RECOMPOSING THE CITY'S FRAGMENTS OF ADDIS ABABA

Physical re-weaving of Addis from a social perspective

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Global Housing Graduation Studio:
Addis Ababa Living Lab

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Medellín Metrocable and northeast integral urban project
2003-2009

https://collection.cooperhewitt.org/objects/420778955/

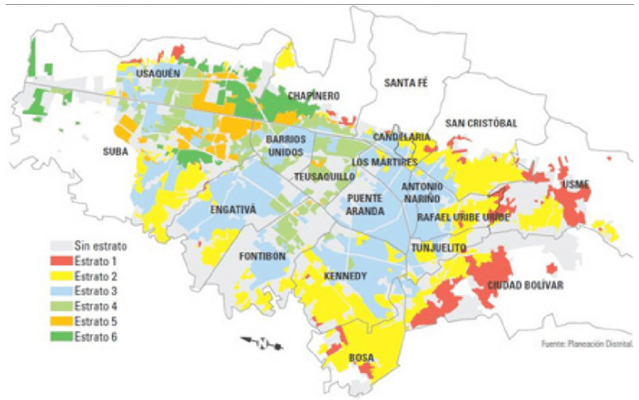
Physical aspects

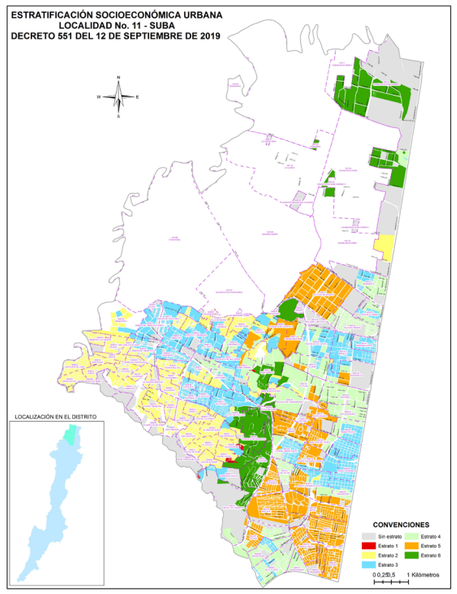
Social aspects

Study cases

Urban scheme

Suba, Subcity of Bogotá, Colombia





Not all the elements of the urban scheme have a positive impact in the living environment.In some cases they cause boundaries dividing lower and higher classes

Types of existing boundaries

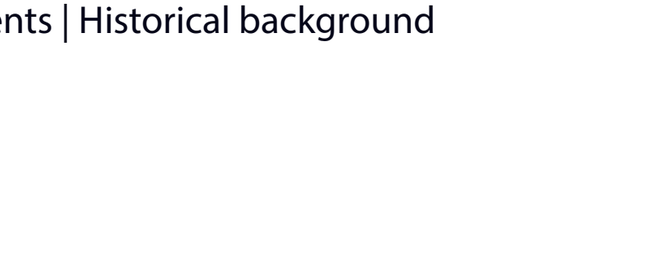
Hostile informal fences closing recreational facilities

Neglected green areas

Brick walls

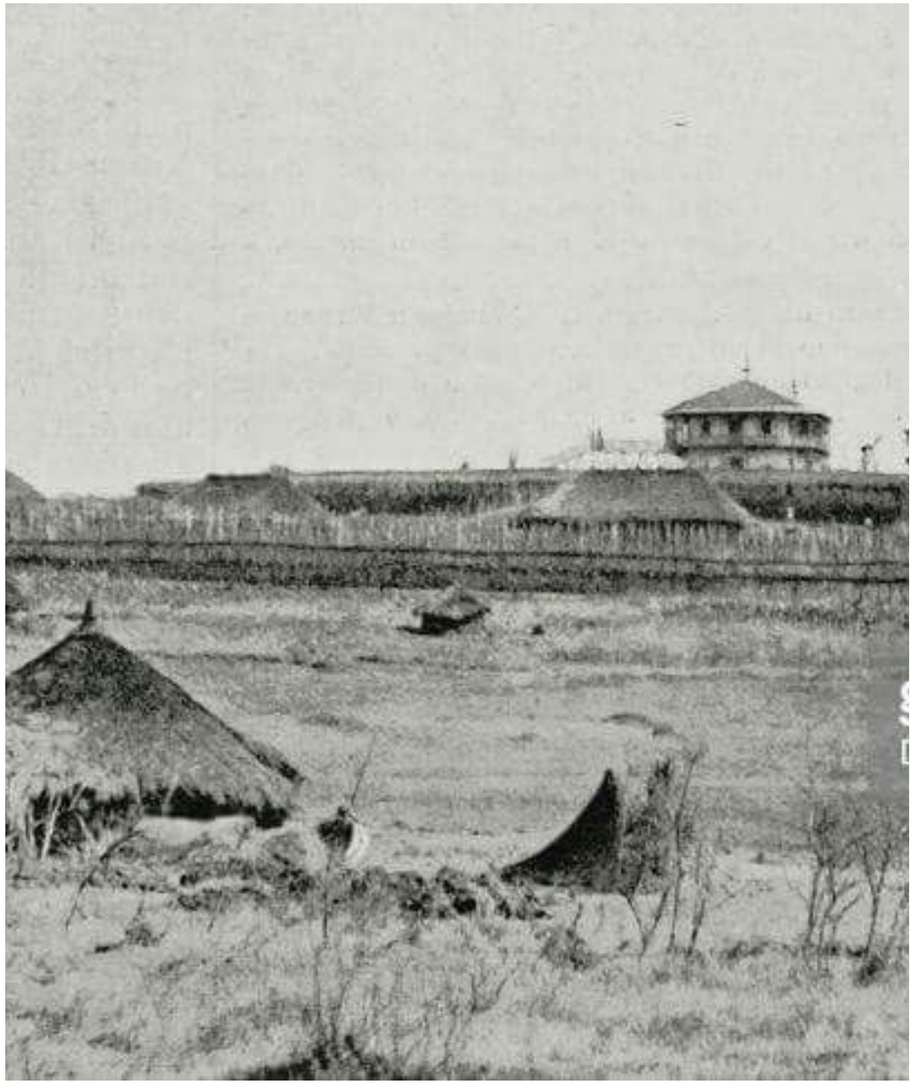
Lack of road pavement and trunk

Green areas and pedestrian paths vs lack of pedestrian paths



Traditional territories in vertical space

by understanding these social tensions I look back into the history of the foundation of Addis to highlight the spontanous mixture of the social hierarchy in the stablished settlements surrouinding the Gebbi, resulting decades after in a coexistence and acceptance for whom live next door.



View of Ghebbi and the Imperial Palace.
Photograph: L. Traversi. 1897

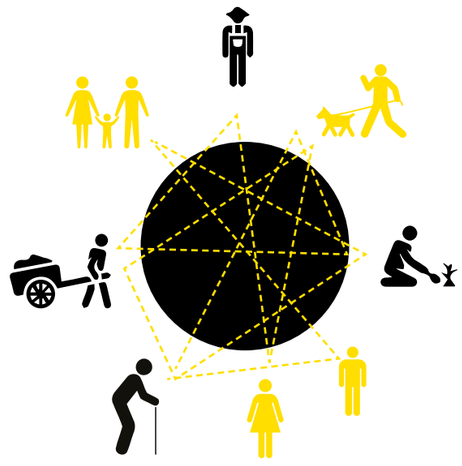
so, the proposal attempts to provide a solution to the existent shortcomings in kolfe but also pointing out the valuable features of the spontanous urban layout.

In that sense, I define the following principles for the urban design:

the identity, by conserving the existing roads and the main public space as part of the collective memory

Giving continuity to the existent paths and connect them to the surrounded neighborhoods

Consolidate the neighborhood as a hub of micro-economies, enhancing the standard of living of the residents



Mix of income groups as an attempt to reduce inequality

Current situation

357 plots

650 Households

FSI 0.5

Low -rise height

Proposal

1251- 1321 units

FSI 1.4

Mid- high rise

Existing facilities

Christian Orthodox Church

Elmentary schools

Park- included football pitch

Proposed facilities

Playground

Urban agriculture

Cultural center

Social program- education

Commercial activities

Entertainment | communal screen

Therefore, the new urban scheme is a mid-rise model that aims to explore different forms of clusters where the comunal spaces prevail and are perceived in a unique way, cutting off the monolitic model of the new condominiums, by providing experiences

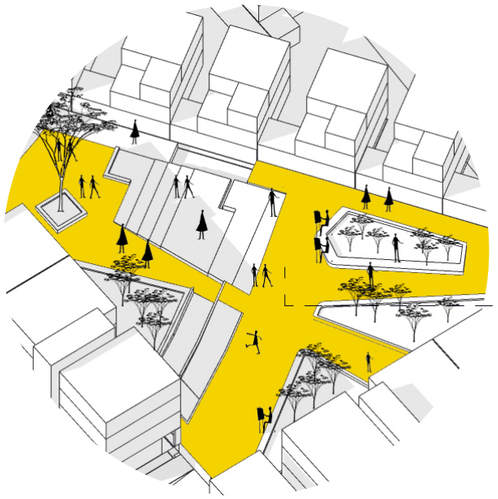
5.3 Main “Common spaces”

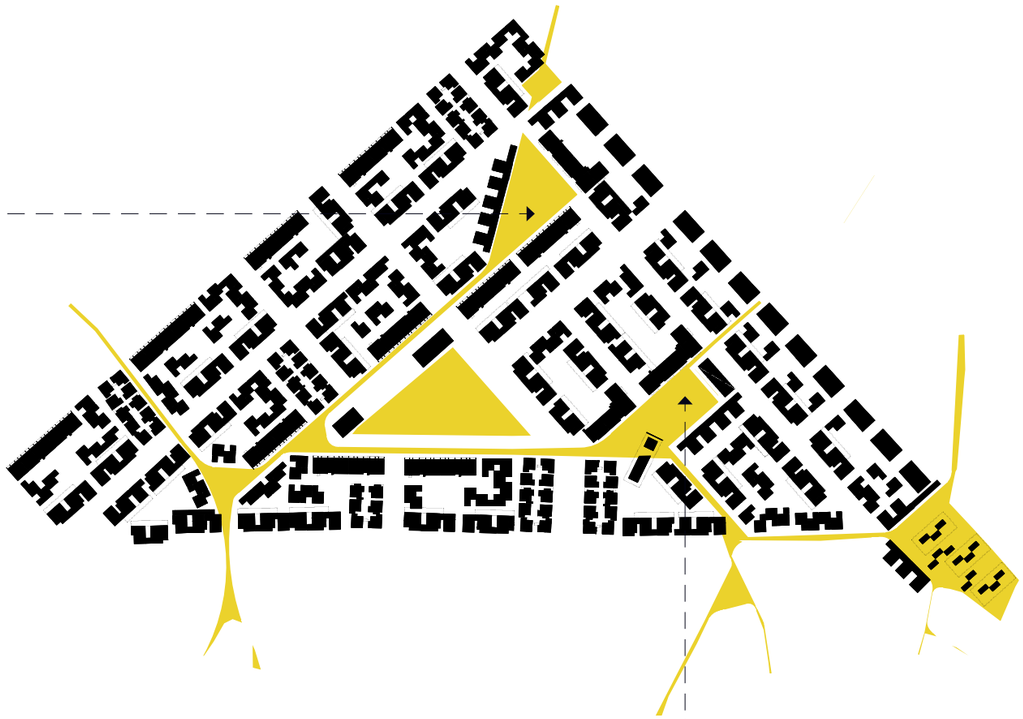
The structure of the urban scheme is very simple as its defined by the existing public space located in the center.

Then, 2 other main common spaces are proposed with different characters as an attempt to humanize the pubic space as Germán Smaper points out.

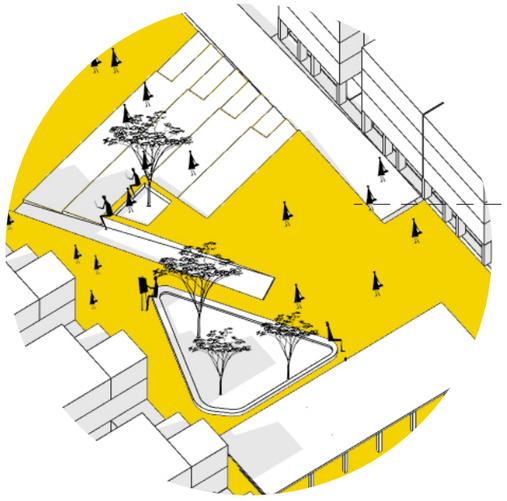
The tension among these 3 spaces suggests a main connection, while emphasizing the connection from edge to edge of those points that use and experience have characterized the daily

Commercial square

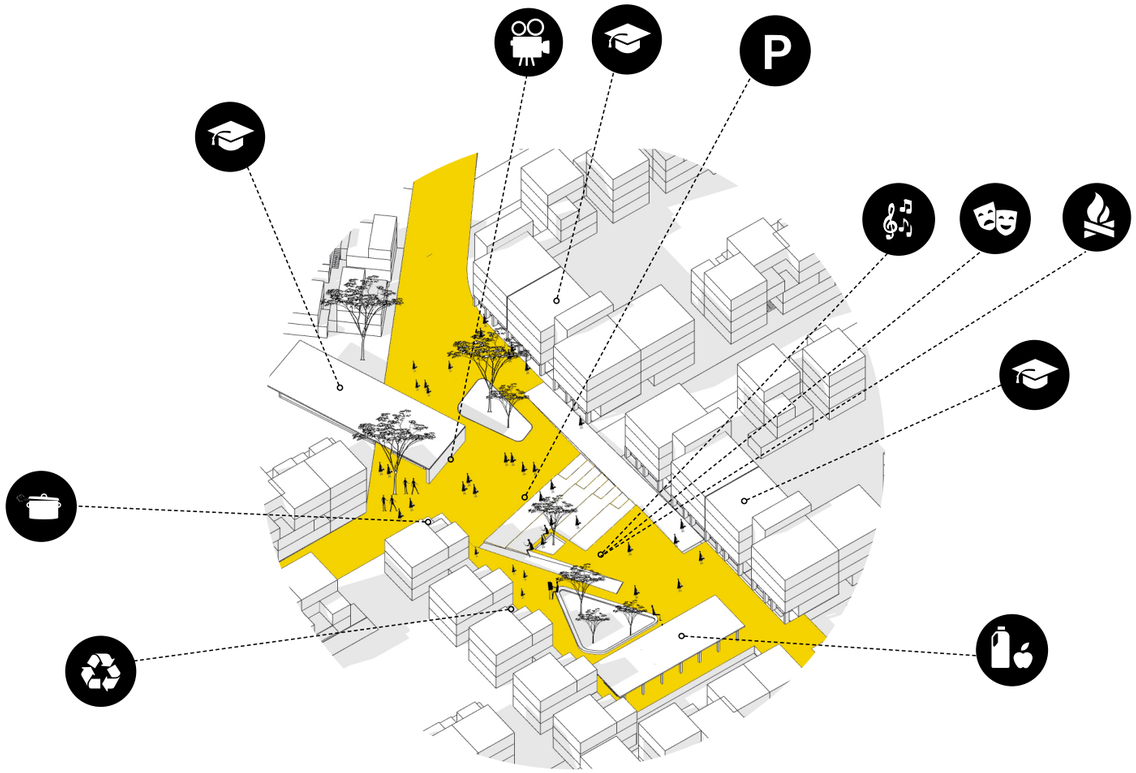




Educational public space



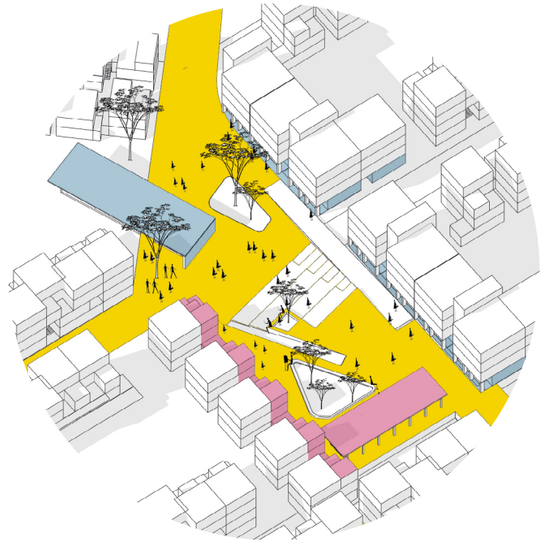
Educational public space



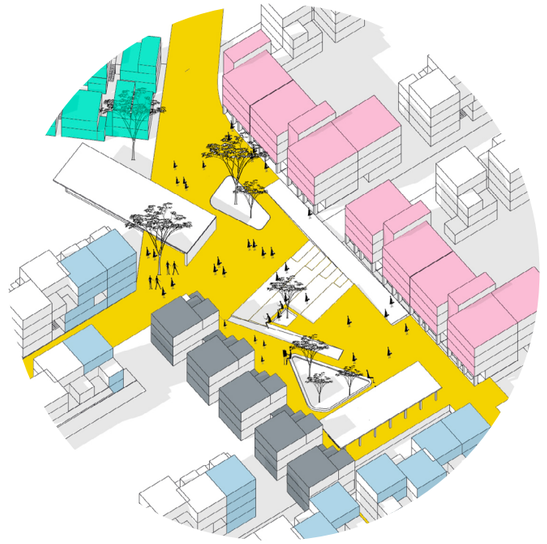
Activation of the common areas

Theoretical areas- grey
Practical areas- pink

Relation with the ground floor



Space for social cohesion



Portico typology (middle income)- pink
L typology (low income)- blue
Commercial typology (low income)- dark blue
Productive units (lowest income) - green

