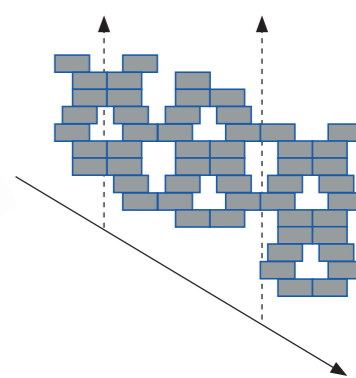
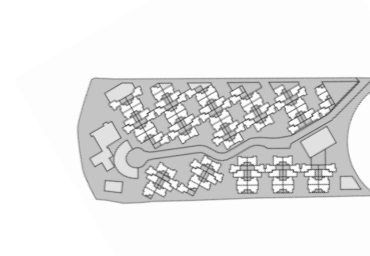
Jardim São Francisco
São Paulo, Brazil



Fenix I
Rotterdam, Netherlands



Comuna Dom Helder Camara
São Paulo, Brazil



Street view

Site plan

Circulation

Street view

Site plan

Circulation

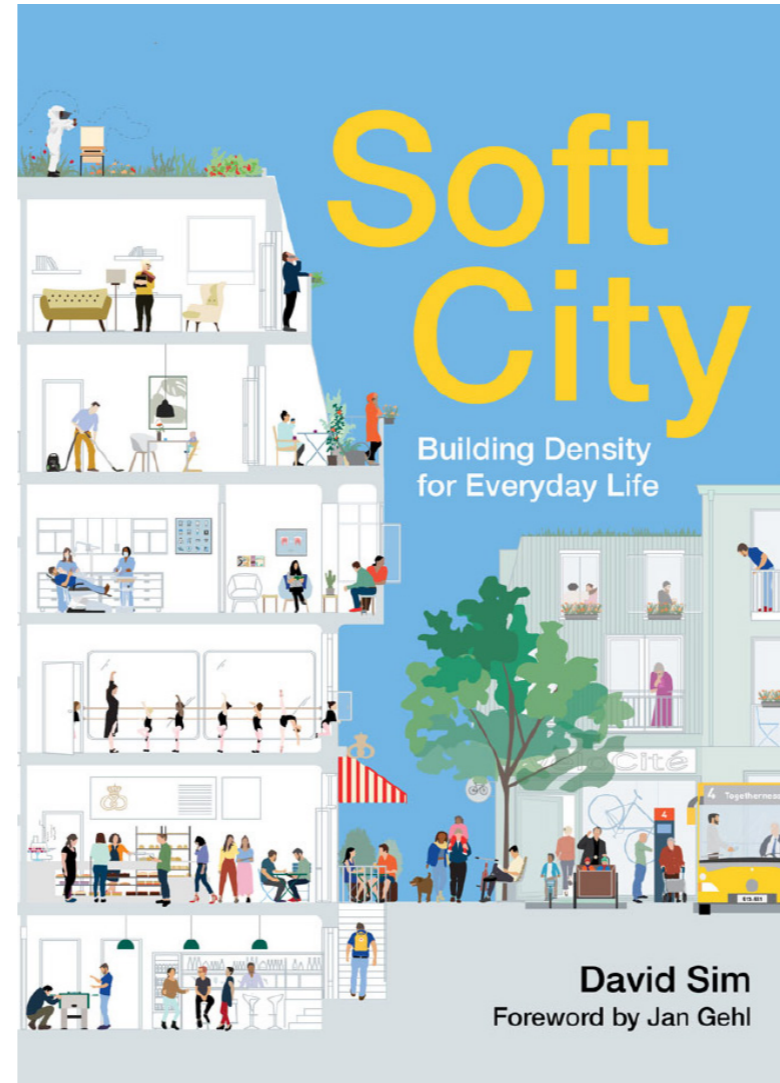


Observational Research

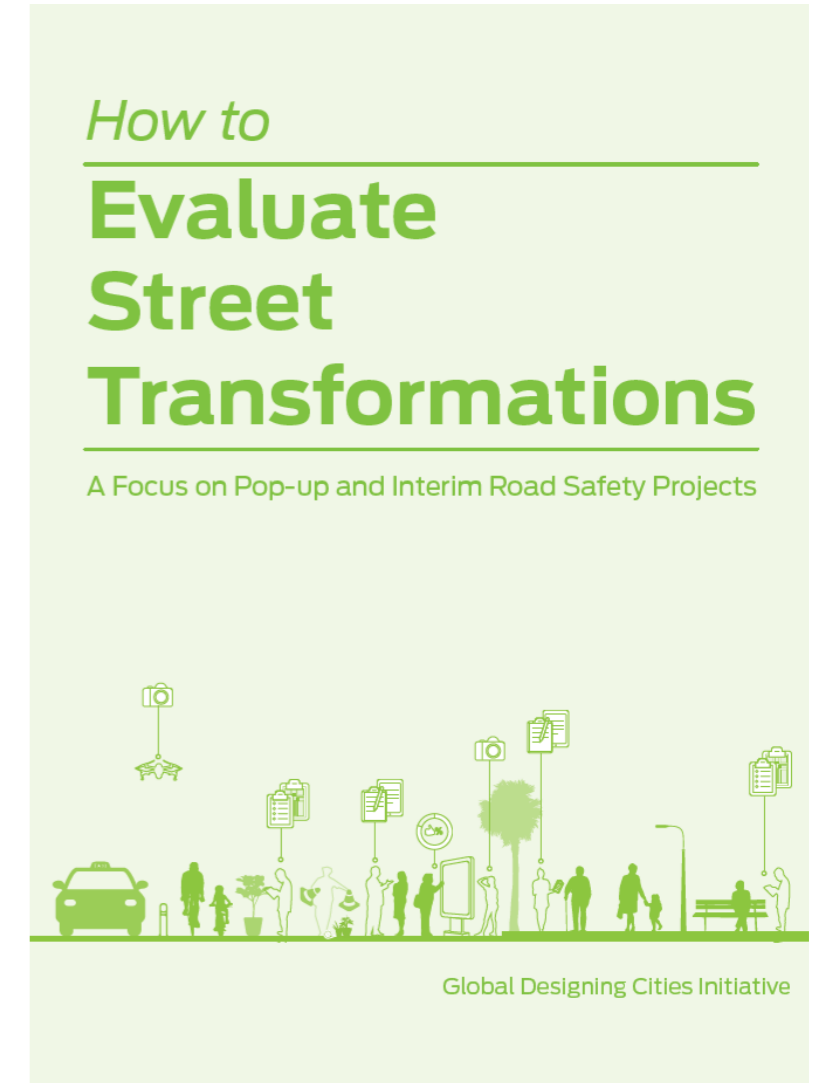
Human Scale

Social Interaction

Accessibility and Inclusivity



Needs of people



National Association of City Transportation Officials (NACTO)

Contextual Design

Complete Streets

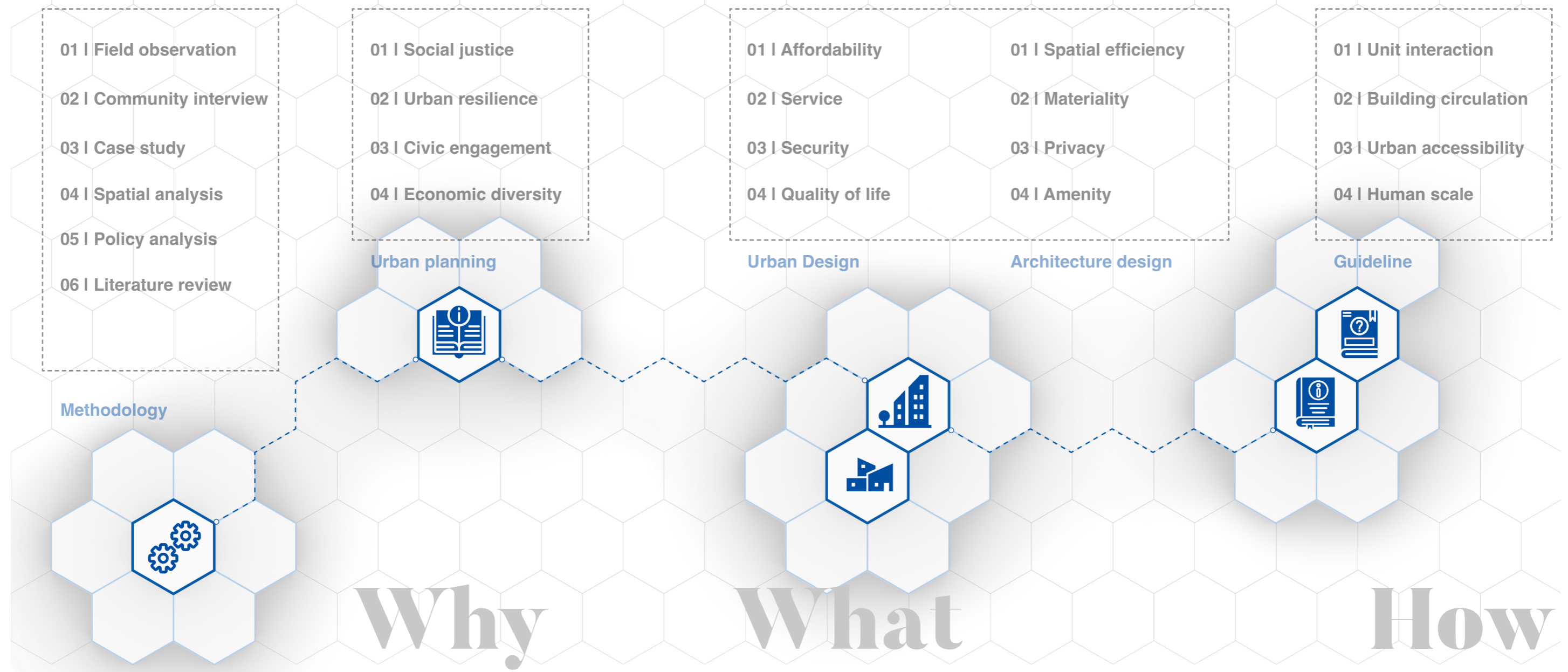
Safety and Accessibility

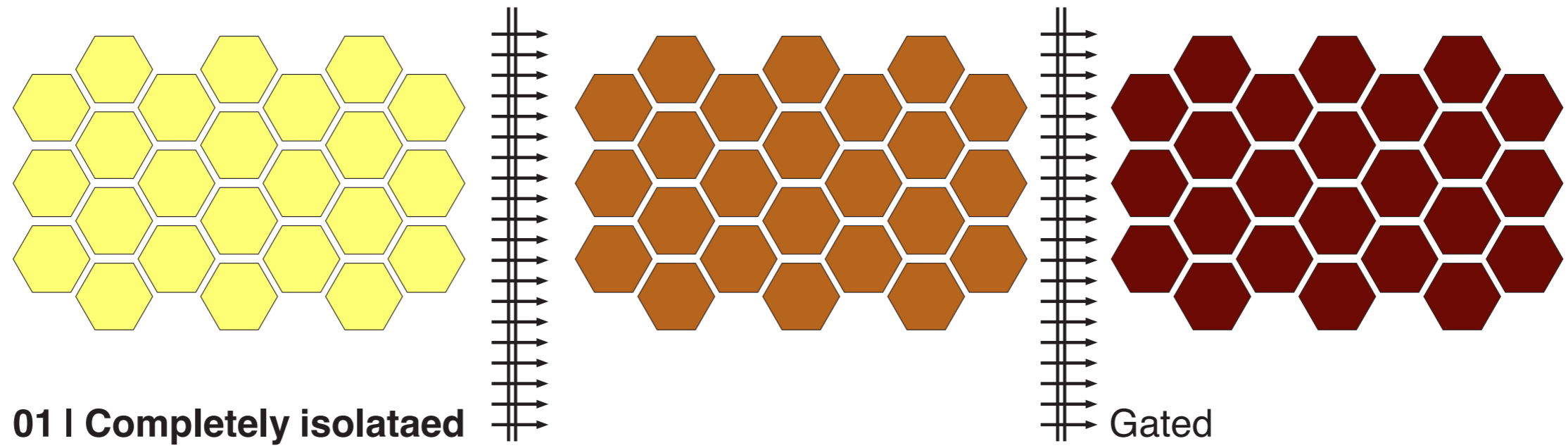
How can architecture design foster an inclusive community, while enhance living conditions, and explore opportunities for marginalized individuals?

1.1 What is an effective solution to mitigate the neglect of marginalized individuals within social housing projects?

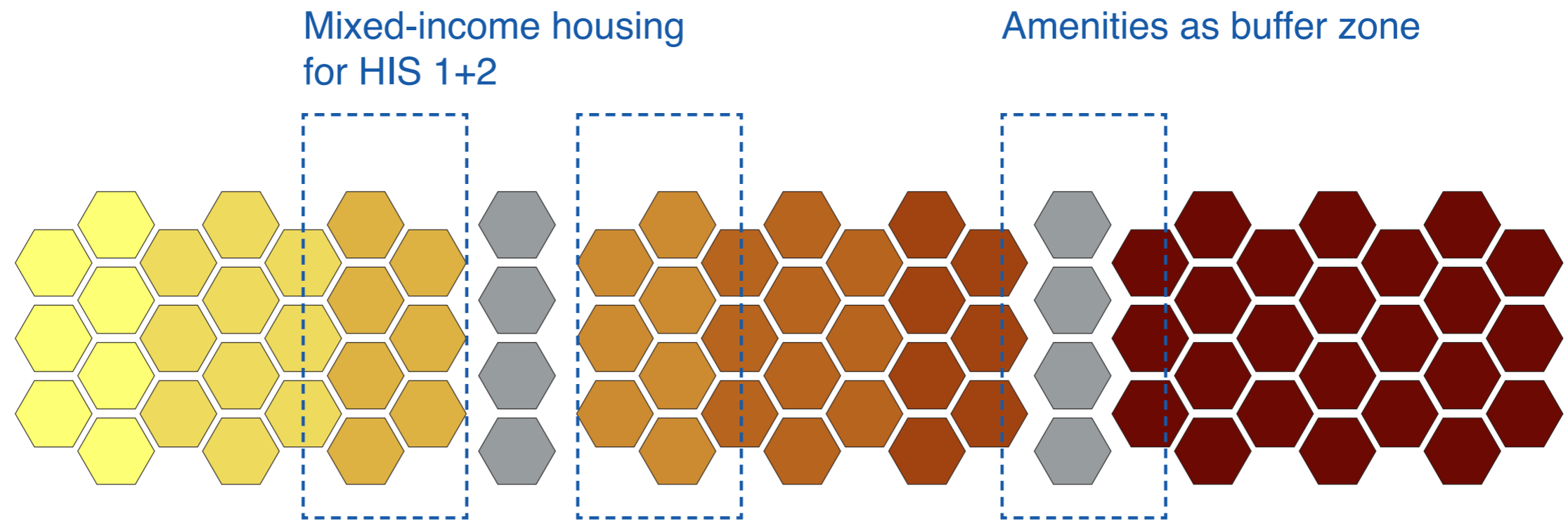
1.2 What specific considerations should be taken into account to enhance the quality of life for diverse income groups?

1.3 What are the potential challenges and barriers that may arise during the development of mixed-income housing, and what effective strategies can be employed to address them?





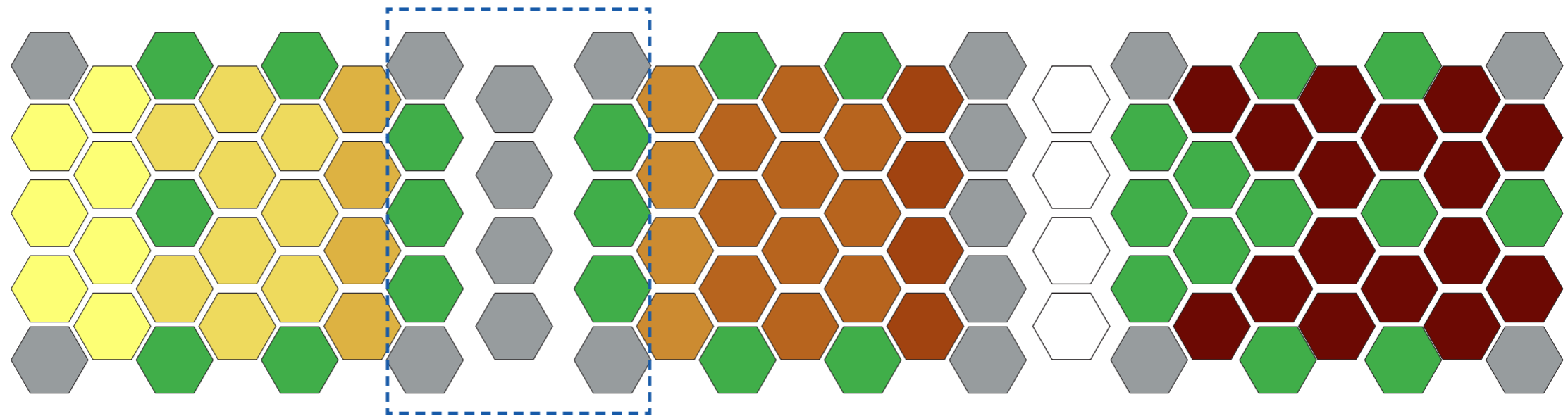
- Amenities
- Green space
- Opportunities
- HIS 1 (0-3 minimum wages)
- HIS 2 (3-6 minimum wages)
- HMP (6-10 minimum wages)



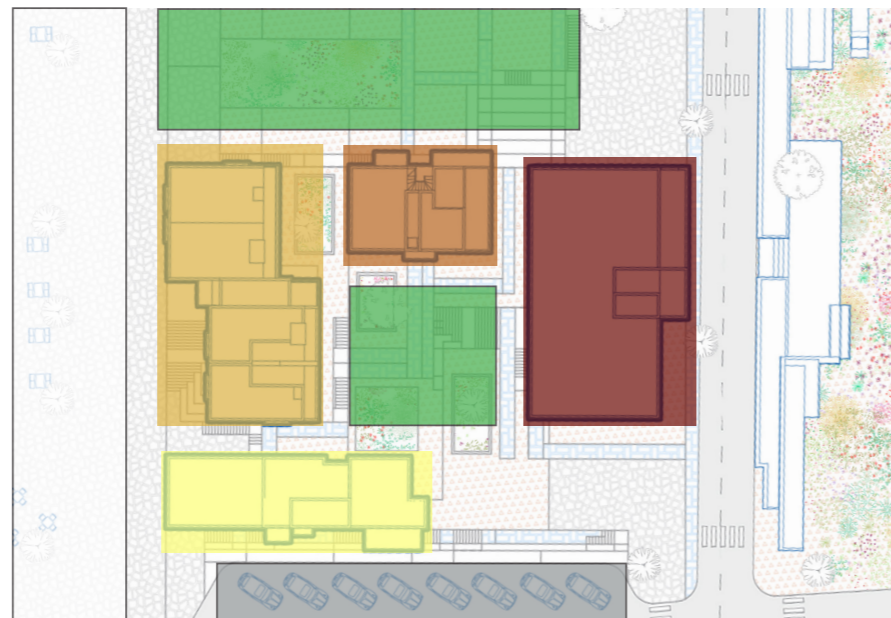
02 | Gradiently integrated

- Amenities
- HIS 1 (0-3 minimum wages)
- Green space
- HIS 2 (3-6 minimum wages)
- Opportunities
- HMP (6-10 minimum wages)

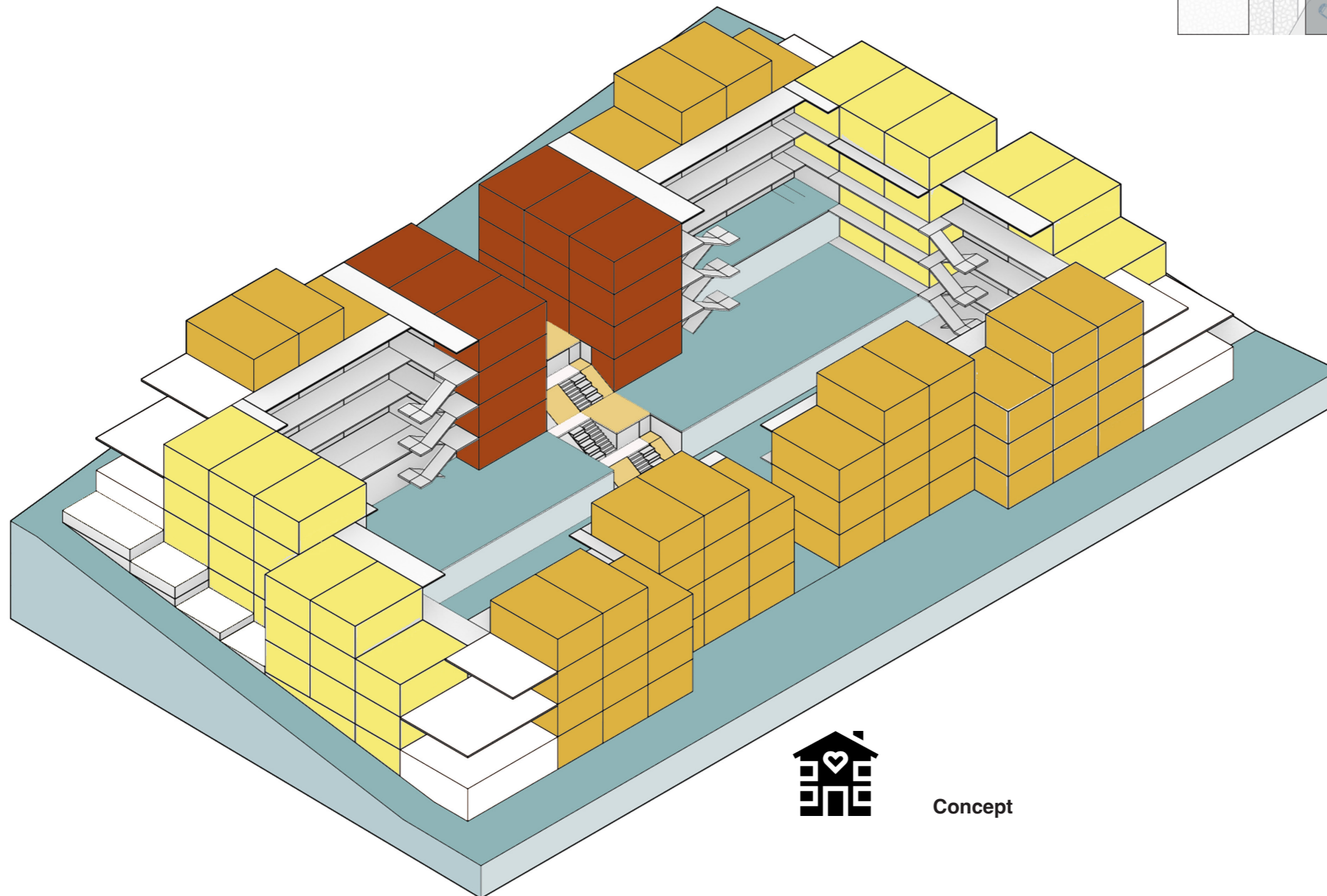
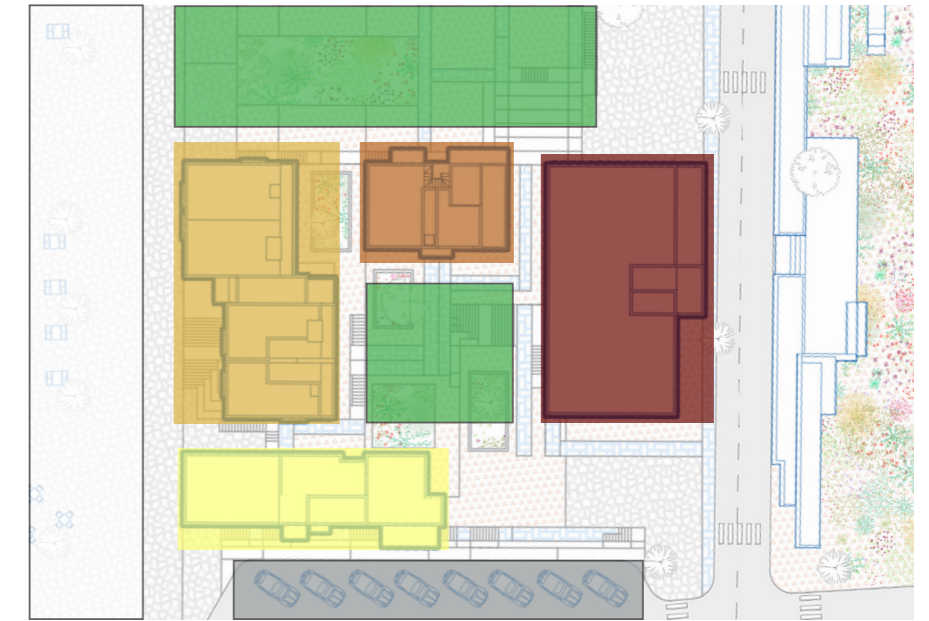
Neighbourhood vitality facilitated by corner shop and green space



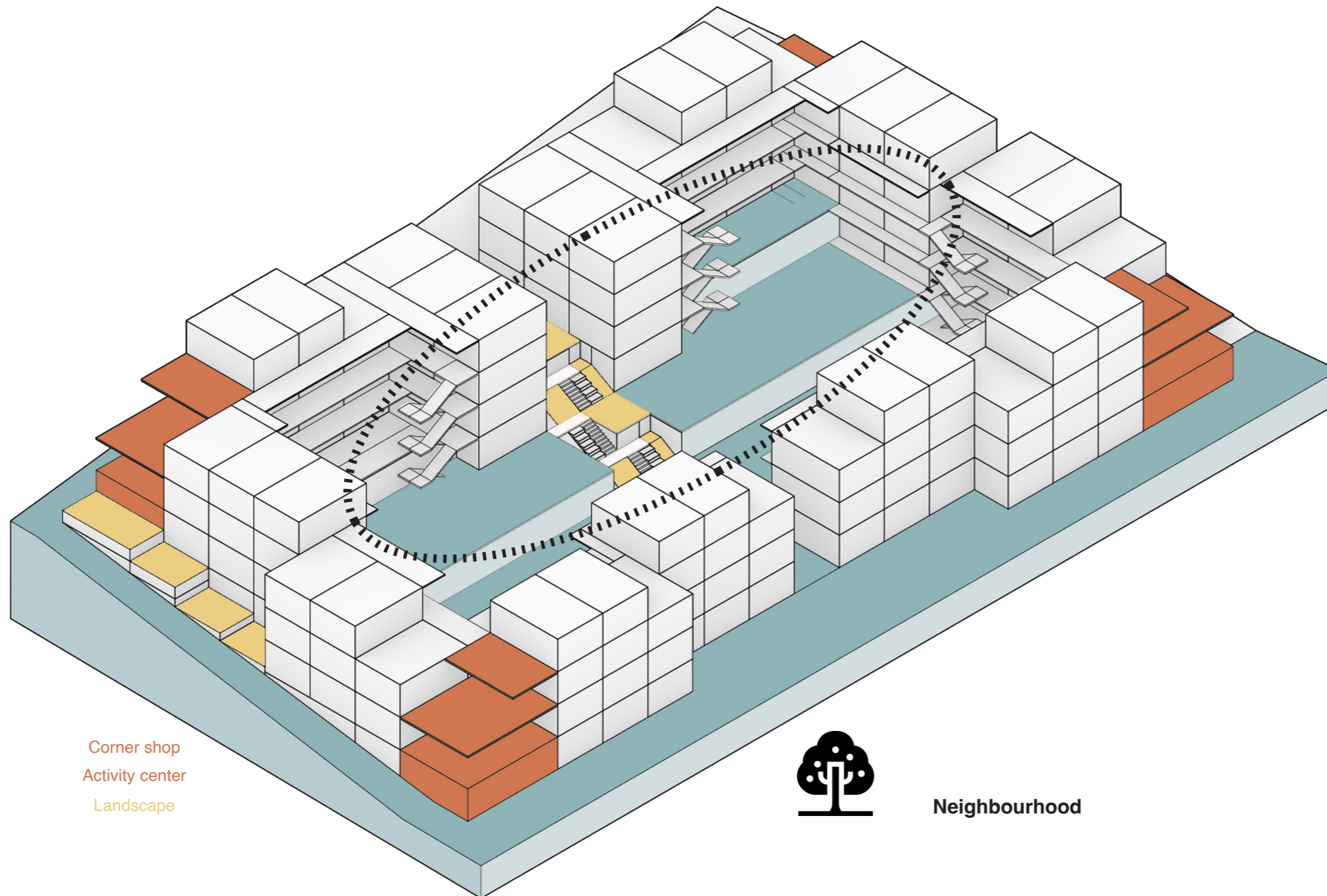
03 | Diversely clustered



- Amenities
- HIS 1 (0-3 minimum wages)
- Green space
- HIS 2 (3-6 minimum wages)
- Opportunities
- HMP (6-10 minimum wages)



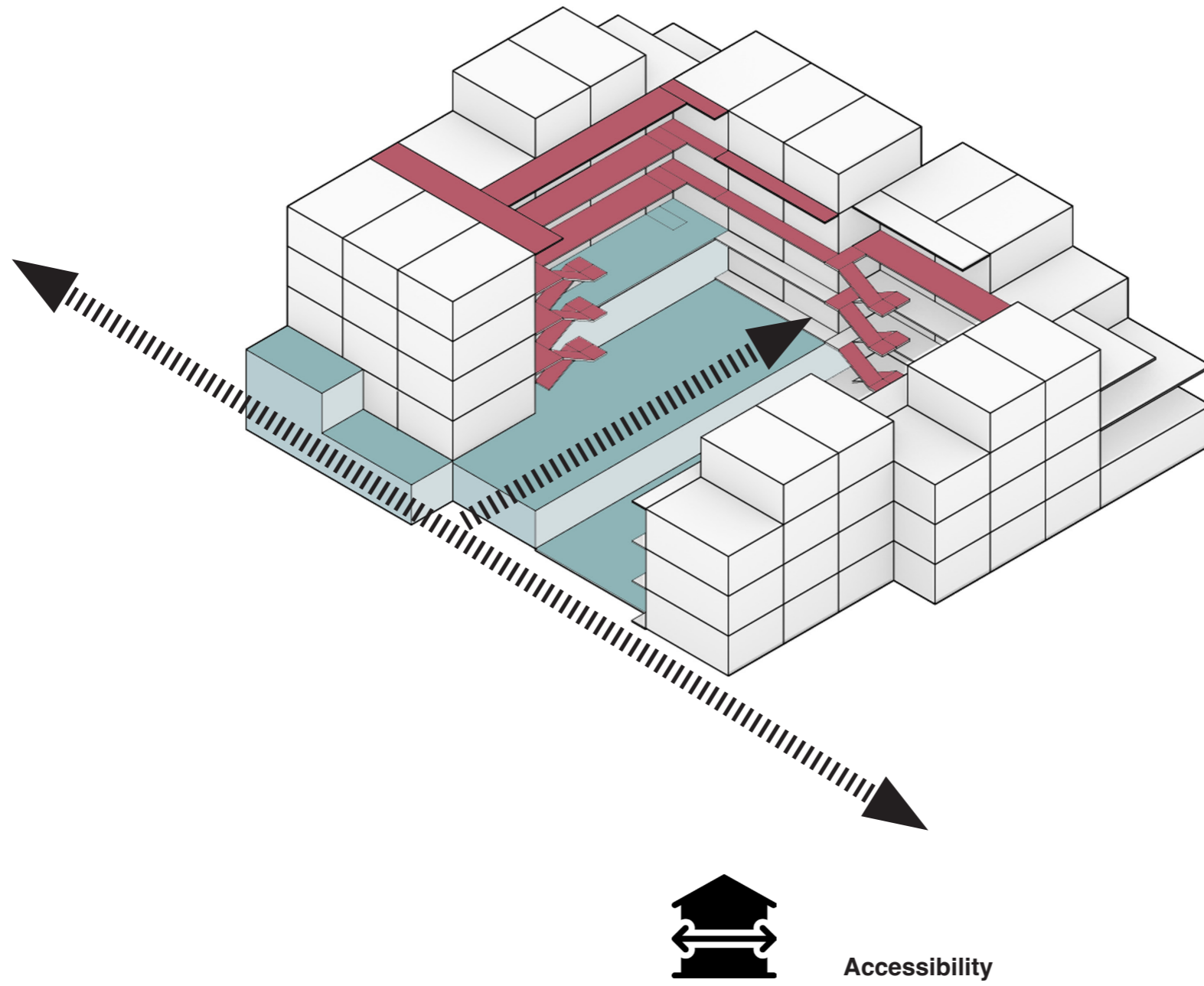
Concept

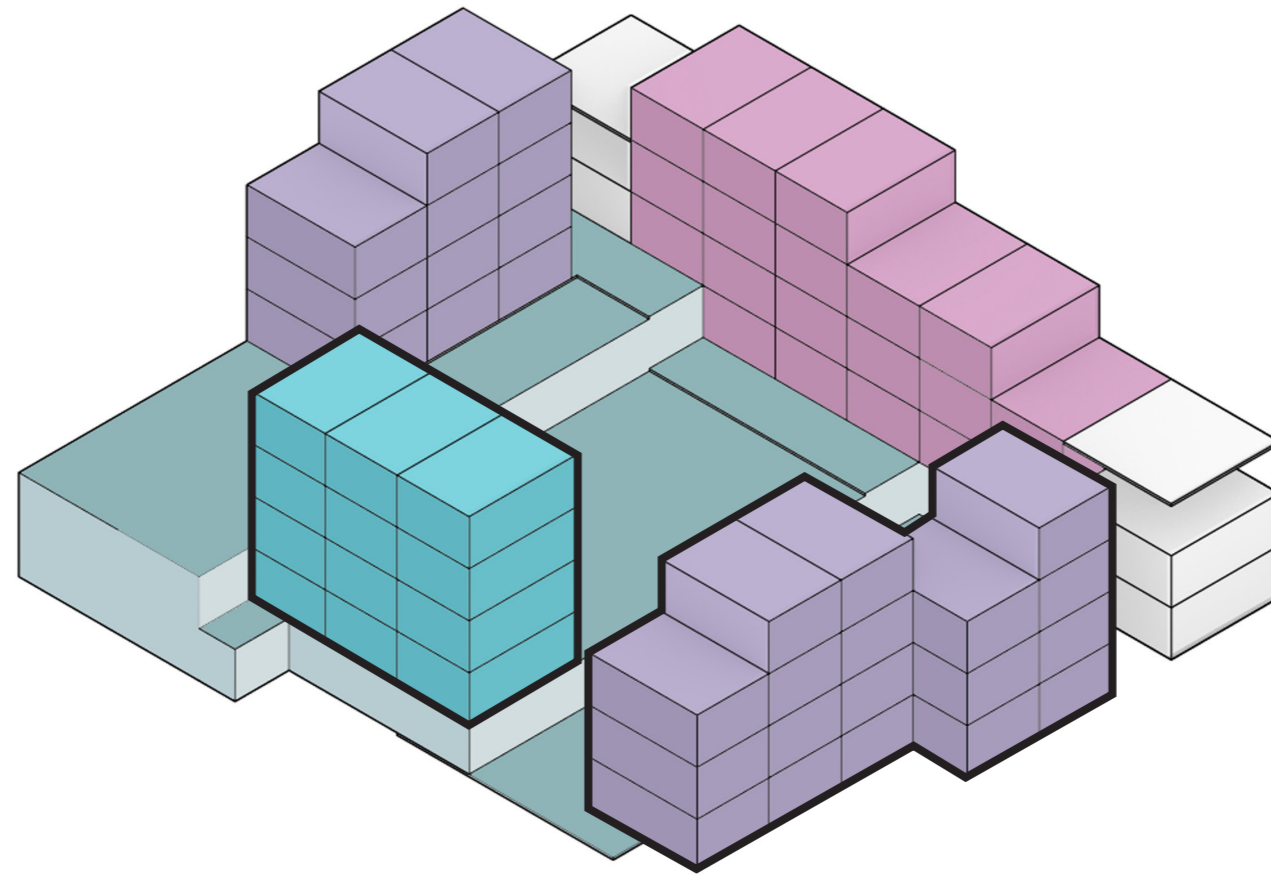


Corner shop
Activity center
Landscape

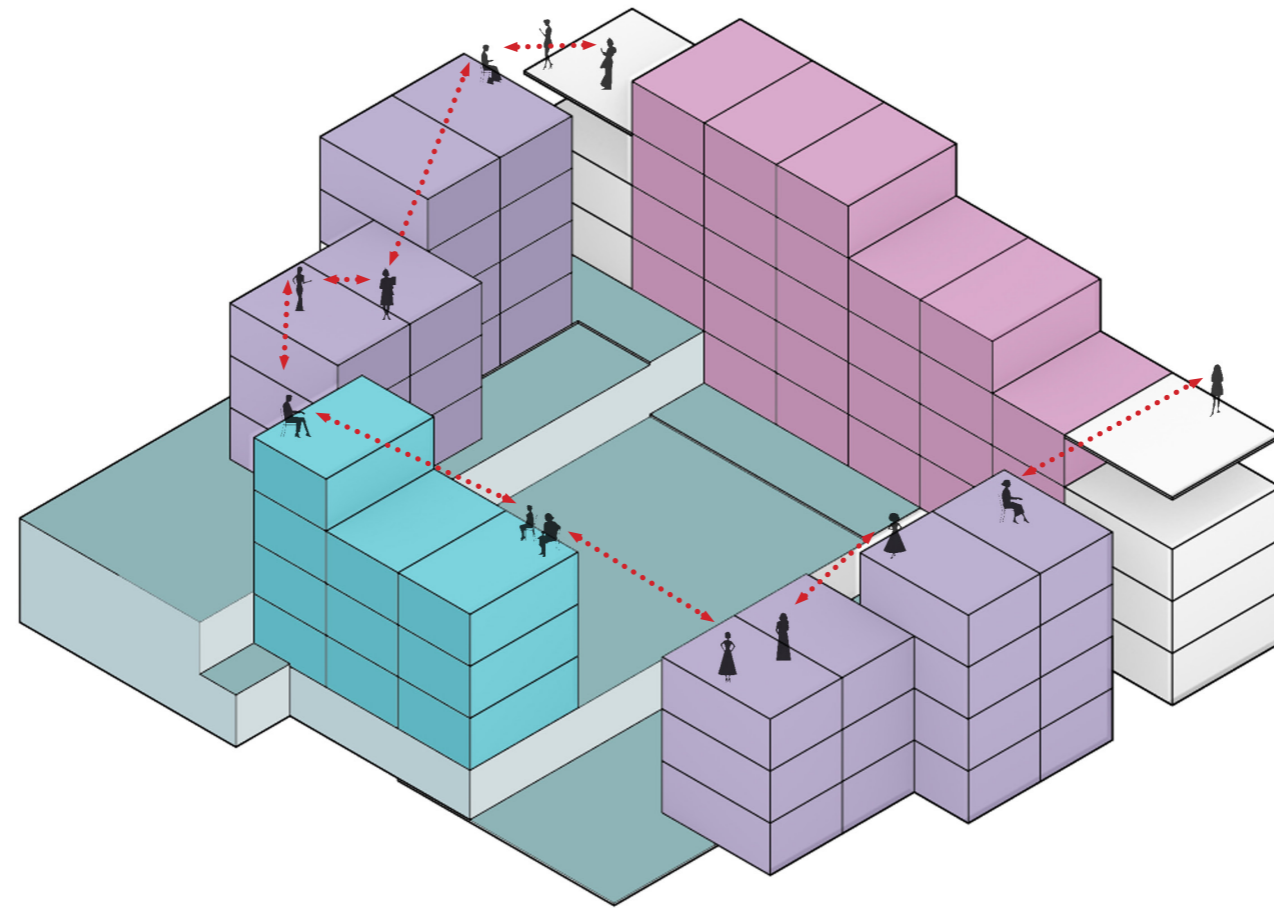


Neighbourhood

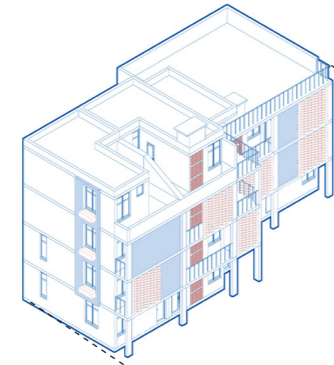




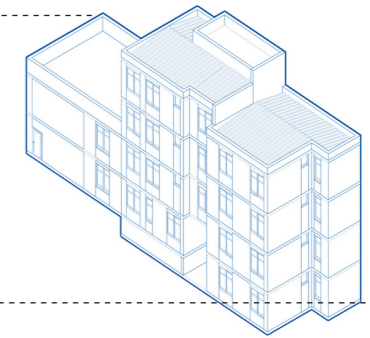
Segementation



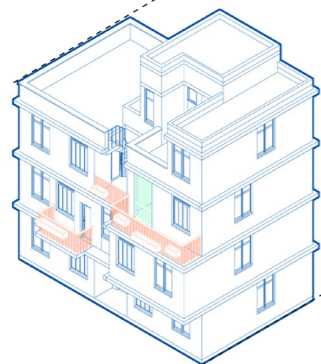
Connection



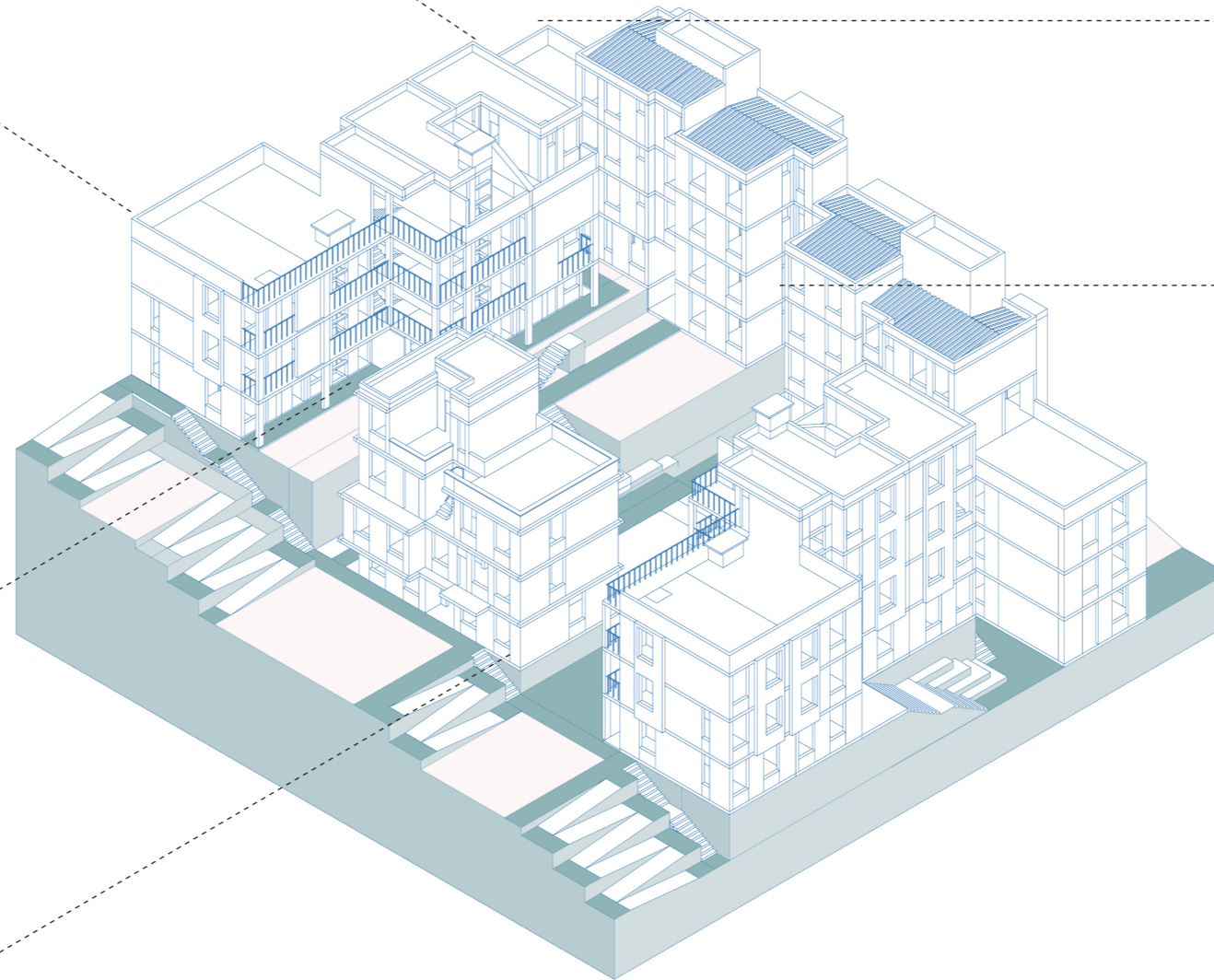
Type 02
Row house (HIS-1)

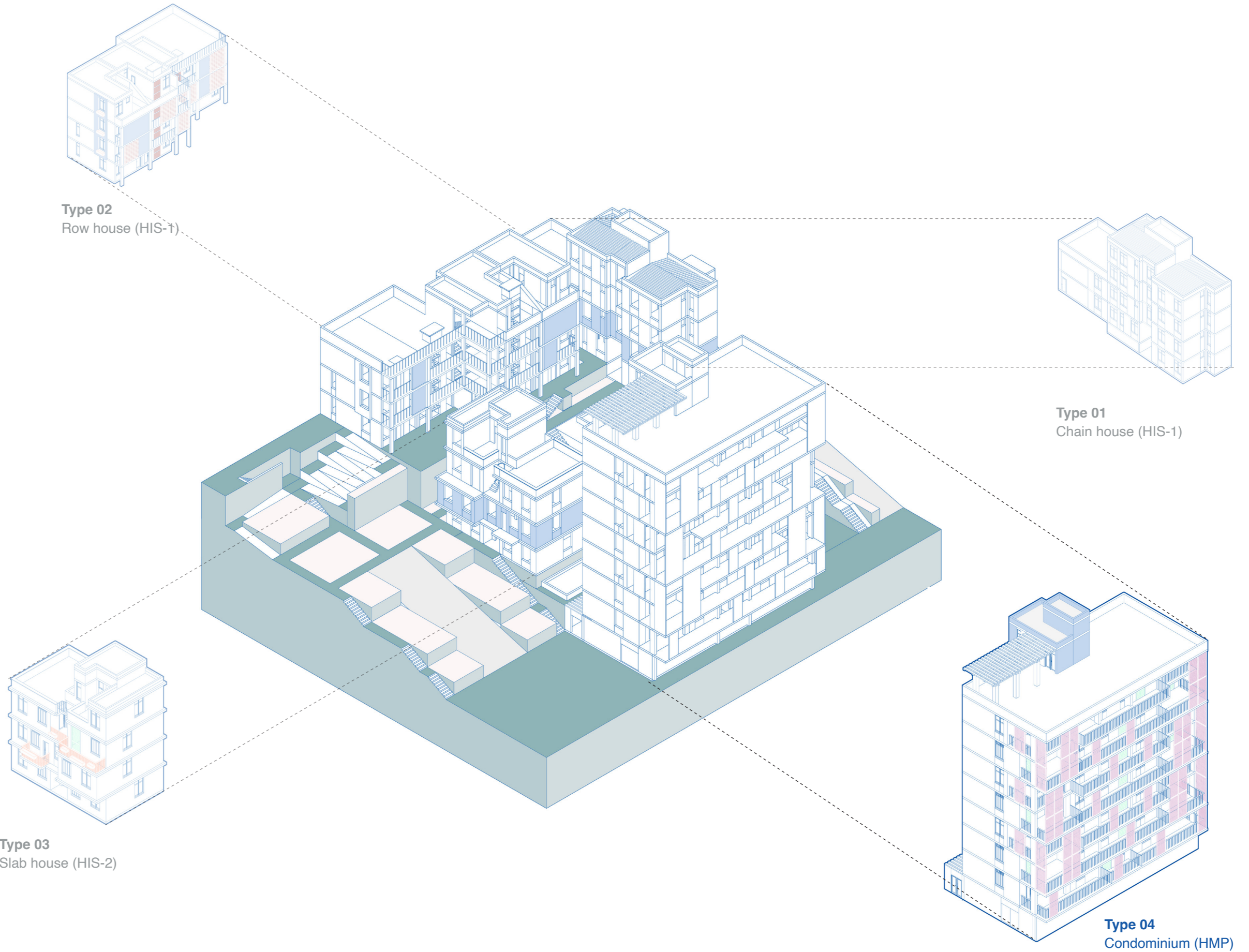


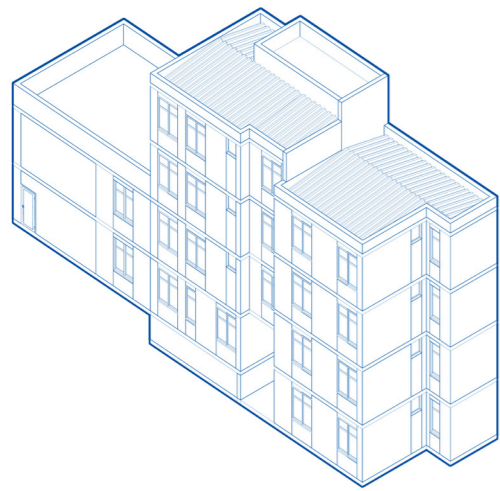
Type 01
Chain house (HIS-1)



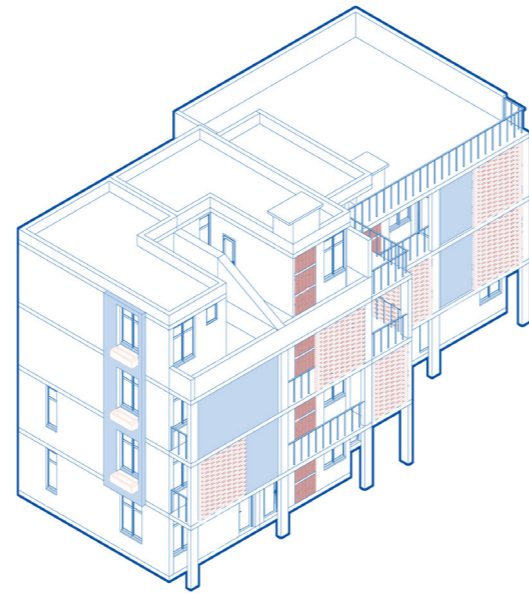
Type 03
Slab house (HIS-2)