An on-going neighborhood

Border intervention

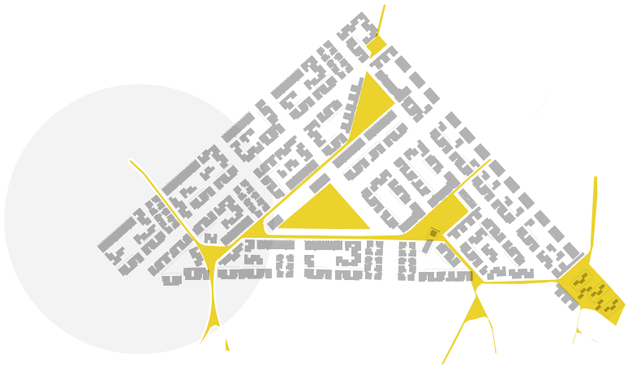
5.4 Road network

I

The road network is defined by pedestrian flows. There is a shift in the hierarchy of

II

Main common spaces are inter connected but also remak the traces of daily

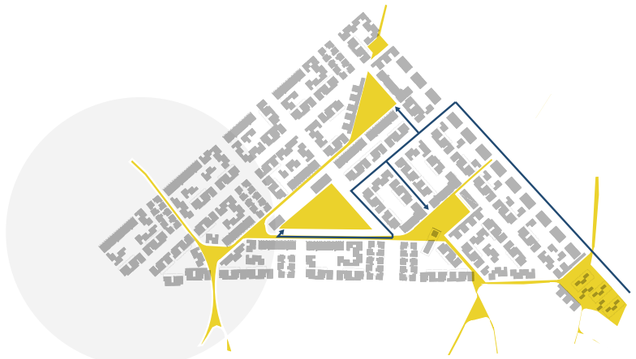


III

Car roads
The peripheral road distributes the local ones

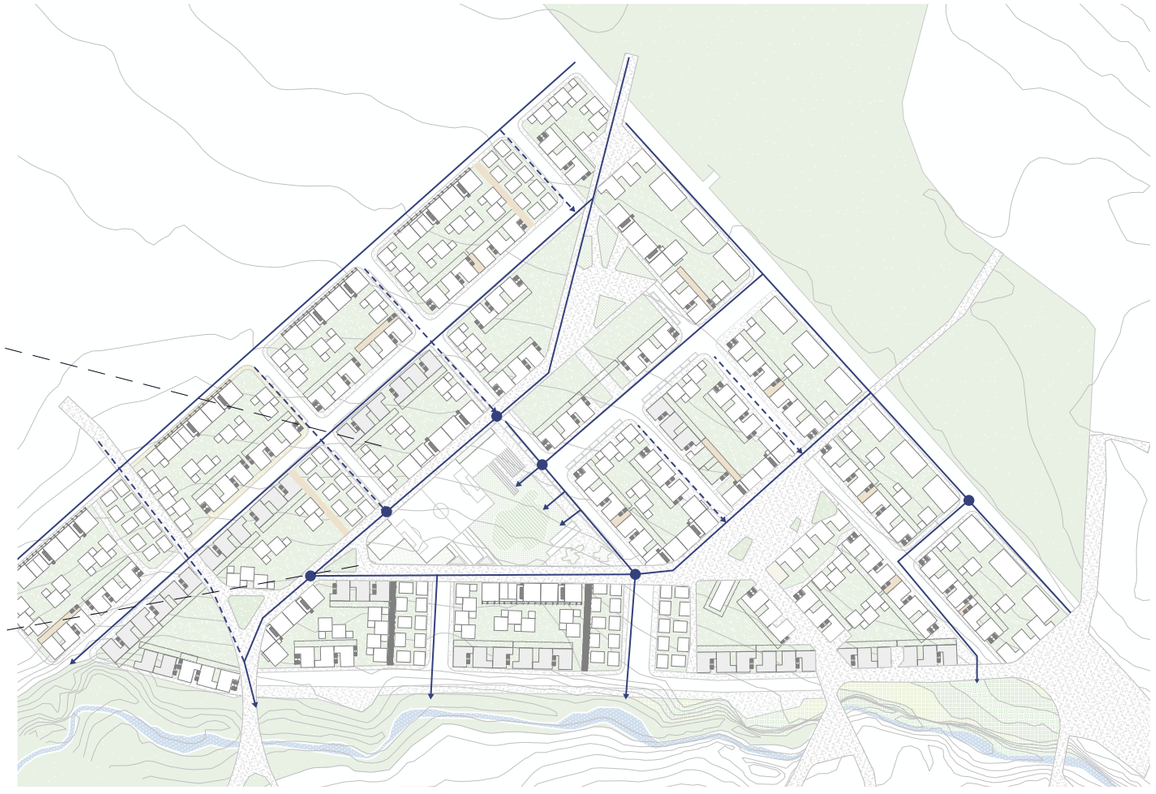
IV

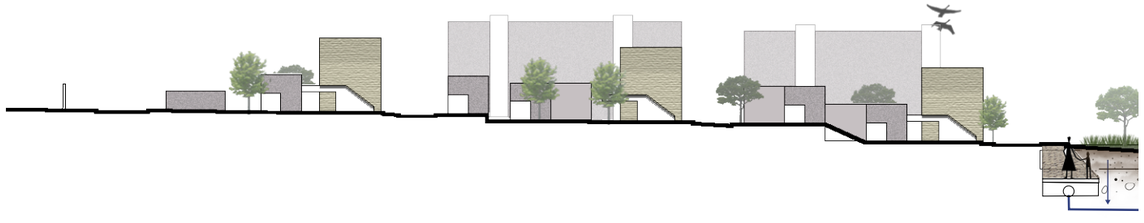
Parking route



5.6 **Wadi system | Water management**

In the proposal, at the neighborhood scale, and taking the topography slope in consideration, the excess of rainwater is collected in a subsurface infiltration layer and transported through a porous layer (gravel, clay granules, stones) to the groundwater. The bottom is wrapped in geotextile to prevent clogging. Finally, the groundwater runoffs in the collective harvests located along the stream and may be used for irrigation.





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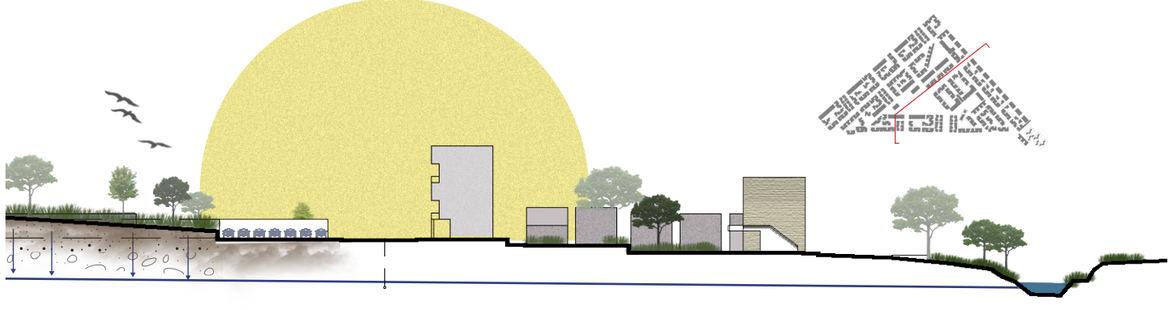


Park

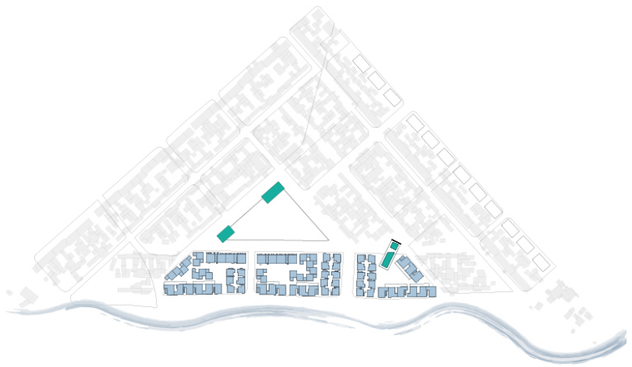
Commercial street

Urban agriculture

5.7 Phasing

Phase I

Preventing the risk of overfloodings, the first area to get intervened is the one along the stream. Here, the closer area to the water front, the more vulnerable and degraded is the area.



Phase II

Then, the intervention takes the furthest area from the vehicular access taking into consideration all the construction process

Phase III

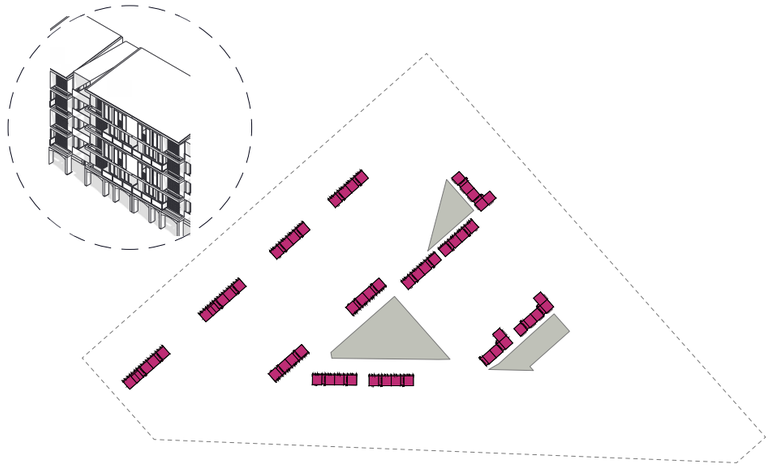
The second underground parking is built as well as its top level

Phase III

Finally, the closest area to the main road is intervened and it is built the last phase of parking.

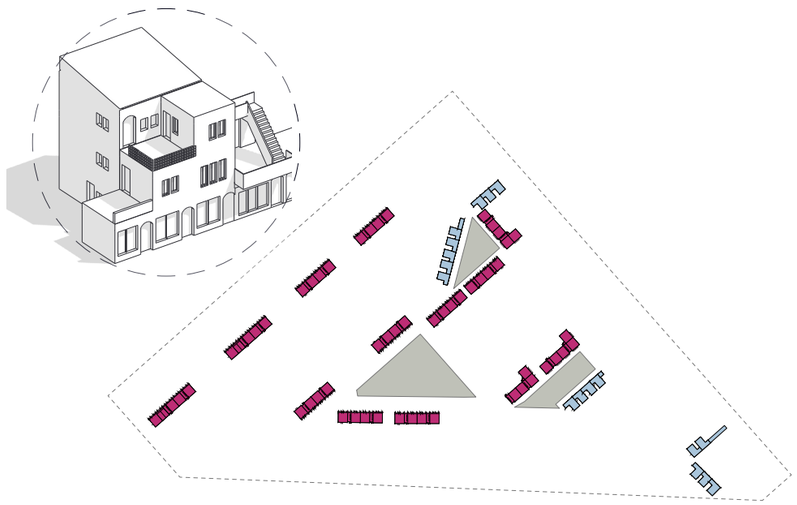
5.8 Distribution of the income groups

I Portico building



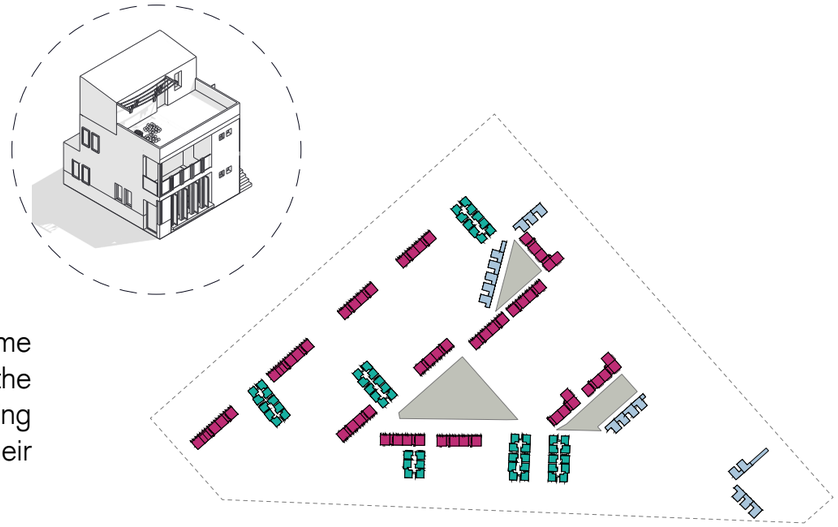
The criteria to distribute the income groups was based on different aspects though those with public uses such as service facilities, commercial areas, or educational porpuses on their ground floor defiend

II The commercial units



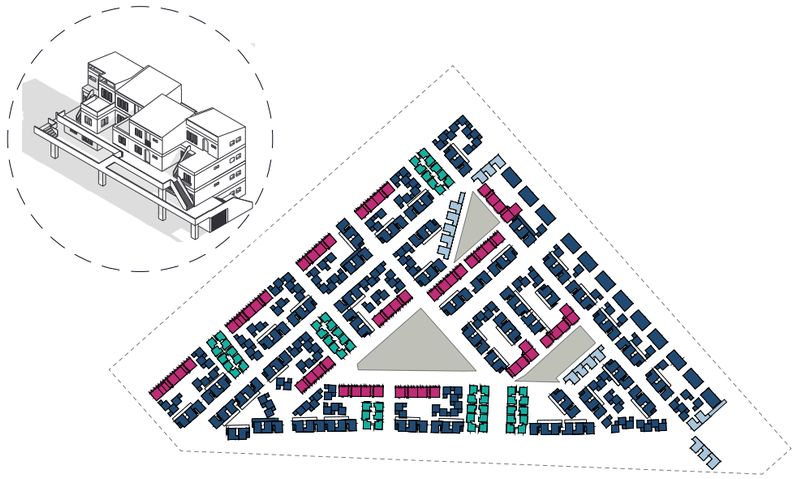
As its name indicate, the commercial units which are part of the low income group also define the configuration of the

III Productive units



The lowest income group is located near the common spaces enabling informal sales from their homes.

IV. Low- income

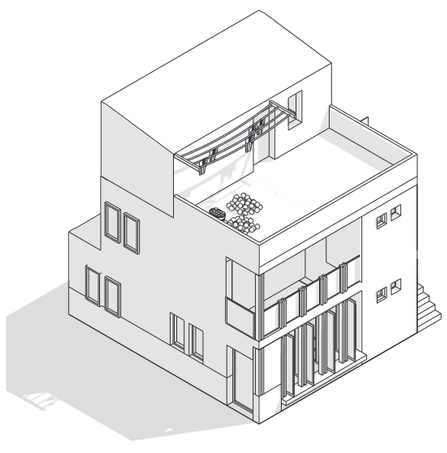


This group fills the rest of the area, drawing special attention to cluster them in such a waty that

6.1 Managerial proposal

Having access to home ownership in the global south " reflects the popular view that money spent on rent is money lost outside the family. Because of this, modest families will make considerable sacrifices to purchase a small house or lot".

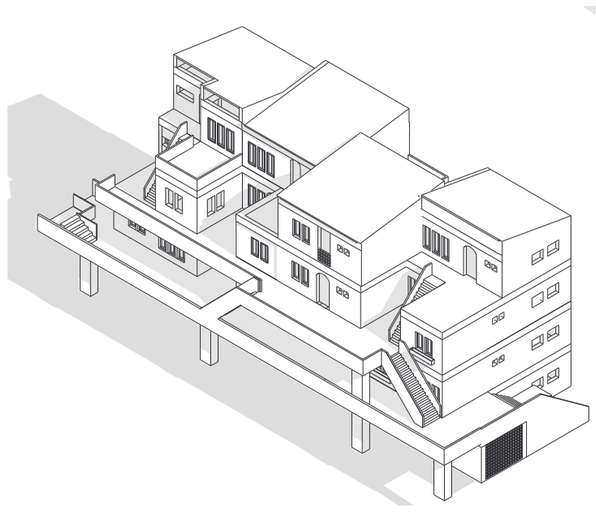
Peter Land (p57, PREVI, the Experimental Housing Project)



Productive units typology

-Self- build housing program

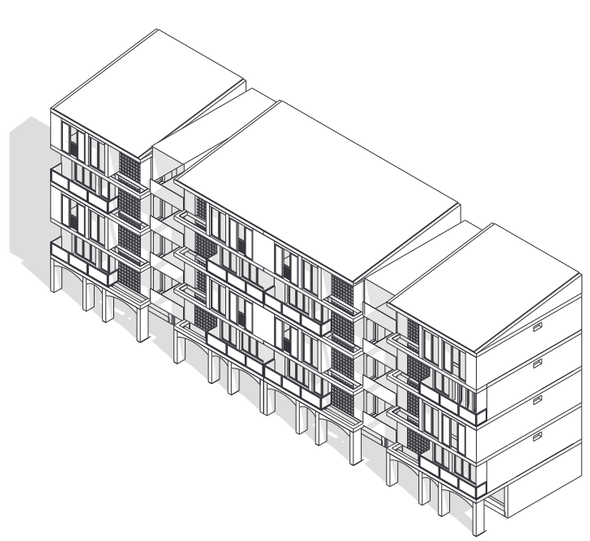
- Individuals may build their own home under certain guidelines given by supervisors and the architecture team. They get trained and develop skills. Formalize jobs



The L typology

-Rent to own

- Individuals may have access to bank mortages and low interest rates



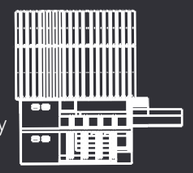
Portico typology

-Ownership
- Cross subsidy

Original unit

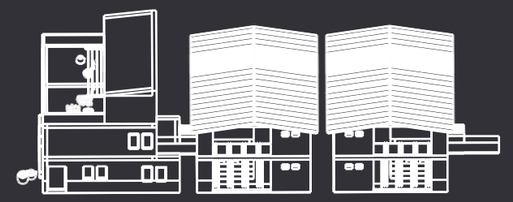
Productive unit typology

Lowest - income typology



Expanded unit

Clusters

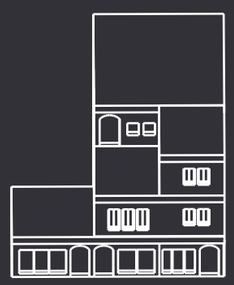


Low-rise units

(Low-income typology)

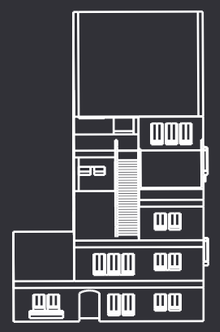
Commercial units

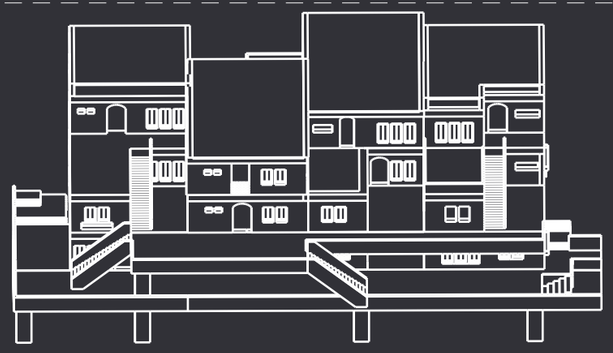
(Low-income typology)



L typology

(Low-income typology)

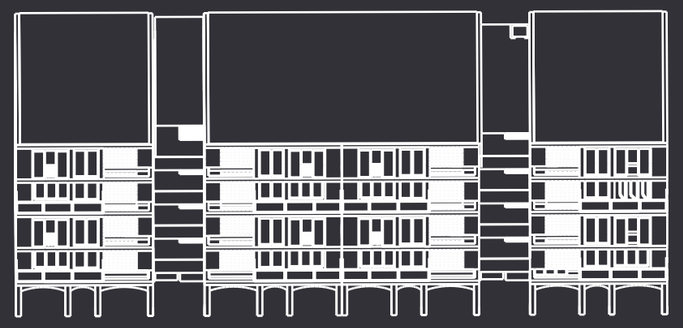




Portico typology

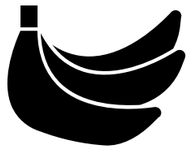
(Middle-income typology)

.....These long- term family projects become a disciplining principle for how money should be spent over the years.The collective efforts are a source, moreover, of family pride and self - respect".
Teresa Caldeira (p 98)

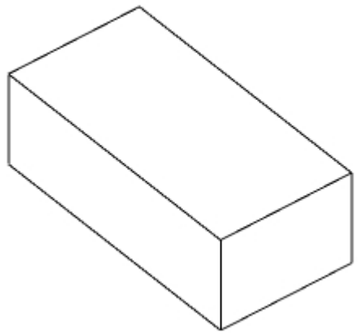


Compressed stabilized earth blocks
CSEB

Material chosen over adobe bricks because adobe does not contain portland cement, which reduces the durability and strength of the blocks.



Banana fibers - 5%



26 x 14 x 9 cm

Centrer For Earth Architecture. Francis Kere in Mopti, Mali.

Advantages

- High performance in compressive strength
-Thermal insulation
-Durability- efficiency and reduce of costs in future
- Low cost in production and low skilled trained workers
- Uses low quantities of cement, reducing costs

Some of its benefits are:

- Environmental- using of waste
-Works as structural reinforcement
- Low density and light weight
- High tensile strengh
- Water repellent
- Fire resistant

Source: http://eartharchitecture.org/?tag=compressed-earth-block

Fly ash bricks

Fly ash bricks are made by clay and fly ash- a product of coal burning. **Water repellent**. It is optimal for structural purposes. It may be lighter in weight than clay and concrete bricks.

In the project I use them in the service modules which includes the bathroom and kitchen in infill walls to reduce the risk of moisture.

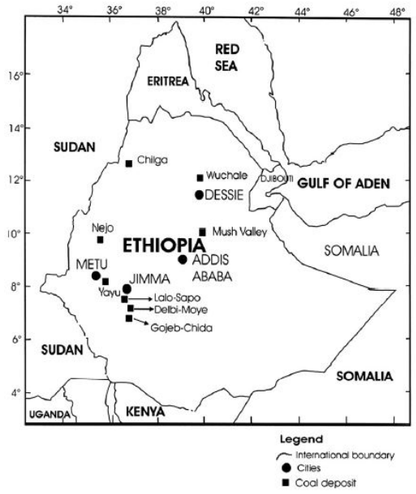
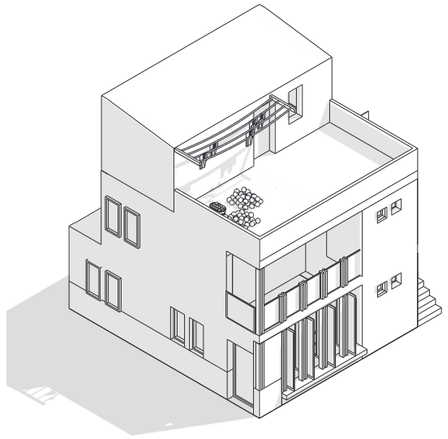


Fig. 1. Location map of coal deposits of Ethiopia.

Location of coal deposits in Ethiopia

Fly ash manufacturing

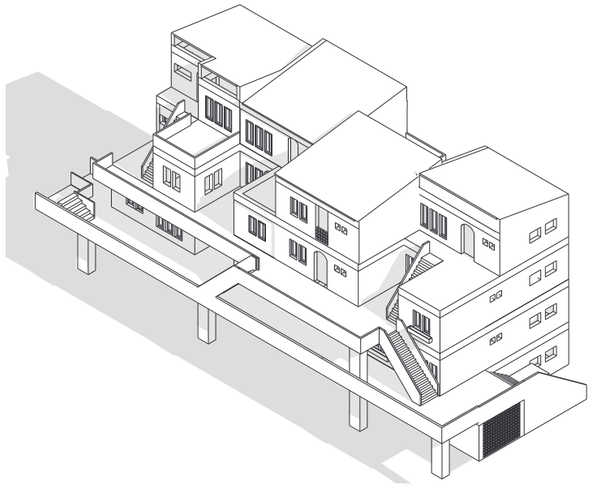
Materialities



Structure: CSEB Load bearing walls
Beam ring: Concrete beam
Flooring: Concrete joists separated every 80 cm
Infill walls: CSEB

Non structural:
Service module (bathroom and kitchen): fly ash bricks

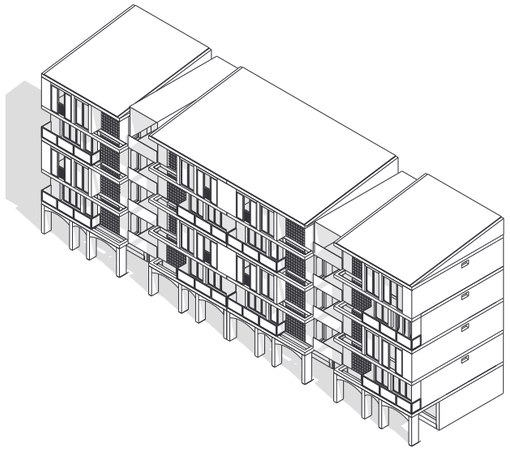
Veranda: bamboo
Louvers: bamboo fibers



Structure: CSEB Load bearing walls
Beam ring: Concrete beam
Flooring: Concrete ribbed slab with joists separated every 80 cm
Infill walls: CSEB
Gallery columns: concrete

Non structural:
Service module (bathroom and kitchen): fly ash bricks

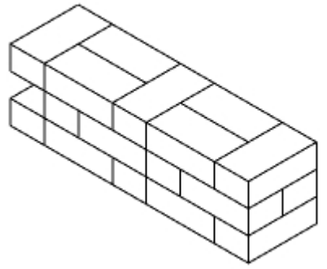
Note: All 3 low-income typologies have the same structural system.



Structure: concrete columns for greater flexibility on ground floor use + dual walls for stability

Flooring: Concrete Ribbed slab
Flooring: Concrete joists separated every 90 cm
Infill walls: CSEB

Non structural:
Service module (bathroom and kitchen): fly ash bricks
Louvers' facade: bamboo fibers + galvanized black steel frame



Load bearing walls

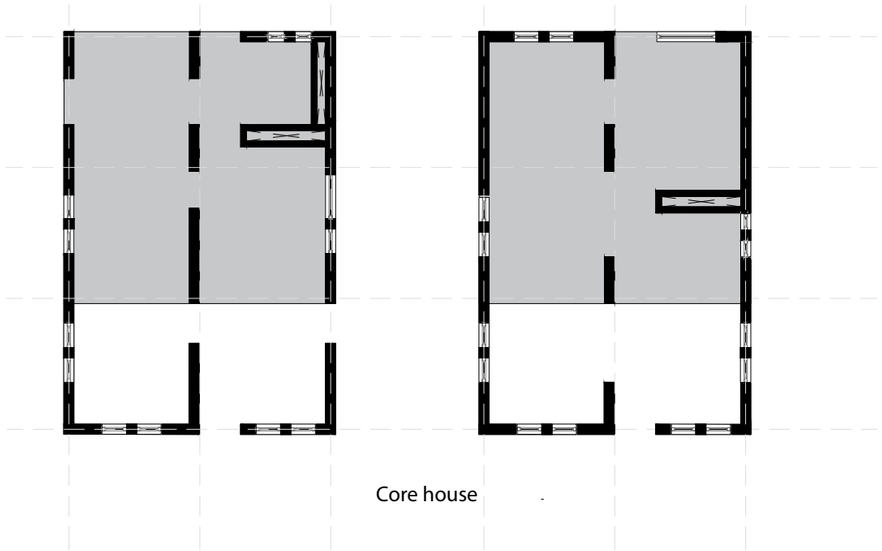
Flemish bond

Infill walls
Rat trap bond

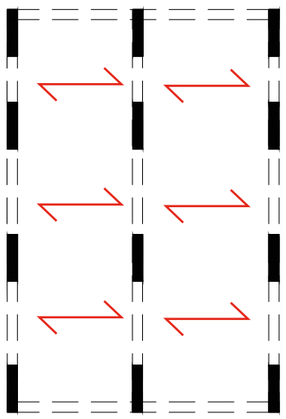
Requires 25% less bricks,, therefore lighter and the electrical cables are hidden inside walls