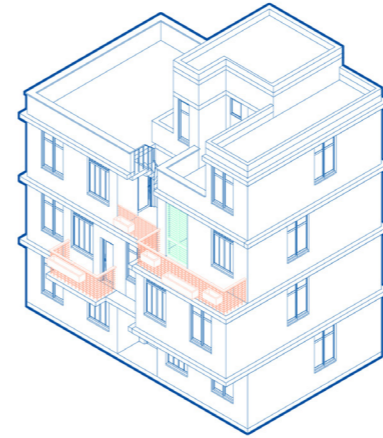




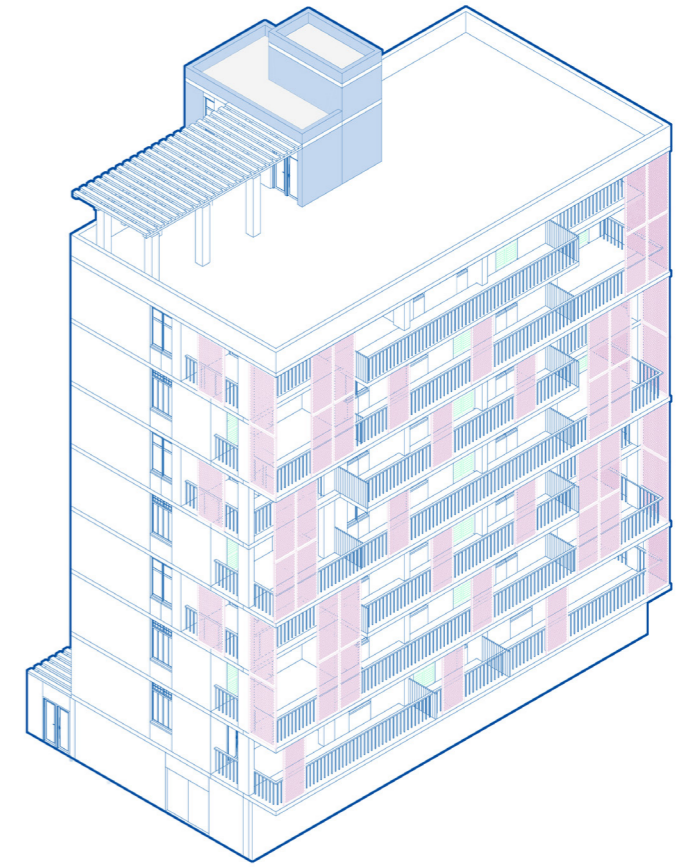
Type 01 - Chain house
HIS 1



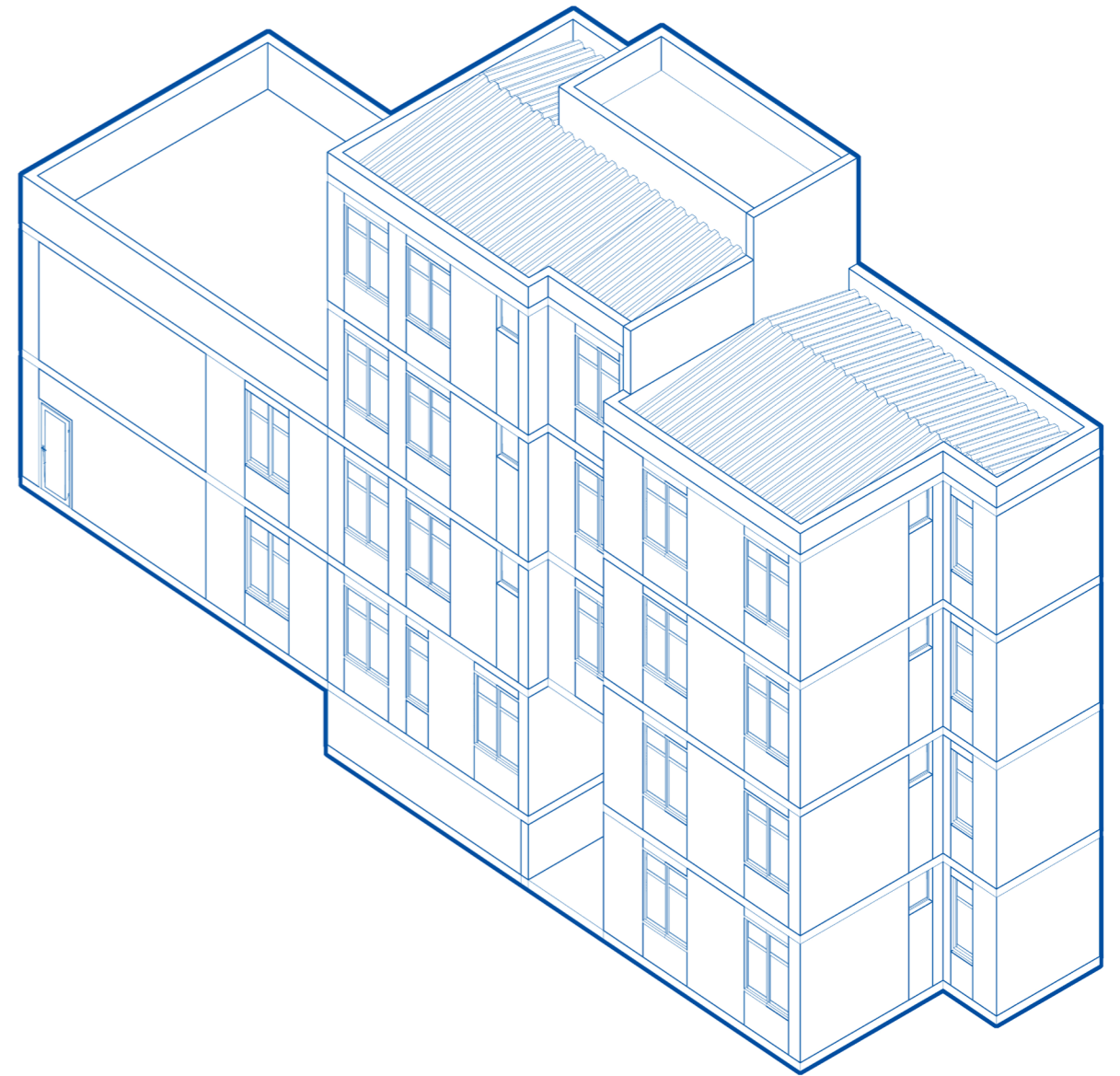
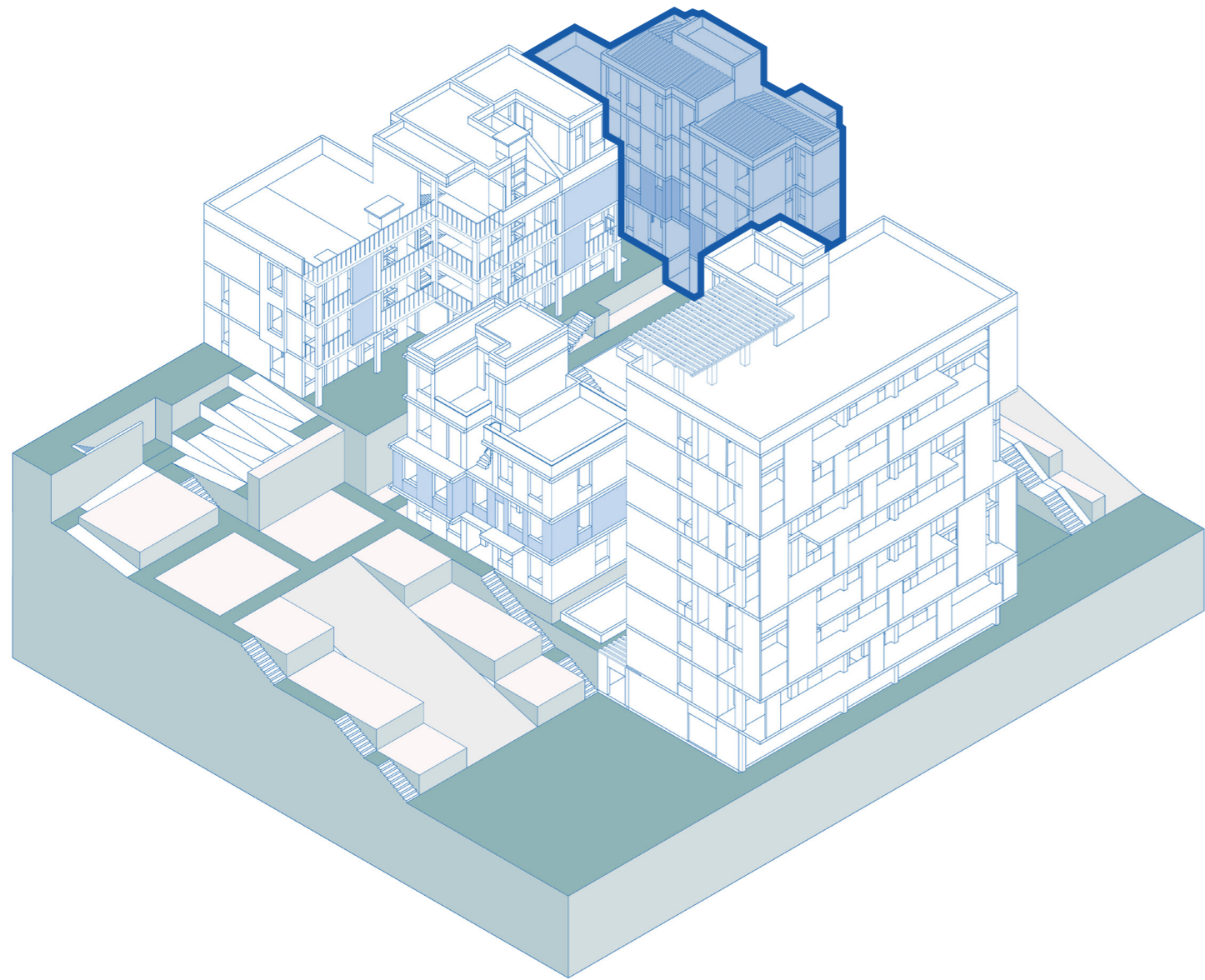
Type 02 - Row house
HIS 1



Type 03 - Slab house
HIS 2

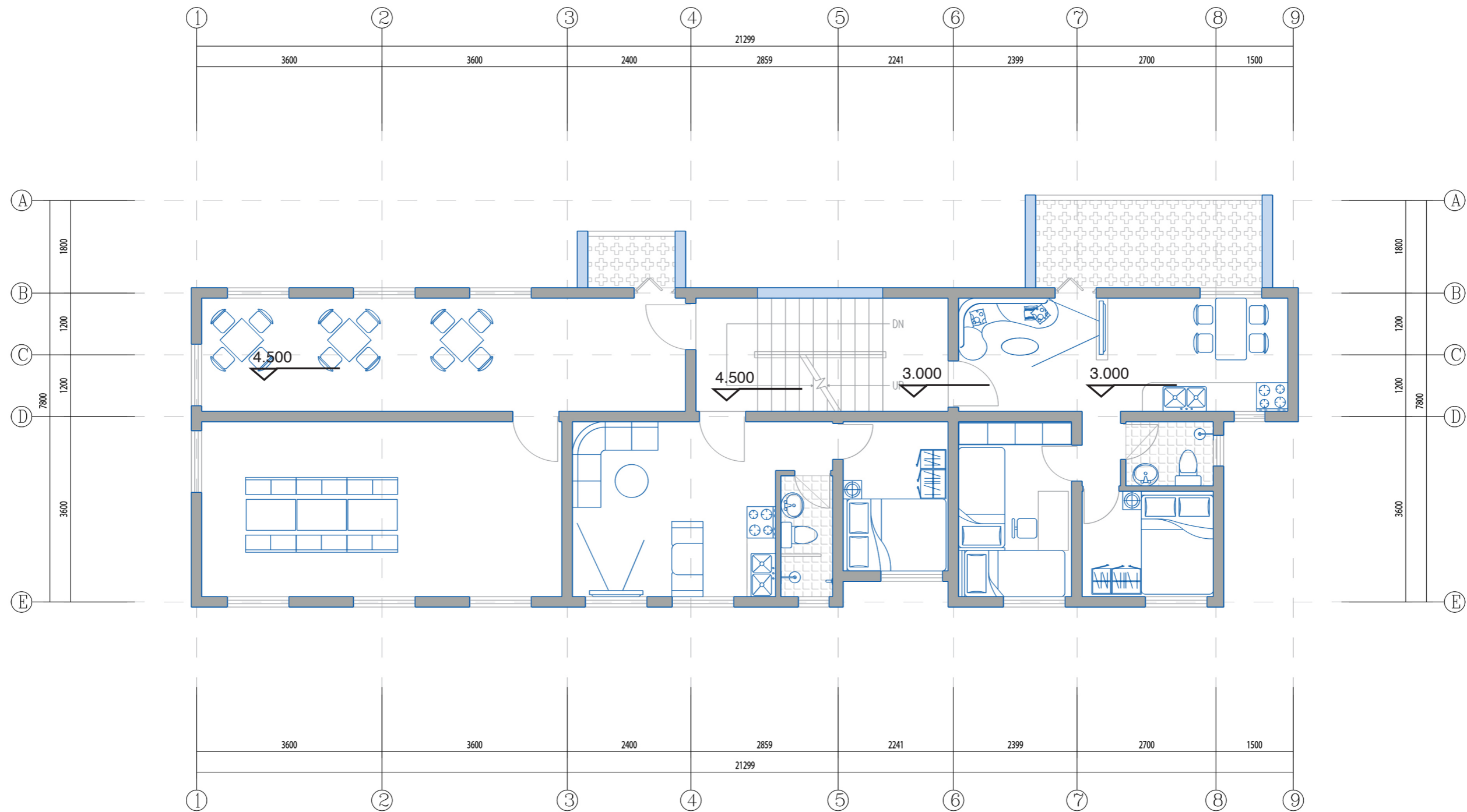


Type 04 - Condominium
HMP

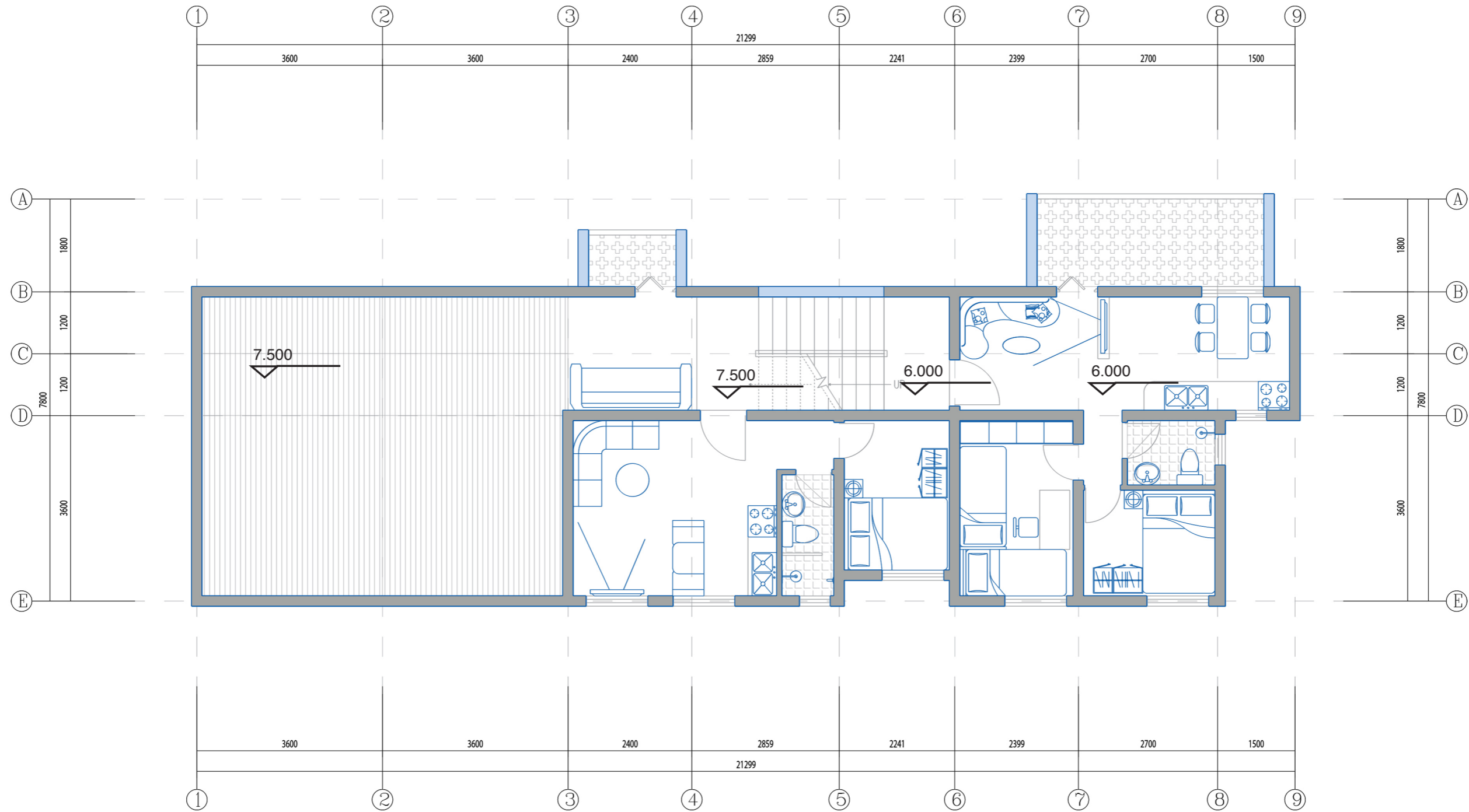




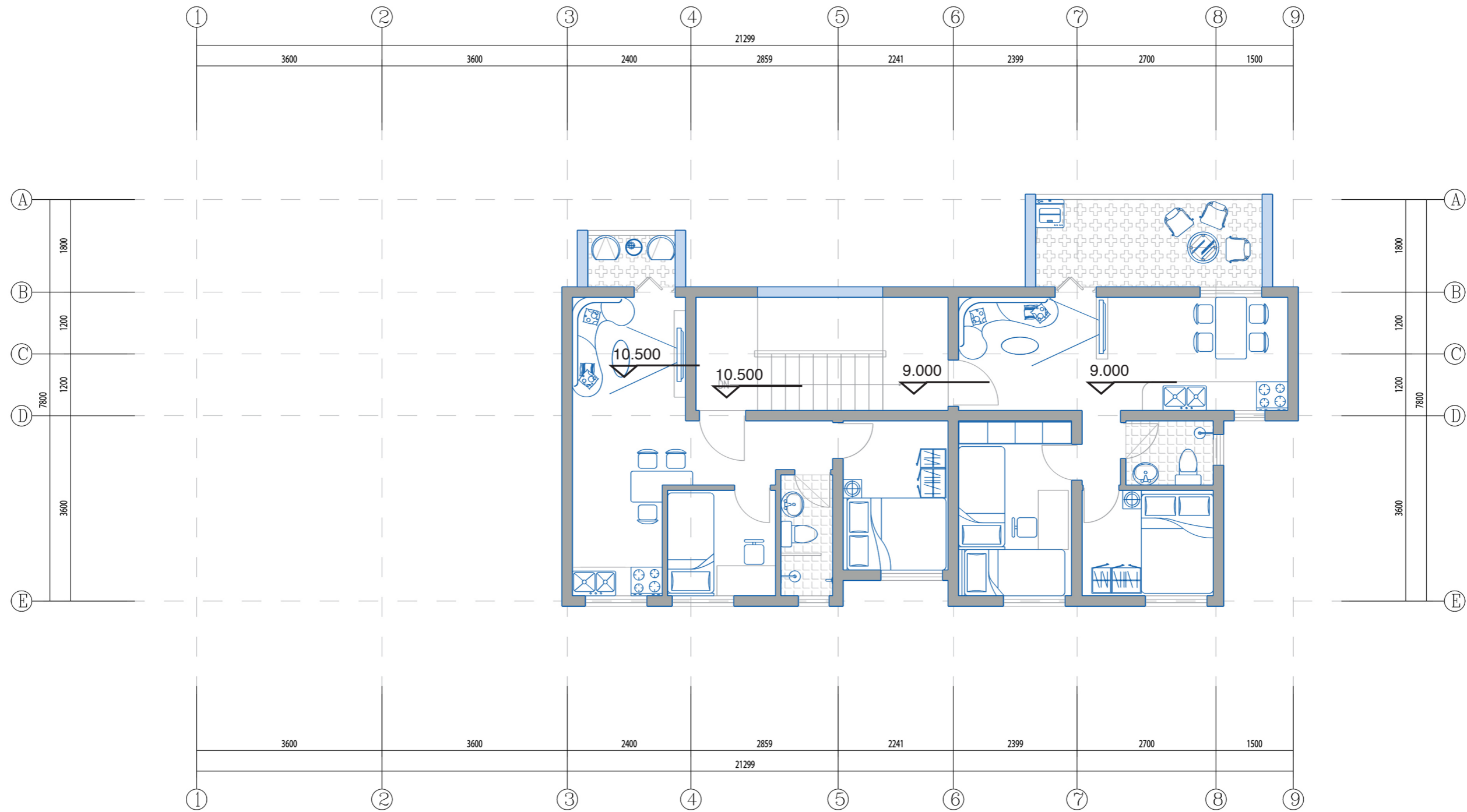
Ground floor plan



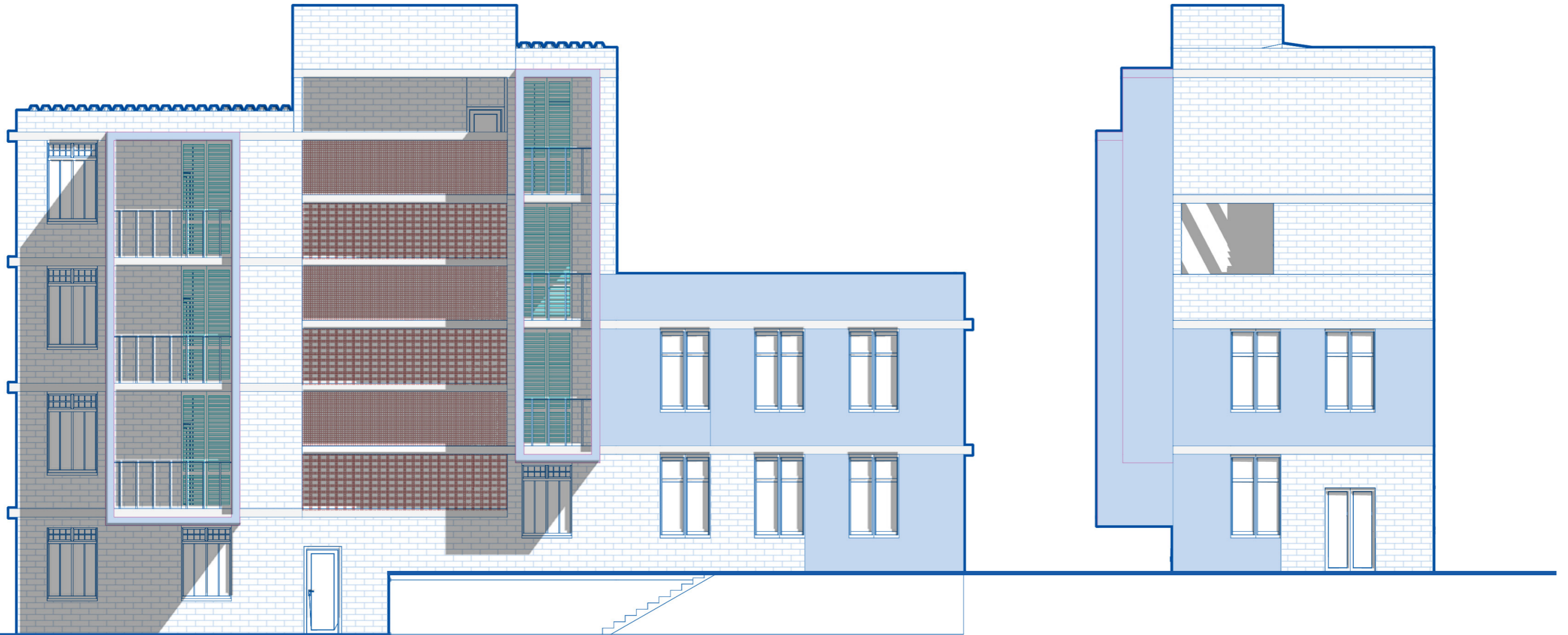
First floor plan



Second floor plan

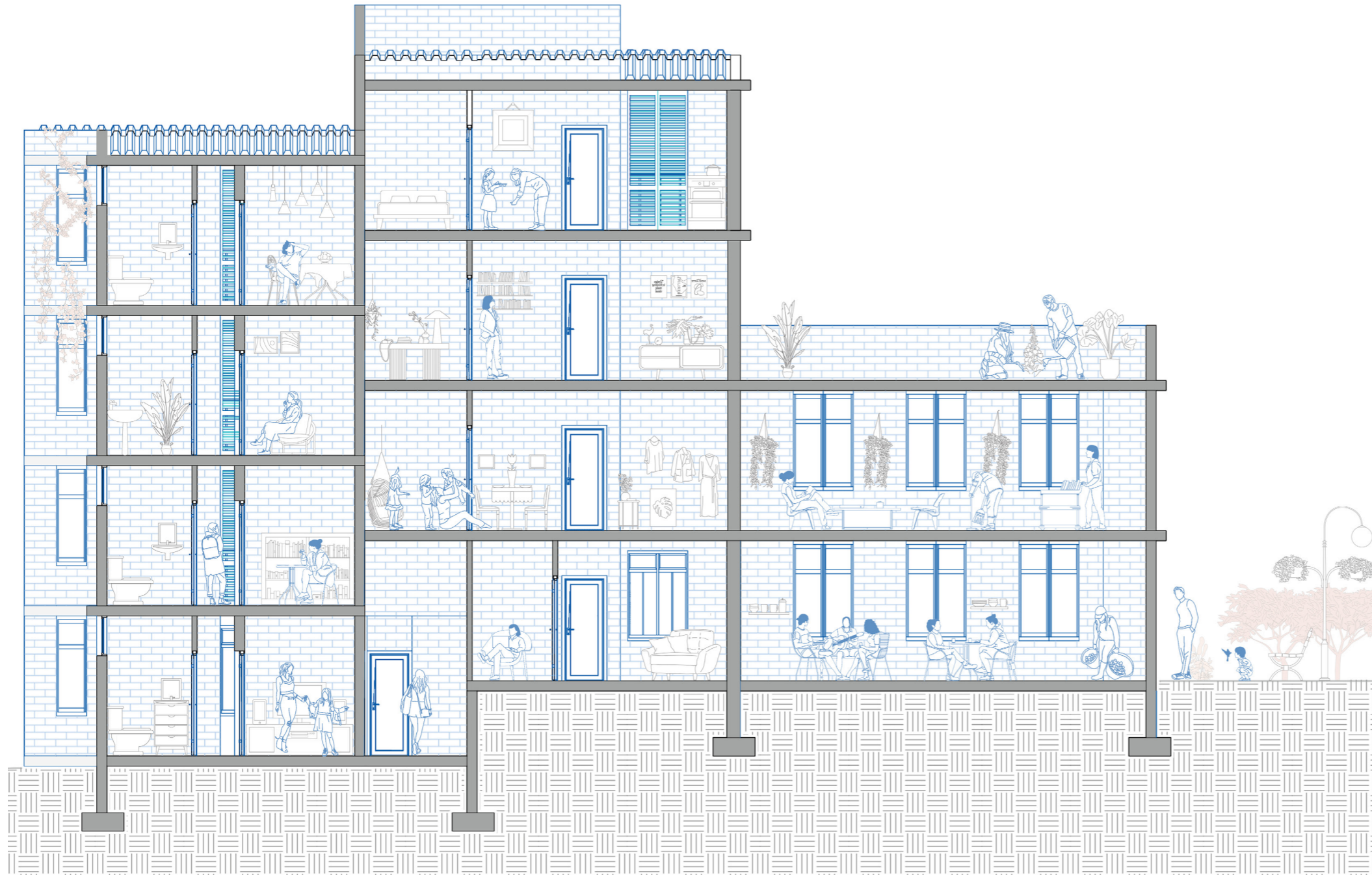


Third floor plan

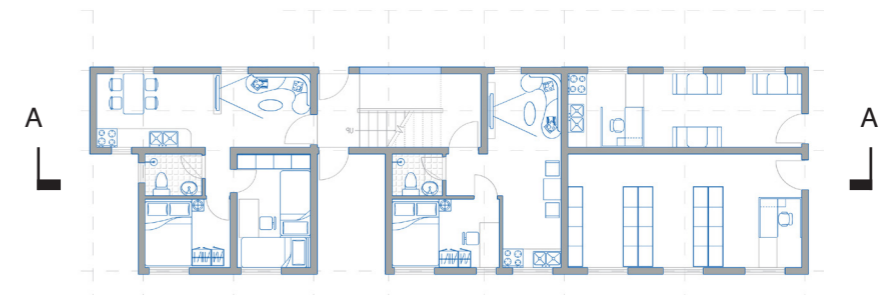


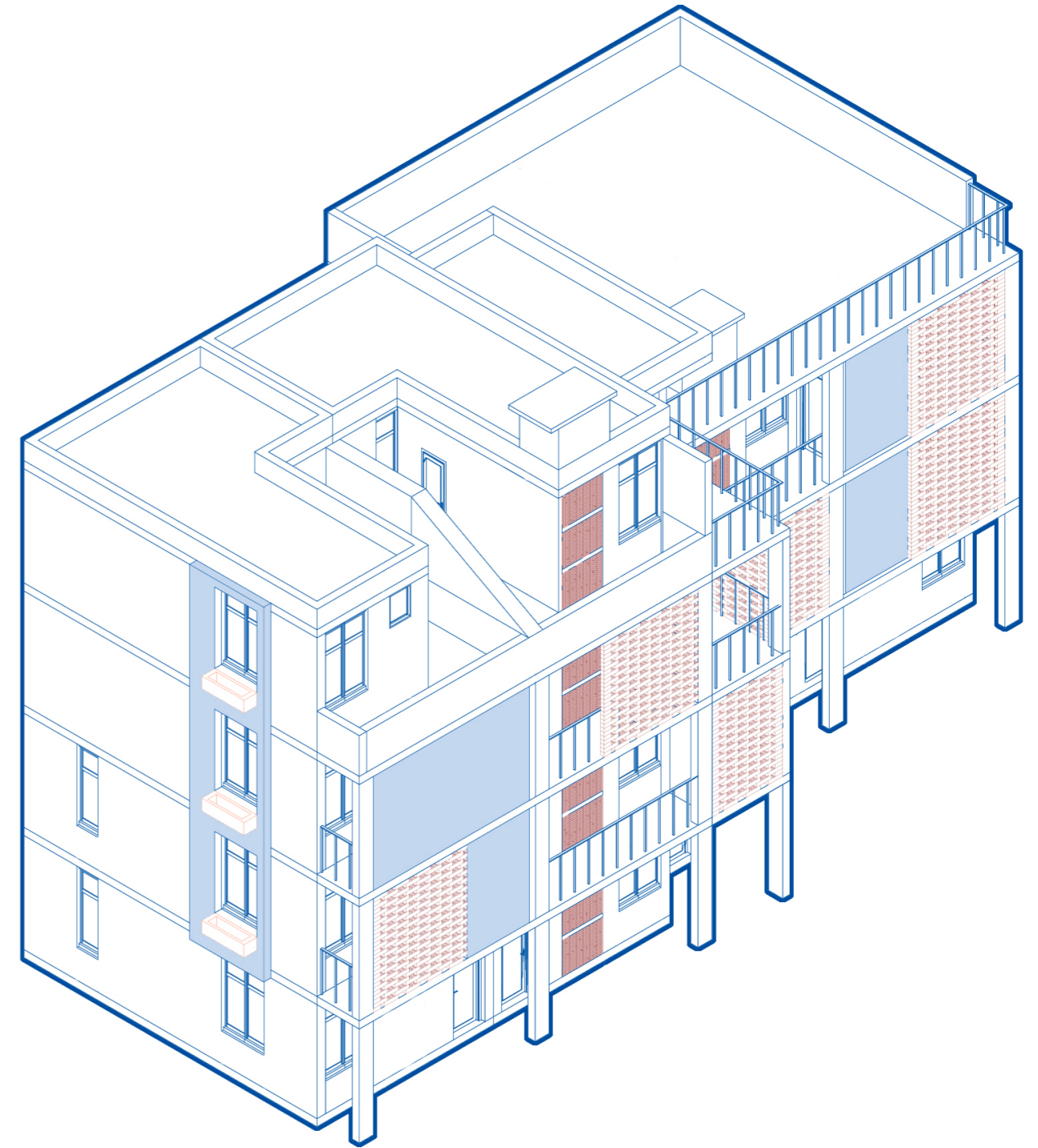
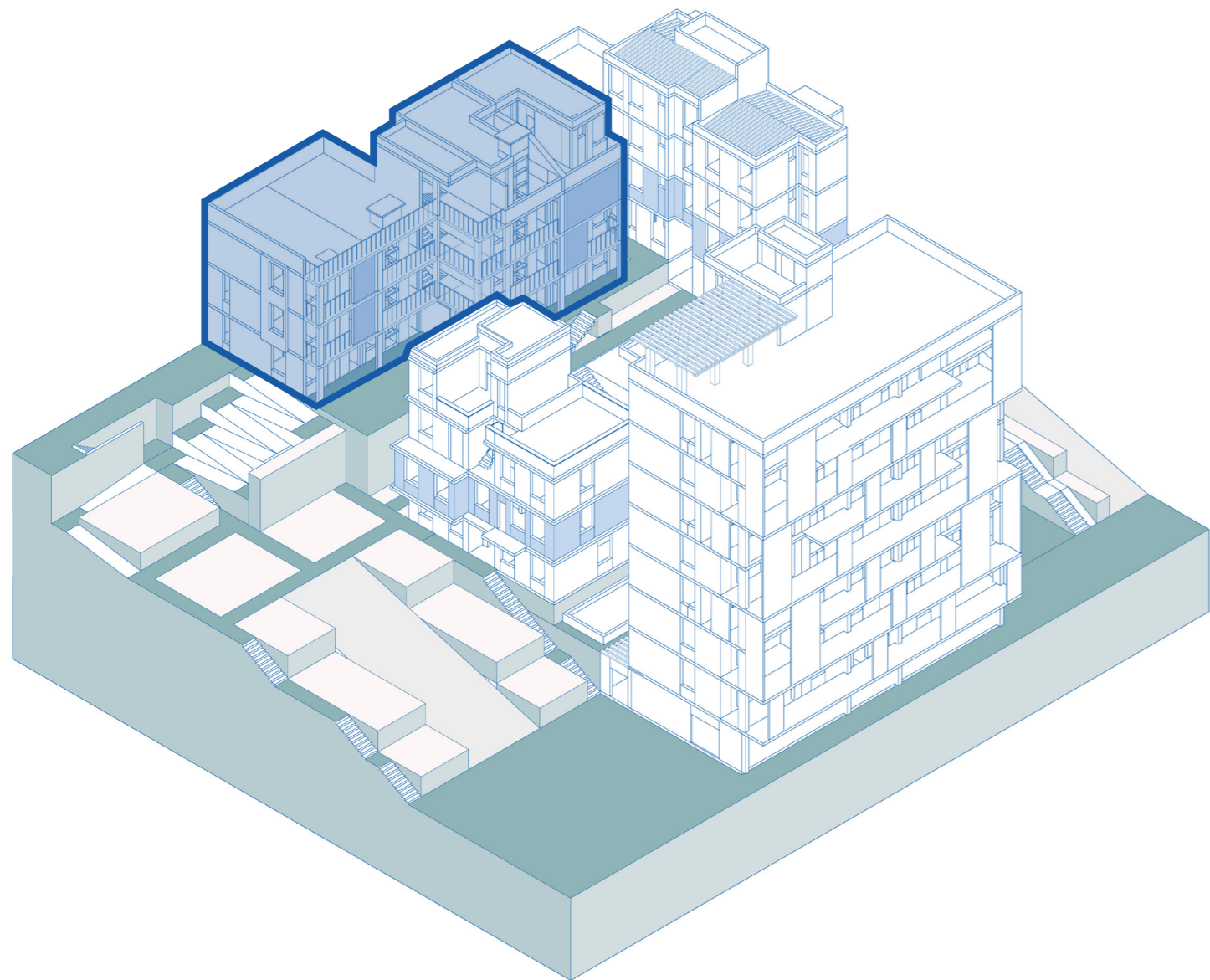
Elevation_front

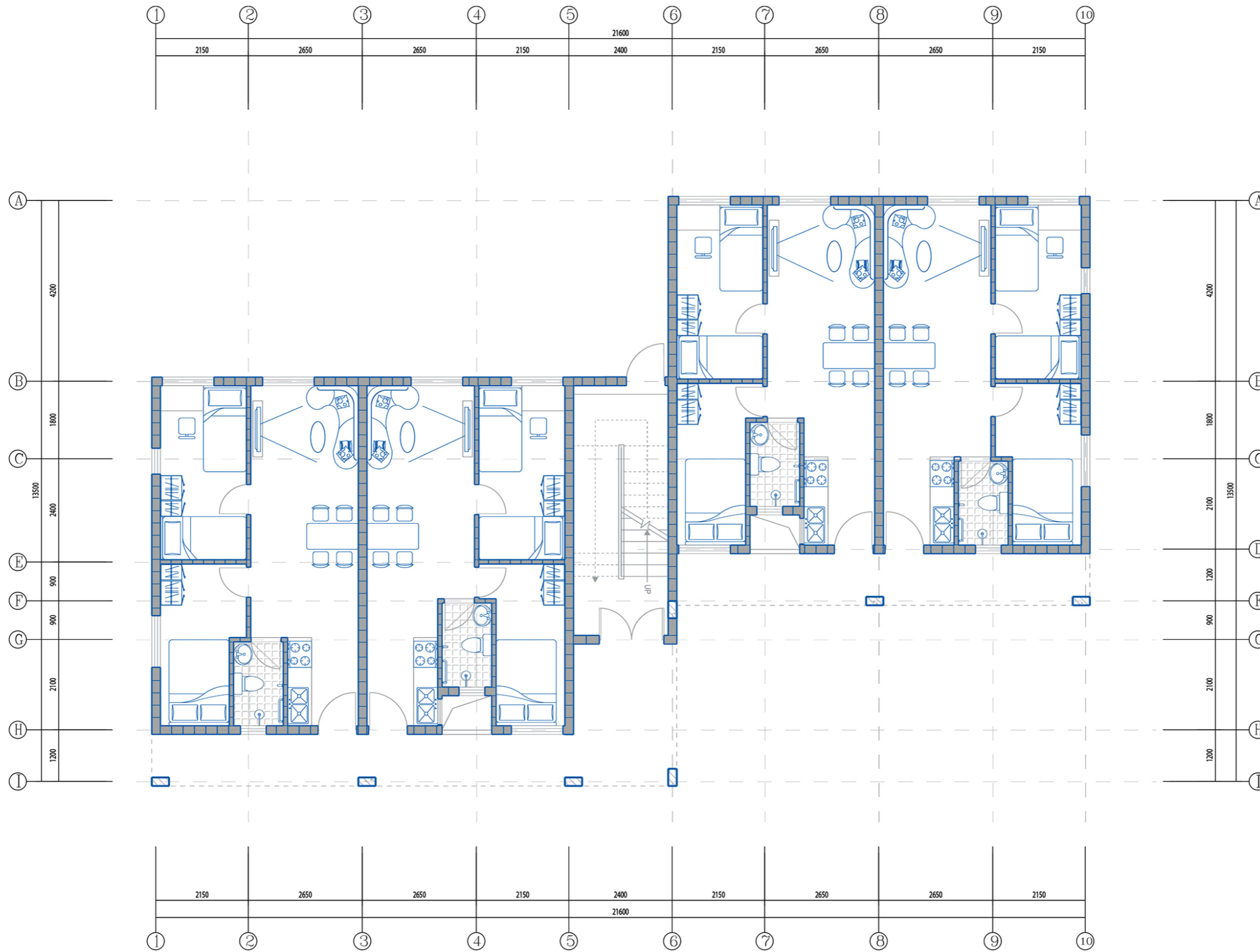
Elevation_right



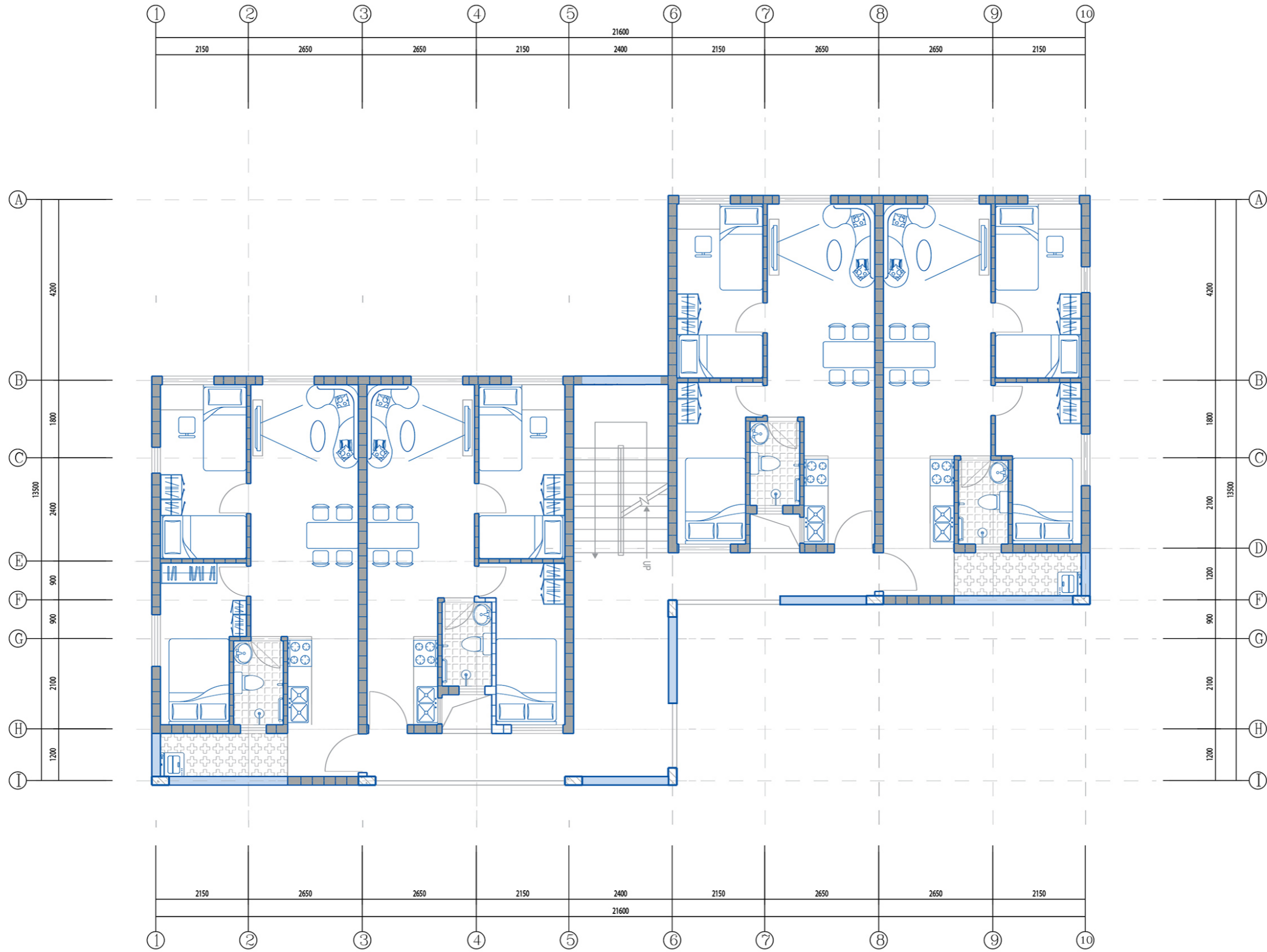
A-A Section



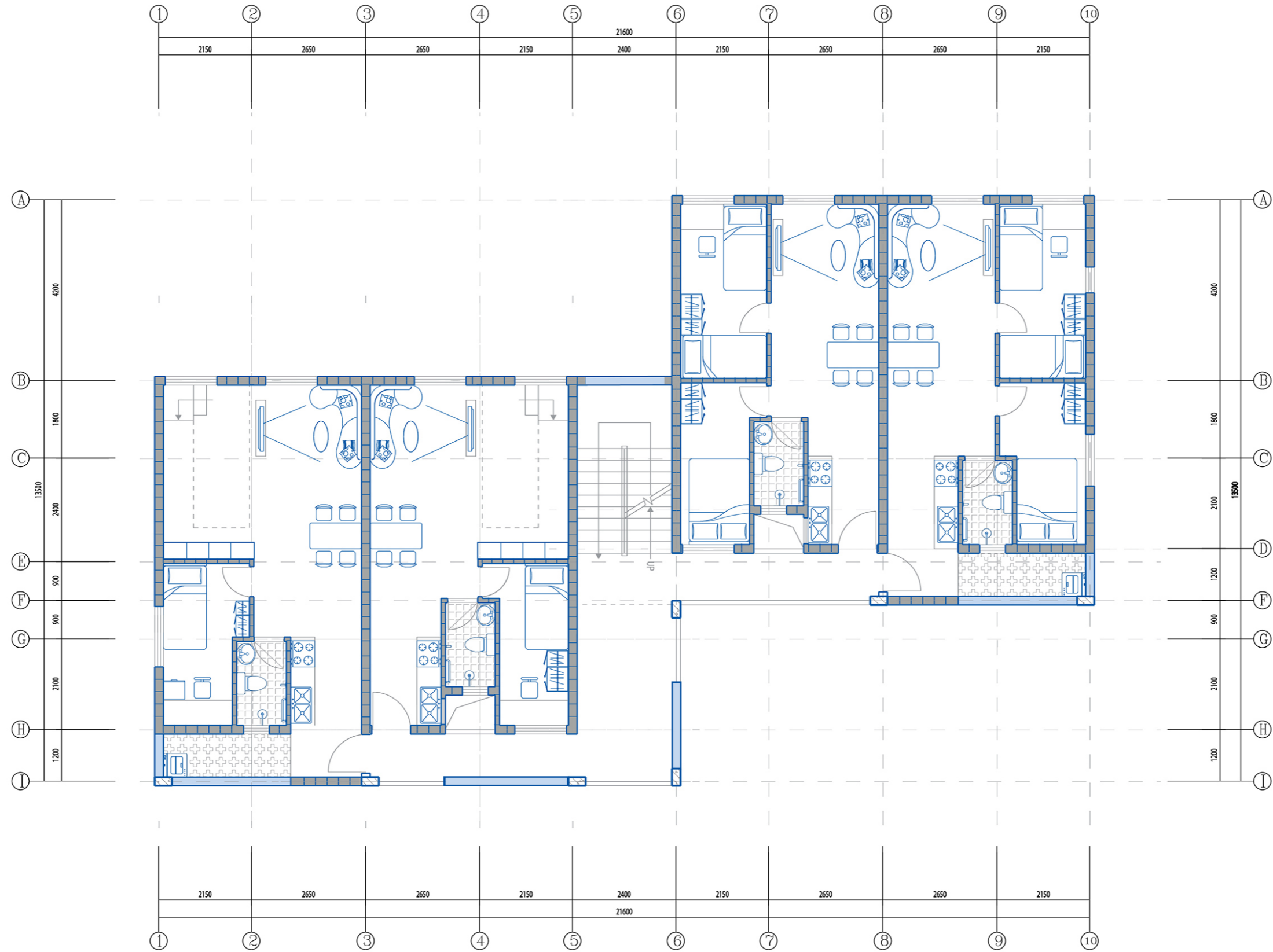




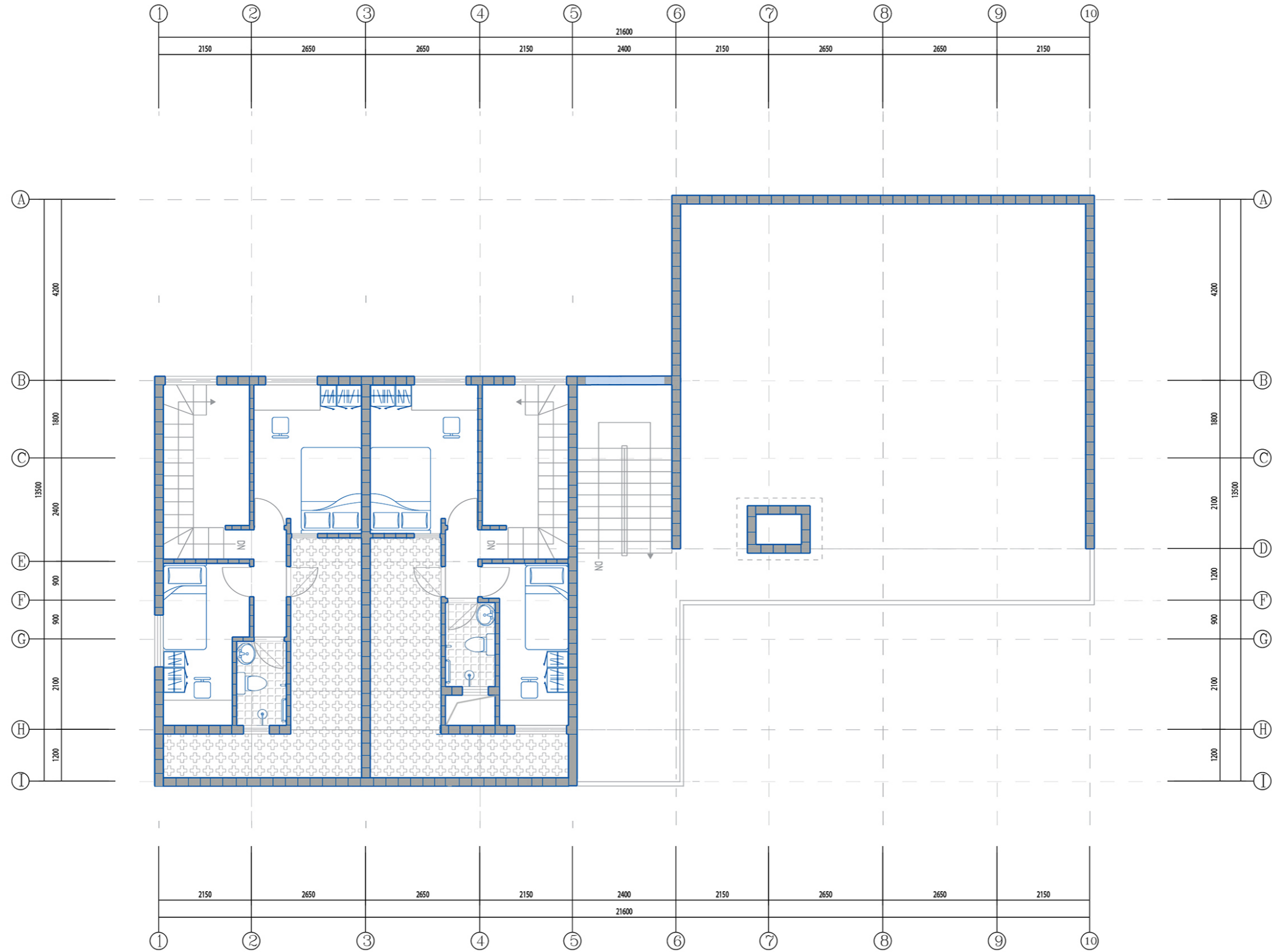
Ground floor plan



First floor plan



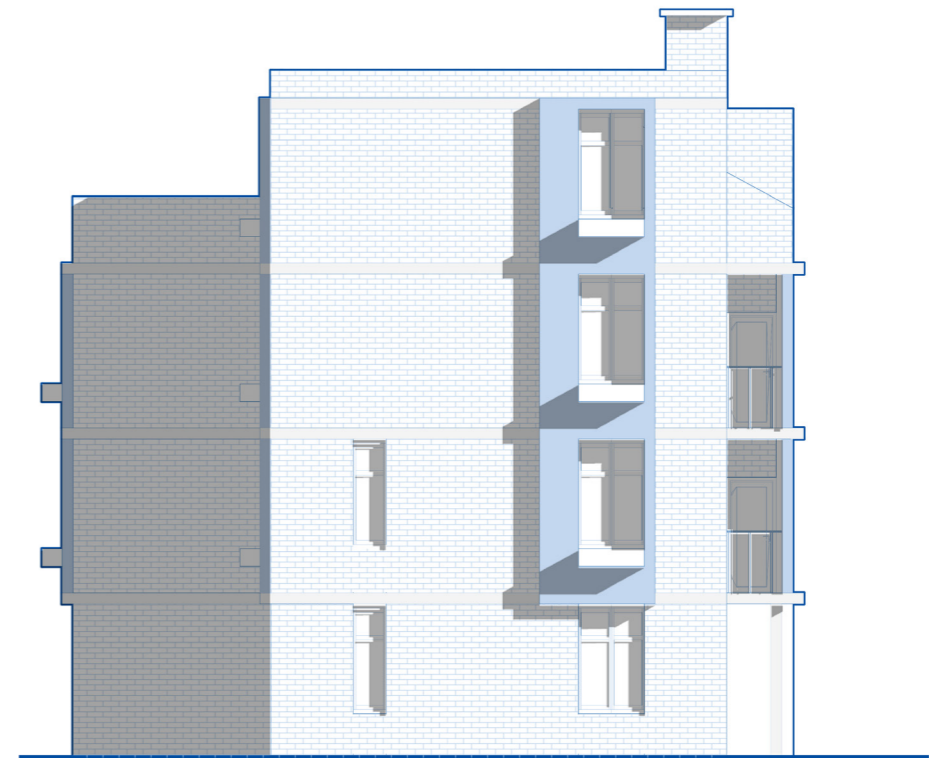
Second floor plan



Third floor plan



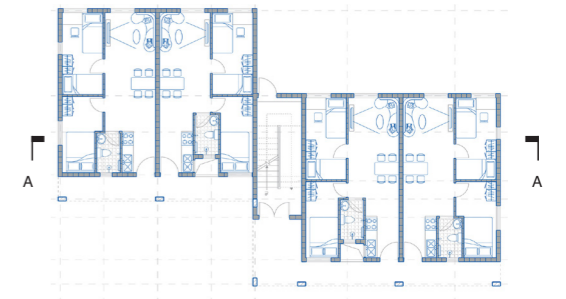
Elevation_front

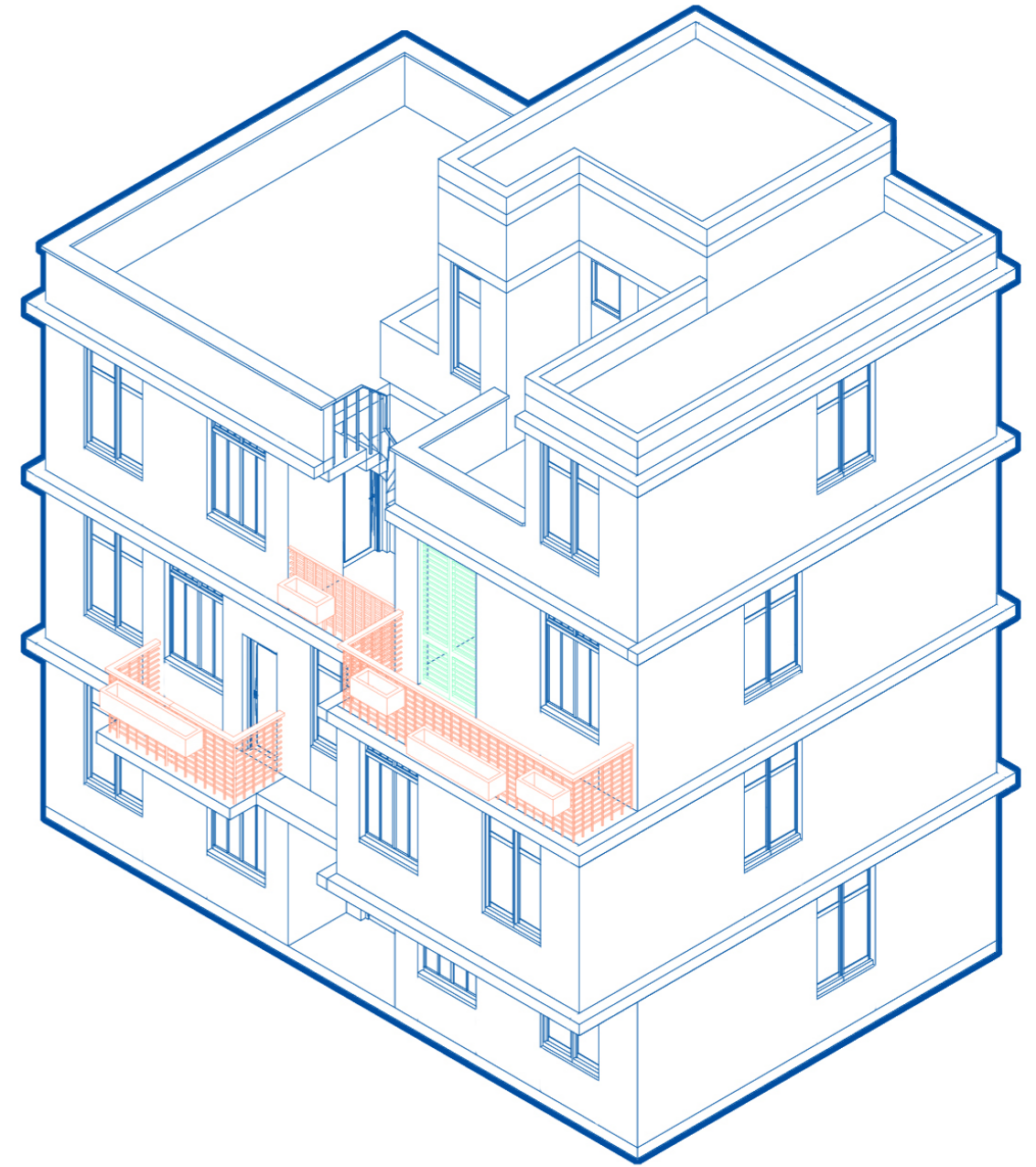
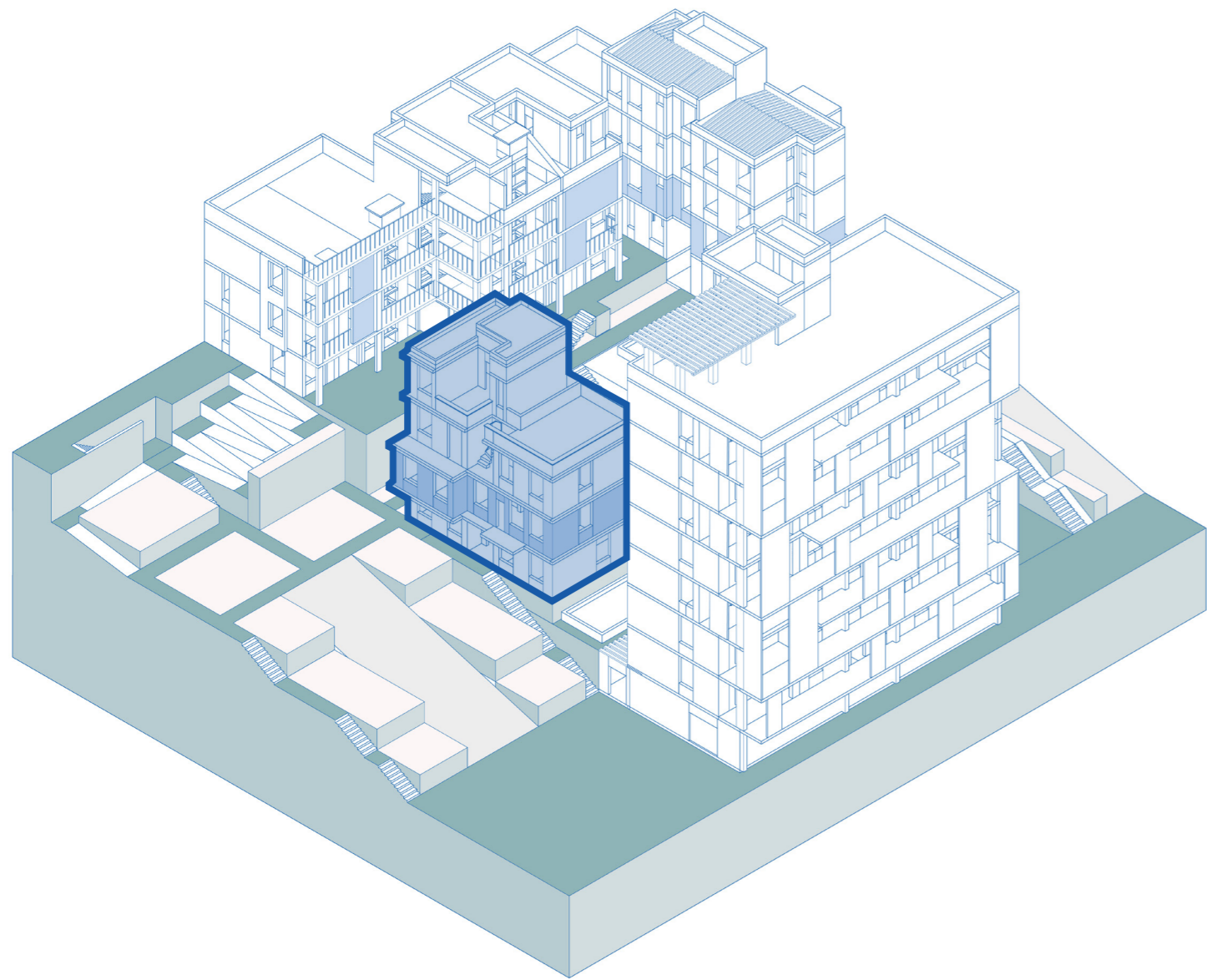