Structure

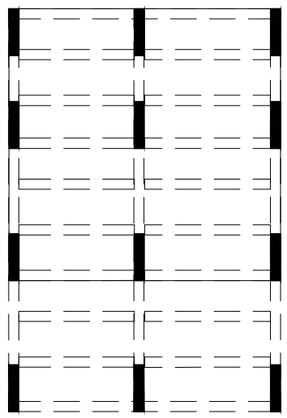
L typology



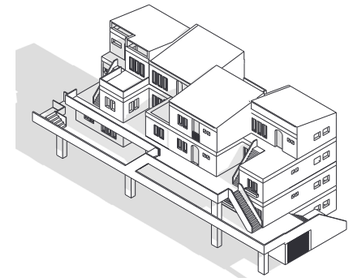
Core house

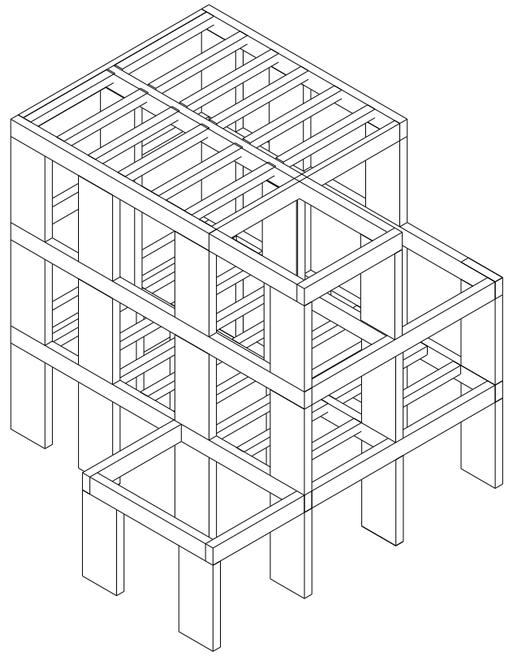


Floor span



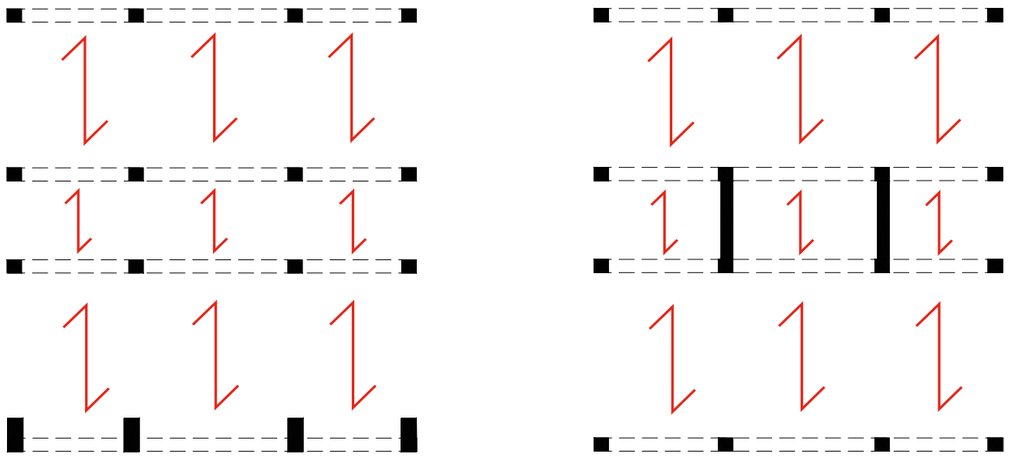
Structural system

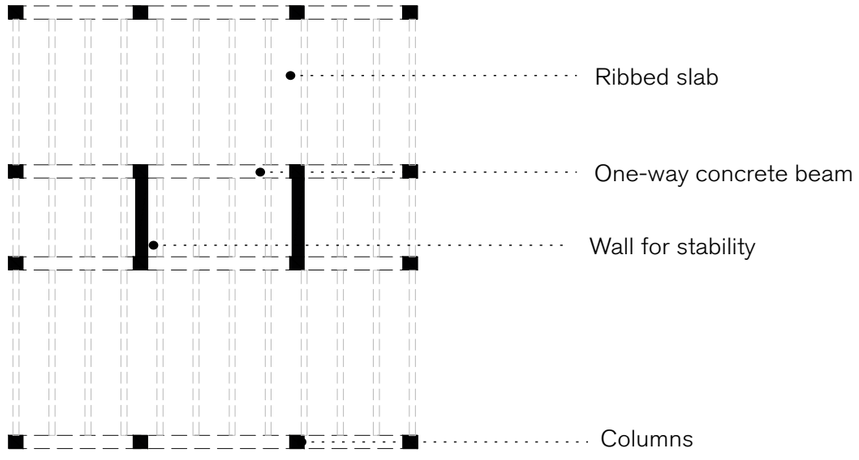


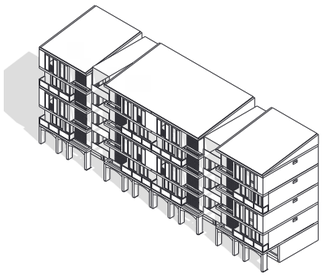


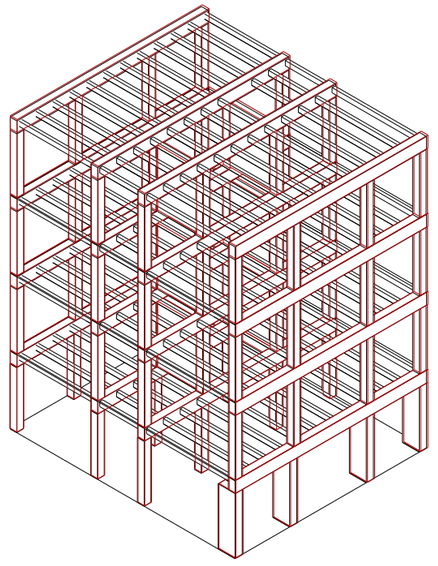
Structural system with expansions

Portico typology



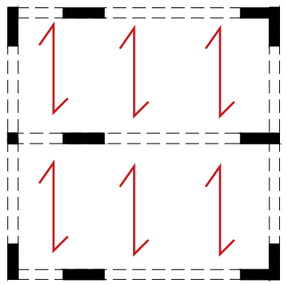




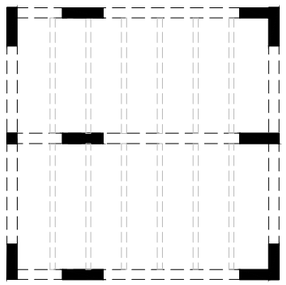


Structural system with expansions

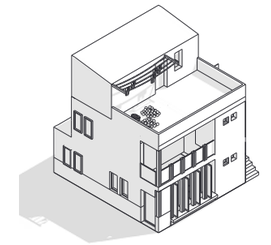
Productive units typology

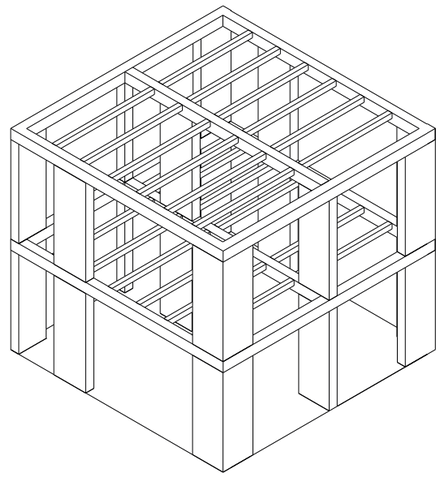


Shear load diagram

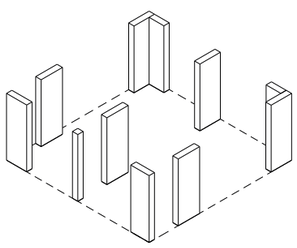


Structural system

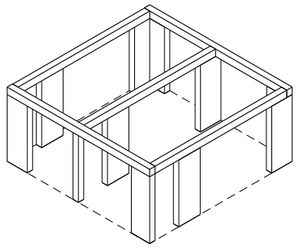




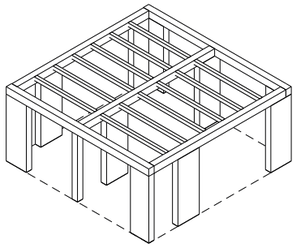
Structural system with expansions



CEB Load bearing walls



Concrete ring beam



Ribbed slab

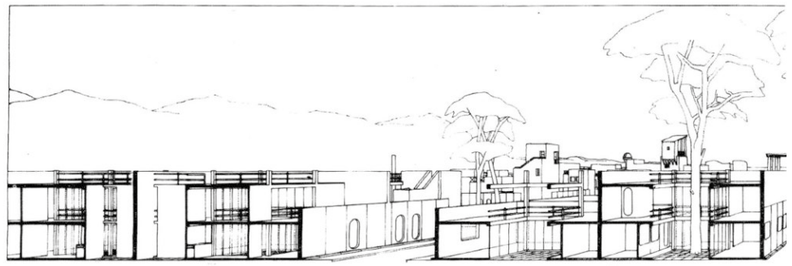
PREVI
International Competition
Lima

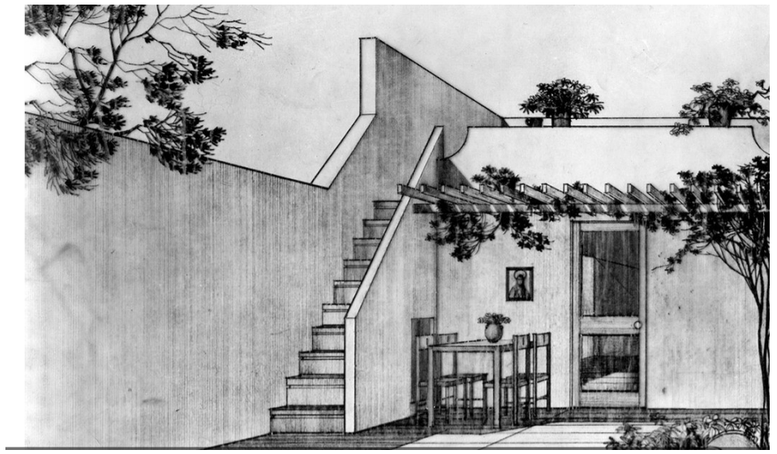
Originally, PREVI was launched as an international competition among well-known architects to find a housing solution for the huge migration from the rural areas to Lima, Peru in the 60's. Along with the National Government, UN and the Housing Bank of Peru. It was lead by Peter Land and the aim was to create high density and low-rise.

Moreover, its urban scheme is designed not as individual dwellings for modest people. It was proposed to create communal spaces and get attached by the sense of belonging.

1. *Atelier 5 (Suiza)*
2. *Kikutake / Kurokawa /Maki (Japón)*
3. **Herbert Ohl (Alemania) (no construido)**
4. *Center for environmental structure*, Christopher Alexander (EEUU)
5. Candilis /Josic /Woods (Francia)
6. Charles Correa (India)
7. Oskar Hansen y Svein Hatloy (Polonia)
8. Íñiguez de Onzoño y Vázquez de Castro (España)
9. Toivo Korhonen (Finlandia)
10. James Stirling (Reino Unido)
11. Knud Svenssons (Dinamarca)
12. Aldo E. van Eyck (Holanda)
13. Esguerra /Sáenz/Urdaneta/Samper (Colombia)

NOTA:
En negrilla, los proyectos premiados.
En amarillo, los proyectos analizados.





6.3 The cluster

-Mid-rise
-Human scale prevail
- Personal scale enable transformations over time
- Location of the volumes enables open and close spaces- richer spatial relations
- Better use for sunlight and circluation of air.

Talking abut the high rises....."For a poor Indian or Peruvian family
who cannot afford more than one or two rooms, to live in the 10th floor is absolute hell. Especially when you have several children, the elevators break down, and the water and electric supply are erratic- in addition to all the other calamities that are part of their everyday lives".

Charles Correa (p 17, PREVI, The Experimental Housing Project)

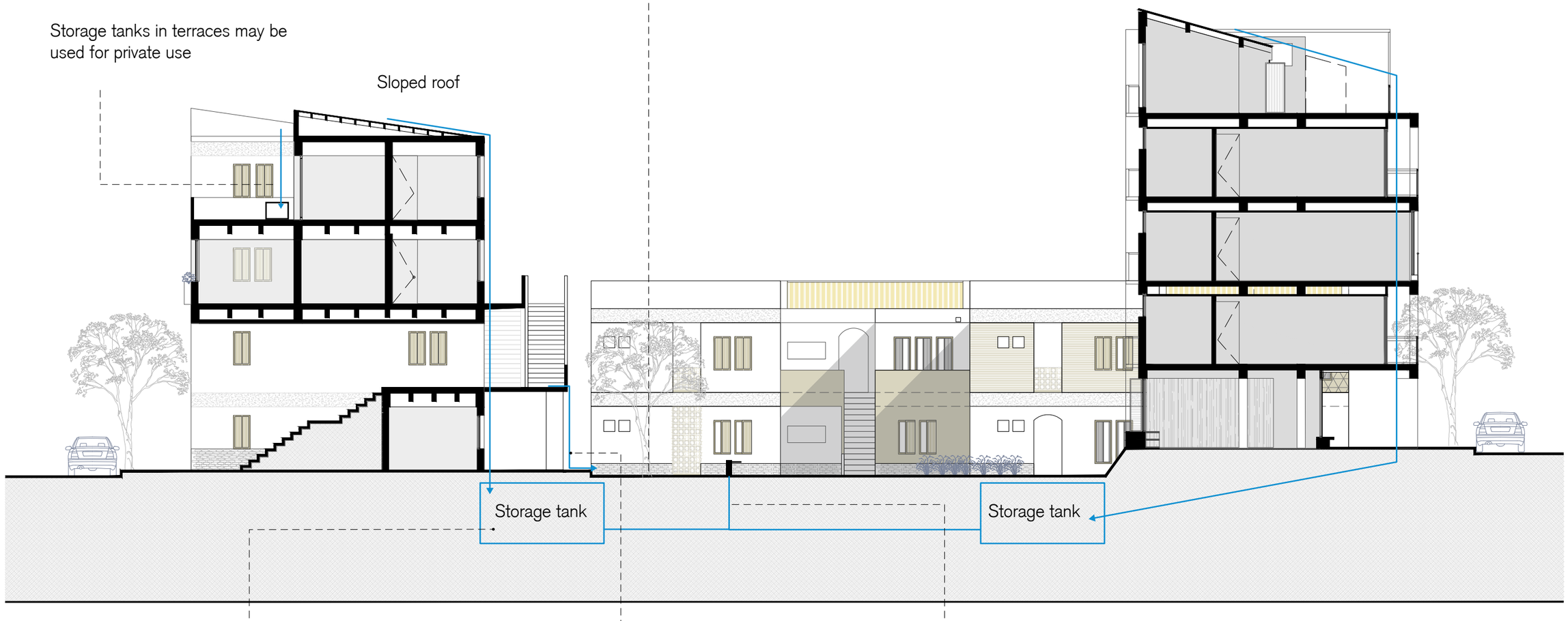
The courtyard relations

6.4 Climate

Storage tanks in terraces may be used for private use

Sloped roof

Permeable paving with green joints to ensure water infiltration



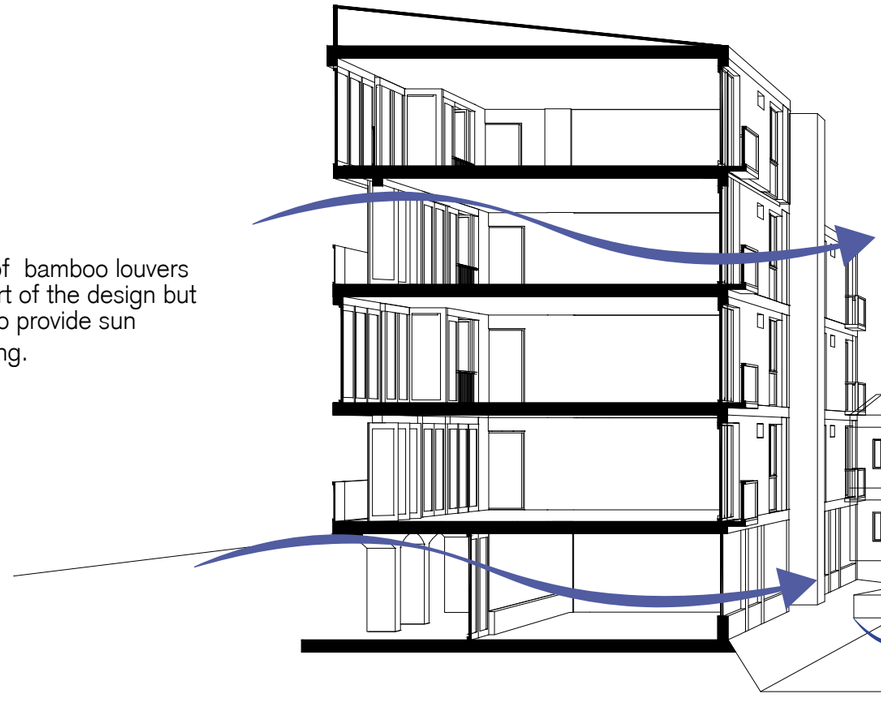
Rain water harvest in a ground water tank below the gallery minimizing the risk of infiltration in the main building structure

Rain water from paths and terraces runoff to the green concrete paver

Used for washing clothes and for garden or crops irrigation

Esc 1_150

Use of bamboo louvers as part of the design but also to provide sun shading.



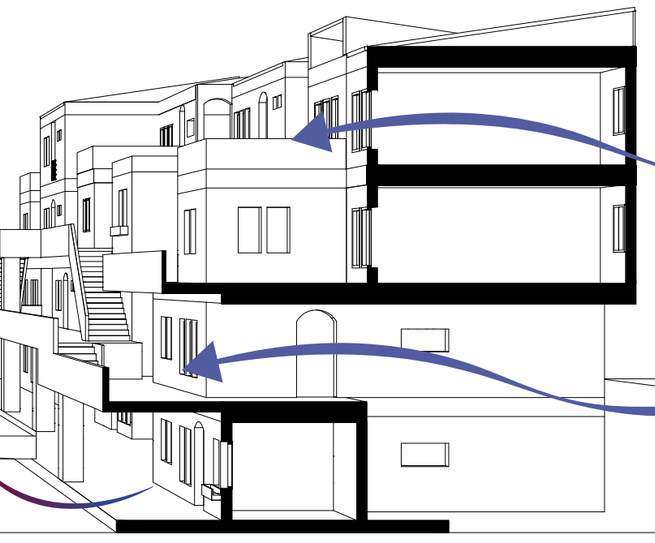
Middle income typology

Cross ventilation in all spaces

CSEB walls absorb the heat during the day, and at night it is released adding thermal comfort to the residents

Terraces and paths are used as sun shading elements in the afternoon

The facade composition enables doubles heights and terraces which add porosity to the interior of the building. This porosity provide a continous circulation of air .

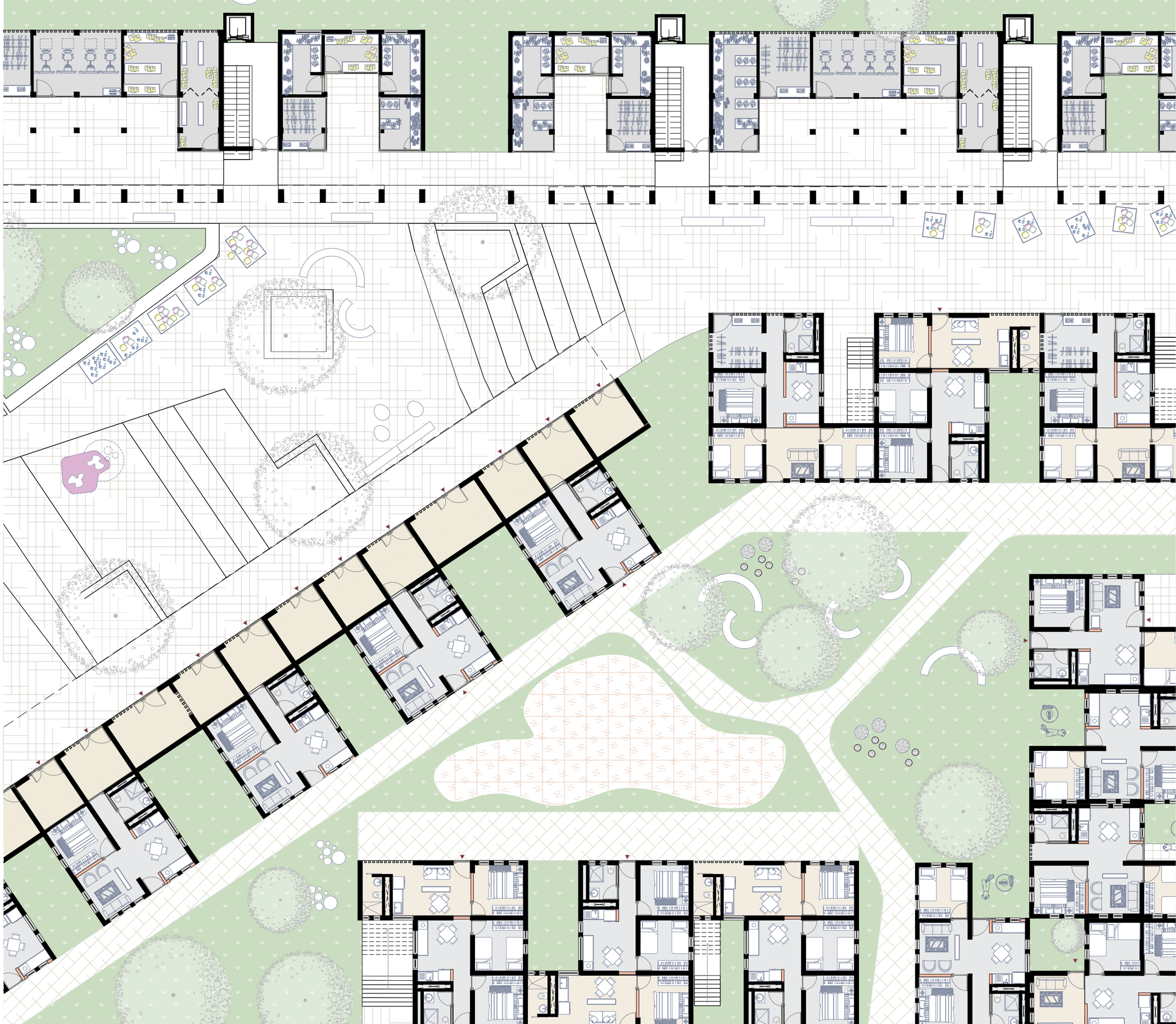


Low income typology

Esc 1_150

From the courtyard to the commons and its ground floor relations

Esc 1_250

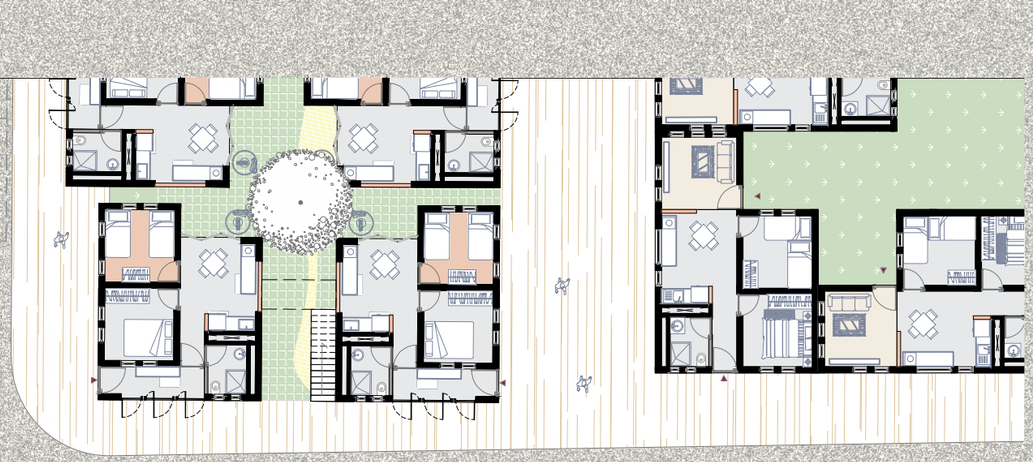


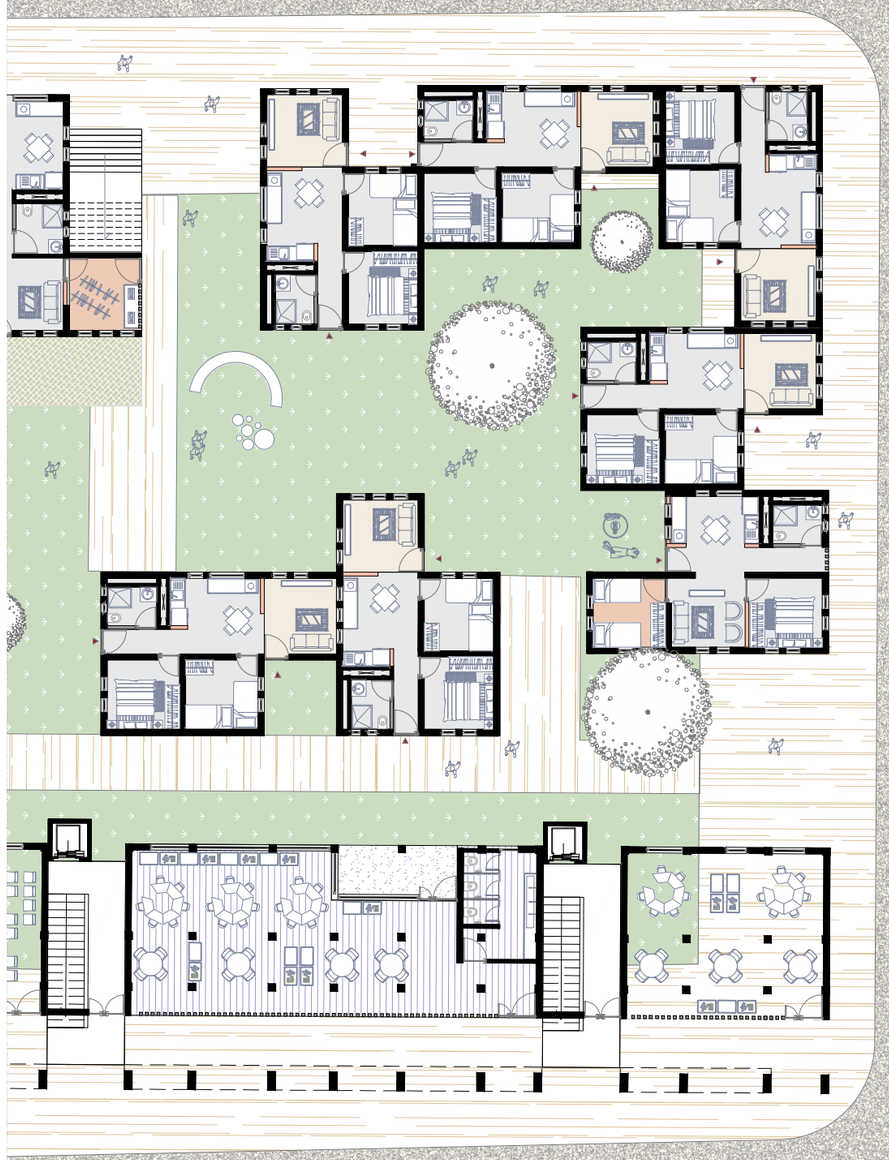
From the courtyard to the commons and its ground floor relations

Esc 1_150

The street life

Esc 1_250





The street life

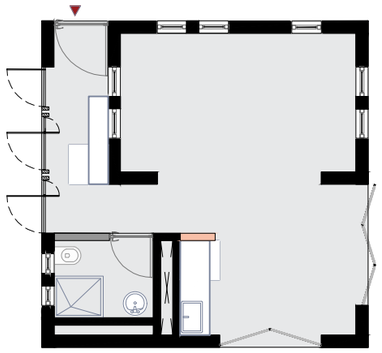
Towards a more inclusive scenario

Esc 1_250

Towards a more inclusive scenario

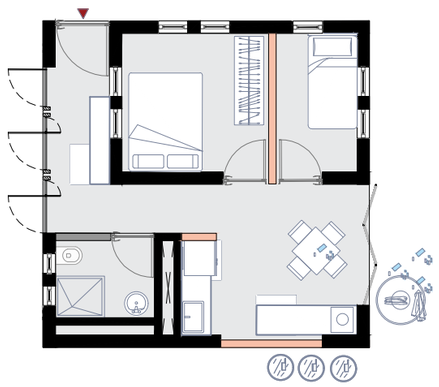
6.5 The productive units

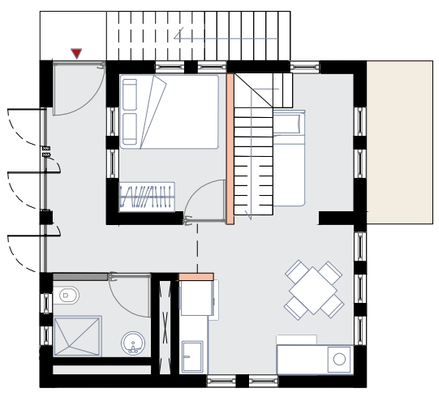
Core house
(Only has the basic supplies)



Ground floor core house unit

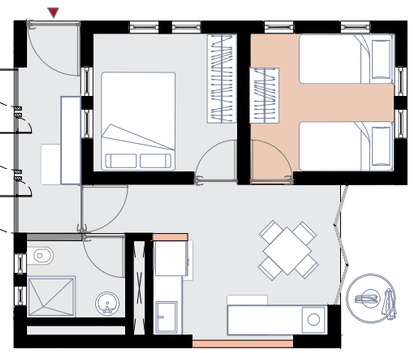
44 smq

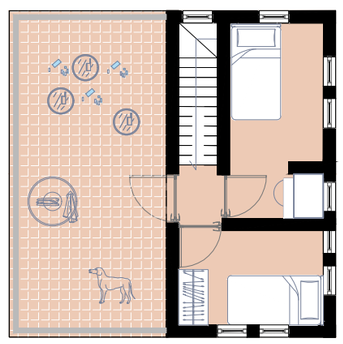




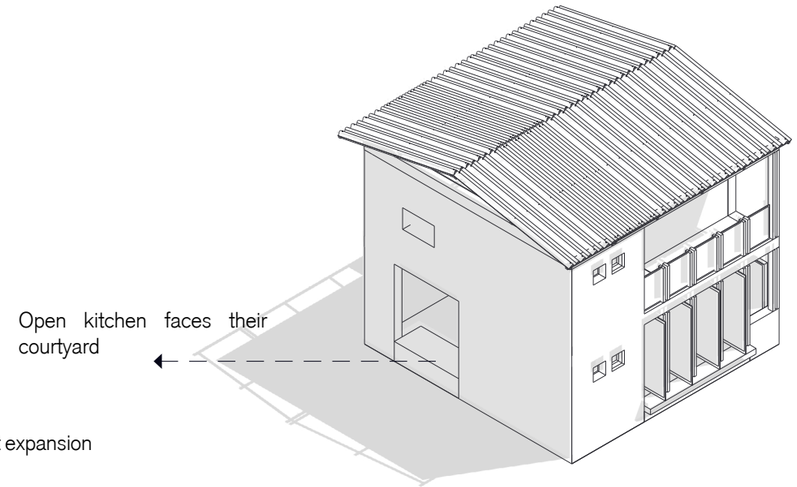
Ground house unit expansion
(on the back)