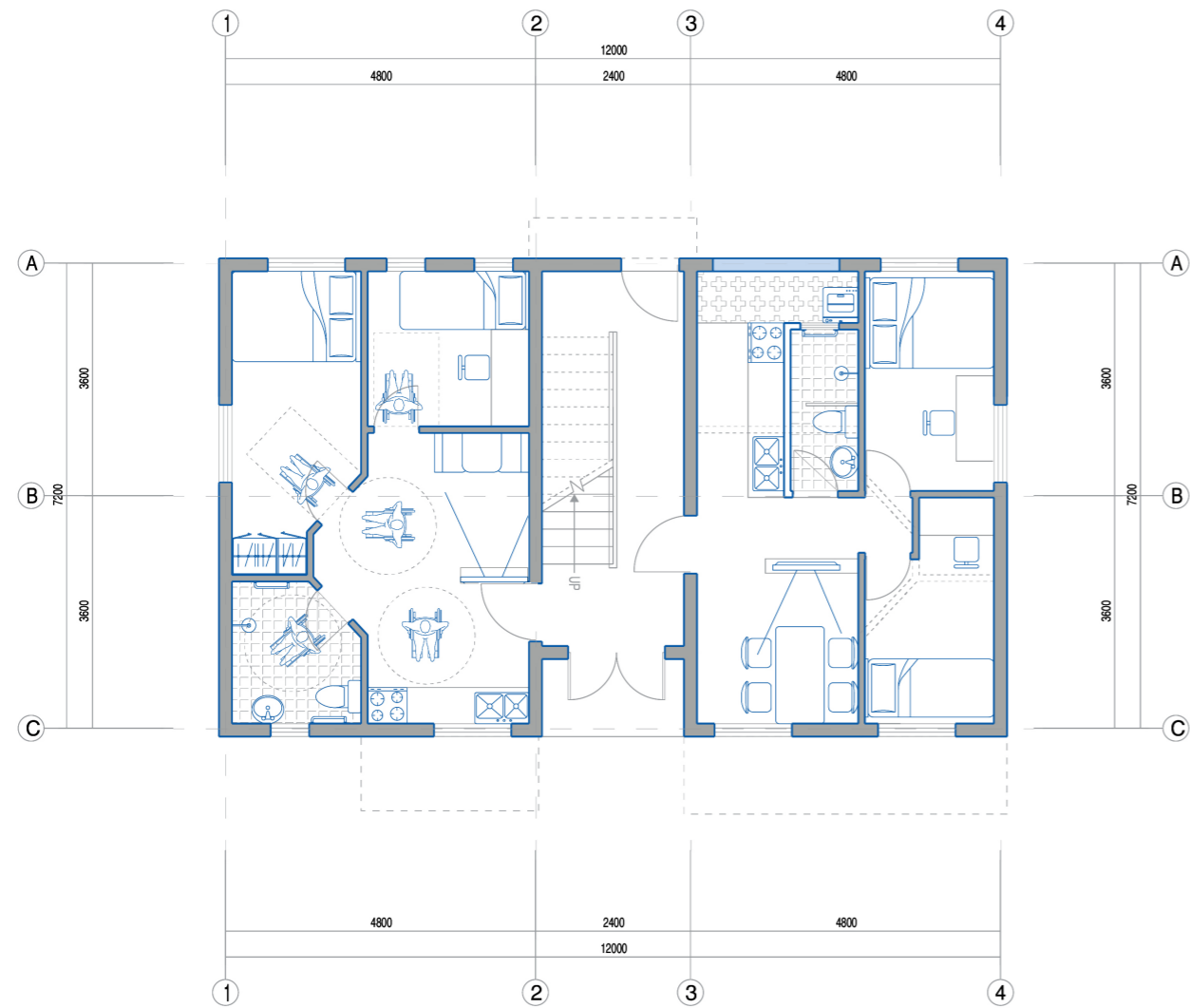
Elevation_right



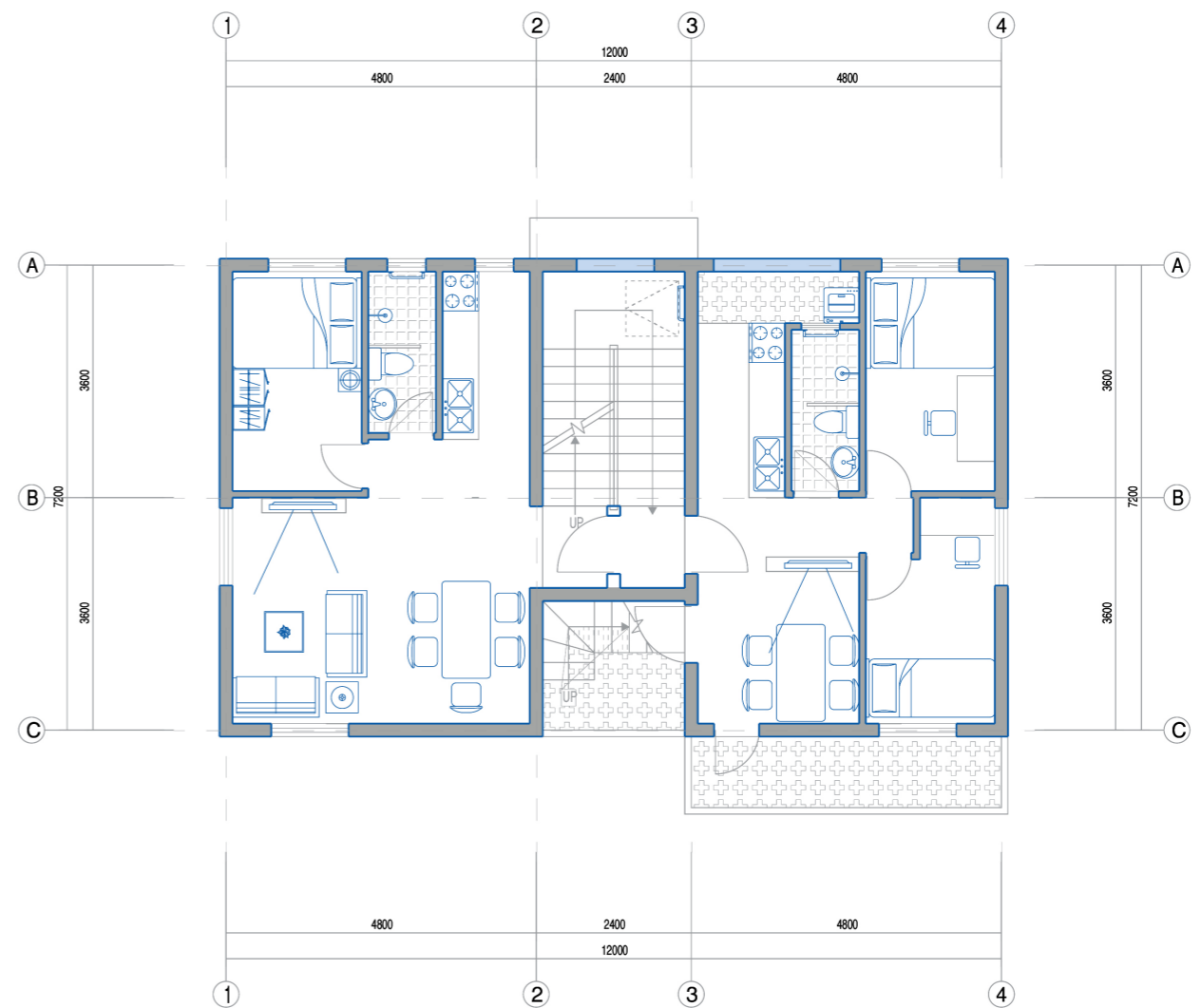
A-A Sectionn



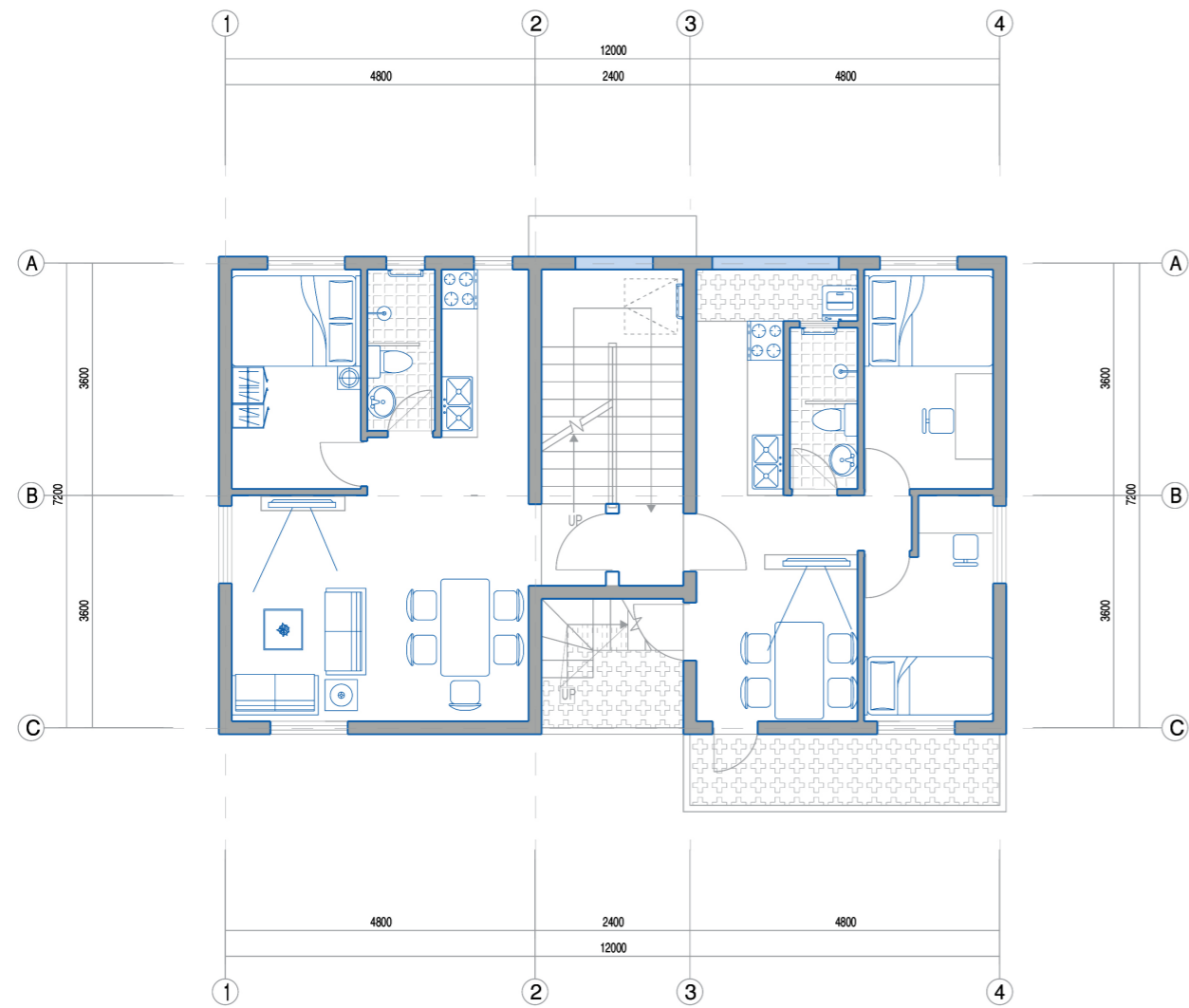




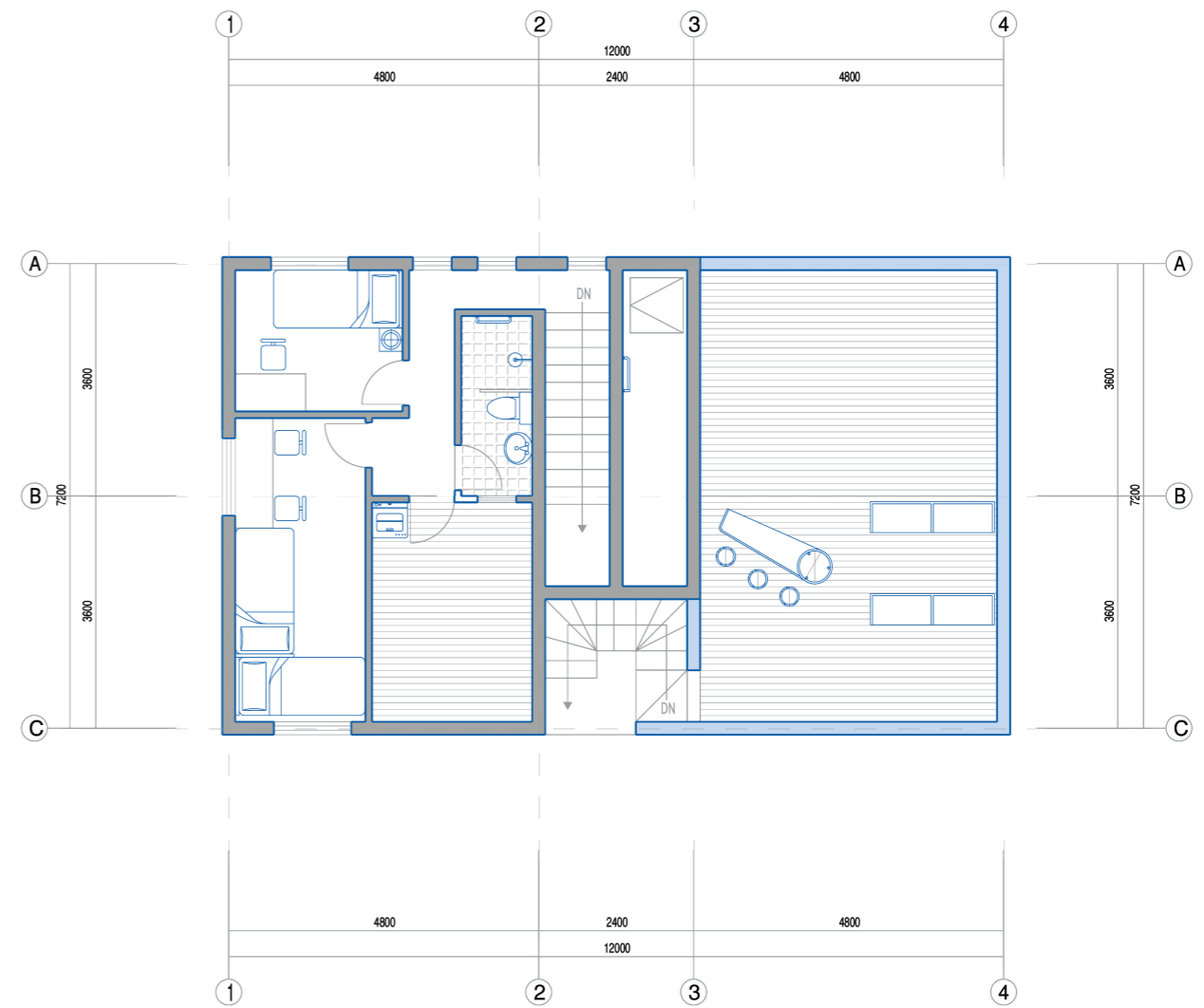
Ground floor plan



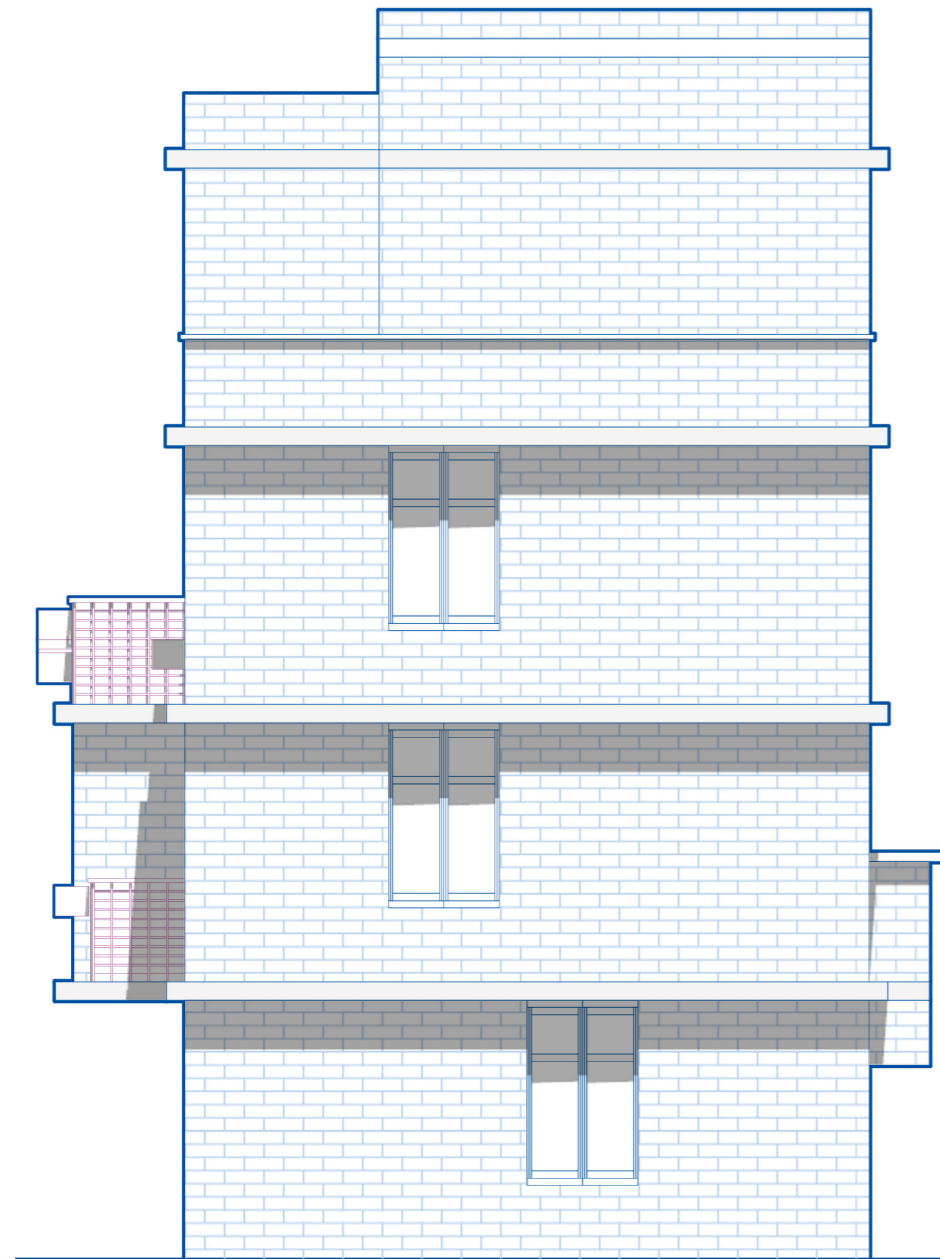
First floor plan



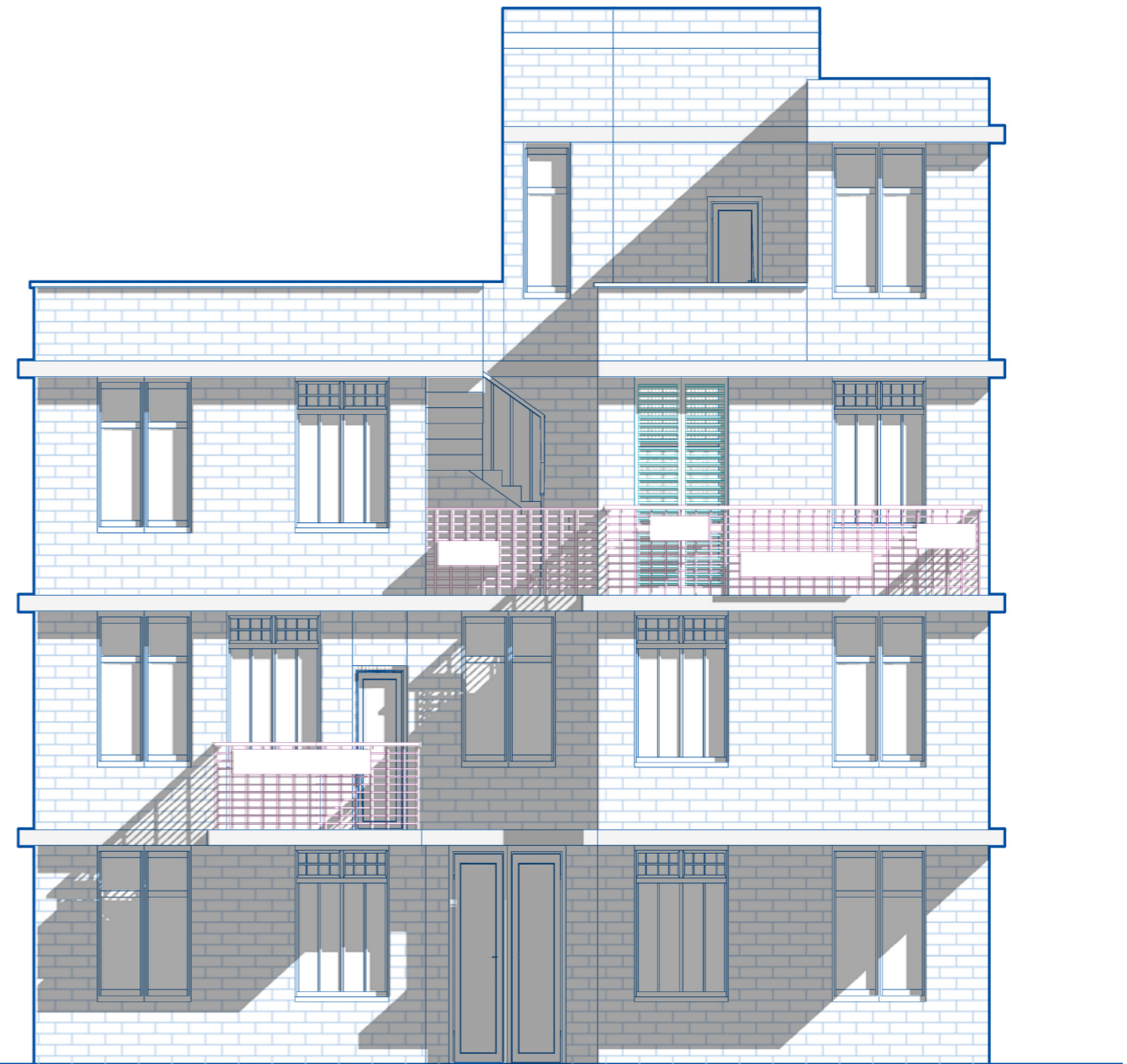
Second floor plan



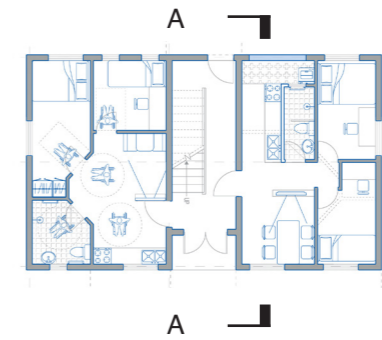
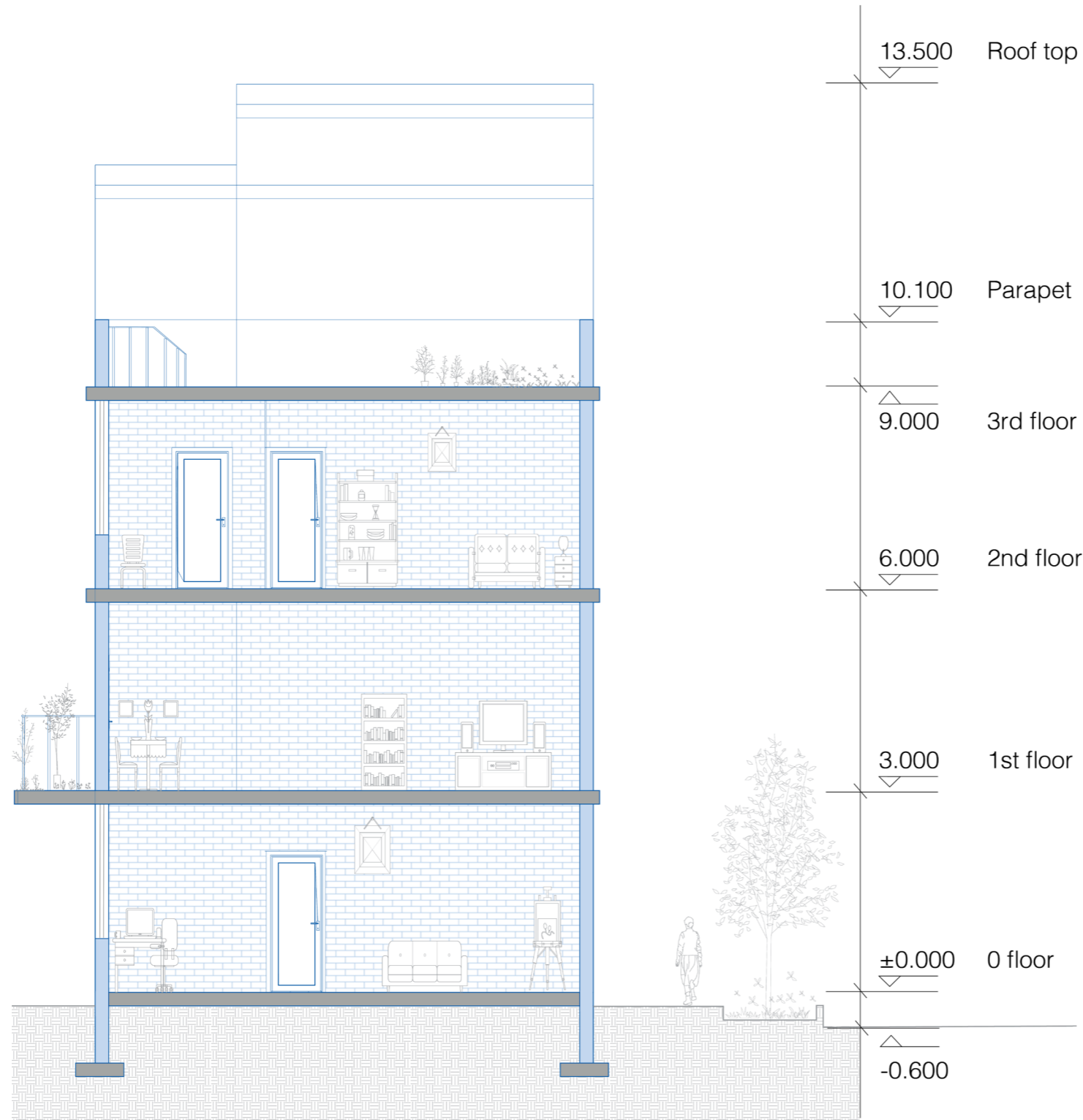
Third floor plan



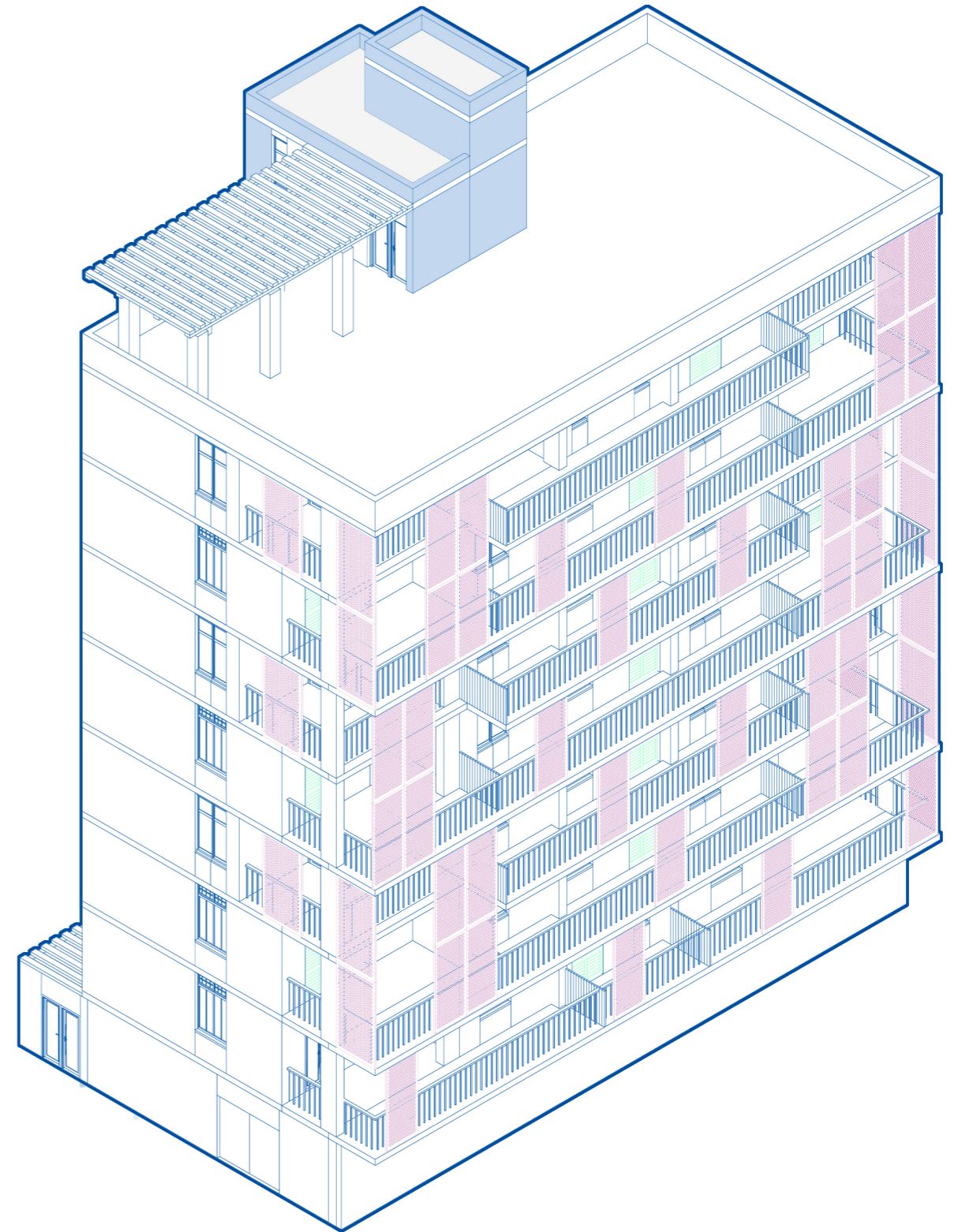
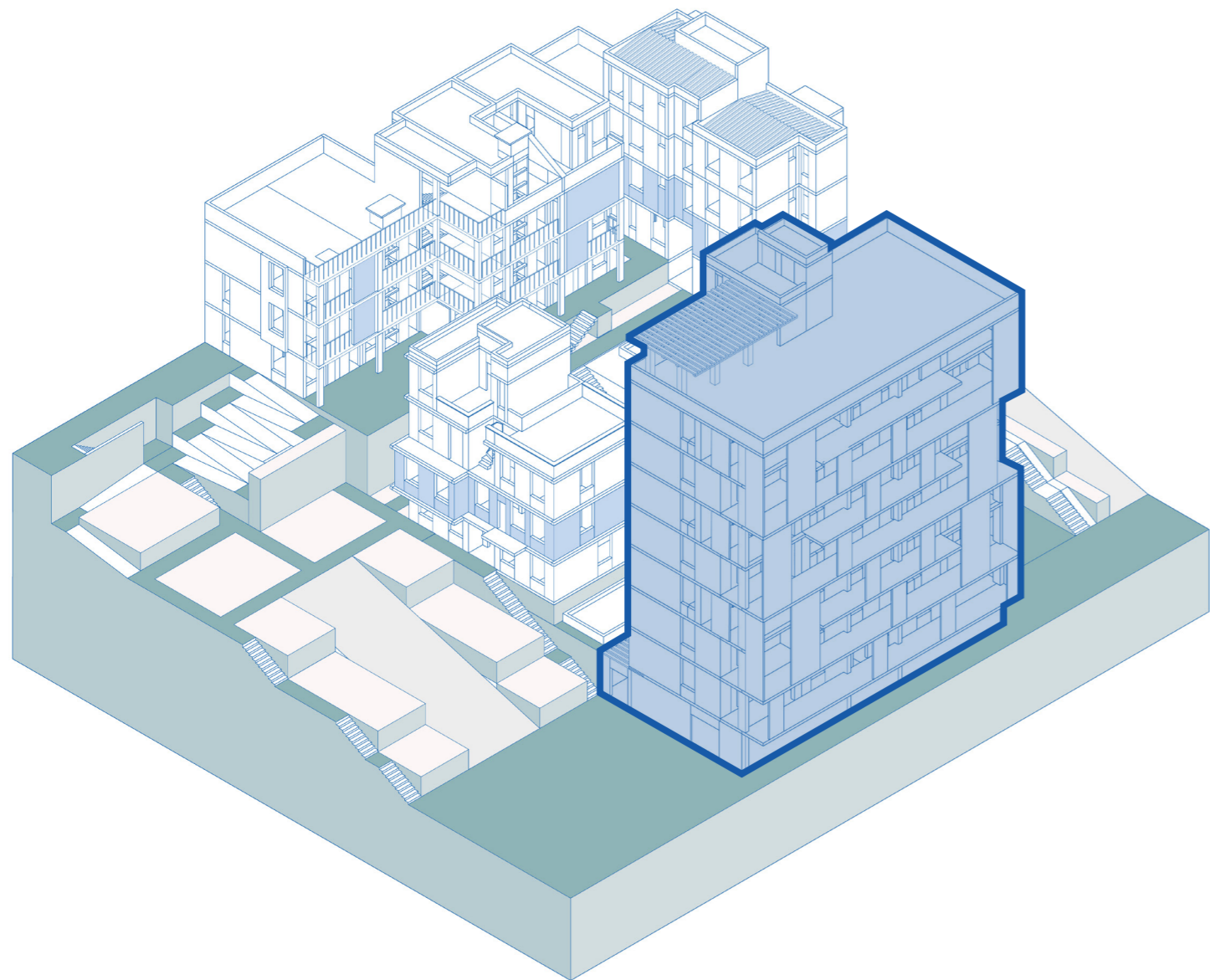
Elevation_left