50 smq

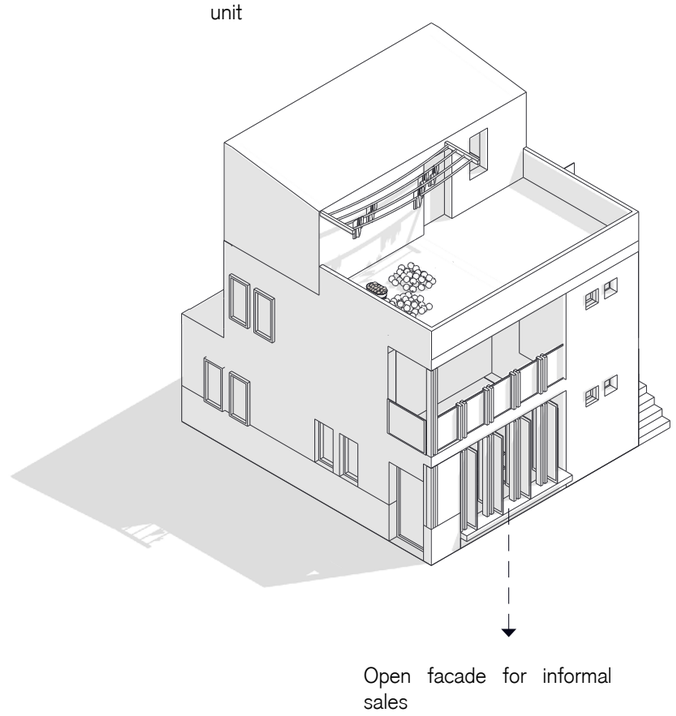




2 units per household
Original stage

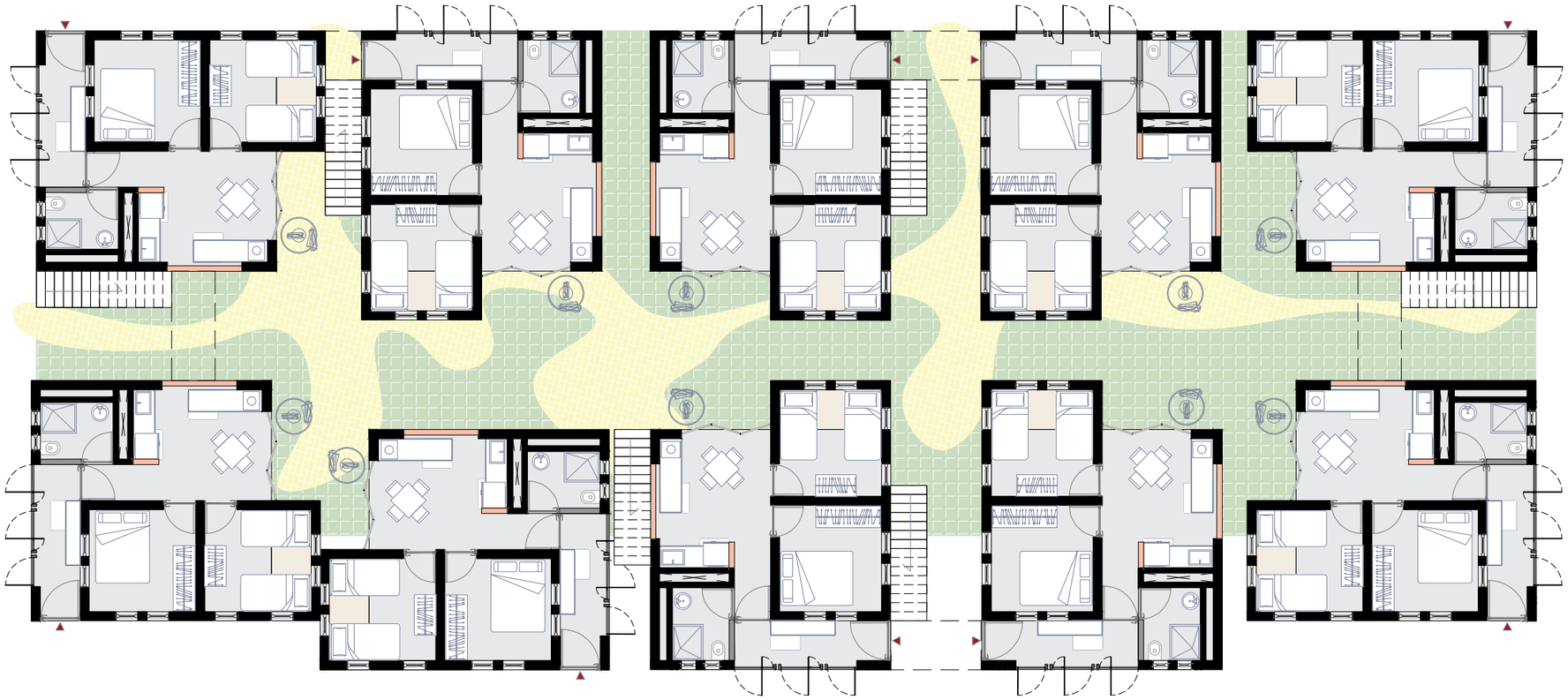


Expansions on the 1st floor unit



Esc 1_125

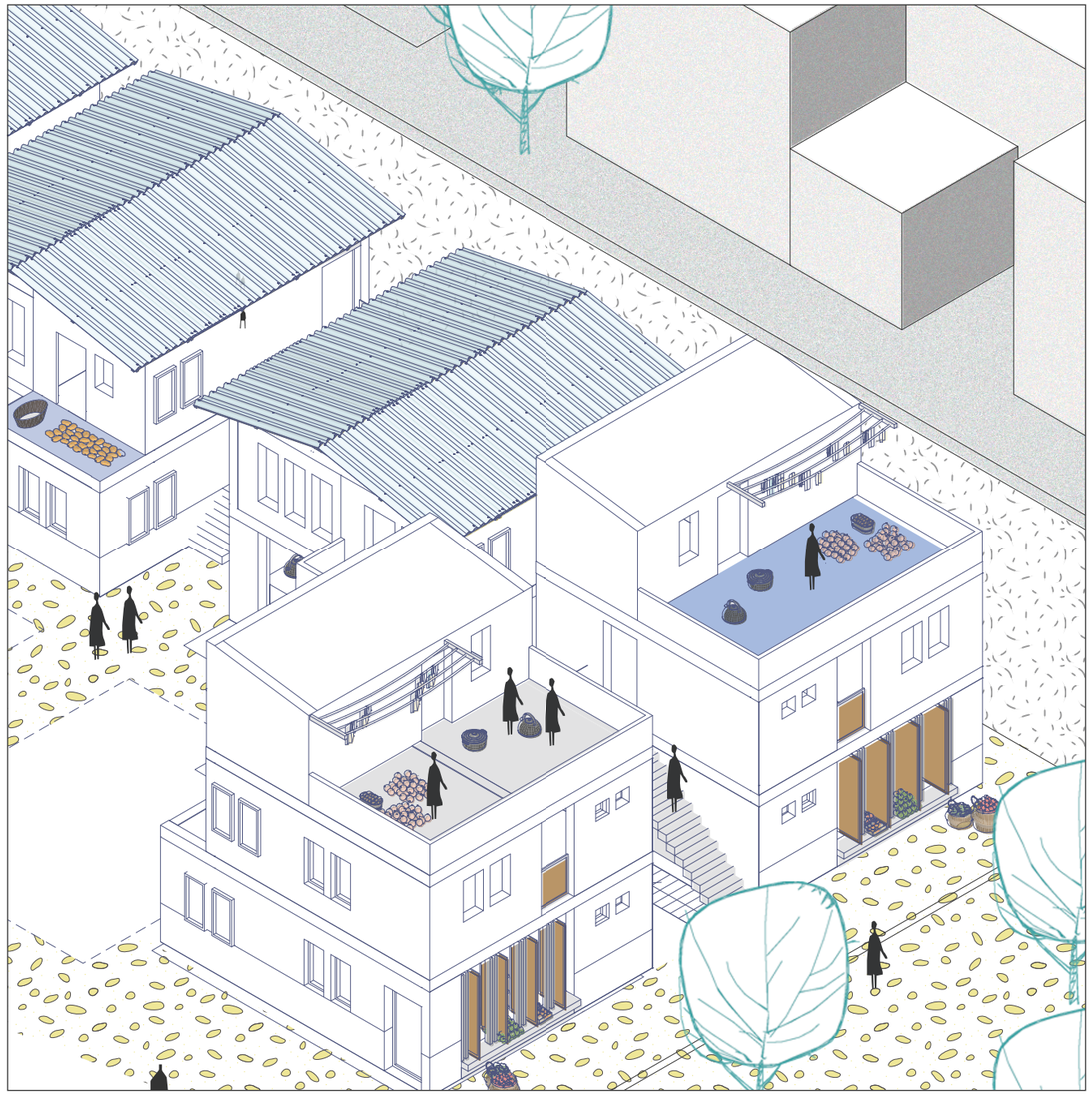
The compound



Esc 1_125

The kitchen and the courtyard

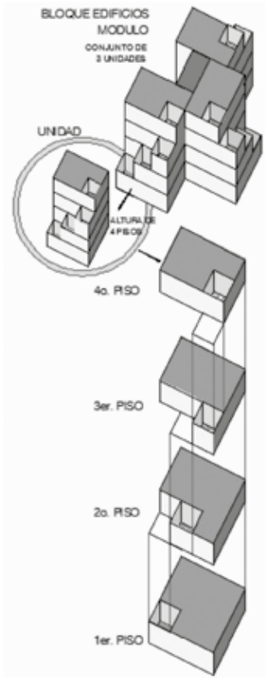
Re interpretation of the veranda for a new use



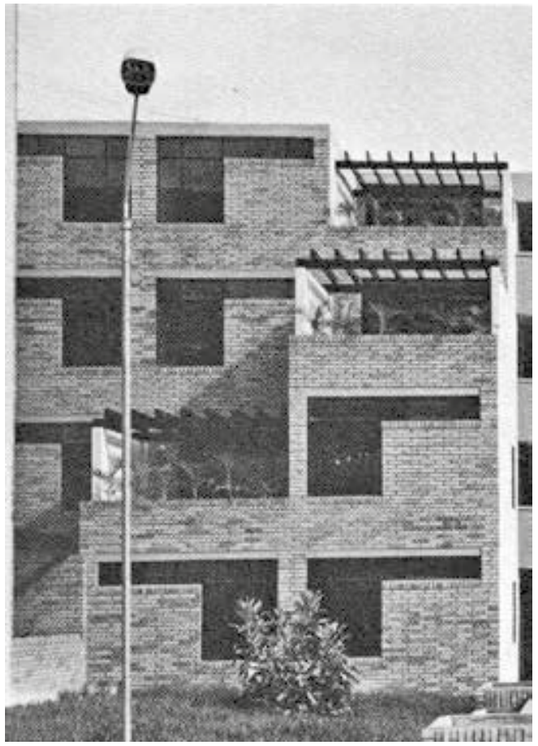
Unidad Residencial Santiago de Cali (URESA)

Instituto de Crédito Territorial ICT

Cali, Colombia, 1971



Principle of receding modules on each floor



Initial construction
Units had terraces

Nowadays
Terraces became the expansions of the units

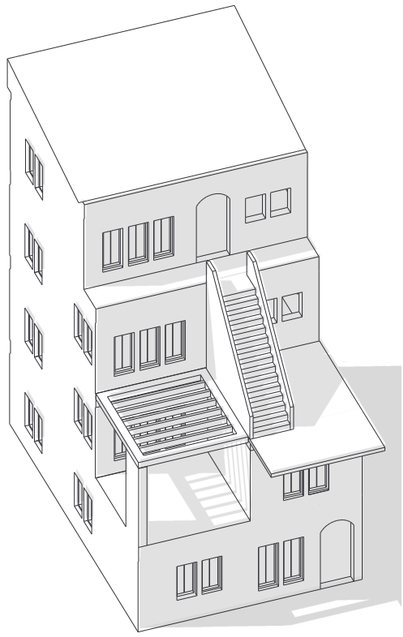
Source:
Archivo. Instituto de Crédito Territorial

6.5 The L typology

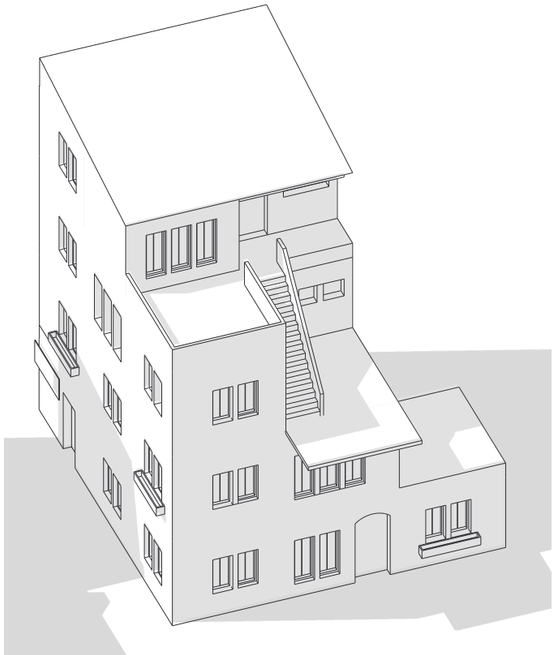
Core unit

Expansion module

Original state



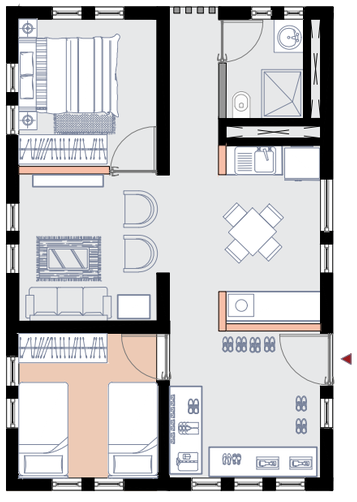
Evolution of the compund



1. Ground floor

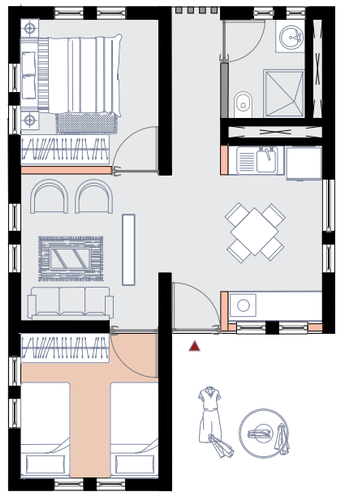
4 bedroom appartment
67.5 sqm without extensions
75 sqm with extension

First floor



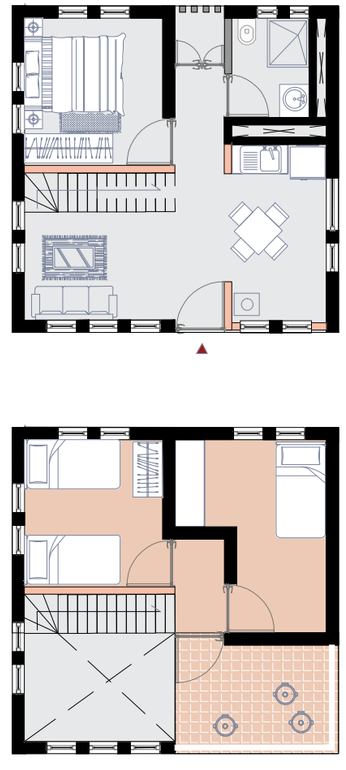
3 bedroom appartment
55 sqm without extensions
67.5 sqm with extension