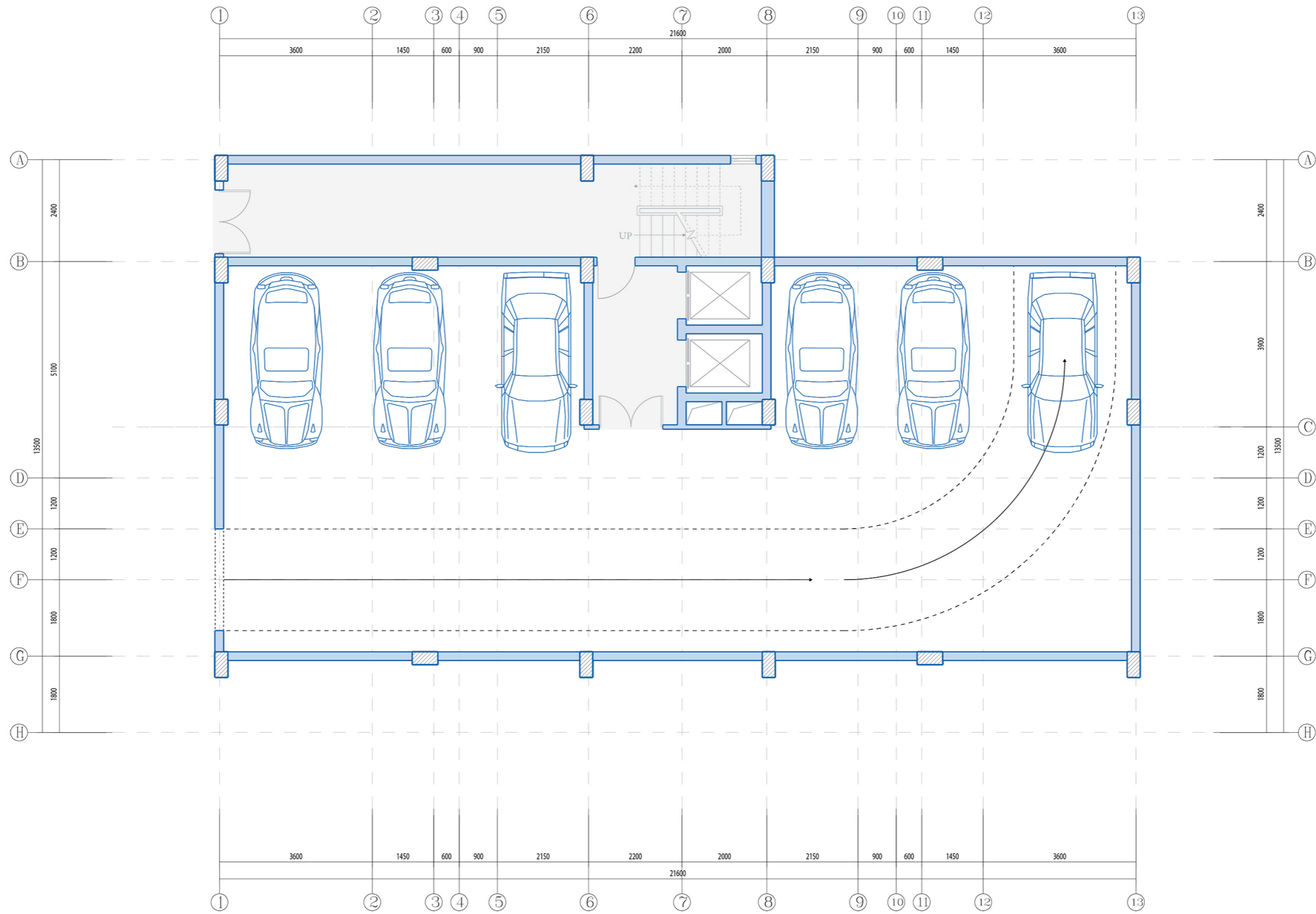


Elevation_front

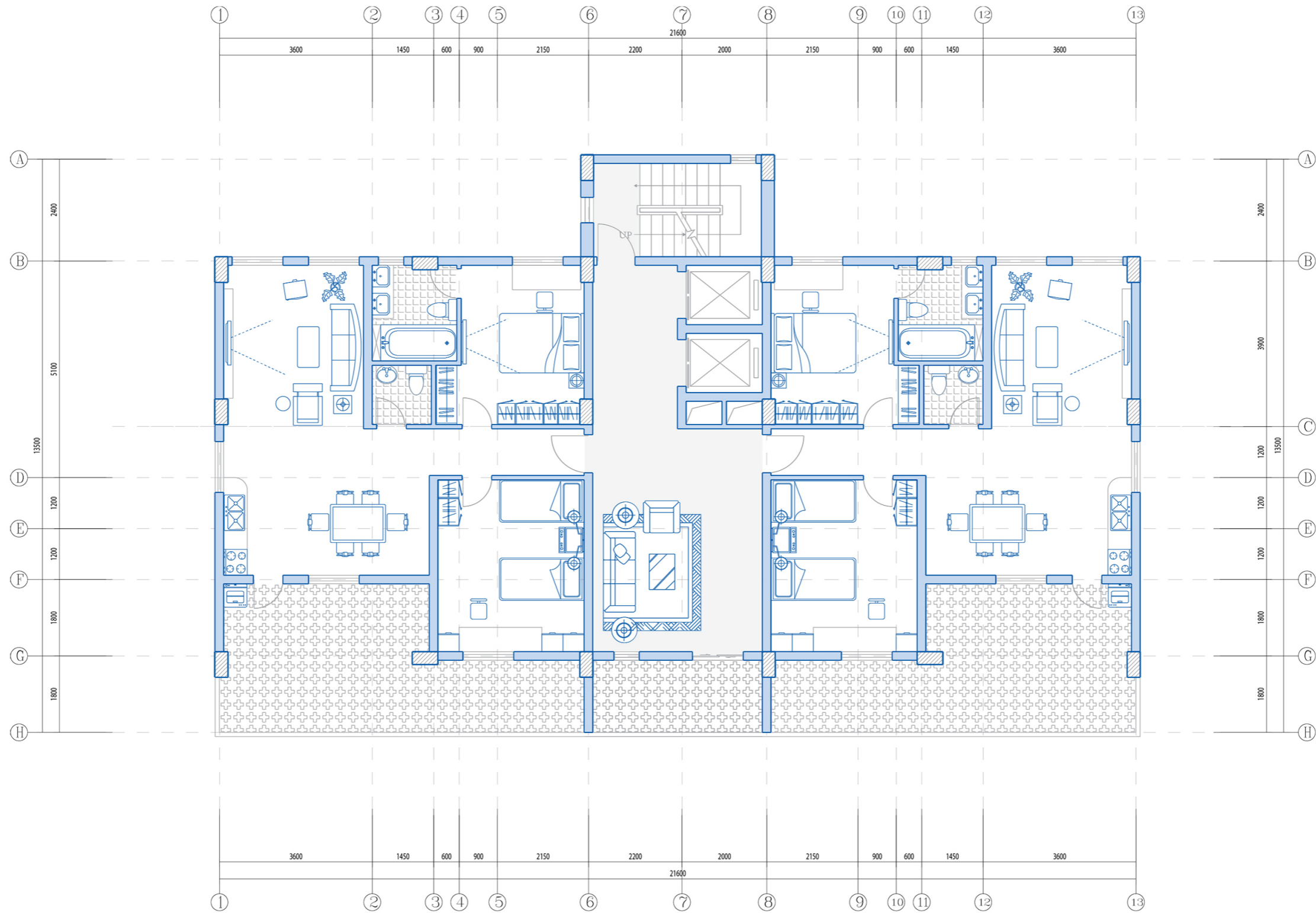


A-A section

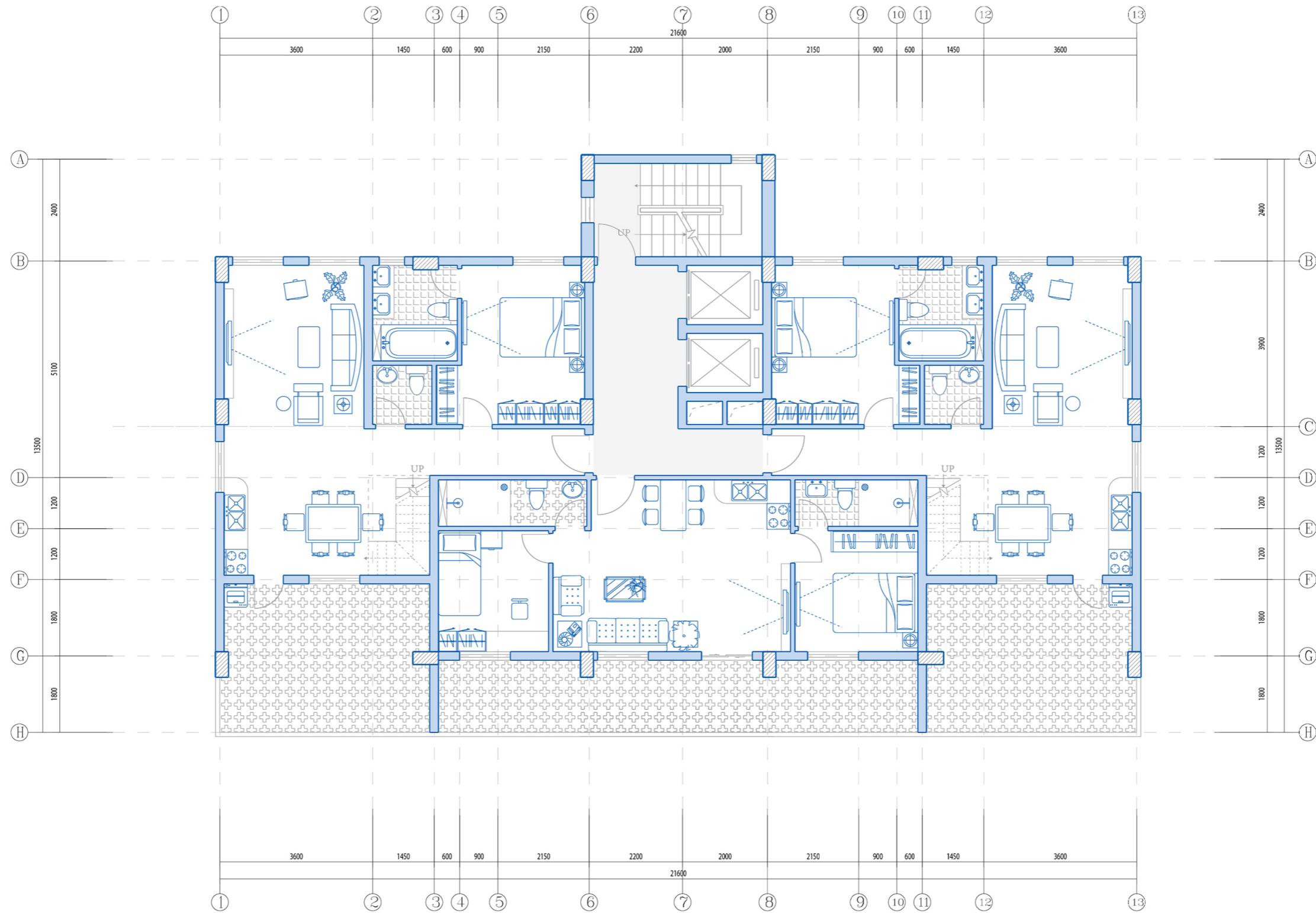




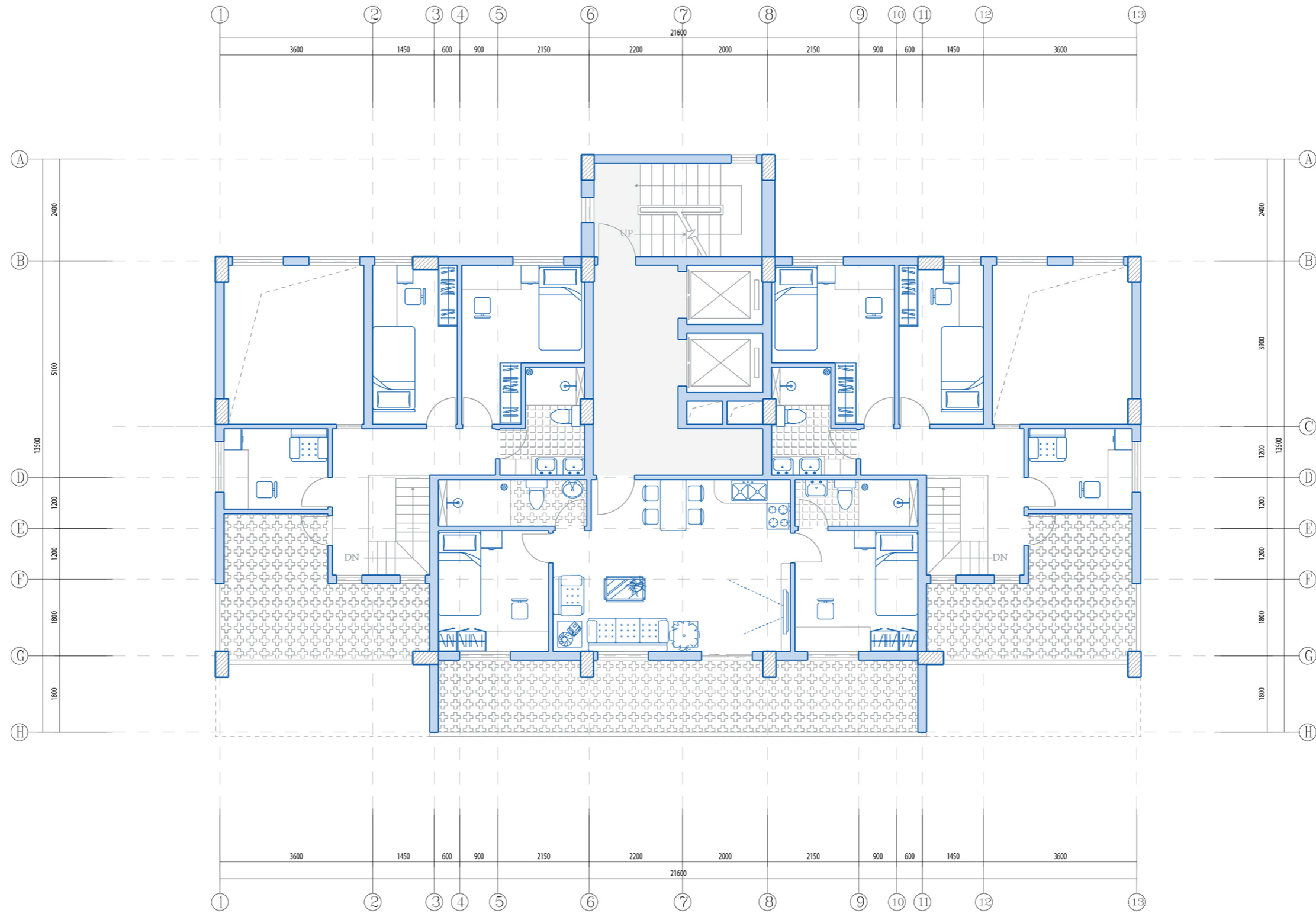
Ground floor plan



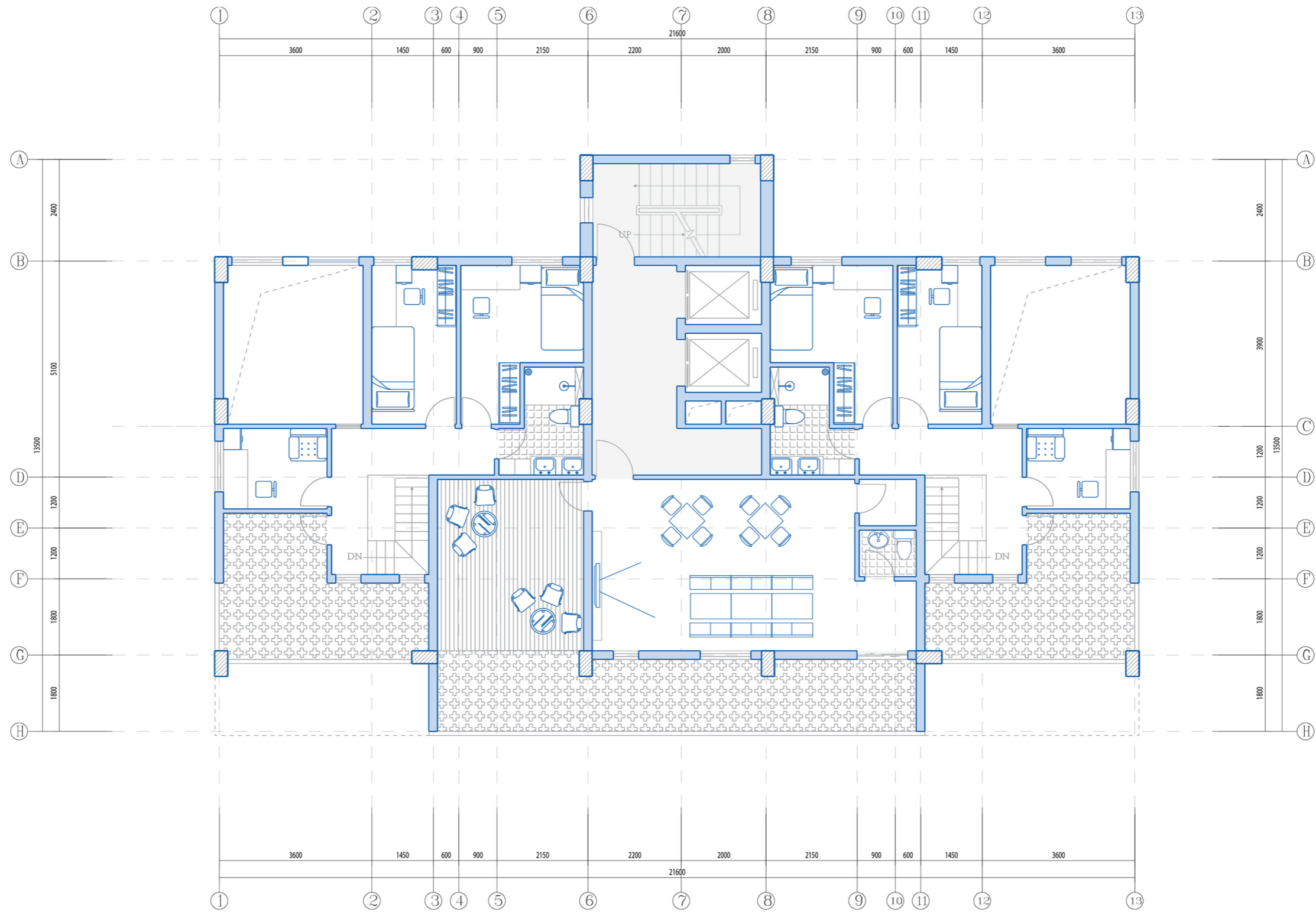
First floor plan



Standard floor plan
Lower floor



Standard floor plan
Upper floor



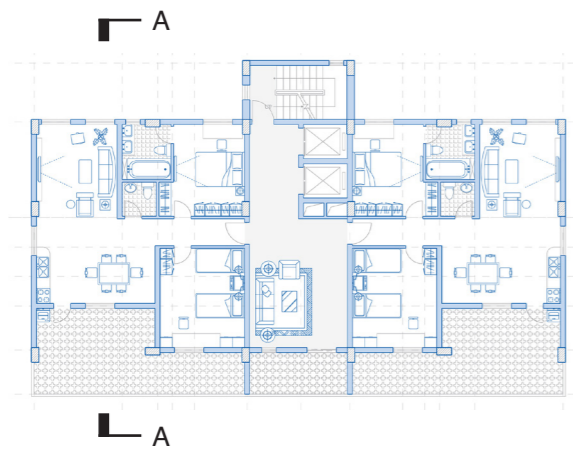
Seventh floor plan



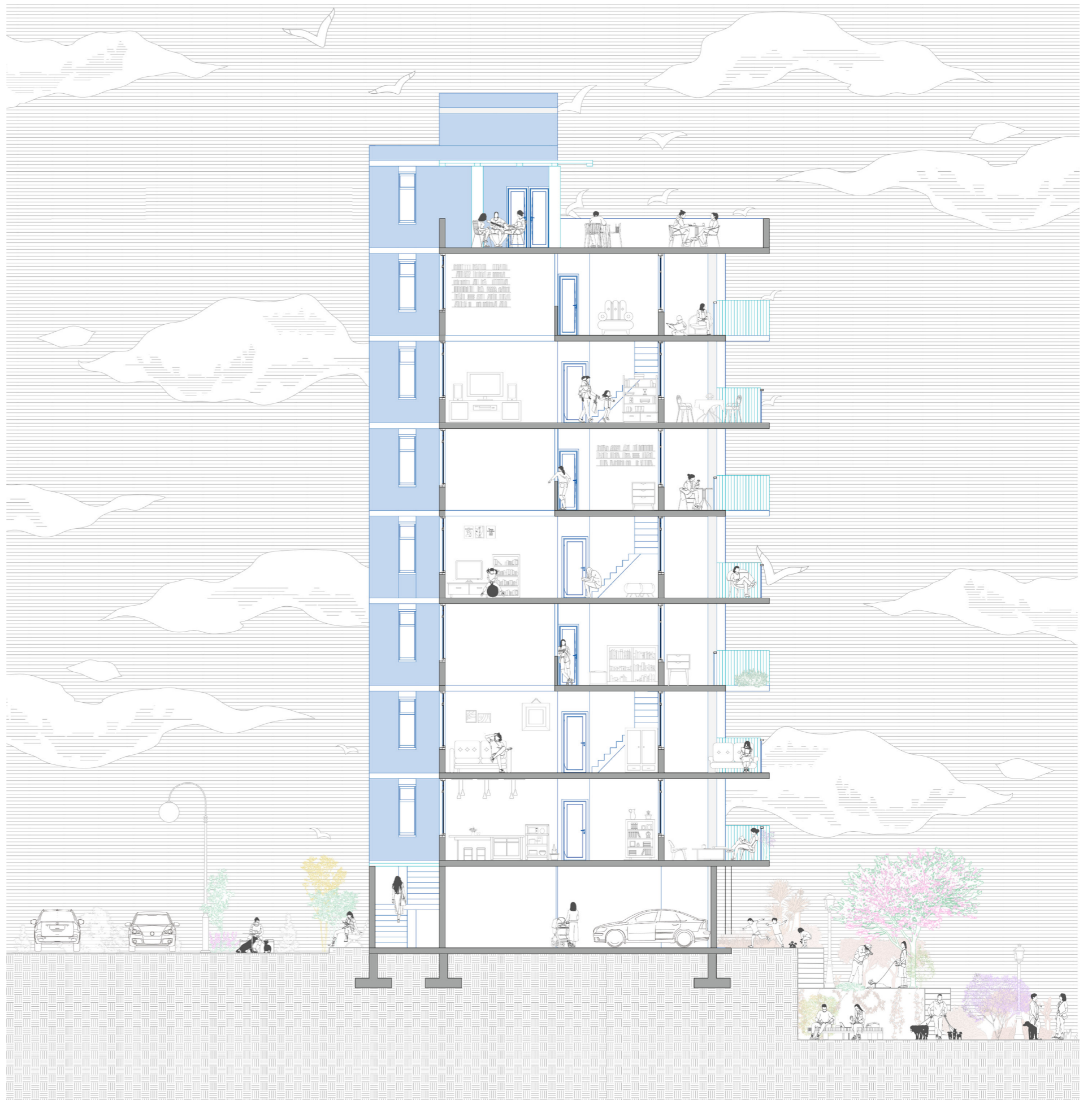
Elevation_right

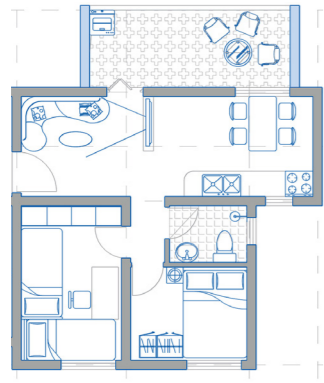


Elevation_front



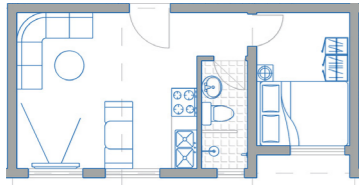
A-A section





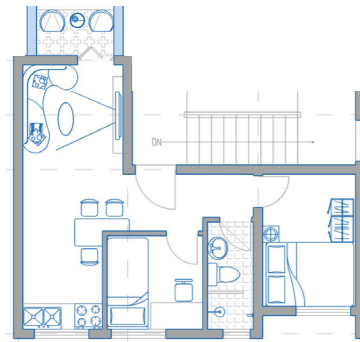
Unit 1-1
34.8 m²

- 1 Dining room
- 1 Living room
- 2 Bedrooms
- 1 Bathroom



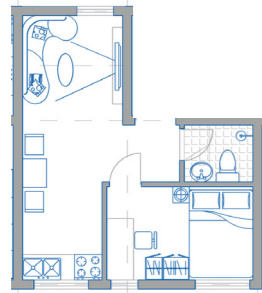
Unit 1-2
27.0 m²

- 1 Dining room
- 1 Living room
- 1 Bedroom
- 1 Bathroom



Unit 1-2
33.7 m²

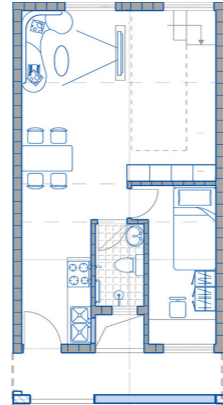
- 1 Dining room
- 1 Living room
- 2 Bedroom
- 1 Bathroom



Unit 1-2
24.8 m²

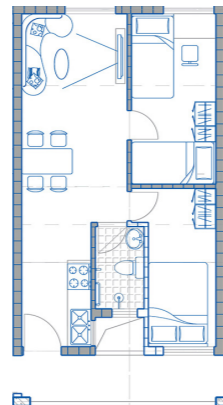
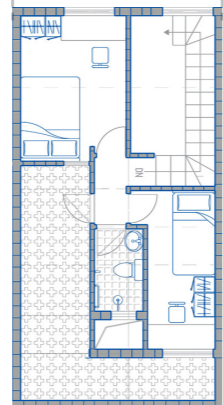
- 1 Dining room
- 1 Living room
- 1 Bedroom
- 1 Bathroom

Type 03 - Chain house
HIS 1



Unit 2-1
66.2 m²

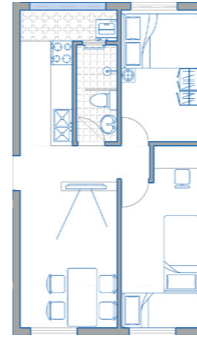
- 1 Dining room
- 1 Living room
- 3 Bedrooms
- 2 Bathroom
- 1 Balcony



Unit 2-2
36.3 m²

- 1 Dining room
- 1 Living room
- 2 Bedrooms
- 1 Bathroom

Type 02 - Row house
HIS 1



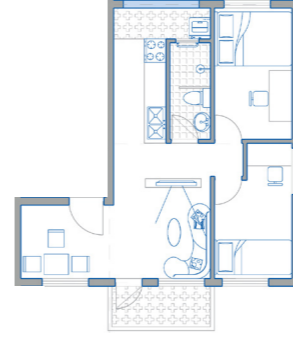
Unit 3-1
41.1 m²

- 1 Dining room
- 2 Bedrooms
- 1 Bathroom



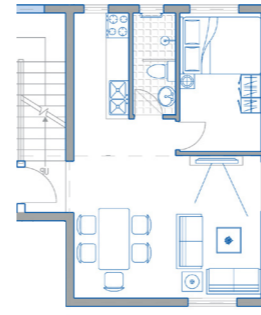
Unit 3-1
36.3 m²

- 1 Dining room
- 2 Bedrooms
- 1 Bathroom



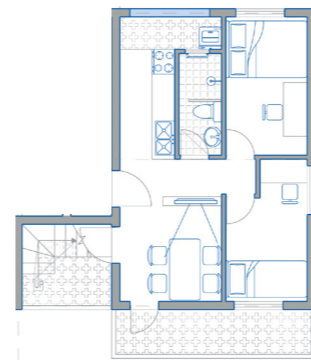
Unit 3-1
36.3 m²

- 1 Dining room
- 2 Bedrooms
- 1 Bathroom



Unit 3-2
69.4 m²

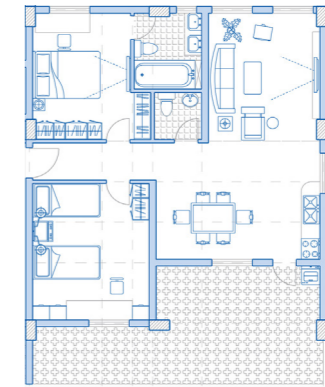
- 1 Dining room
- 1 Living room
- 3 Bedrooms
- 2 Bathroom
- 1 Balcony



Unit 3-3
41.2 m²

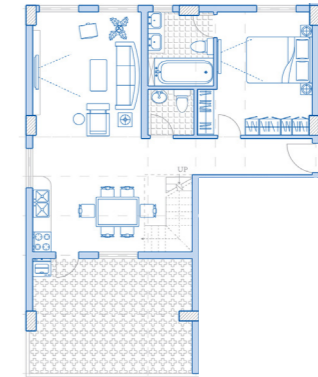
- 1 Dining room
- 1 Living room
- 2 Bedrooms
- 1 Bathroom
- 1 Balcony

Type 02 - Slab house
HIS 2



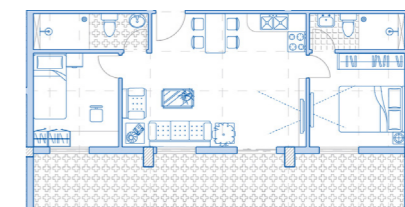
Unit 4-1
74.8 m²

- 1 Dining room
- 1 Living room
- 2 Bedrooms
- 2 Toilets
- 1 Balcony



Unit 4-2
89.9 m²

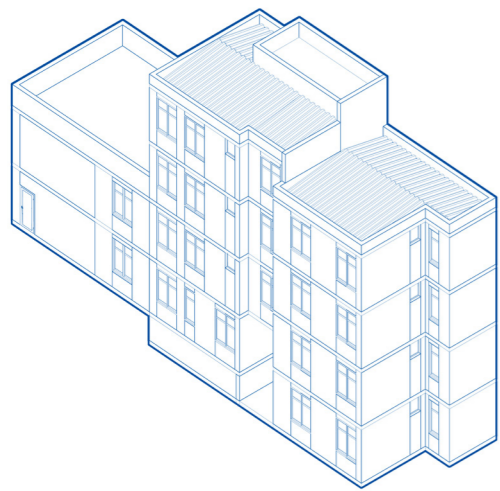
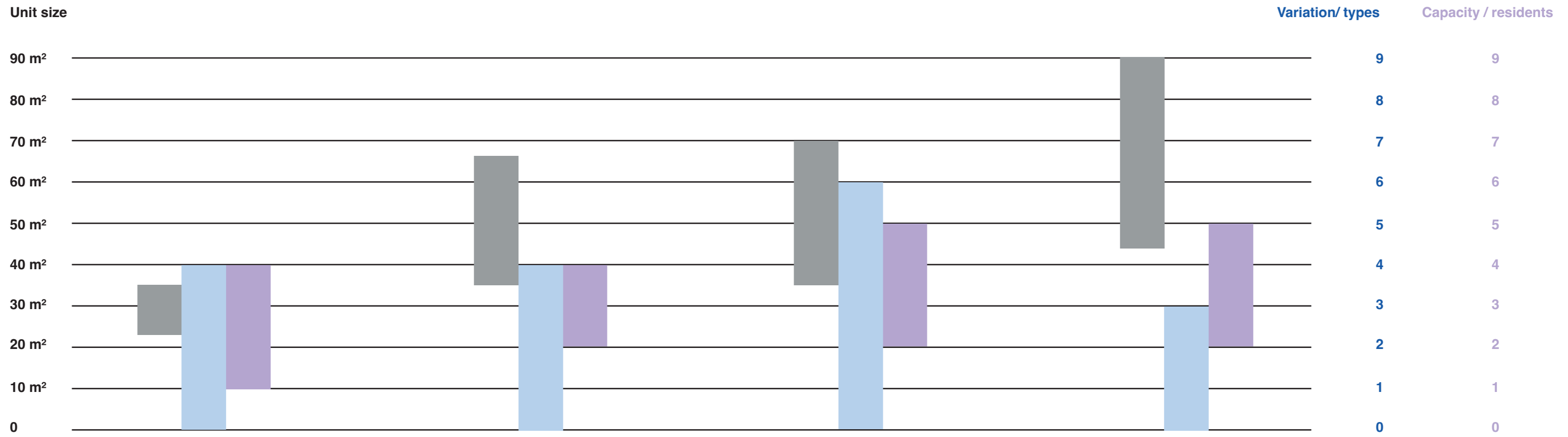
- 1 Dining room
- 1 Living room
- 3 Bedrooms
- 3 Toilets
- 2 Balconies
- 1 study



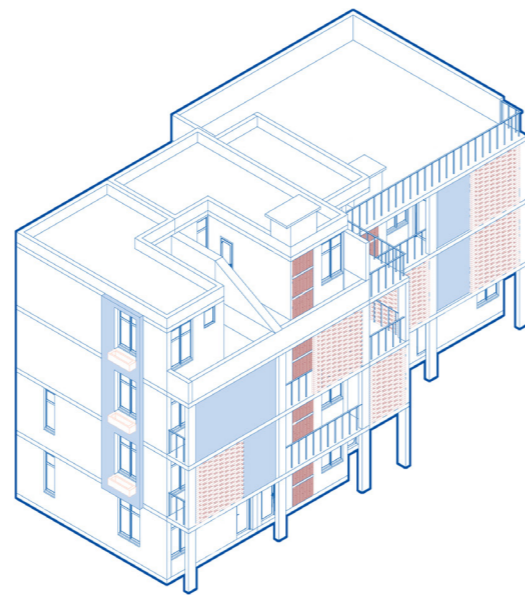
Unit 4-3
45.7 m²

- 1 Dining room
- 1 Living room
- 2 Bedrooms
- 2 Toilets

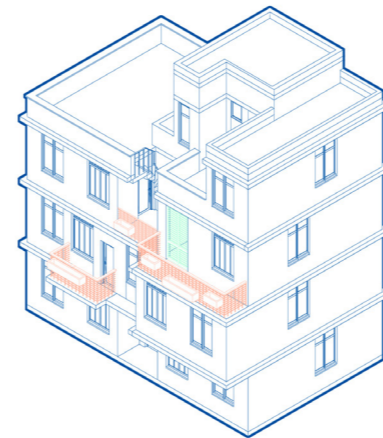
Type 04 - Condominium
HMP



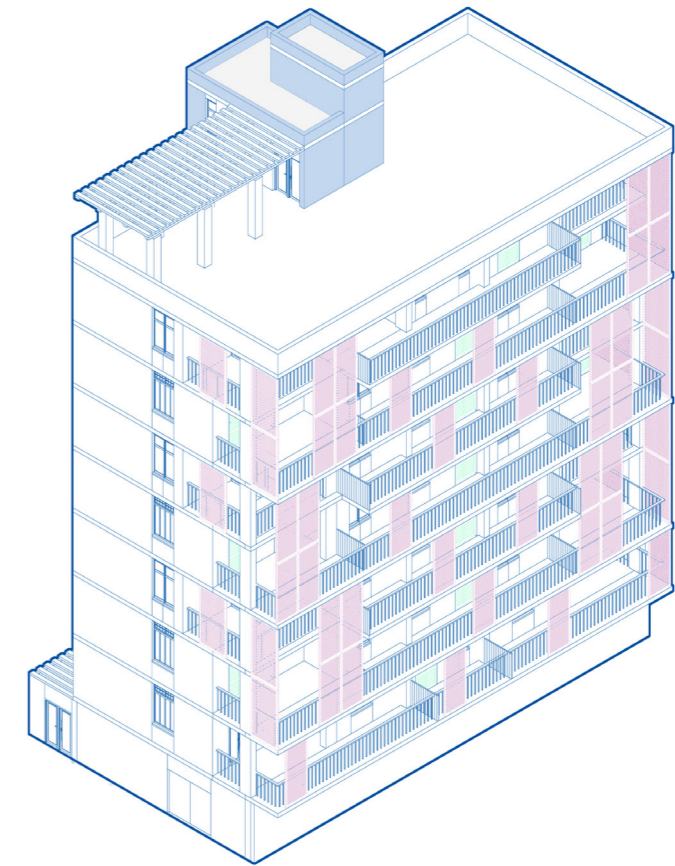
Type 03 - Chain house
HIS 1



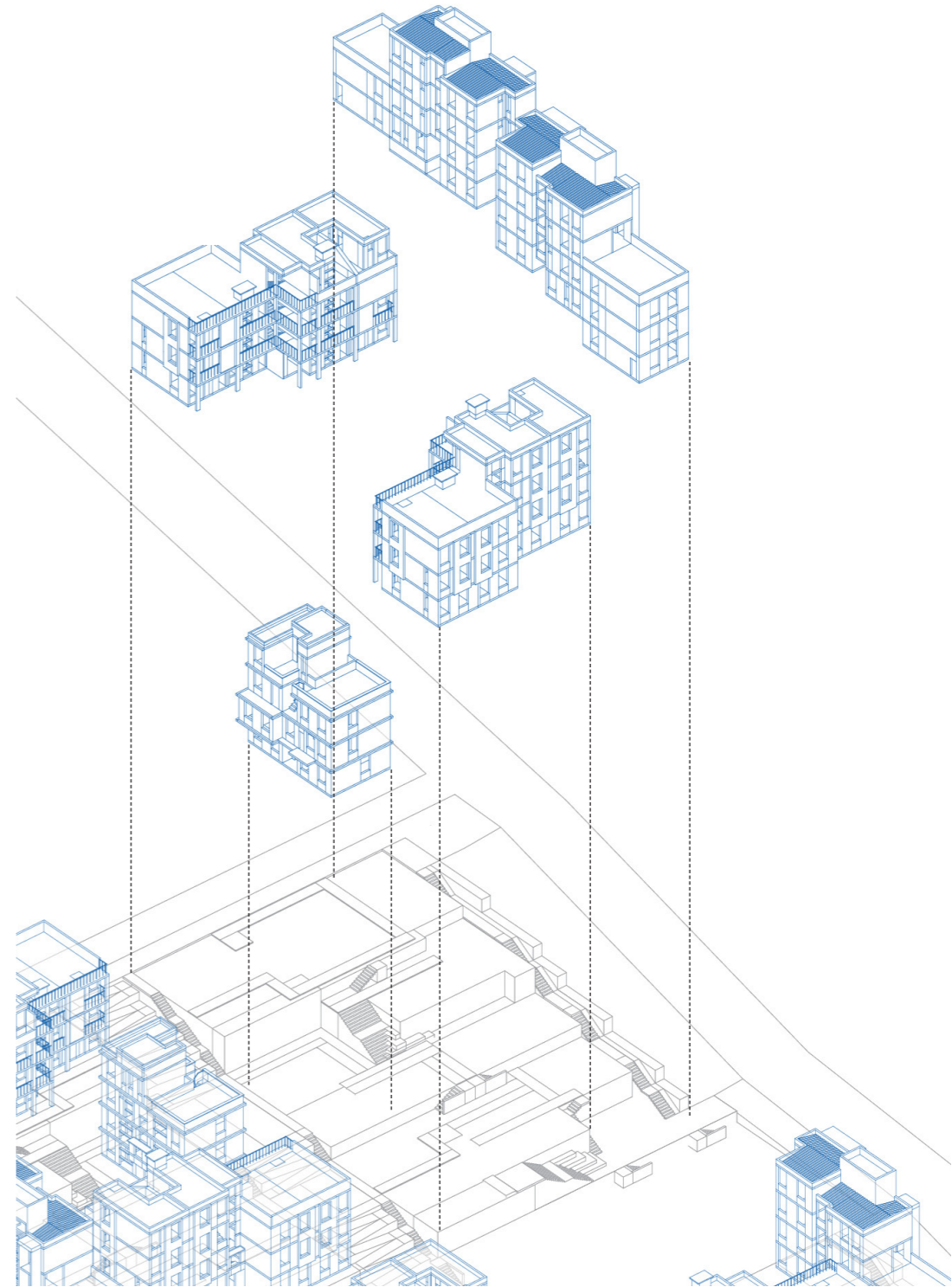
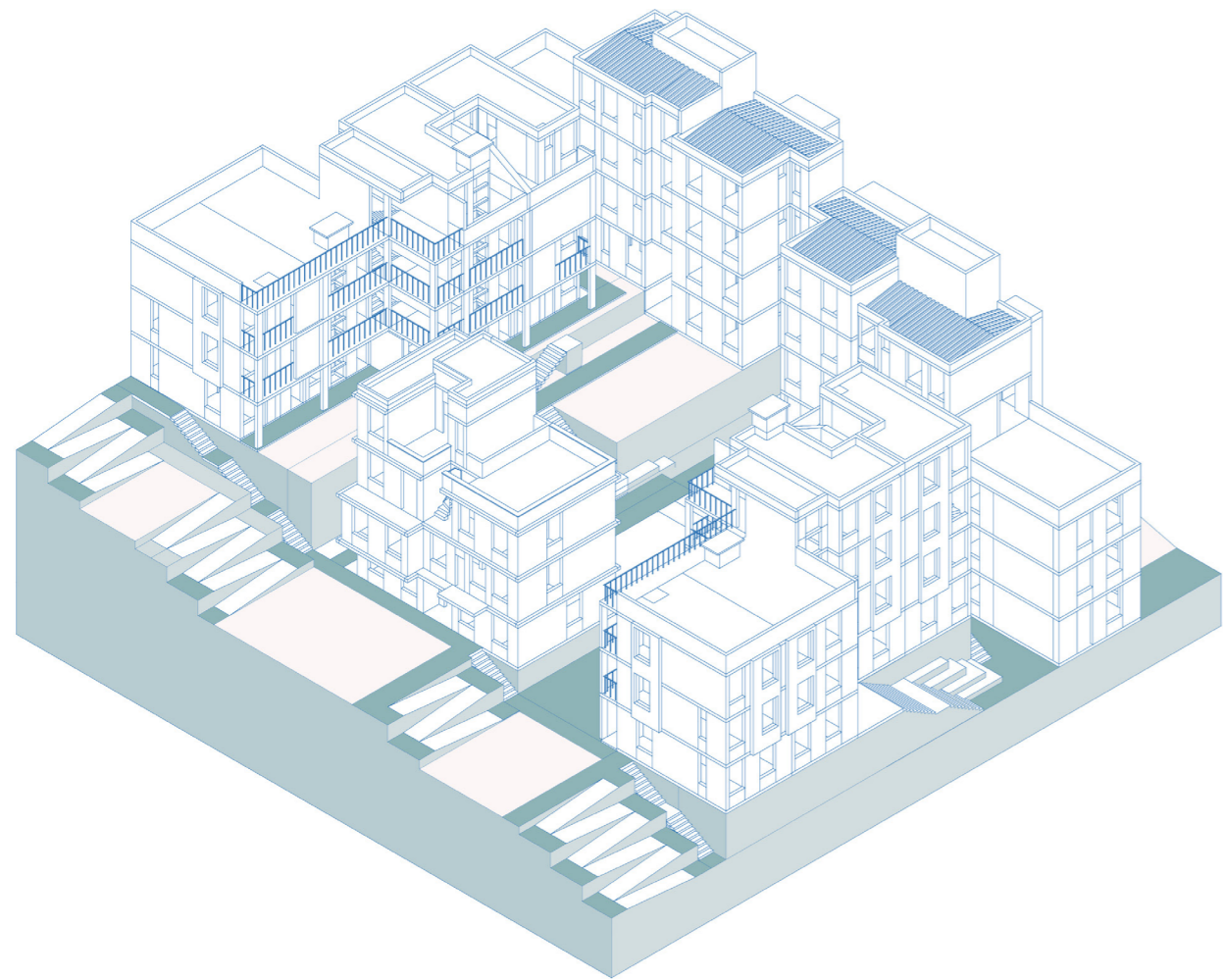
Type 02 - Row house
HIS 1



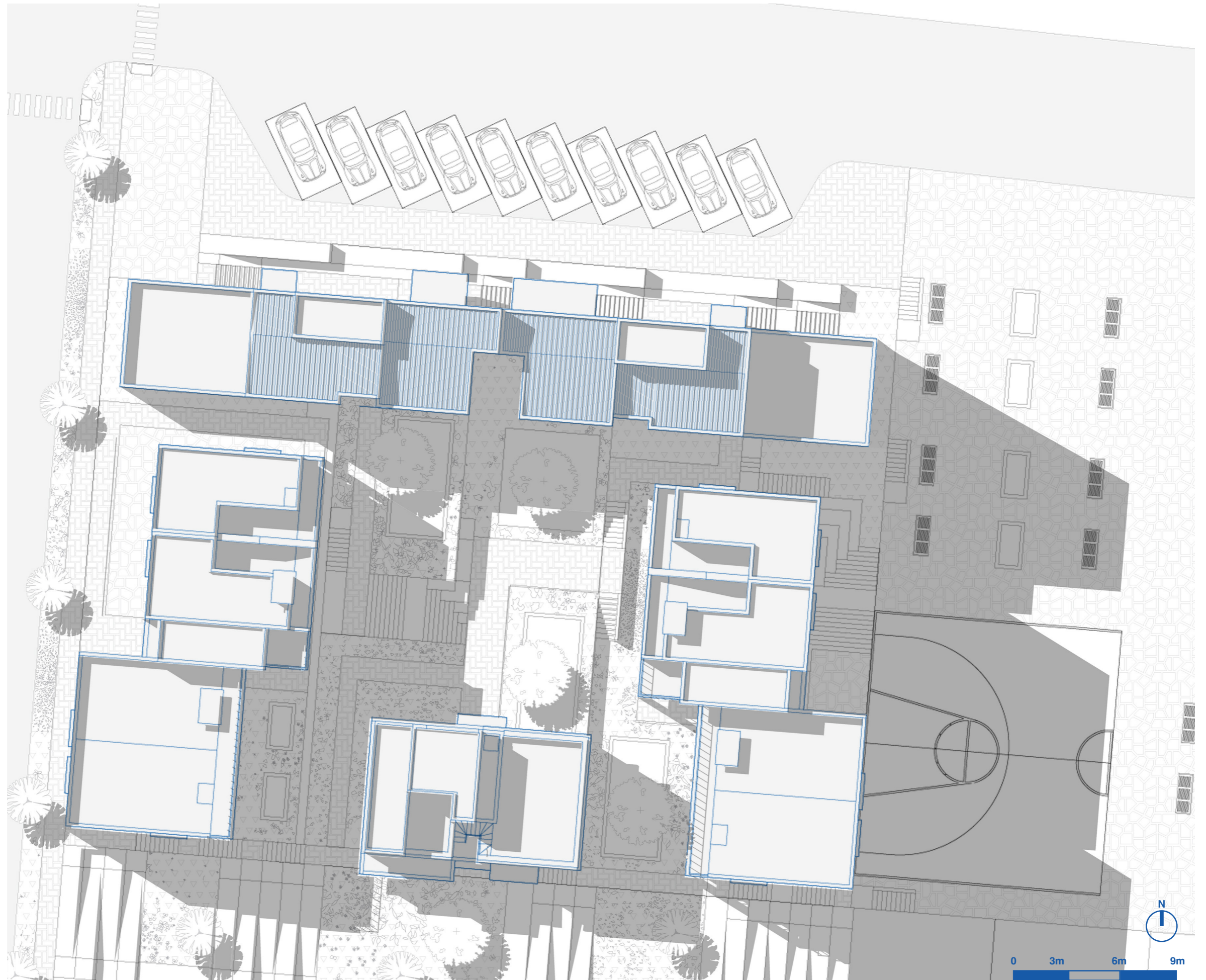
Type 02 - Slab house
HIS 2



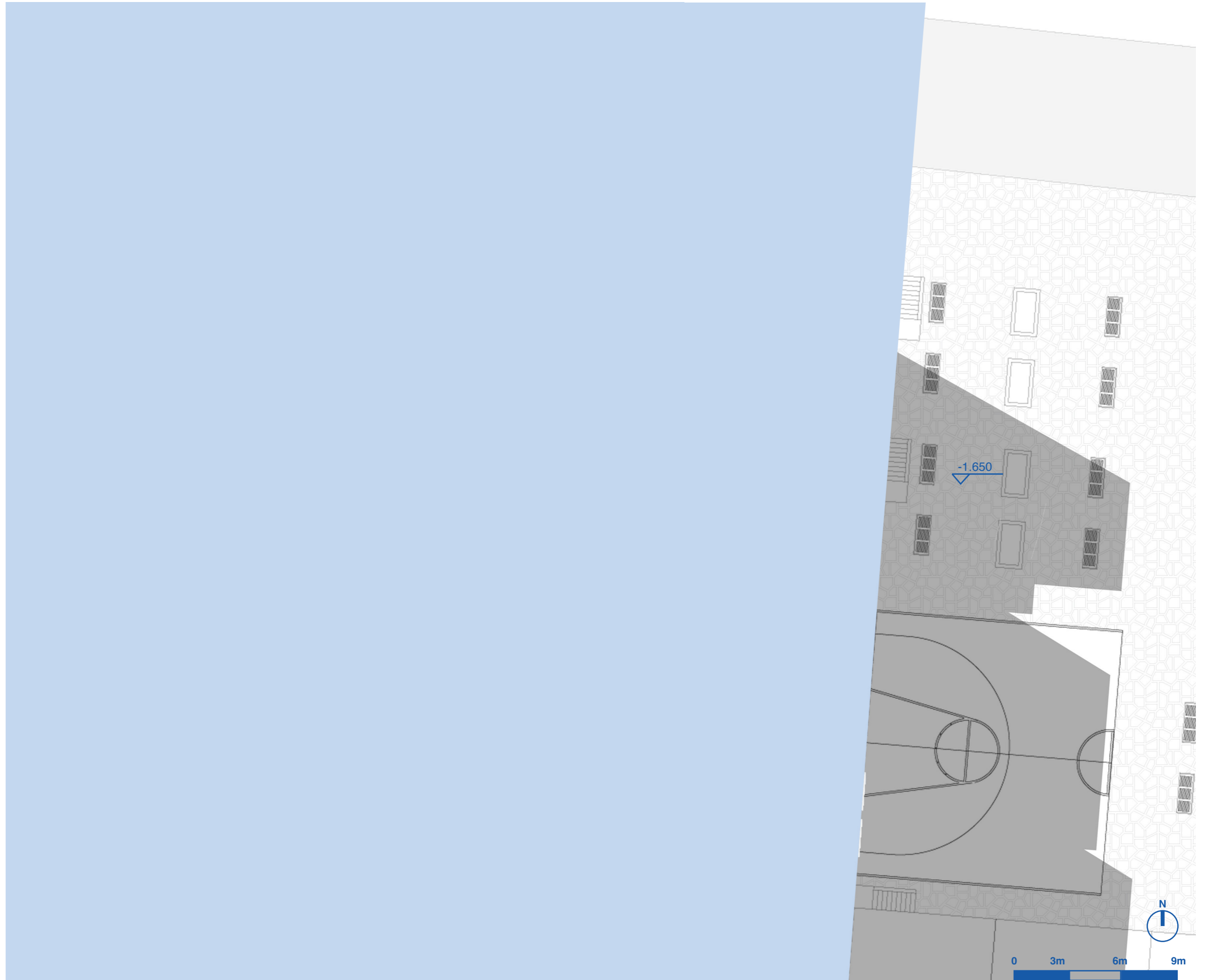
Type 04 - Condominium
HMP



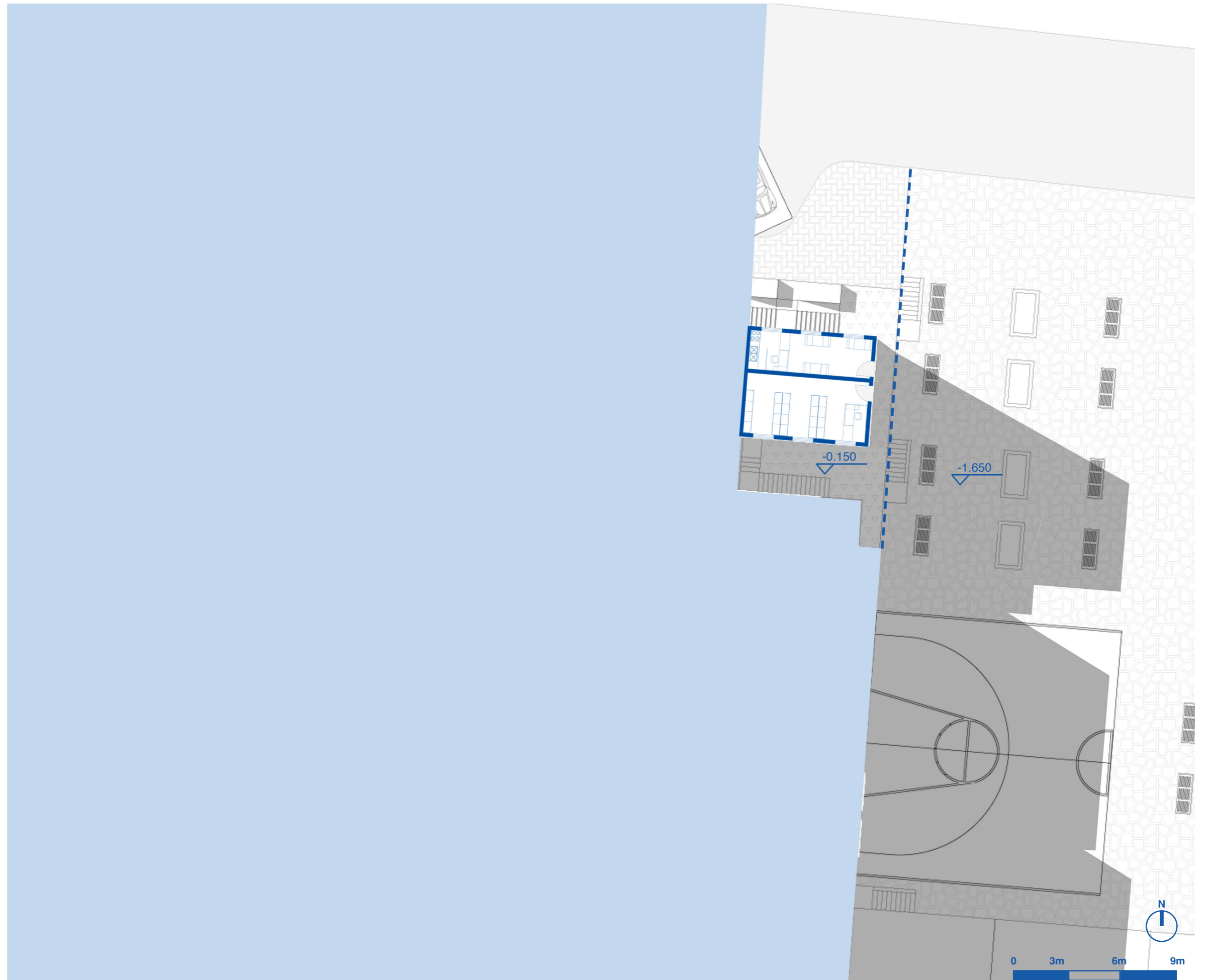
Cluster



Top view



Site height -1.650M



Site height -0.150M



Site height +2.850M



Site height +4.350M



Site height +5.850M



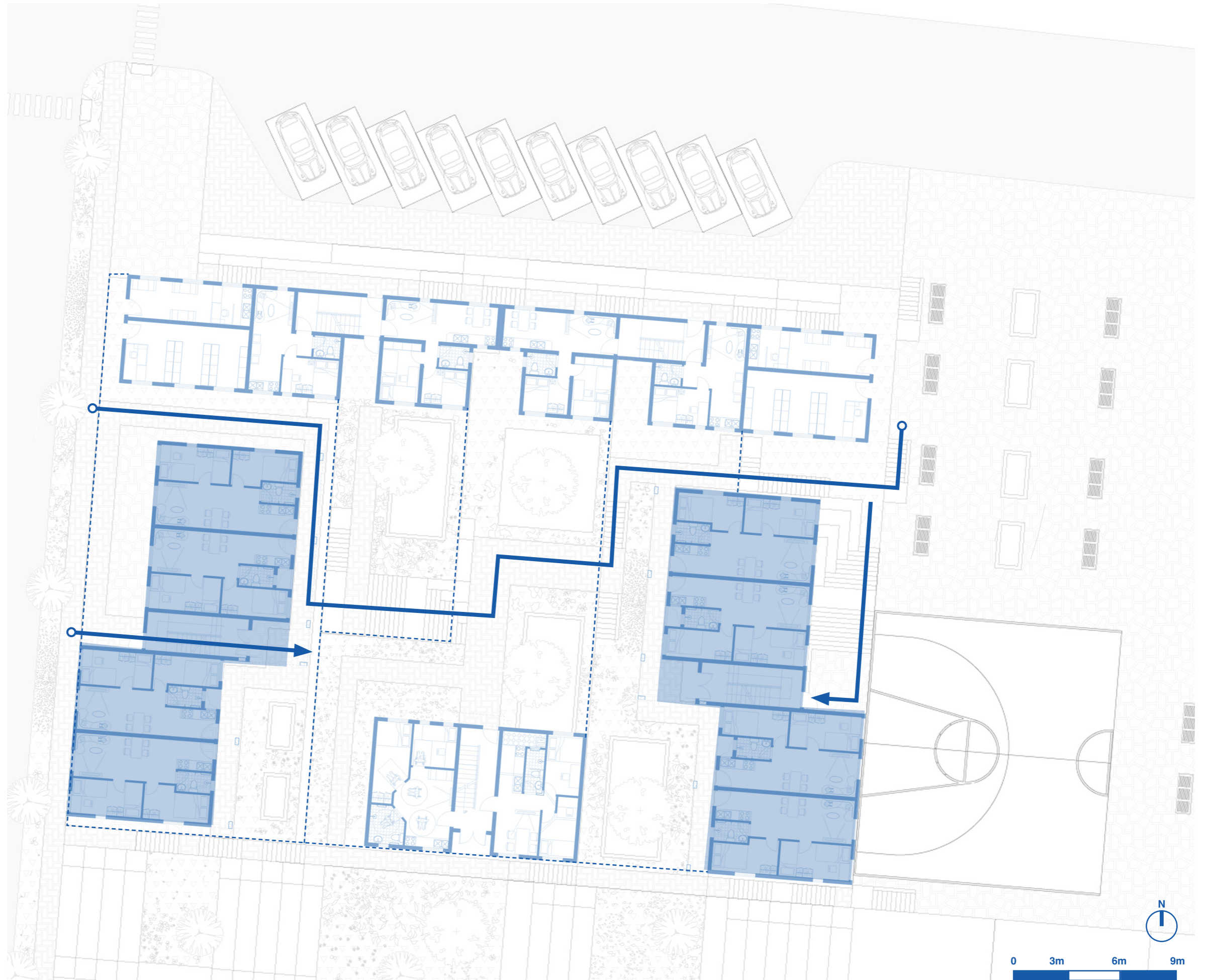
Ground floor plan



Accessibility



Circulation- Chain house



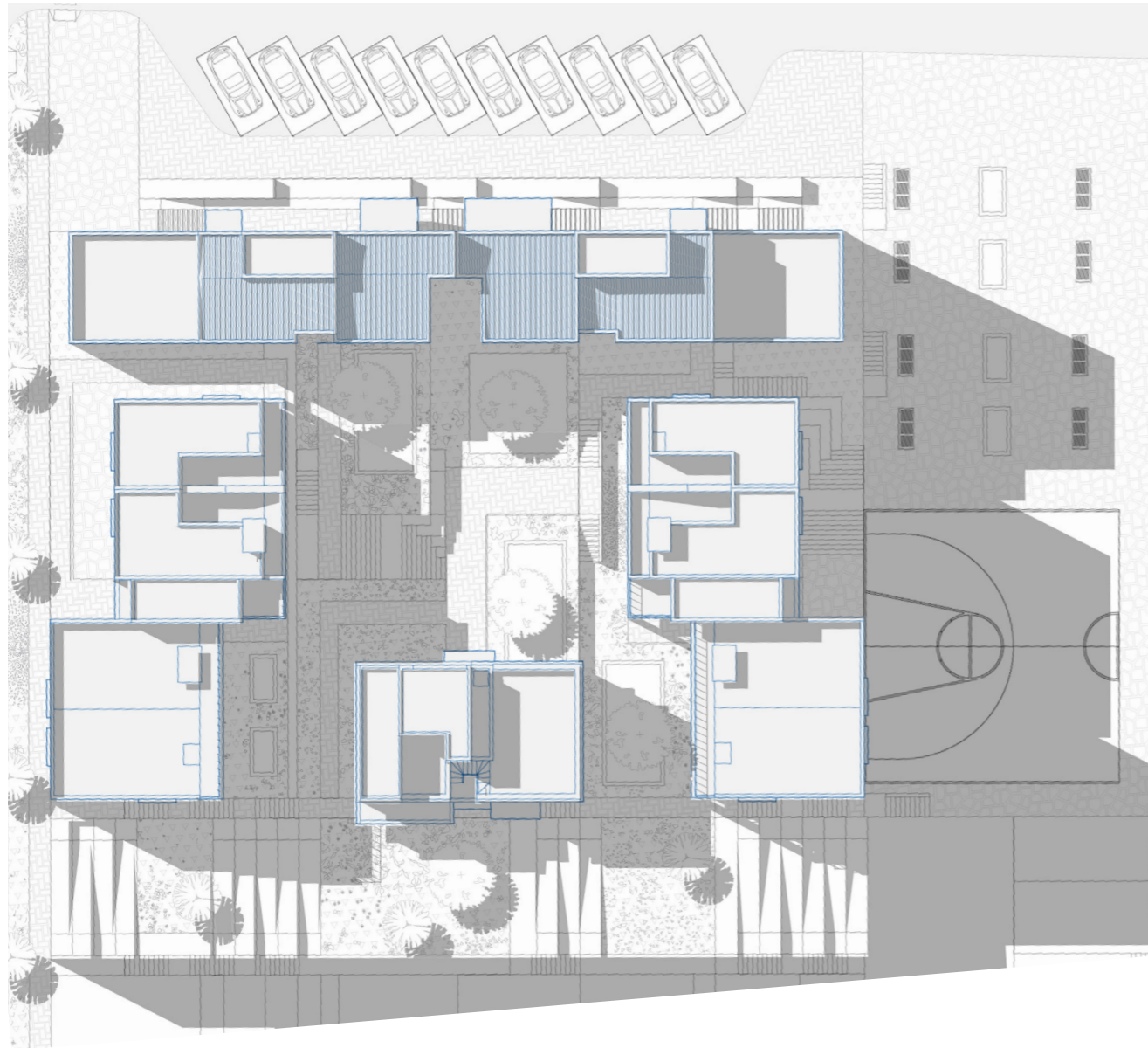
Circulation- Row house



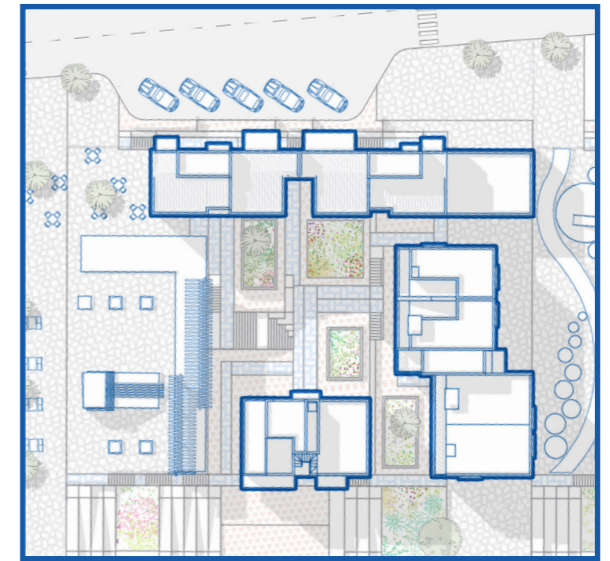
Circulation- Slab house



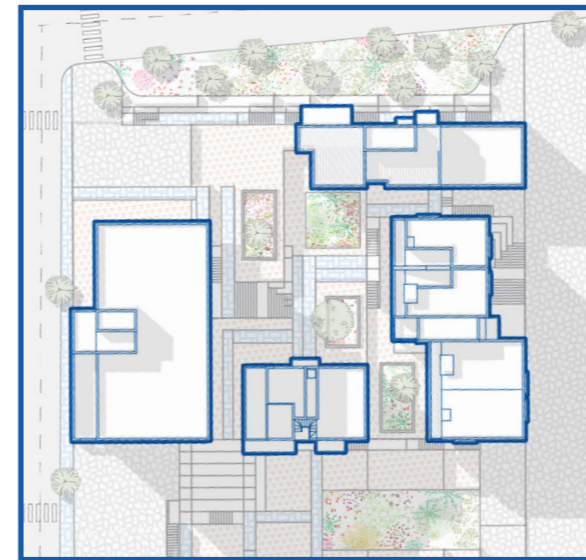
Wheelchair accessibility



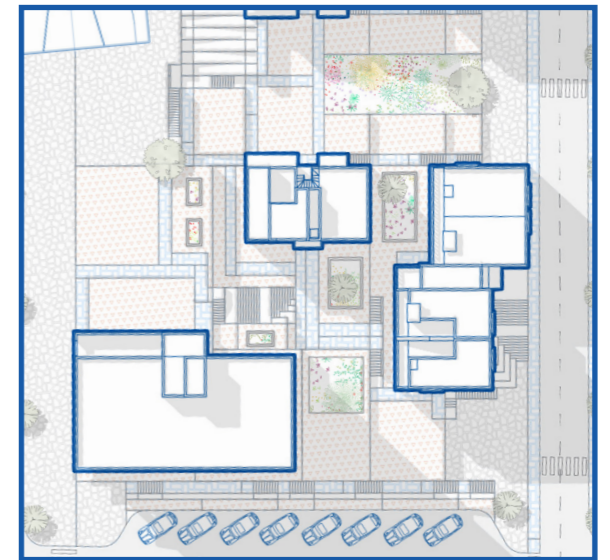
Cluster + **sport**



Cluster + **park**

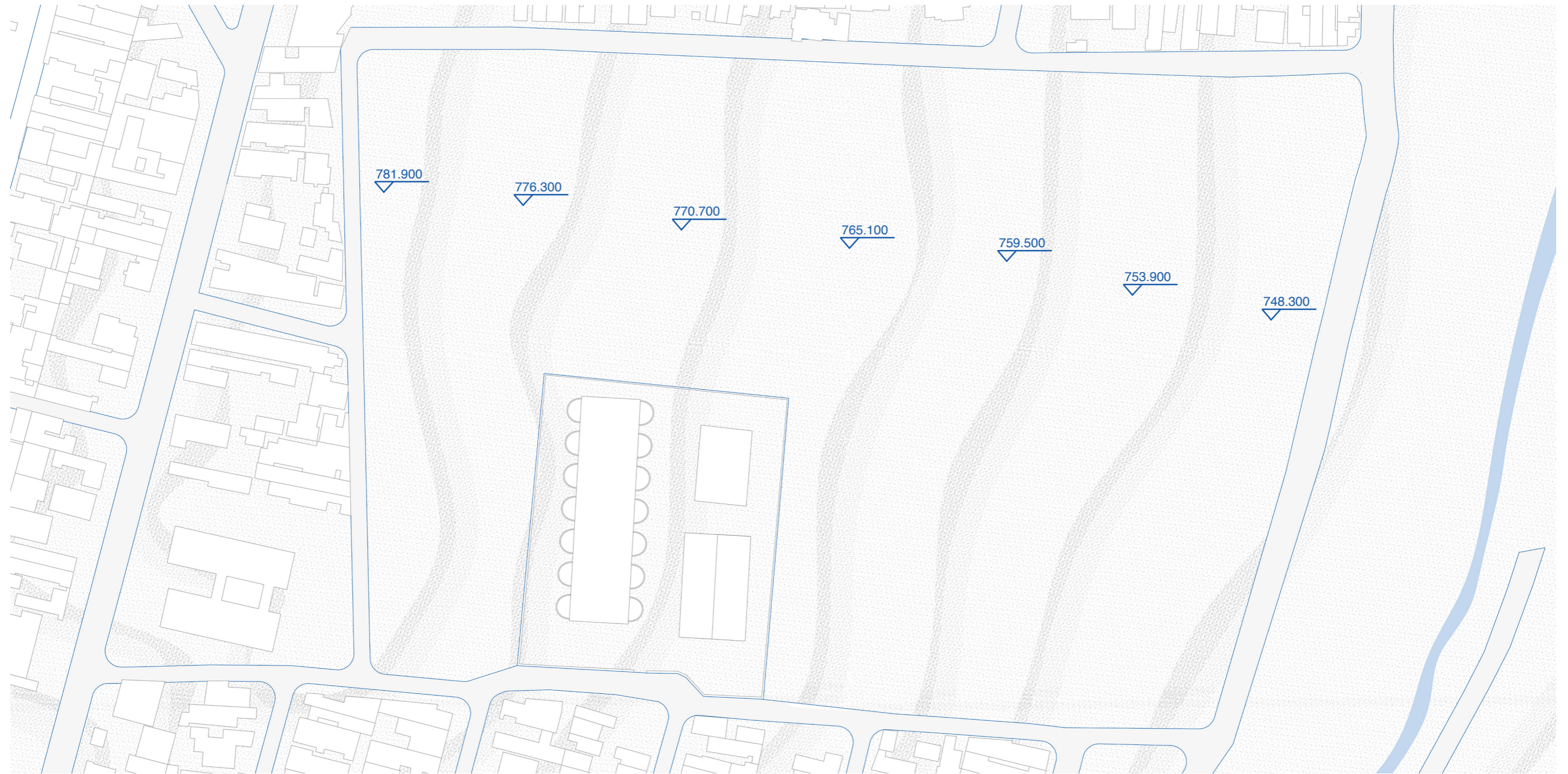


Cluster + **HMP housing**

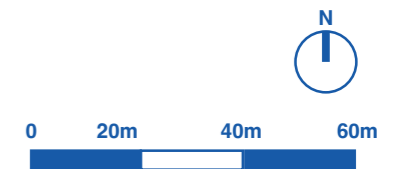


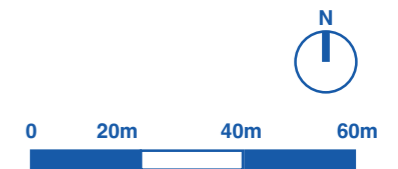
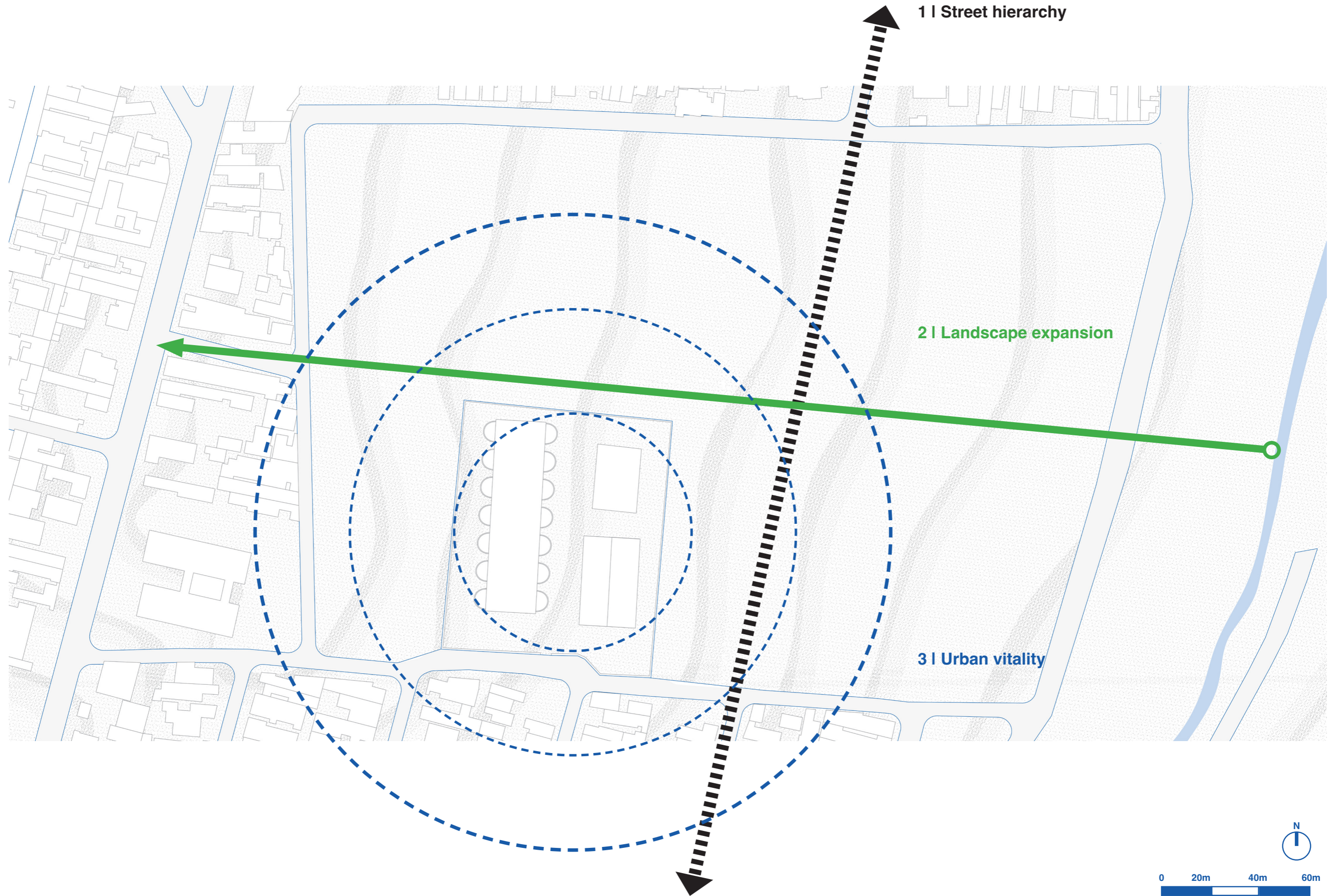
Cluster + **opening**