Second floor



3 bedroom appartment
44 sqm without extensions
55 sqm with extension

Third floor



4 bedroom appartment
44 sqm without extensions
80 sqm with extension

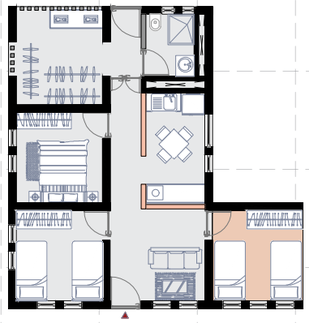
Esc 1_125

Corner units

Units between party walls

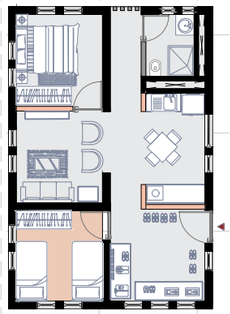
Units next to staircase

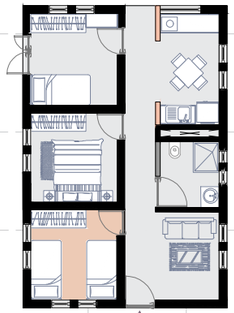
Ground floor



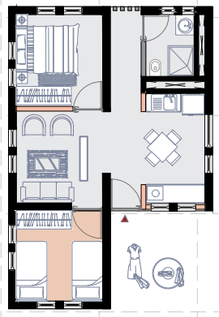
Studio option

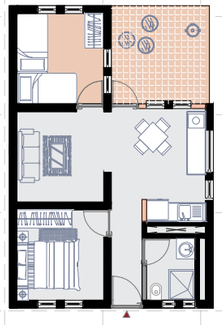
First floor

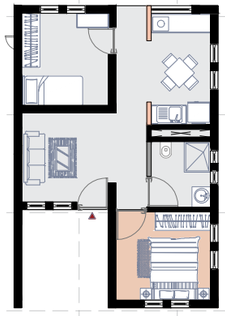




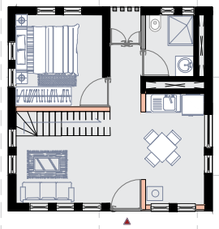
Second floor

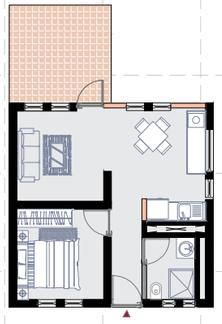






Third floor



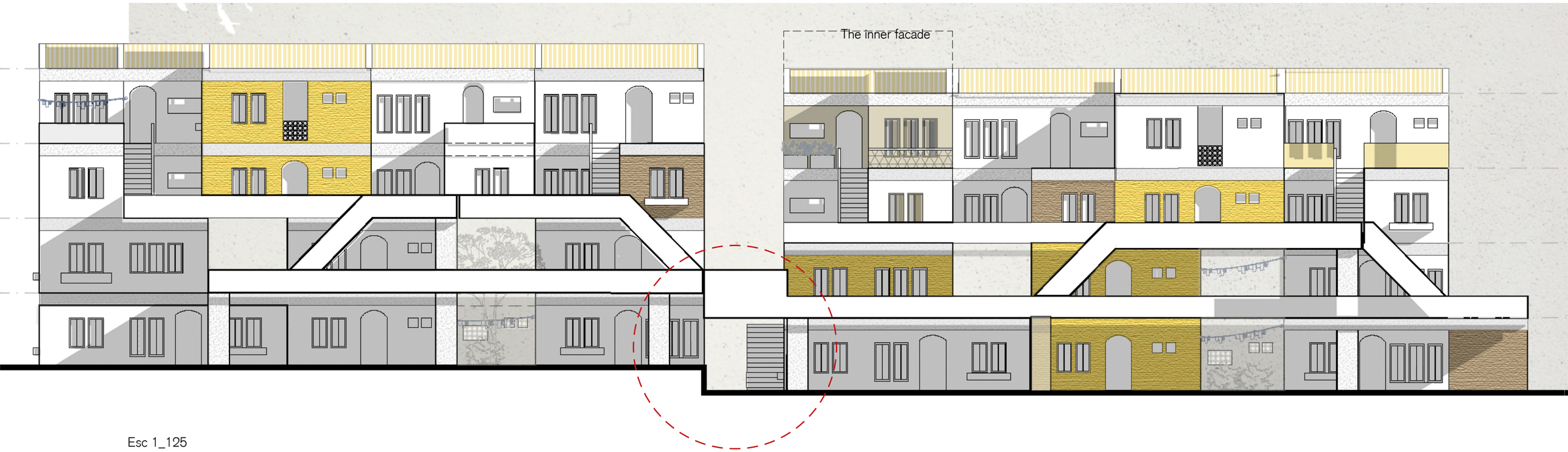


Core unit

Expansion module

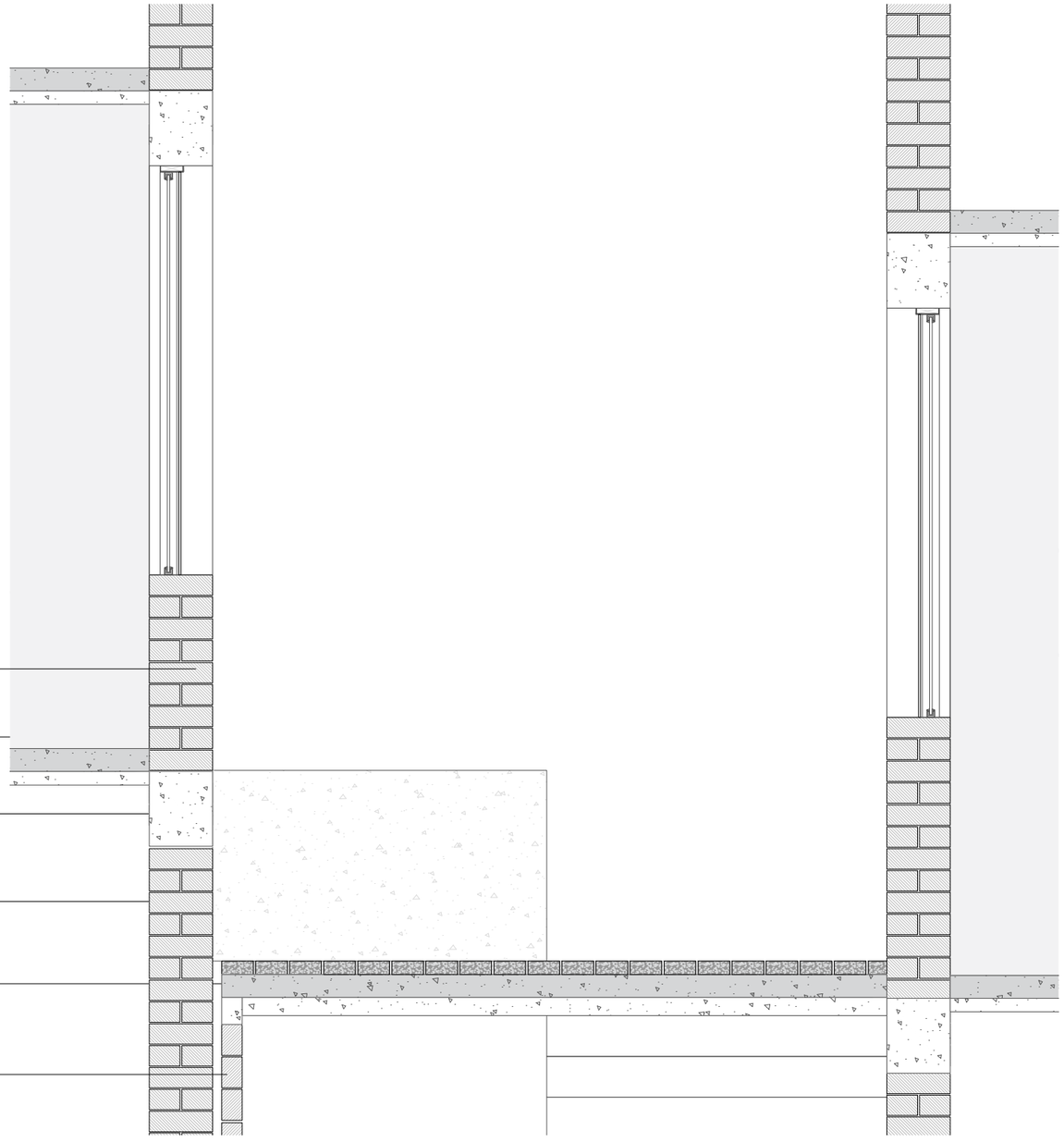
Esc 1_200

The cluster



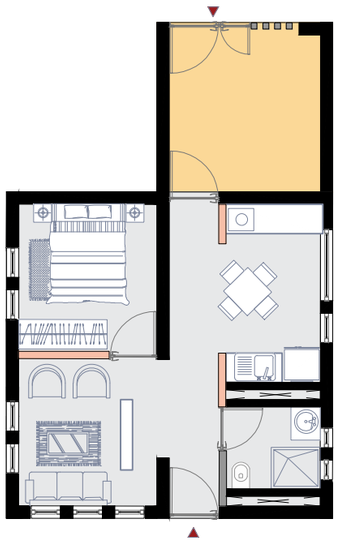
Esc 1_125

Topography difference

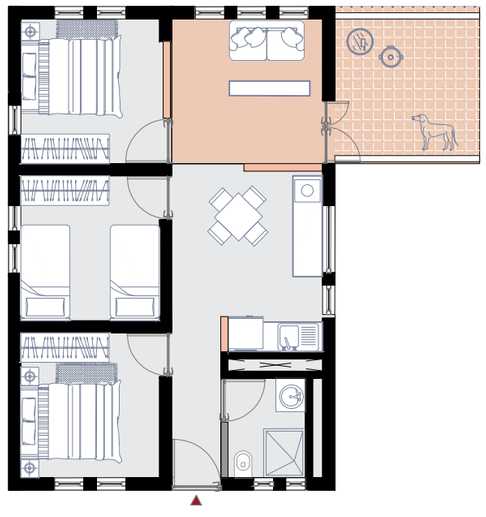


6.6 Commercial units

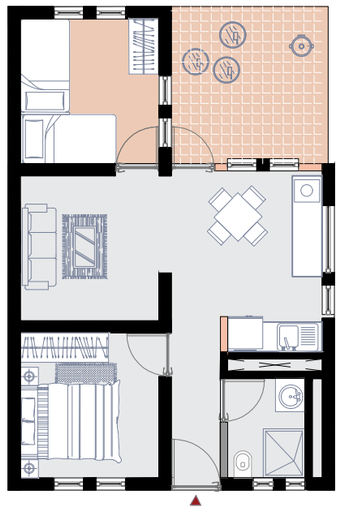
1. Ground floor

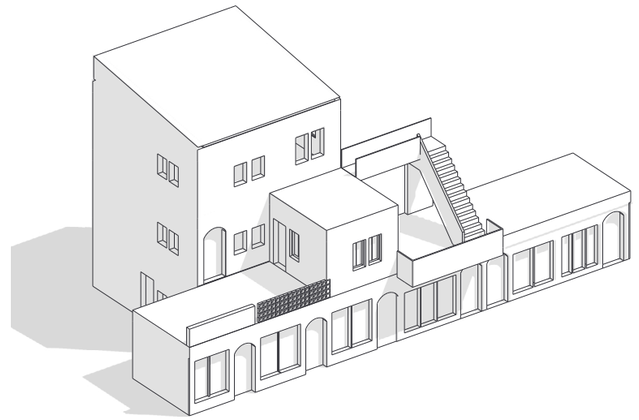


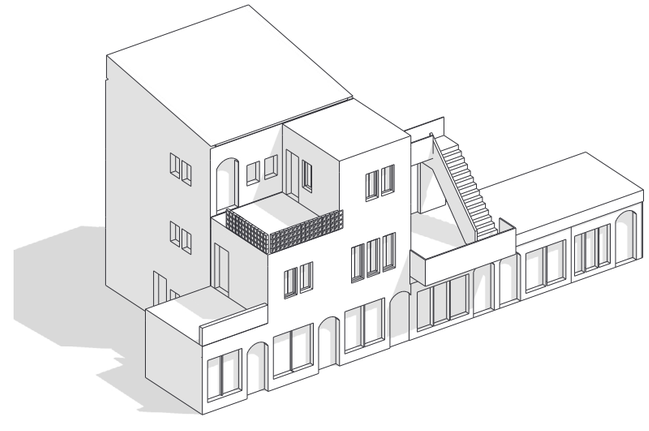
First floor



Second floor





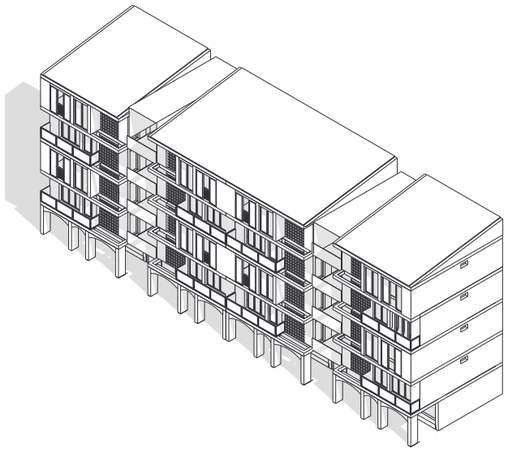


Core unit