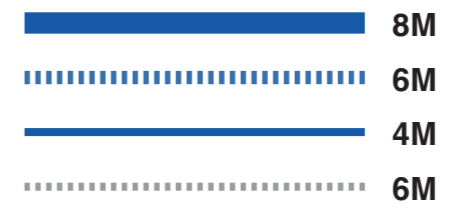
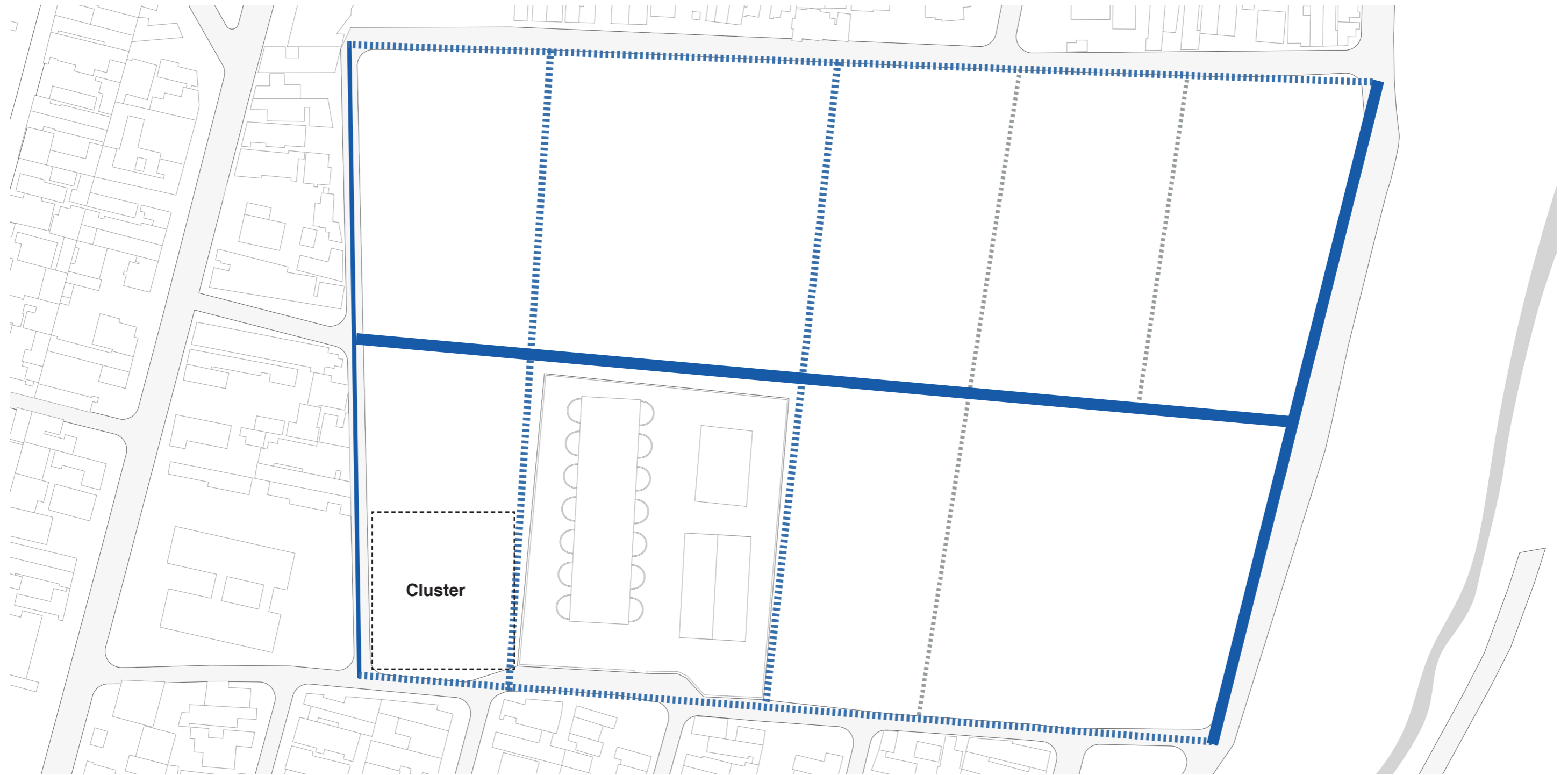
Typical neighbourhood cluster



Topography





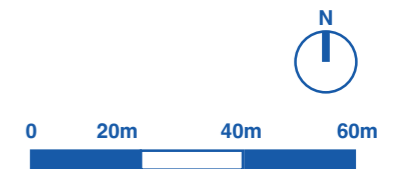


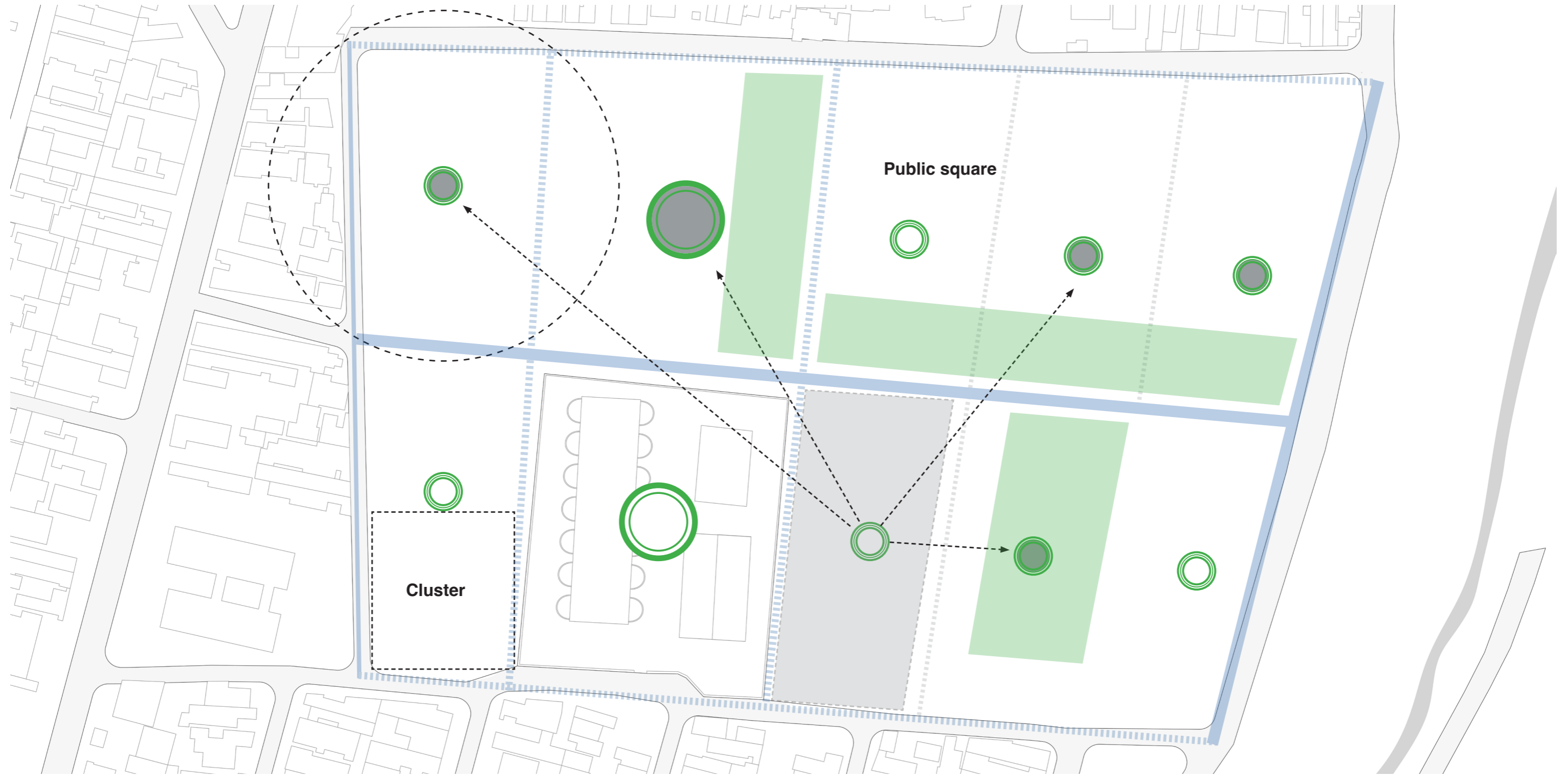
Street analysis



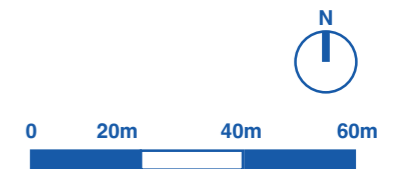


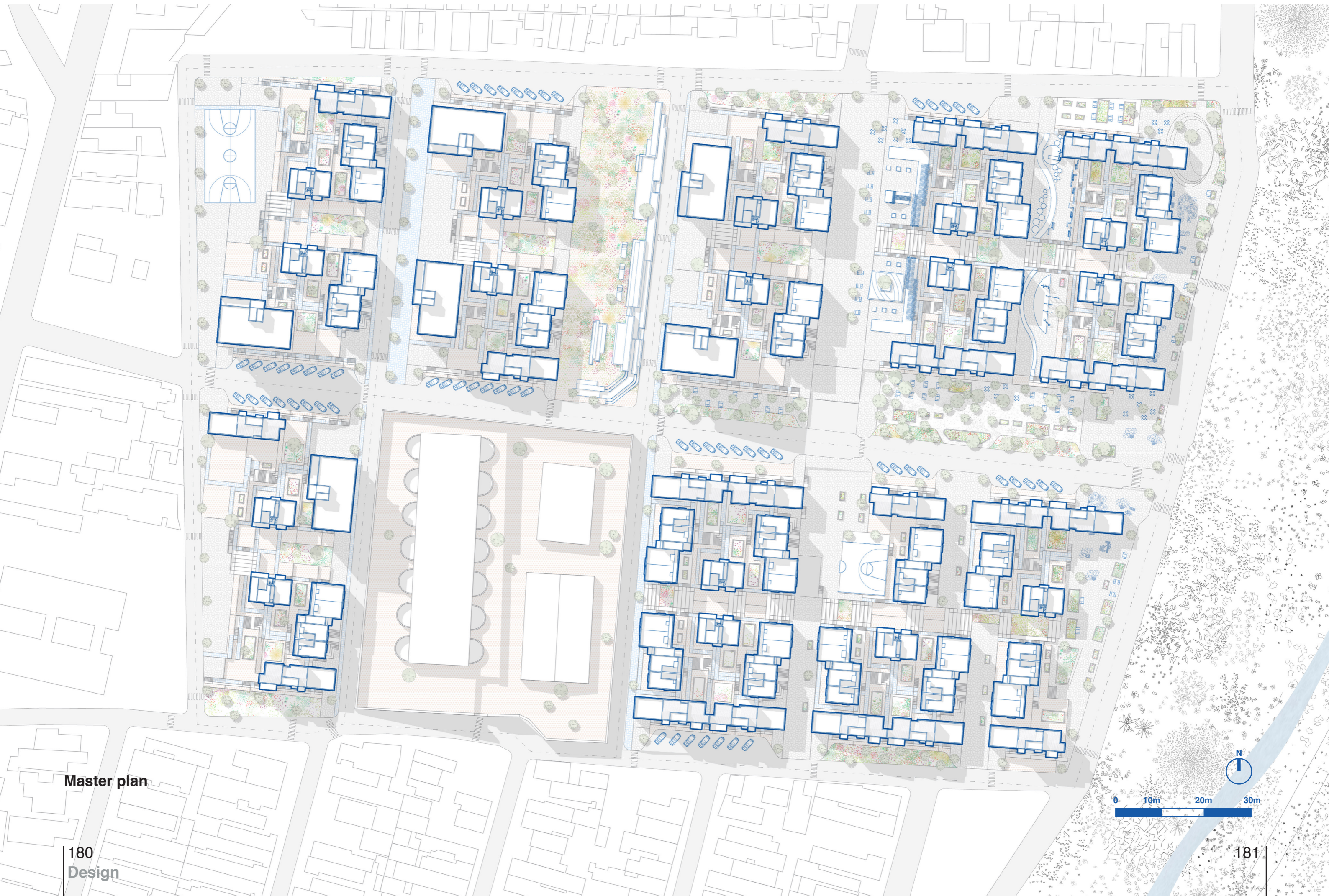
Green axis





Public space





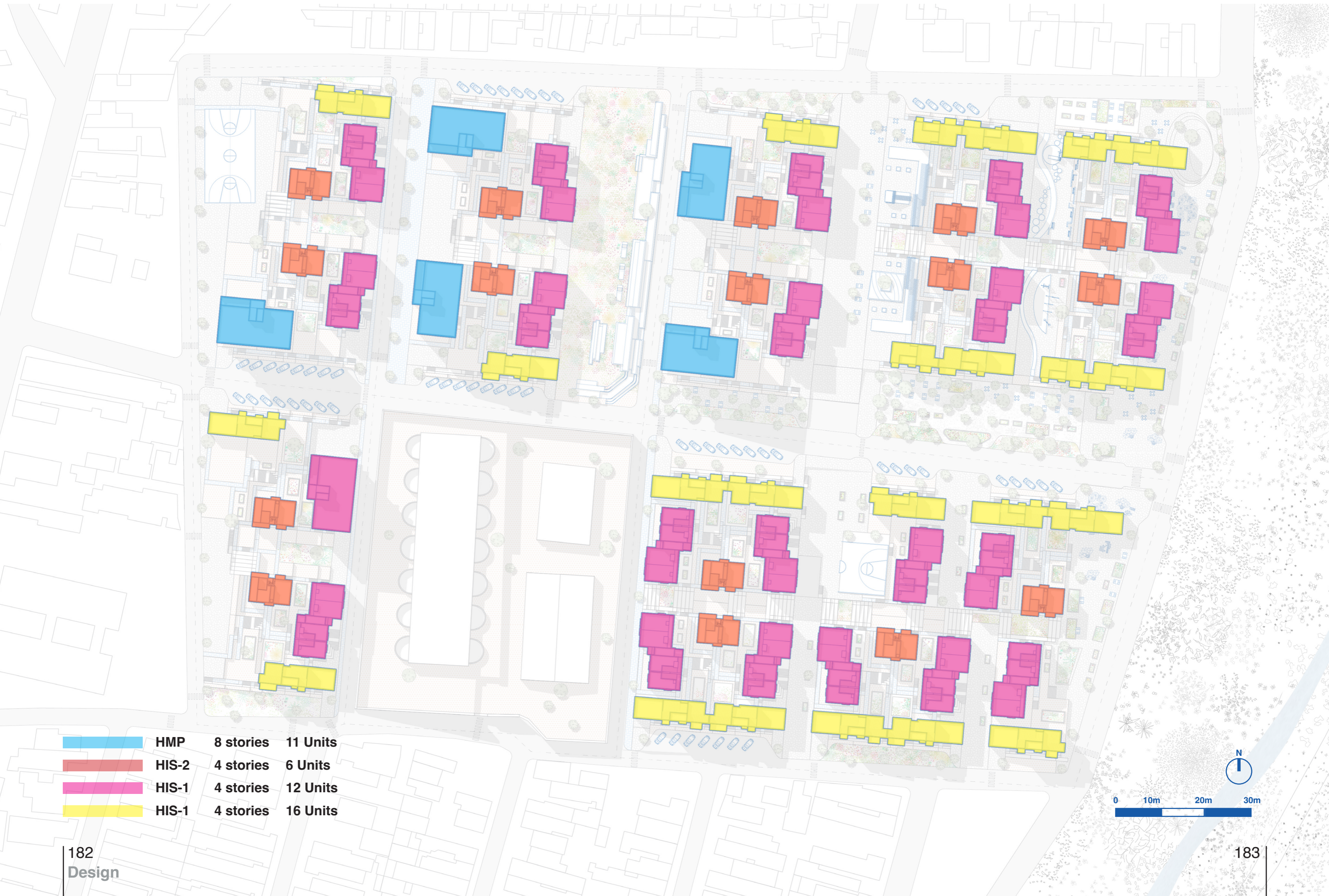
Master plan

180
Design

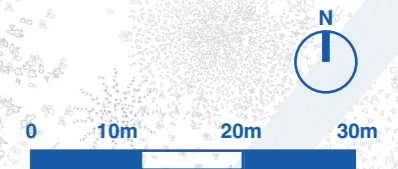
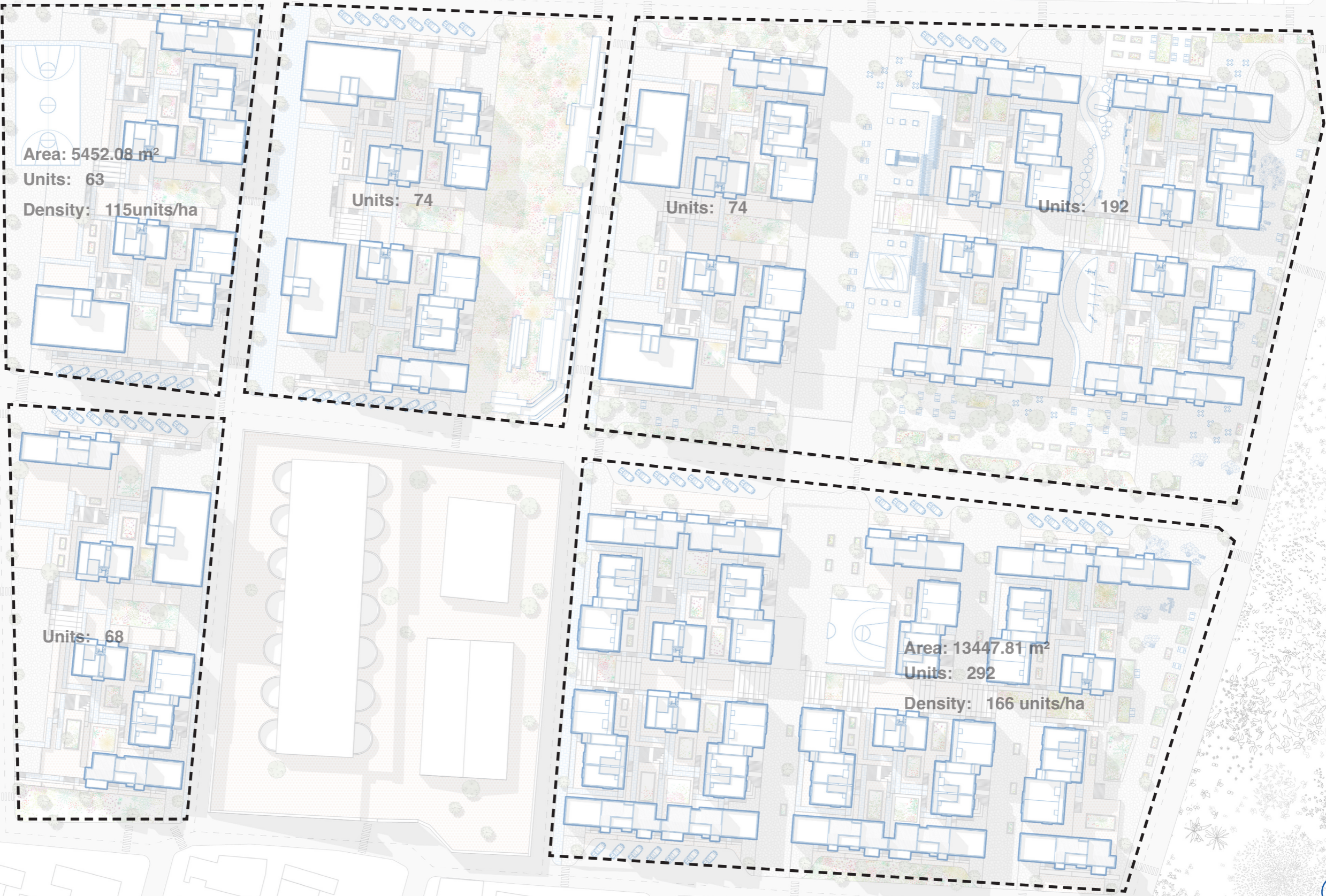


0 10m 20m 30m

181



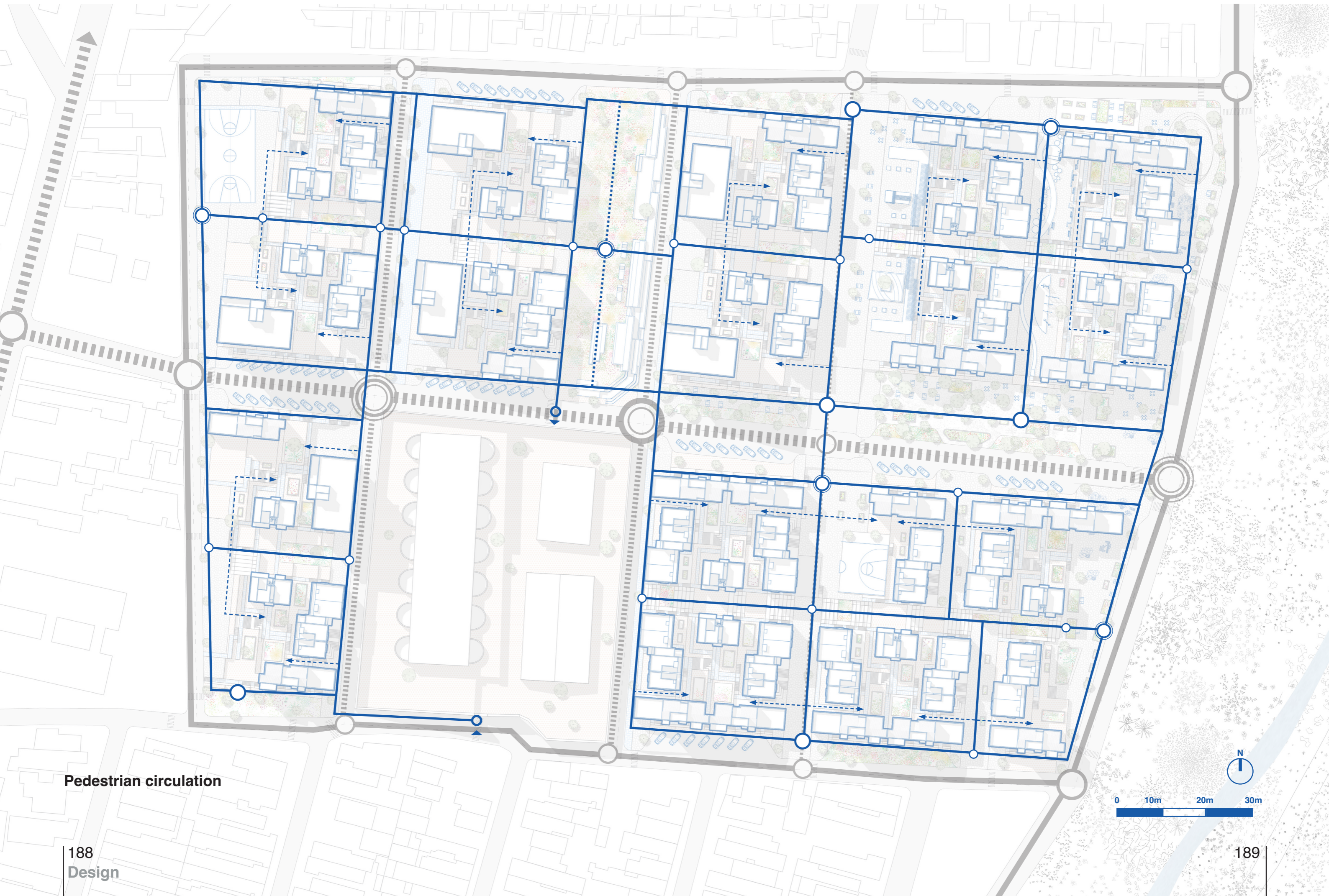
Area: 56276.04 m²
Units: 763
Density: 135 units/ha





Vehicle Circulation





Pedestrian circulation



0 10m 20m 30m



Amenity



0 10m 20m 30m



Sports Haven Park

Green Fitness Park



Elderly Oasis Park



Primary school

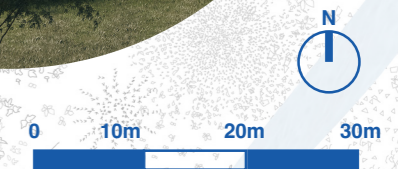


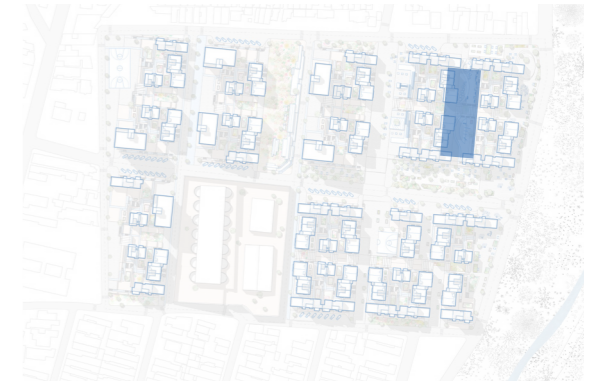
Kid's Adventure Playground



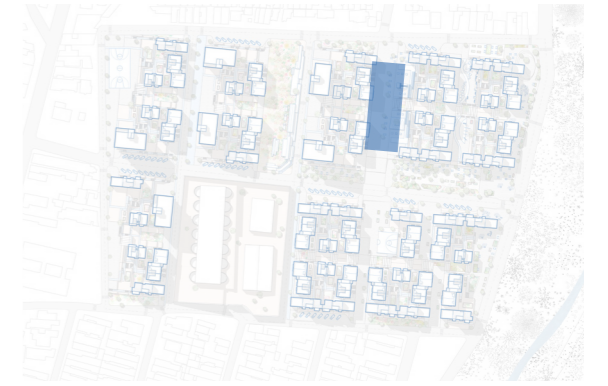
Art and Culture Garden

Spatial quality





Elderly oasis park



Kid's adventure playground



Green fitness park



Sports haven park



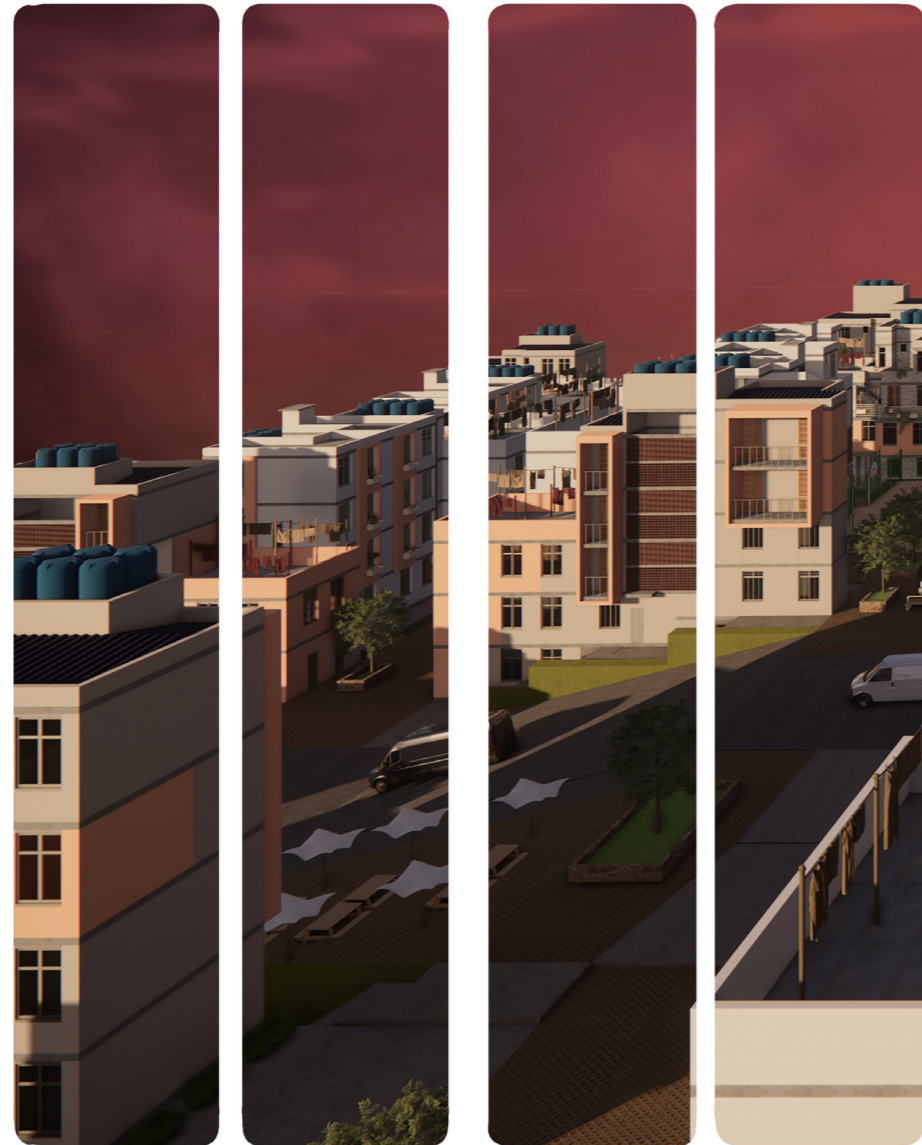
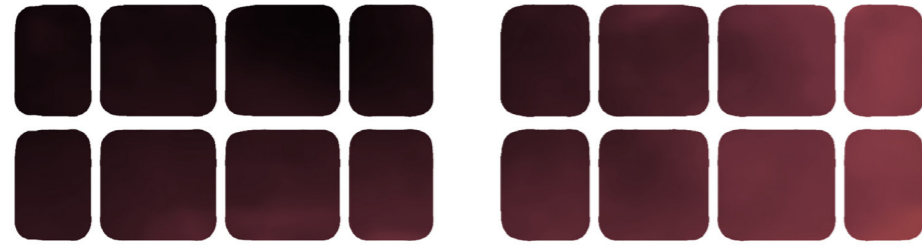
Active wellness park



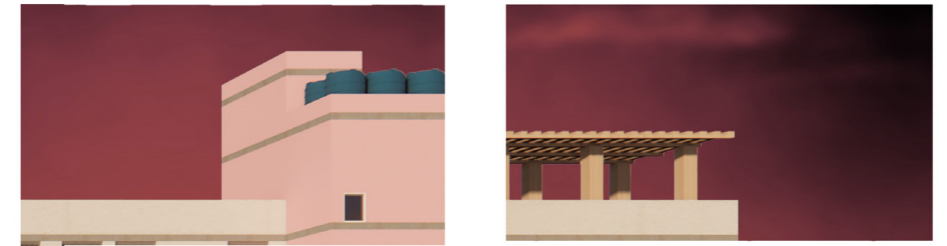
Riverfront

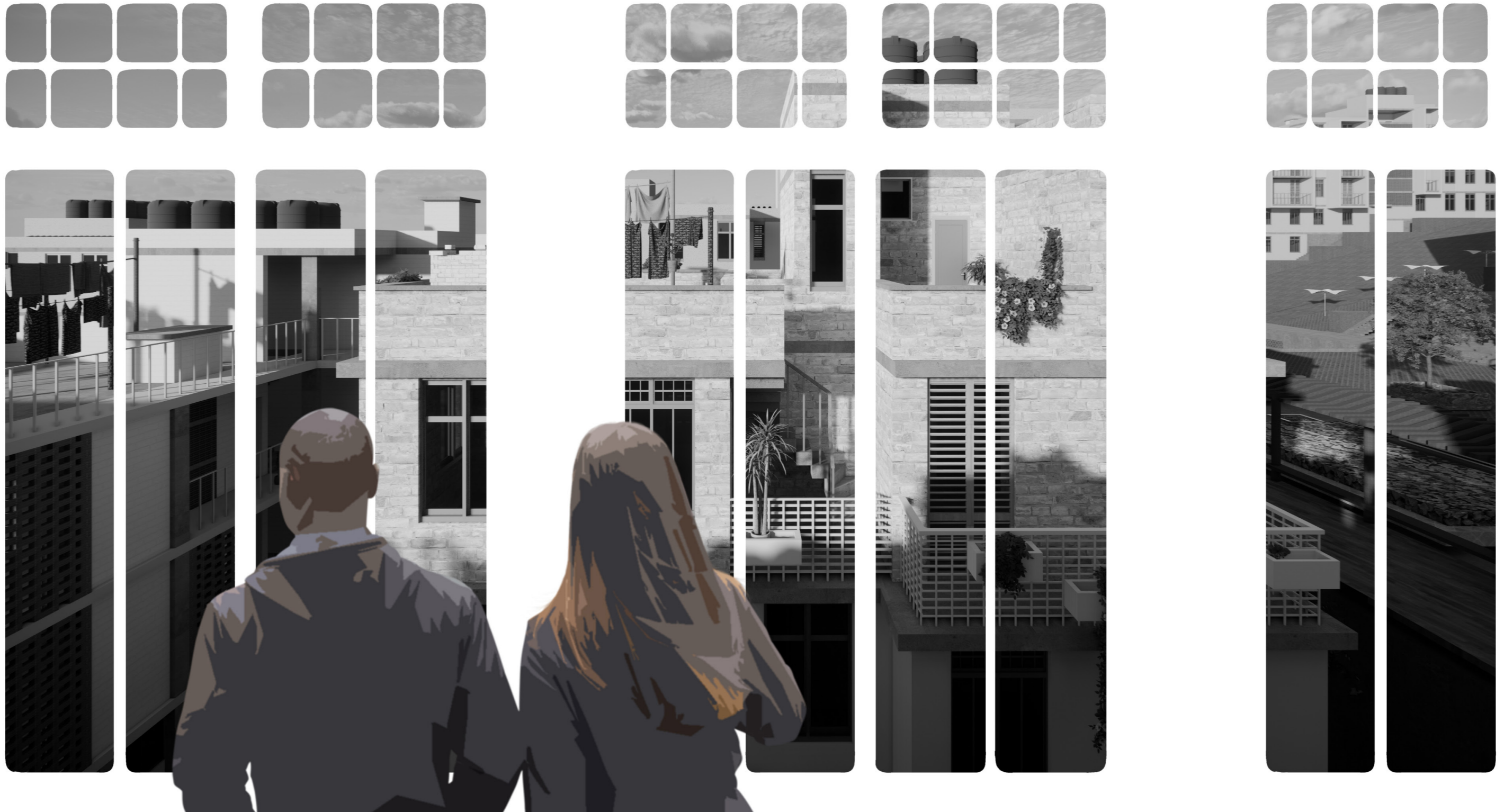


Crimson Urban Skyline

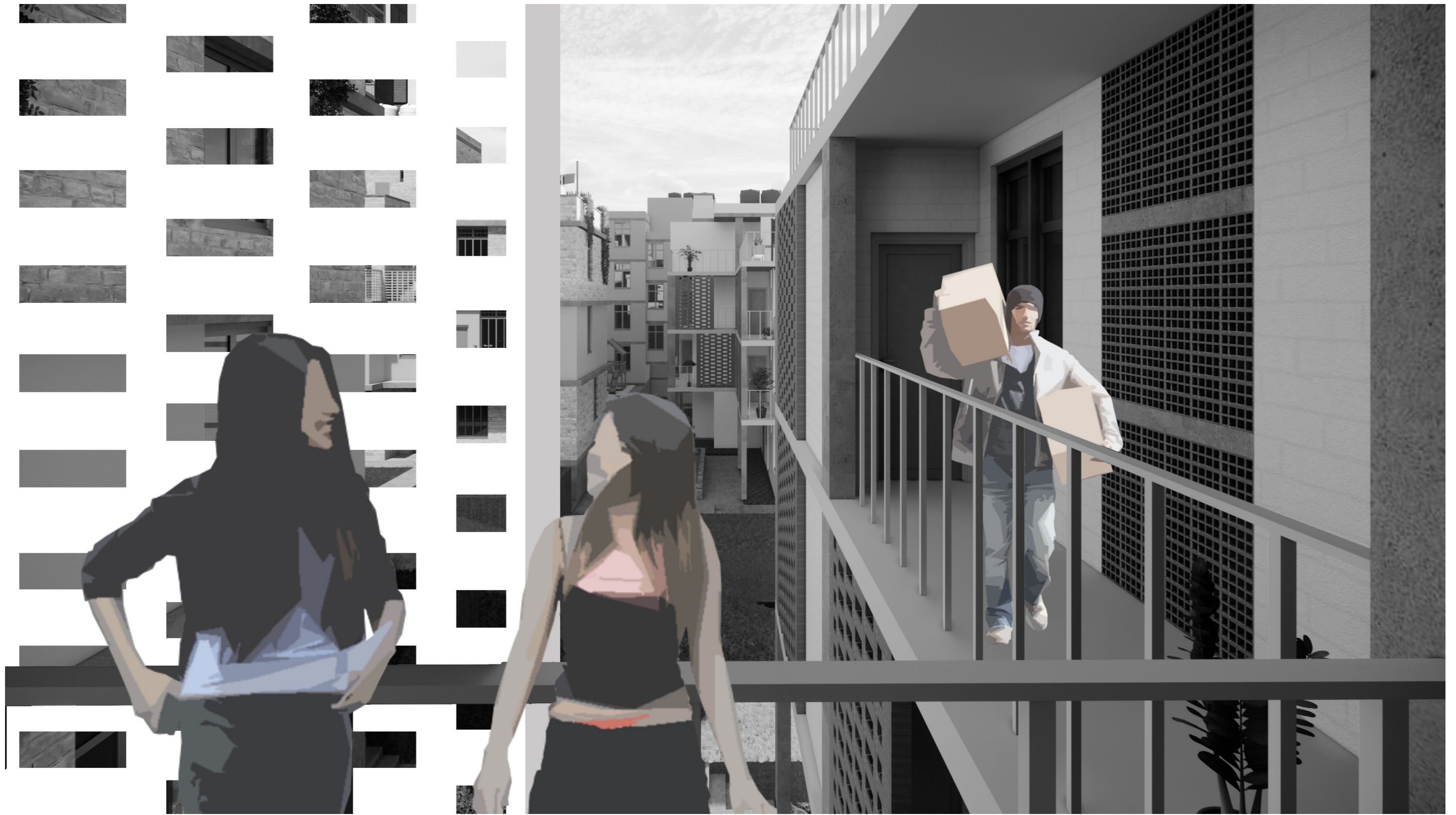


Bright Suburban Scene





Slab house view

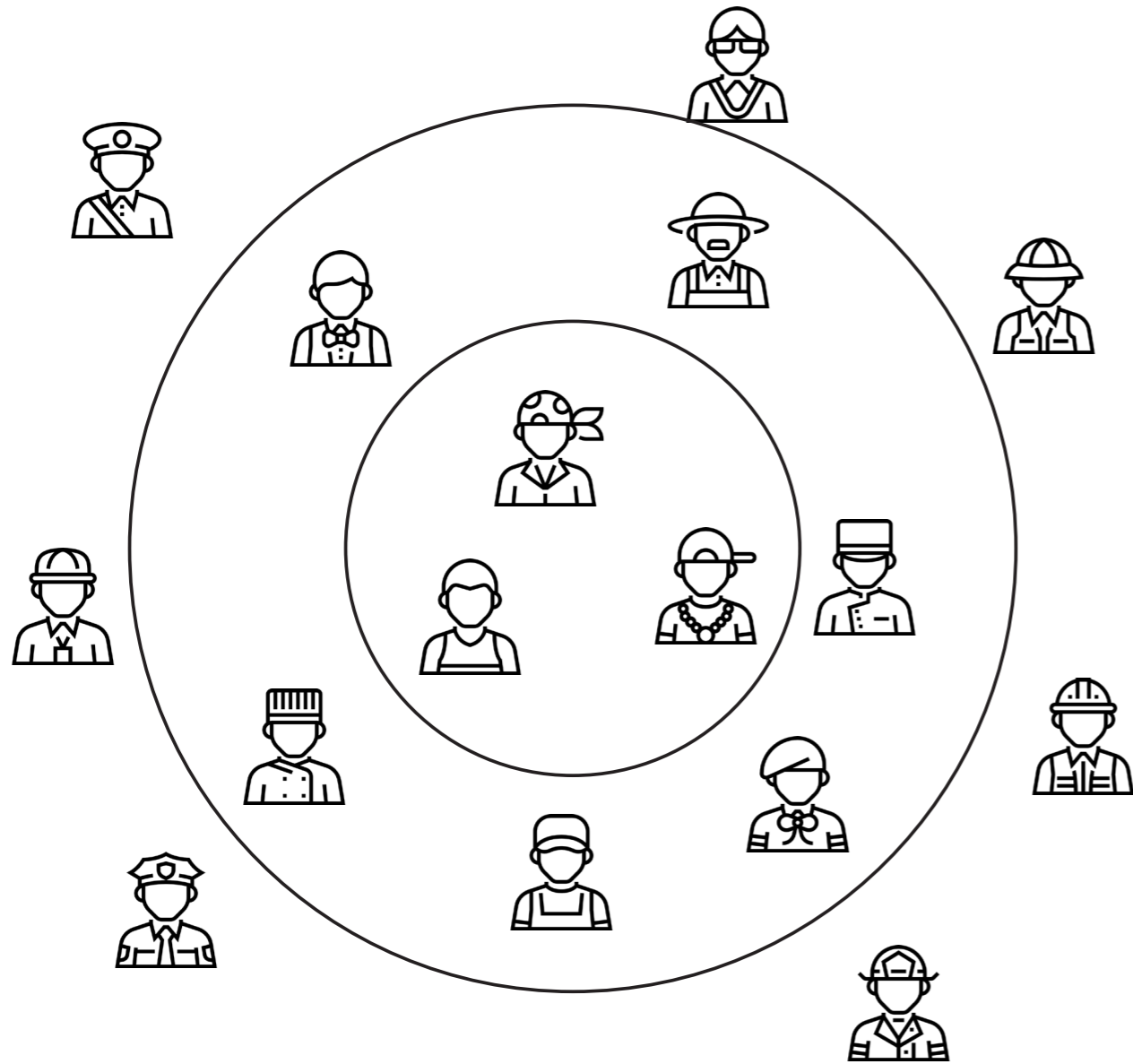


Row House Outlook



Community Center Streetscape

04 Building Technology



Exterior wall



Compressed stabilized earth blocks



Bricks



cellular concrete



Timber



Rammed earth



Concrete blocks

Interior wall



Cork



Gypsum board



hempcrete



Oriented strand board



Plywood



Mycelium-based materials

Finishing



Brick veneer



Fiber cement siding



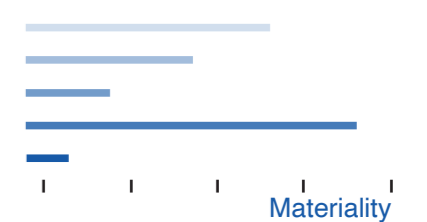
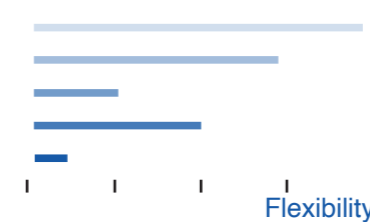
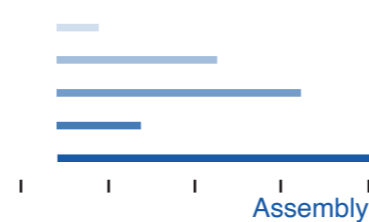
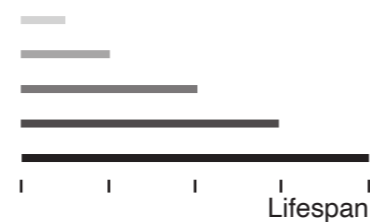
Stucco