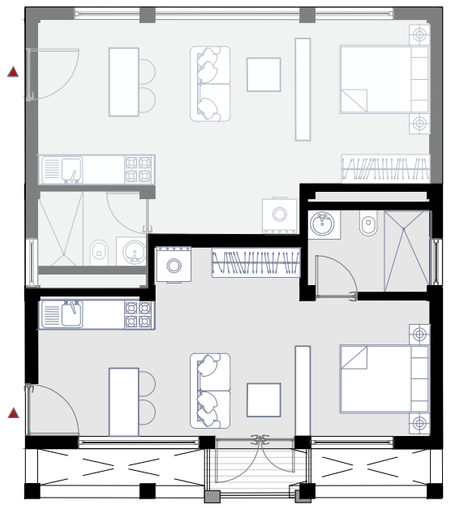
Expansion module

Esc 1_125

6.7 Portico Typology

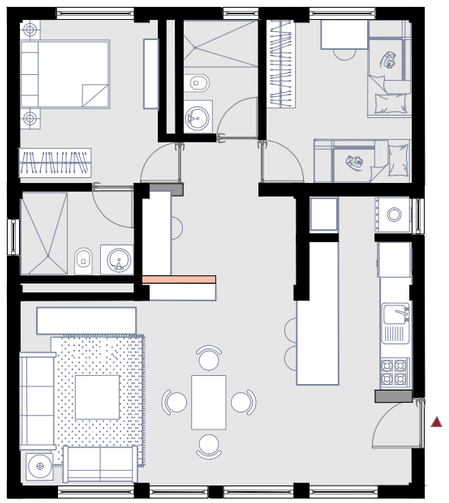


Option 1_ Studio
40 smq

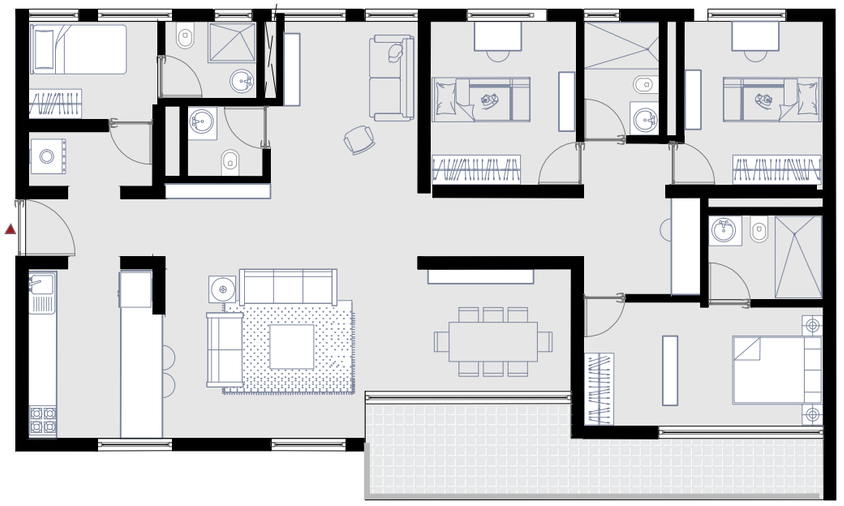


Esc 1_125

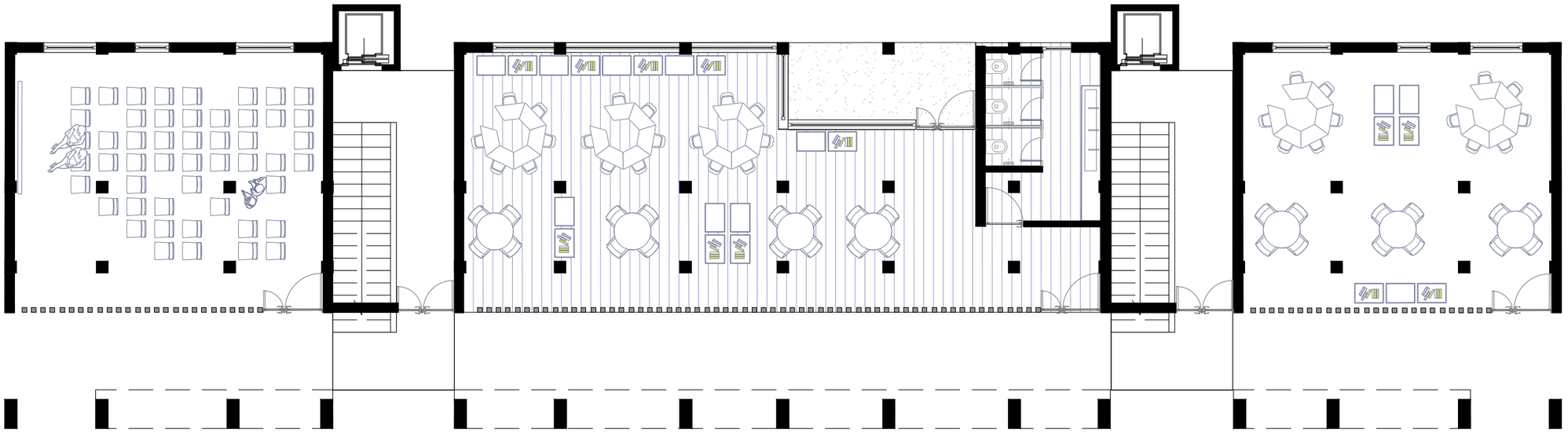
Option 2_ 2 bedroom appartment
80 sqm



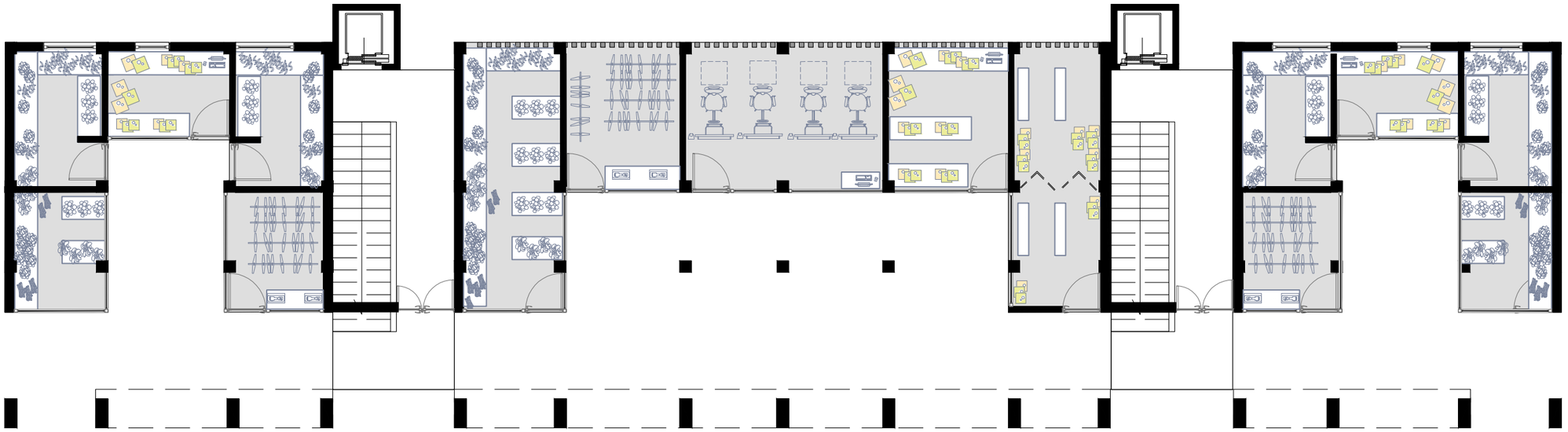
Option 3_ 4 bedroom appartment
160 sqm



Ground floor educational facility

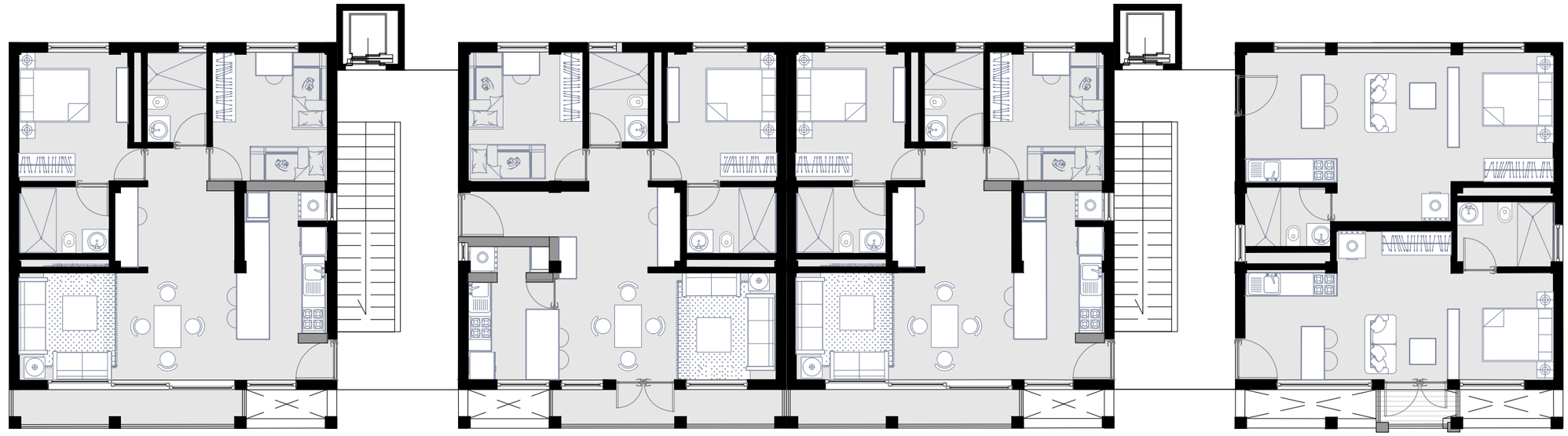


Ground floor option services use

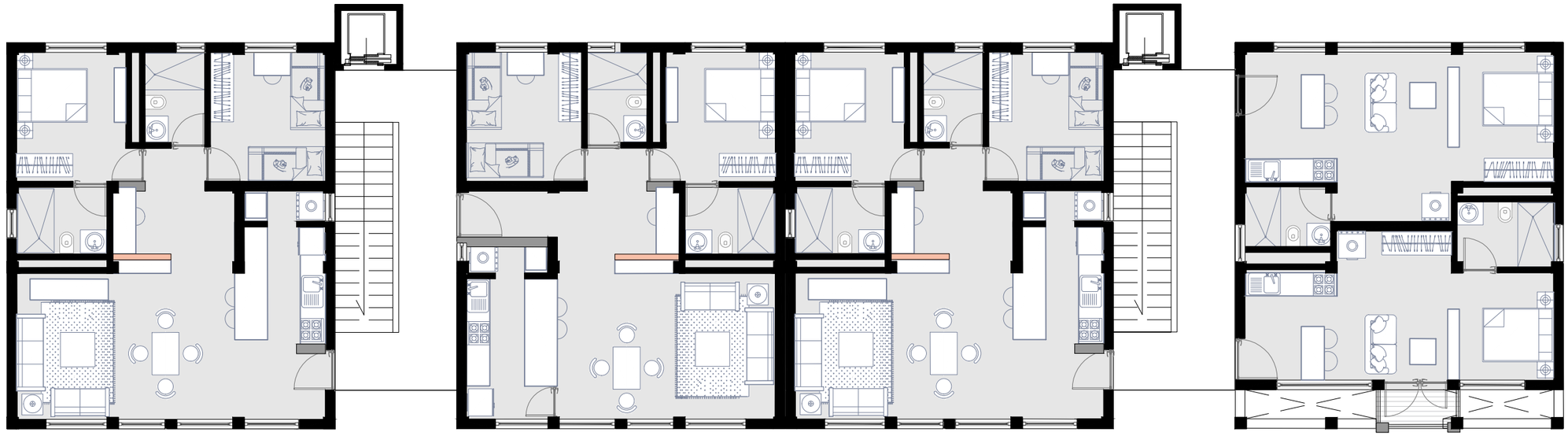


Esc 1_125

Type floor with balcony



Type floor without balcony



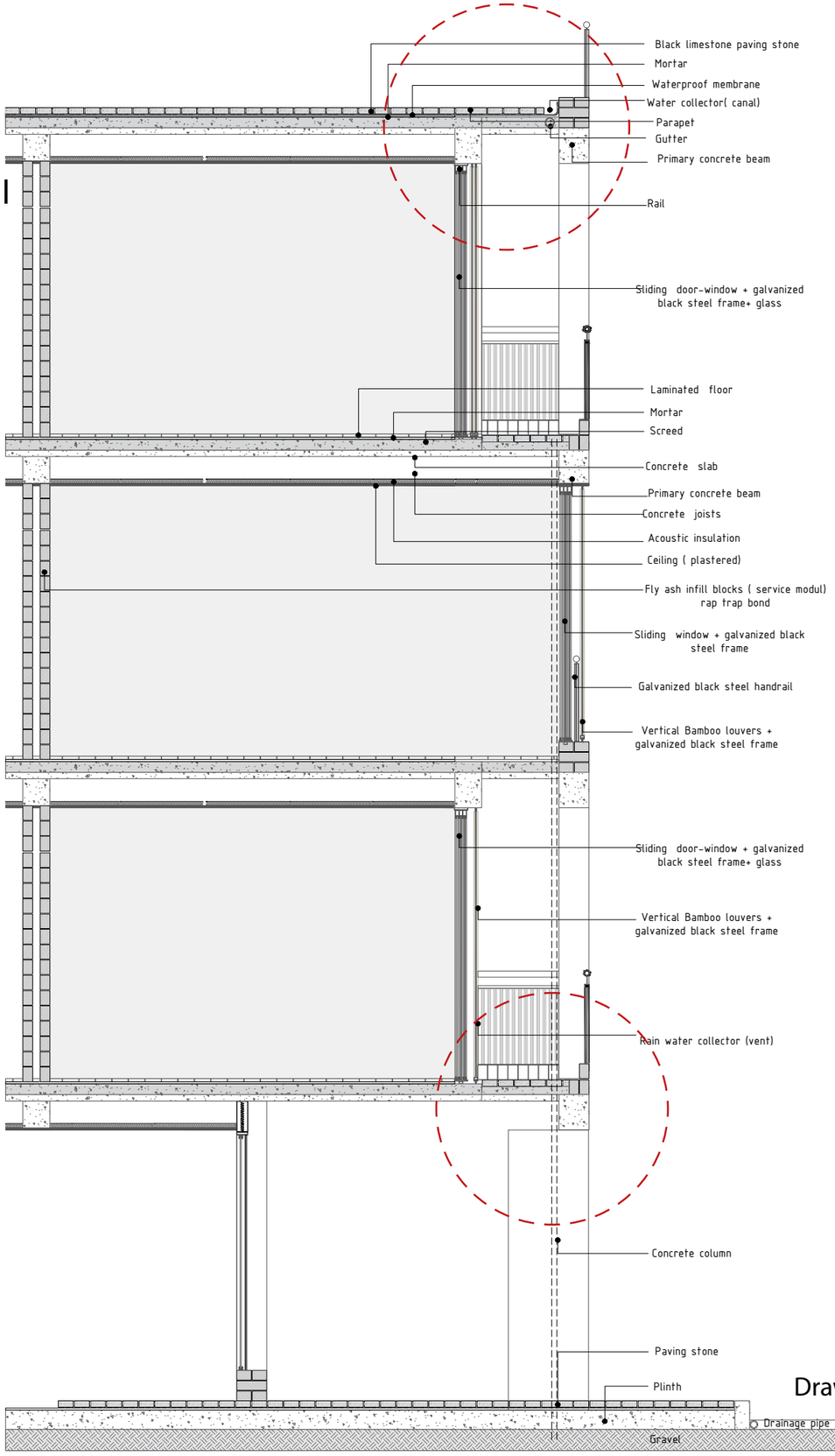
Esc 1_125

Main section

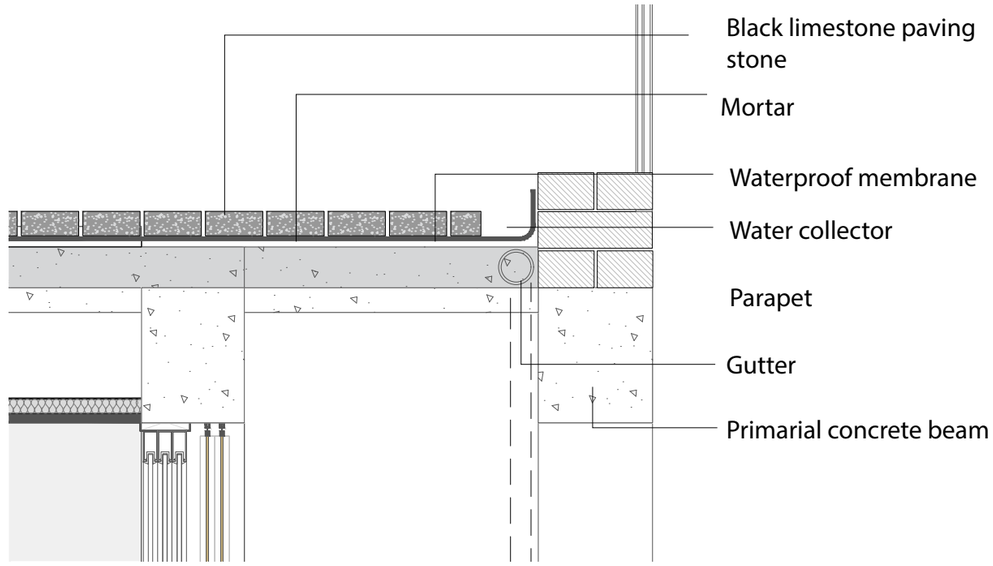
Esc 1_125

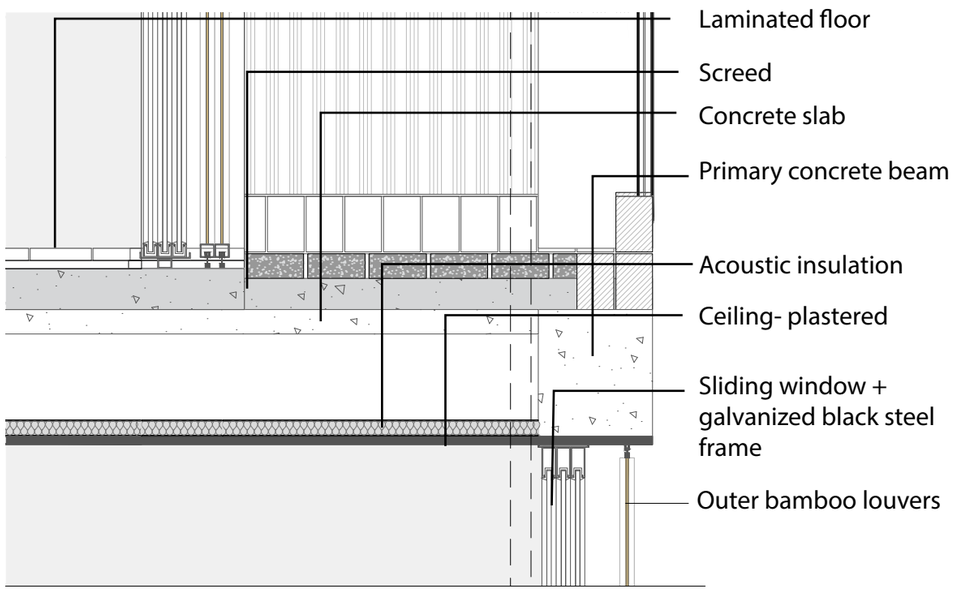
Portico | Detail

Facade detail



Drawing 1_50





Drawing 1_15

"Informal expansion of the houses has given the neighborhood its own identity, the houses no longer reflect only the design of the well-known architects, but also the identity of the people who live in the houses, with their diverse contributions, tastes and expectations, who are happy to live in this neighborhood"

Peter Land (p14, PREVI, The Experimental Housing Project)