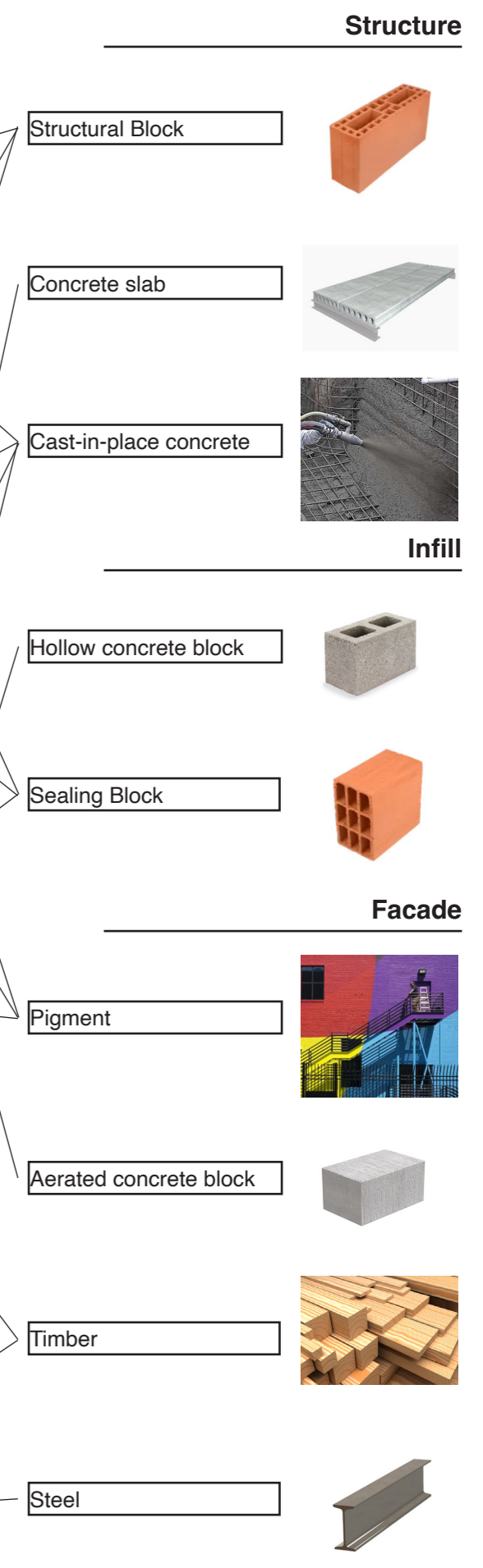
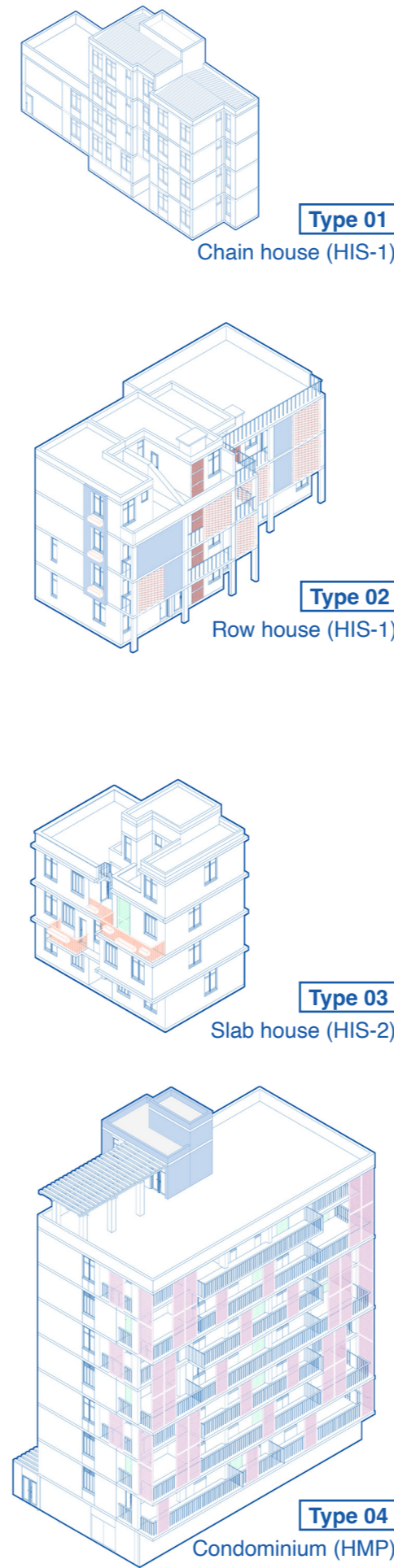
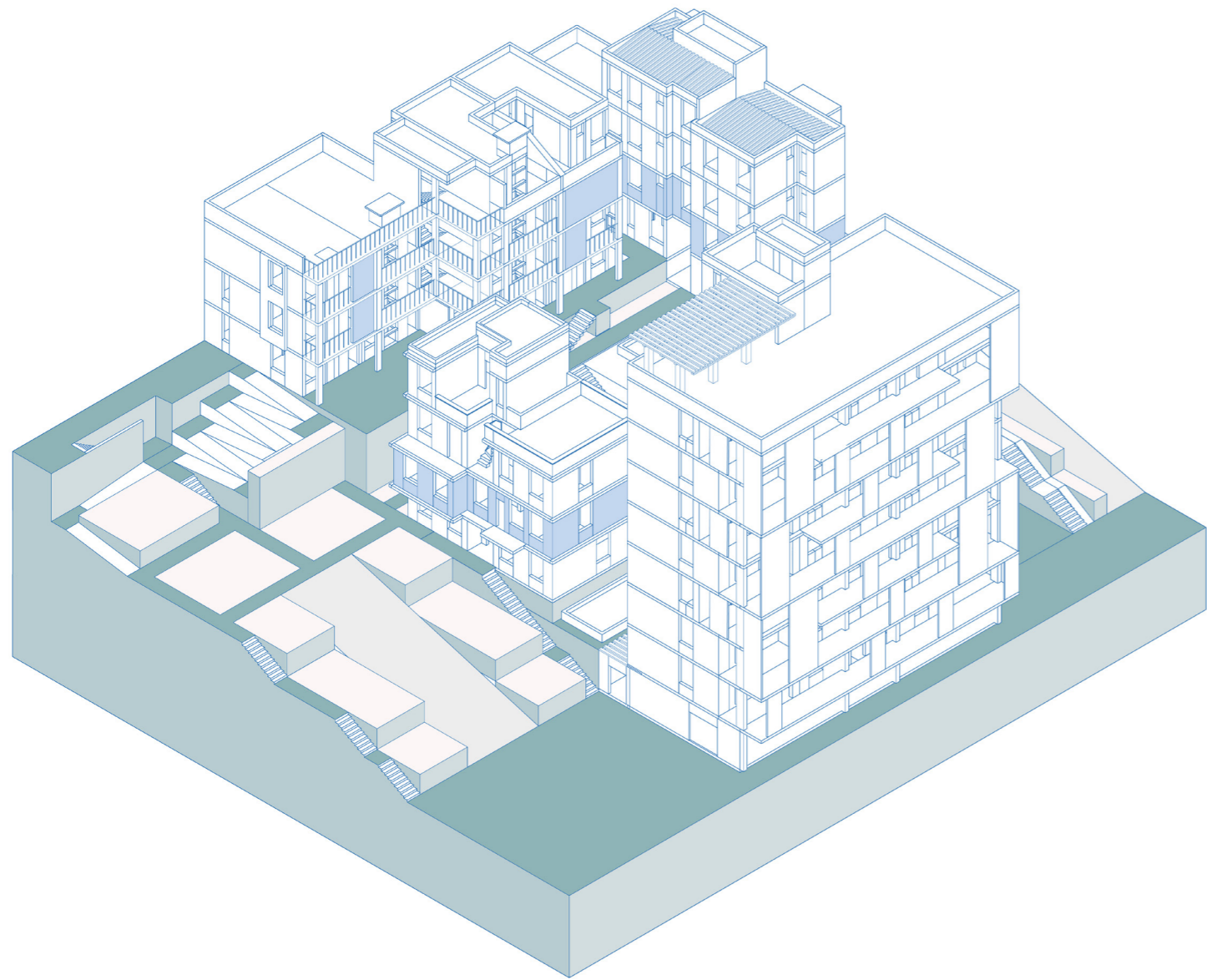


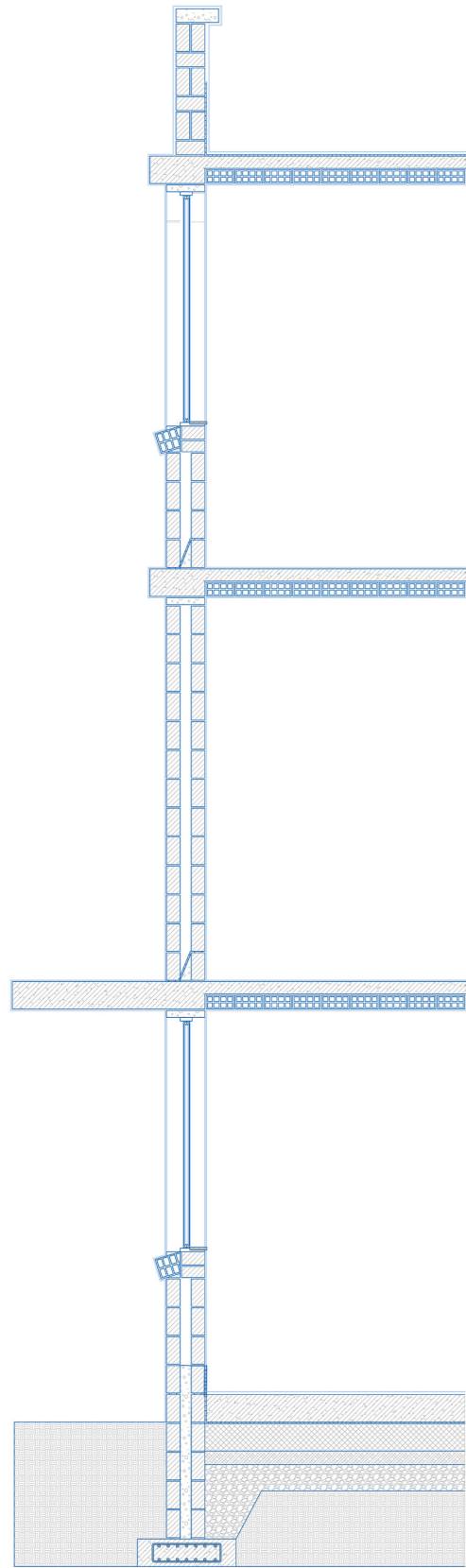
Vinyl siding



Stuff
Layout
Service
Skin
Structure



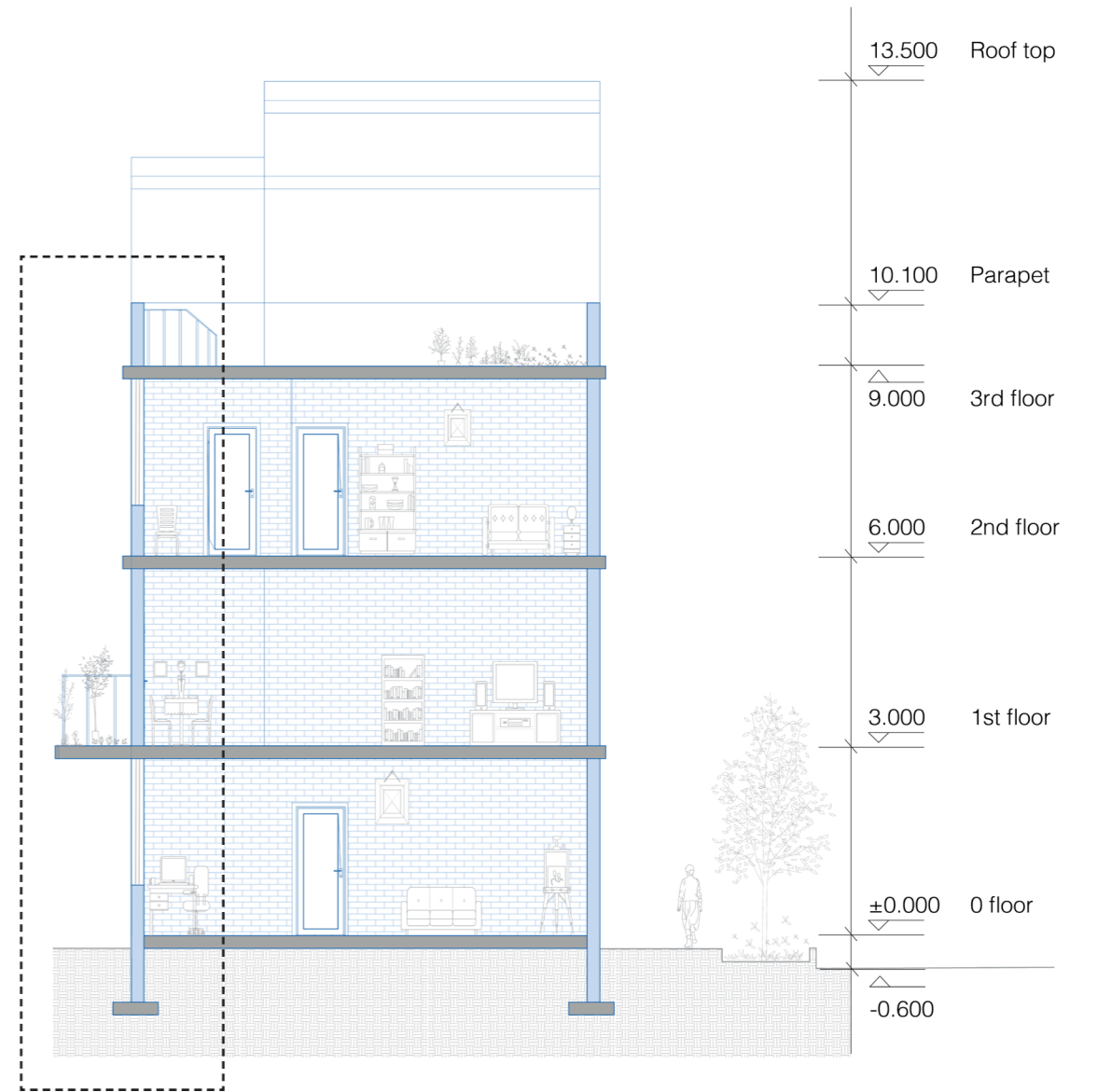




Section 1:50

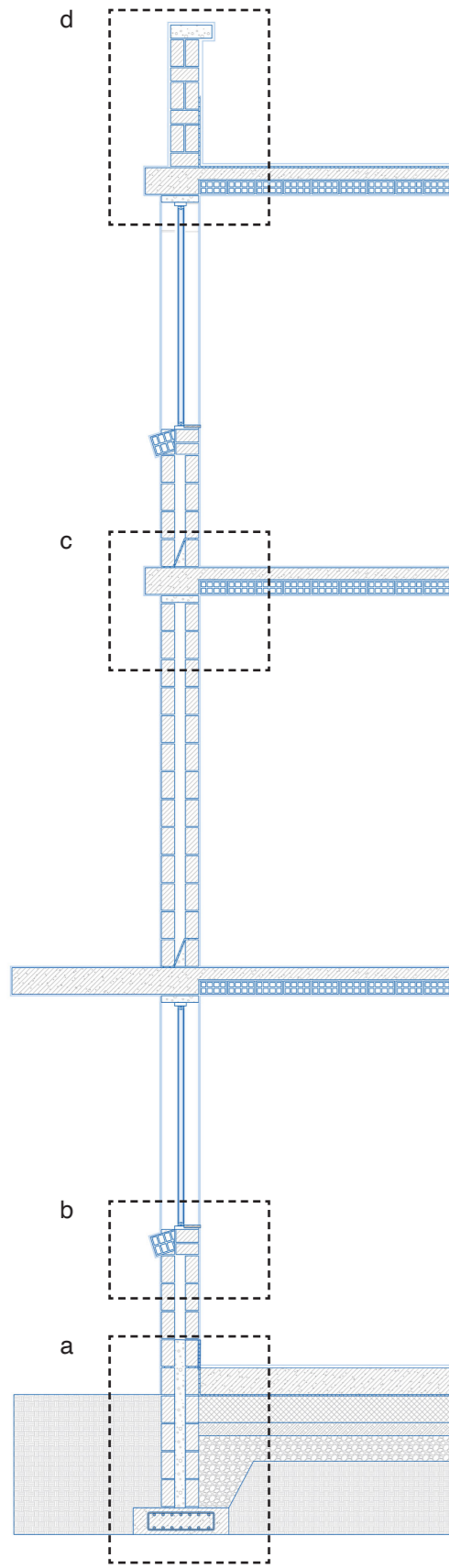


A

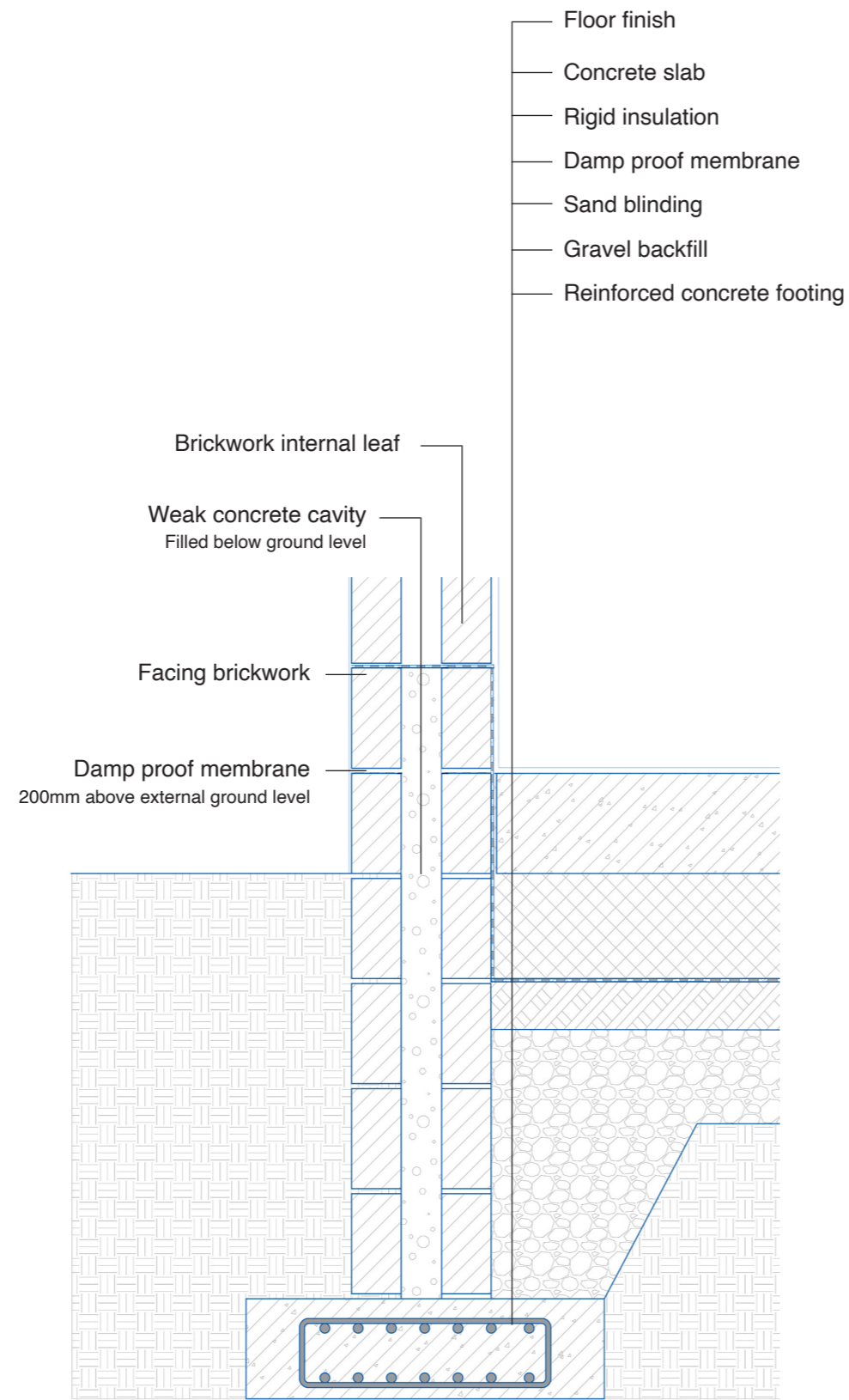


A-A Section 1:300

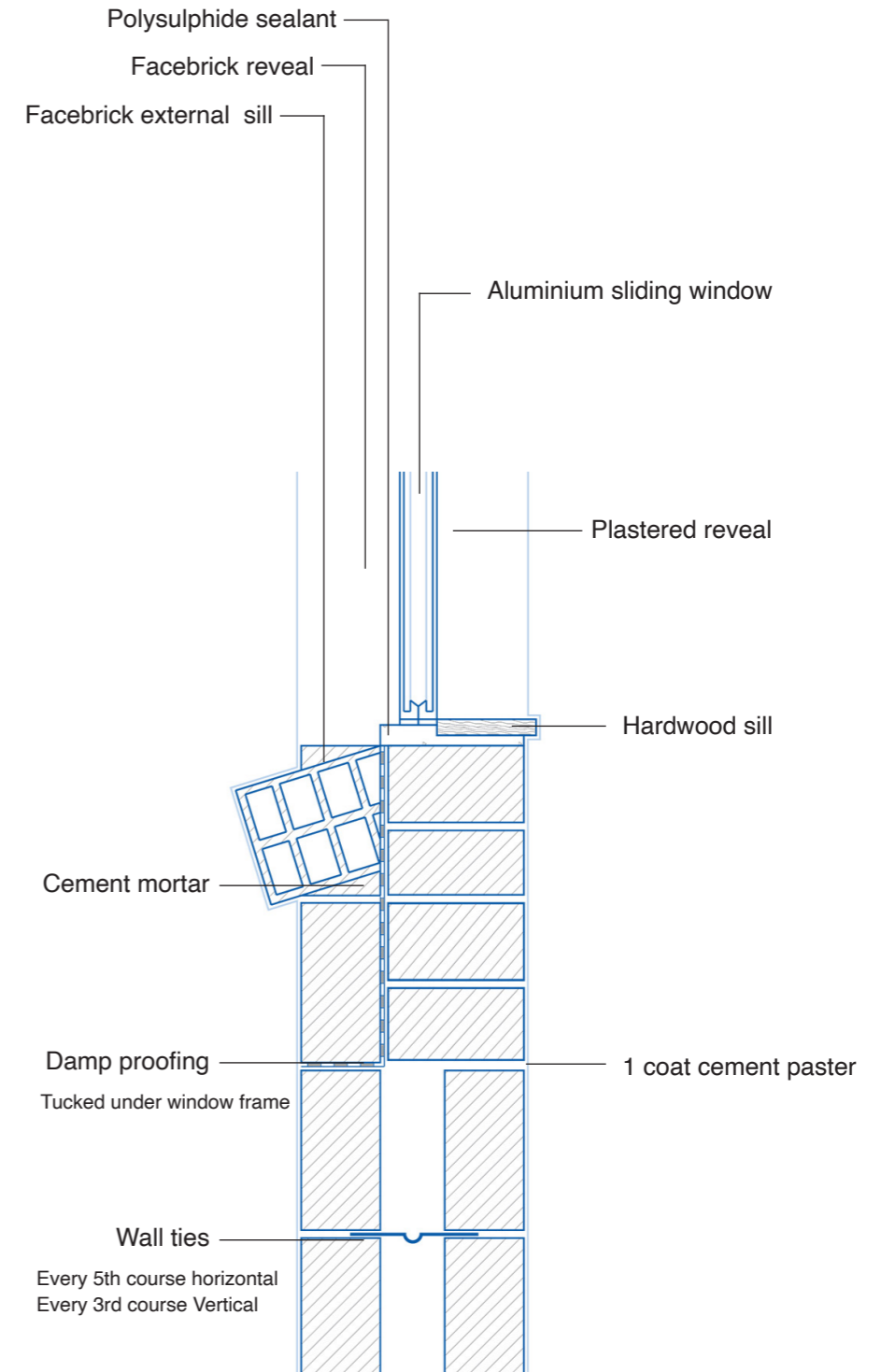
13.500	Roof top
10.100	Parapet
9.000	3rd floor
6.000	2nd floor
3.000	1st floor
±0.000	0 floor
-0.600	



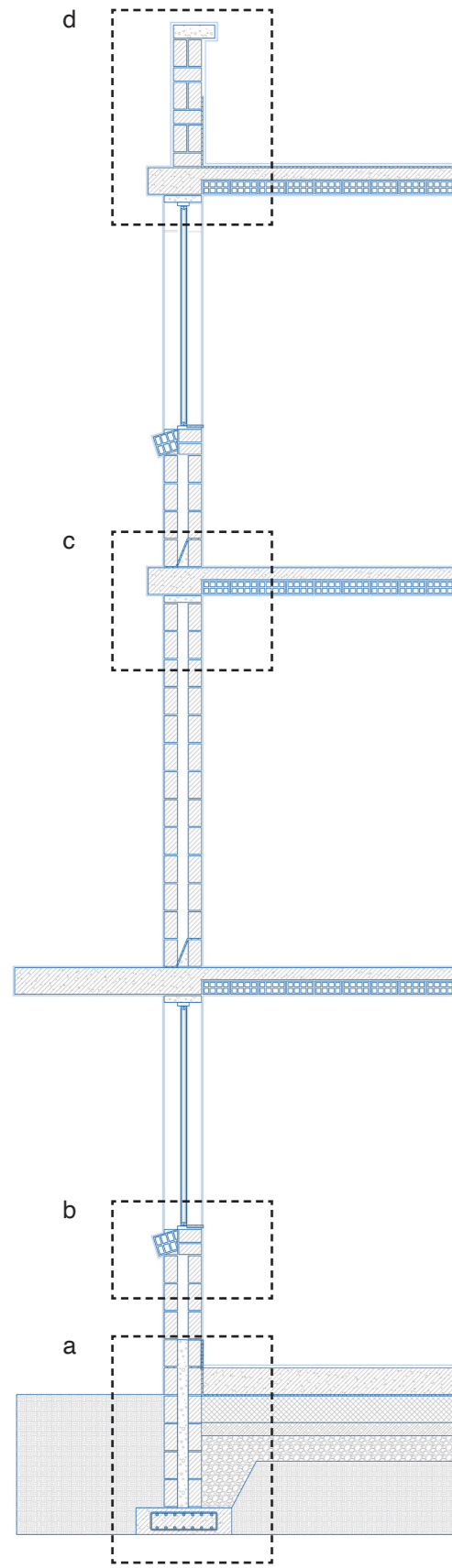
Section 1:50



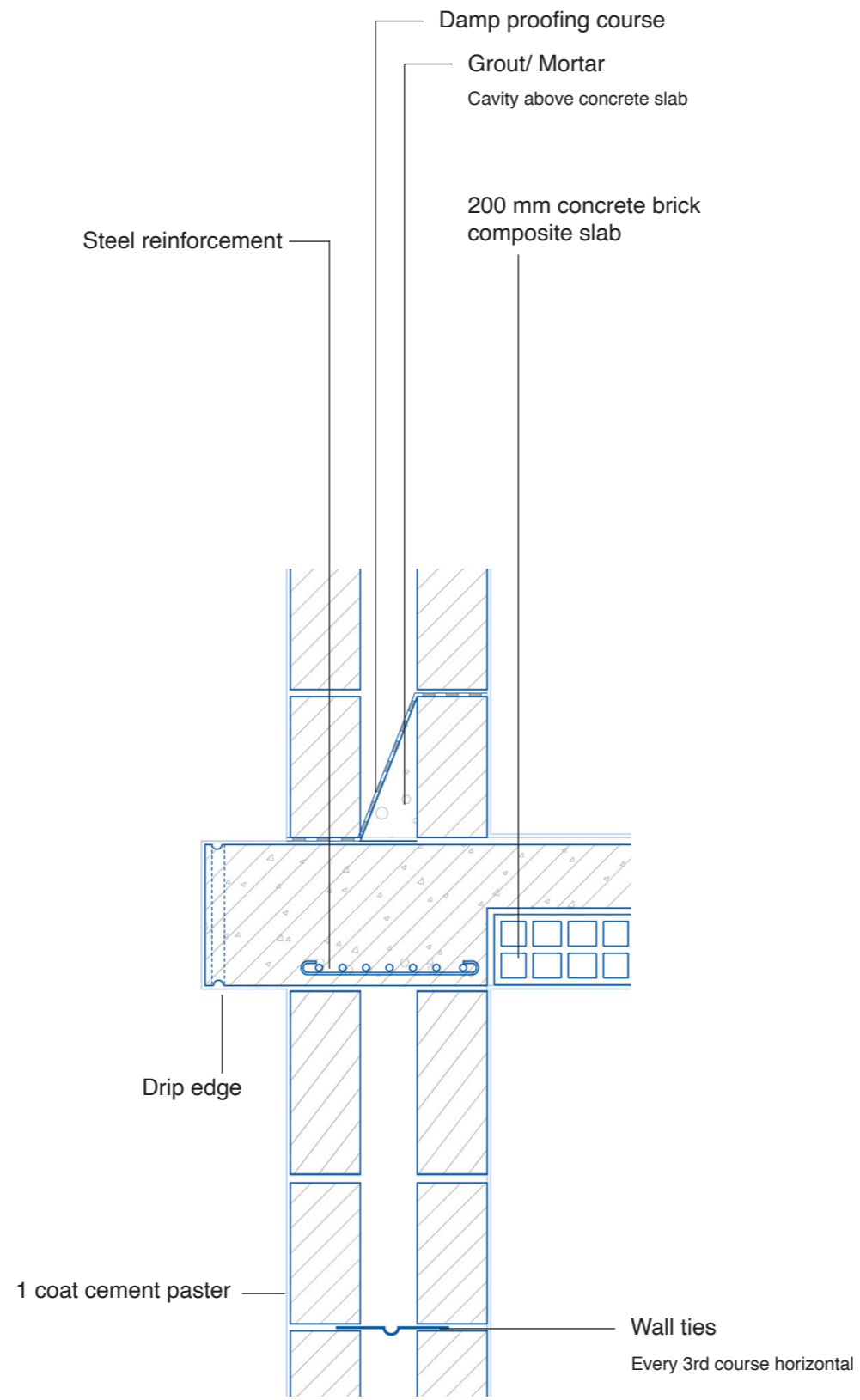
a | Foundation detail 1: 20



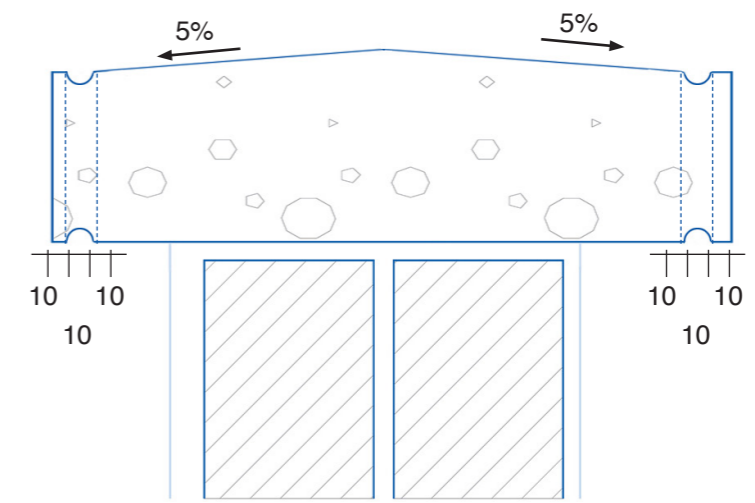
b | Window detail 1:10



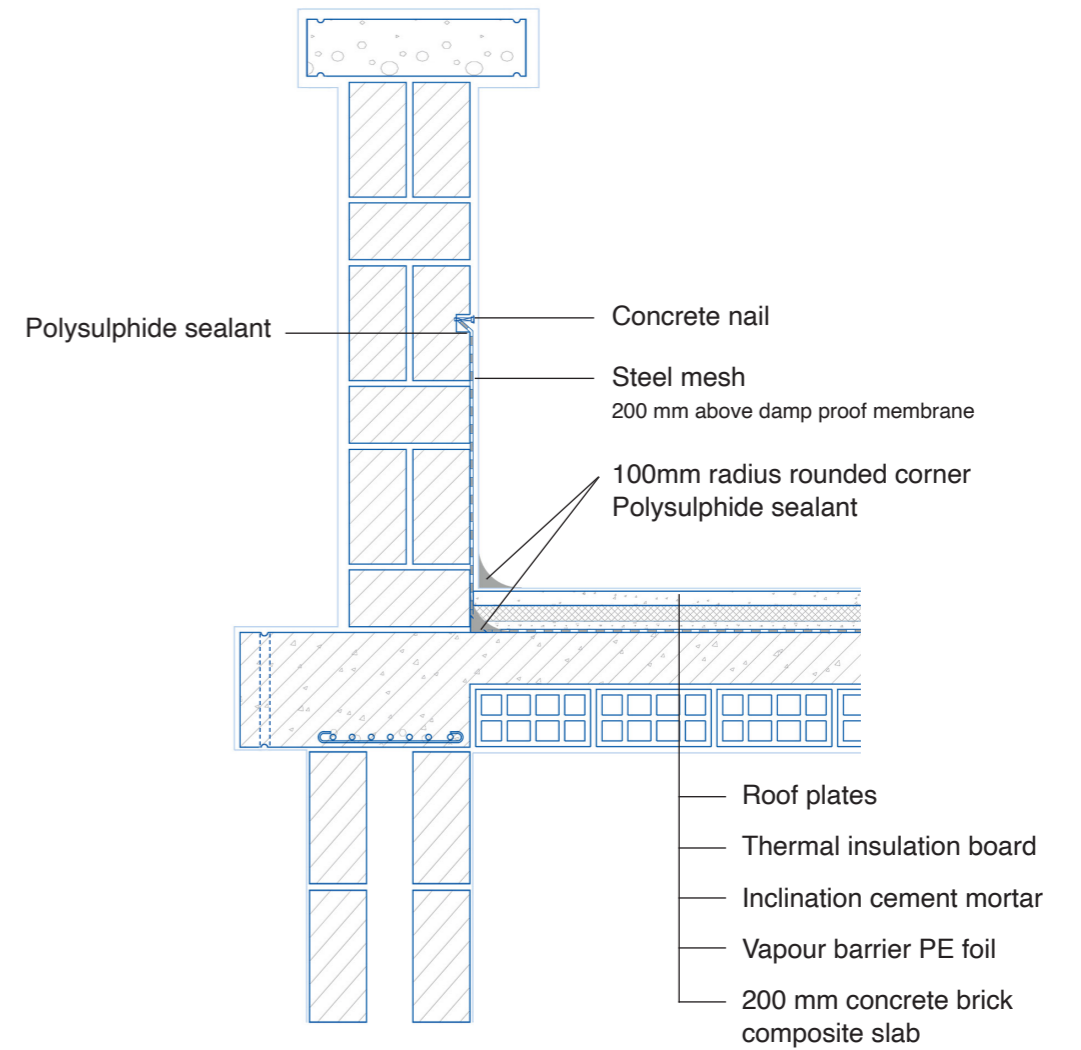
Section 1:50



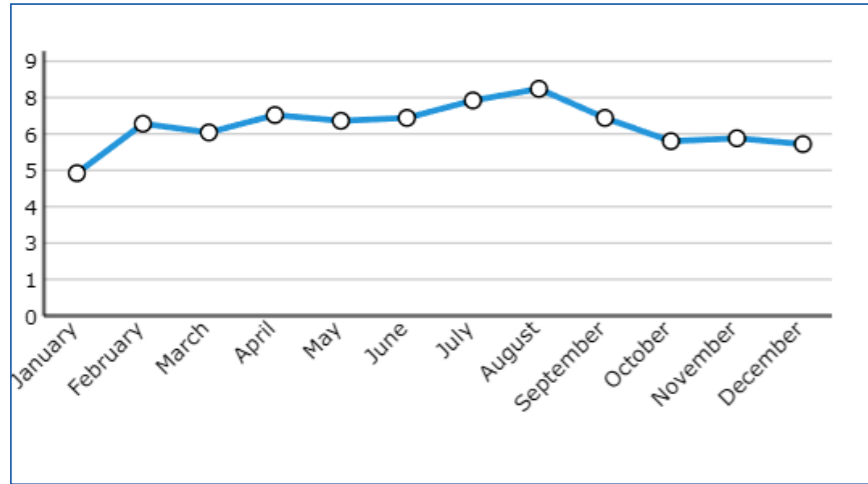
c | Floor detail 1:10



Parapet cap detail 1:5

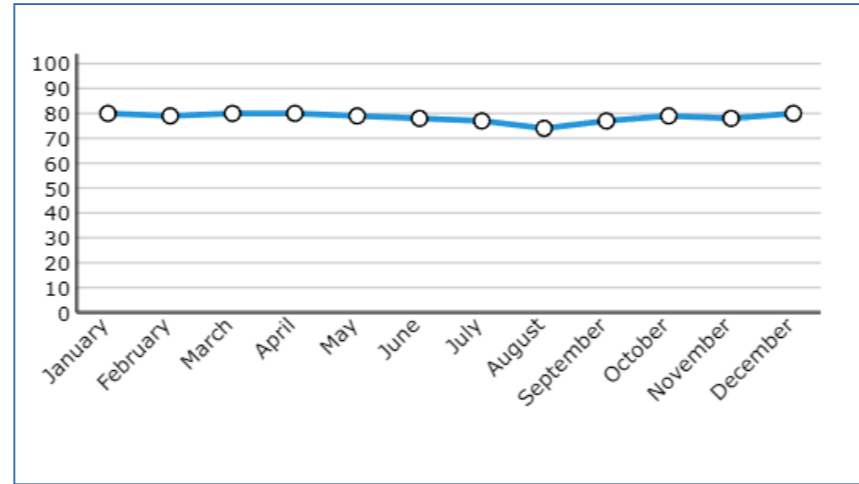


d | Parapet detail 1: 20



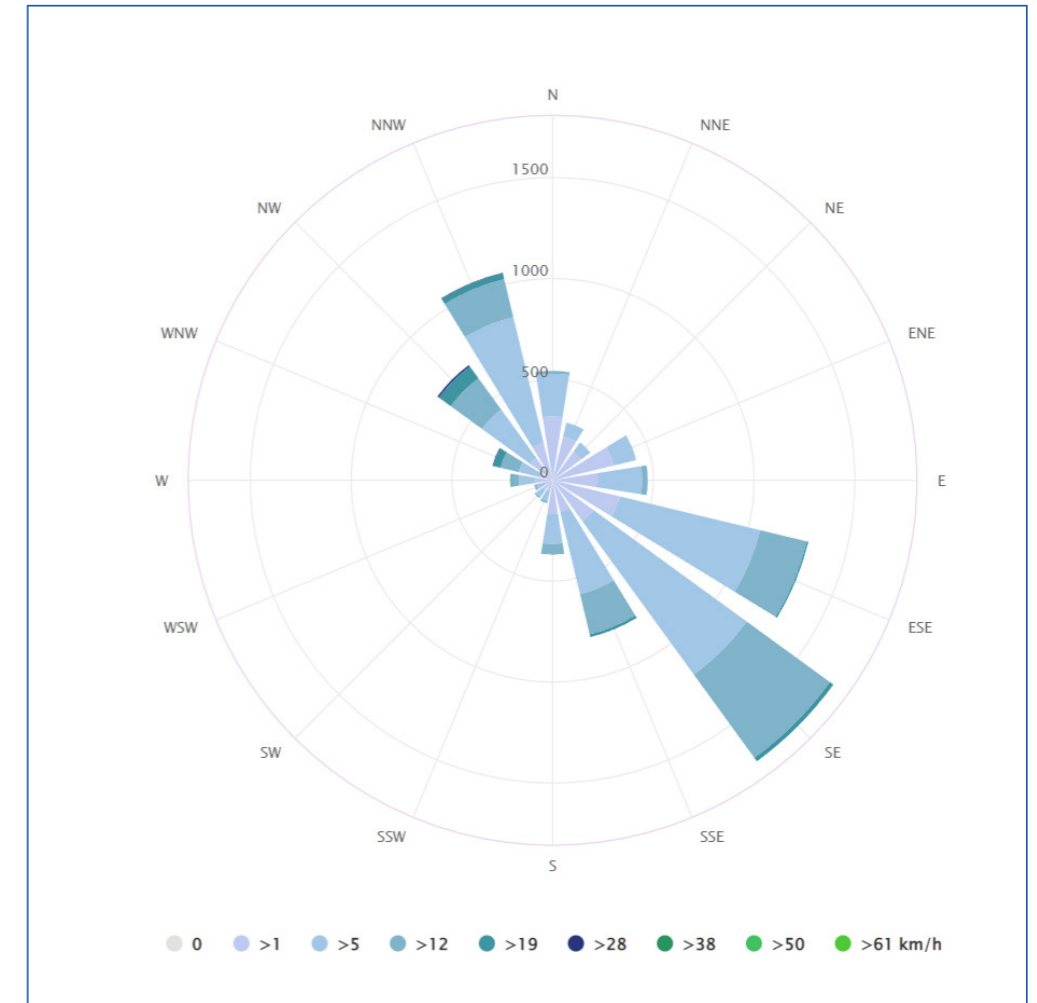
Sunny hours per day

With 8 hours per day, August is the sunniest month in the region of São Paulo. In January, the sun shines the least.



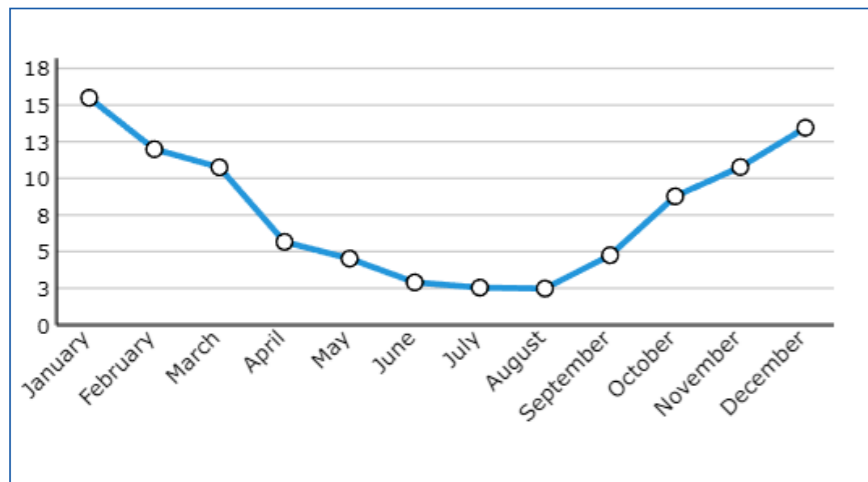
Relative humidity in %

In general, a relative humidity of 40-60% feels pleasant. With humidity averaging 80%, January is the most uncomfortable. In August, on the other hand, it is easier to endure.



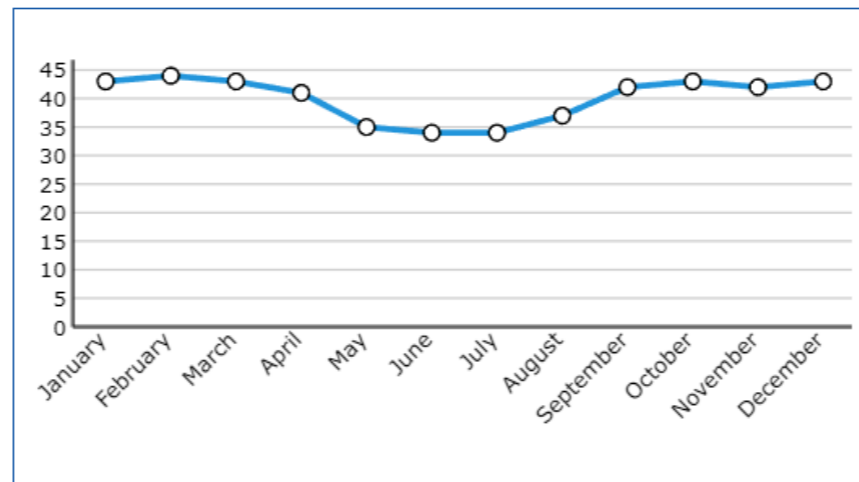
Wind rose

Cape Horn, the southernmost land point of South America, has a characteristic strong west-wind, which makes crossings from East to West very difficult



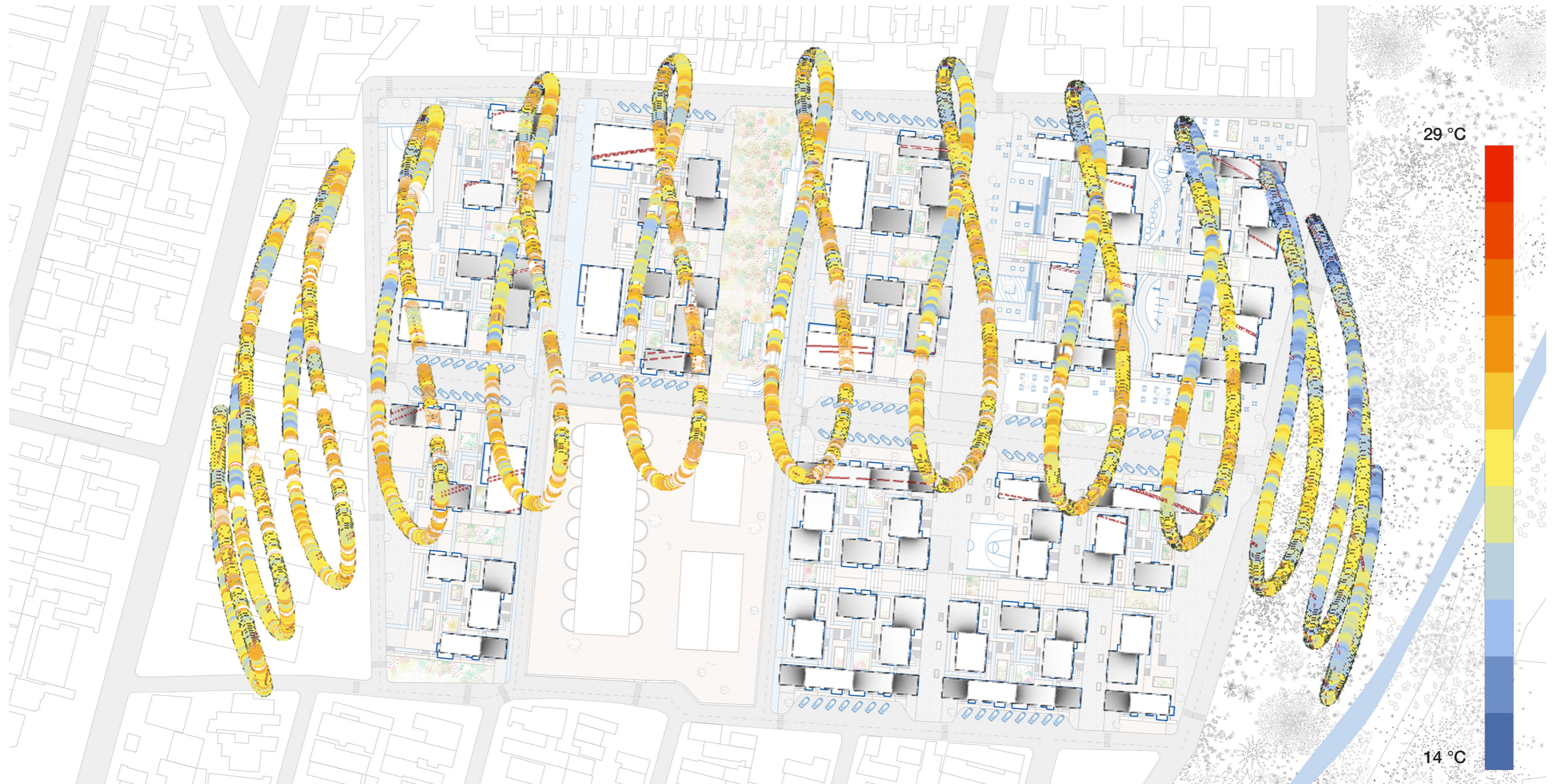
Rain days per month

With 16 rain days, January offers the most rain days, while August has the fewest.

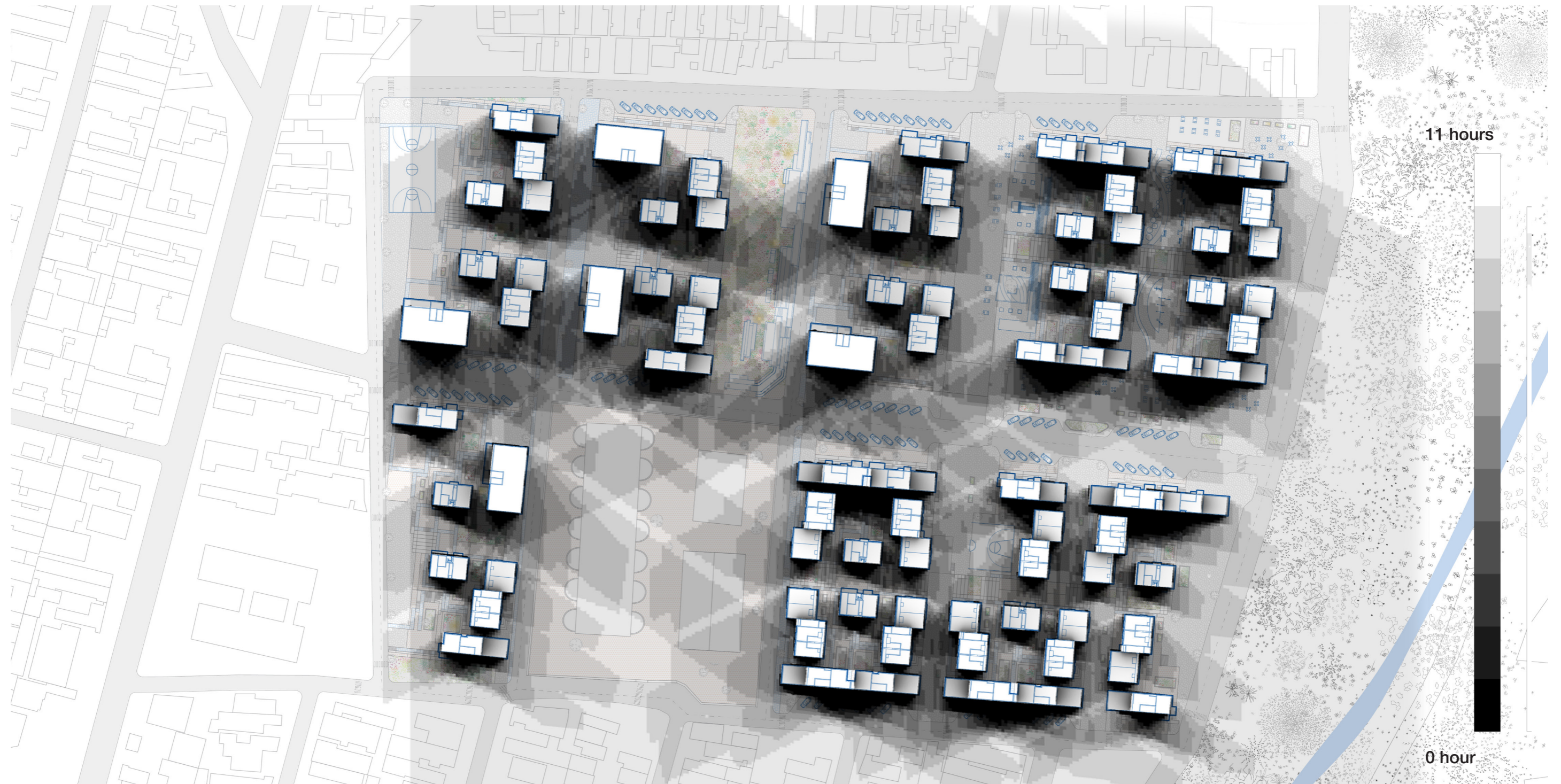


Humidex

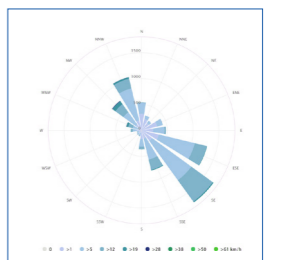
Up to 39, people perceive the air as slightly uncomfortable, and above 40, as very uncomfortable. Values above 45 are dangerous in the long run and often lead to heat stroke.



Sunpath+ Temperature



Direct daylight hours on winter solstice



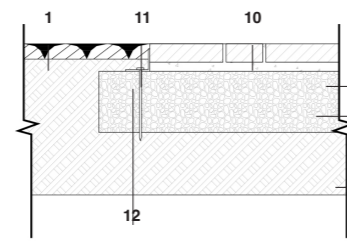


-  Permeable pavers
-  Grass paver
-  Rain garden
-  Flowerbed

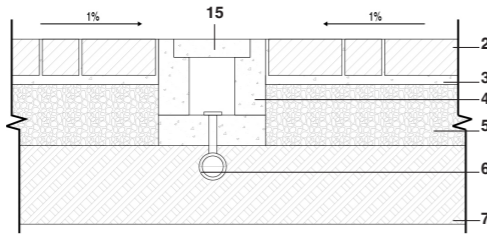


H

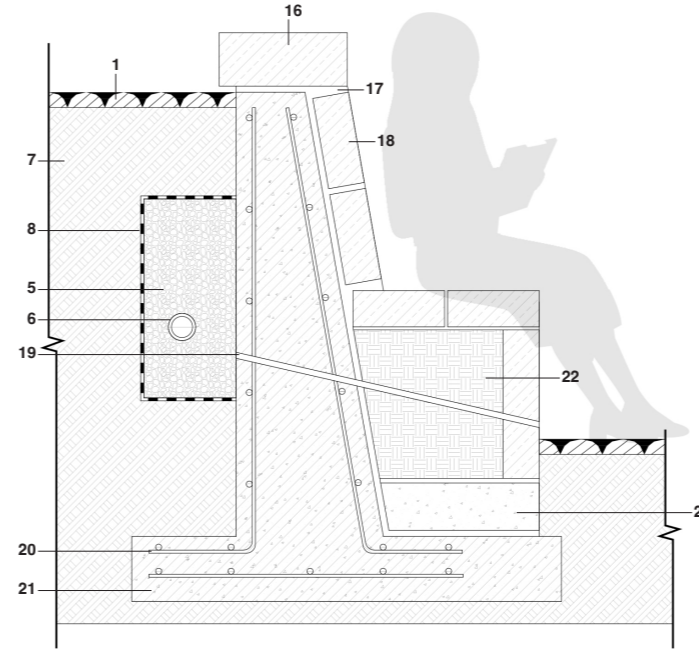
- 1 Top soil
- 2 Block paving
- 3 Compacted sand blinding
- 4 Concrete edging
- 5 Compacted gravel base
- 6 Perforated pipe
- 7 Compacted native soil
- 8 Geotextile
- 9 Sand layer
- 10 Paver bricks
- 11 Spike
- 12 Paver edging
- 13 Filled-in soil
- 14 Tumbled Limestone
- 15 Steel drop Inlet
- 16 Cap rubble stone
- 17 Fill-in mortar
- 18 Rubble stone
- 19 Weep hole
- 20 Vertical and horizontal rebar
- 21 Reinforced concrete
- 22 Backfill native soil
- 23 Edge restraint concrete haunching
- 24 Hollow concrete blocks
- 25 Gabion baskets



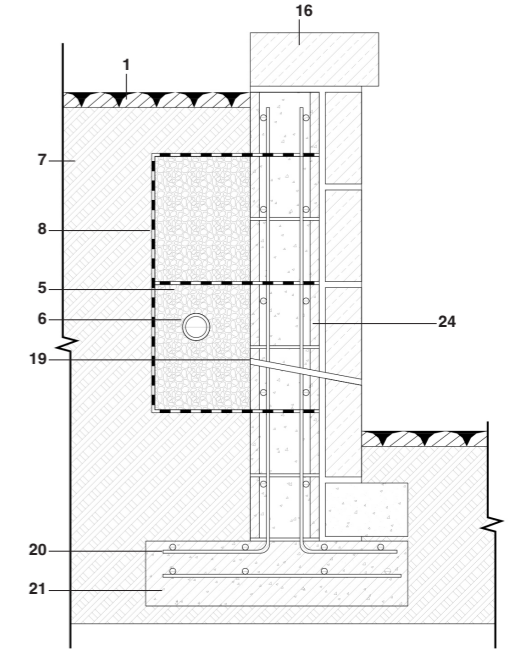
A | Path detail



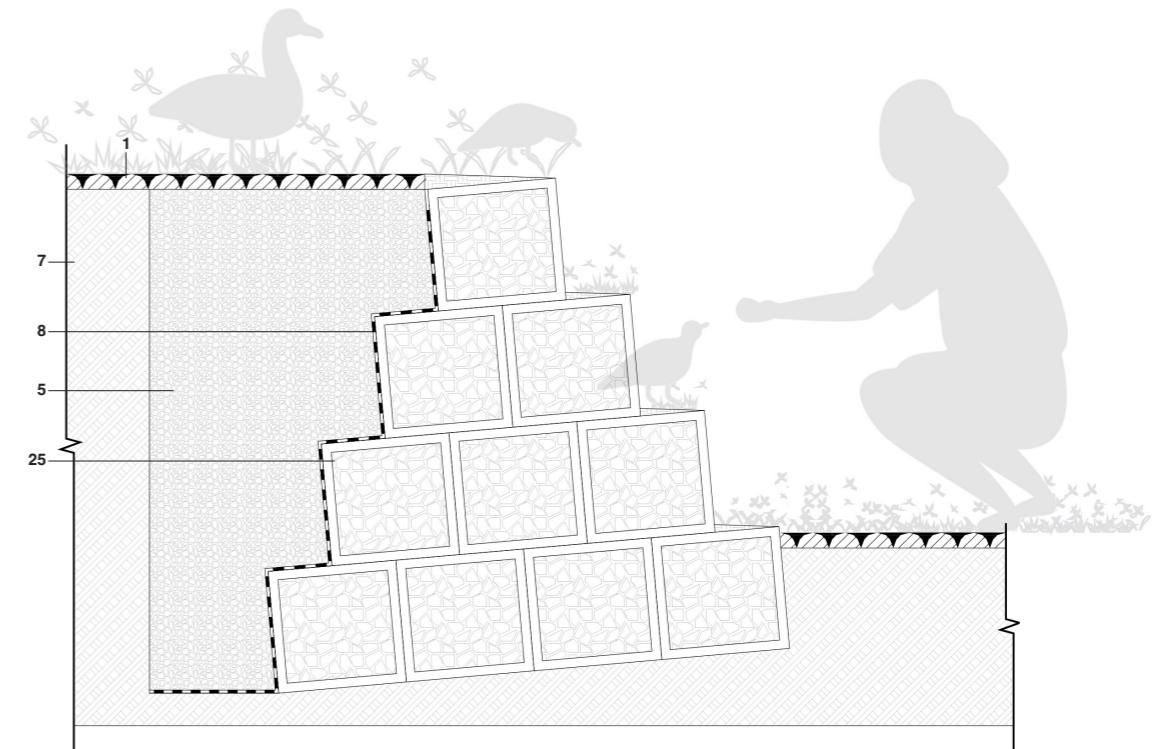
B | Hard pavement drop



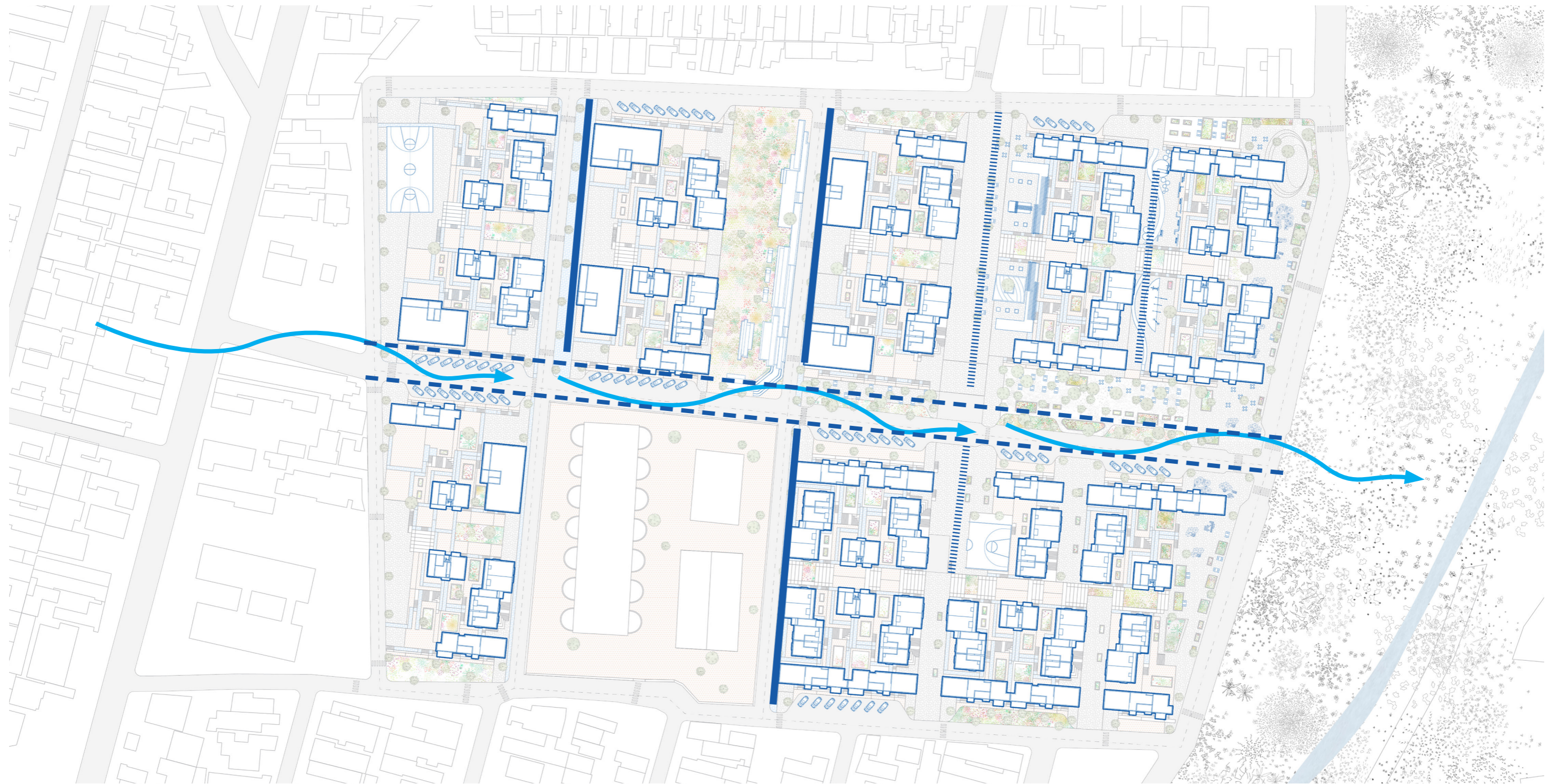
C | Landscape bench detail



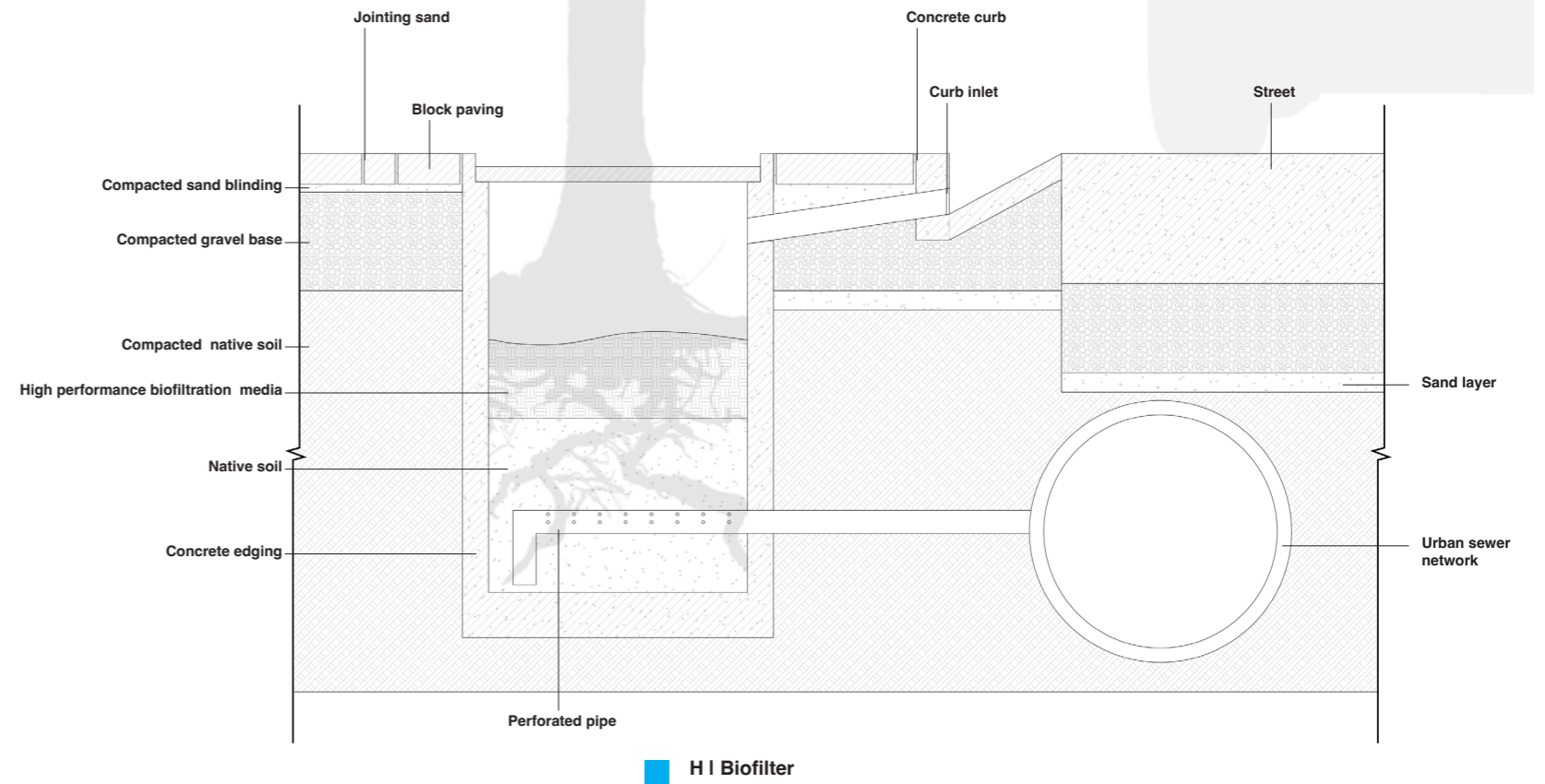
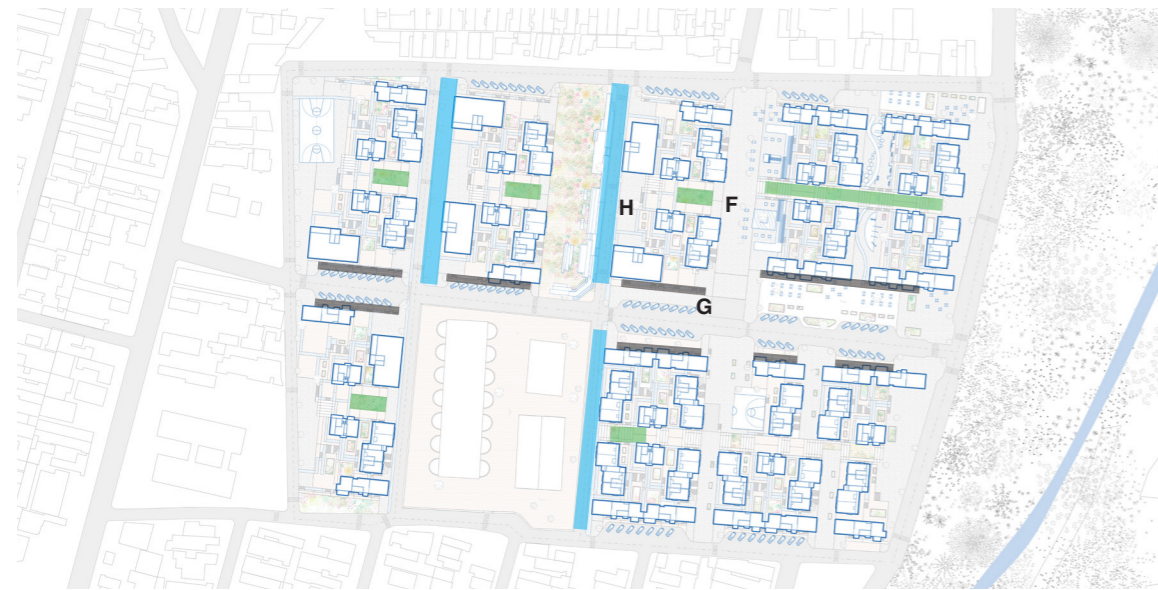
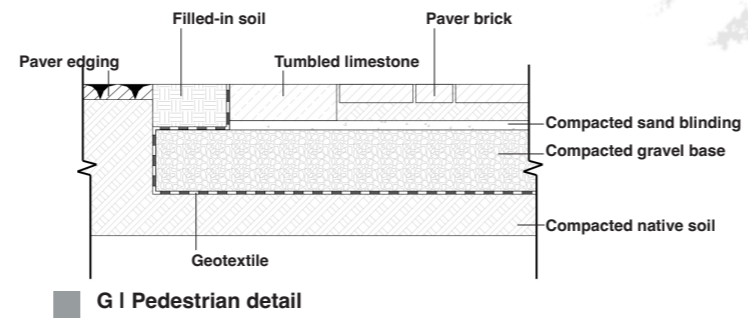
D | Concrete blocks retaining wall



E | Landscape gabion



- Biofilter
- Permeable pavement
- - - Biowales



05 Managerial Strategies

2009

Programa Minha Casa, Minha Vida (PMCMV)

10 years (2009-2019)

5.5 million viable homes,

HIS: Low-income

10% of property's value without interest over several years

HMP: Middle income

Smaller subsidies and interest rates 5%-9%

2020

Programa Casa Verde e Amarela (PCVA)

2 years (2020-2022)

1.2 million viable homes,
reaching around 1.5 million people.
benefiting 5 million people
384,000 units for socially vulnerable families

Gross income up to R\$2000

Loads at low interest rates 4.75% with subsidy up to R\$47.5 thousand

Gross income up to R\$4000

Loads at low interest rates 5.25% with subsidy up to R\$29 thousand

Gross income up to R\$7000

Loads at low interest rates 7.66% without subsidy

2023

Programa Minha Casa, Minha Vida (PMCMV)

3 years (2023-2026)

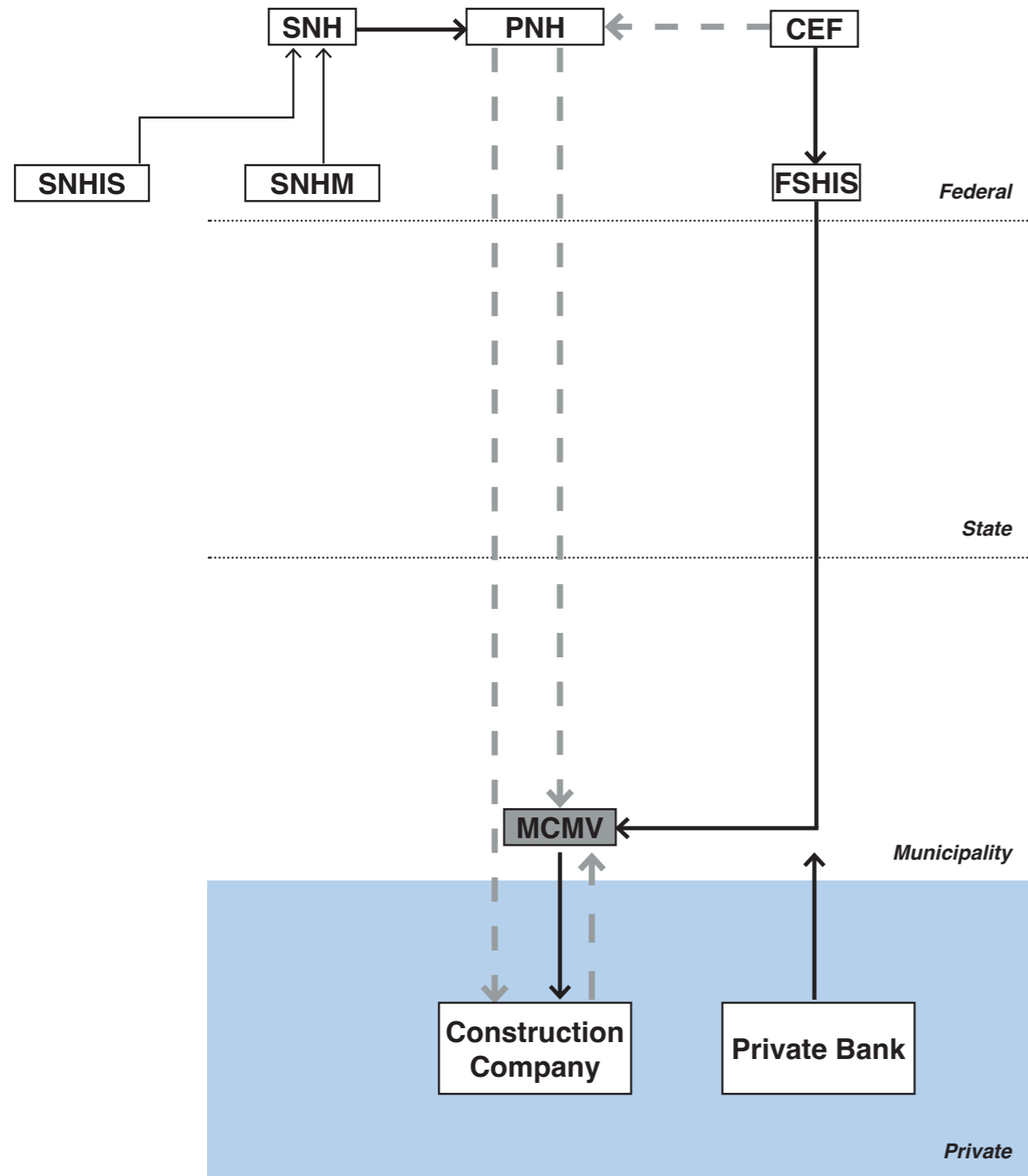
2 million viable homes

Gross income up to R\$8000

the nominal interest rates ranging from 4.50% to 8.16% associated with financing 50% of a property's value over a 35-year repayment period.

Source: <https://www.gov.br/en/government-of-brazil/latest-news/2022/casa-verde-e-amarela-1>

MCMV



PNH Housing National Policy.

SNH National System of Housing

SNHM Market National Housing System

SNHIS National System of Social Interest Housing

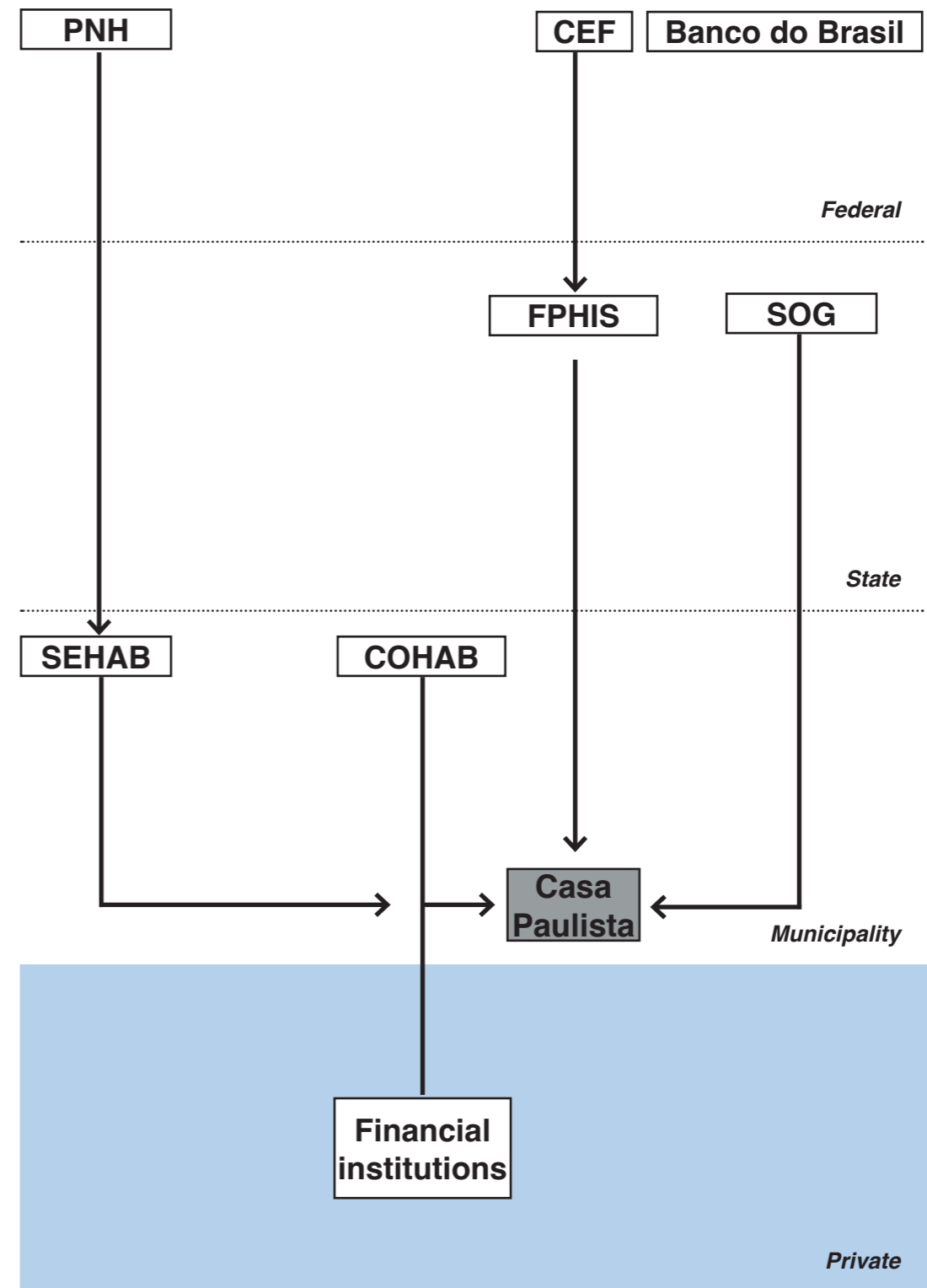
MCMV My House, My Life Program

CDHU Housing and Urban Development Company.

FSHIS Federal fund of Social Interest Housing

CEF Caixa Econômica Federal

Casa Paulista

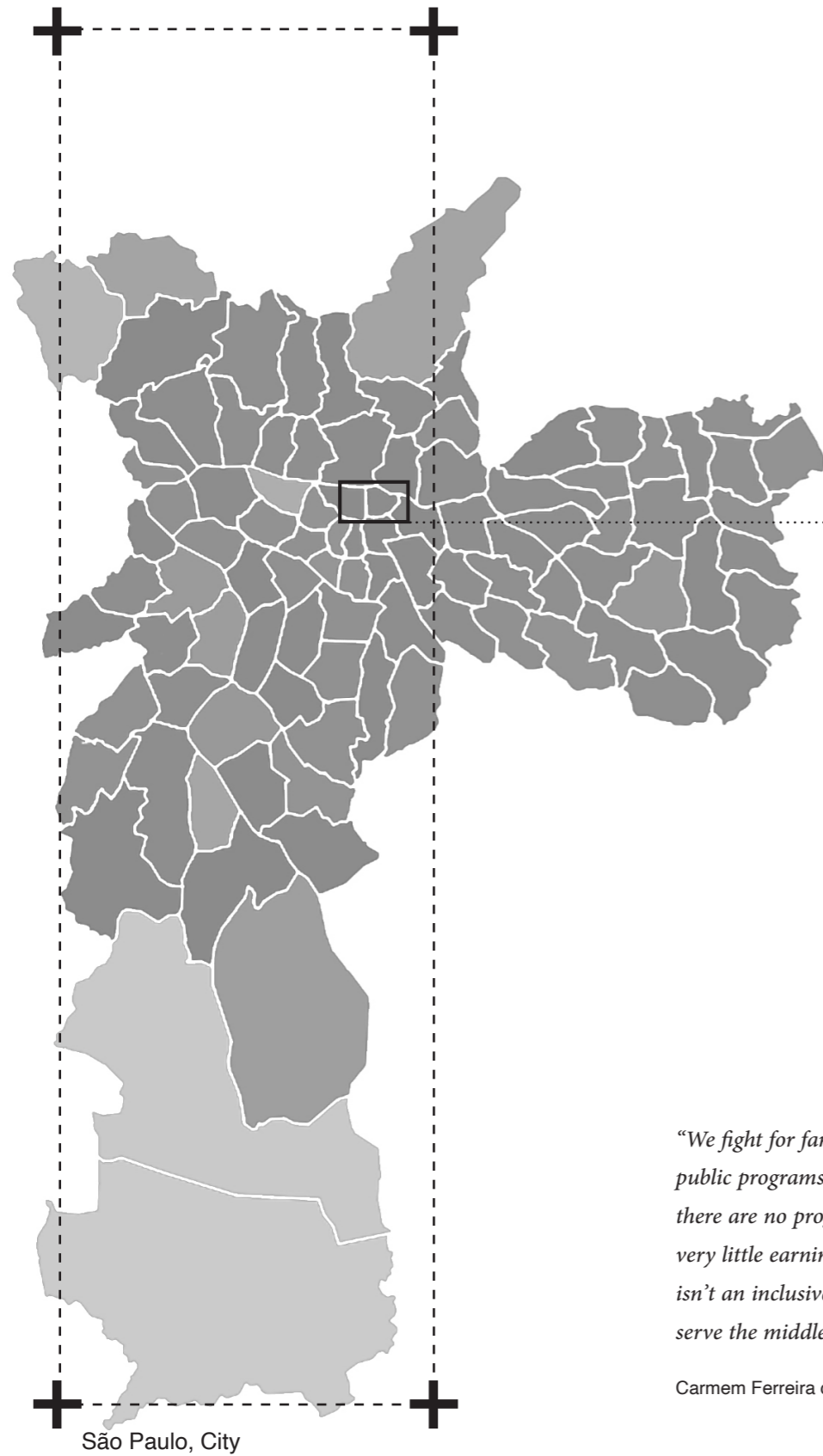


FPHIS Paulista Social Interest Housing Fund

COHAB Metropolitan Housing Company of São Paulo

SEHAB Municipal Housing Secretariat

SOG Planning & Management Secretariat of the State of São Paulo



Selective

*“We fight for families **to be included** in available public programs, preferably in the city centre, but there are no programs available here for families with very little earnings It is clear to us that the PPP isn’t an inclusive program; it’s selective. The PPP will serve the middle and high-income classes.”*

Carmem Ferreira da Silva, Social leader

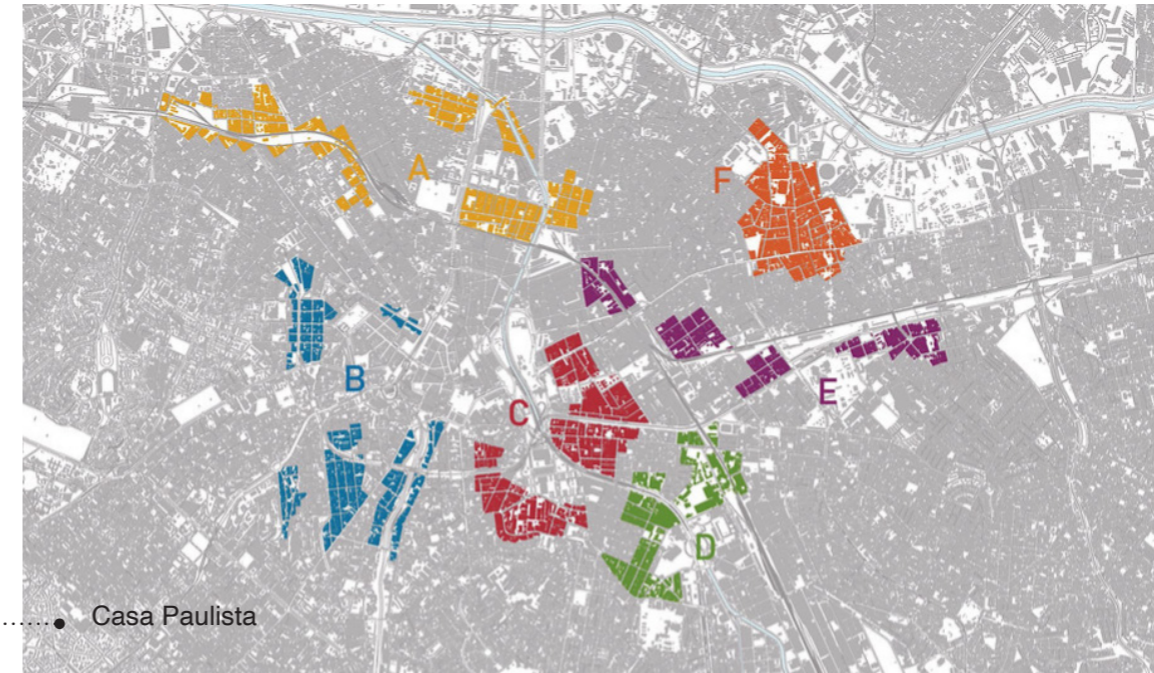


Table 1. Scope of Casa Paulista PPP in the different phases of the modeling process.

Eligible Mortgage Buyers Per Income Category (MMW)	Housing Category	Number of Housing Units per Modeling Phase							
		Public Notice		Original Model		Tender		Contract (*)	
		Units	%	Units	%	Units	%	Units	%
1 to 5	HIS	9,000	90	12,508	62	9,000	64	2,260	61
5 to 10	HMP	1,000	10	3,159	16	5,133	36	1,423	39
10 to 16	Market	-	-	4,554	23	-	-	-	-
Total		10,000		20,221		14,133		3,683	

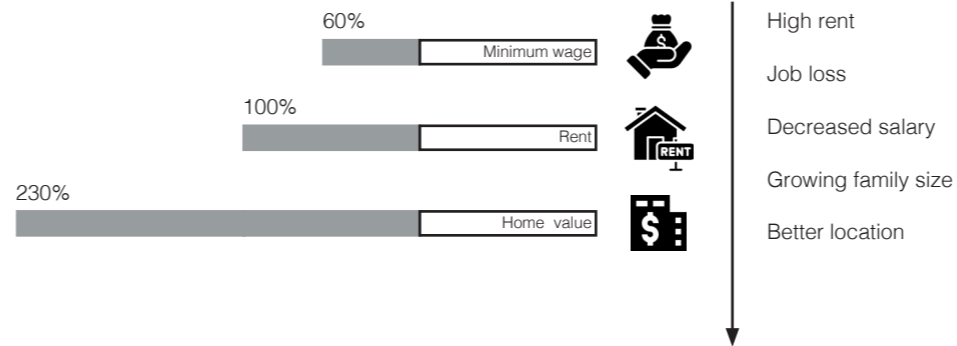
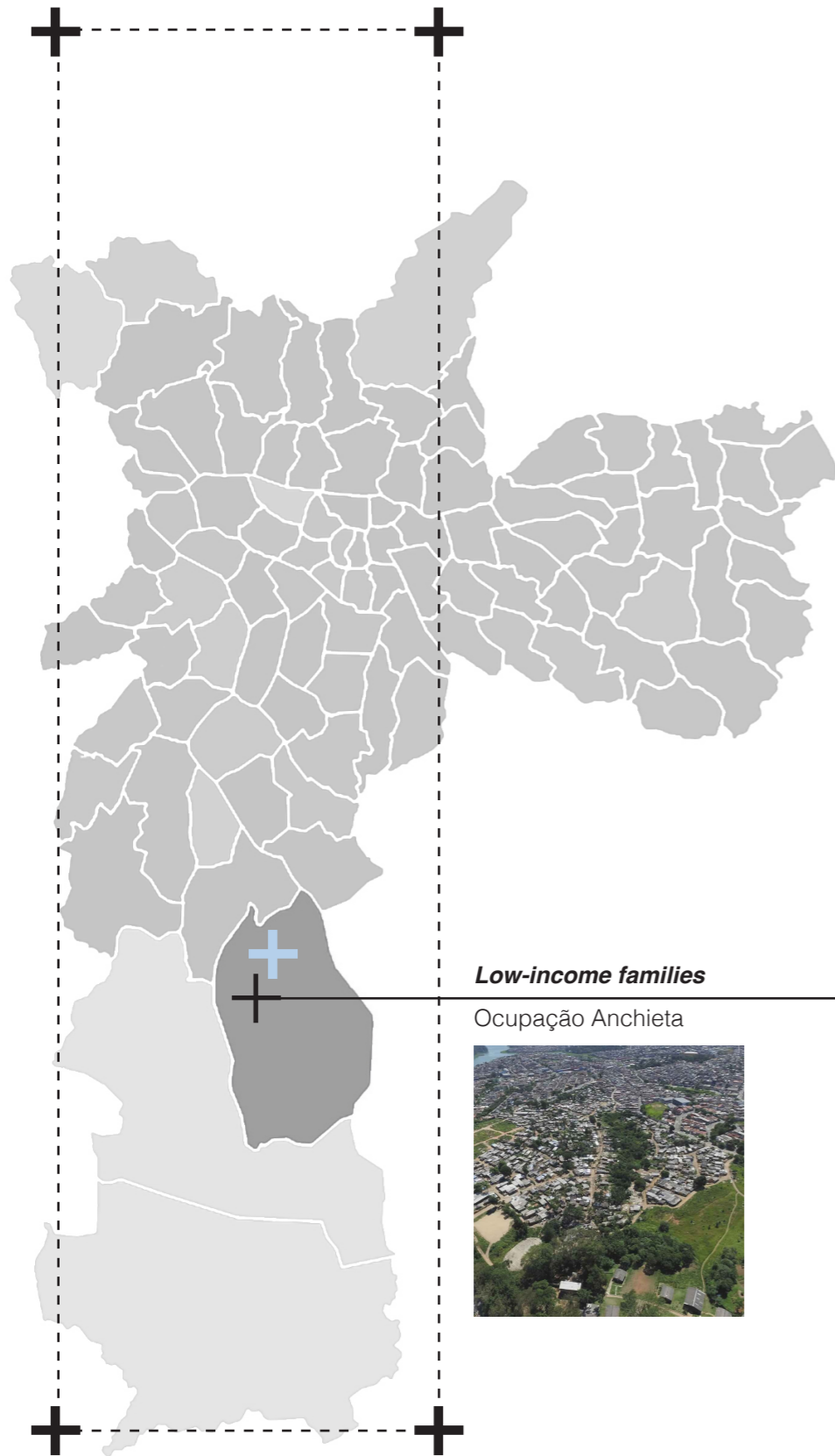
Source: Author/(*) The final contract directed HIS units to population with earnings equivalent to between 1 and 6 MMW.

Table 1: Conditions for HIS and HMP unit financing in São Paulo

Categories	São Paulo's PMH		
	Values of family monthly income		Commitment of monthly income
	Reals (BRL)	Conversion in Dollars (USD)	
HIS	810.00 - 1,600.00	154.87 - 305.92	20%
	1,600.01 - 2,430.00	305.93 - 464.62	22%
	2,430.01 - 3,240.00	464.63 - 619.50	25%
	3,240.01 - 4,344.00	619.51 - 830.59	27%
HMP	4,344.01 - 5,792.00	830.60 - 1,107.45	FGTS Rules ¹
	5,792.01 - 8,100.00	1,107.46 - 1,548.75	FGTS Rules

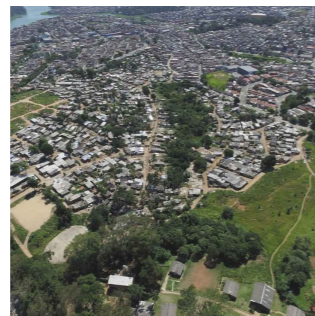
Sources: São Paulo (2018a, 2018b), Exchange-rates.org (2020). Organized by the authors.





Low-income families

Ocupação Anchieta

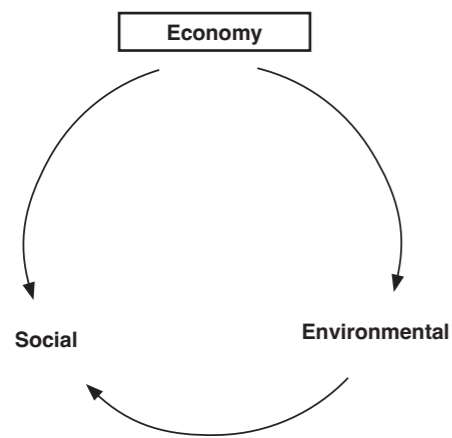


		Monthly income	Mortgage	Homeowners' association fees	Water & Electricity
12.50%	Range 0	0 R\$			With 65% discount
70.56%	Range 1	0 - 1800R\$	80-270 R\$	10 - 200R\$	20+ R\$
11.72%	Range1.5	1800 - 2600R\$			
4.64%	Range 2	2600 - 4000R\$			
0.58%	Range 3	4000 - 7000R\$			

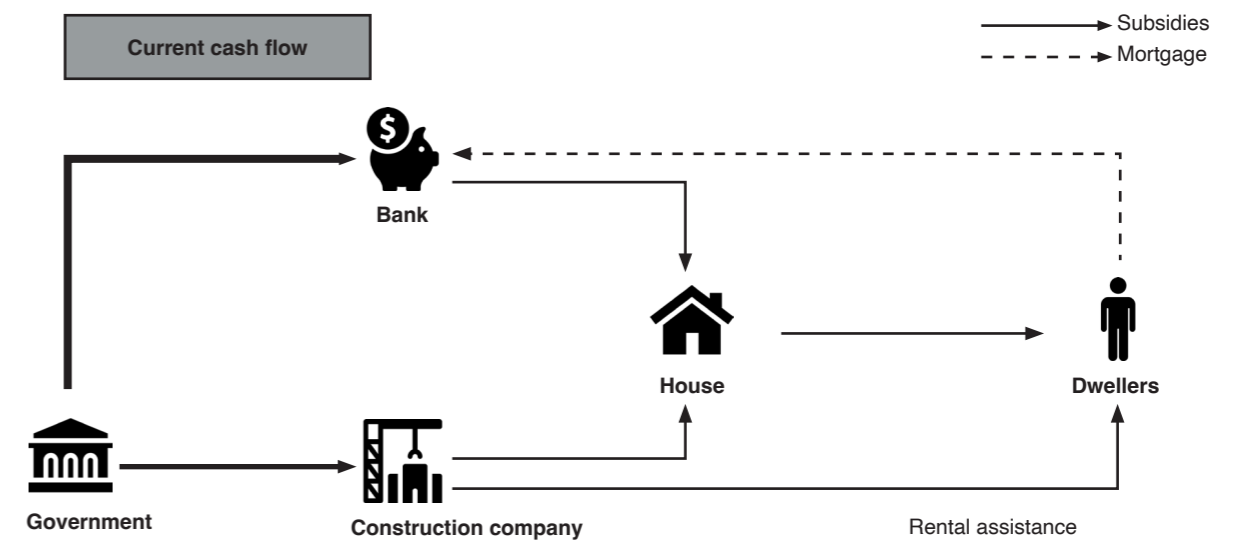


Management

In what ways can architecture provide **opportunities** for marginalized individuals to actively participate and engage within their community?

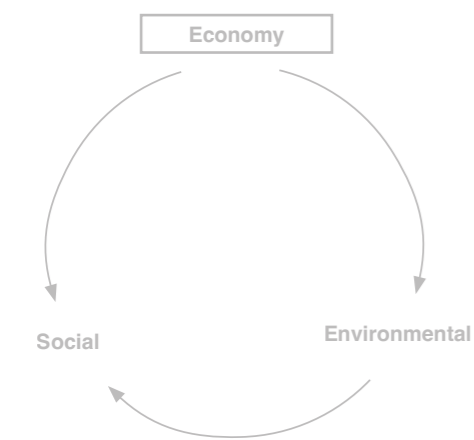


Economic-driven development

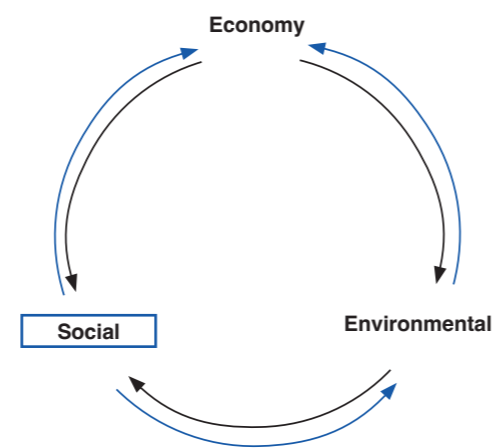


Management

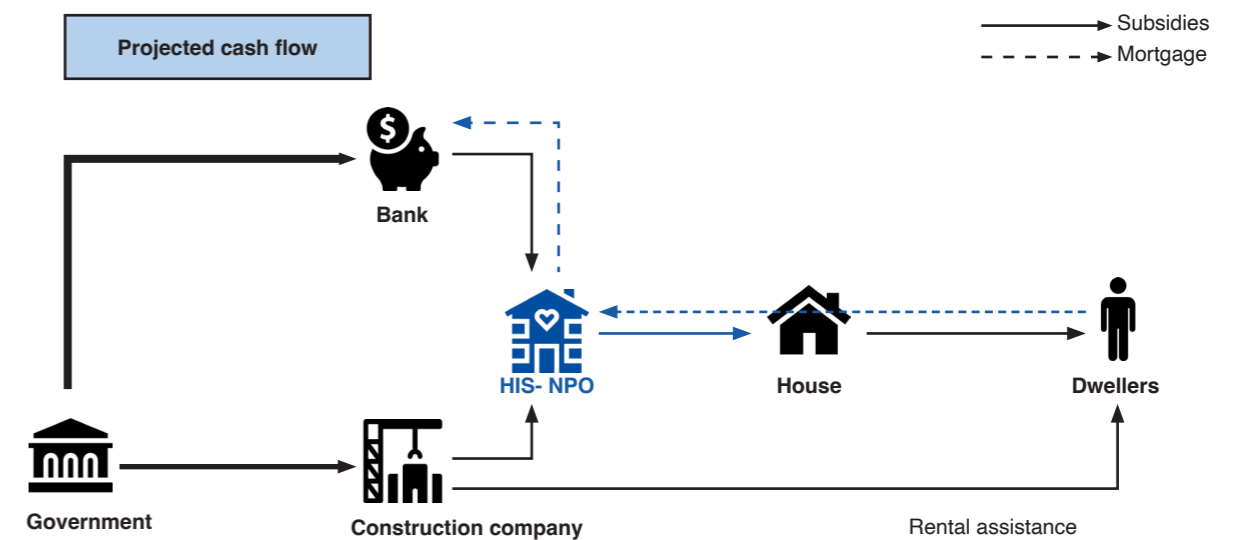
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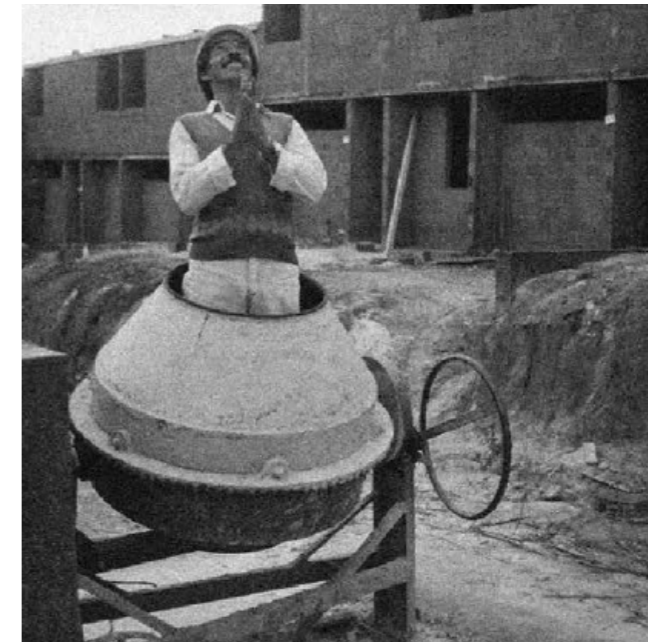
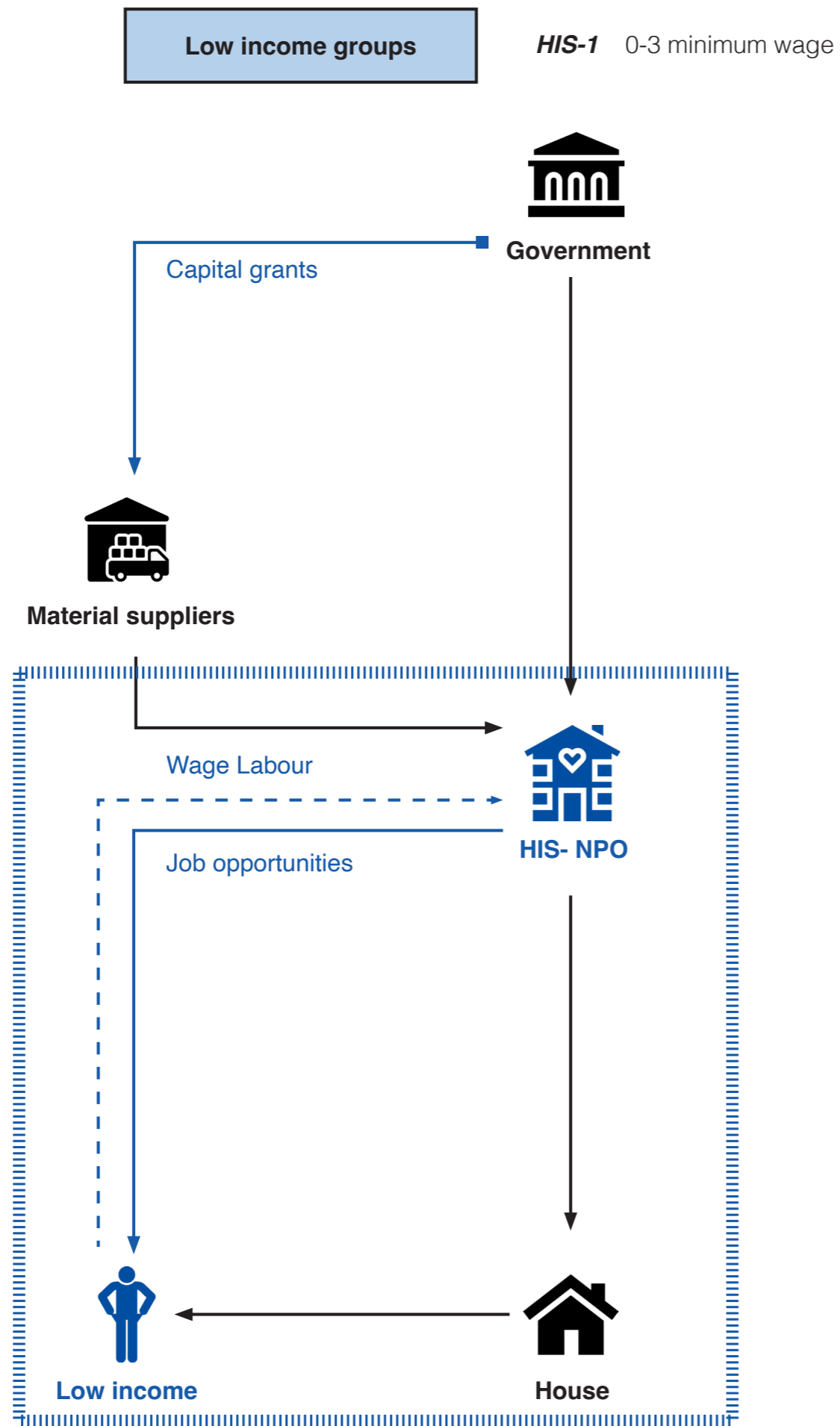


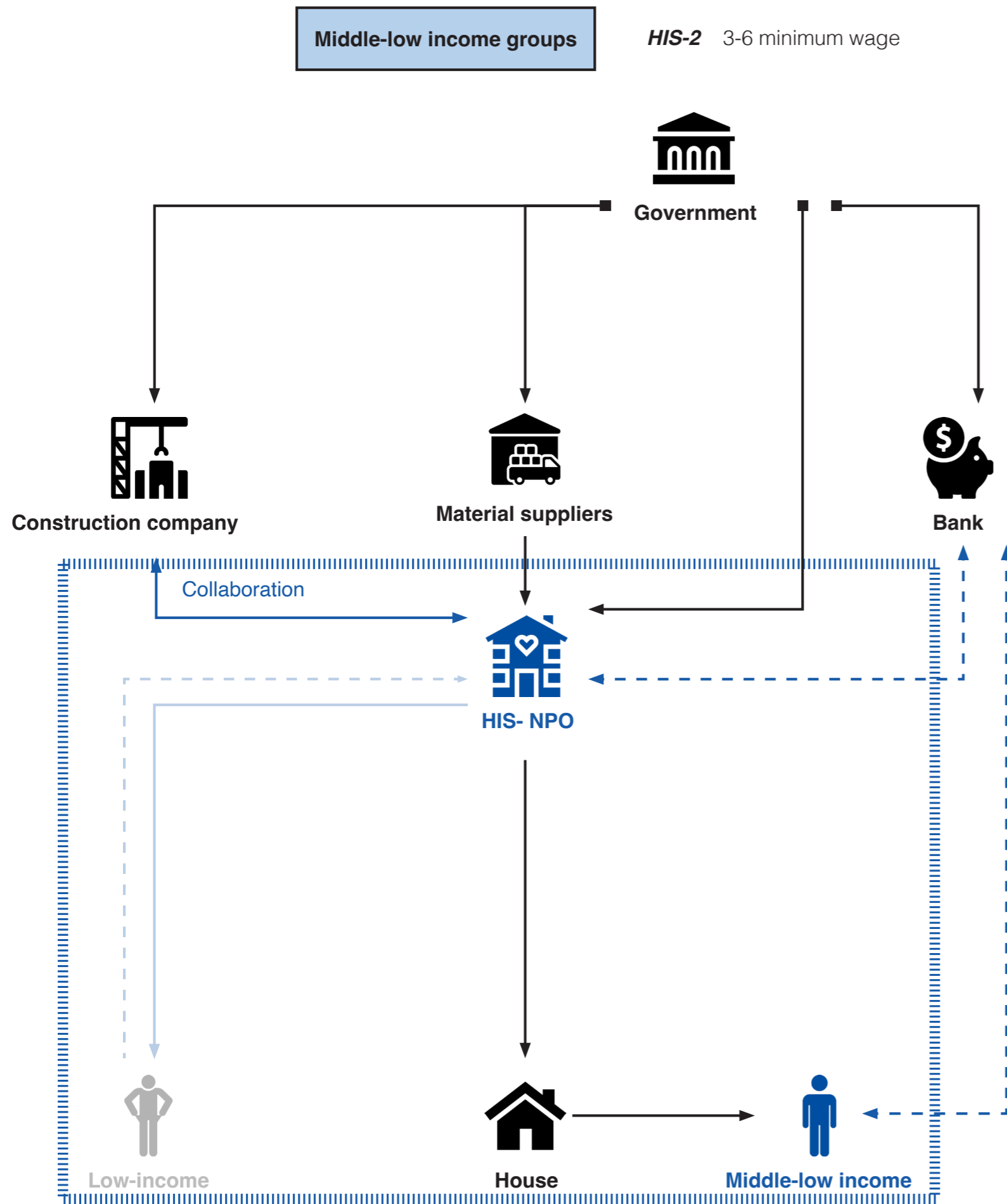
Economic-driven development

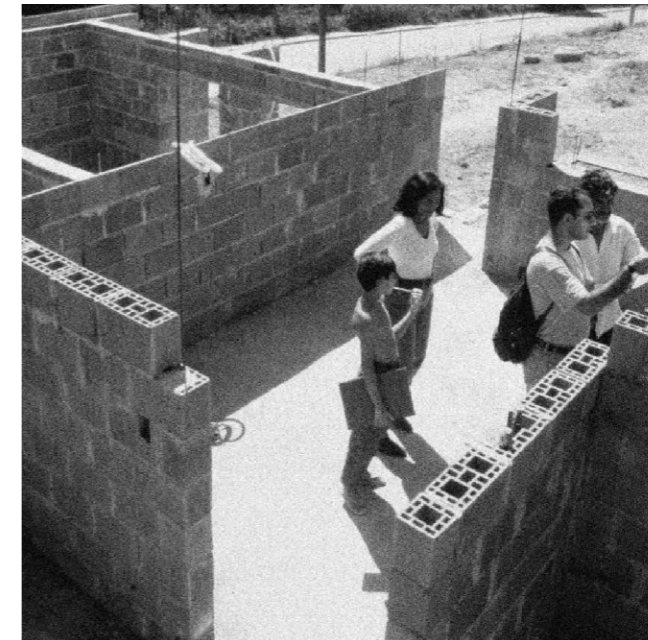
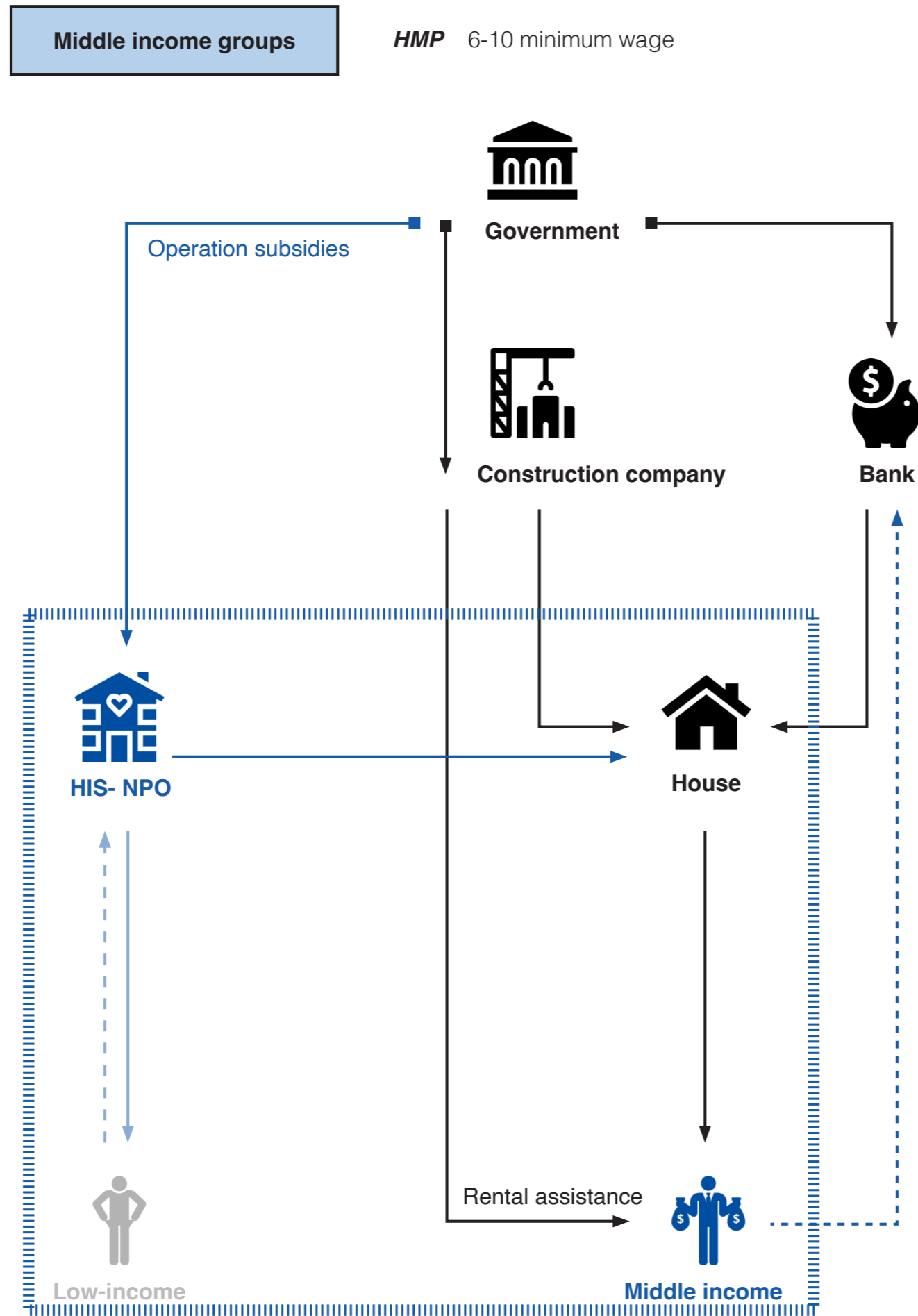


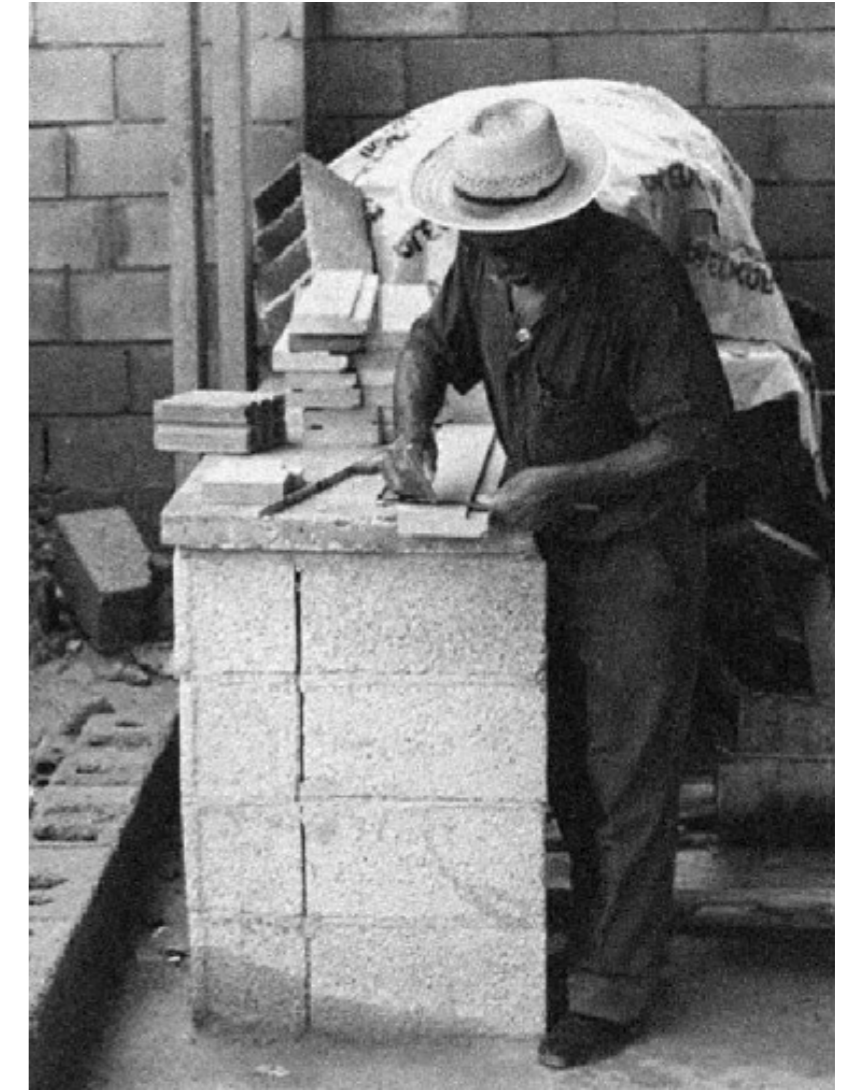
Social-driven development





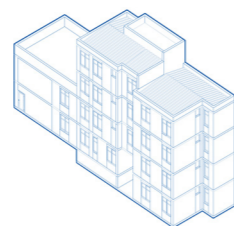






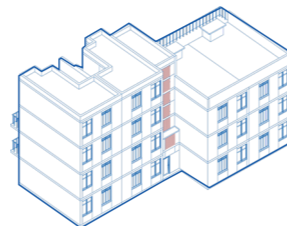
Training and Mastery

Chain house



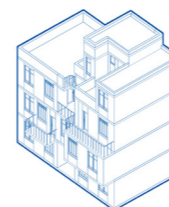
- Facing brick*
- Purlins*
- Concrete foundation*

Row house



- Water tank*
- Concrete slab*
- Brickworks*

Slab house



- Insulation*
- Damp proofing course*
- Cavity brick wall*

Condominium



- Timber joint*
- Concrete frame*
- Hollow concrete blocks*

Public Entities

Land department - **SEHAB**
Urban planning department - **SOG**
Housing authority - **COHAB**
Economic affairs - **FPHIS**
Civil infrastructure manager

Professional Advisor

Process Manager
Architects and Designers
Sustainability consultant

SEHAB Municipal Housing Secretariat

SOG Planning & Management Secretariat of the State of São Paulo

COHAB Metropolitan Housing Company of São Paulo

FPHIS Paulista Social Interest Housing Fund

HIS-NPO Non-Profit Organization for Social Interest Housing

Market Participants

Real estate developer
Private construction company
Supplier and manufacturers
Utility and Service Providers

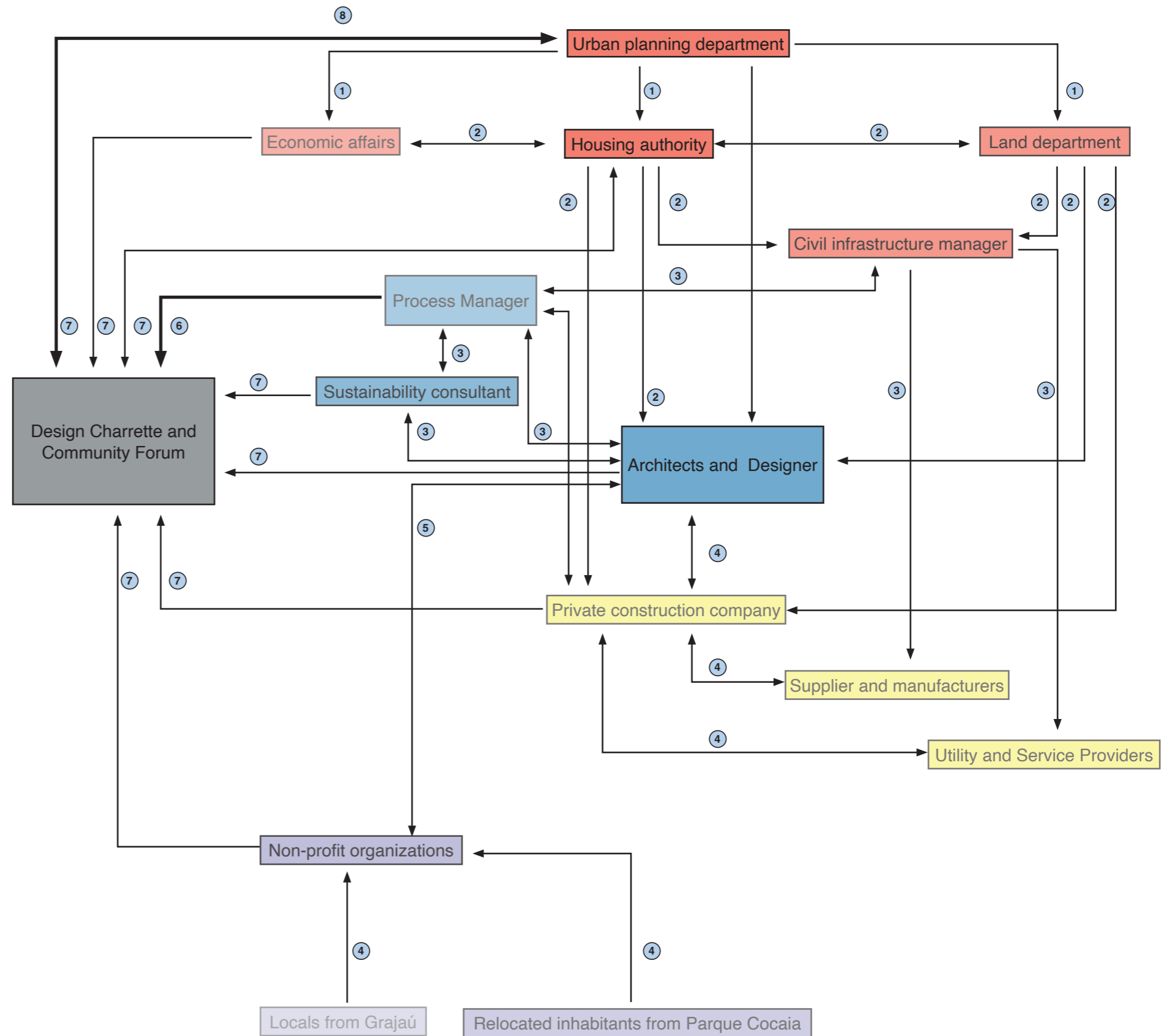
Community and Residents

Future residents
Locals from Grajaú
Relocated inhabitants from Parque Cocaia
Non-profit organizations - **HIS-NPO**

Who

Information exchange

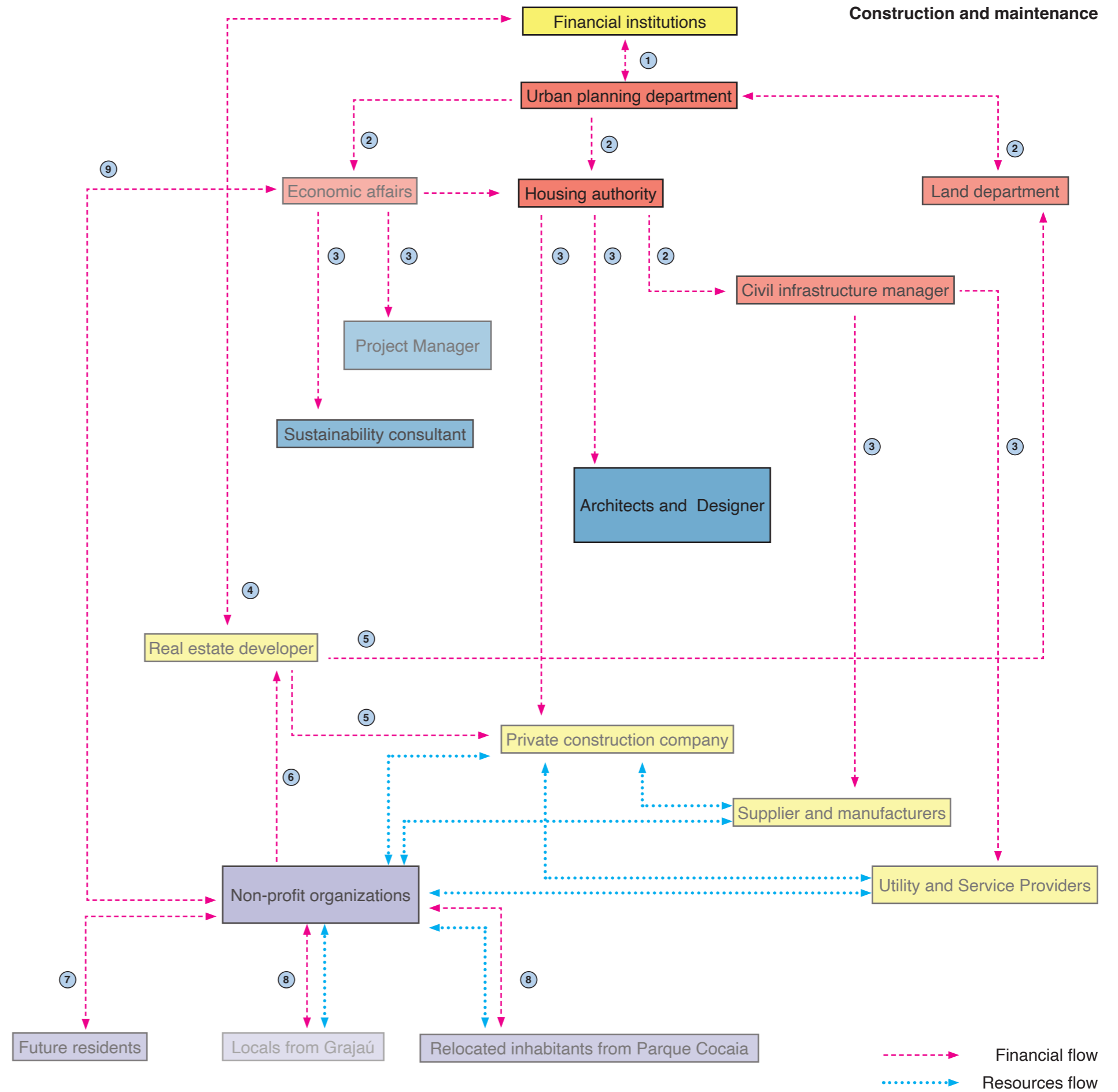
- ① Establish Clear Points of Contact
- ② Information sharing
- ③ Identify information needs
- ④ Feedback collection
- ⑤ Incorporate community input
- ⑥ Conflict resolution mechanism
- ⑦ Regular coordination meeting
- ⑧ Documentation and reporting



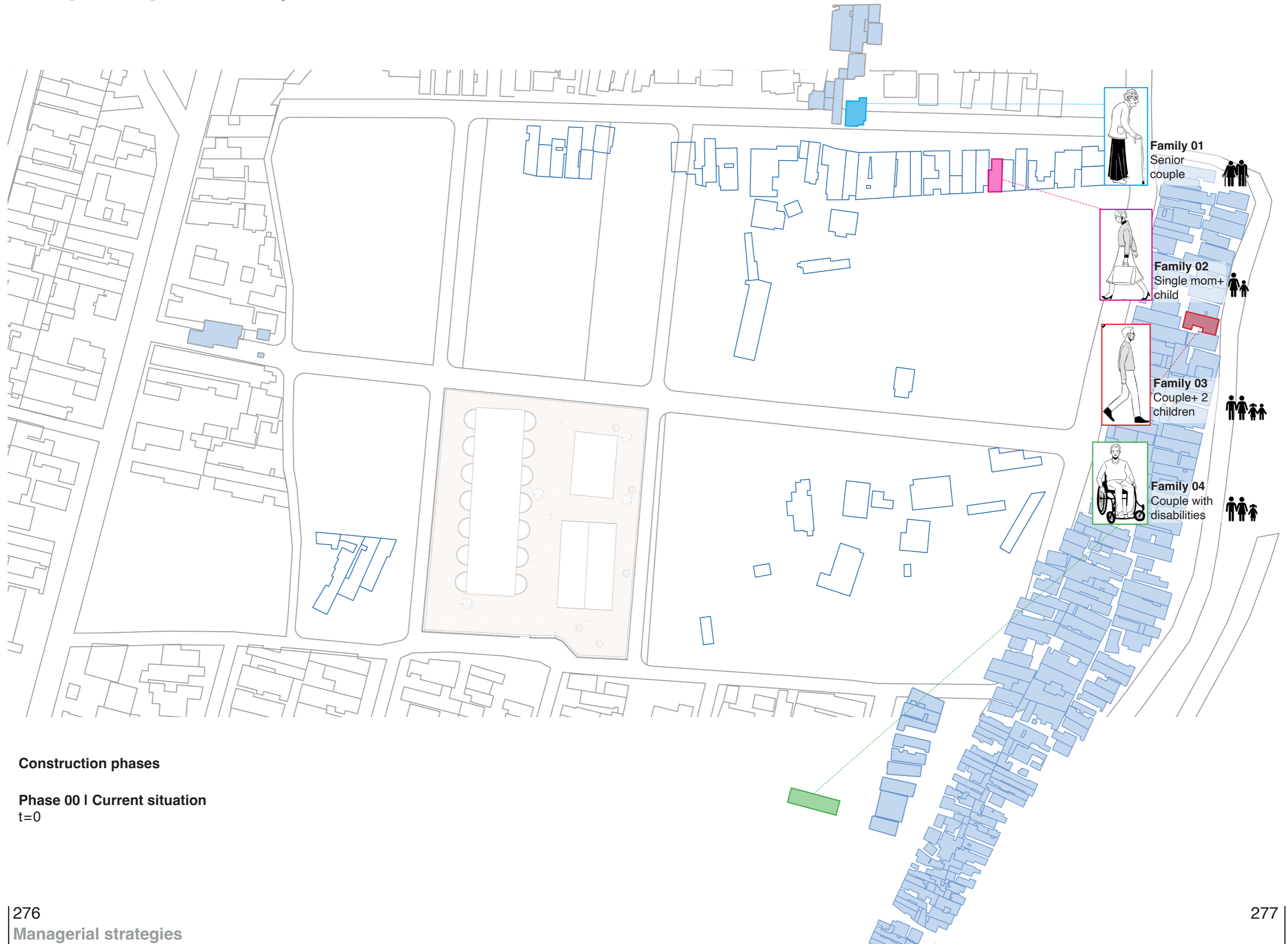
Information flow

Financial transaction

- ① Budgeting and funding allocation
- ② Monitoring and disbursement
- ③ Budget tracking and reporting
- ④ Financial assistance
- ⑤ Private sector funding
- ⑥ Subsidized housing payment
- ⑦ Cross-subsidy from future residents
- ⑧ Income-based rent return
- ⑨ Grants and revenue

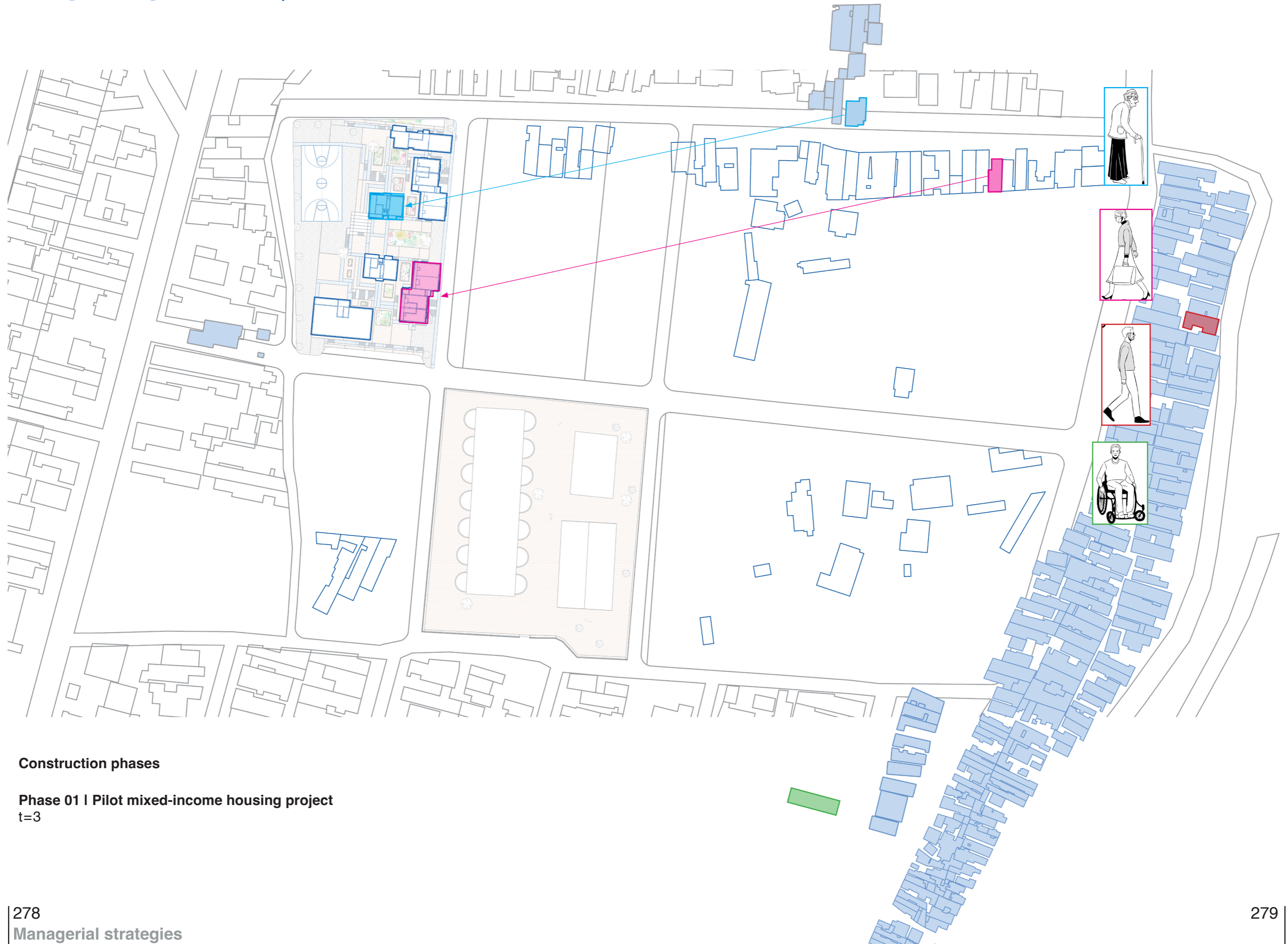






Construction phases

Phase 00 | Current situation
t=0



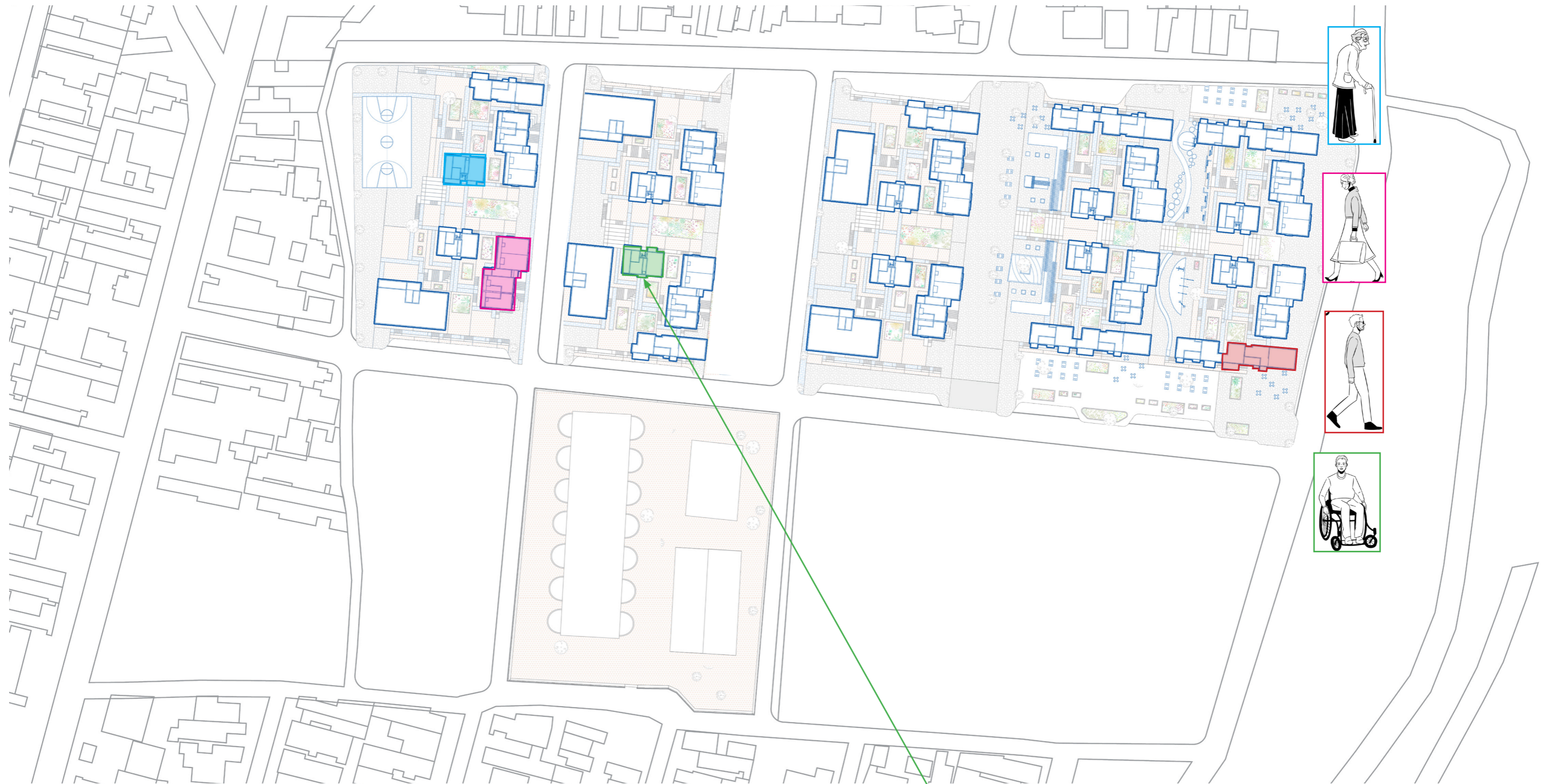
Construction phases

Phase 01 | Pilot mixed-income housing project
t=3



Construction phases

Phase 02 | Continued mixed-income housing
t=5



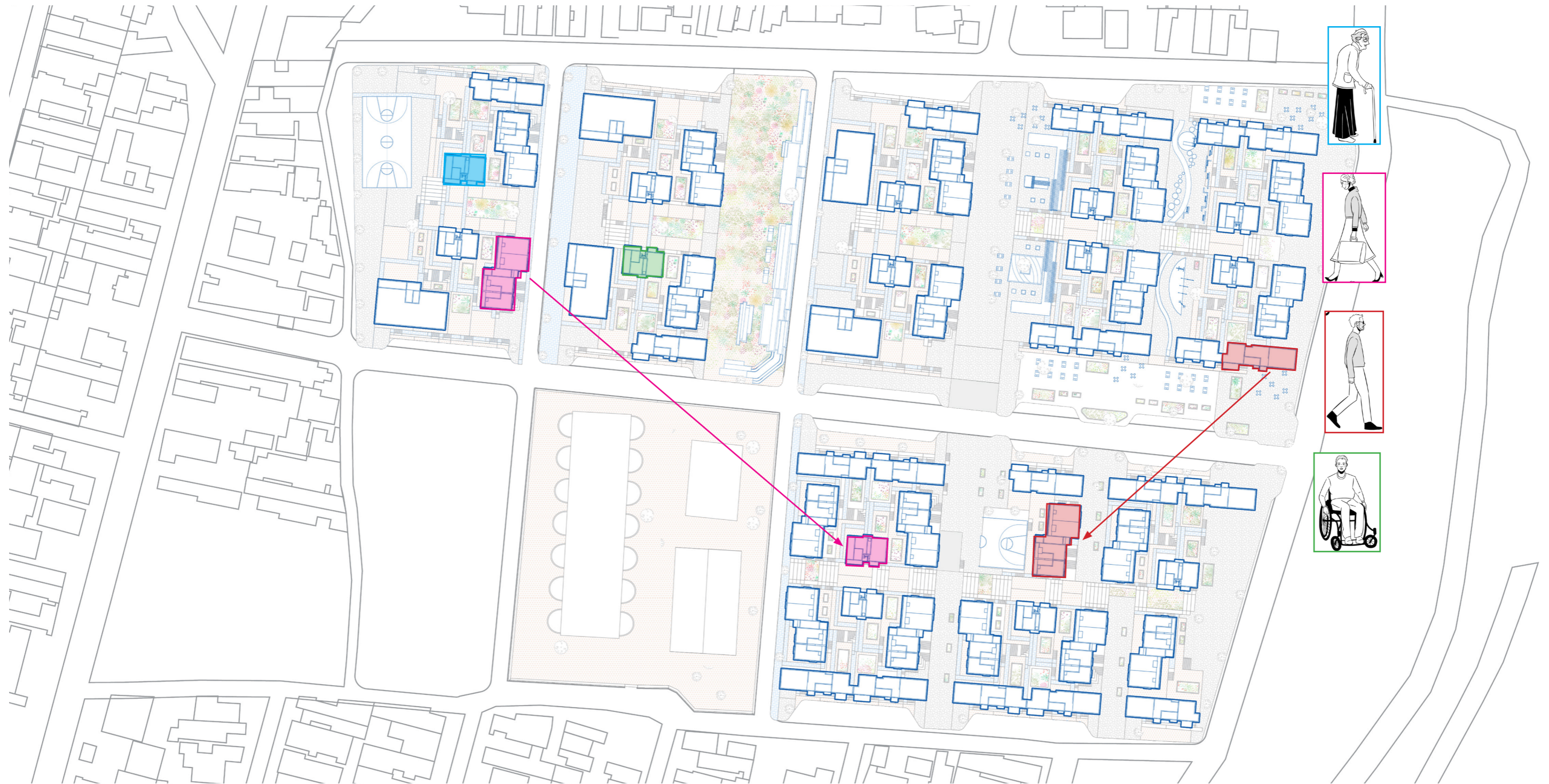
Construction phases

Phase 03 | High-quality mixed-income housing
t=8



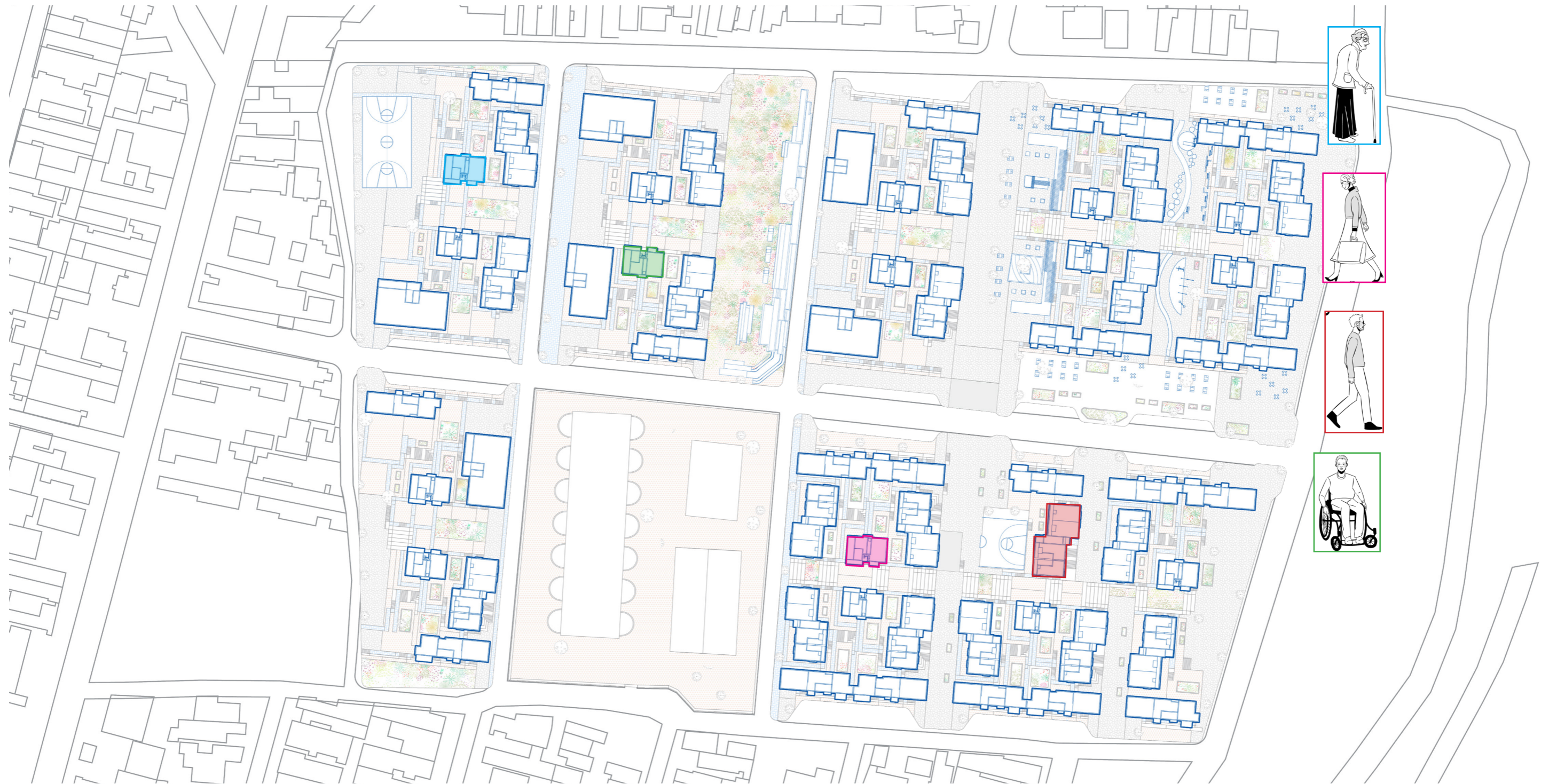
Construction phases

Phase 04 | Green axis
t=13



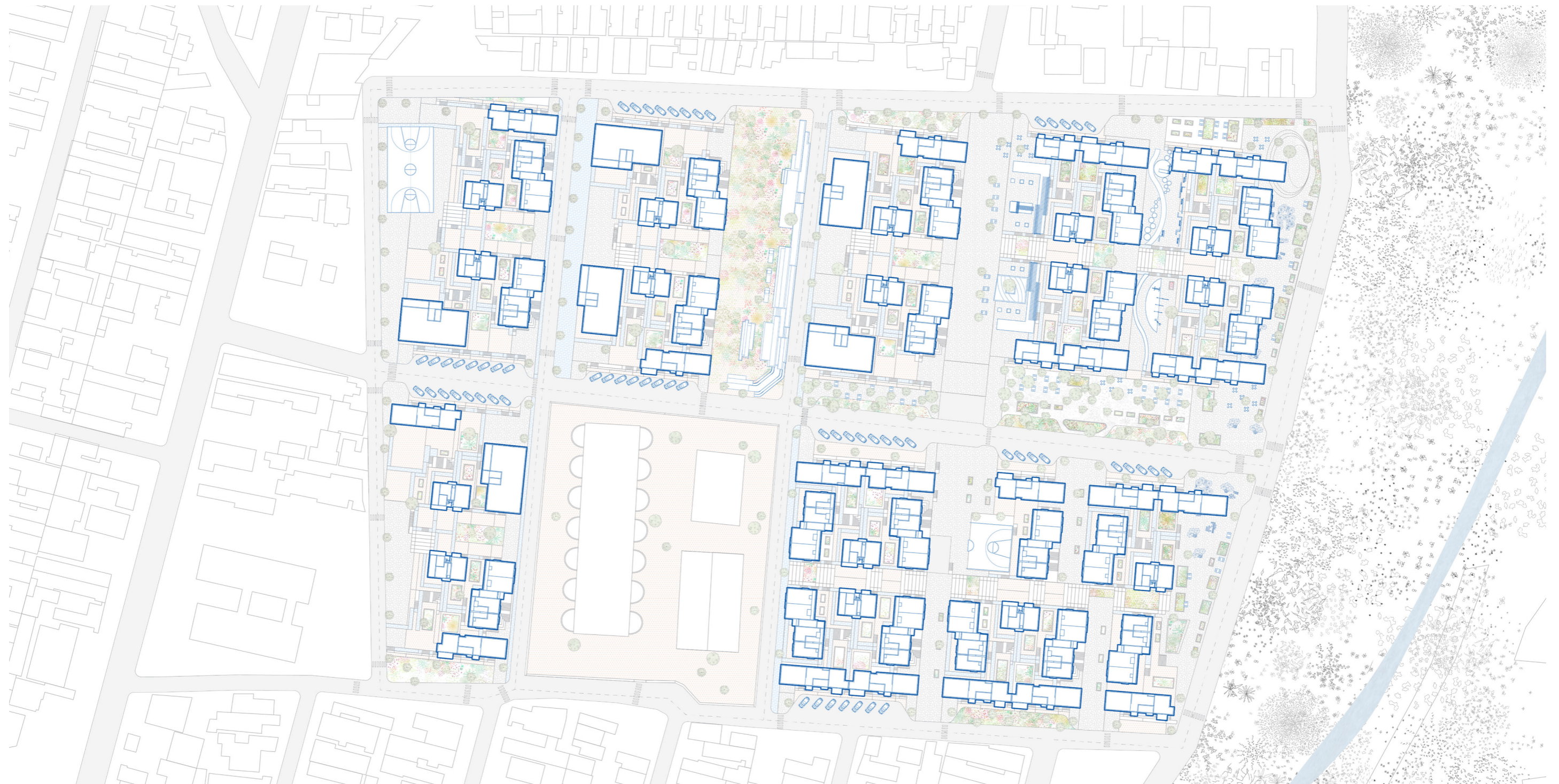
Construction phases

Phase 05 | Expansion of HIS housing
t=15



Construction phases

Phase 06 | Expansion of mixed-income housing
t=17



Construction phases

Phase 07 | Neighbourhood development
t=20



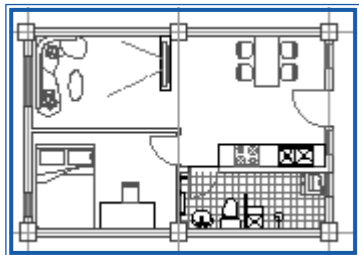
06 Synthesis



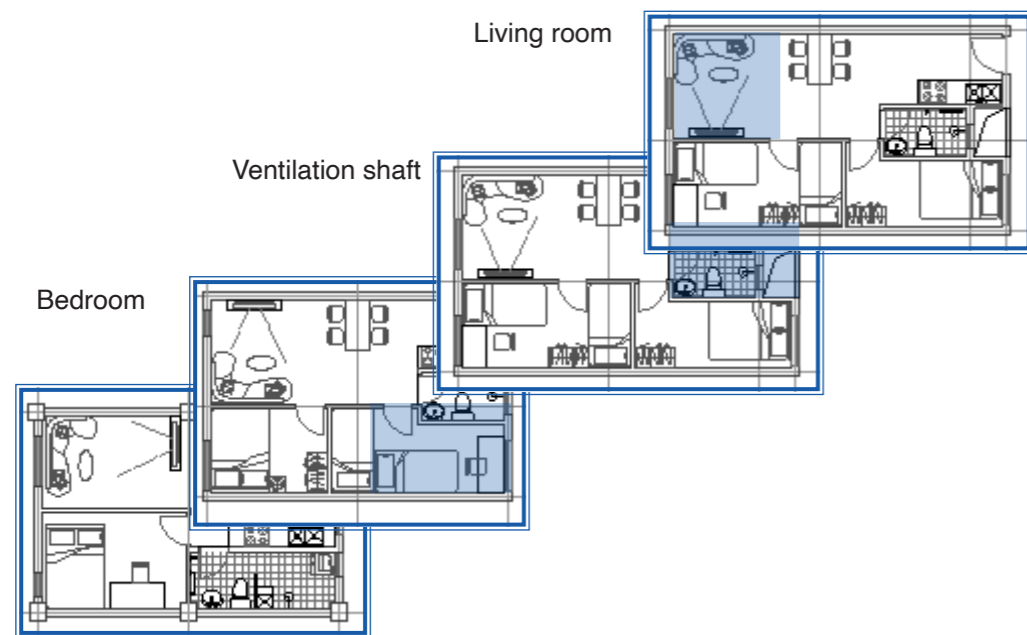
Architectural design



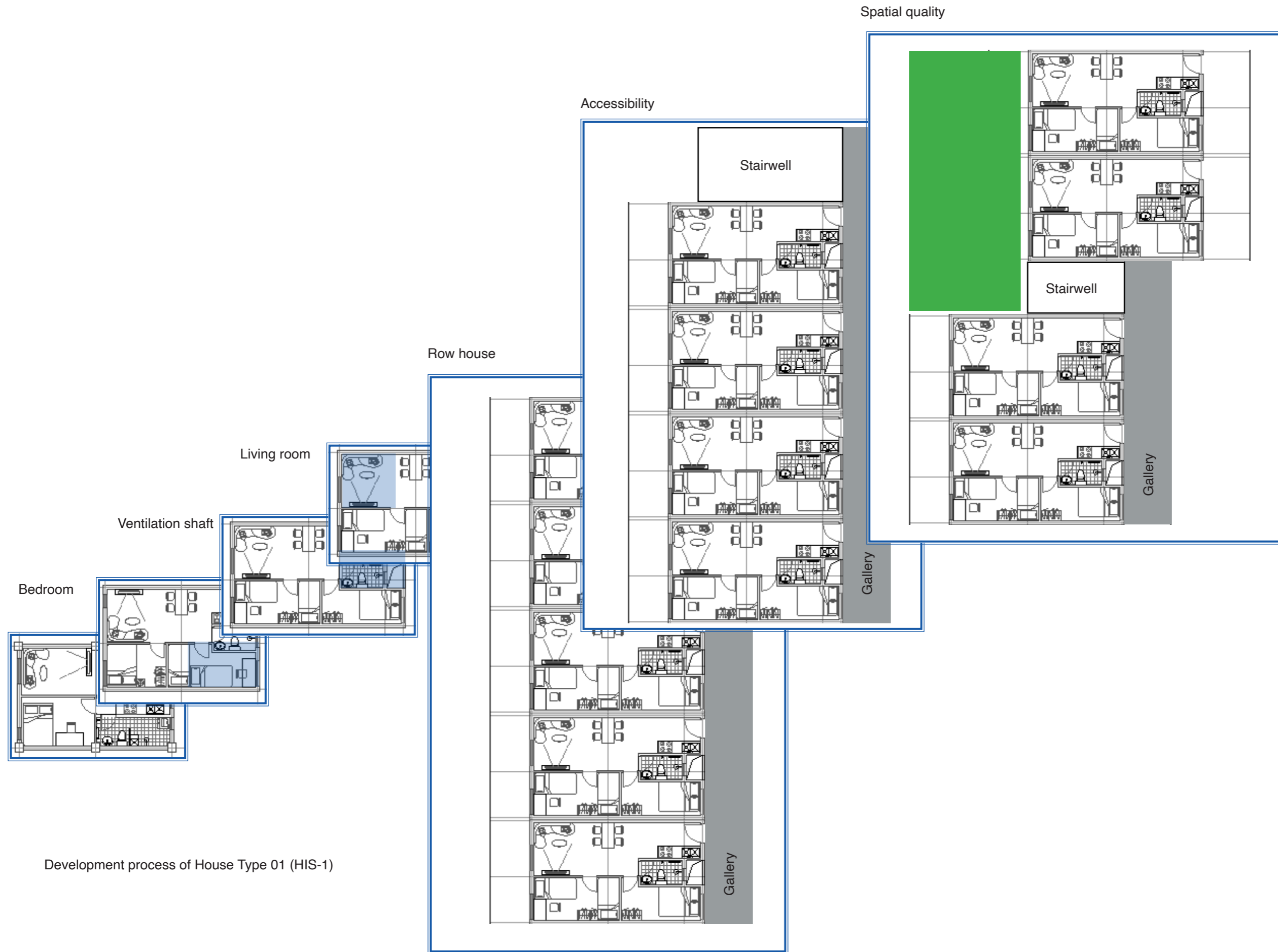
Urban design



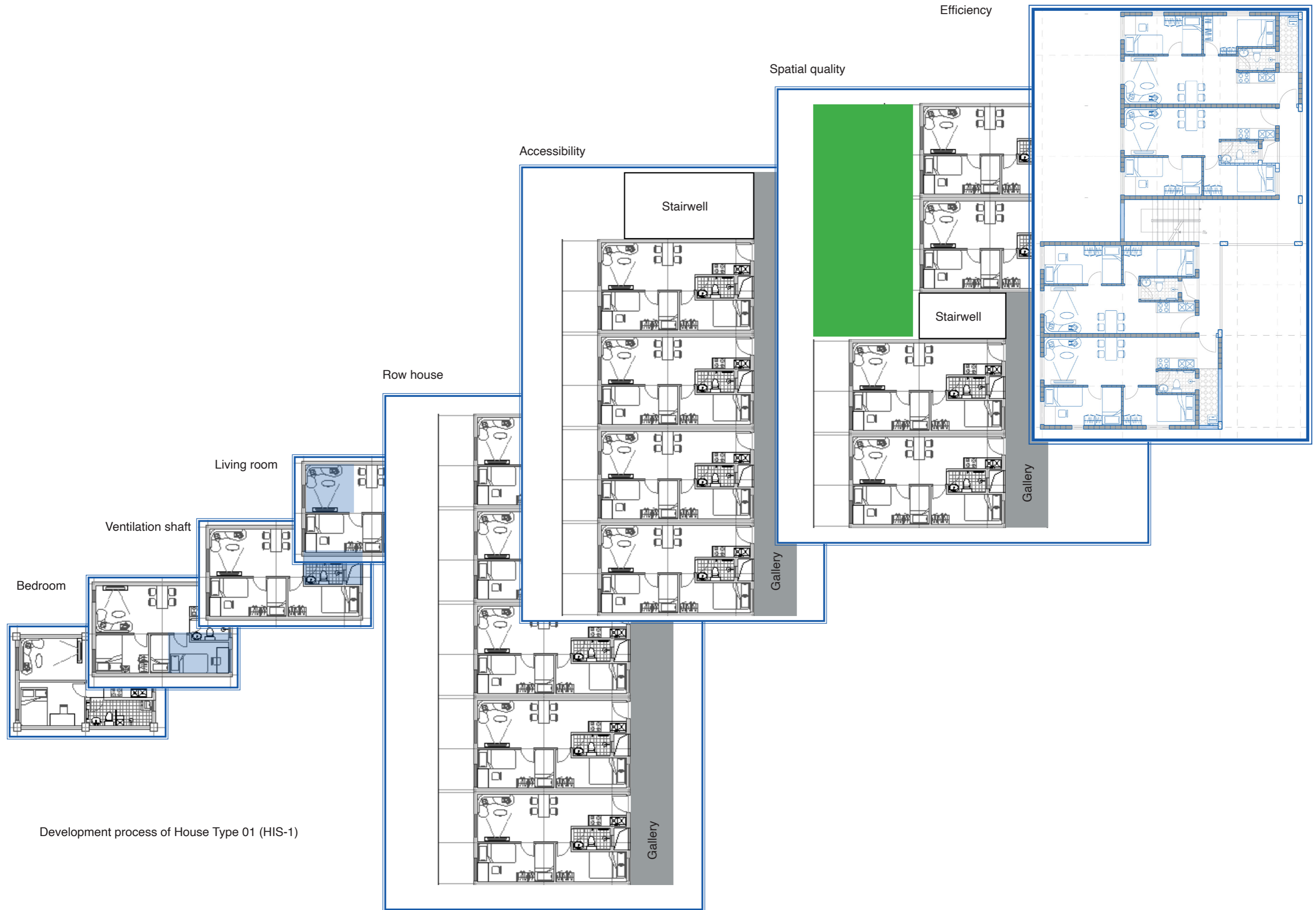
Development process of House Type 01 (HIS-1)



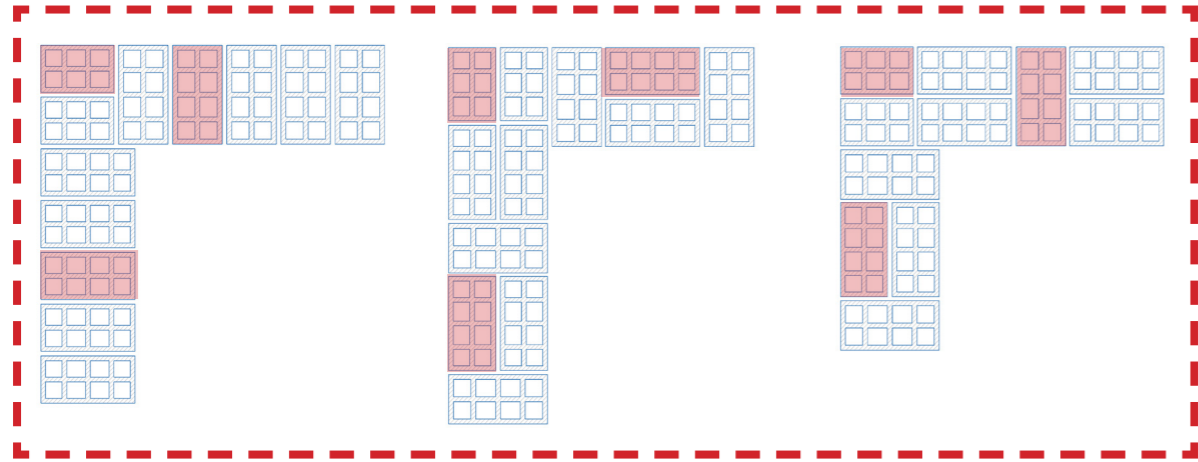
Development process of House Type 01 (HIS-1)



Development process of House Type 01 (HIS-1)



Development process of House Type 01 (HIS-1)



Masonry methods
梅花丁砌筑法



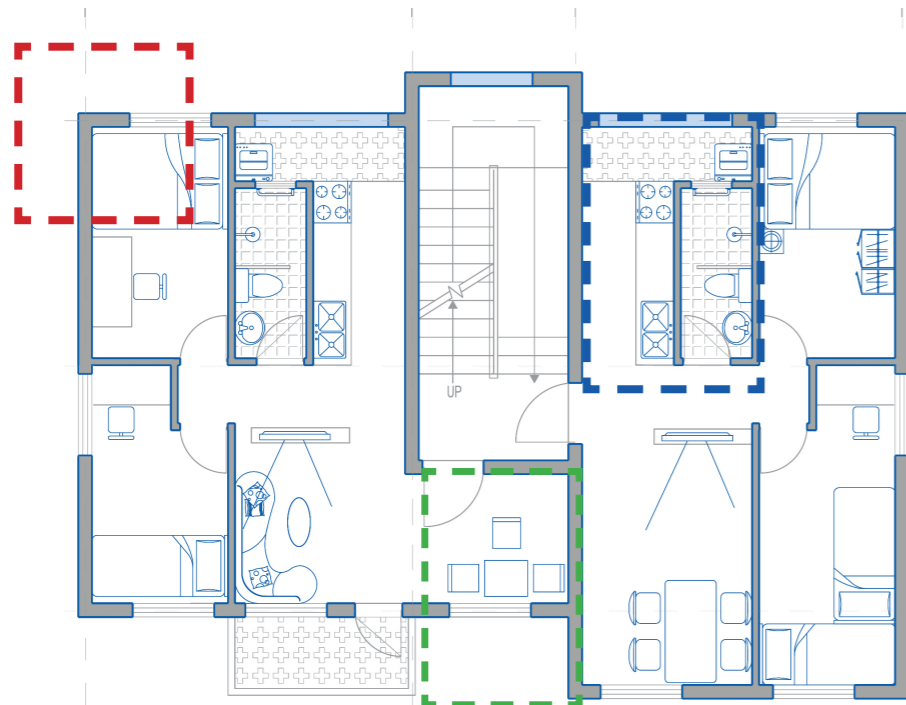
Layout



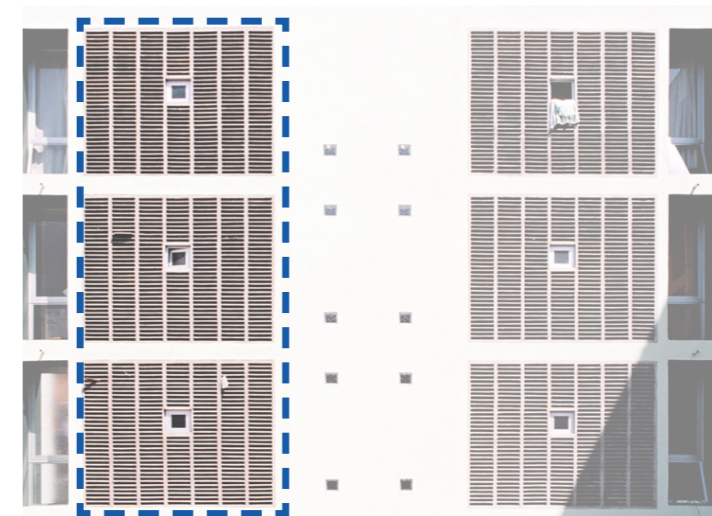
Jardim Vicentina Urbanization



Parque Novo Santo Amaro V



Spatial qualities
Ruimtelijke kwaliteiten



Gleba A

Facade
Fachada





